





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	603	780

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

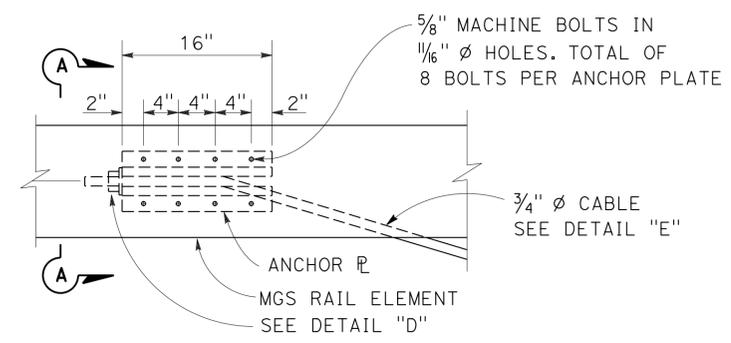
July 19, 2013  
PLANS APPROVAL DATE

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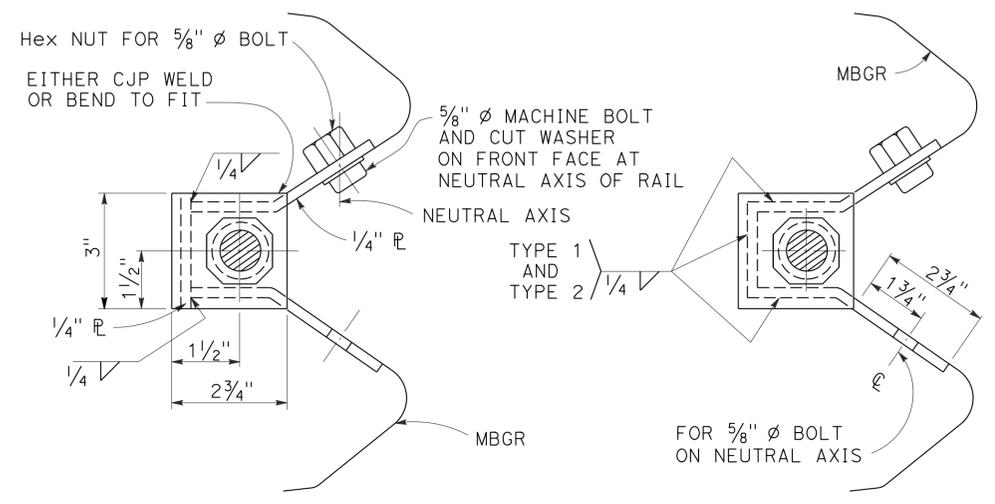
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-26-13

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

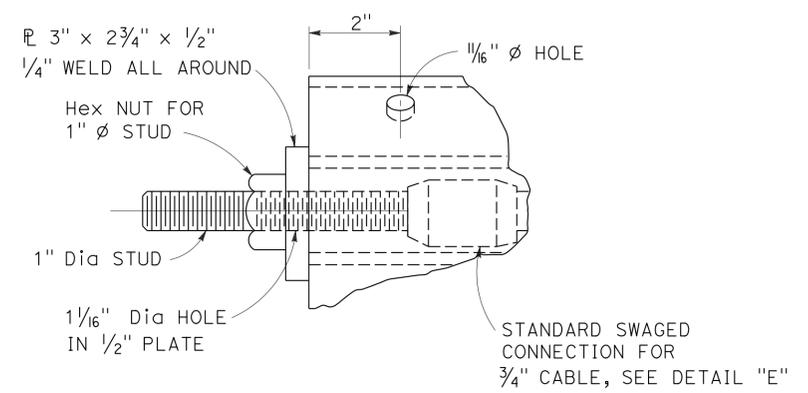


**ANCHOR PLATE DETAIL**  
(MGS shown, TBB similar)

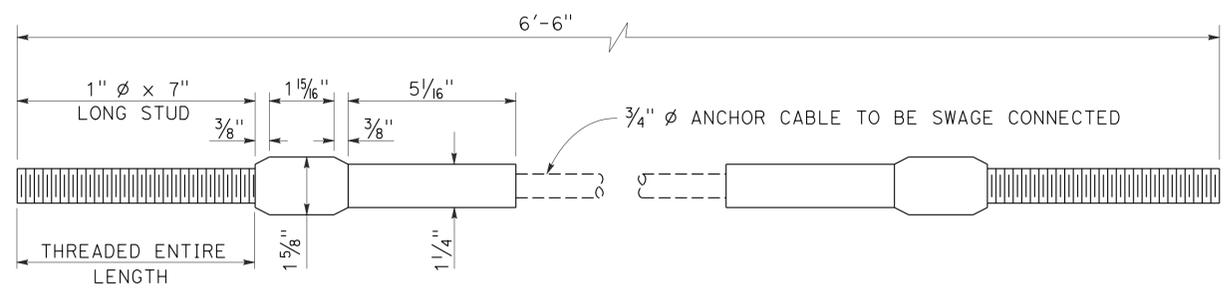


**NOTE:**  
Dimensioning applies to both types.

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



**DETAIL "D"**



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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL RAILING  
ANCHOR CABLE AND  
ANCHOR PLATE DETAILS**

NO SCALE

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

**REVISED STANDARD PLAN RSP A77S3**

2010 REVISED STANDARD PLAN RSP A77S3

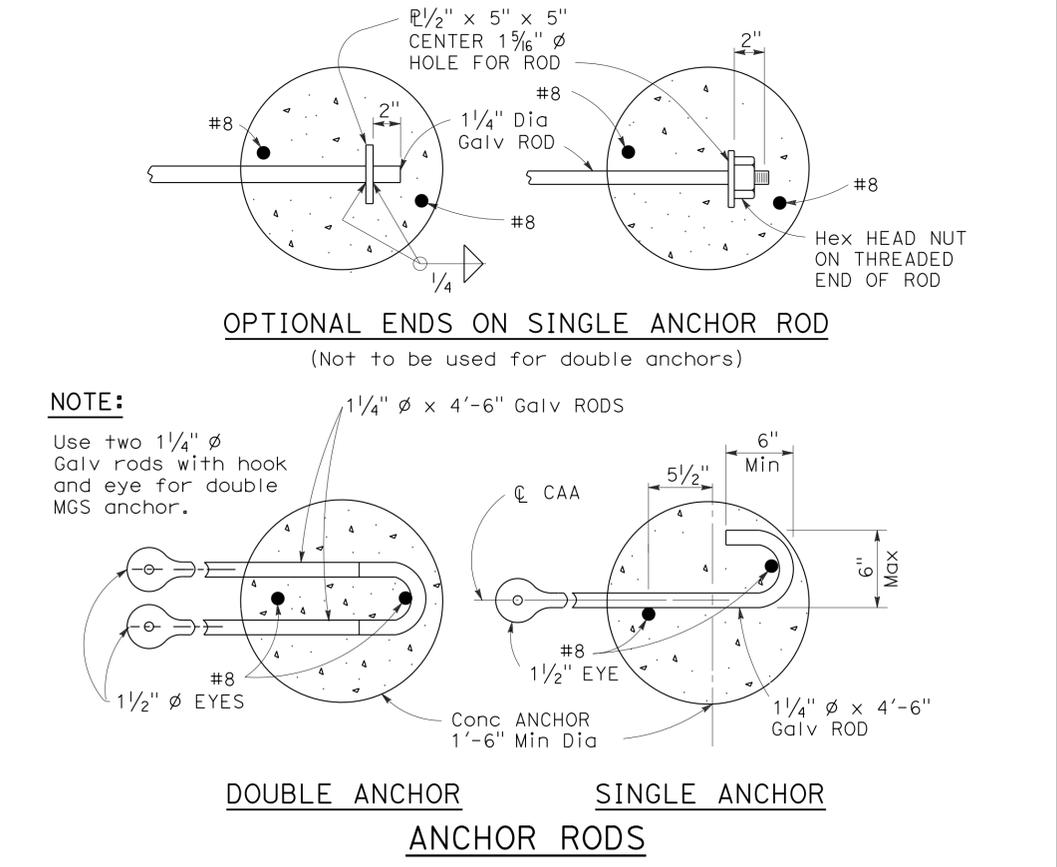
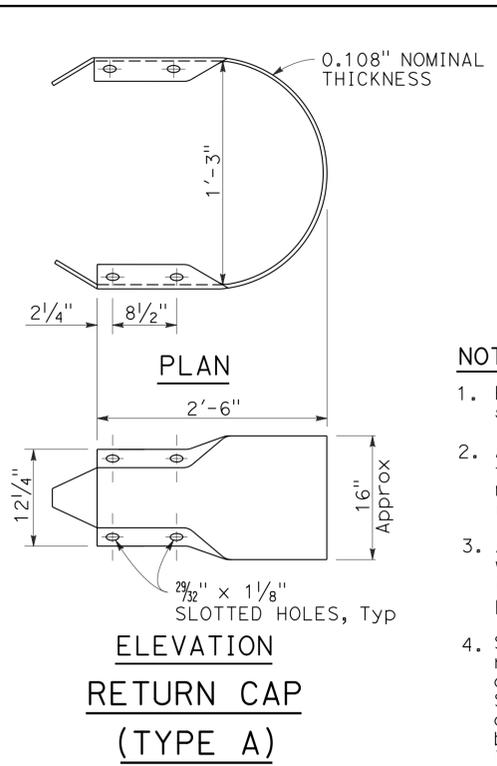
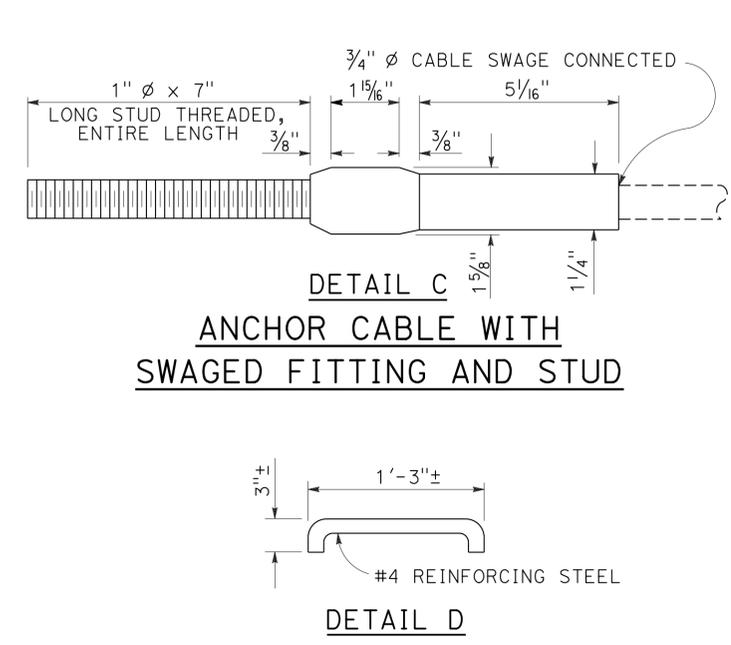
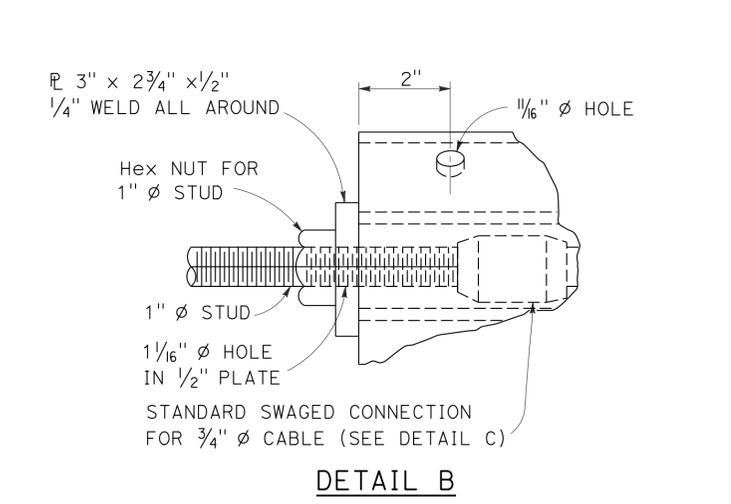
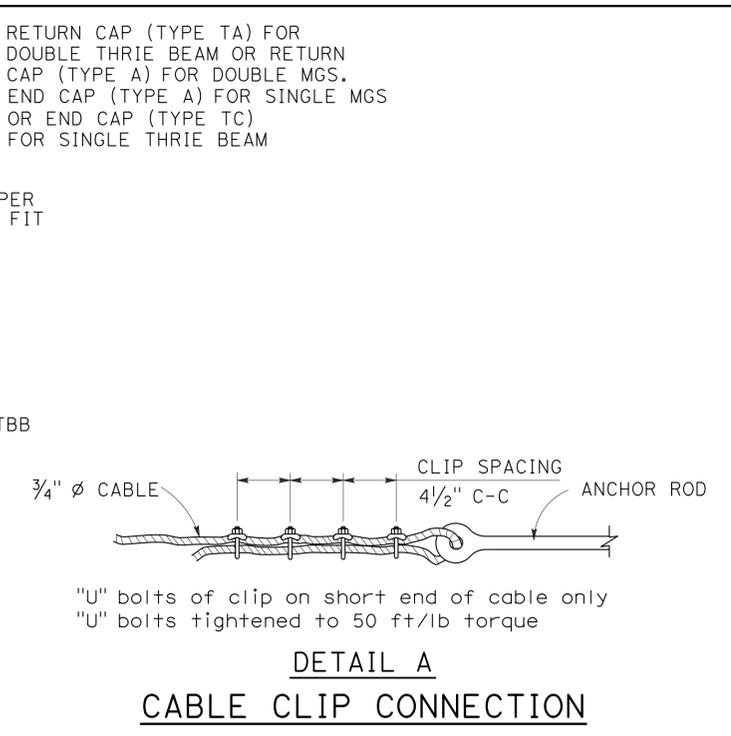
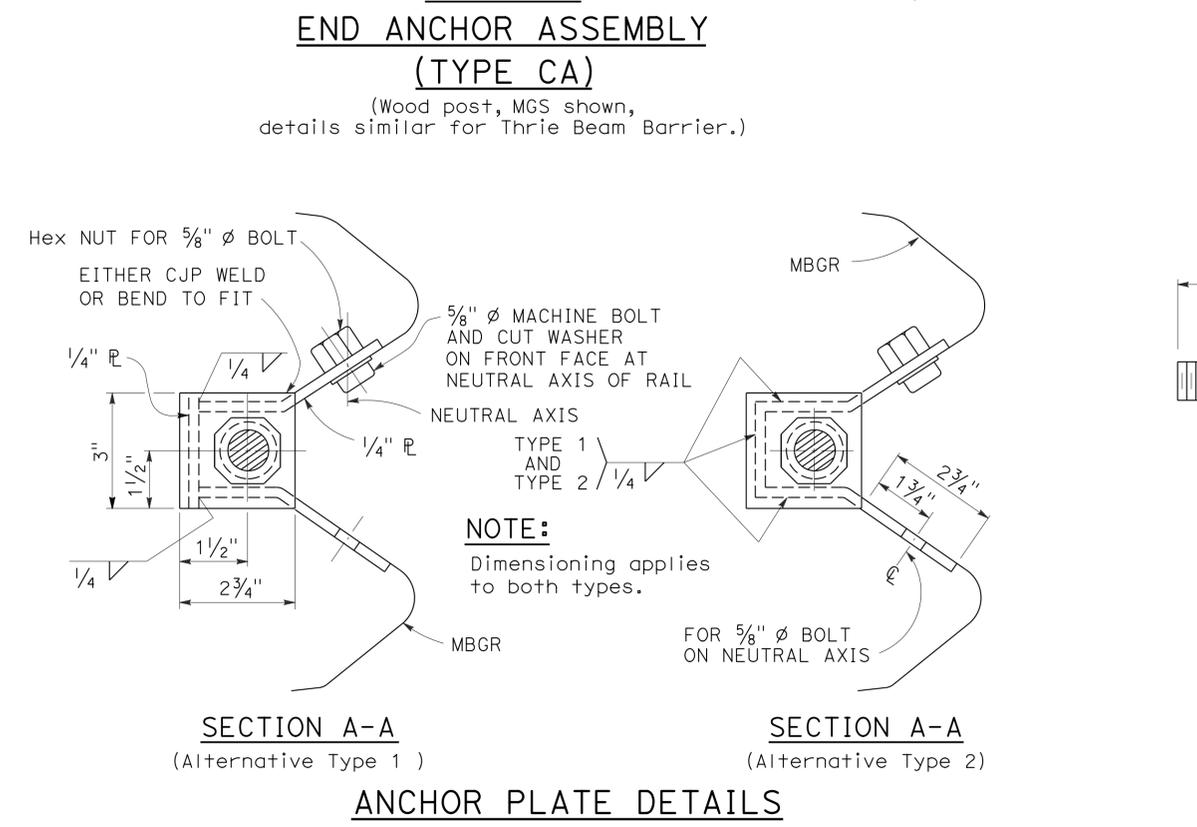
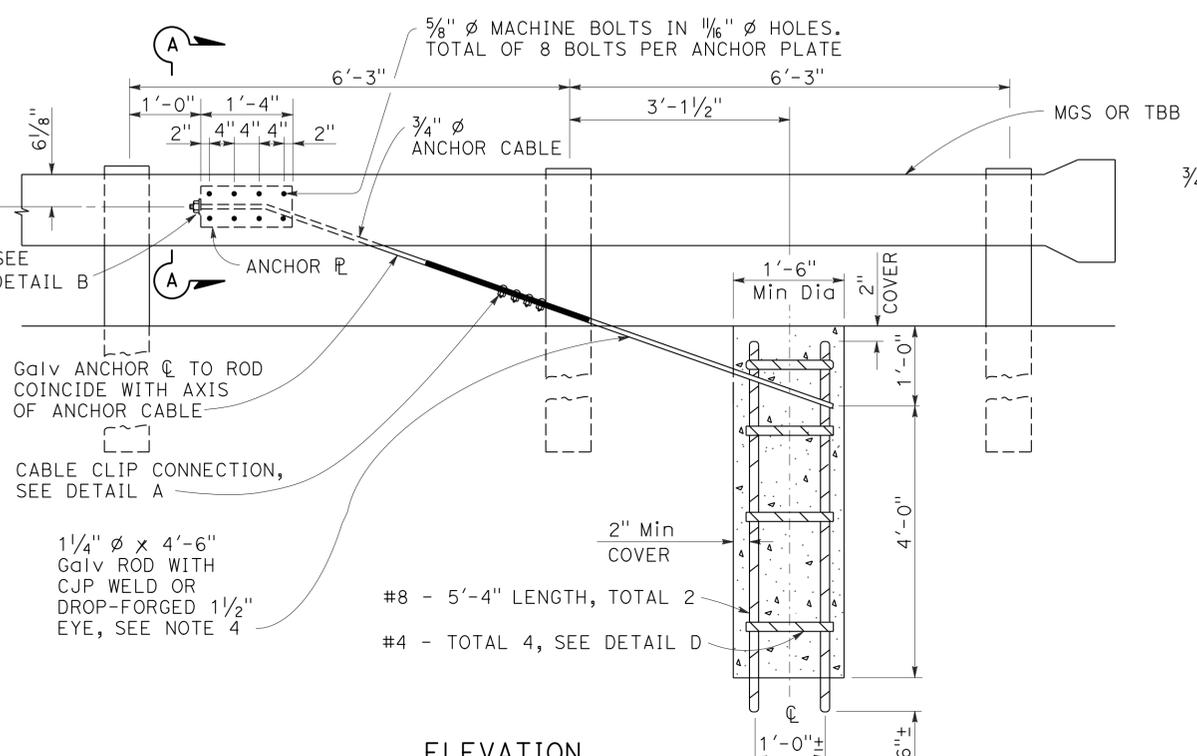
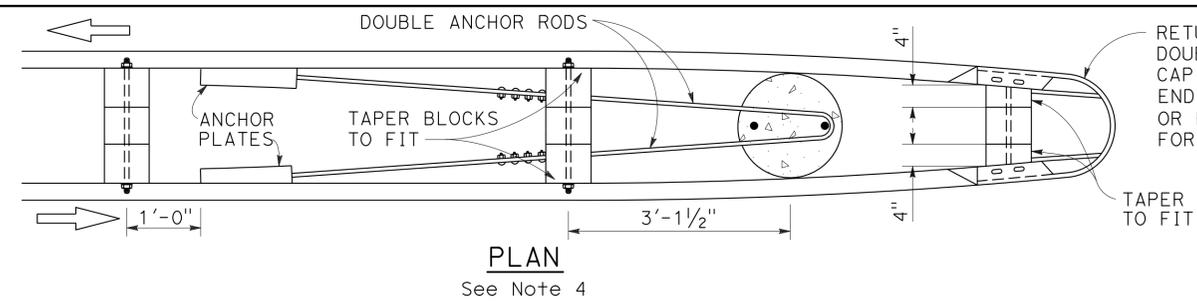
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	604	780

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
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STATE OF CALIFORNIA



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL RAILING END ANCHOR ASSEMBLY (TYPE CA)**  
NO SCALE

RSP A77T1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77T1**

2010 REVISED STANDARD PLAN RSP A77T1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	605	780

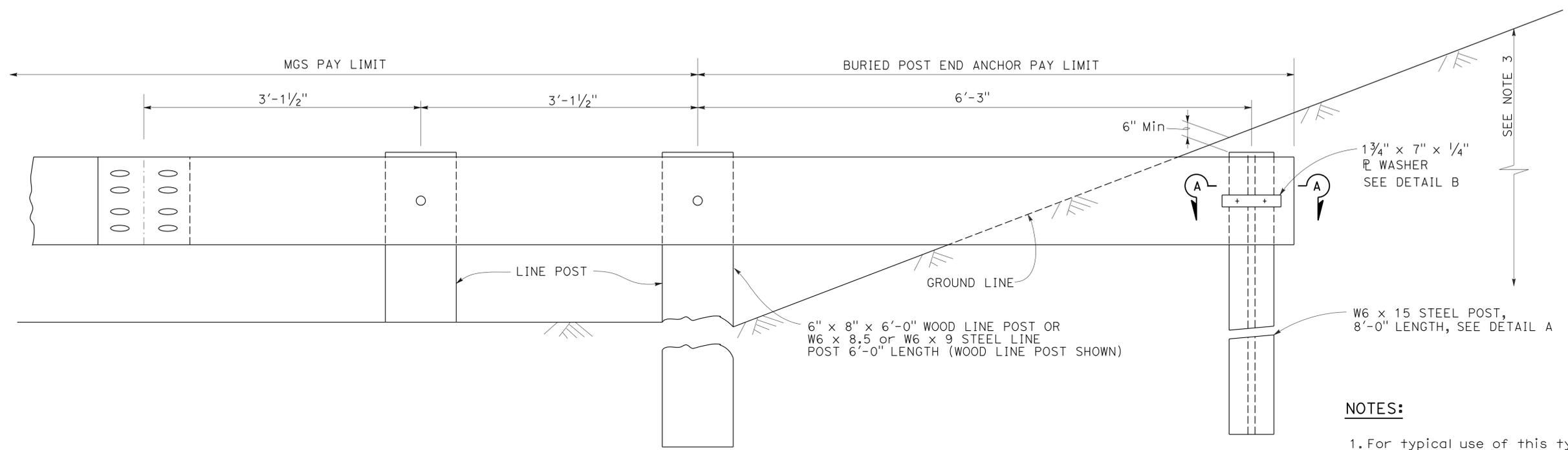
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REGISTERED CIVIL ENGINEER

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Randell D. Hiatt  
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Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-26-13

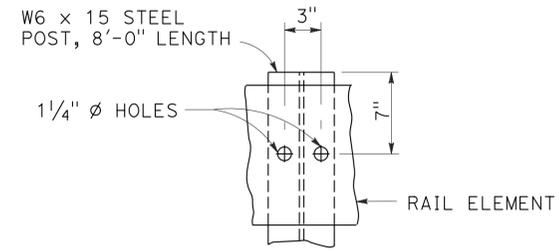


**BURIED POST END ANCHOR**

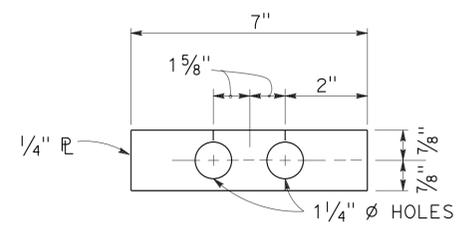
See Note 3

**NOTES:**

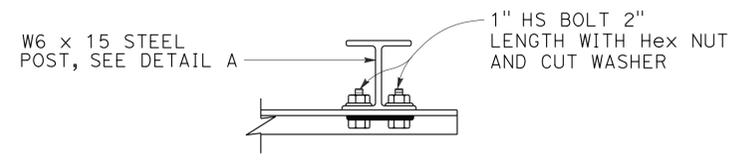
1. For typical use of this type of end anchor with MGS see the A77P, A77Q and A77R Series of the Standard Plans.
2. Holes excavation in the slope to construct the buried post end anchor shall be backfilled with selected earth, placed in layers approximately 1'-0" thick. Each layer shall be moistened and thoroughly compacted.
3. The buried post end anchor shall only be constructed at those locations where the slope perpendicular to the roadway is non-traversable.



**DETAIL A**



**DETAIL B**



**SECTION A-A**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
BURIED POST END ANCHOR**

NO SCALE

RSP A77T2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77T2**

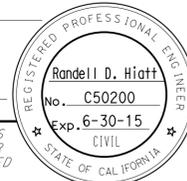
2010 REVISED STANDARD PLAN RSP A77T2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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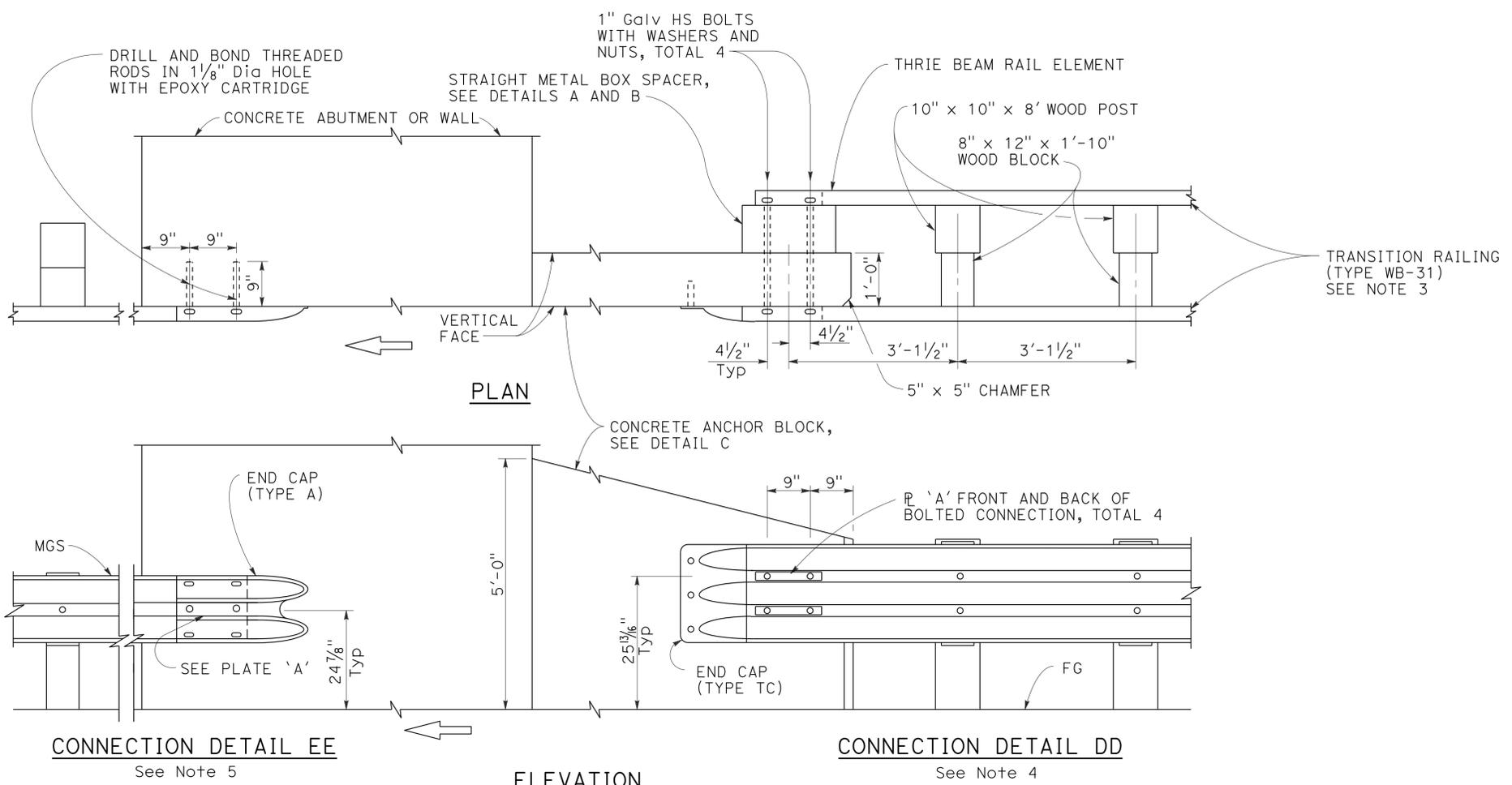
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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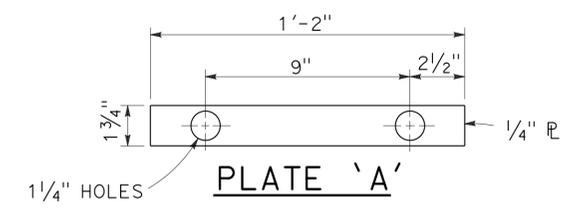
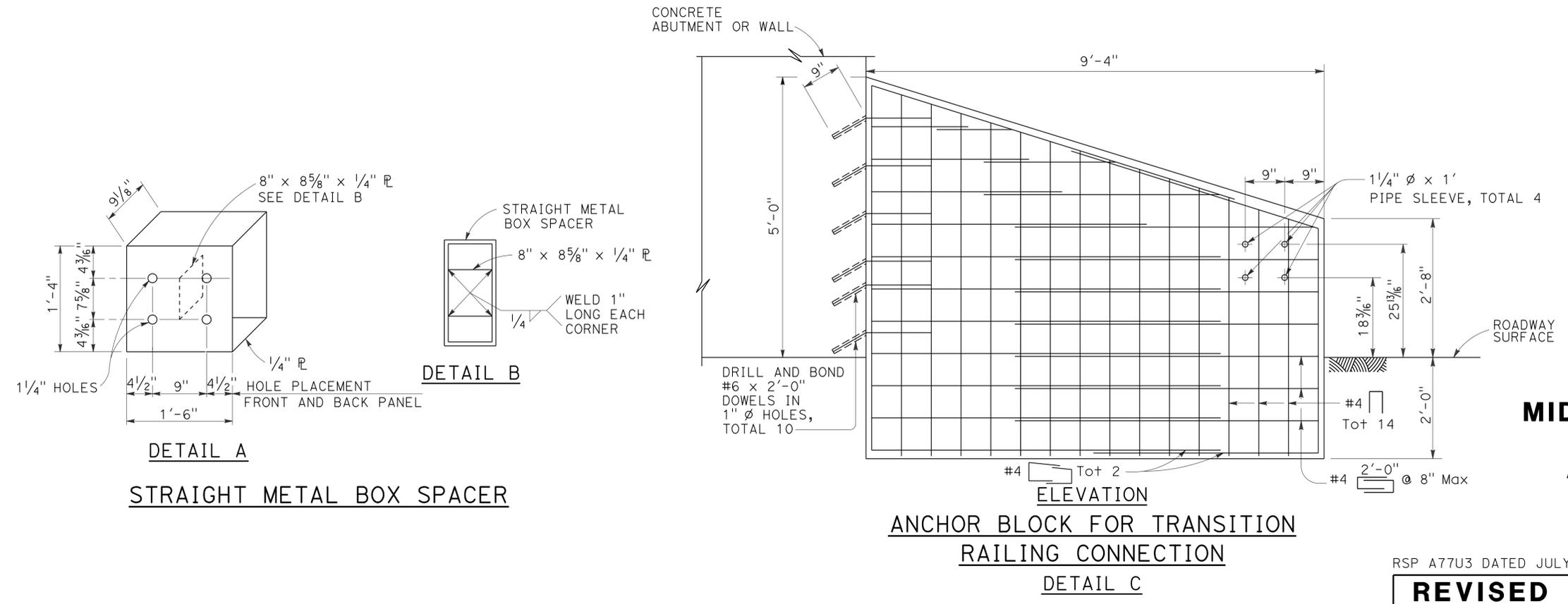
TO ACCOMPANY PLANS DATED 8-26-13



**NOTES:**

1. These connection details apply to abutments and walls.
2. Additional details of posts, blocks and hardware are shown on Revised Standard Plans RSP A77M1, RSP A77N1 and RSP A77N2.
3. 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 gage nested thrie beam railing section which is connected to the concrete anchor block.
4. For typical use of Connection Details DD, see Layout Types 12A and 12B on Revised Standard Plan RSP A77Q1 and Layout Types 12C and 12D on Revised Standard Plan RSP A77Q2.
5. For typical use of Connection Detail EE, see Layout Type 12D on Revised Standard Plan RSP A77Q2 and Layout Type 12DD on Revised Standard Plan RSP A77Q5.

**MIDWEST GUARDRAIL SYSTEM CONNECTION TO ABUTMENT OR WALL**



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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

NO SCALE

RSP A77U3 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77U3**

2010 REVISED STANDARD PLAN RSP A77U3

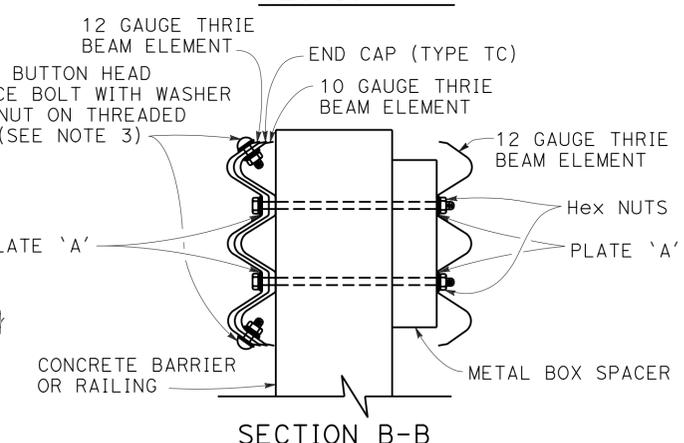
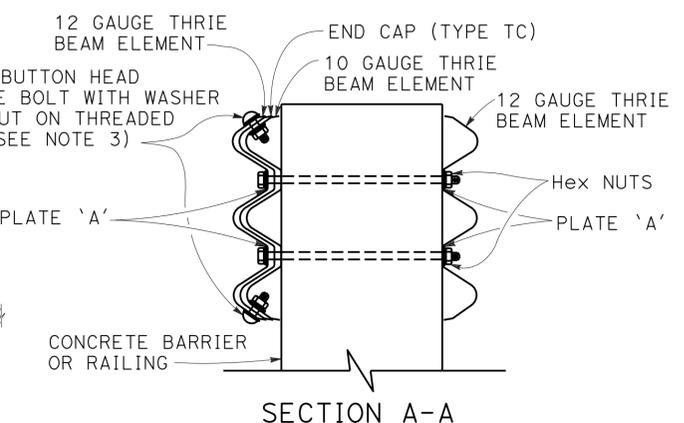
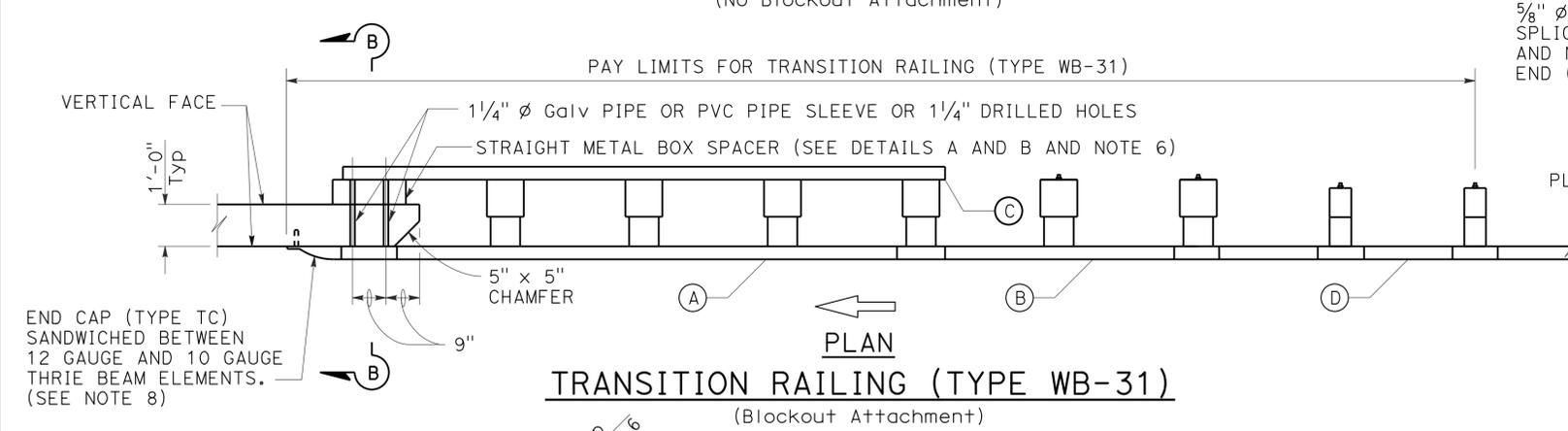
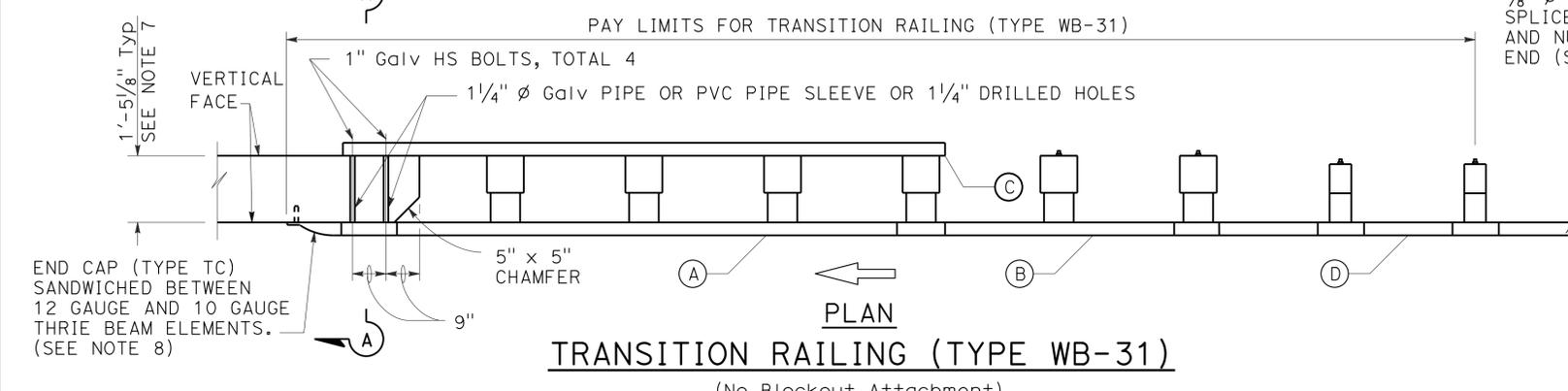
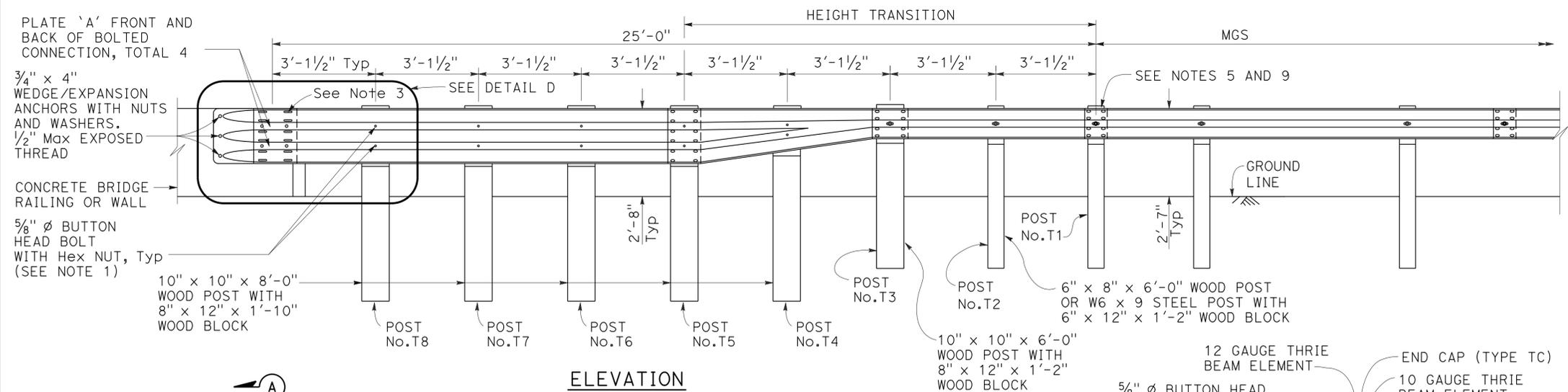
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	607	780

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

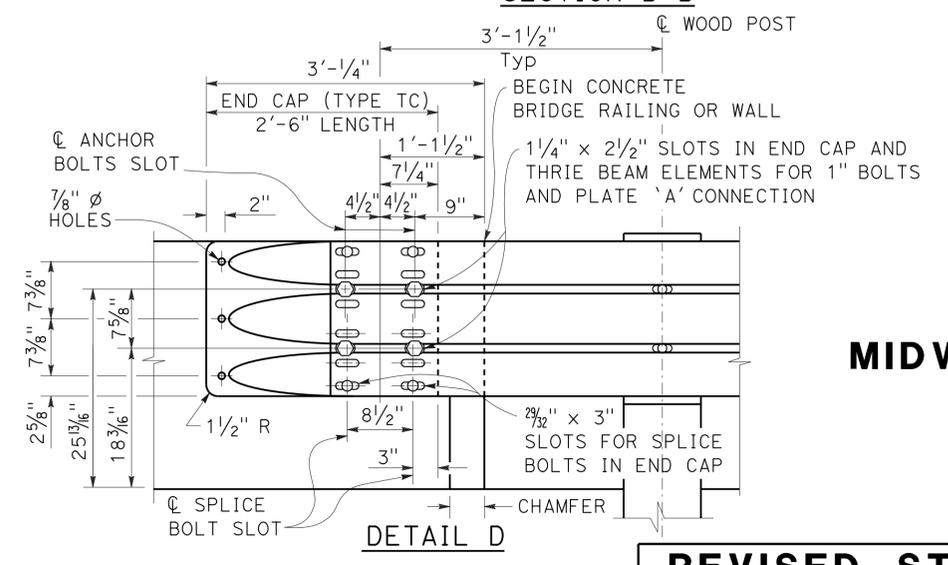
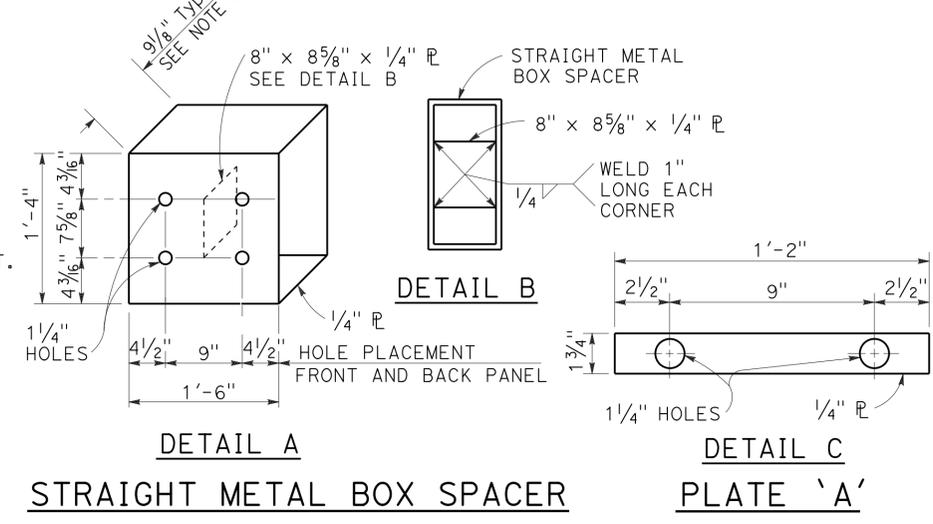
July 19, 2013  
PLANS APPROVAL DATE

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



- 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'-3/2" LENGTH)
- 10 GAUGE = 0.138" THICK  
12 GAUGE = 0.108" THICK



- NOTES:** TO ACCOMPANY PLANS DATED 8-26-13
1. Use 5/8"  $\phi$  Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
  2. 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.
  3. 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 29/32" x 1 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1 1/4"  $\phi$ . 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.
  4. The top elevation of Posts No. T2 through No. T7 shall not project more than 1" above the top elevation of the rail element.
  5. 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.
  6. 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.
  7. Where the width of the concrete railing or wall is greater than 17 1/8", wood blocks are to be used to fill the space created between the backside of Posts No. T4 through No. T7 and the rear thrie beam element. These wood blocks shall be 8" in width and 1'-2" in length. The dimension between the front thrie beam element and the rear thrie beam element is to match the width of the concrete railing or wall.
  8. 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.
  9. Conform standard railing section height to 31" at Post No. T1 using height transition ratio of 150:1.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

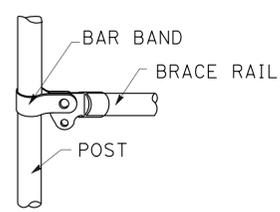
RSP A77U4 DATED JULY 19, 2013 SUPPLEMENTS  
THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A77U4

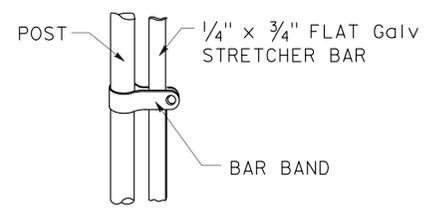
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	608	780

Glenn DeCou  
 REGISTERED CIVIL ENGINEER  
 October 19, 2012  
 PLANS APPROVAL DATE  
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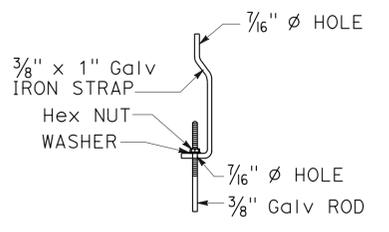
REGISTERED PROFESSIONAL ENGINEER  
 Glenn DeCou  
 No. C34547  
 Exp. 9-30-13  
 CIVIL  
 STATE OF CALIFORNIA



**BRACE RAIL**



**STRETCHER BAR**

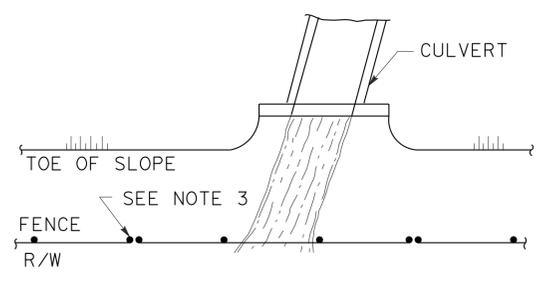


**TRUSS TIGHTENER**

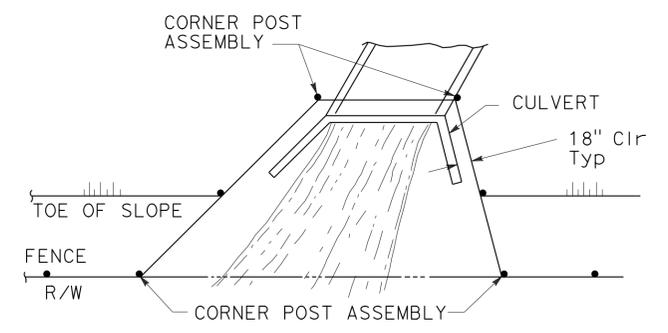
**NOTES:**

1. All material for abutment connection to be galvanized.
2. The chain link fabric shall be replaced by barbed wire strands at 12" maximum centers between the double posts.
3. When the width of the culvert makes it necessary to anchor a post to the top of the culvert, a cast iron shoe or other device approved by the Engineer shall be used.
4. Fencing over stream and around headwall may also use Barbed Wire or Wire Mesh fencing with either wood post or steel post installation.
5. See Standard Plan A85 for Chain Link fence dimensions. See Standard Plan A86 for Barbed Wire and Wire Mesh fence dimensions and for wood post and steel post installation.

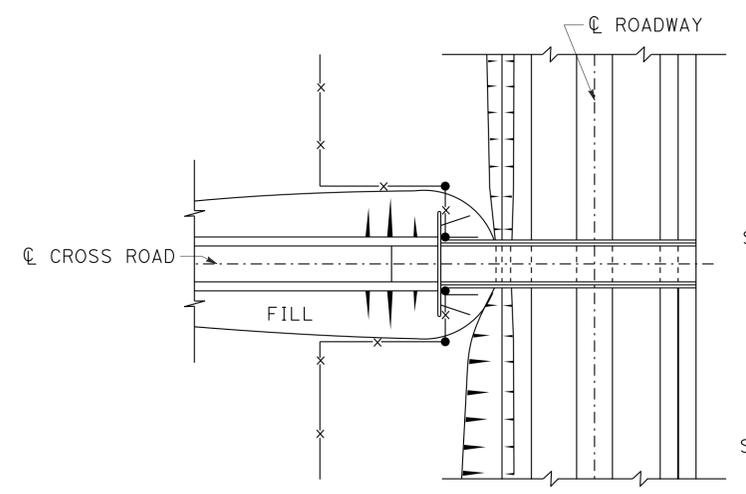
TO ACCOMPANY PLANS DATED 8-26-13



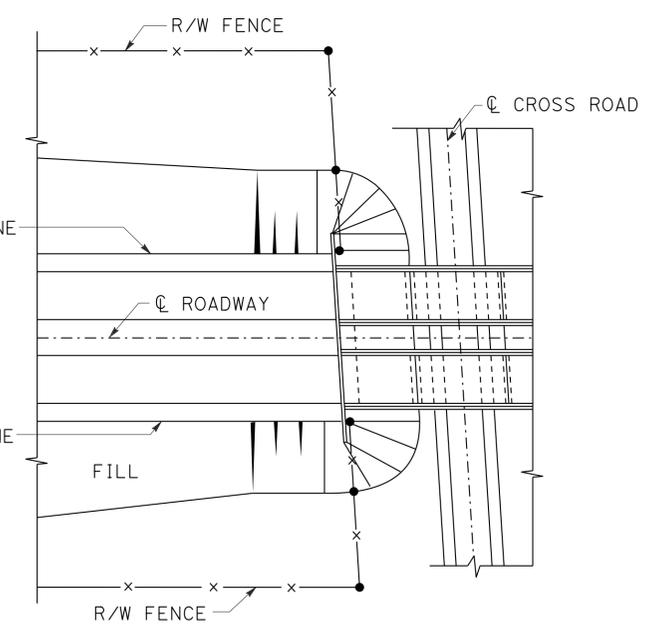
**PLAN**



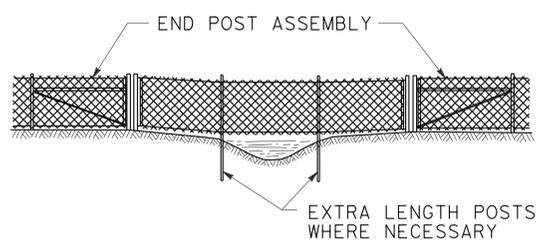
**PLAN**



**PLAN OF ROADWAY - OVERCROSSING**

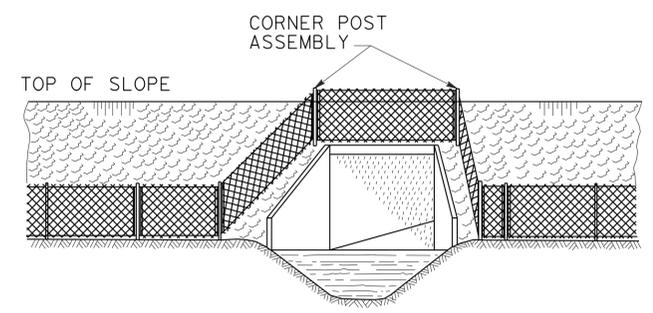


**PLAN OF ROADWAY - UNDERCROSSING**



**ELEVATION**

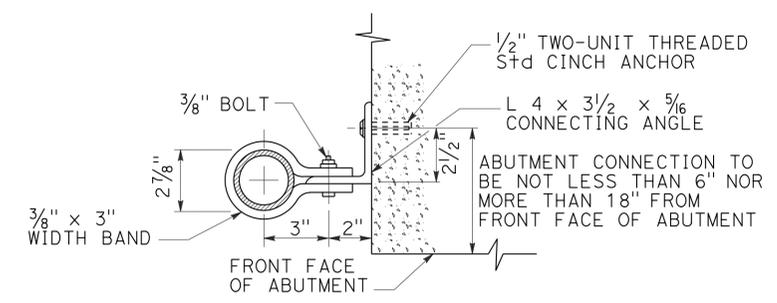
**INSTALLATION OVER STREAM**



**ELEVATION**

**INSTALLATION AROUND HEADWALL**

See Note 4



**ABUTMENT CONNECTION**

**TYPICAL INSTALLATION AT BRIDGES**

ABUTMENT CONNECTION TO BE NOT LESS THAN 6" NOR MORE THAN 18" FROM FRONT FACE OF ABUTMENT

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CHAIN LINK FENCE DETAILS**

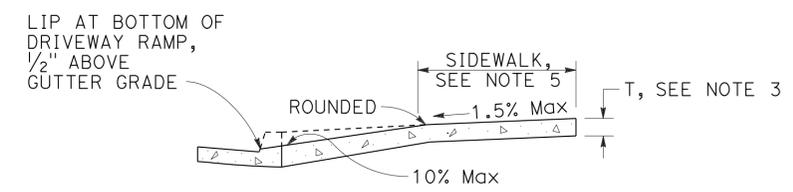
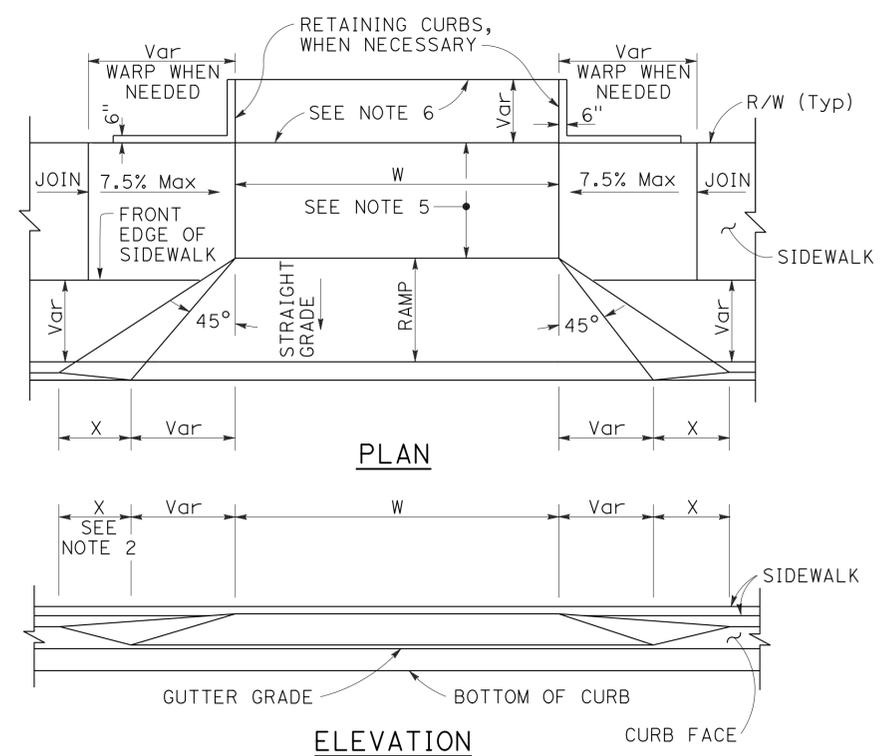
NO SCALE

RSP A85B DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A85B DATED MAY 20, 2011 - PAGE 114 OF THE STANDARD PLANS BOOK DATED 2010.

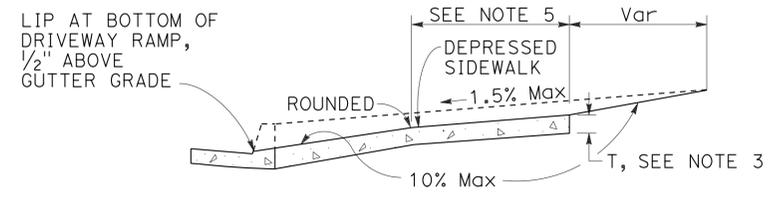
**REVISED STANDARD PLAN RSP A85B**

2010 REVISED STANDARD PLAN RSP A85B

TO ACCOMPANY PLANS DATED 8-26-13



**CASE A**  
Typical driveway, sidewalk not depressed



**CASE B**  
Driveway with depressed sidewalk

**SECTIONS**

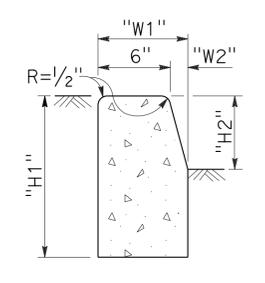
**TABLE A**

CURB TYPE	DIMENSIONS			
	"H1"	"H2"	"W1"	"W2"
A1-6	1'-2"	6"	7 1/2"	1 1/2"
A1-8	1'-4"	8"	8"	2"
A2-6	1'-0"	6"	2'-7 1/2"	1 1/2"
A2-8	1'-2"	8"	2'-8"	2"
A3-6	6"	5"	7 1/4"	1 1/4"
A3-8	8"	7"	7 3/4"	1 3/4"
B1-4	1'-0"	4"	7 1/2"	2 1/2"
B1-6	1'-2"	6"	9"	4"
B2-4	10"	4"	2'-7 1/2"	2 1/2"
B2-6	1'-0"	6"	2'-9"	4"
B3-4	4"	3"	7"	2"
B3-6	6"	5"	8 1/2"	3 1/2"
D-4	10"	4"	1'-6"	1'-1"
D-6	1'-0"	6"	2'-2"	1'-9"

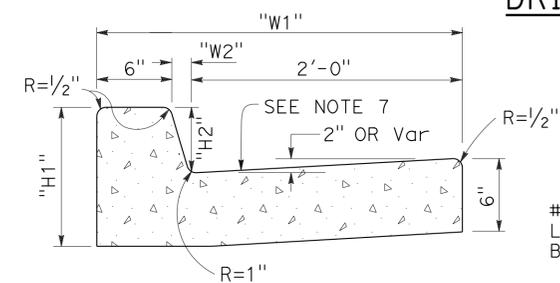
**CURB QUANTITIES**

TYPE	CUBIC YARDS PER LINEAR FOOT
A1-6	0.02585
A1-8	0.03084
A2-6	0.05903
A2-8	0.06379
A3-6	0.01036
A3-8	0.01435
B1-4	0.02185
B1-6	0.02930
B2-4	0.05515
B2-6	0.06171
B3-4	0.00641
B3-6	0.01074
B4	0.05709
D-4	0.04083
D-6	0.06804
E	0.06661

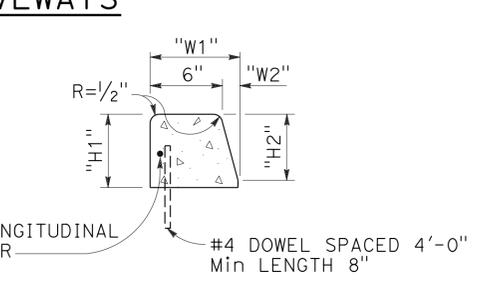
**DRIVEWAYS**



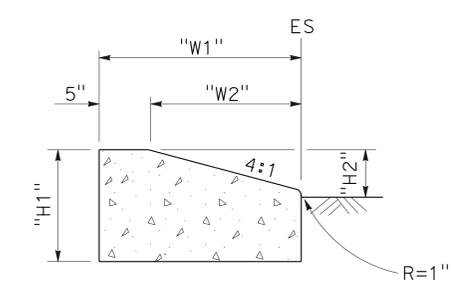
**TYPE A1 CURBS**  
See Table A



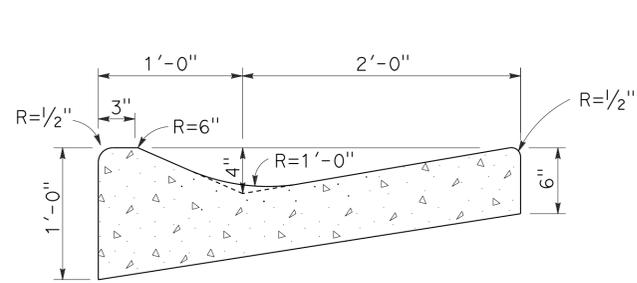
**TYPE A2 CURBS**  
See Table A



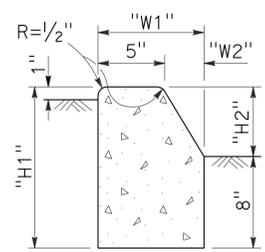
**TYPE A3 CURBS**  
Superimposed on existing pavement  
See Table A



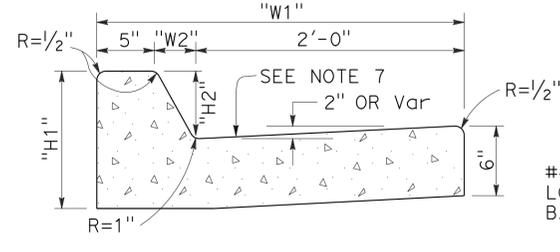
**TYPE D CURBS**  
See Table A



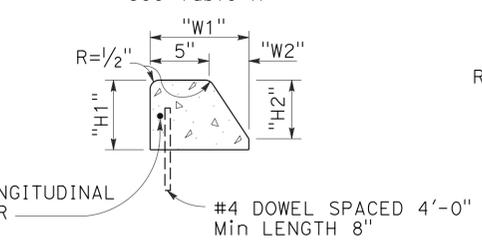
**TYPE E CURB**



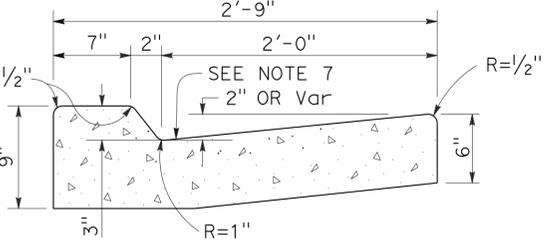
**TYPE B1 CURBS**  
See Table A



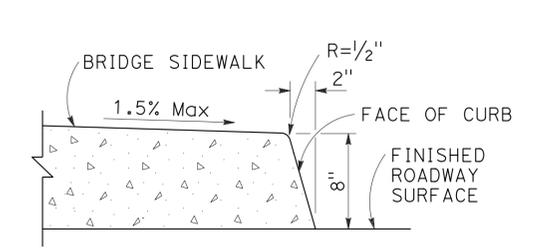
**TYPE B2 CURBS**  
See Table A



**TYPE B3 CURBS**  
Superimposed on existing pavement  
See Table A



**TYPE B4 CURBS**



**TYPE H CURB**  
On Bridges

**CURBS**

- NOTES:**
- Case A driveway section typically applies.
  - X=3'-0" except for curb heights over 10" where 4:1 slopes shall be used on curb slope.
  - Sidewalk and ramp thickness "T" at driveway shall be 4" for residential and 6" for commercial.
  - Difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5'-0" from gutter line shall not exceed 15%. Reduce driveway ramp slope, not gutter slope, where required.
  - Minimum width of clear passageway for sidewalk shall be 4'-2".
  - Retaining curbs and acquisition of construction easement may be necessary for narrow sidewalks or curb heights in excess of 6".
  - Across the pedestrian route at curb ramp locations, the gutter pan slope shall not exceed 1" of depth for each 2'-0" of width.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CURBS AND DRIVEWAYS**

NO SCALE

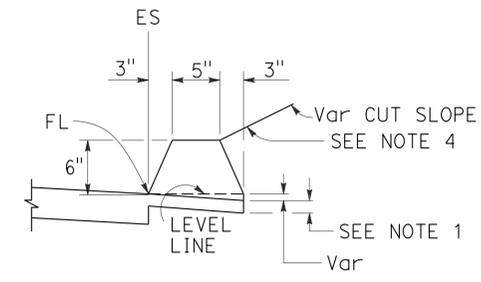
RSP A87A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A87A DATED MAY 20, 2011 - PAGE 119 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A87A**

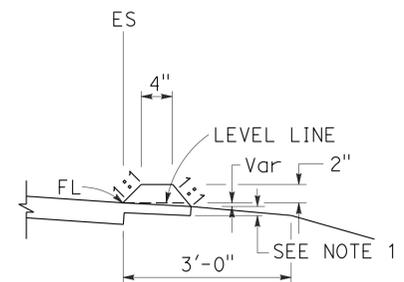
2010 REVISED STANDARD PLAN RSP A87A



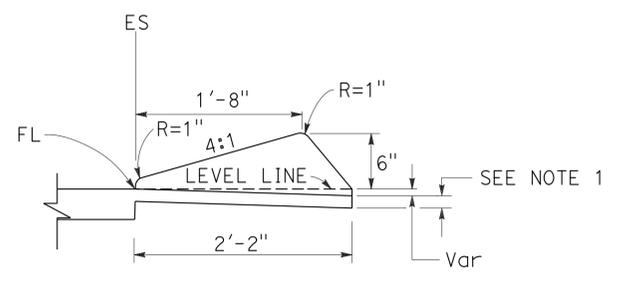
TO ACCOMPANY PLANS DATED 8-26-13



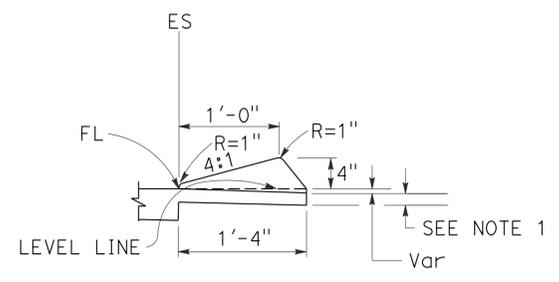
**TYPE A**  
See Note 3



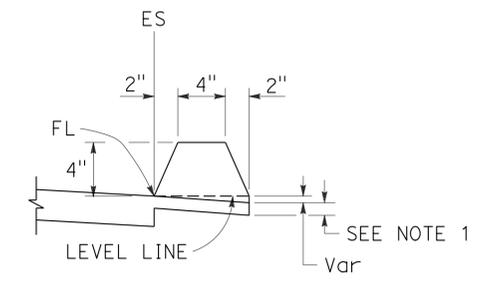
**TYPE C**



**TYPE D**

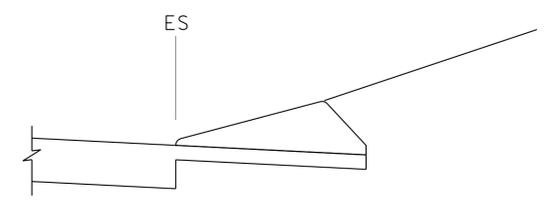


**TYPE E**

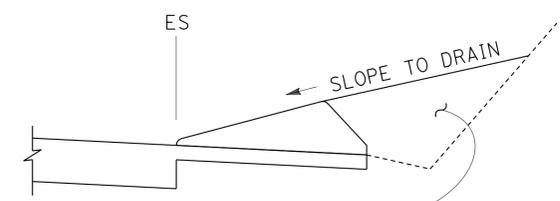


**TYPE F**  
See Note 5

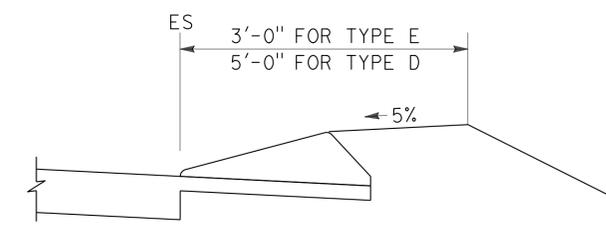
**DIKES**



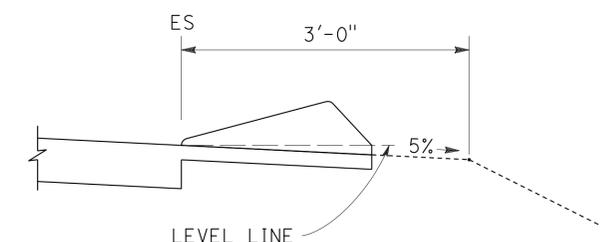
**CASE C-1**  
Cut Slope



**CASE C-2**  
Cut Slope



**CASE F**



**CASE R**  
See Note 2

**TYPE D AND E BACKFILL DETAILS**

**NOTES:**

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

**DIKE QUANTITIES**

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

Quantities based on 5% cross slope.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**HOT MIX ASPHALT DIKES**

NO SCALE

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

**REVISED STANDARD PLAN RSP A87B**

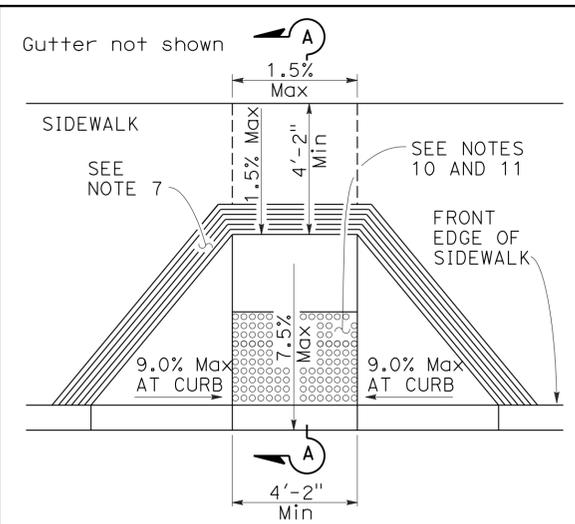
2010 REVISED STANDARD PLAN RSP A87B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	611	780

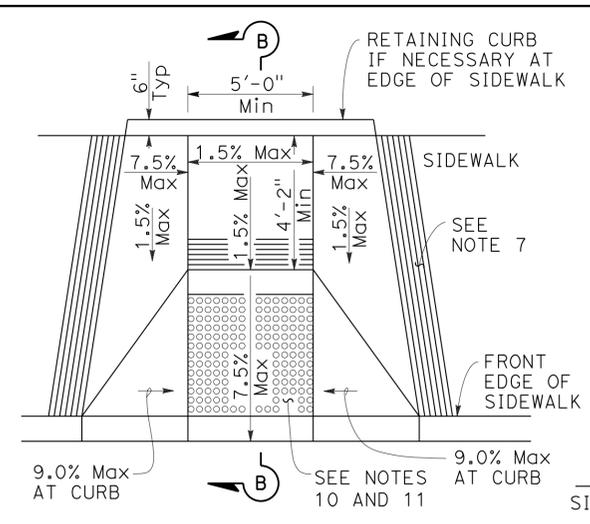
H. David Cordova  
 REGISTERED CIVIL ENGINEER  
 No. C41957  
 Exp. 3-31-14  
 CIVIL  
 STATE OF CALIFORNIA

July 19, 2013  
 PLANS APPROVAL DATE

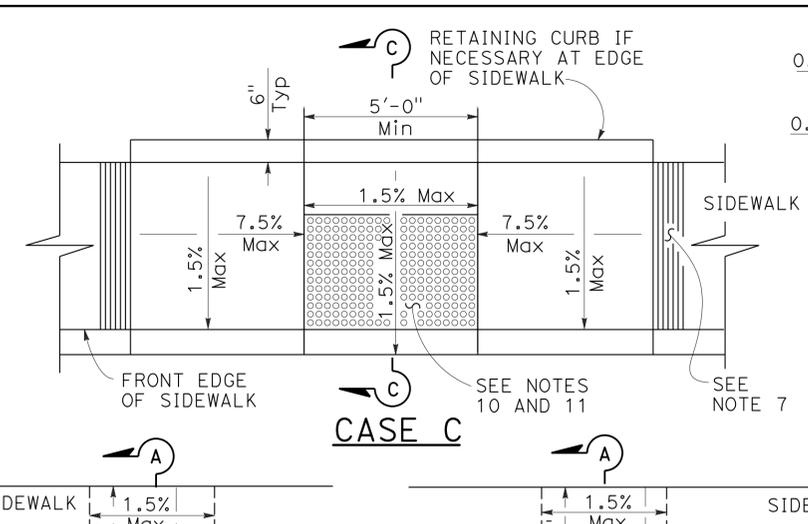
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



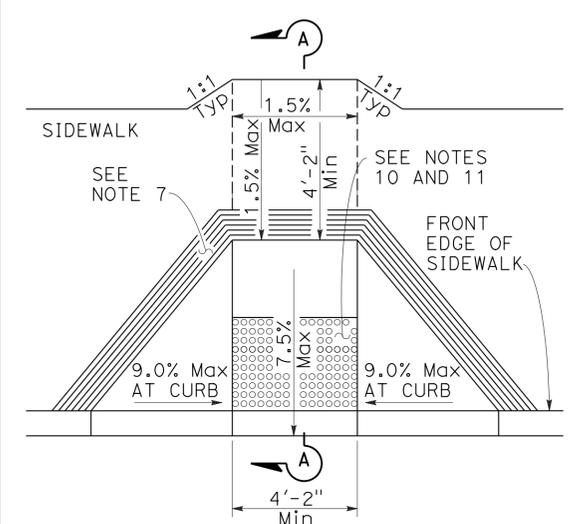
**CASE A**



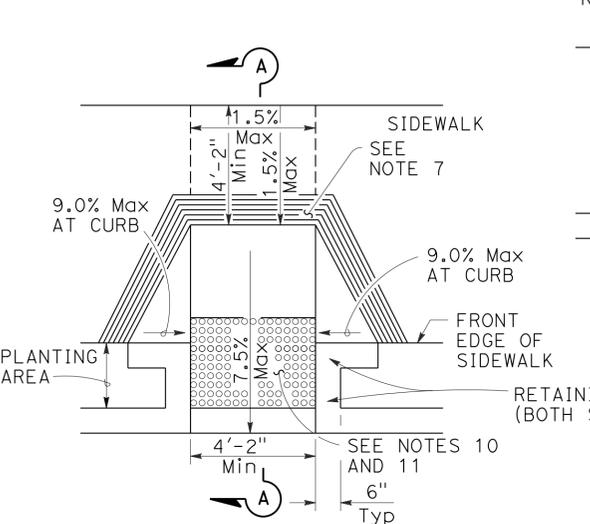
**CASE B**



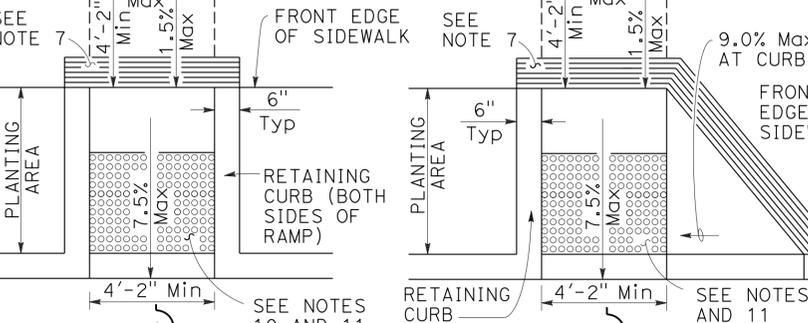
**CASE C**



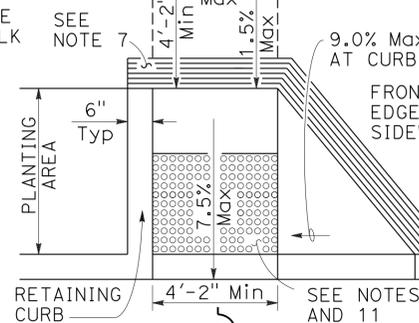
**CASE D**



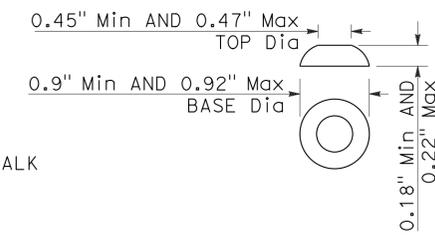
**CASE E**



**CASE F**



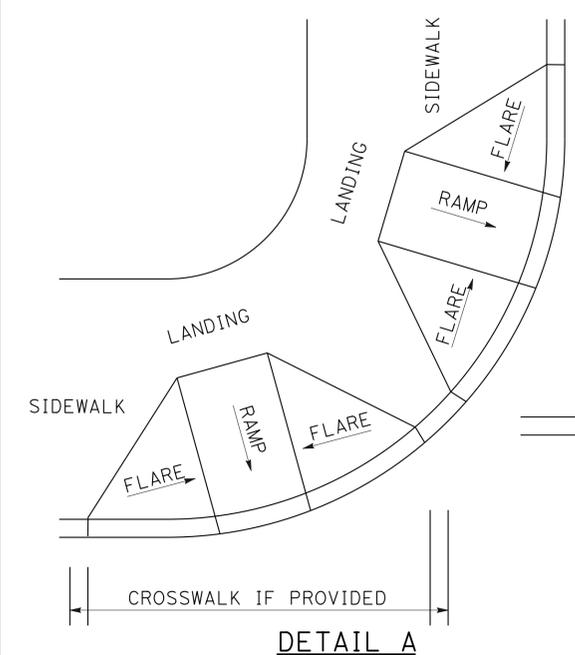
**CASE G**



**RAISED TRUNCATED DOME**

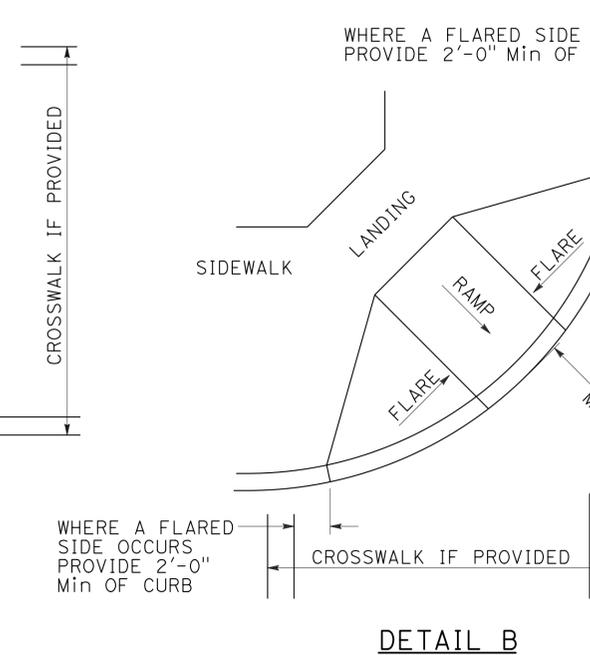
**NOTES:**

- As site conditions dictate, Case A through Case G curb ramps may be used for corner installations similar to those shown in Detail A and Detail B. The case of curb ramps used in Detail A do not have to be the same. Case A through Case G curb ramps also may be used at mid block locations, as site conditions dictate.
- If distance from curb to back of sidewalk is too short to accommodate ramp and 4'-2" platform (landing) as shown in Case A, the sidewalk may be depressed longitudinally as in Case B, or C or may be widened as in Case D.
- When ramp is located in center of curb return, crosswalk configuration must be similar to that shown for Detail B.
- As site conditions dictate, the retaining curb side and the flared side of the Case G ramp shall be constructed in reversed position.
- If located on a curve, the sides of the ramp need not be parallel, but the minimum width of the ramp shall be 4'-2".
- Side slope of ramp flares vary uniformly from a maximum of 9.0% at curb to conform with longitudinal sidewalk slope adjacent to top of the ramp, except in Case C and Case F.
- The curb ramp shall be outlined, as shown, with a 1'-0" wide border with 1/4" grooves approximately 3/4" on center. See grooving detail.
- Transitions from ramps and landing to walks, gutters or streets shall be flush (no lip) and free of abrupt changes.
- Counter slopes of adjoining gutters and road surfaces immediately adjacent to and within 24 inches of the curb ramp shall not be steeper than 1:20 (5.0%). Gutter pan slope shall not exceed 1" of depth for each 2'-0" of width.
- Curb ramps shall have a detectable warning surface that extends the full width and 3'-0" depth of the ramp. Detectable Warning Surfaces shall conform to the details on this plan and the requirements in the Standard Specifications.
- The edge of the detectable warning surface nearest the street shall be between 6" and 8" from the gutter flowline.
- Sidewalk and ramp thickness, "T", shall be 3/2" minimum.
- Utility pull boxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp will be relocated or adjusted to grade by the owner prior to, or in conjunction with, curb ramp construction.
- Detectable warning surface may have to be cut to allow removal of utility covers while maintaining full detectable warning width and depth.



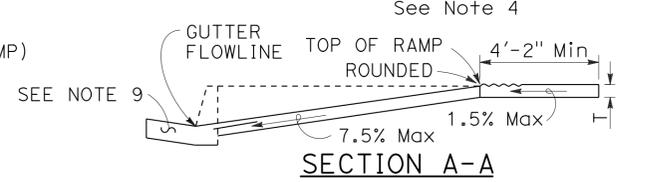
**DETAIL A**  
**TYPICAL TWO-RAMP CORNER INSTALLATION**

See Note 1

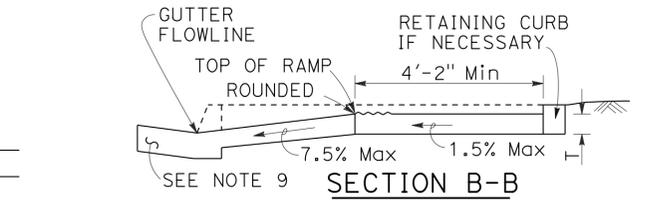


**DETAIL B**  
**TYPICAL ONE-RAMP CORNER INSTALLATION**

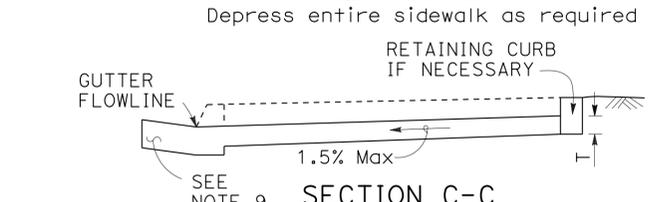
See Notes 1 and 3



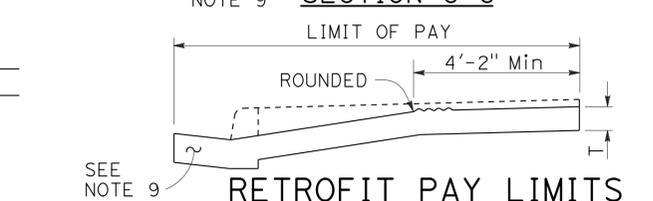
**SECTION A-A**



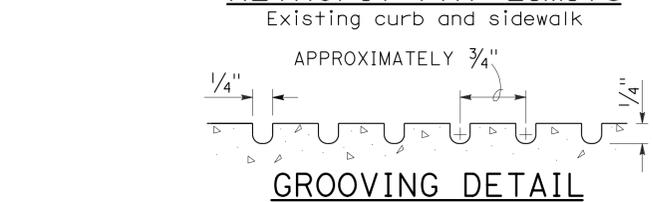
**SECTION B-B**



**SECTION C-C**



**RETROFIT PAY LIMITS**



**GROOVING DETAIL**



**RAISED TRUNCATED DOME PATTERN (IN-LINE)**  
**DETECTABLE WARNING SURFACE**  
See Note 10

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CURB RAMP DETAILS**  
NO SCALE

RSP A88A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A88A  
DATED MAY 20, 2011 - PAGE 121 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A88A**

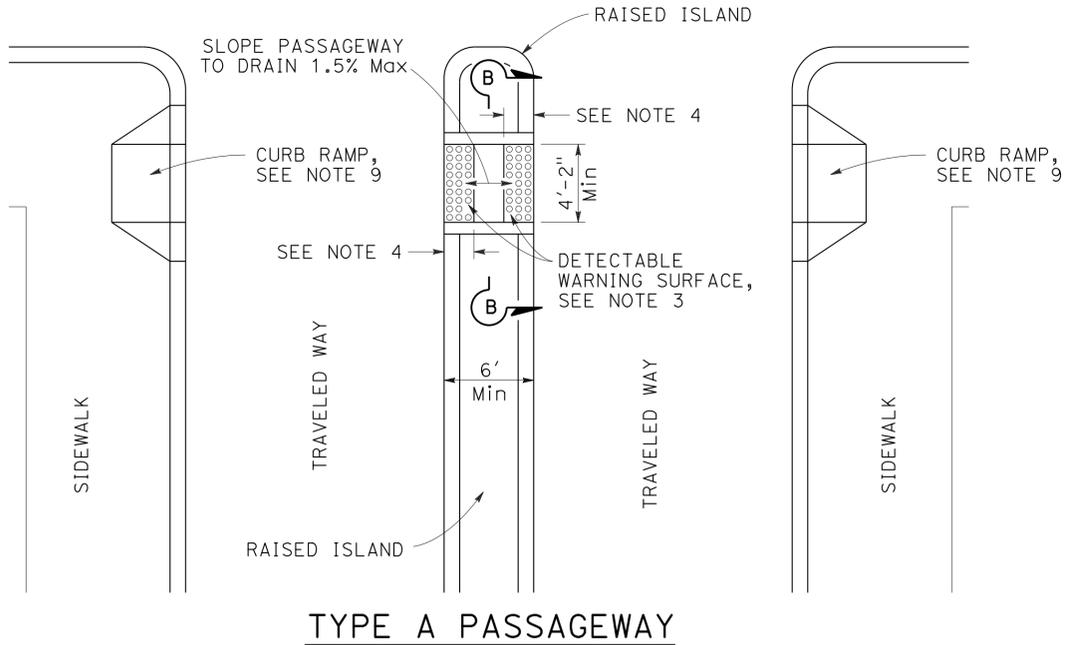
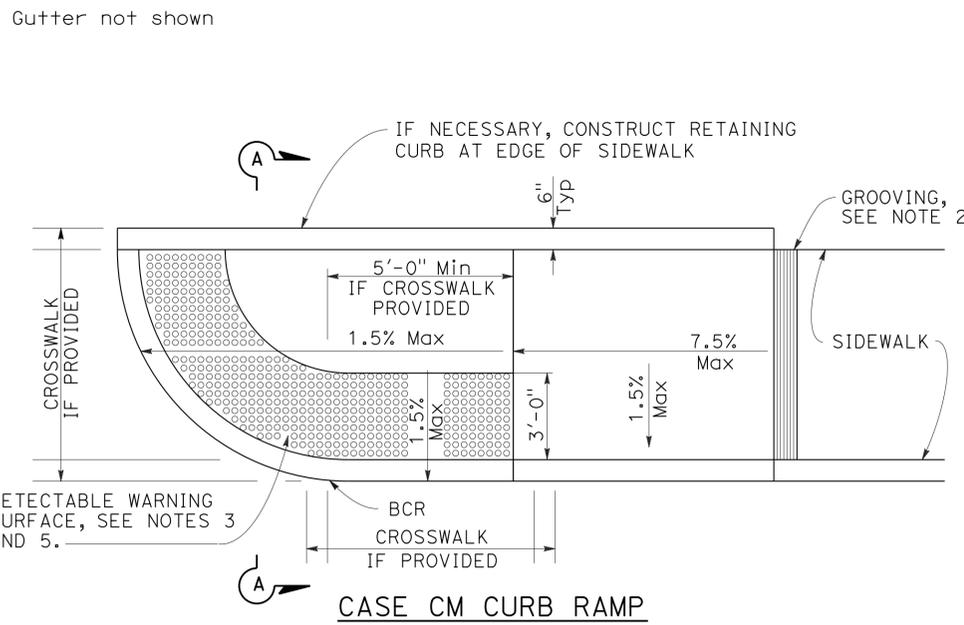
2010 REVISED STANDARD PLAN RSP A88A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	612	780

*H. David Cordova*  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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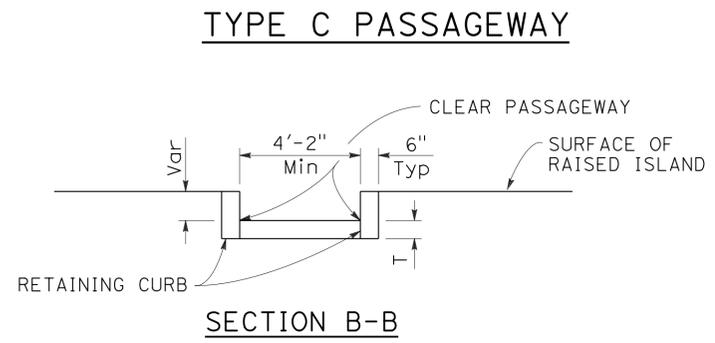
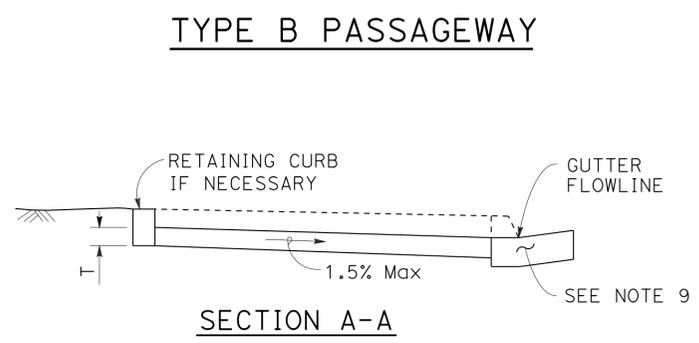
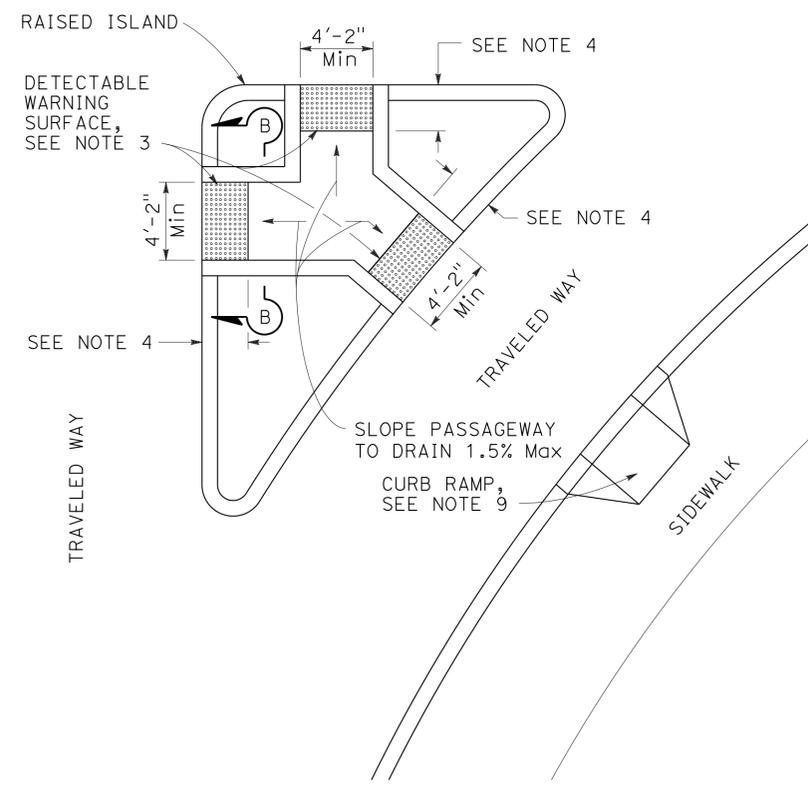
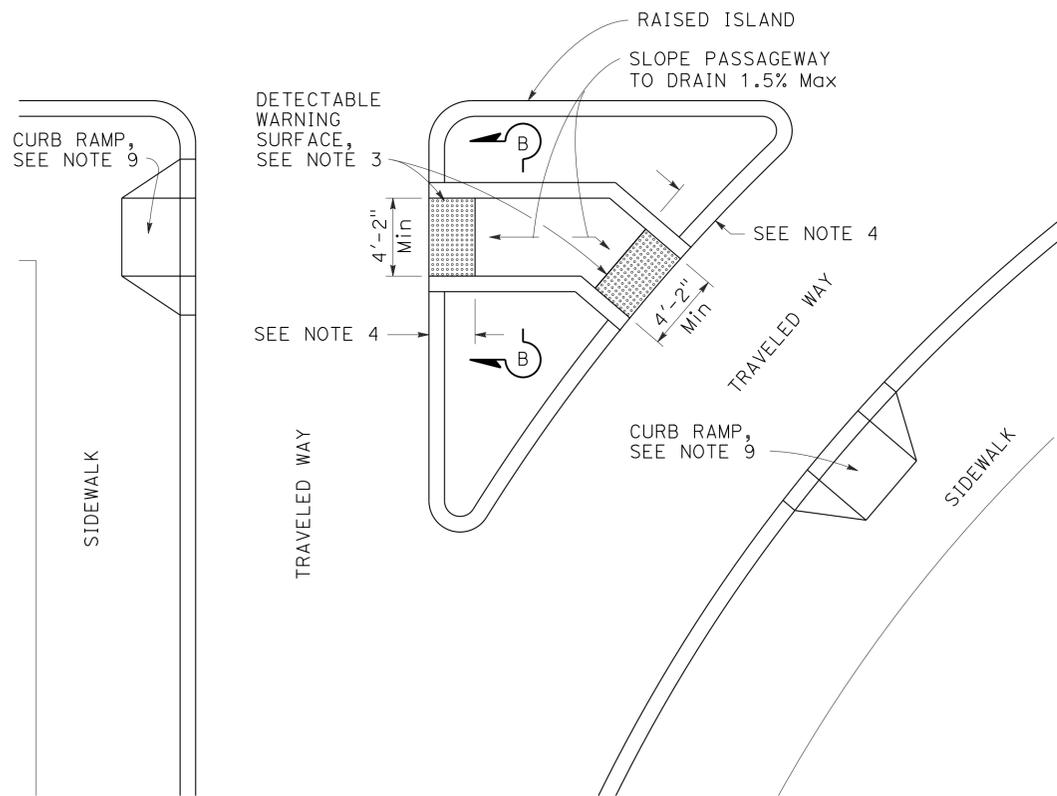
TO ACCOMPANY PLANS DATED 8-26-13

2010 REVISED STANDARD PLAN RSP A88B



**NOTES:**

- Sidewalk, ramp and passageway thickness, "T", shall be 3 1/2" minimum.
- For details of grooving used with Case CM curb ramp, see Revised Standard Plan RSP A88A.
- For details of detectable warning surfaces, see Revised Standard Plan RSP A88A.
- Where an island passageway length is greater than or equal to 6'-0", but less than 8'-0", each detectable warning surface shall extend the full width and 2'-0" depth of the passageway length. Where an island passageway length is greater than or equal to 8'-0", each detectable warning surface shall extend the full width and 3'-0" depth of the passageway length.
- For Case CM curb ramp, the edge of the detectable warning surface nearest the street shall be between 6" and 8" from the gutter flowline.
- Transitions from ramps to walks, gutters or streets shall be flush (no lip) and free of abrupt changes.
- Utility pull boxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp will be relocated or adjusted to grade by the owner prior to, or in conjunction with, curb ramp construction.
- Detectable warning surface may have to be cut to allow removal of utility covers while maintaining full detectable warning width and depth.
- For additional curb ramp details, see Revised Standard Plan RSP A88A.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CURB RAMP AND  
ISLAND PASSAGEWAY DETAILS**

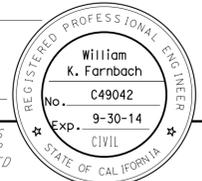
NO SCALE

RSP A88B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A88B  
DATED MAY 20, 2011 - PAGE 122 OF THE STANDARD PLANS BOOK DATED 2010.

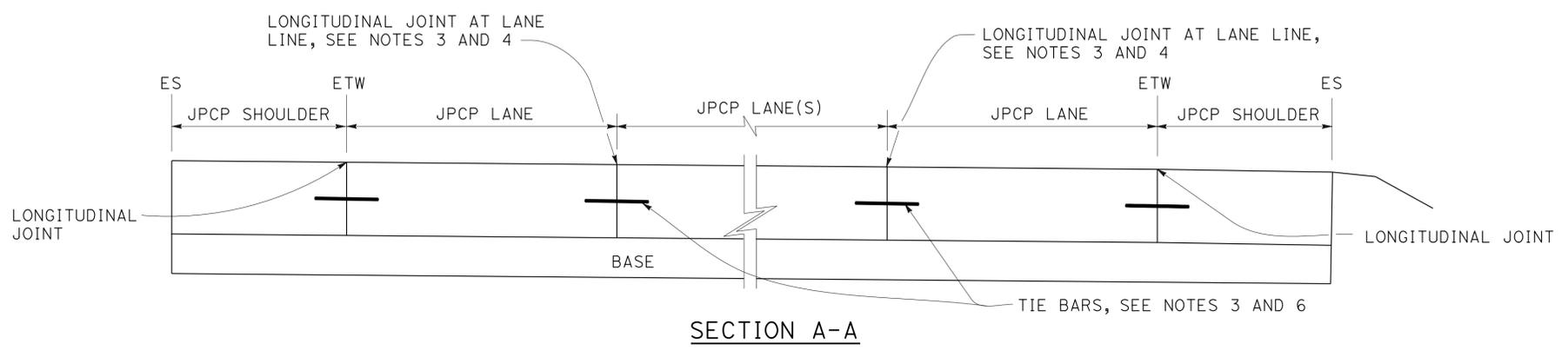
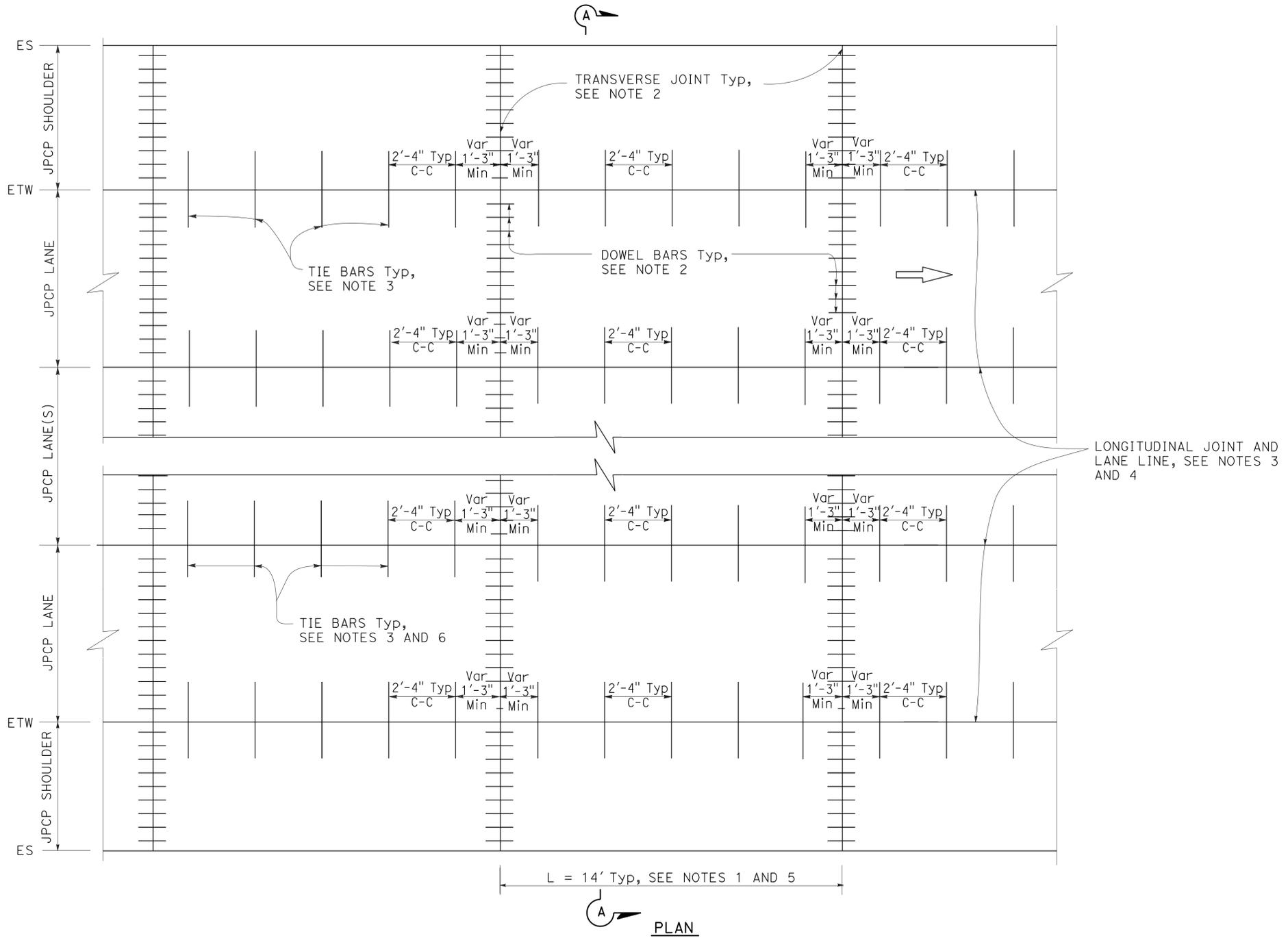
**REVISED STANDARD PLAN RSP A88B**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	613	780

*William K. Farnbach*  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



TO ACCOMPANY PLANS DATED 8-26-13



**NOTES:**

1. Transverse joint spacing may be adjusted to no less than 10' and no more than 14' to conform to bridges, change in pavement type, and hardened concrete pavement.
2. For transverse joint and dowel bar details not shown, see Revised Standard Plan RSP P10.
3. For longitudinal joint and tie bar details not shown, see Revised Standard Plan RSP P15.
4. For additional longitudinal joint layout details, see Revised Standard Plan RSP P18.
5. For joint layout at intersections, see Project Plans.
6. For dowel bars at longitudinal joint. see Revised Standard Plan RSP P18.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**JOINTED PLAIN  
 CONCRETE PAVEMENT  
 NEW CONSTRUCTION**  
 NO SCALE

RSP P1 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN P1  
 DATED MAY 20, 2011 - PAGE 125 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P1**

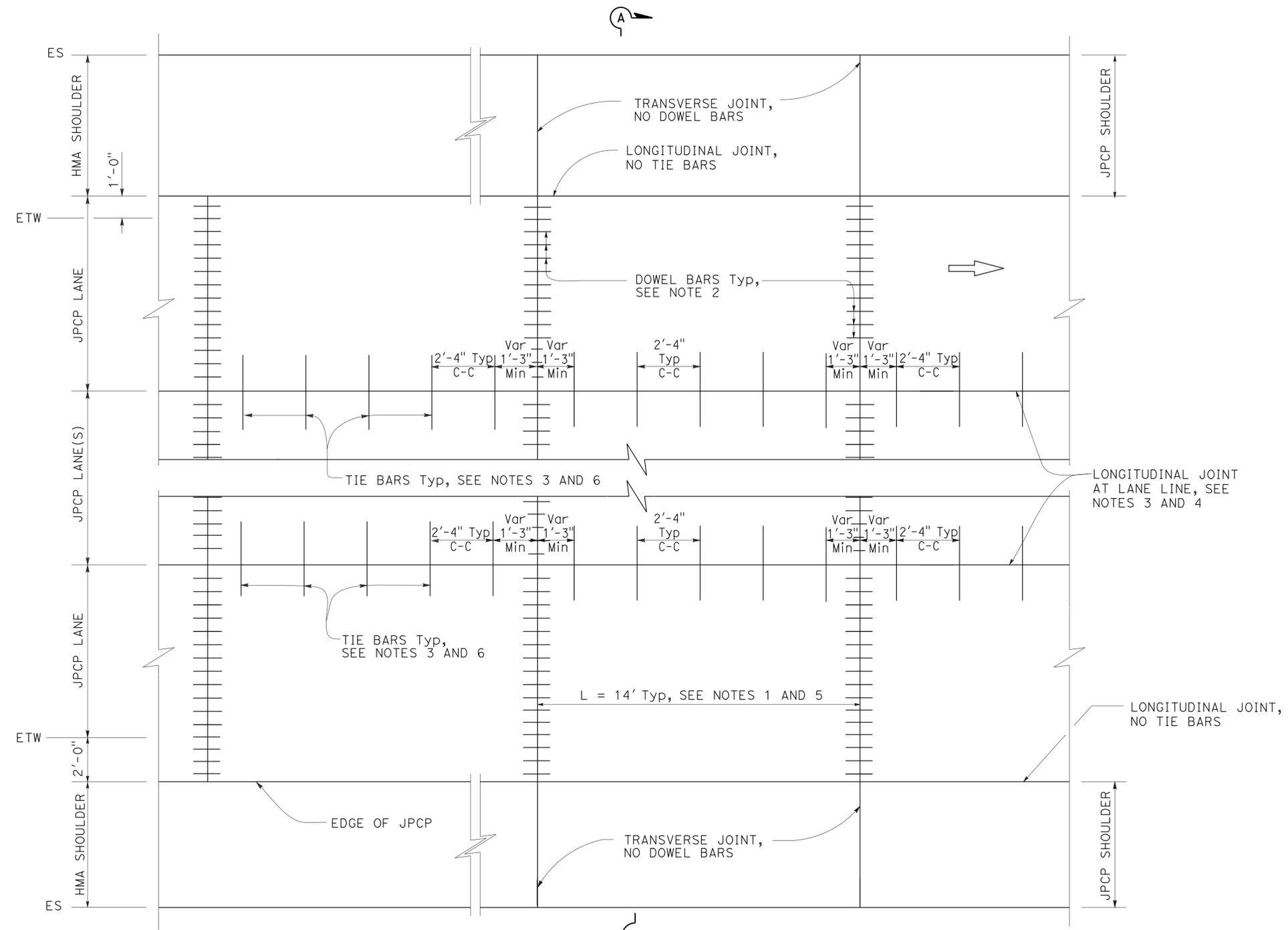
2010 REVISED STANDARD PLAN RSP P1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	614	780

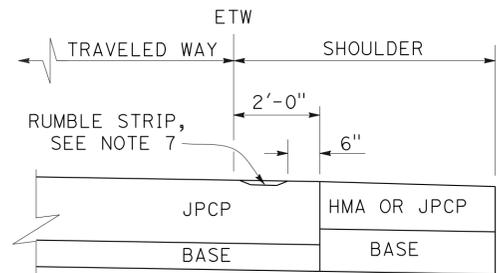
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE

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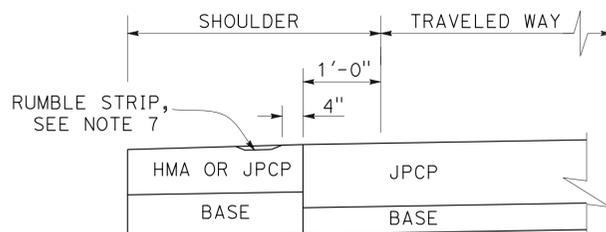
REGISTERED PROFESSIONAL ENGINEER  
 William K. Farnbach  
 No. C49042  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA



- NOTES:** TO ACCOMPANY PLANS DATED 8-26-13
1. Transverse joint spacing may be adjusted to no less than 10' and no more than 14' to conform to bridges, change in pavement type, and hardened concrete pavement.
  2. For transverse joint and dowel bar details not shown, see Revised Standard Plan RSP P10.
  3. For longitudinal joint and tie bar details not shown, see Revised Standard Plan RSP P15.
  4. For additional longitudinal joint layout details, see Revised Standard Plan RSP P18.
  5. For joint layout at intersections, see Project Plans.
  6. For dowel bars at longitudinal joint. see Revised Standard Plan RSP P18.
  7. For limits of rumble strips, see Projects Plans.

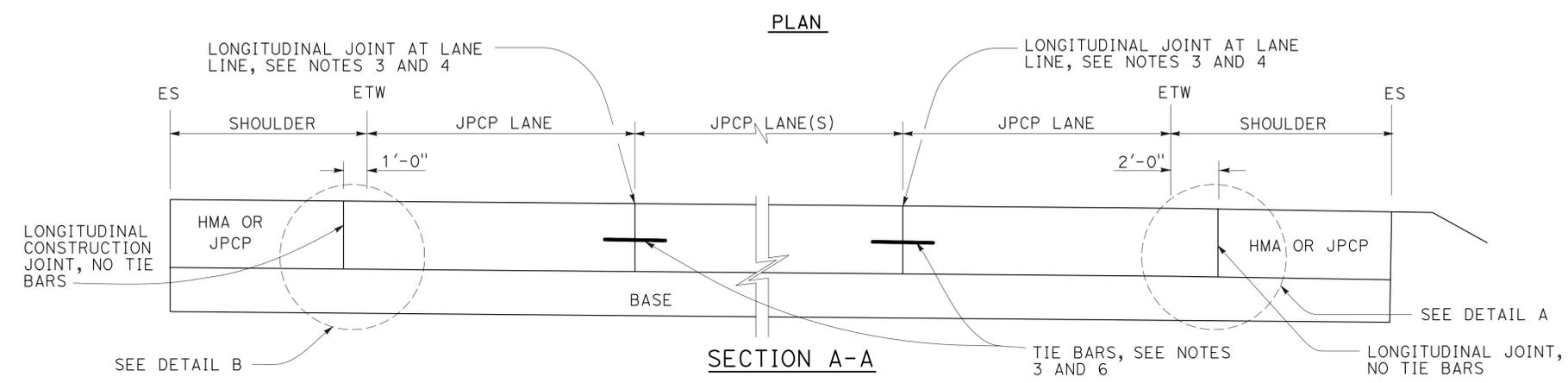


**DETAIL A**



**DETAIL B**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**JOINTED PLAIN  
 CONCRETE PAVEMENT  
 (WIDENED LANE)  
 NEW CONSTRUCTION**  
 NO SCALE



**SECTION A-A**

RSP P2 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN P2  
 DATED MAY 20, 2011 - PAGE 126 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P2**

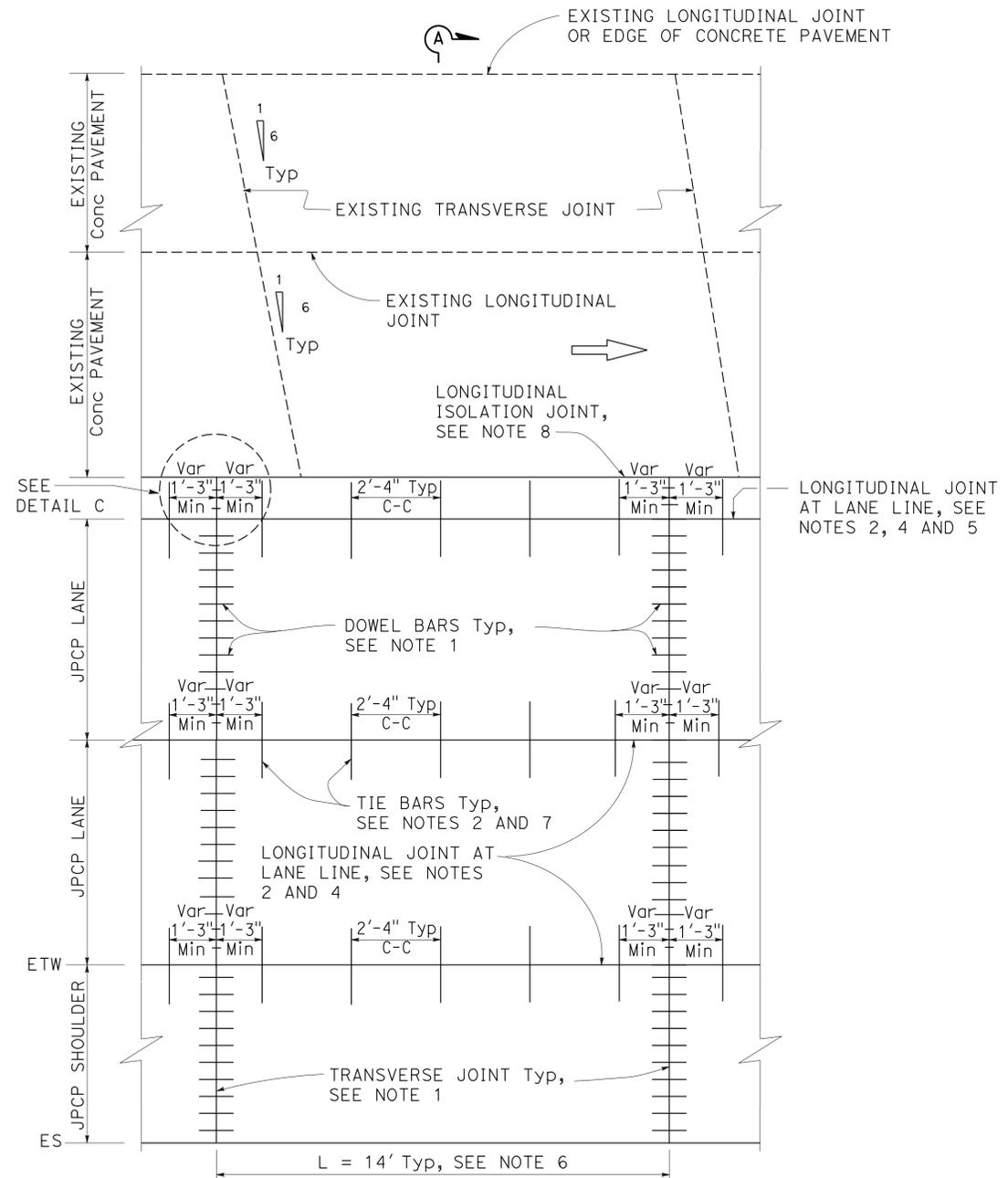
2010 REVISED STANDARD PLAN RSP P2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	615	780

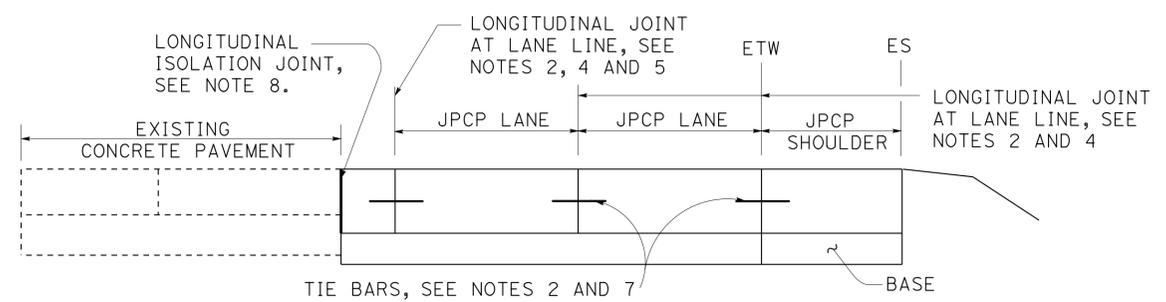
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



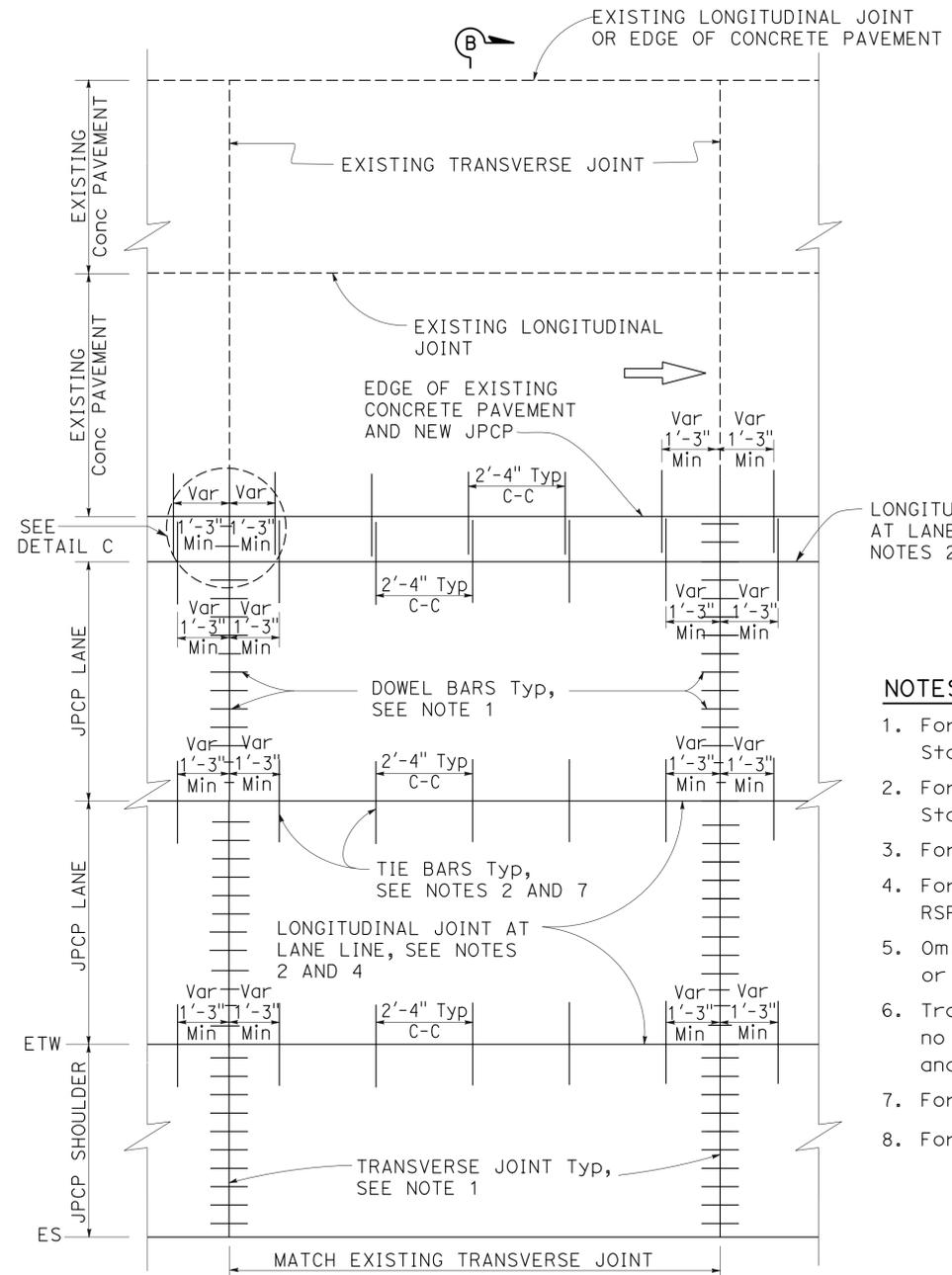
TO ACCOMPANY PLANS DATED 8-26-13



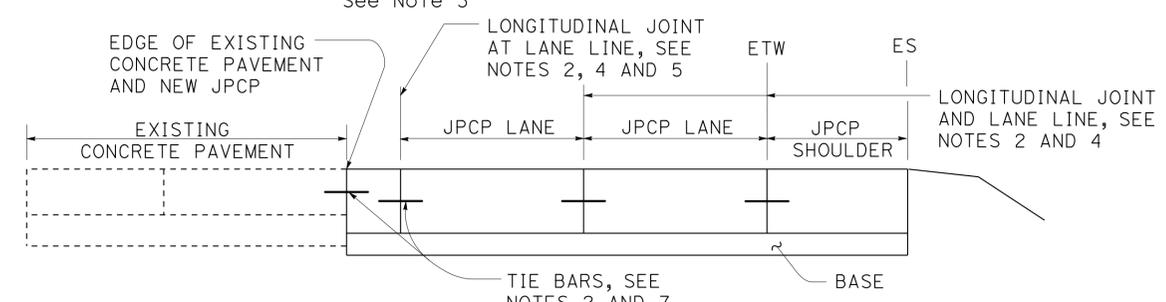
**PLAN ISOLATED**  
See Note 3



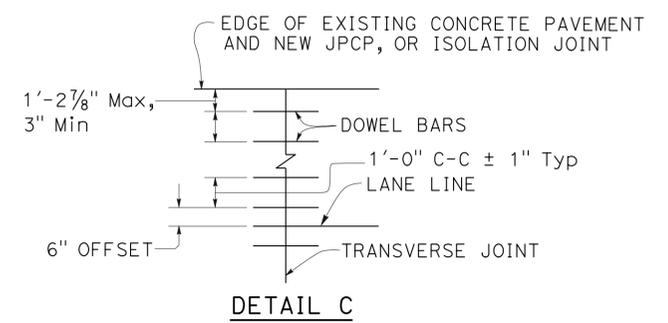
**SECTION A-A**



**PLAN TIED**  
See Note 3



**SECTION B-B**



**DETAIL C**

**NOTES:**

1. For transverse joint and dowel bar details not shown, see Revised Standard Plan RSP P10.
2. For longitudinal joint and tie bar details not shown, see Revised Standard Plan RSP P15.
3. For joint layout at intersections, see Project Plans.
4. For additional longitudinal joint details, see Revised Standard Plan RSP P18.
5. Omit longitudinal joint when edge of new concrete pavement is 3'-3" or less from JPCP lane line.
6. Transverse joint spacing may be adjusted to no less than 10' and no more than 15'-6" to conform to bridges, change in pavement type and existing pavement.
7. For dowel bars at longitudinal joint, see Revised Standard Plan RSP P18.
8. For isolation joints, see Detail A on Revised Standard Plan RSP P18.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**JOINTED PLAIN CONCRETE PAVEMENT LANE & SHOULDER ADDITION OR REPLACEMENT**

NO SCALE

RSP P3A DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

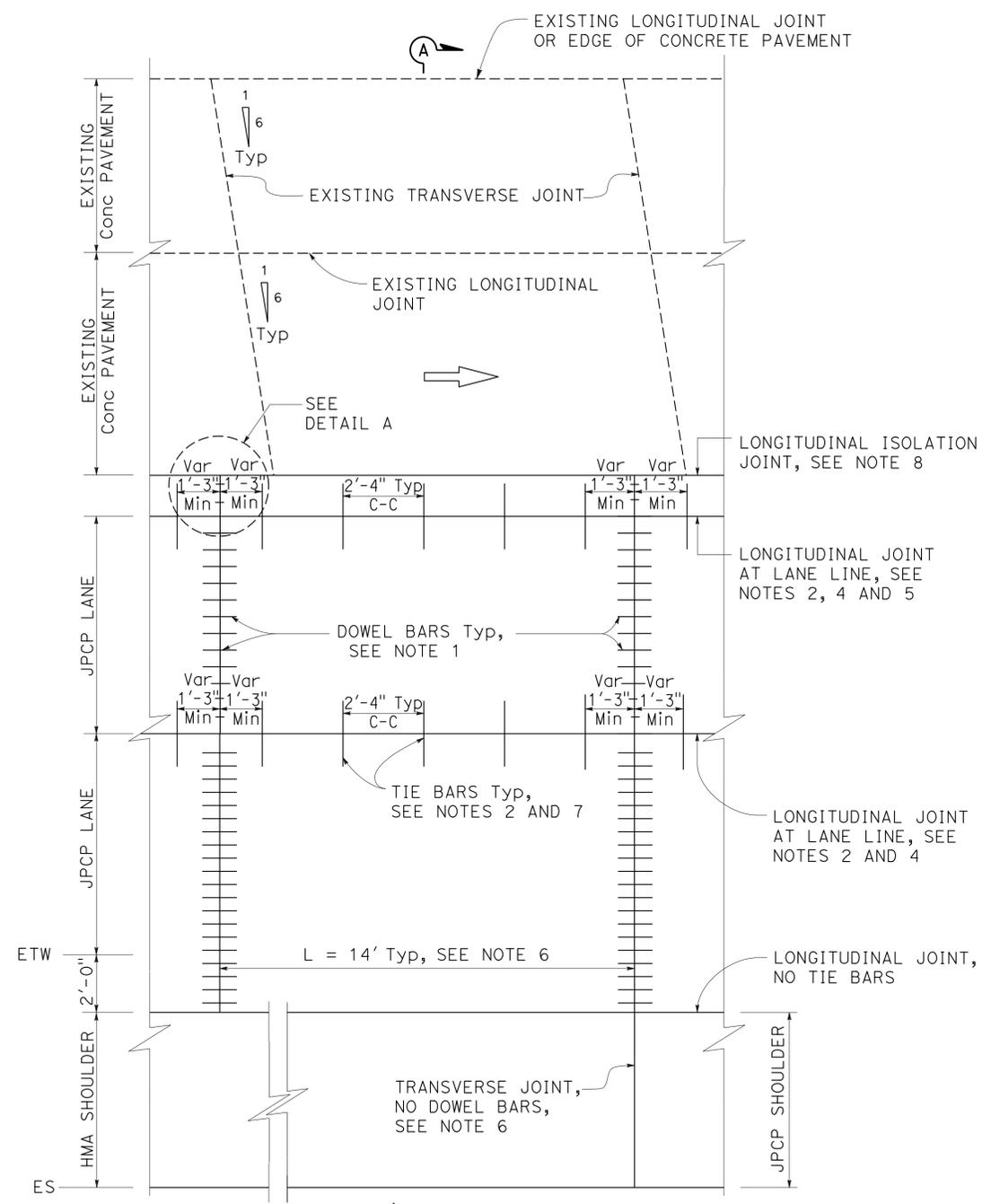
**REVISED STANDARD PLAN RSP P3A**

2010 REVISED STANDARD PLAN RSP P3A

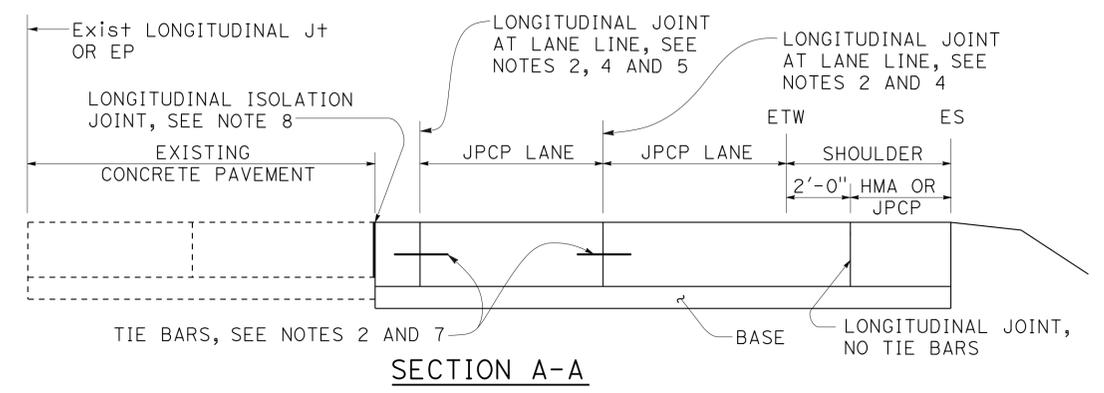
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	616	780

William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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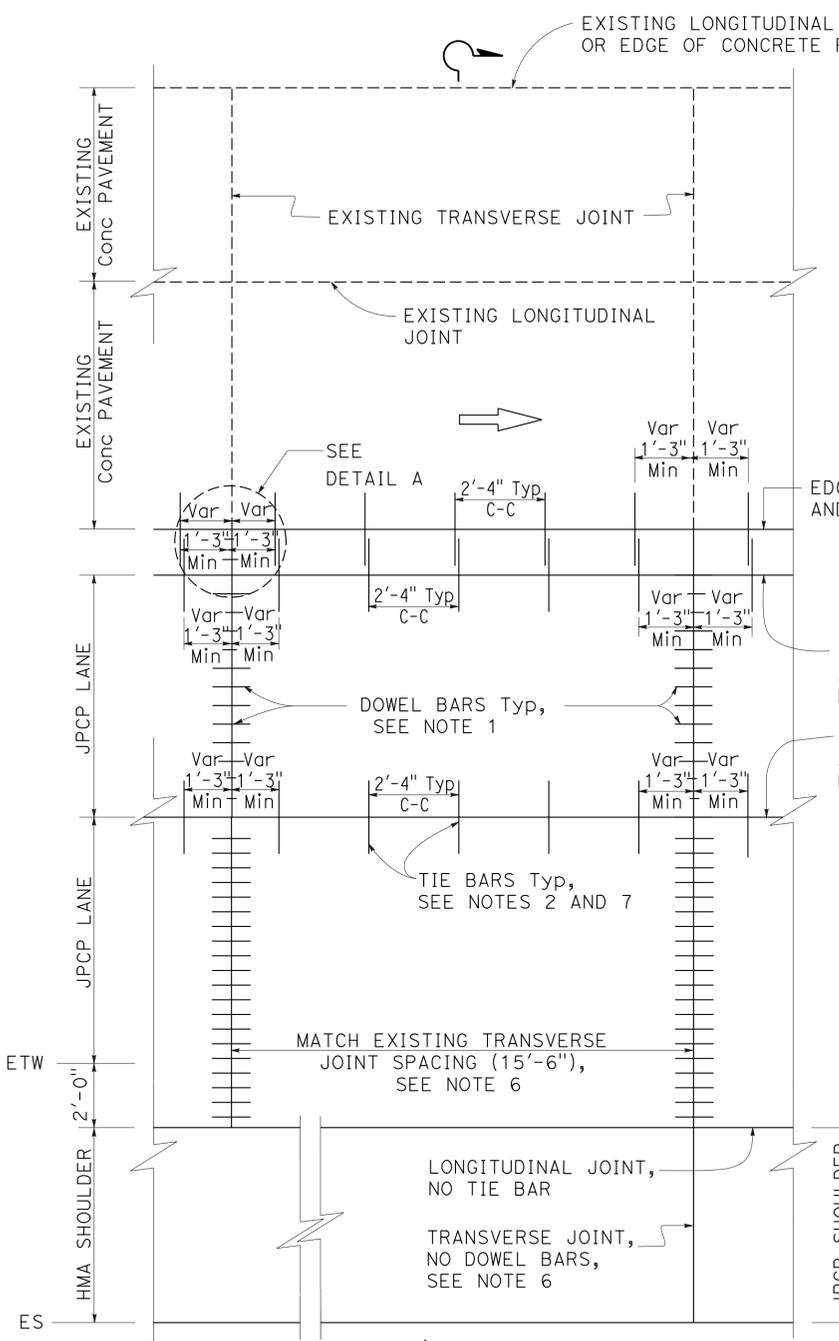
TO ACCOMPANY PLANS DATED 8-26-13



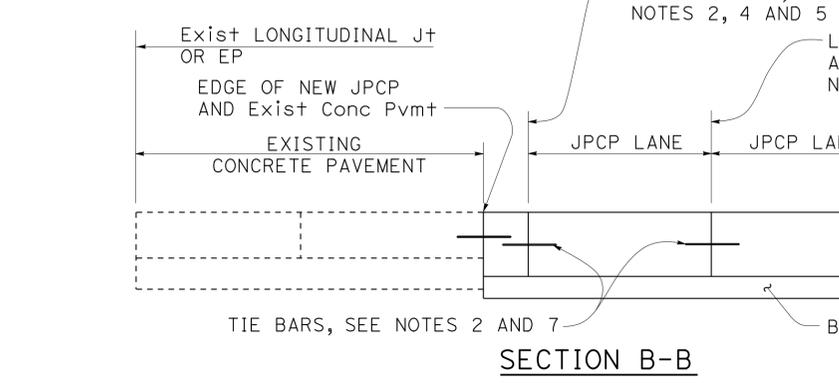
**PLAN ISOLATED**  
See Note 3



**SECTION A-A**



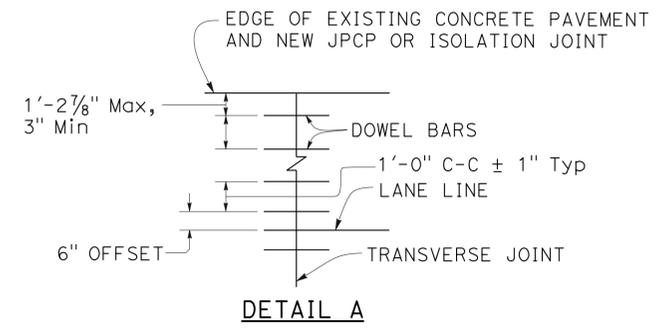
**PLAN TIED**  
See Note 3



**SECTION B-B**

**NOTES:**

- For transverse joint and dowel bar details not shown, see Revised Standard Plan RSP P10.
- For longitudinal joint and tie bar details not shown, see Revised Standard Plan RSP P15.
- For joint layout at intersections, see Project Plans.
- For additional longitudinal joint details, see Revised Standard Plan RSP P18.
- Omit longitudinal joint when edge of new concrete pavement is 3'-3" or less from JPCP lane line.
- Transverse joint spacing may be adjusted to no less than 10' and no more than 15'-6" to conform to bridges, change in pavement type and existing pavement.
- For dowel bars at longitudinal joint, see Revised Standard Plan RSP P18.
- For isolation joints, see Detail A on Revised Standard Plan RSP P18.



**DETAIL A**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**JOINED PLAIN CONCRETE PAVEMENT (WIDENED LANE) LANE AND SHOULDER ADDITION OR REPLACEMENT**

NO SCALE

RSP P3B DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P3B**

2010 REVISED STANDARD PLAN RSP P3B

PLANS APPROVAL DATE July 19, 2013  
 TO ACCOMPANY PLANS DATED 8-26-13

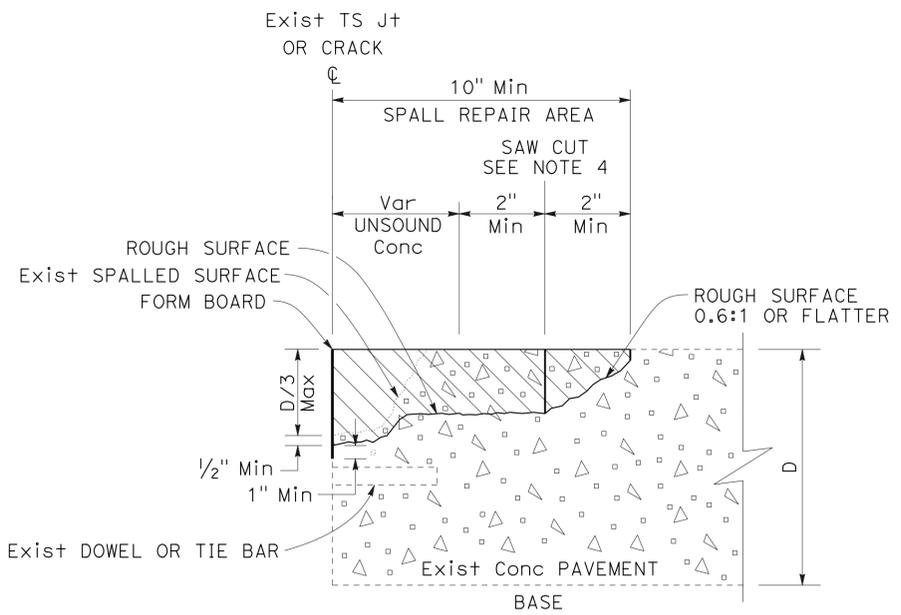
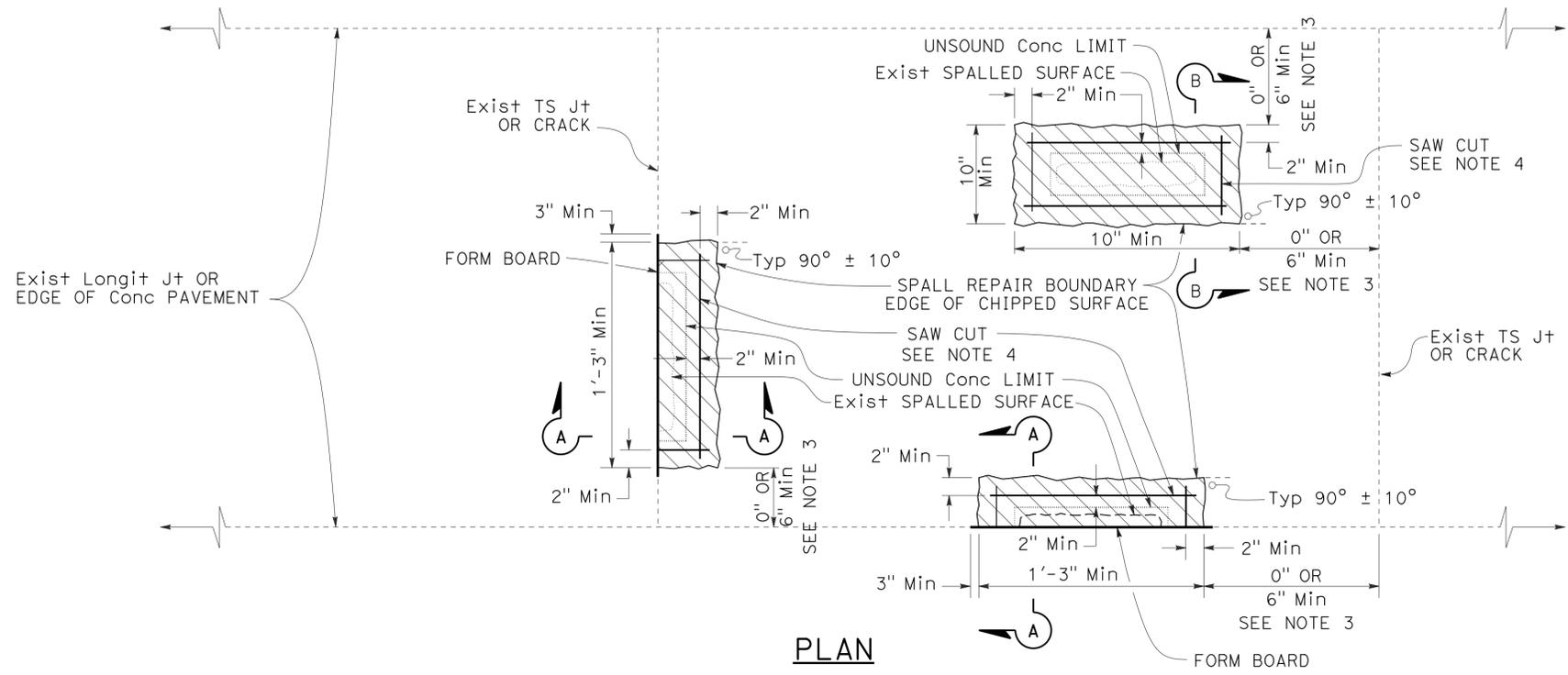
**LEGEND**



**NOTES:**

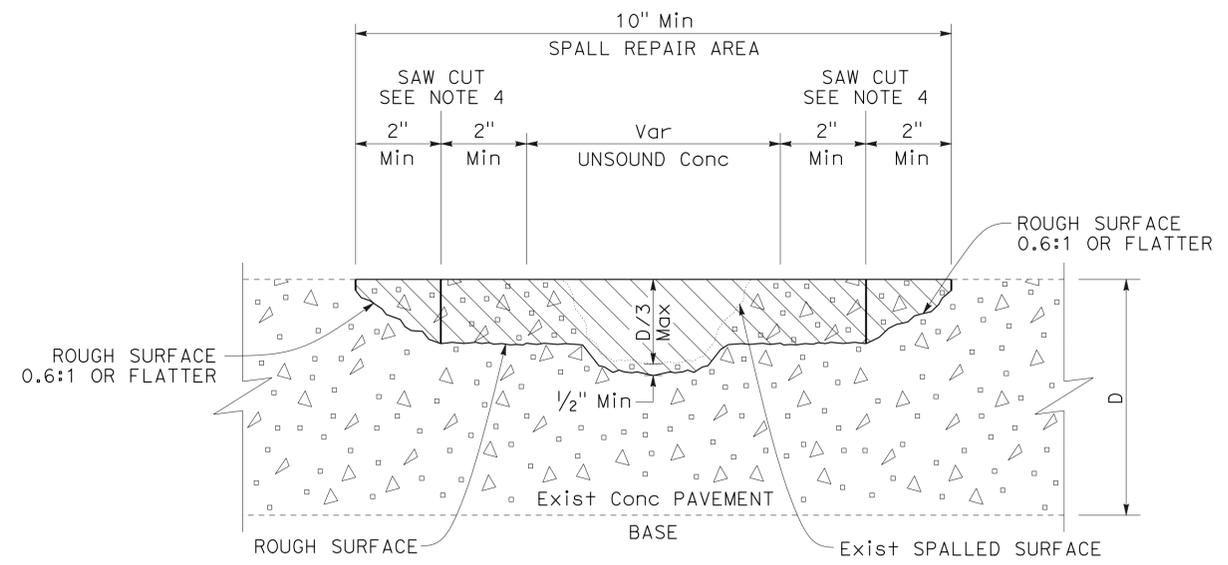
1. See Project Plans for spall repair locations.
2. Combine spall repair areas closer than 2' apart.
3. If the spall repair area is less than 6" from a joint, extend the repair to the joint.
4. Cut at least 2" beyond the rectangular limits of unsound concrete determined by the Engineer. Determine the saw cut depth using the following table:

Conc MATERIAL	SAW CUT DEPTH	
	Min	Max
FAST-SETTING	2"	3 1/2"
POLYESTER	1 1/2"	3 1/2"



**SECTION A-A**

**JOINT, CRACK, OR EDGE OF CONCRETE PAVEMENT REPAIR**



**SECTION B-B**

**MISCELLANEOUS SPALL REPAIR**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

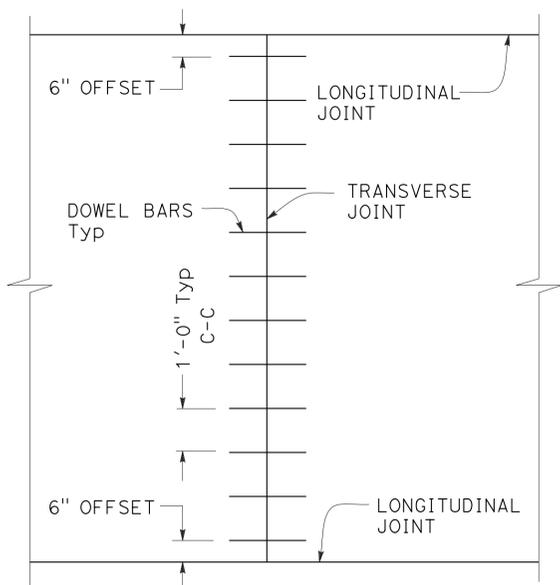
**SPALL REPAIR**

NO SCALE

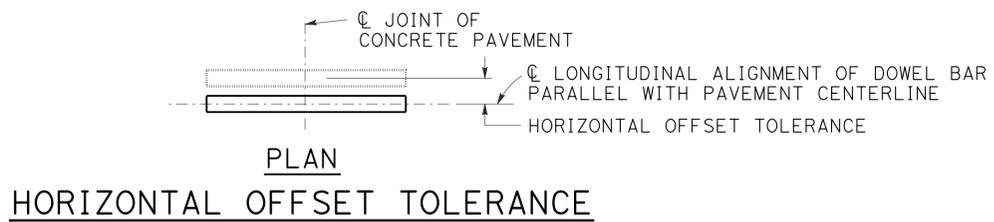
2010 REVISED STANDARD PLAN RSP P6

TO ACCOMPANY PLANS DATED 8-26-13

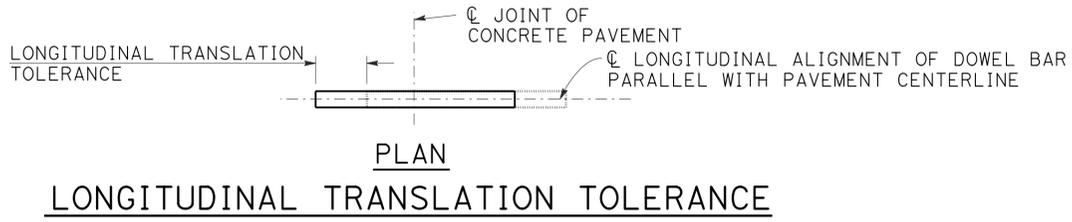
- NOTES:**
- See Revised Standard Plan RSP P1 for typical dowel bar placement and locations.
  - Where fresh concrete pavement is placed against new concrete or existing concrete pavement, rounding the corner of the existing concrete pavement is not required.
  - May also use 3/4" Dia dowel bars 2'-4" ± 1/4" in length. Center the length of dowel bars at the centerline of longitudinal joint.



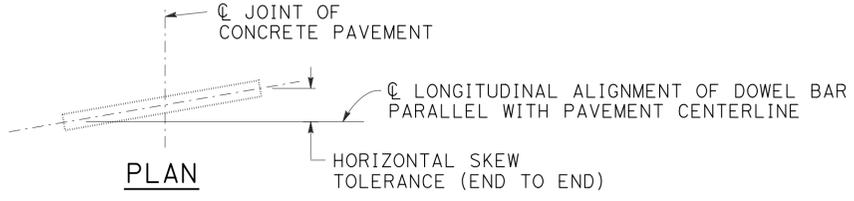
**TRANSVERSE JOINT  
DOWEL BAR LAYOUT**



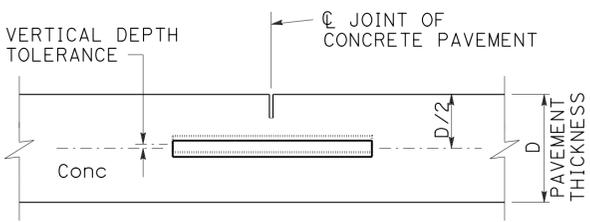
**PLAN  
HORIZONTAL OFFSET TOLERANCE**



**PLAN  
LONGITUDINAL TRANSLATION TOLERANCE**

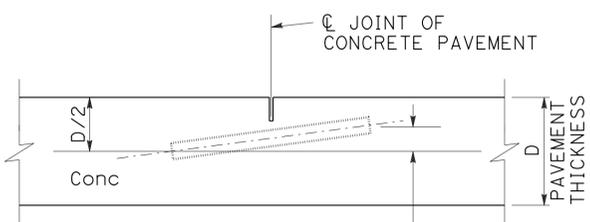


**PLAN  
HORIZONTAL SKEW TOLERANCE**



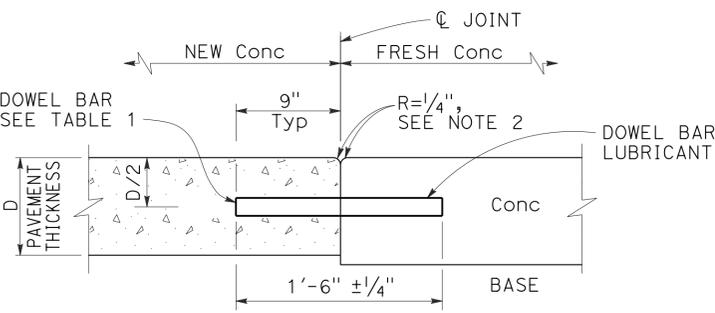
**ELEVATION**

**VERTICAL DEPTH TOLERANCE**

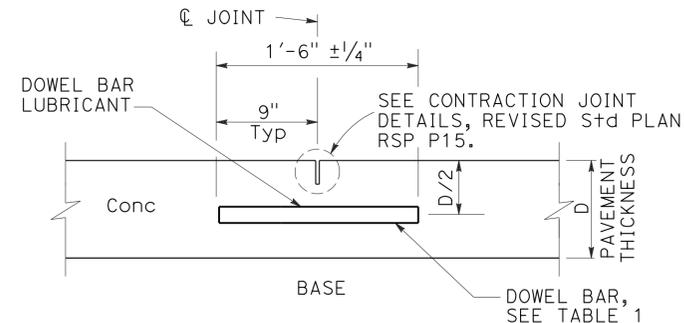


**ELEVATION**

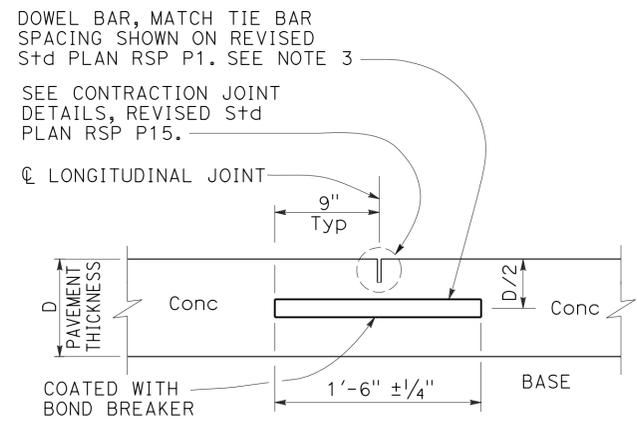
**VERTICAL SKEW TOLERANCE**



**TRANSVERSE  
CONSTRUCTION JOINT DETAIL**



**TRANSVERSE CONTRACTION JOINT**



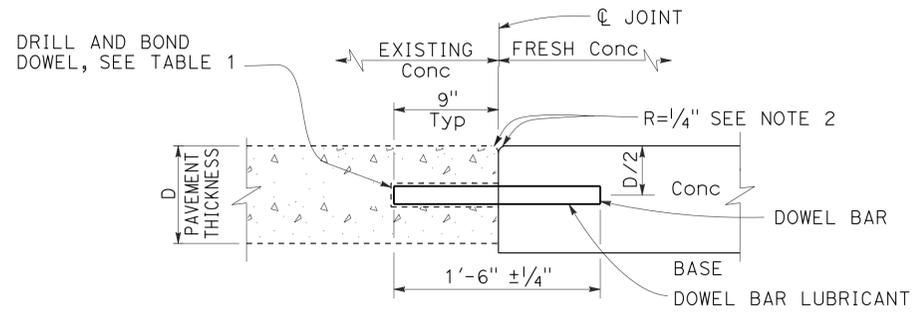
**LONGITUDINAL CONTRACTION  
JOINT WITH DOWEL BARS**

See Revised Std Plan RSP P18

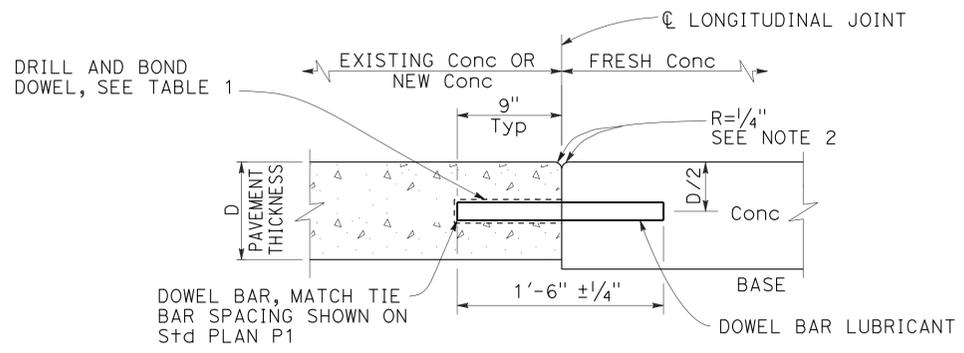
**TABLE 1  
DOWEL BAR DIAMETER TABLE**

PAVEMENT THICKNESS	0.65'	> 0.65' - 0.85'	> 0.85'
MINIMUM DOWEL * BAR DIAMETER	1"	1 1/4"	1 1/2"

\* The drilled hole diameter must be 1/8" to 3/16" larger than the bar diameter.



**TRANSVERSE CONSTRUCTION JOINT  
FOR EXISTING CONCRETE PAVEMENT**



**LONGITUDINAL CONSTRUCTION JOINT  
WITH DOWEL BARS**

See Revised Std Plan RSP P18

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT  
DOWEL BAR  
DETAILS**

NO SCALE

RSP P10 DATED JULY 19, 2013 SUPERSEDES RSP P10 DATED APRIL 20, 2012 AND STANDARD PLAN P10 DATED MAY 20, 2011 - PAGE 131 OF THE STANDARD PLANS BOOK DATED 2010.

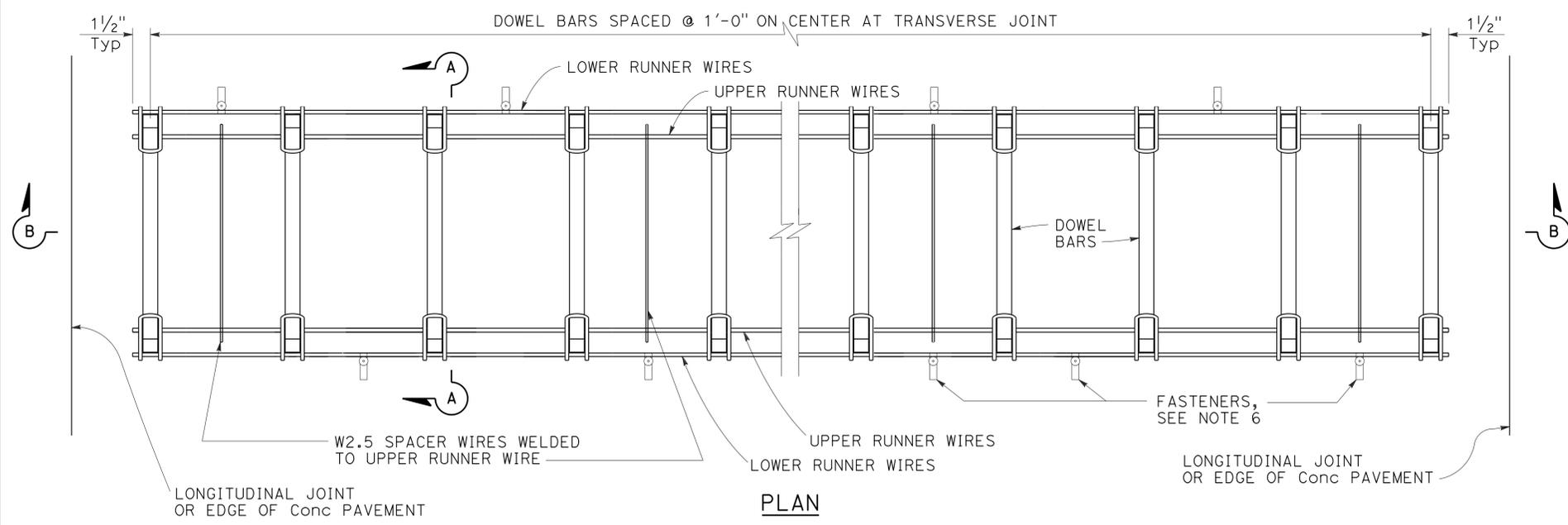
2010 REVISED STANDARD PLAN RSP P10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	619	780

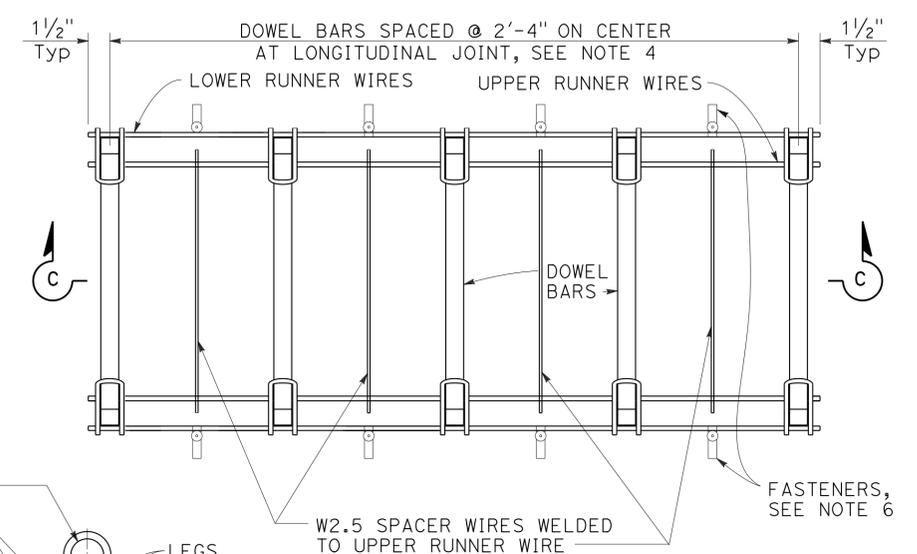
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 William K. Farnbach  
 No. C49042  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA

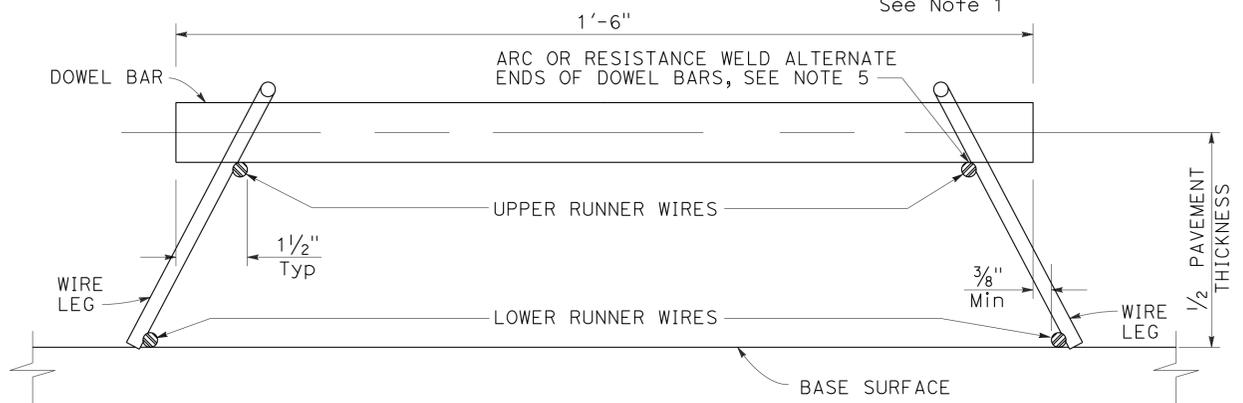
TO ACCOMPANY PLANS DATED 8-26-13



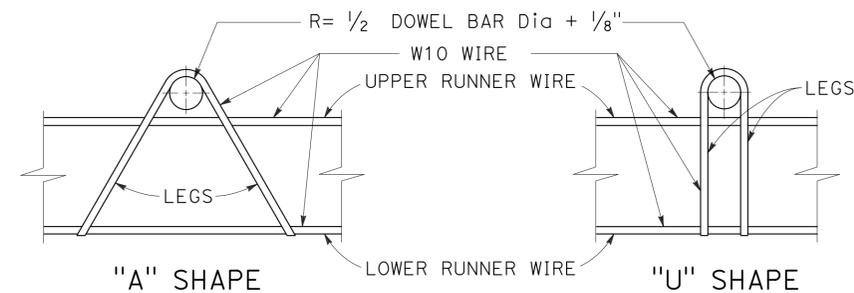
**PLAN  
DOWEL BAR BASKET  
(TRANSVERSE JOINT)**  
See Note 1



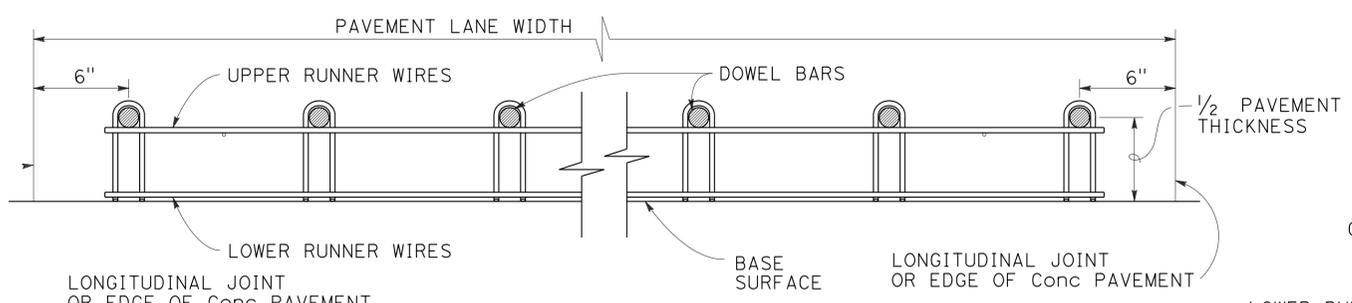
**PLAN  
DOWEL BAR BASKET  
(LONGITUDINAL JOINT)**  
See Note 1



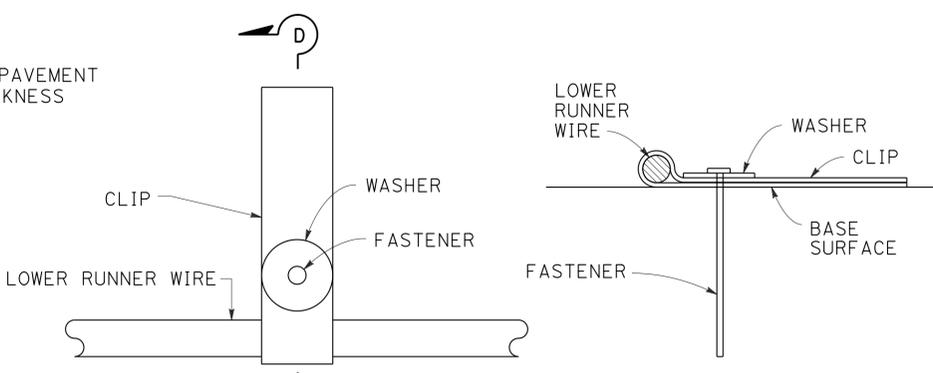
**SECTION A-A**



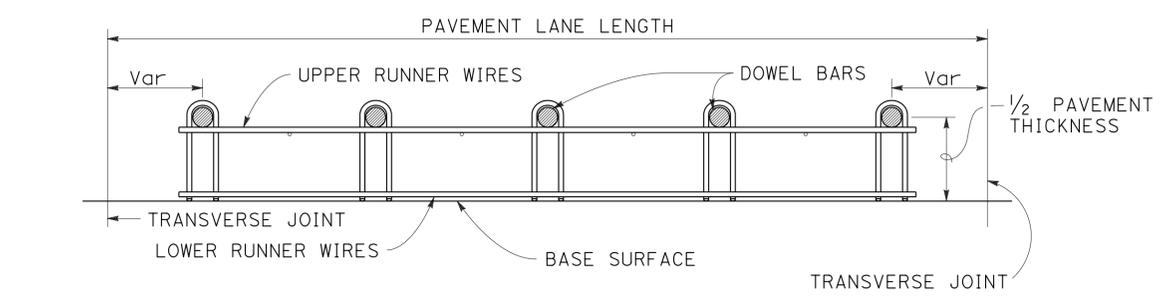
**ASSEMBLY FRAME DETAILS**



**SECTION B-B**  
See Note 1



**FASTENER DETAIL**  
See Note 6



**SECTION C-C**  
See Notes 1 and 4

**NOTES:**

- "U" frame shape assembly shown. Use either "U" frame shape or "A" frame shape.
- Wire sizes shown are the minimum required.
- All wire intersections must be resistance welded.
- Use tie bar spacing for longitudinal dowel bar locations. See Revised Standard Plans RSP P1, RSP P2, RSP P3A, and RSP P3B for tie bar requirements.
- Weld may be at the top or bottom of the dowel bar.
- Use anchor pins where soil or granular base is used. See Revised Standard Plan RSP P17 for Anchor Pin Detail.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT  
DOWEL BAR BASKET  
DETAILS**  
NO SCALE

RSP P12 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN P12  
DATED MAY 20, 2011 - PAGE 132 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P12**

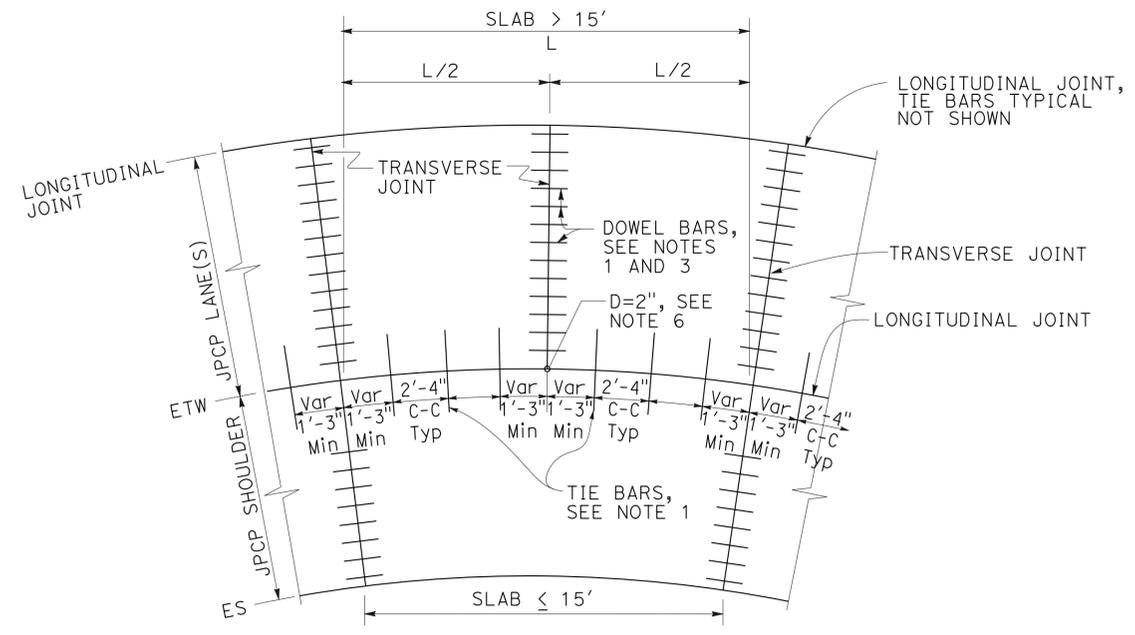
2010 REVISED STANDARD PLAN RSP P12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	620	780

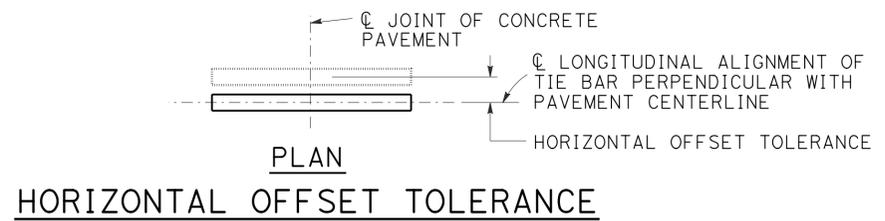
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 William K. Farnbach  
 No. C49042  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA

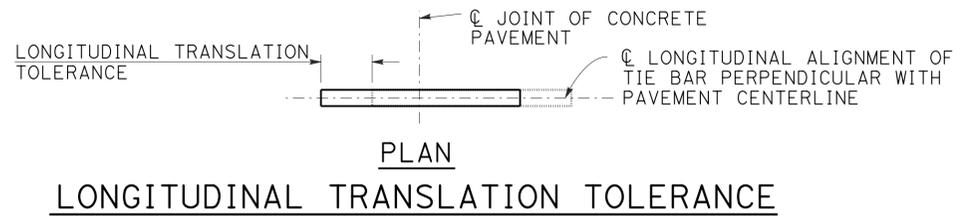
TO ACCOMPANY PLANS DATED 8-26-13



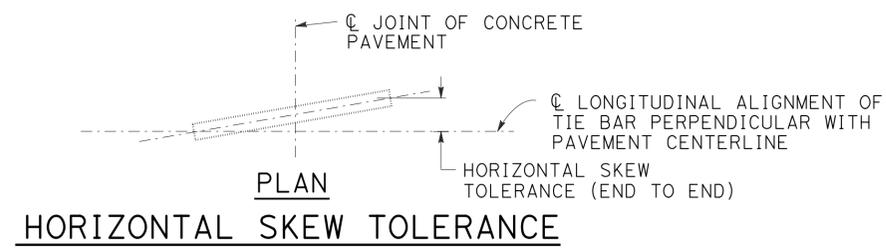
**TIE BAR LAYOUT IN CURVED LANES**



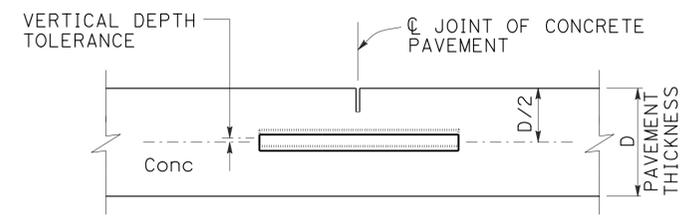
**HORIZONTAL OFFSET TOLERANCE**



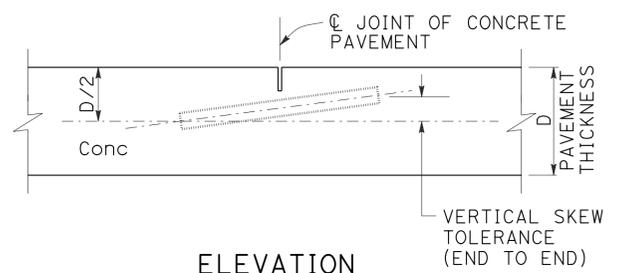
**LONGITUDINAL TRANSLATION TOLERANCE**



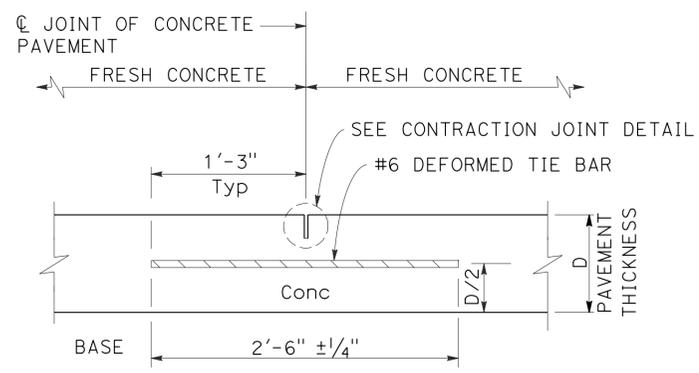
**HORIZONTAL SKEW TOLERANCE**



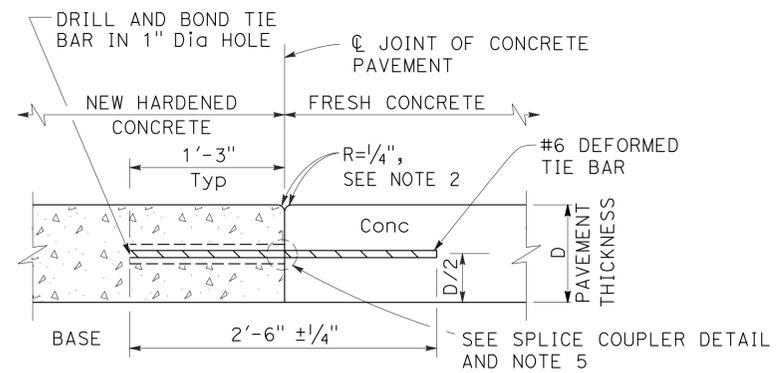
**ELEVATION VERTICAL DEPTH TOLERANCE**



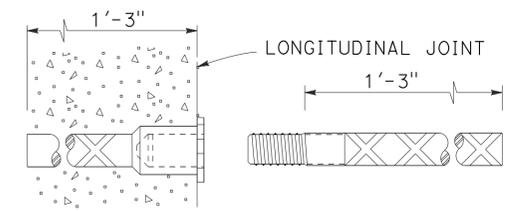
**ELEVATION VERTICAL SKEW TOLERANCE**



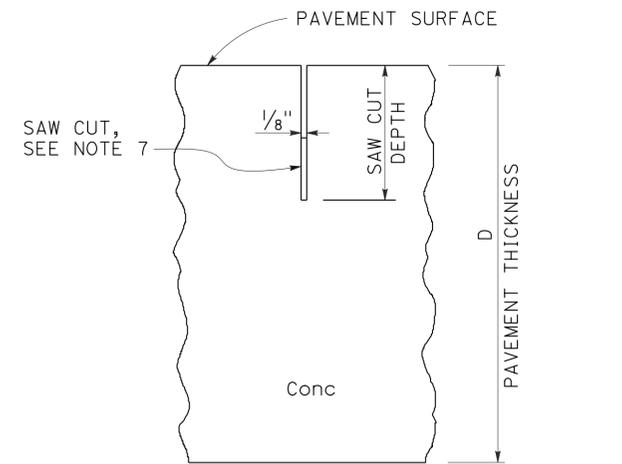
**LONGITUDINAL CONTRACTION JOINT**



**LONGITUDINAL CONSTRUCTION JOINT**



**ALTERNATIVE SPLICE COUPLER**



**CONTRACTION JOINT DETAIL**

- NOTES:**
1. See Revised Standard Plan RSP 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 Revised Standard Plan RSP 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.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT-TIE BAR DETAILS**  
 NO SCALE

RSP P15 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP P15

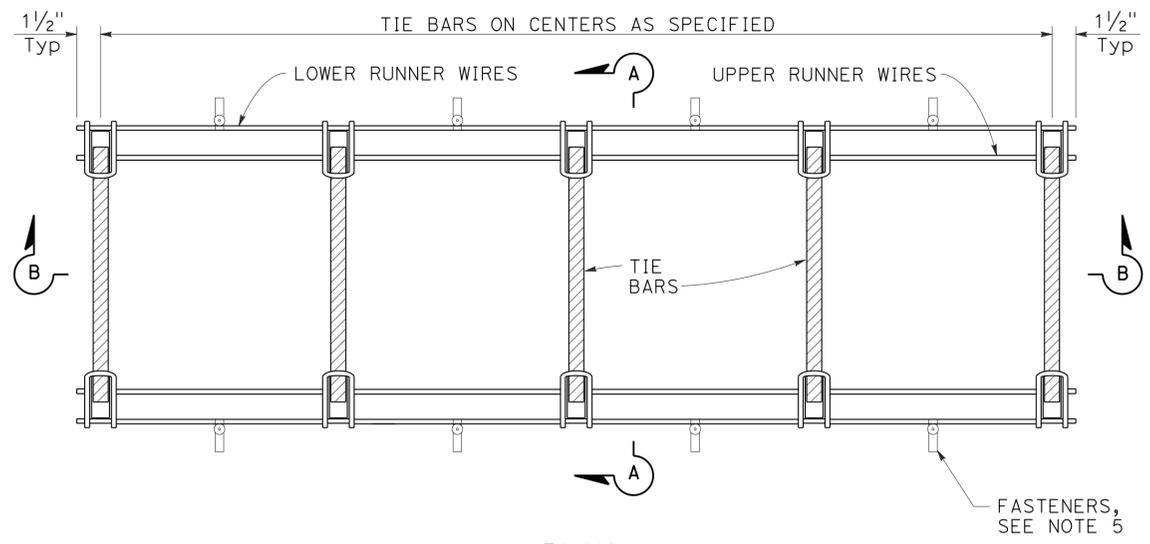
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	621	780

William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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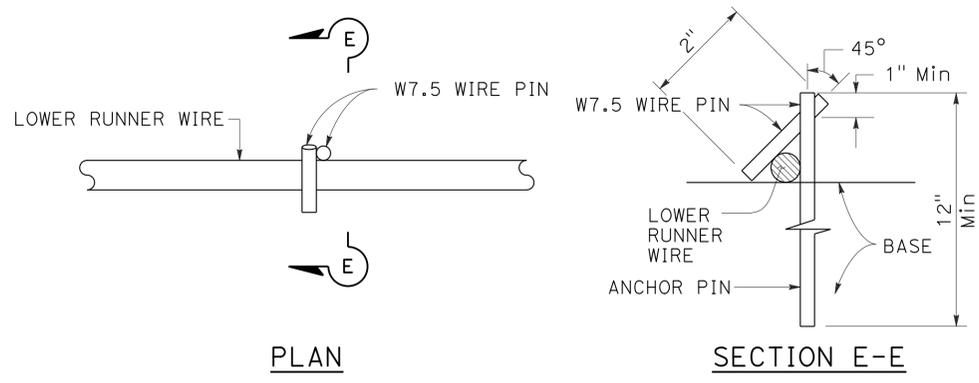
TO ACCOMPANY PLANS DATED 8-26-13

**NOTES:**

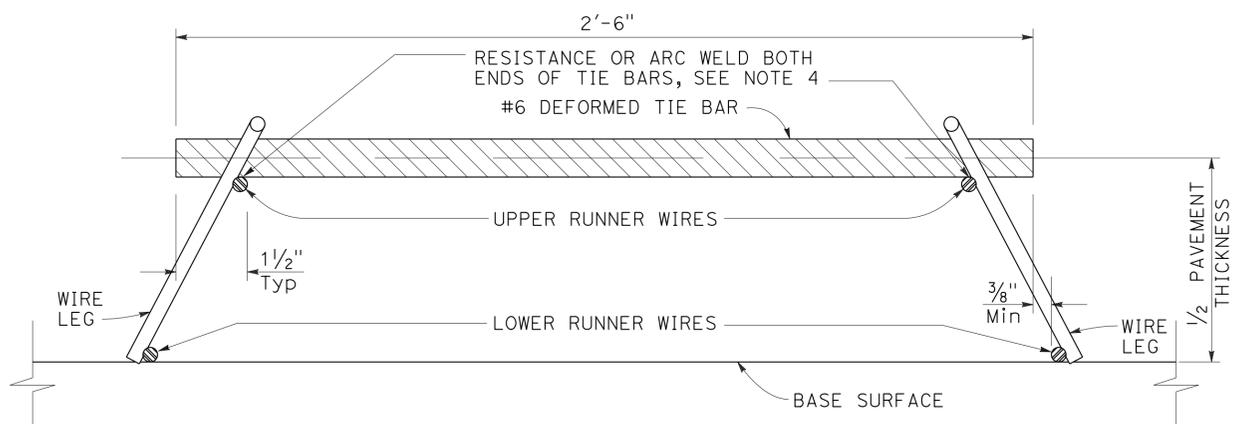
- "U" frame shape assembly shown. Use either "U" frame shape or "A" frame shape.
- Wire sizes shown are the minimum required.
- All wire intersections must be resistance welded.
- Weld may be at top or bottom of tie bars.
- Use anchor pins where soil or granular base is used.



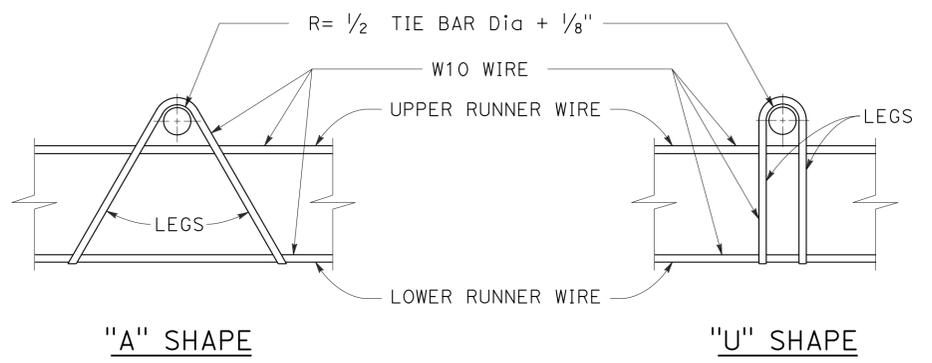
**PLAN TIE BAR BASKET**  
(Tie bars at longitudinal joint)  
See Note 1



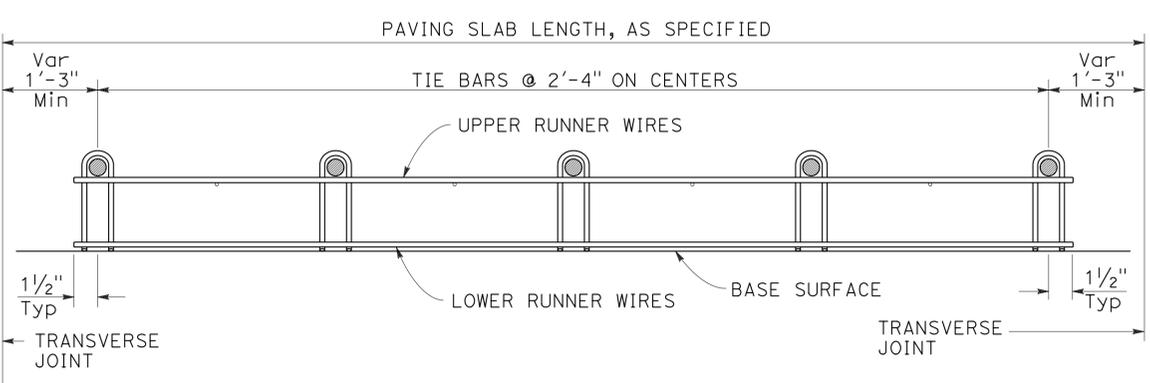
**ANCHOR PIN DETAIL**  
See Note 5



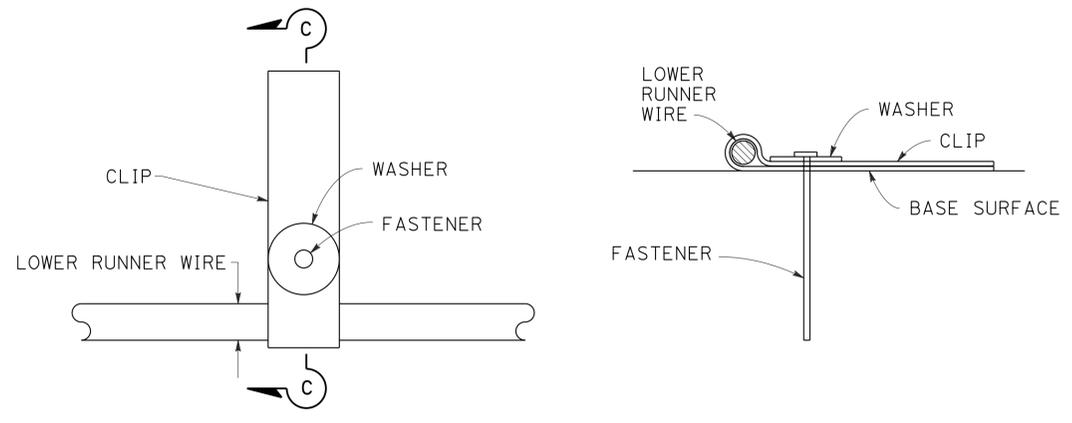
**SECTION A-A**



**ASSEMBLY FRAME DETAILS**  
See Note 1



**SECTION B-B**  
See Note 1



**FASTENER DETAIL**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT TIE BAR BASKET DETAILS**  
NO SCALE

RSP P17 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN P17 DATED MAY 20, 2011 - PAGE 134 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P17**

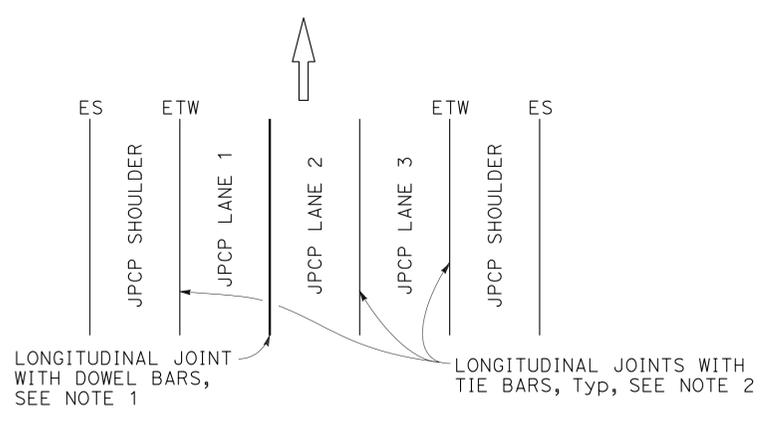
2010 REVISED STANDARD PLAN RSP P17

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	622	780

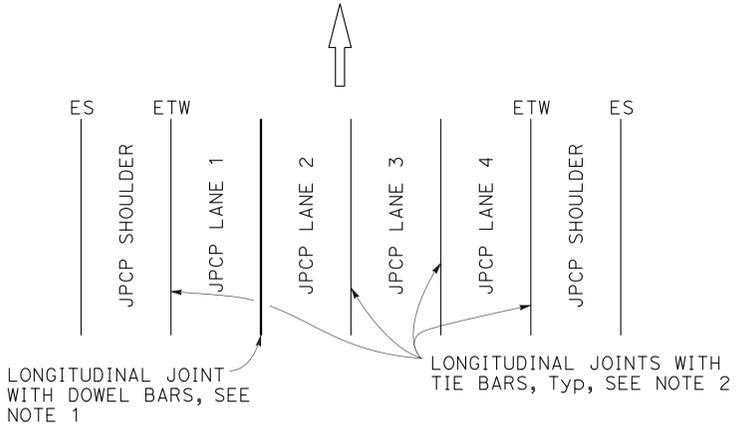
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 William K. Farnbach  
 No. C49042  
 Exp. 9-30-14  
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 STATE OF CALIFORNIA

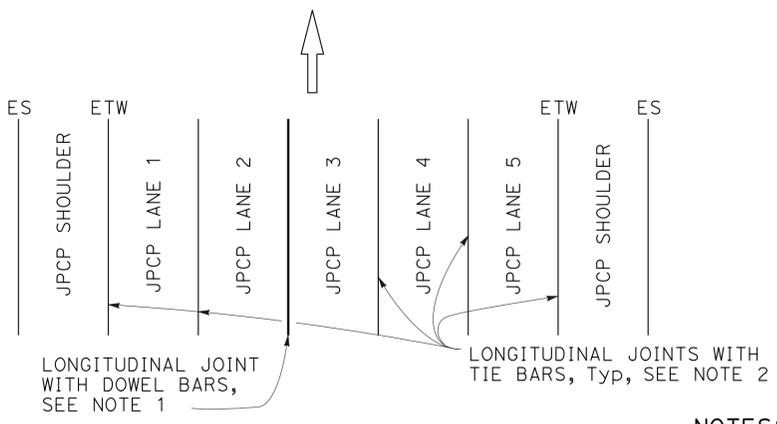
TO ACCOMPANY PLANS DATED 8-26-13



**3 LANES WITH CONCRETE SHOULDERS**  
PLAN



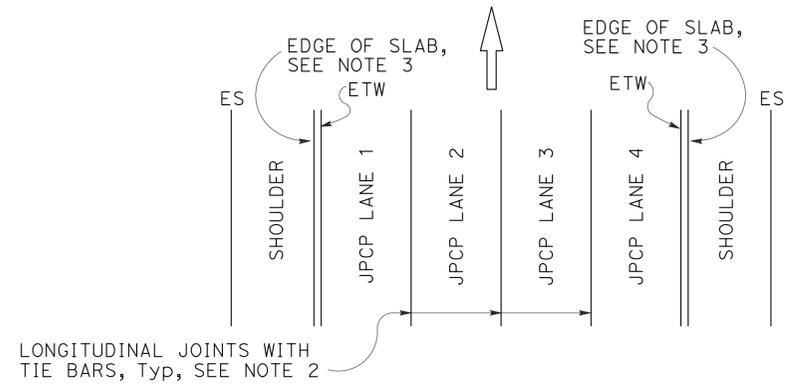
**4 LANES WITH CONCRETE SHOULDERS**  
PLAN



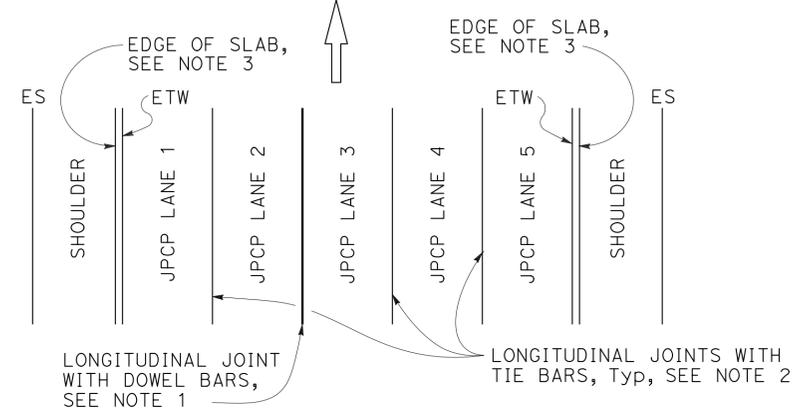
**5 LANES WITH CONCRETE SHOULDERS**  
PLAN

**NOTES:**

1. See Revised Standard Plan RSP P10 for longitudinal joint with dowel bars.
2. See Revised Standard Plan RSP P15 for longitudinal joint with tie bars.
3. S = Reservoir depth.  
 $S = \frac{7}{8}'' \pm \frac{1}{16}''$  for asphalt rubber seals  
 $S = \frac{9}{16}'' \pm \frac{1}{16}''$  for silicone seals  
 Preformed compression seals must be  $\frac{13}{16}''$  wide and  $S = 1\frac{1}{16}'' \pm \frac{1}{16}''$

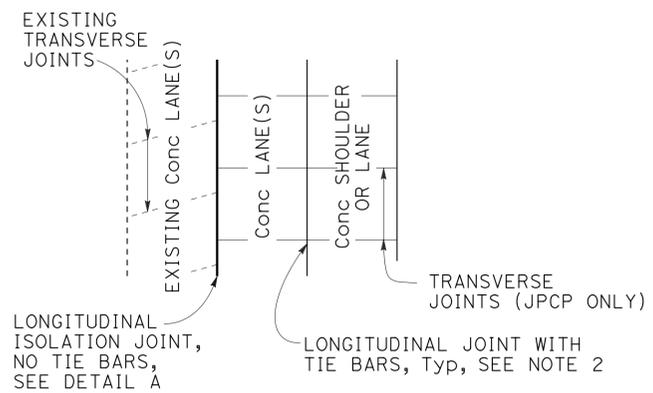


**4 LANES OR LESS WITH AC SHOULDERS**  
PLAN



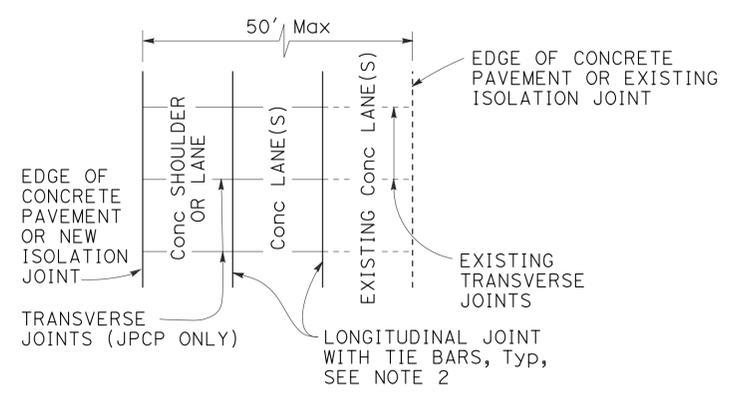
**5 LANES WITH AC SHOULDERS**  
PLAN

**NEW CONSTRUCTION**  
Location of Longitudinal Joints For JPCP



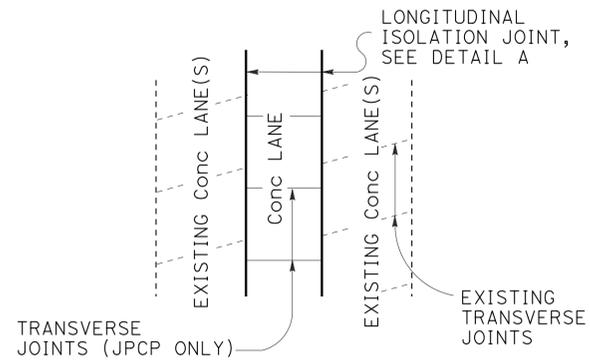
**CASE 1**  
PLAN

Transverse Joints do not align between new and existing.



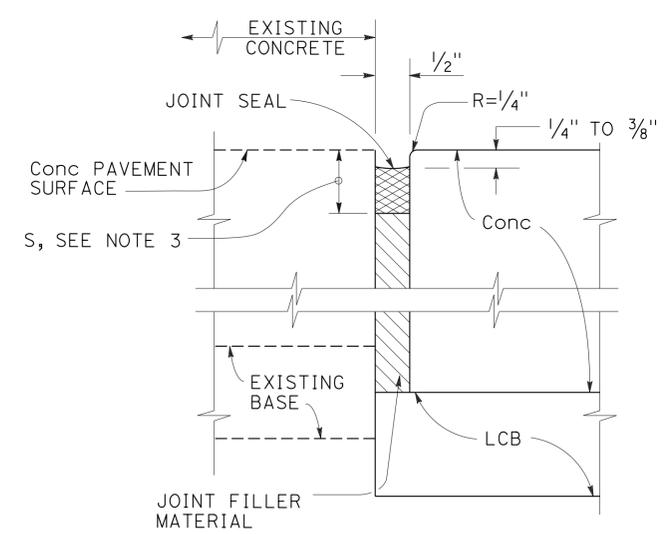
**CASE 2**  
PLAN

Transverse Joints align between new and existing. (For JPCP only)



**CASE 3 (INTERIOR LANE REPLACEMENT)**  
PLAN

Transverse Joints do not align between new and existing.



**DETAIL "A"**  
**ISOLATION JOINT**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CONCRETE PAVEMENT  
LANE SCHEMATICS  
AND ISOLATION JOINT DETAIL**

NO SCALE

**LANE/SHOULDER ADDITION OR RECONSTRUCTION**  
For JPCP and CRCP

RSP P18 DATED JULY 19, 2013 SUPERSEDES RSP P18 DATED APRIL 20, 2012 AND STANDARD PLAN P18 DATED MAY 20, 2011 - PAGE 135 OF THE STANDARD PLANS BOOK DATED 2010.

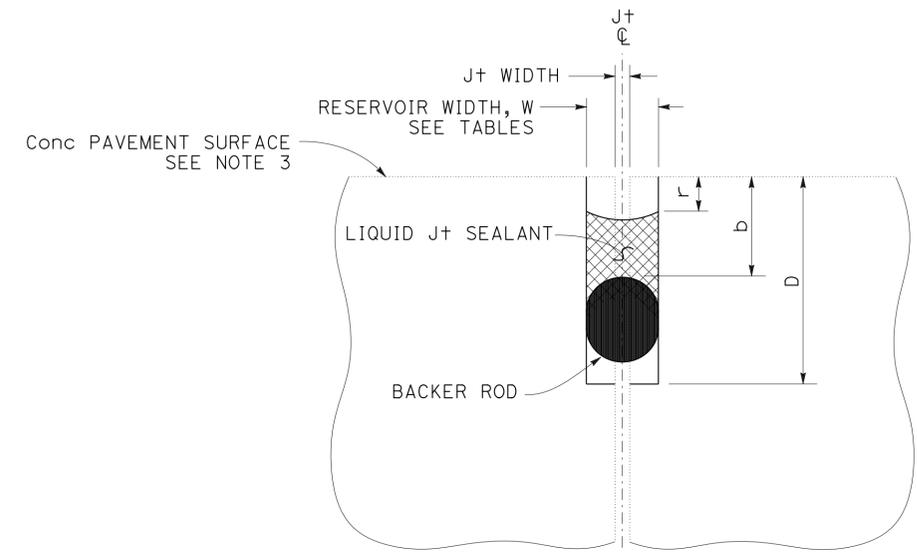
**REVISED STANDARD PLAN RSP P18**

2010 REVISED STANDARD PLAN RSP P18

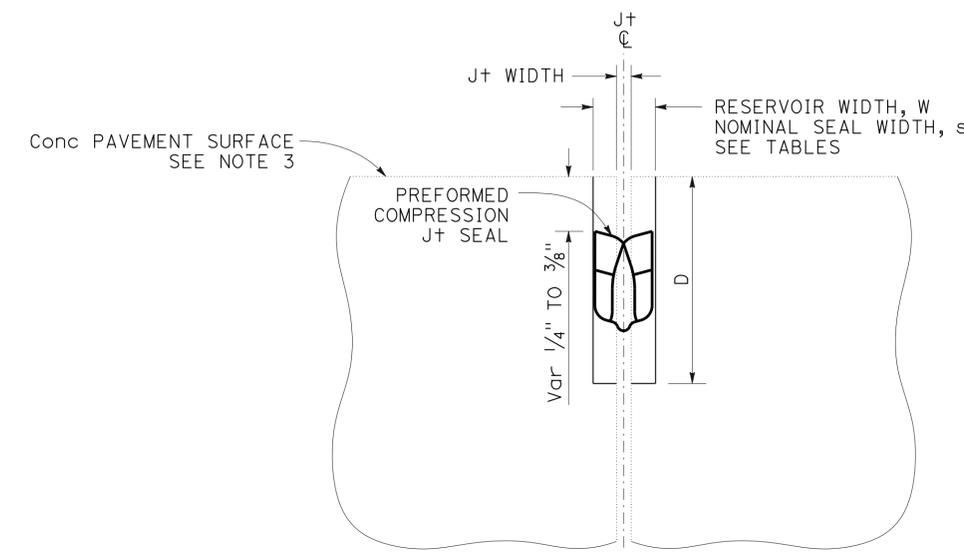
TO ACCOMPANY PLANS DATED 8-26-13

**NOTES:**

1. Details do not apply to isolation joints and longitudinal construction joints.
2. Tie bars, dowel bars, and bar reinforcement are not shown.
3. Depths are measured from the final concrete pavement surface elevation after any grinding.



**LIQUID JOINT SEALANT**



**PREFORMED COMPRESSION JOINT SEAL**

Const SEASON	Min RESERVOIR WIDTH * W ± 1/16"
WINTER	1/4"
SPRING	3/8"
SUMMER	
FALL	

\* Minimum reservoir width for replace joint seal = existing joint width + 1/8"

RESERVOIR WIDTH W ± 1/16"	LIQUID JOINT SEALANT DIMENSIONS					
	BACKER ROD NOMINAL Dia *	DEPTHS (ASPHALT RUBBER) **		DEPTHS (SILICONE)		
		RESERVOIR D ± 1/4"	BACKER ROD b ± 1/16"	RESERVOIR D ± 1/4"	BACKER ROD b ± 1/16"	RECESS r ± 1/16"
1/4"	3/8"	1 3/4"	7/8"	1 3/8"	1/2"	1/4"
3/8"	1/2"	1 7/8"	7/8"	1 1/2"	1/2"	1/4"
1/2"	3/4"	2"	7/8"	1 3/4"	9/16"	5/16"
5/8"	7/8"	2 1/4"	1"	2"	5/8"	5/16"
3/4"	1"	2 3/4"	1 1/8"	2 1/4"	3/4"	3/8"
7/8"	1 1/4"	3"	1 1/4"	2 1/2"	13/16"	3/8"
1"	1 1/2"	3 1/4"	1 3/8"	2 5/8"	7/8"	3/8"
1 1/8"	1 1/2"	3 1/2"	1 1/2"	2 13/16"	1"	1/2"

\* Larger diameter backer rods may be substituted according to manufacturer recommendations if reservoir depth is increased equivalently.  
 \*\* Asphalt rubber sealant recess depth "r" varies from 1/4" to 3/8"

RESERVOIR WIDTH W ± 1/16"	PREFORMED COMPRESSION JOINT SEAL DIMENSIONS	
	NOMINAL SEAL WIDTH s	RESERVOIR DEPTH D ± 1/4"
1/4"	7/16"	1 1/4"
3/8"	11/16"	1 7/16"
1/2"	13/16"	1 11/16"
5/8"	1"	1 7/8"
3/4"	1 1/4"	2 1/8"
7/8"	1 5/8"	2 5/8"
1"	1 9/8"	2 9/8"
1 1/8"	2"	2 7/8"

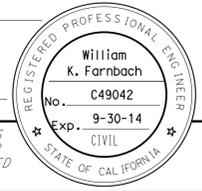
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**JOINT SEALS**  
 NO SCALE

RSP P20 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN P20  
 DATED MAY 20, 2011 - PAGE 136 OF THE STANDARD PLANS BOOK DATED 2010.

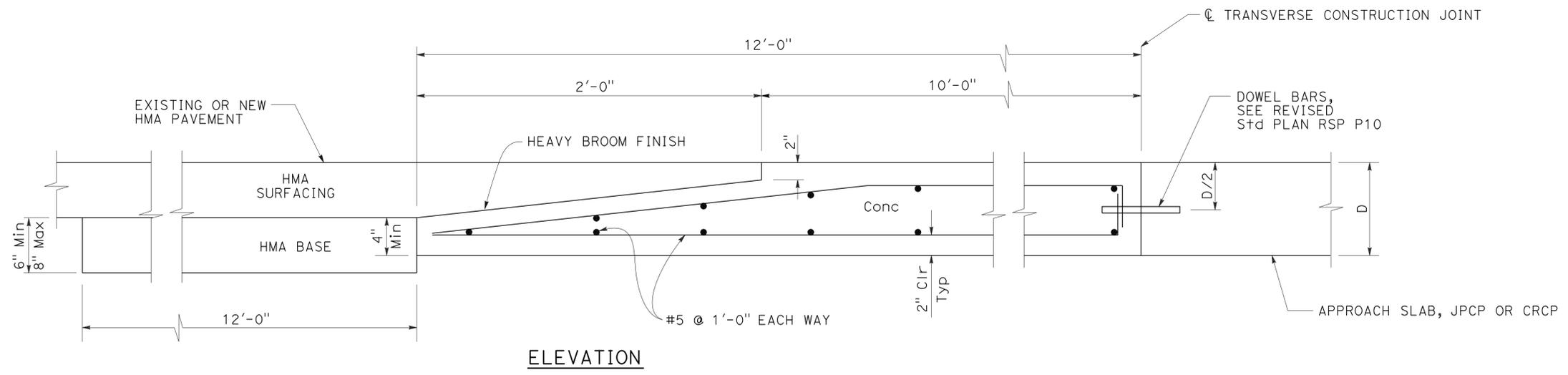
2010 REVISED STANDARD PLAN RSP P20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	624	780

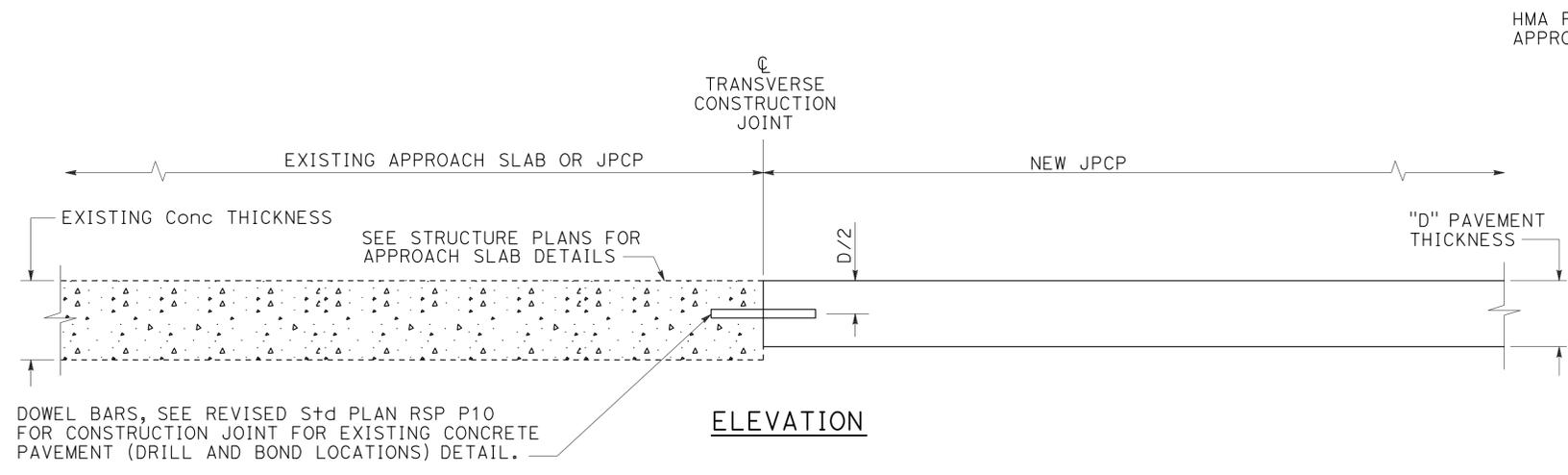
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



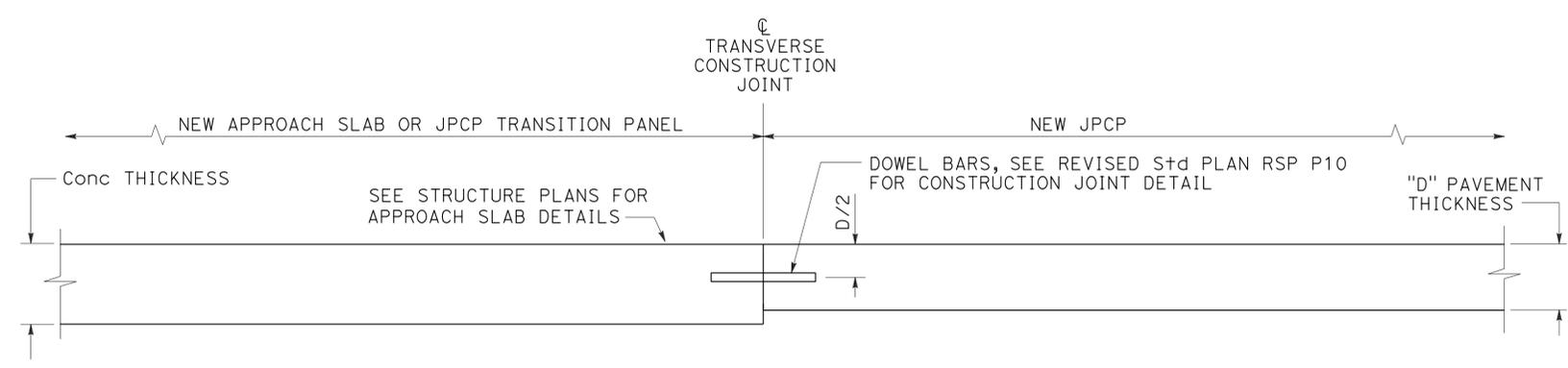
TO ACCOMPANY PLANS DATED 8-26-13



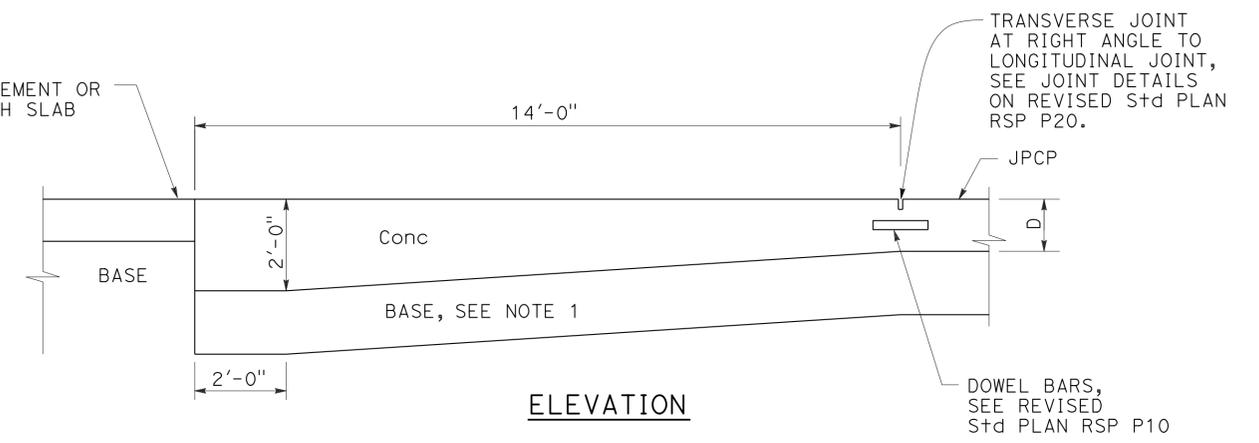
**ELEVATION**  
**CONCRETE PAVEMENT**  
**TRANSITION PANEL**



**ELEVATION**  
**TERMINAL JOINT TYPE 1**  
For Exist JPCP or Approach Slab



**ELEVATION**  
**TERMINAL JOINT TYPE 2**  
For JPCP Transition Panel or Approach Slab



**ELEVATION**  
**PAVEMENT END ANCHOR**  
For HMA Pvmnt or Approach Slab

**NOTE:**  
1. Maintain same base thickness as JPCP.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT-  
END PANEL  
PAVEMENT TRANSITIONS**

NO SCALE

RSP P30 DATED JULY 19, 2013 SUPERSEDES RSP P30 DATED APRIL 20, 2012 AND STANDARD PLAN P30 DATED MAY 20, 2011 - PAGE 137 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP P30

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	625	780

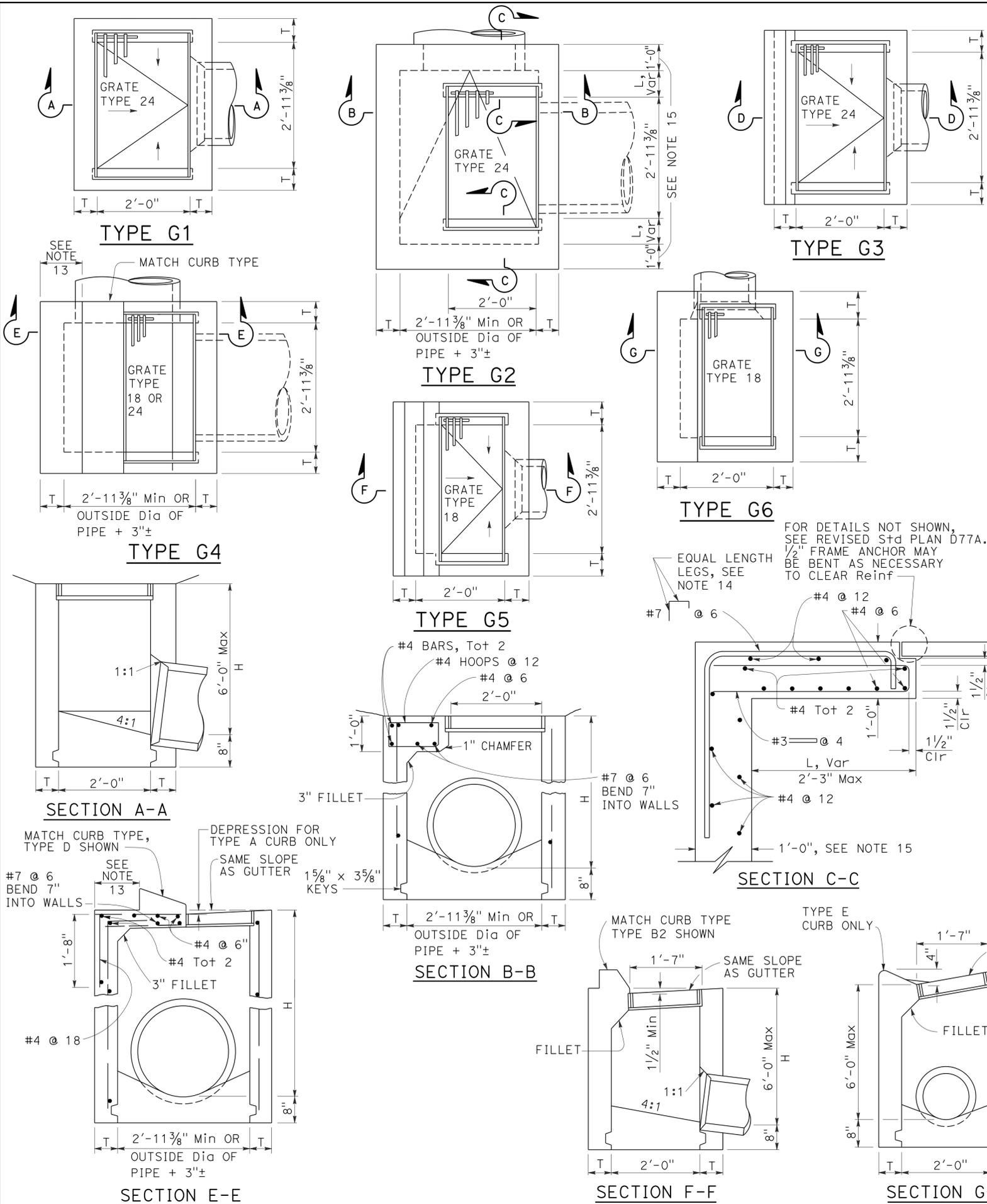
Glenn DeCou  
REGISTERED CIVIL ENGINEER

October 19, 2012  
PLANS APPROVAL DATE

Glenn DeCou  
No. C34547  
Exp. 9-30-13  
CIVIL  
STATE OF CALIFORNIA

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2010 REVISED STANDARD PLAN RSP D73



**NOTES:**

- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
- For "T" wall thickness, see Table A below.
- Wall reinforcing not required when "H" is 8'-0" or less and the unsupported width or length is 7'-0" or less. Walls exceeding these limits shall be reinforced with #4 bars @ 1'-6" ± centers placed 1 1/2" clear to inside of box unless otherwise shown.
- Inlet bottom reinforcing not required. See Standard Plan D74C for alternative reinforced bottom and alternative half round bottom.
- Steps-None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of inlet. The distance between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps inserts may be substituted for the bar steps. Step inserts shall comply with State Industrial Safety requirements. See Standard Plan D74C for step details.
- Details shown apply to both metal and concrete pipe.
- Pipe(s) can be placed in any wall.
- Curb section shall match adjacent curb.
- Basin floors shall have wood trowel finish and a minimum slope of 12:3 from all directions toward outlet pipe.
- Set inlet so that grate bars are parallel to direction of principal surface flow.
- See Revised Standard Plans D77A and D77B for grate and frame details and weights of miscellaneous iron and steel.
- See Standard Plan D78A for gutter depression details.
- This dimension will vary with different grates, curbs types, box width and wall thickness.
- Bar may be rotated as necessary to clear opening. Where "L" is 6" or less, bar may be omitted.
- Where "L" is 6" or less, wall thickness shall be as shown in Table A.
- Cast-in-place inlets to be formed around all pipes/stubs intersecting the inlet, and concrete poured in one continuous operation. Precast inlets shall have mortared connections conforming to details for Type GCP Inlet shown on Standard Plan D75B. See Standard Specifications for mortar composition.

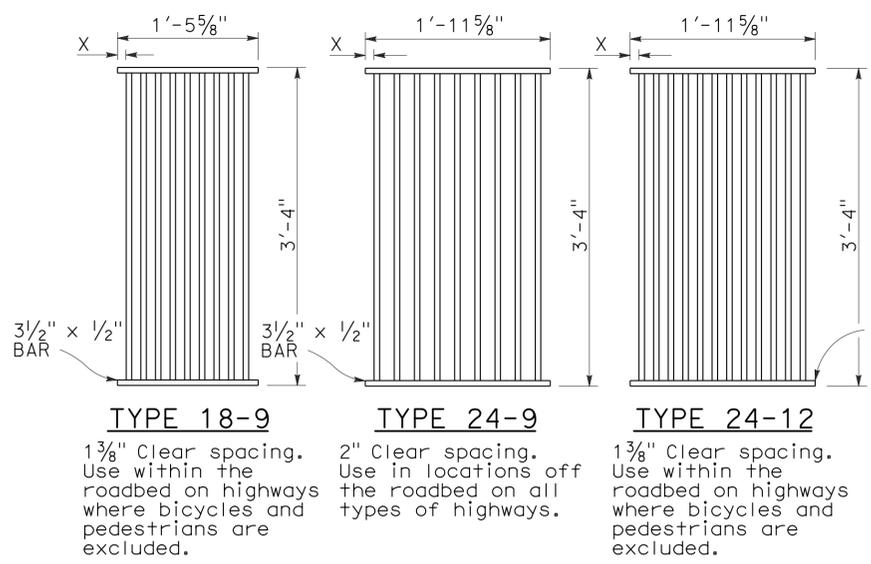
**TABLE A**

TYPE	CONCRETE QUANTITIES			
	H=3'-0" TO 8'-0" (T=6")	H=8'-1" TO 20'-0" (T=8")	H=8'-1" (CY)	ADDITIONAL PCC PER FOOT (CY)
G-1	0.95	0.220	See Note A	SEE NOTE A
G-2*	1.31	0.255	3.50	0.357
G-3	1.03	0.220	See Note A	SEE NOTE A
G-4* (TYPE 24)	1.27	0.255	3.48	0.357
G-4* (TYPE 18)	1.30	0.255	3.50	0.357
G-5	1.02	0.220	SEE NOTE A	SEE NOTE A
G-6	1.04	0.220	SEE NOTE A	SEE NOTE A

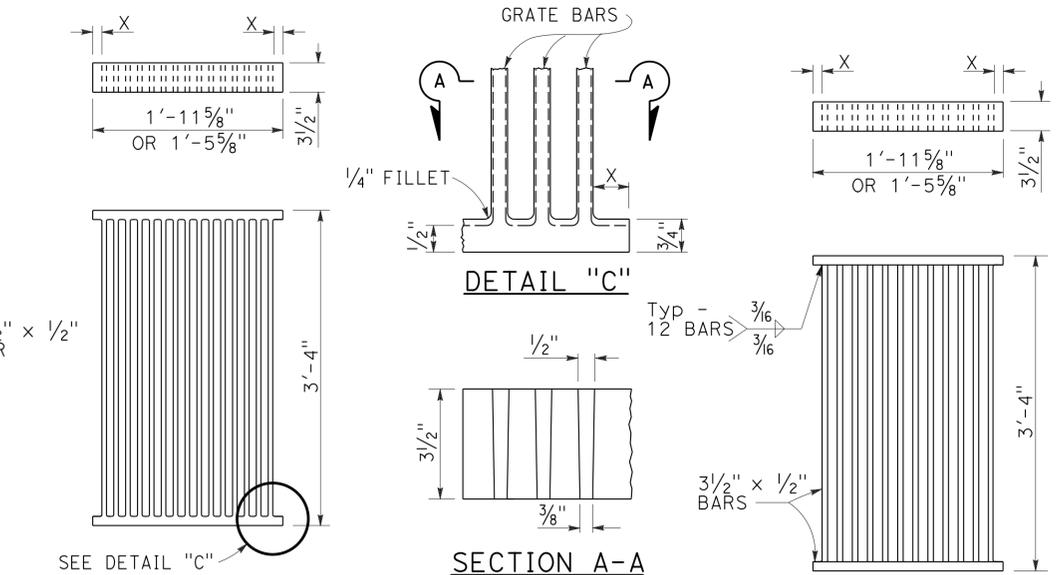
TABLE BASED ON 8" FLOOR SLAB. NO DEDUCTIONS ARE TO BE MADE TO THESE QUANTITIES BECAUSE OF PIPE OPENINGS, DIFFERENT FLOOR ALTERNATIVES OR DIFFERENT CURB TYPES. \* QUANTITIES FOR TYPE G-2 AND G-4 INLETS BASED ON THE MINIMUM INTERIOR DIMENSIONS.

**NOTE A:**  
Maximum allowable height 6'-0".

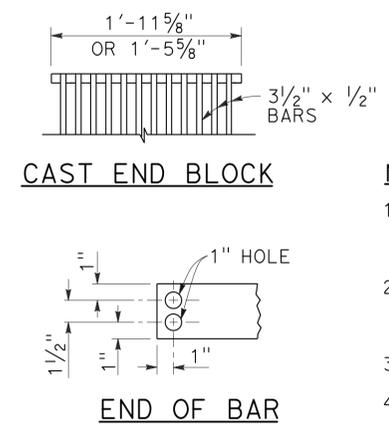
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**DRAINAGE INLETS**  
NO SCALE



**RECTANGULAR GRATE DETAILS**  
(See table below)

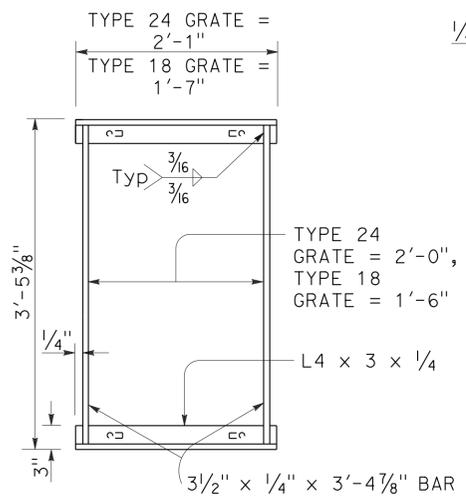


**ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE**  
**ALTERNATIVE WELDED GRATE**

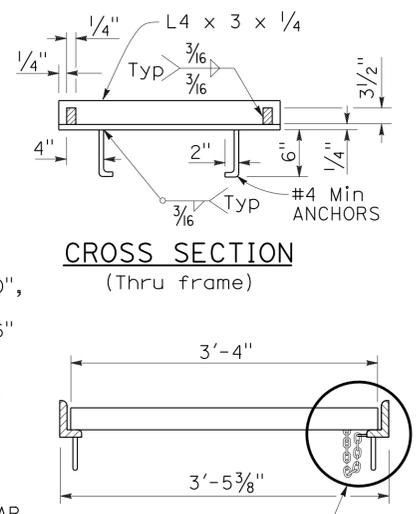


**CAST END BLOCK**  
**END OF BAR**

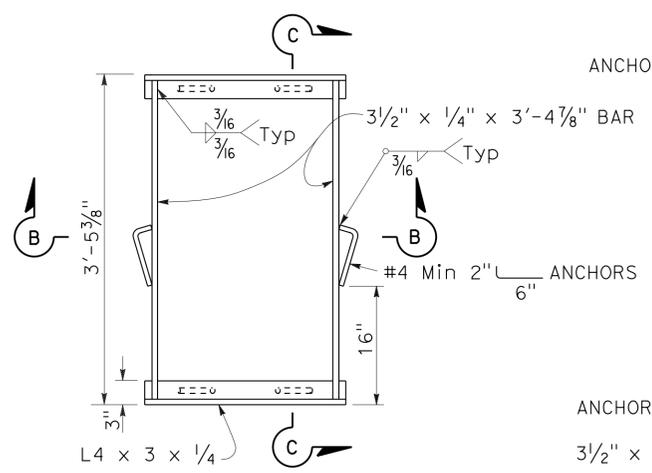
- NOTES:**
- Grate type numbers refer to approximate width of grate in inches and number of bars, respectively.
  - Contractor has the option of using cast ductile iron, cast carbon steel, welded, bolted, or cast end block grate.
  - Rounded top of bars optional on all grates.
  - Pipe inlets with a grate shall be placed so that bars parallel direction of principle surface flow.
  - Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
  - Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
  - Grate and frame weights are based on welded grates (weights of face angles, steps, protection bars, etc. are not included).
  - Connect chain to grate and frame only at locations shown on the plans. When chain is required, do not use cast ductile iron grates.



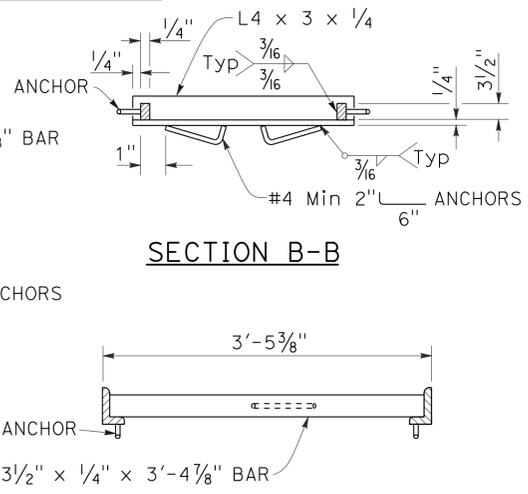
**TYPICAL FRAME**



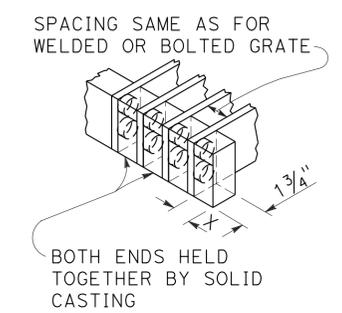
**CROSS SECTION**  
(Thru frame)  
**LONGITUDINAL SECTION**  
(Thru frame and grate)



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



**SECTION B-B**  
**SECTION C-C**



**ALTERNATIVE CAST DUCTILE IRON OR CAST CARBON STEEL END BLOCK GRATE**

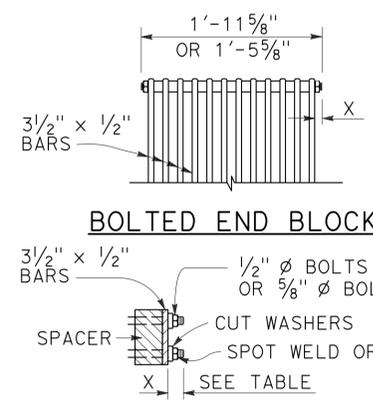
**RECTANGULAR FRAME DETAILS**  
(For all rectangular grates)

**GRATE BAR SPACING TABLE**

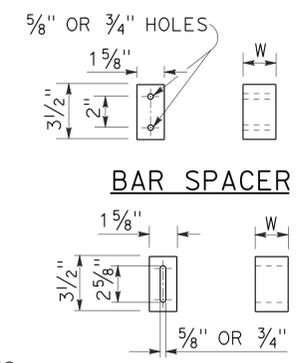
TYPE	NO. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/8"	1 1/16"
24-9	9	2"	1 9/16"
24-12	12	1 3/8"	1 1/4"

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

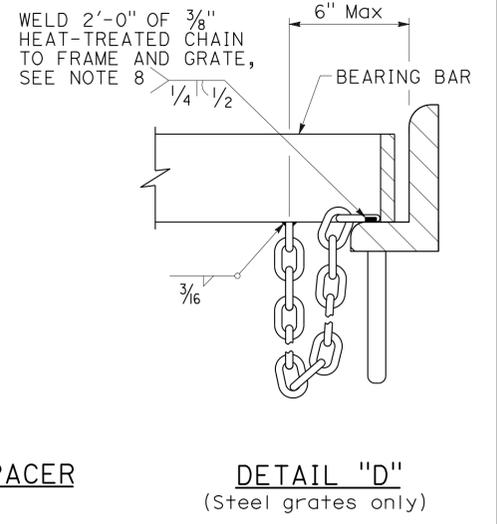
INLET TYPE	GRATE TYPE	NO. OF GRATES	WEIGHT LB
GDO	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
G0,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22
GRATE CHAIN			3



**BOLTED END BLOCK**  
**BOLTING DETAIL**  
**ALTERNATIVE BOLTED GRATE**



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



**DETAIL "D"**  
(Steel grates only)

**BASIS FOR MISC IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS**  
(See Note 7)

**GRATE DETAILS No. 1**  
NO SCALE

RSP D77A DATED APRIL 19, 2013 SUPERSEDES RSP D77A DATED JULY 20, 2012 AND STANDARD PLAN D77A DATED MAY 20, 2011 - PAGE 164 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D77A**

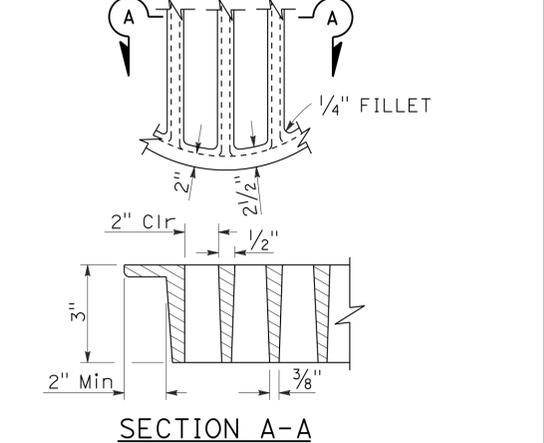
2010 REVISED STANDARD PLAN RSP D77A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	627	780

**Raymond Don Tsztoo**  
 REGISTERED CIVIL ENGINEER  
 No. C37332  
 Exp. 6-30-14  
 STATE OF CALIFORNIA  
 CIVIL

April 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 8-26-13

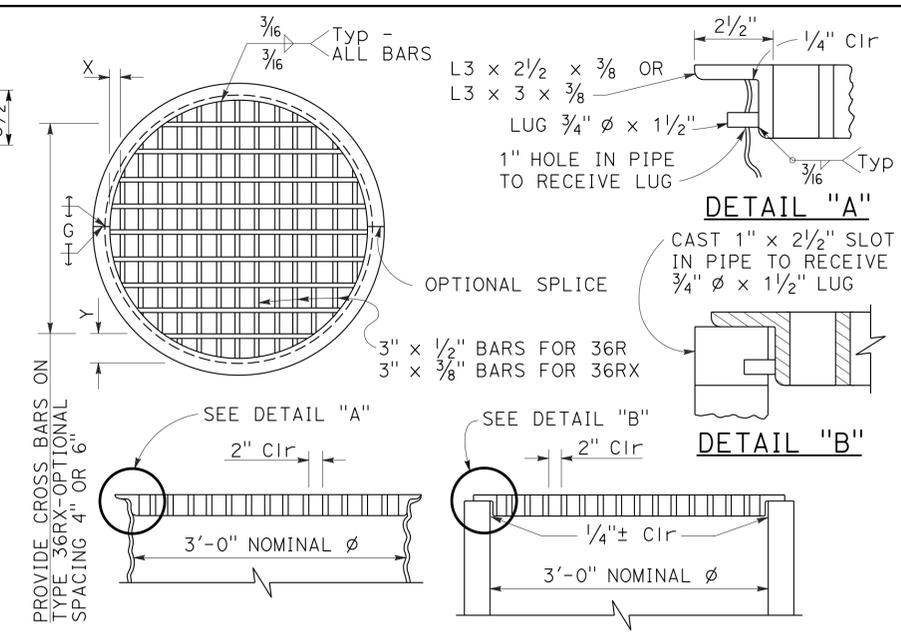


**BASIS FOR Misc IRON AND STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS**

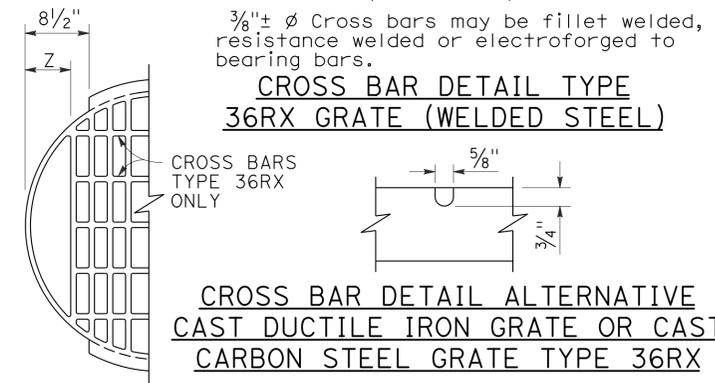
INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDO (SEE NOTE 4)	24-10C	2	391
	24-10S	2	456
	24-12X	2	473
	24-13	2	374
GO, GOL, G1, G2, G3, G4 (TYPE 24)	24-10C	1	202
	24-10S	1	229
	24-12X	1	239
	24-13	1	188
G4 (TYPE 18) G5, G6	18-8S	1	187
	18-9X	1	187
GT1, GT2	18-8S	2	374
	18-9X	2	374
	18-10	2	298
	24-10C	2	404
GT3, GT4	24-10S	2	458
	24-12X	2	478
	24-13	2	376
ODI	36RX (Mod)	1	196
GMP, GCP, GCPI	36RX	1	215
ODI	36R (Mod)	1	220
GMP, GCP, GCPI	36R	1	236
TRASH RACK			22
GRATE CHAIN			3

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**GRATE DETAILS No. 2**  
 NO SCALE

RSP D77B DATED APRIL 19, 2013 SUPERSEDES RSP D77B DATED JULY 20, 2012 AND STANDARD PLAN D77B DATED MAY 20, 2011 - PAGE 165 OF THE STANDARD PLANS BOOK DATED 2010.



**TYPE 36R AND 36RX GRATE DETAILS**



**MODIFIED TYPE 36R AND 36RX GRATE FOR ODI INLET**

**NOTES:**

- When alternative grates are allowed - Final pay based on alternative with the lesser weight.
- Use frame shown on Standard Plan D74A, D74B or RSP D77A as appropriate.
- When Type 24-10S, 24-12X or 24-13 grates are used with GDO Inlets, a 1/4" x 3 1/2" x 3'-4 7/8" steel bar shall be welded across the center of inlet frame to separate the individual grates.
- See Revised Standard Plan RSP D77A for connecting chain to welded grate and frame. When chain is required, do not use cast ductile iron grate.

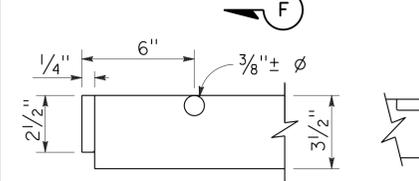
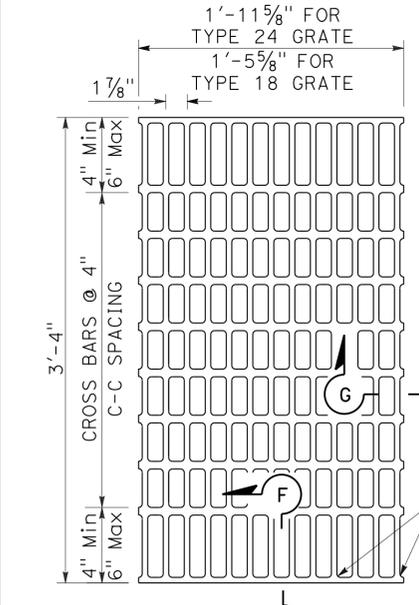
**GRATE BAR SPACING TABLE**

TYPE	No. OF BARS	CLEAR BAR SPACING	Y			Z
			X	4" SPACING	6" SPACING	
36R	13	2"	2 1/8"	-	-	-
36RX (STEEL)	15	2"	9/16"	3 3/4"	5 3/4"	-
36RX (CAST)	13	2"	2 1/8"	3 3/4"	5 3/4"	-
36R Mod	12	2"	2 1/8"	-	-	5"
36RX Mod (STEEL)	13	2"	9/16"	3 3/4"	5 3/4"	5 11/16"
36RX Mod (CAST)	12	2"	2 1/8"	3 3/4"	5 3/4"	5"

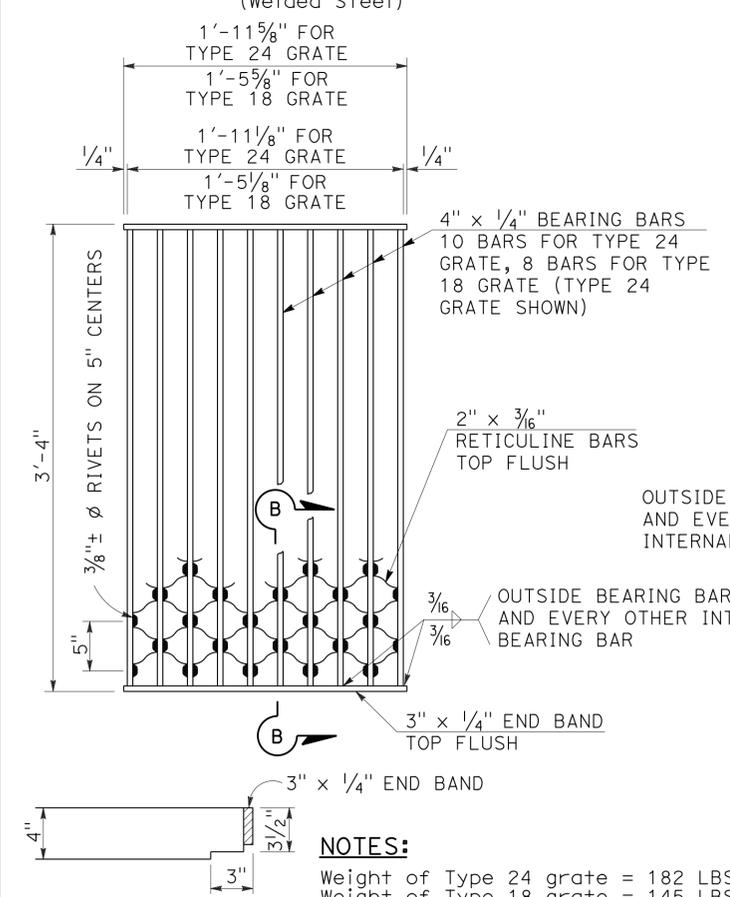
**REVISED STANDARD PLAN RSP D77B**

**NOTES:**

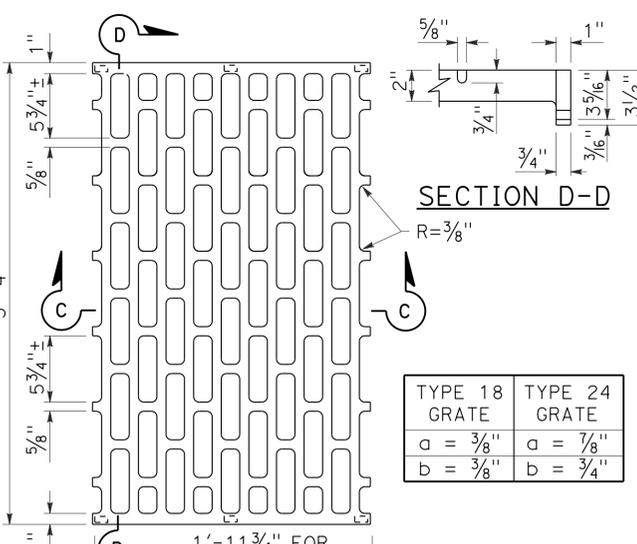
Bearing bars to be 3 1/2" x 1/4" bars on 1 7/8" centers.  
 3/8" ± ø Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.  
 Weight of Type 24 grate = 141 LBS.  
 Weight of Type 18 grate = 107 LBS. (Type 24 grate shown).



**TYPE 18-10 AND 24-13 GRATE**  
 (Welded Steel)

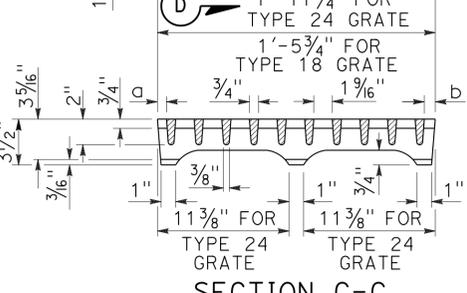


**TYPE 18-8S AND 24-10S GRATE**  
 (Welded Steel) Reticuline type

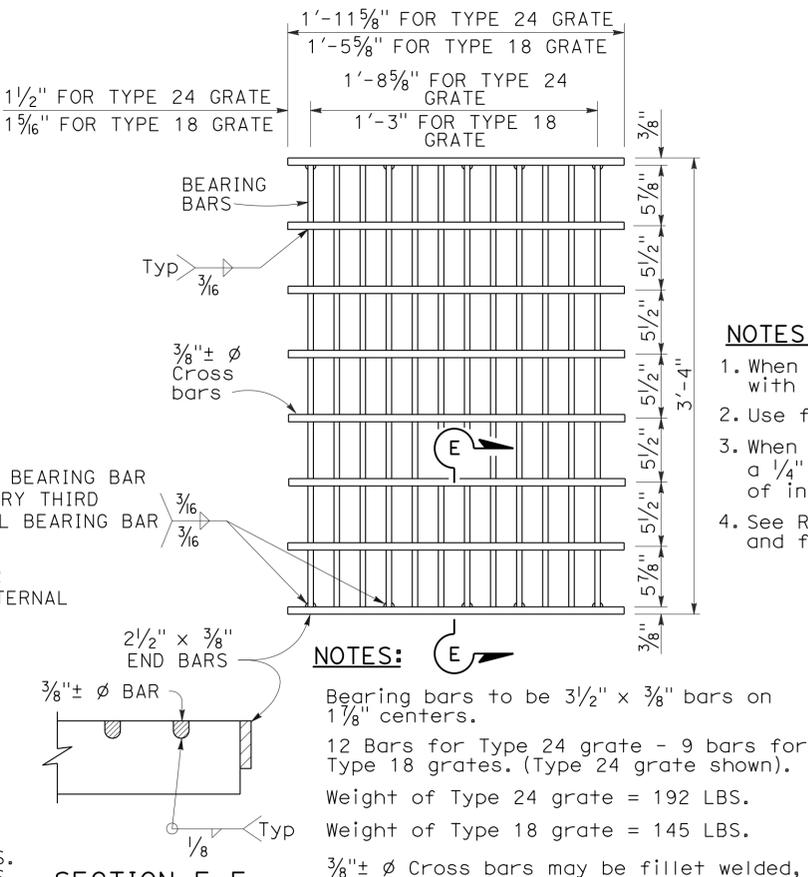


**NOTES:**

Weight of Type 24 grate = 155 LBS.  
 Weight of Type 18 grate = 130 LBS.  
 On Type 18 grate omit center bearing point.



**TYPE 18-8C AND 24-10C GRATE**  
 (Cast ductile iron)



**TYPE 18-9X AND 24-12X GRATE**  
 (Welded Steel)

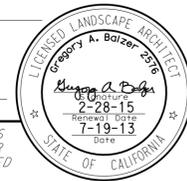
2010 REVISED STANDARD PLAN RSP D77B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	628	780

*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT

July 19, 2013  
 PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED 8-26-13

**A**

**AB** AGGREGATE BASE  
**ABS** ACRYLONITRILE-BUTADIENE-STYRENE  
**AC** ASPHALT CONCRETE  
**ACC** ARMOR-CLAD CONDUCTORS  
**Adj** ADJACENT/ADJUSTABLE  
**AIC** AUXILIARY IRRIGATION CONTROLLER  
**Ait** ALTERNATIVE  
**AMEND** AMENDMENT  
**ARV** AIR RELEASE VALVE  
**AUTO** AUTOMATIC  
**AUX** AUXILIARY  
**AVB** ATMOSPHERIC VACUUM BREAKER

**B**

**B&B** BALLED AND BURLAPPED  
**B/B** BRASS/BRONZE  
**B/B/PL** BRASS/BRONZE/PLASTIC  
**B/PL** BRASS/PLASTIC  
**BFM** BONDED FIBER MATRIX  
**Bit C+D** BITUMINOUS COATED  
**BP** BOOSTER PUMP  
**BPA** BACKFLOW PREVENTER ASSEMBLY  
**BPE** BACKFLOW PREVENTER ENCLOSURE  
**BV** BALL VALVE

**C**

**C** CONDUIT  
**CAP** CORRUGATED ALUMINUM PIPE  
**CARV** COMBINATION AIR RELEASE VALVE  
**CB** COUPLING BAND  
**CCA** CAM COUPLER ASSEMBLY  
**CEC** CONTROLLER ENCLOSURE CABINET  
**CHDPE** CORRUGATED HIGH DENSITY POLYETHYLENE  
**CL** CHAIN LINK  
**CNC** CONTROL AND NEUTRAL CONDUCTORS  
**Conc** CONCRETE  
**CP** COPPER PIPE  
**CS** COMPOST SOCK  
**CSP** CORRUGATED STEEL PIPE  
**CST** CENTER STRIP  
**CV** CHECK VALVE

**D**

**Dia** DIAMETER  
**DIP** DUCTILE IRON PIPE  
**DIT** DRIP IRRIGATION TUBING  
**DG** DECOMPOSED GRANITE  
**DN** DIAMETER NOMINAL  
**DVA** DRIP VALVE ASSEMBLY

**E**

**EC** EROSION CONTROL  
**ECTC** EROSION CONTROL TECHNOLOGY COUNCIL  
**Elect** ELECTRIC/ELECTRICAL  
**Elev** ELEVATION  
**ELL** ELBOW  
**ENCL** ENCLOSURE  
**EP** EDGE OF PAVEMENT  
**ES** EDGE OF SHOULDER  
**EST** END STRIP  
**ESTB** ESTABLISHMENT  
**ETW** EDGE OF TRAVELED WAY

**F**

**F** FULL CIRCLE  
**F/P** FULL/PART CIRCLE  
**FCV** FLOW CONTROL VALVE  
**FERT** FERTILIZER  
**FG** FINISHED GRADE  
**FH** FLEXIBLE HOSE  
**FIPT** FEMALE IRON PIPE THREAD  
**FIS** FERTILIZER INJECTOR SYSTEM  
**FL** FLOW LINE  
**FR** FIBER ROLL  
**FS** FLOW SENSOR  
**FSC** FLOW SENSOR CABLE  
**FV** FLUSH VALVE

**G**

**Galv** GALVANIZED  
**GARV** GARDEN VALVE  
**GARVA** GARDEN VALVE ASSEMBLY  
**GM** GRAVEL MULCH  
**GPH** GALLONS PER HOUR  
**GPM** GALLONS PER MINUTE  
**GSP** GALVANIZED STEEL PIPE  
**GV** GATE VALVE

**H**

**H** HALF CIRCLE  
**HDPE** HIGH DENSITY POLYETHYLENE  
**HP** HORSEPOWER/HINGE POINT  
**HPL** HIGH PRESSURE LINE  
**Hwy** HIGHWAY

**I**

**IC** IRRIGATION CONTROLLER  
**ICC** IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET  
**ID** INSIDE DIAMETER  
**IFS** IRRIGATION FILTRATION SYSTEM  
**IPS** IRON PIPE SIZE  
**IPT** IRON PIPE THREAD  
**Irr** IRRIGATION

**L**

**L** LENGTH  
**Max** MAXIMUM  
**MBGR** METAL BEAM GUARD RAILING  
**MCV** MANUAL CONTROL VALVE  
**MIC** MASTER IRRIGATION CONTROLLER  
**Min** MINIMUM  
**MIPT** MALE IRON PIPE THREAD  
**Misc** MISCELLANEOUS  
**M+I** MATERIAL  
**MVP** MAINTENANCE VEHICLE PULLOUT

**N**

**NCN** NO COMMON NAME  
**NL** NOZZLE LINE  
**No.** NUMBER  
**NPT** NATIONAL PIPE THREAD

**O**

**O/C** ON CENTER  
**OD** OUTSIDE DIAMETER  
**OL** OVERLAP

**P**

**P** PART CIRCLE  
**PB** PULL BOX  
**PCC** PORTLAND CEMENT CONCRETE  
**PE** POLYETHYLENE  
**PK+** PACKET  
**PL** PLASTIC  
**PLS** PURE LIVE SEED  
**PLT** PLANT/PLANTING  
**PLT ESTB** PLANT ESTABLISHMENT  
**PM** POST MILE  
**PR** PRESSURE RATED  
**PRLV** PRESSURE RELIEF VALVE  
**PRV** PRESSURE REGULATING VALVE  
**PVC** POLYVINYL CHLORIDE  
**Pvmt** PAVEMENT

**Q**

**Q** QUARTER CIRCLE  
**QCV** QUICK COUPLING VALVE

**NOTE:**  
 For additional abbreviations, see Standard Plans A10A and A10B.

**R**

**R** RADIUS  
**RCP** REINFORCED CONCRETE PIPE  
**RCV** REMOTE CONTROL VALVE  
**RCVM** REMOTE CONTROL VALVE (MASTER)  
**RCVMF** REMOTE CONTROL VALVE (MASTER) W/FLOW SENSOR  
**RCVP** REMOTE CONTROL VALVE W/PRESSURE REGULATOR  
**RCW** RECYCLED WATER  
**RECP** ROLLED EROSION CONTROL PRODUCT  
**REQ** REQUIRED  
**RICS** REMOTE IRRIGATION CONTROL SYSTEM  
**R/W** RIGHT OF WAY

**S**

**S** SLIP  
**SCH** SCHEDULE  
**SF** STATE-FURNISHED  
**Shld** SHOULDER  
**Sq** SQUARE  
**SST** SIDE STRIP  
**Sta** STATION  
**Std** STANDARD  
**SW** SIDEWALK/SOUND WALL

**T**

**T** THIRD CIRCLE/THREAD  
**TLS** TRUCK LOADING STANDPIPE  
**TQ** THREE QUARTER CIRCLE  
**TRM** TURF REINFORCEMENT MAT  
**TT** TWO-THIRDS CIRCLE  
**TWSA** TREE WELL SPRINKLER ASSEMBLY  
**Typ** TYPICAL

**U**

**UG** UNDERGROUND

**W**

**W** WIDTH  
**W/** WITH  
**WM** WATER METER  
**WS** WYE STRAINER  
**WSA** WYE STRAINER ASSEMBLY  
**WSP** WELDED STEEL PIPE  
**WWM** WELDED WIRE MESH

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE AND  
 EROSION CONTROL ABBREVIATIONS**  
 NO SCALE

RSP H1 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H1  
 DATED MAY 20, 2011 - PAGE 218 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H1**

2010 REVISED STANDARD PLAN RSP H1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	629	780

*Gregory A. Balzer*  
LICENSED LANDSCAPE ARCHITECT

JULY 19, 2013  
PLANS APPROVAL DATE

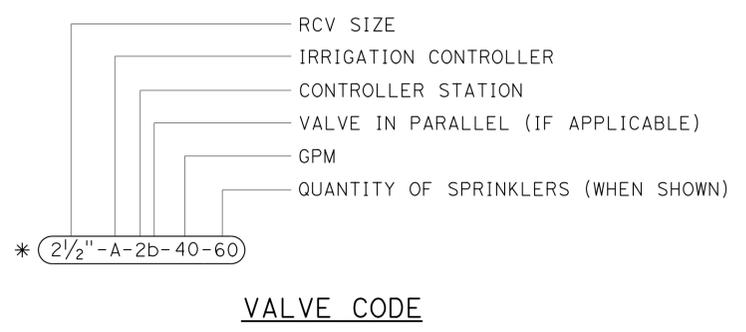
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 8-26-13

2010 REVISED STANDARD PLAN RSP H2

EXISTING	NEW	ITEM DESCRIPTION
		WATER METER (WM)
		BACKFLOW PREVENTER ASSEMBLY (BPA)
		BACKFLOW PREVENTER ENCLOSURE (BPE)
		BOOSTER PUMP (BP)
		TRUCK LOADING STANDPIPE (TLS)
		FLOW SENSOR (FS)
		MASTER IRRIGATION CONTROLLER (MIC)
		AUXILIARY IRRIGATION CONTROLLER (AIC)
		IRRIGATION CONTROLLER (IC) IRRIGATION CONTROLLER (IC) (BATTERY) IRRIGATION CONTROLLER (IC) (SOLAR) IRRIGATION CONTROLLER (IC) (TWO WIRE) IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET (ICC)
		ARMOR-CLAD CONDUCTORS (ACC)
		CONTROL AND NEUTRAL CONDUCTORS (CNC)
		IRRIGATION CONDUIT
		EXTEND IRRIGATION CROSSOVER
		DUCTILE IRON PIPE (SUPPLY LINE) (MAIN) (DIP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (MAIN) (GSP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (LATERAL) (GSP)
		PLASTIC PIPE (SUPPLY LINE) (MAIN)
		PLASTIC PIPE (SUPPLY LINE) (LATERAL)
		COPPER PIPE (SUPPLY LINE)
		DRIP IRRIGATION TUBING
		REMOTE CONTROL VALVE (RCV) REMOTE CONTROL VALVE (MASTER) (RCVM) REMOTE CONTROL VALVE (MASTER) W/FLOW METER (RCVMF)
		REMOTE CONTROL VALVE W/PRESSURE REGULATOR (RCVP)
		EXISTING MANUAL CONTROL VALVE (MCV)
		DRIP VALVE ASSEMBLY (DVA)
		WYE STRAINER ASSEMBLY (WSA)

EXISTING	NEW	ITEM DESCRIPTION
		GATE VALVE (GV)
		BALL VALVE (BV)
		QUICK COUPLING VALVE (QCV)
		CAM COUPLER ASSEMBLY (CCA)
		GARDEN VALVE ASSEMBLY (GARVA)
		PRESSURE REGULATING VALVE (PRV)
		PRESSURE RELIEF VALVE (PRLV)
		FLOW CONTROL VALVE (FCV)
		COMBINATION AIR RELEASE VALVE (CARV)
		CHECK VALVE (CV)
		FLUSH VALVE (FV)
		EXISTING NOZZLE LINE W/TURNING UNION
		EXISTING IRRIGATION SYSTEM
		EXISTING IRRIGATION SYSTEM TO BE REMOVED
		CHAIN LINK GATE
		QUICK COUPLING VALVE W/SPRINKLER PROTECTOR
		SPRINKLER W/SPRINKLER PROTECTOR
		CONNECT TO EXISTING SYSTEM
		CAP
		CAP EXISTING
		FIBER ROLL
		COMPOST SOCK



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

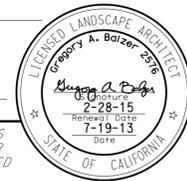
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE AND EROSION  
CONTROL SYMBOLS**  
NO SCALE

RSP H2 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H2  
DATED MAY 20, 2011 - PAGE 219 OF THE STANDARD PLANS BOOK DATED 2010.

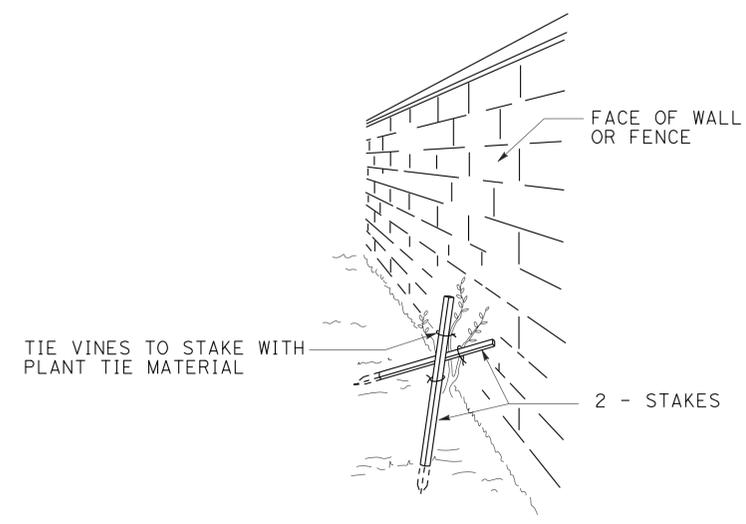
**REVISED STANDARD PLAN RSP H2**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	630	780

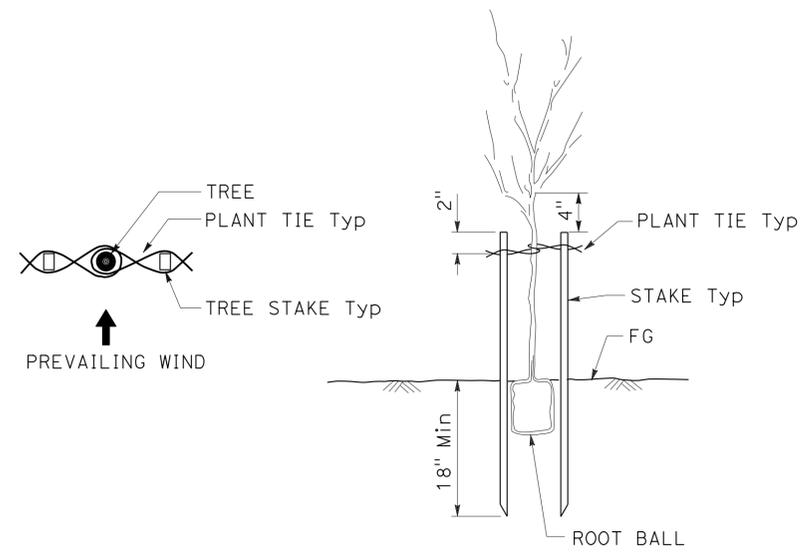
*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



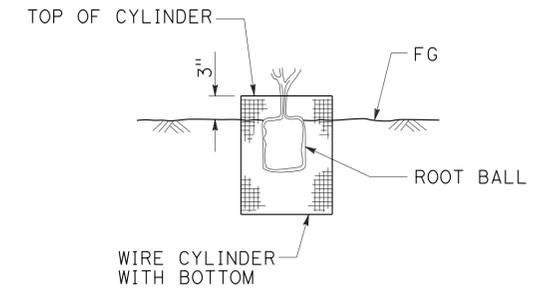
TO ACCOMPANY PLANS DATED 8-26-13



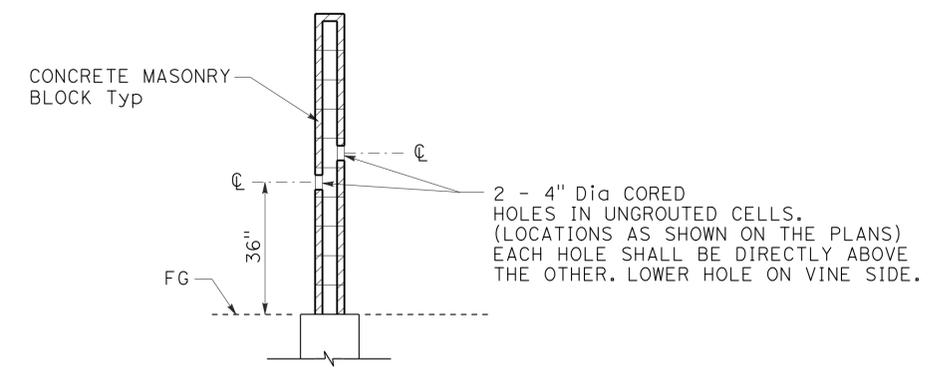
**PERSPECTIVE VINE STAKING**



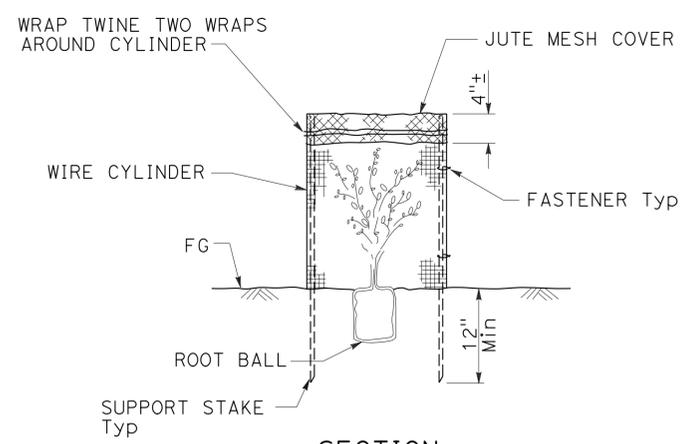
**TREE STAKING**



**SECTION ROOT PROTECTOR**



**SECTION CORE HOLE (VINE)**



**SECTION FOLIAGE PROTECTOR**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE DETAILS**  
 NO SCALE

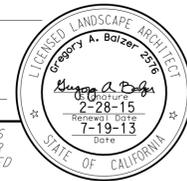
RSP H4 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H4 DATED MAY 20, 2011 - PAGE 221 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H4**

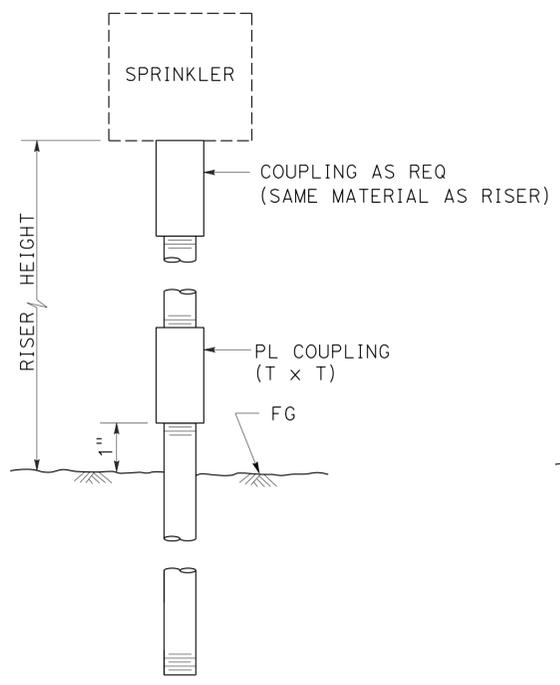
2010 REVISED STANDARD PLAN RSP H4

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	631	780

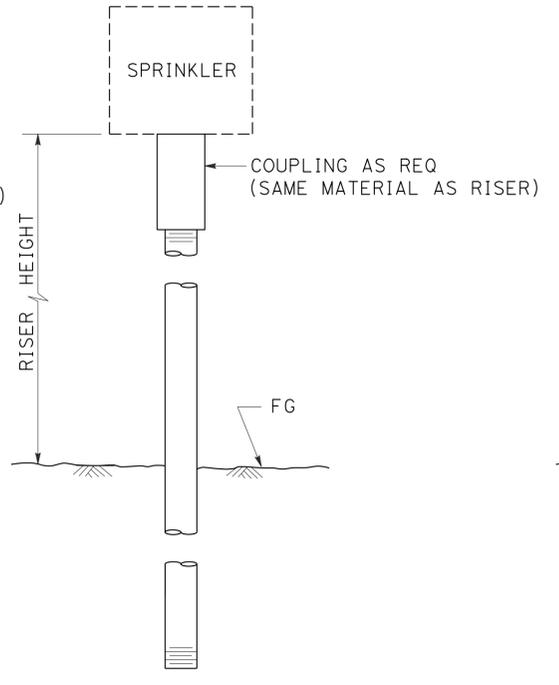
*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



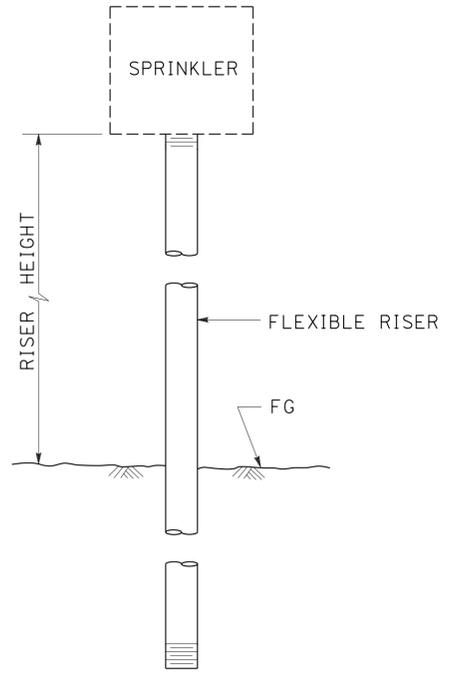
TO ACCOMPANY PLANS DATED 8-26-13



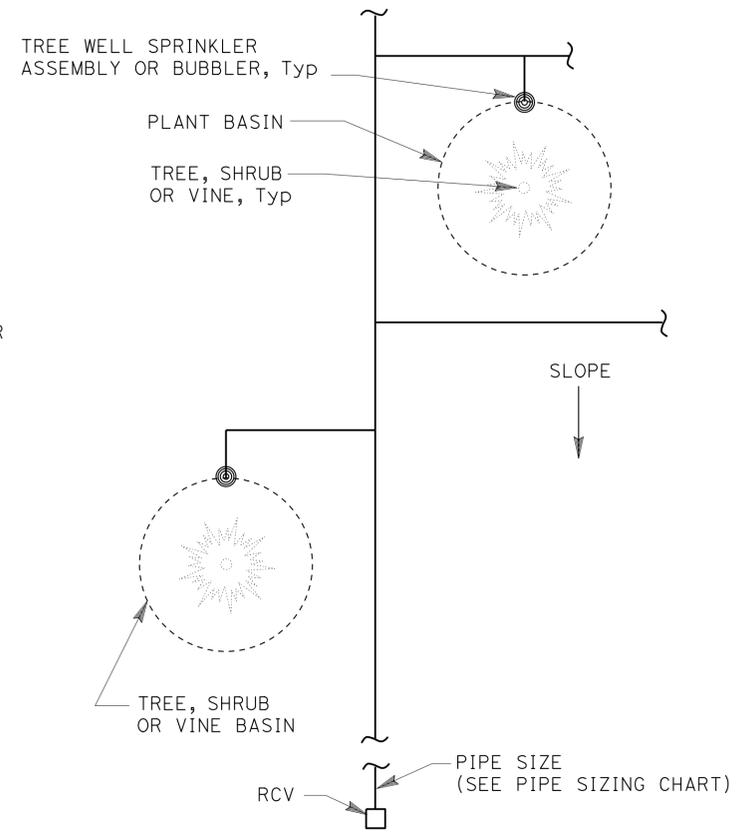
**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE I**



**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE II**



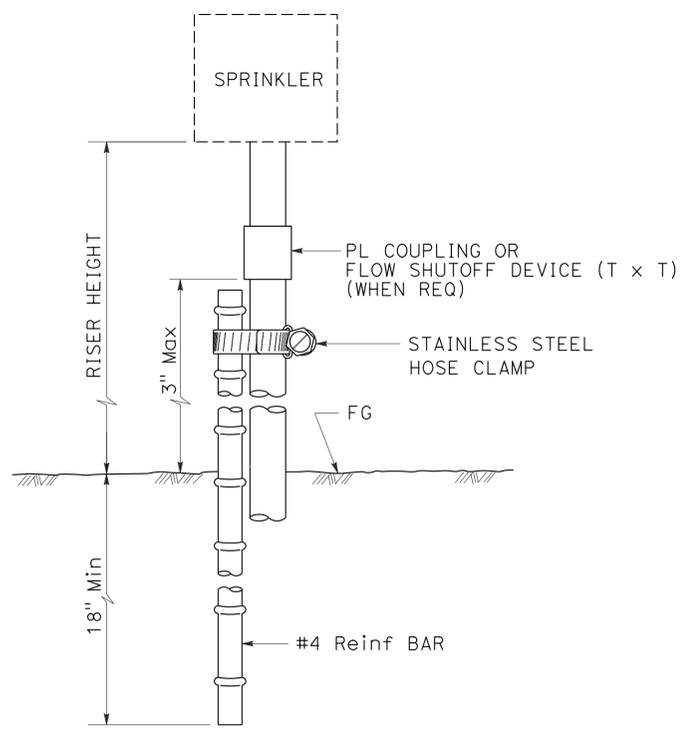
**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE III**



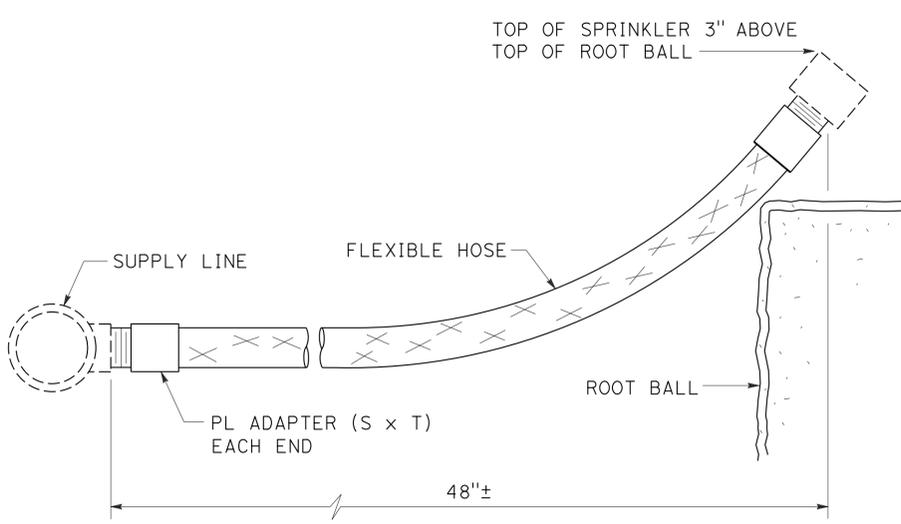
**PLAN**

**NOTES:**

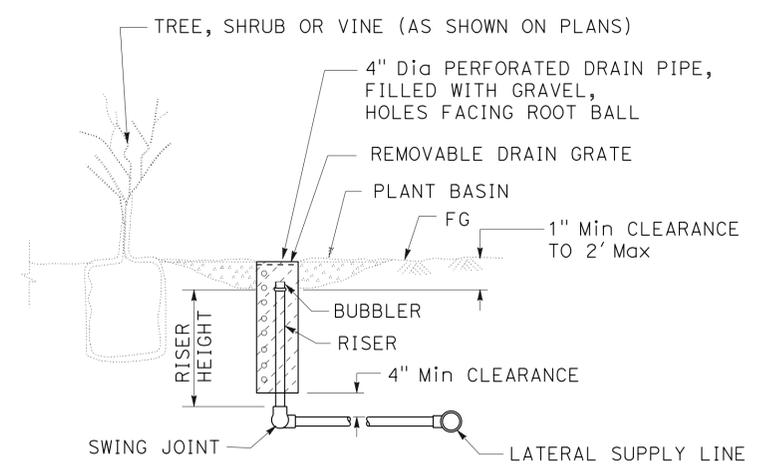
1. Install tree well sprinkler assembly on up-hill side of plant when on slope.
2. Install bubbler within basin.



**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE IV**



**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE V**



**SECTION**  
**TREE WELL SPRINKLER ASSEMBLY**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE DETAILS**  
NO SCALE

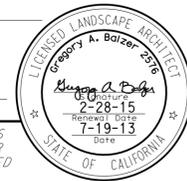
RSP H5 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H5 DATED MAY 20, 2011 - PAGE 222 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H5**

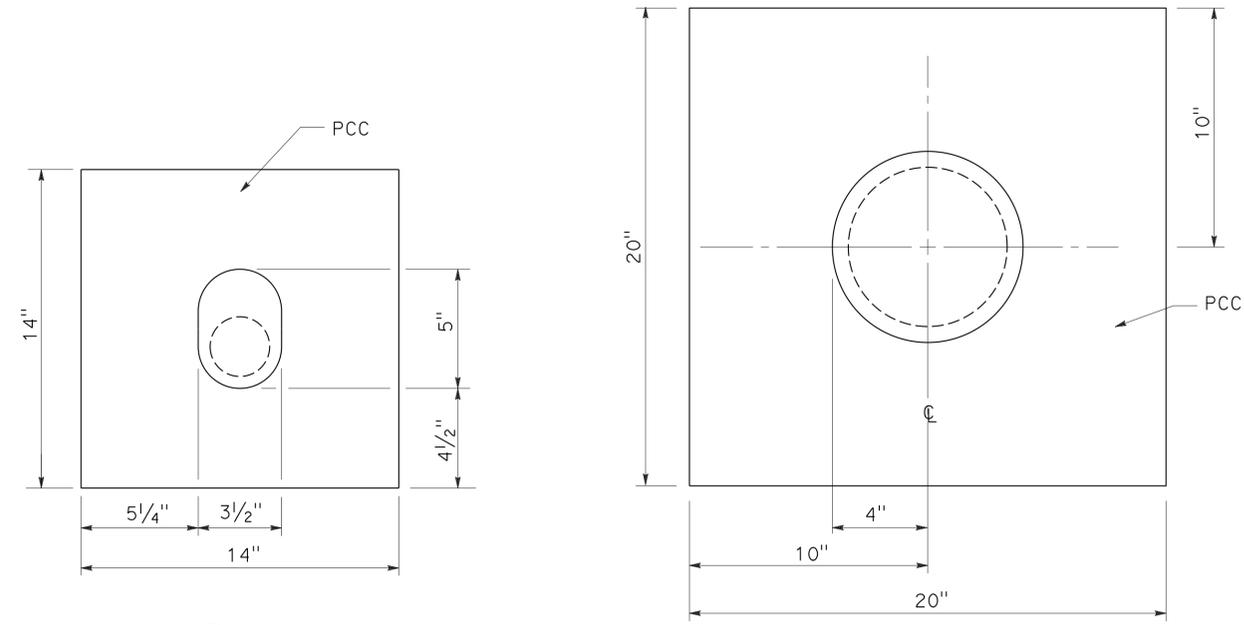
**2010 REVISED STANDARD PLAN RSP H5**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	632	780

*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 July 19, 2013  
 PLANS APPROVAL DATE  
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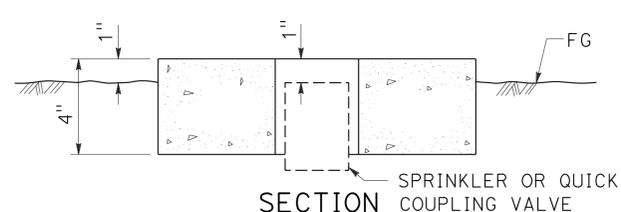


TO ACCOMPANY PLANS DATED 8-26-13



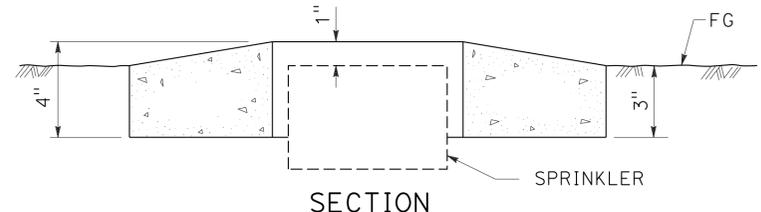
PLAN

PLAN



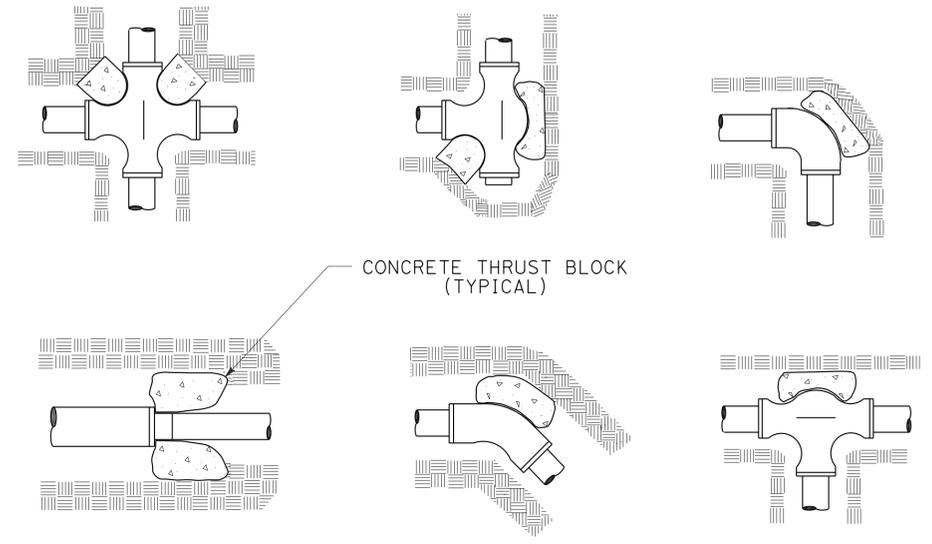
SECTION

SPRINKLER PROTECTOR TYPE I

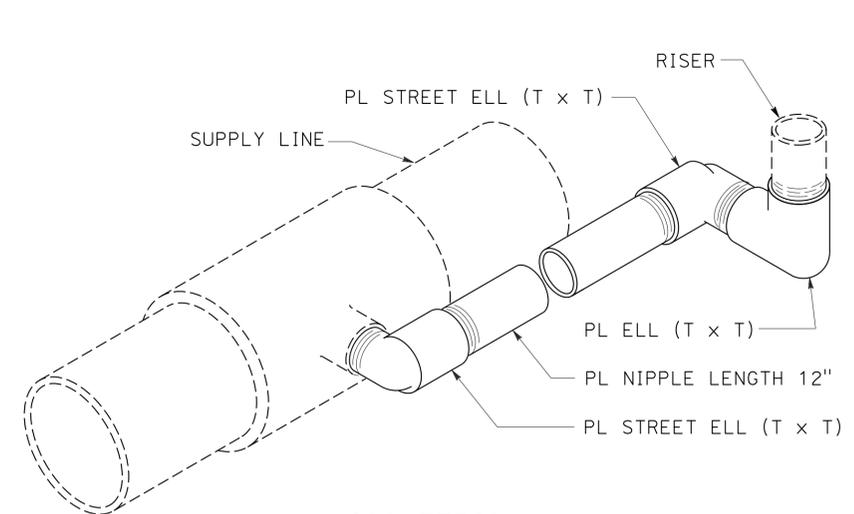


SECTION

SPRINKLER PROTECTOR TYPE II

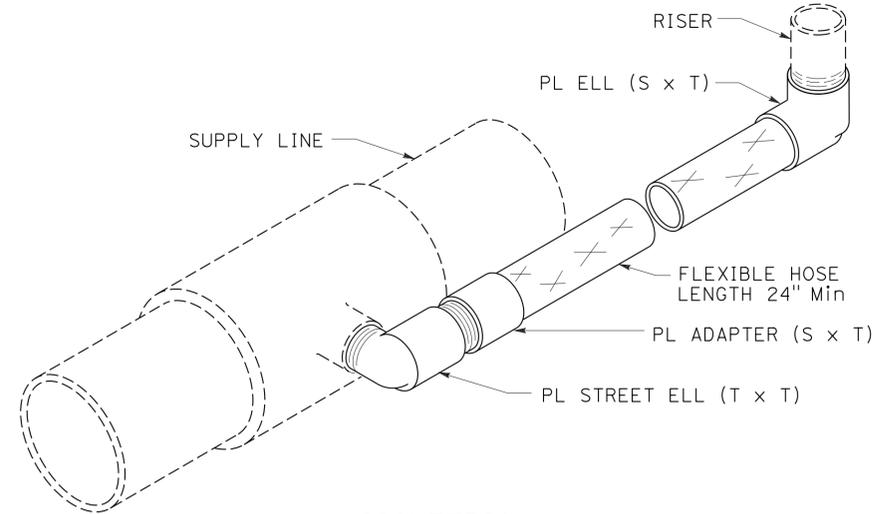


TYPICAL THRUST BLOCKS



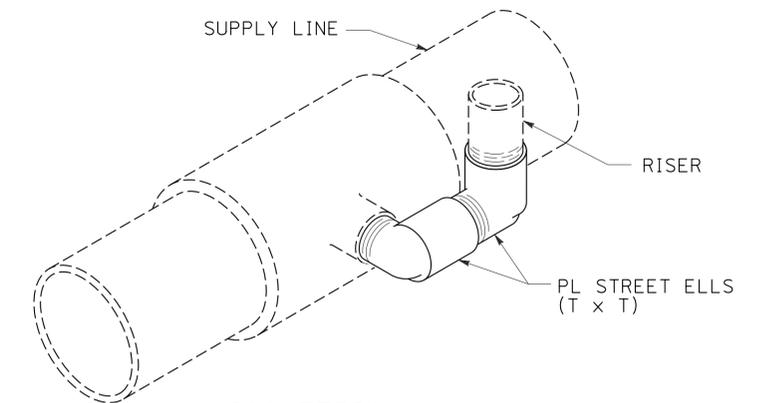
ISOMETRIC

POP-UP SPRINKLER ASSEMBLY TYPE I



ISOMETRIC

POP-UP SPRINKLER ASSEMBLY TYPE II



ISOMETRIC

POP-UP SPRINKLER ASSEMBLY TYPE III

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE DETAILS**

NO SCALE

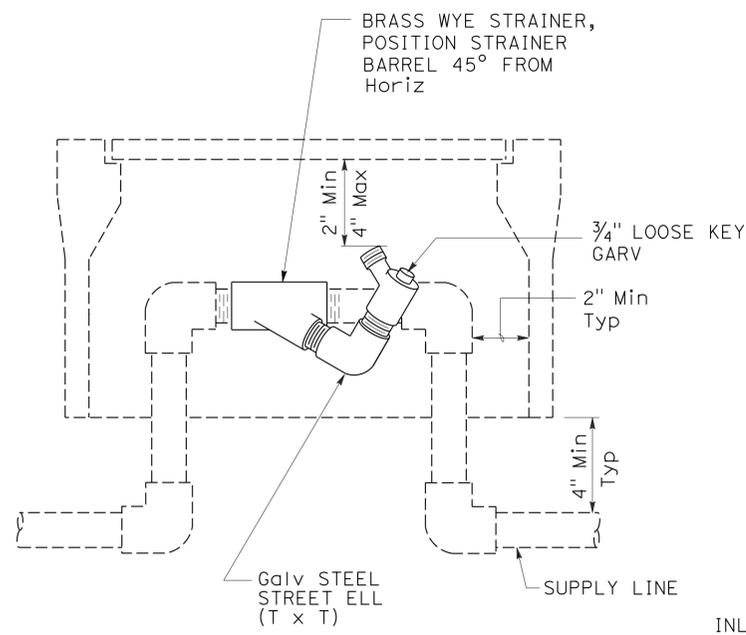
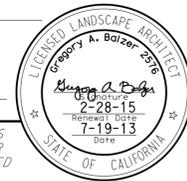
RSP H6 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H6 DATED MAY 20, 2011 - PAGE 223 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H6**

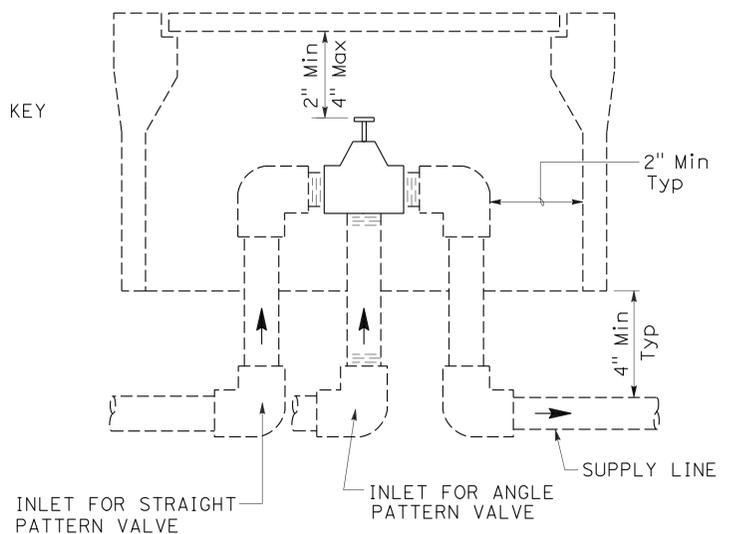
2010 REVISED STANDARD PLAN RSP H6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	633	780

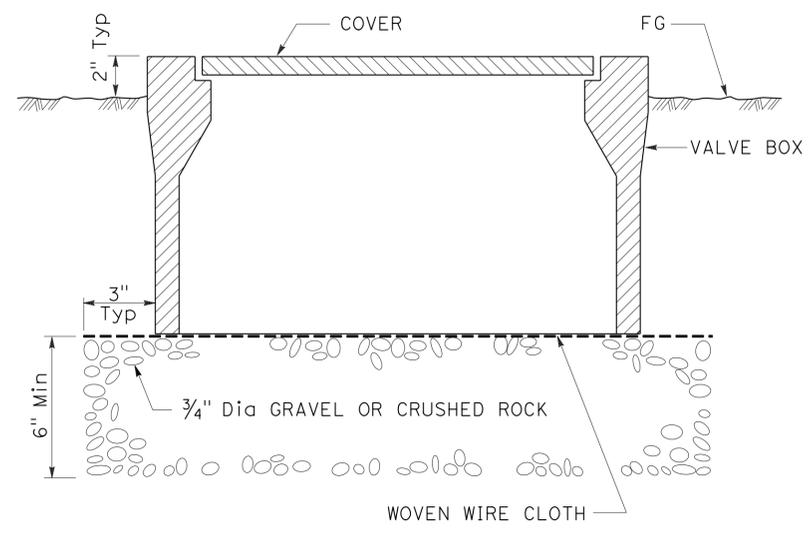
July 19, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



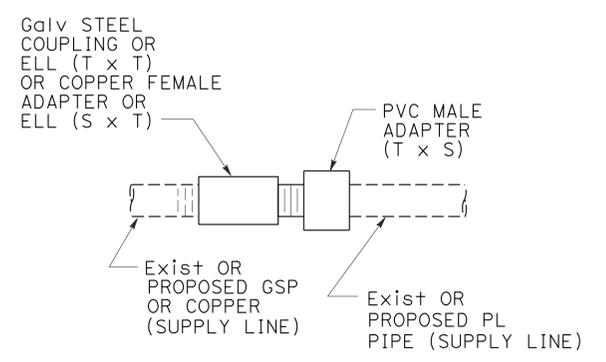
**ELEVATION**  
**WYE STRAINER ASSEMBLY**



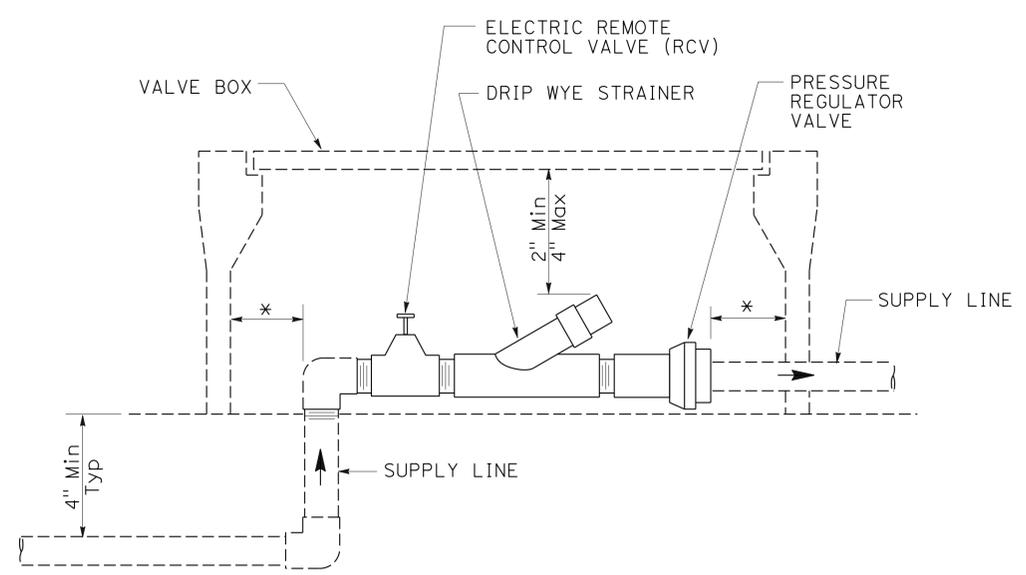
**ELEVATION**  
**VALVE**



**SECTION**  
**VALVE BOX**



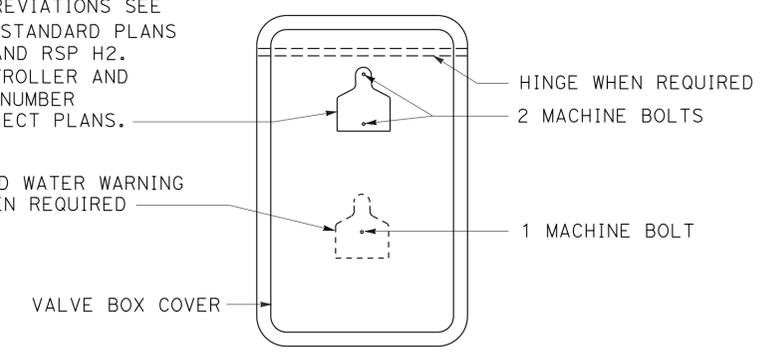
**GALVANIZED OR COPPER PIPE CONNECTION TO PLASTIC PIPE**



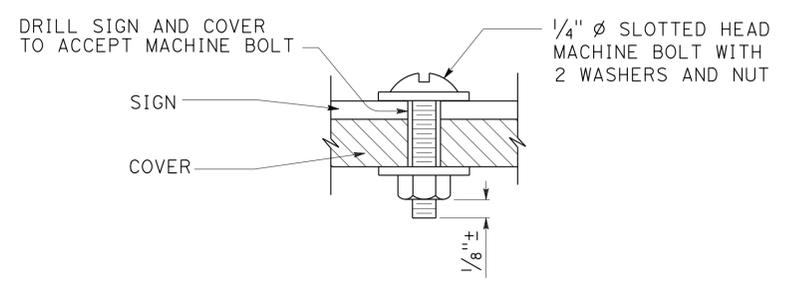
**ELEVATION**  
**DRIP VALVE ASSEMBLY**

IDENTIFICATION LABEL:  
FOR ABBREVIATIONS SEE  
REVISED STANDARD PLANS  
RSP H1 AND RSP H2.  
FOR CONTROLLER AND  
STATION NUMBER  
SEE PROJECT PLANS.

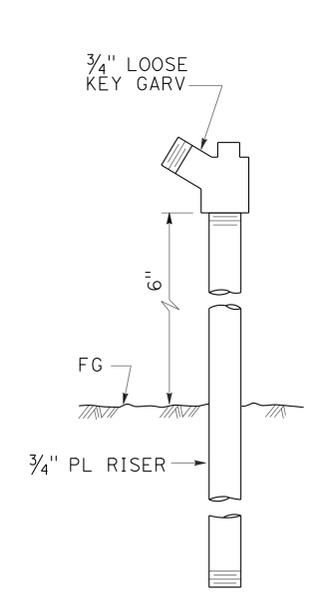
RECYCLED WATER WARNING  
SIGN WHEN REQUIRED



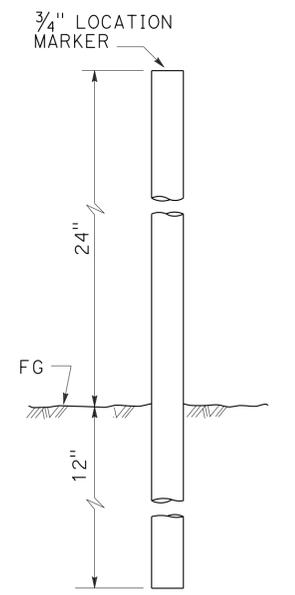
**PLAN**



**SECTION**  
**VALVE BOX IDENTIFICATION**



**ELEVATION**  
**GARDEN VALVE ASSEMBLY**



**ELEVATION**  
**LOCATION MARKER**

**GARDEN VALVE ASSEMBLY**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**LANDSCAPE DETAILS**

NO SCALE

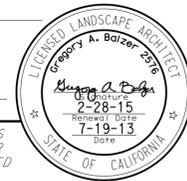
RSP H7 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H7  
DATED MAY 20, 2011 - PAGE 224 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H7**

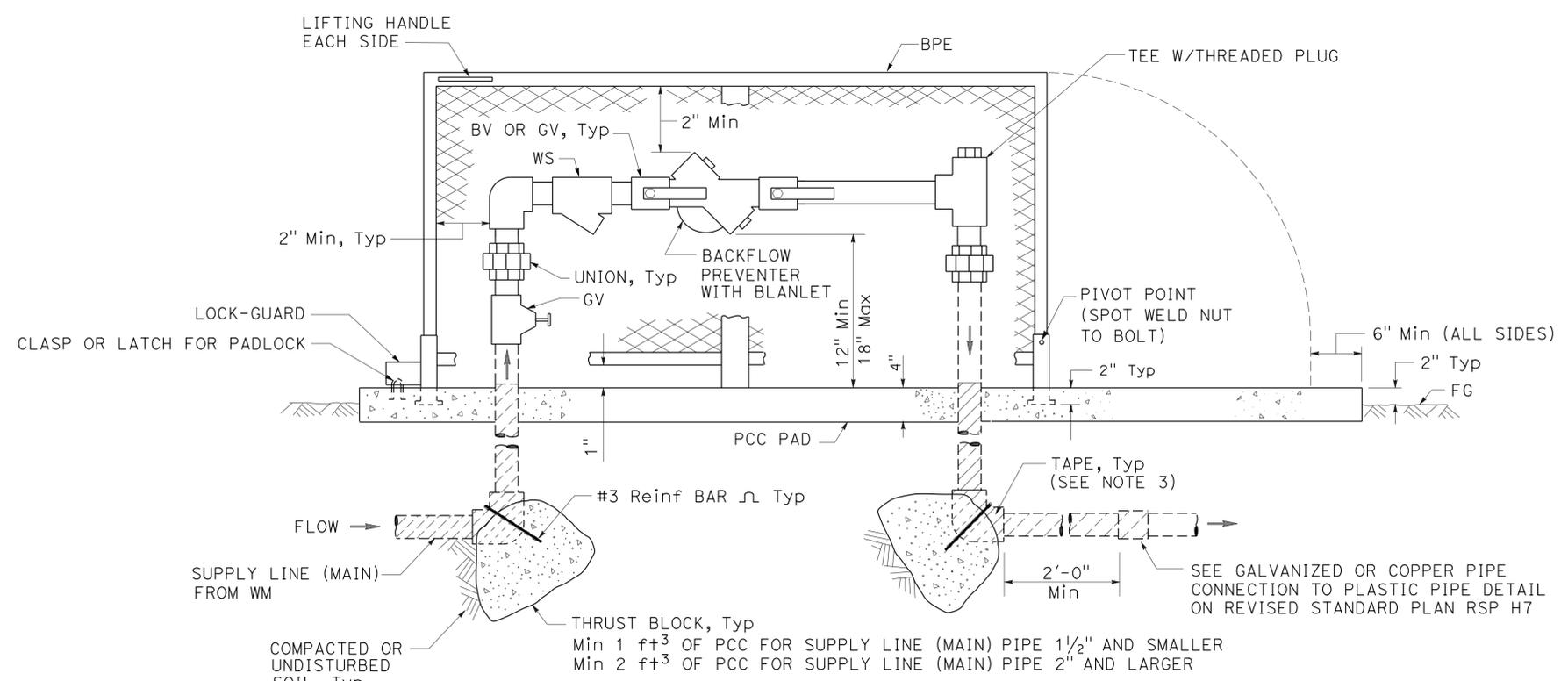
2010 REVISED STANDARD PLAN RSP H7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	634	780

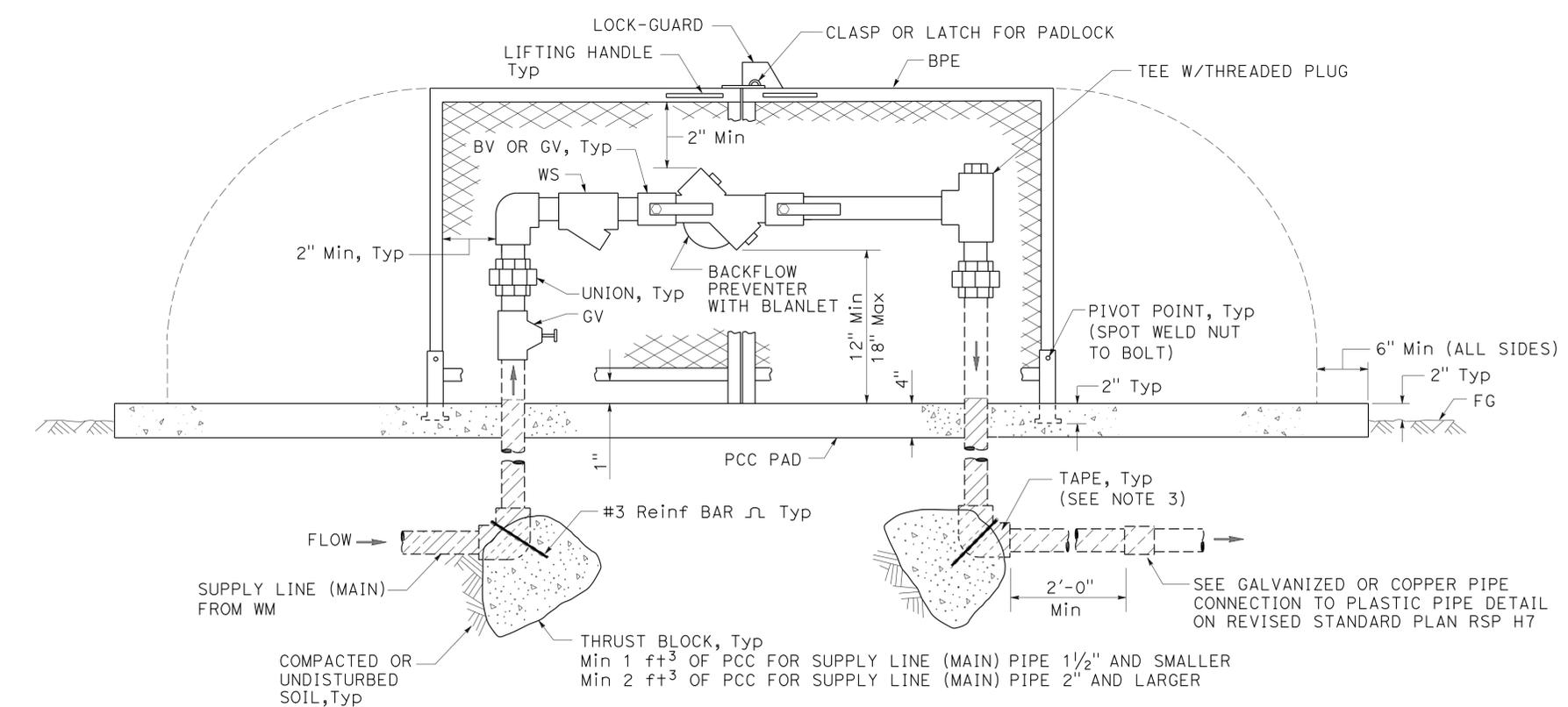
*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



TO ACCOMPANY PLANS DATED 8-26-13



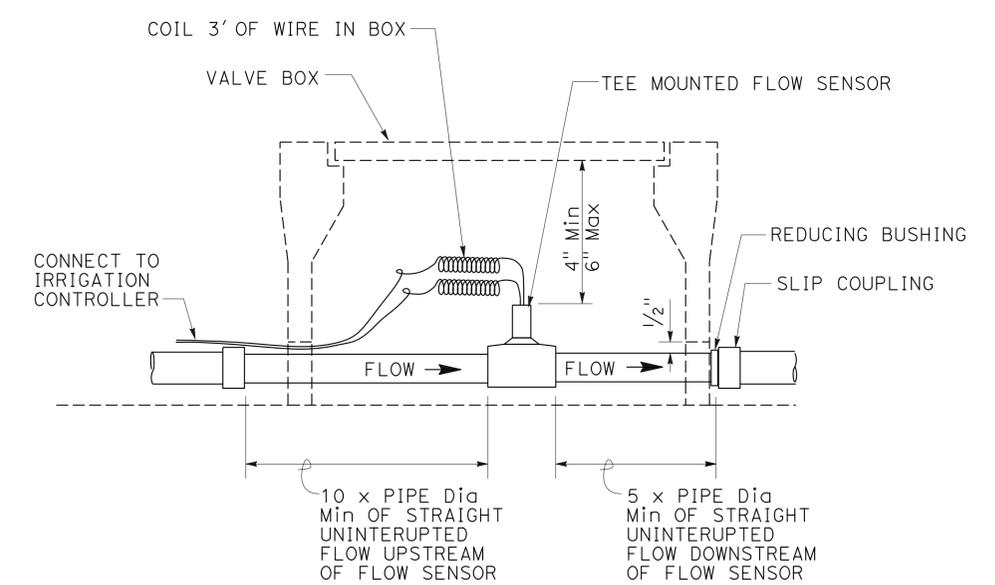
**ELEVATION**  
**BACKFLOW PREVENTER ASSEMBLY**  
 IN ONE PIECE ENCLOSURE



**ELEVATION**  
**BACKFLOW PREVENTER ASSEMBLY**  
 IN TWO PIECE ENCLOSURE

**NOTES:**

1. Wye strainer and fittings must be the same size as the backflow preventer shown on the plans.
2. 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.
3. 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.



**SECTION**  
**FLOW SENSOR**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE DETAILS**  
 NO SCALE

RSP H8 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H8 DATED MAY 20, 2011 - PAGE 225 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H8**

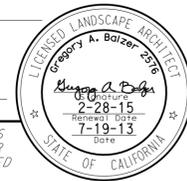
2010 REVISED STANDARD PLAN RSP H8

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	635	780

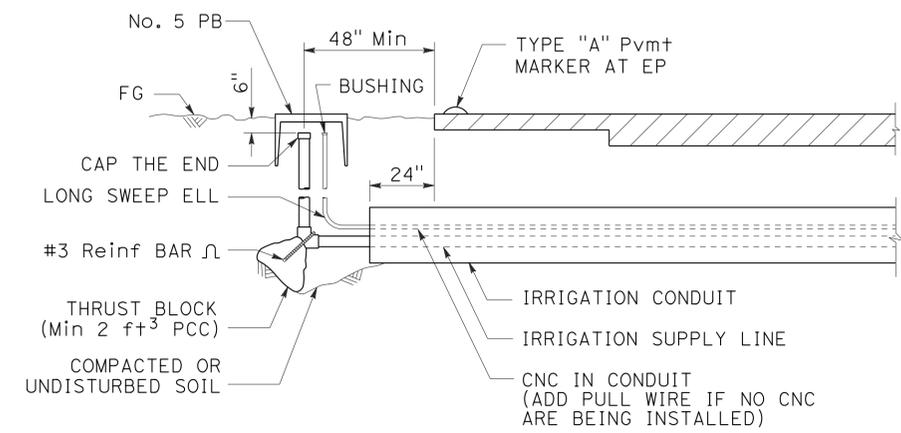
*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT

July 19, 2013  
 PLANS APPROVAL DATE

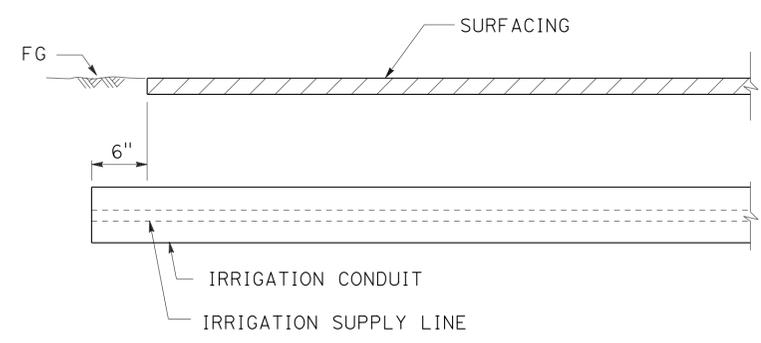
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



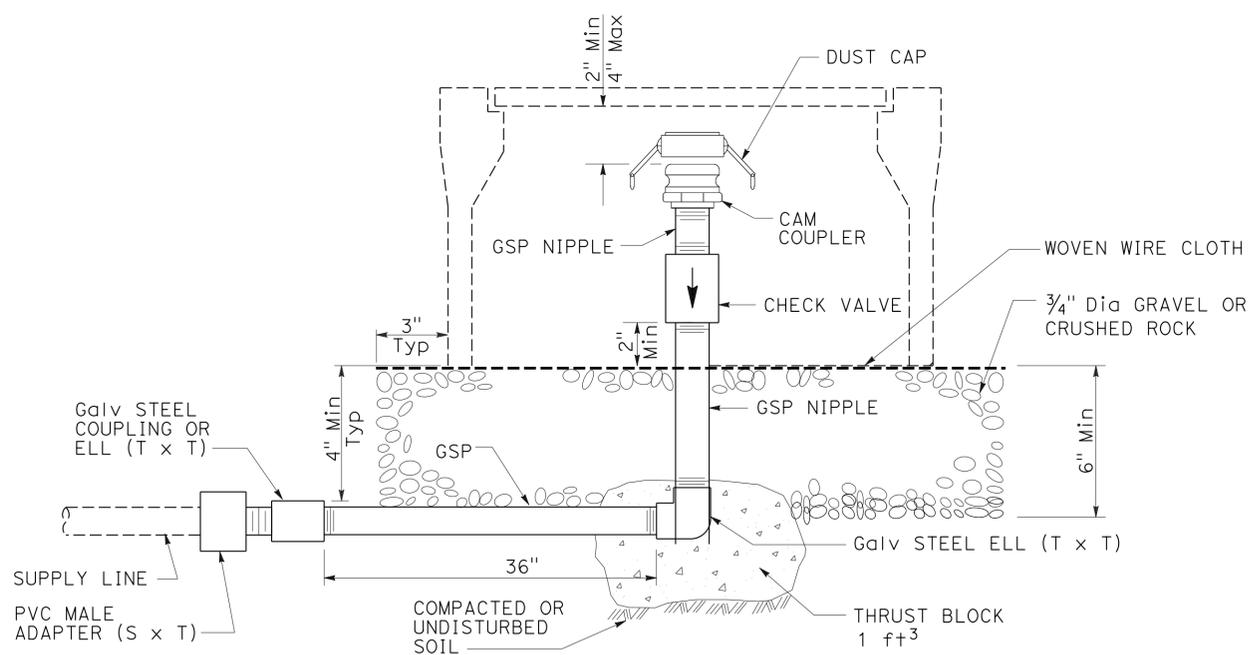
TO ACCOMPANY PLANS DATED 8-26-13



**SECTION**  
**IRRIGATION CONDUIT**  
UNDER TRAVELED WAY



**SECTION**  
**IRRIGATION CONDUIT**  
UNDER SIDEWALKS, DRIVEWAYS AND PATHS



**ELEVATION**  
**CAM COUPLER ASSEMBLY**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**LANDSCAPE DETAILS**

NO SCALE

RSP H9 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H9 DATED MAY 20, 2011 - PAGE 226 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H9**

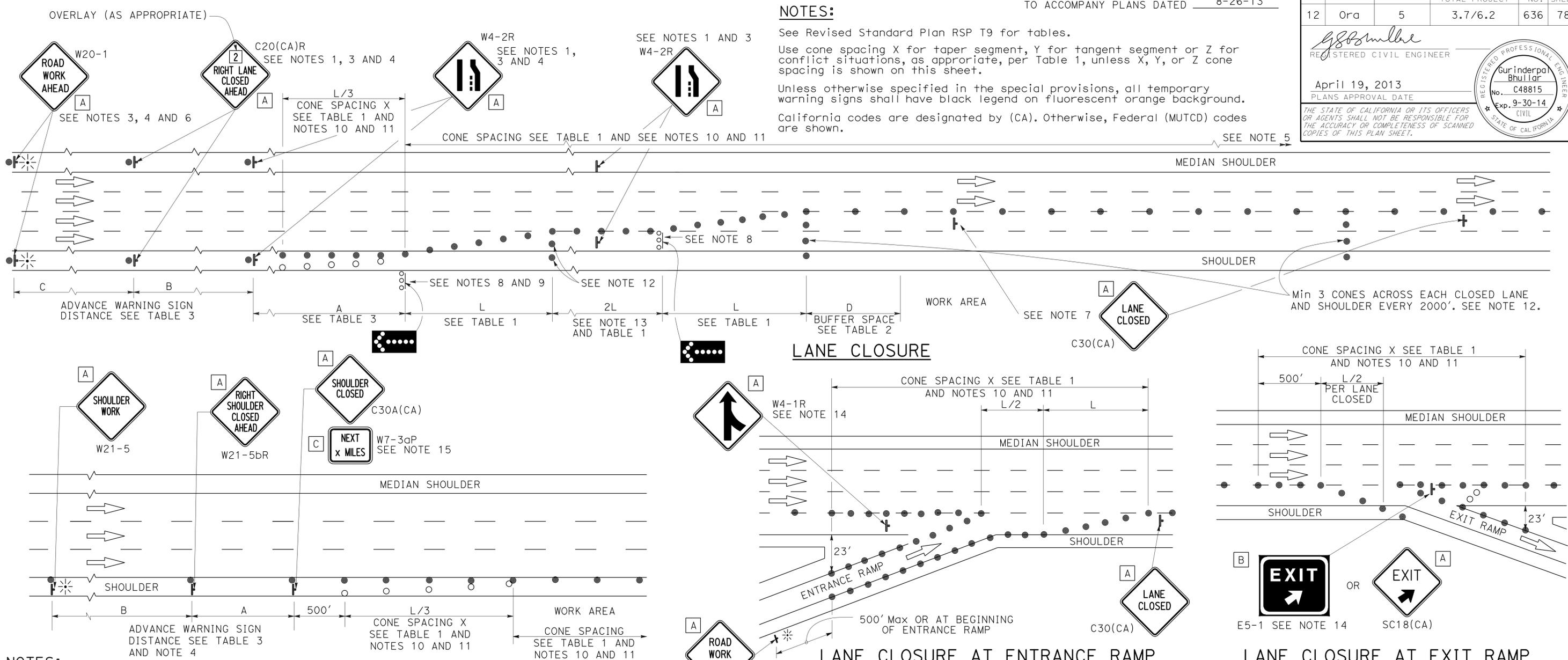
2010 REVISED STANDARD PLAN RSP H9

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	636	780

REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE

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

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

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

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

**LEGEND**

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

**SIGN PANEL SIZE (Min)**

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

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

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

NO SCALE

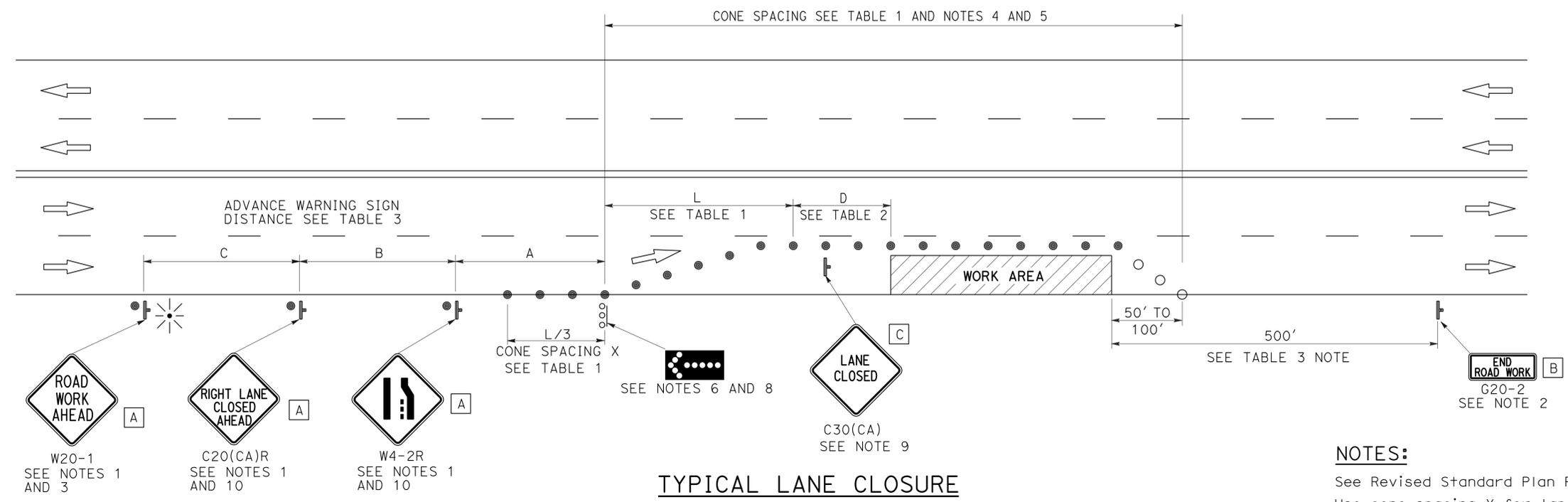
RSP T10 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10 DATED MAY 20, 2011 - PAGE 237 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T10**

2010 REVISED STANDARD PLAN RSP T10



TO ACCOMPANY PLANS DATED 8-26-13



**NOTES:**

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

**NOTES:**

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

**LEGEND**

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

**SIGN PANEL SIZE (Min)**

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

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM  
 FOR LANE CLOSURE ON  
 MULTILANE CONVENTIONAL  
 HIGHWAYS**

NO SCALE

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

**REVISED STANDARD PLAN RSP T11**

2010 REVISED STANDARD PLAN RSP T11

# TYPICAL RAMP CLOSURES

## SIGN PANEL SIZE (Min)

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

## LEGEND

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	638	780

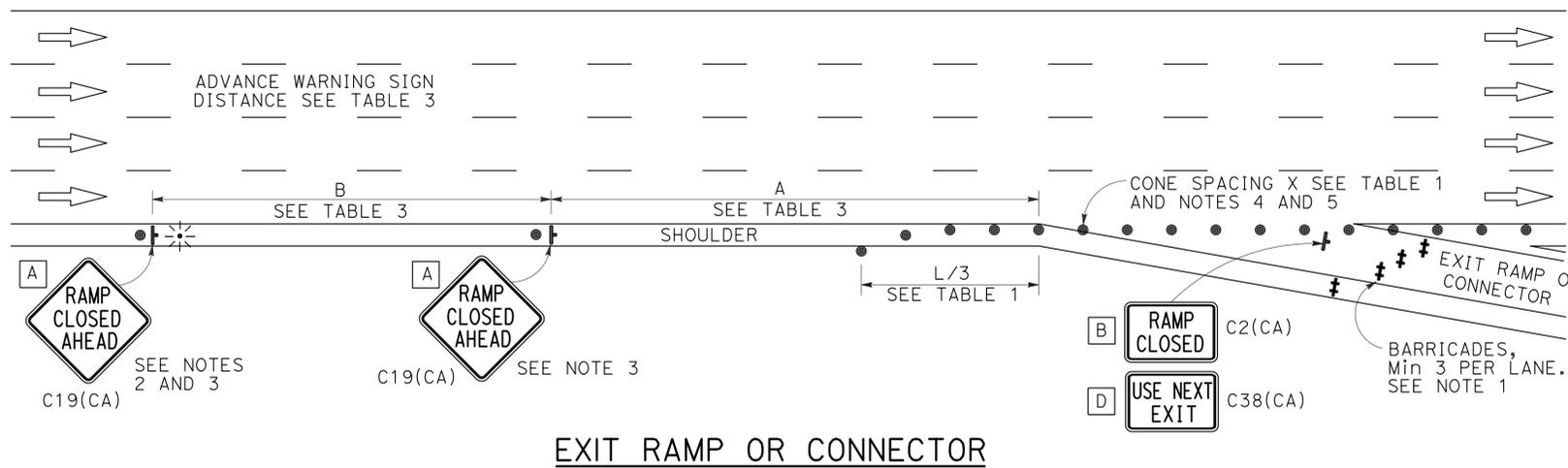
*Gurinderpal Bhullar*  
 REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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

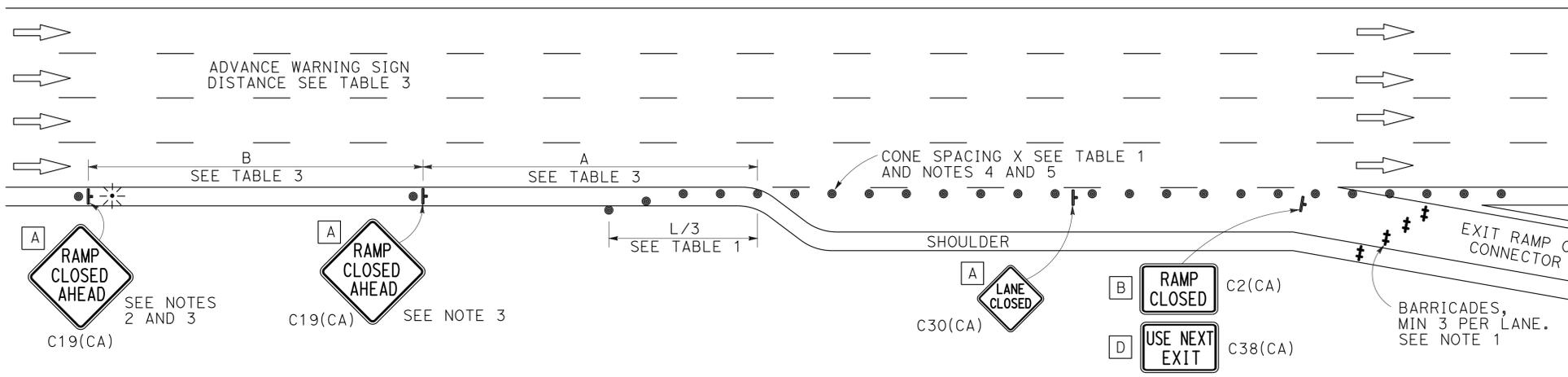
TO ACCOMPANY PLANS DATED 8-26-13

## NOTES:

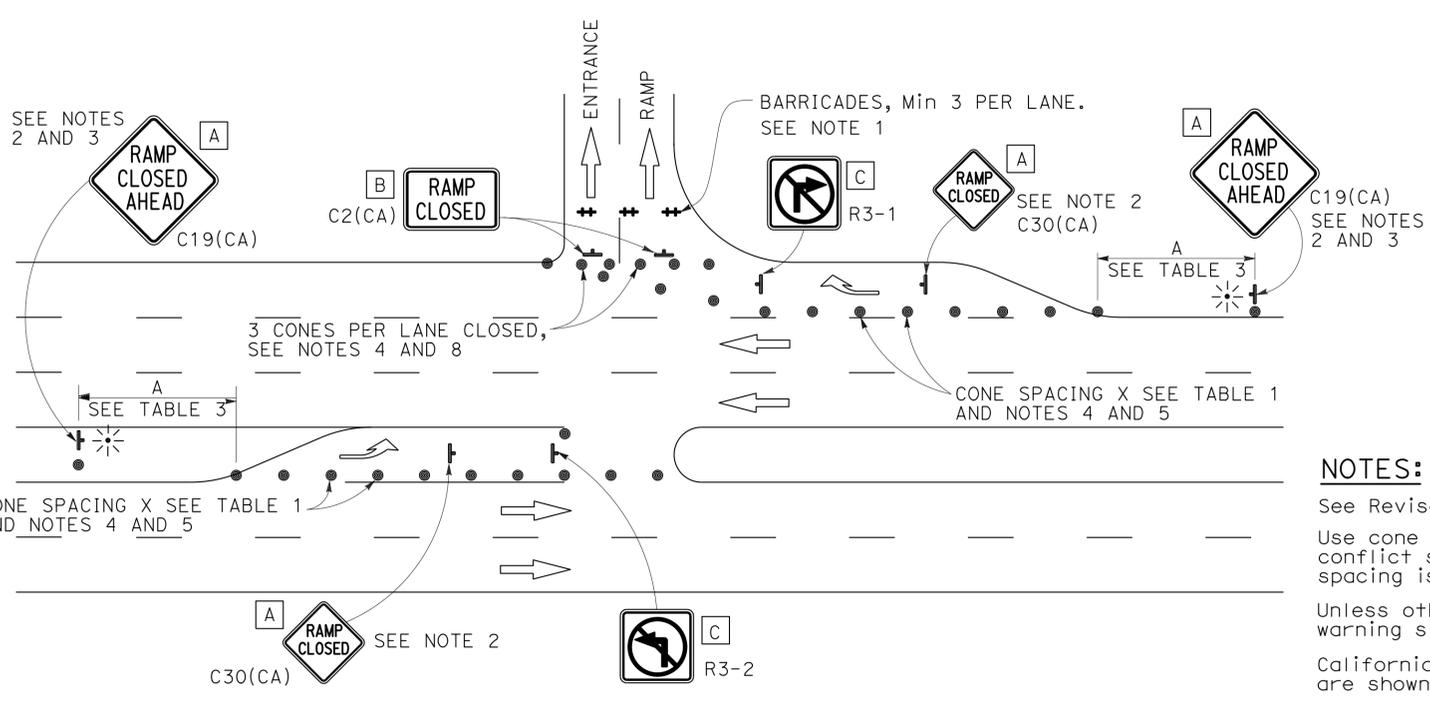
- Barricades shall be Type I, II, or III for closures lasting one week or less and Type III for closures lasting longer than one week.
- In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "CLOSED" may be mounted, as directed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



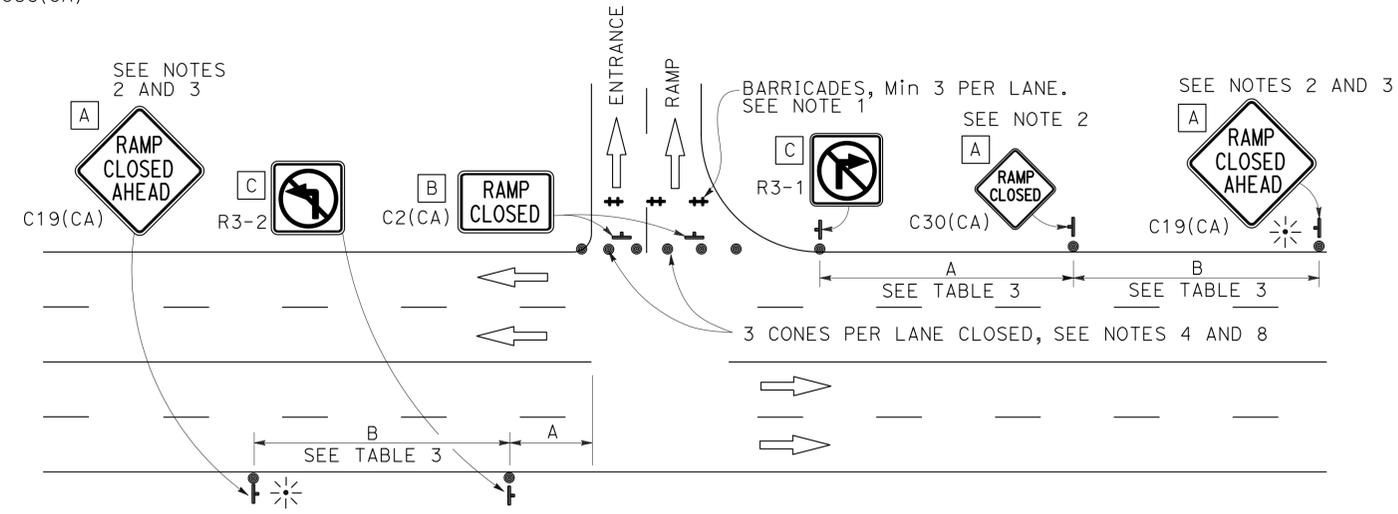
EXIT RAMP OR CONNECTOR



EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE



ENTRANCE RAMP WITH TURNING POCKETS



ENTRANCE RAMP WITHOUT TURNING POCKETS

## NOTES:

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

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

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

**REVISED STANDARD PLAN RSP T14**

2010 REVISED STANDARD PLAN RSP T14

2010 REVISED STANDARD PLAN RSP B3-1B

**DESIGN CONDITIONS:**

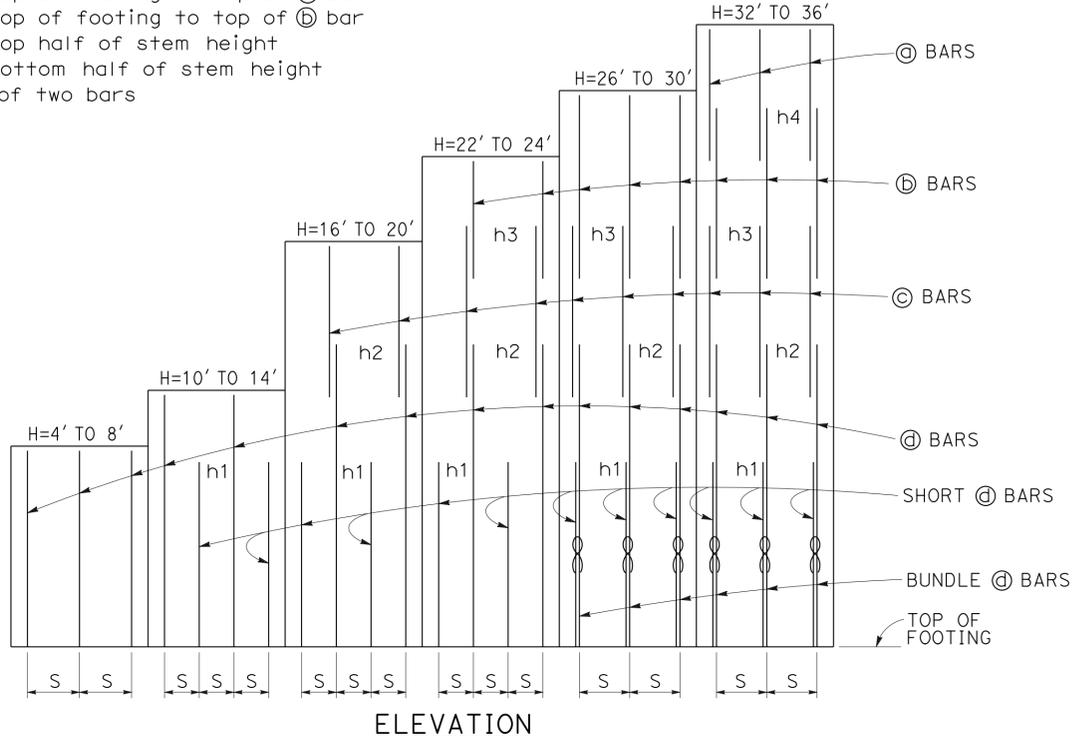
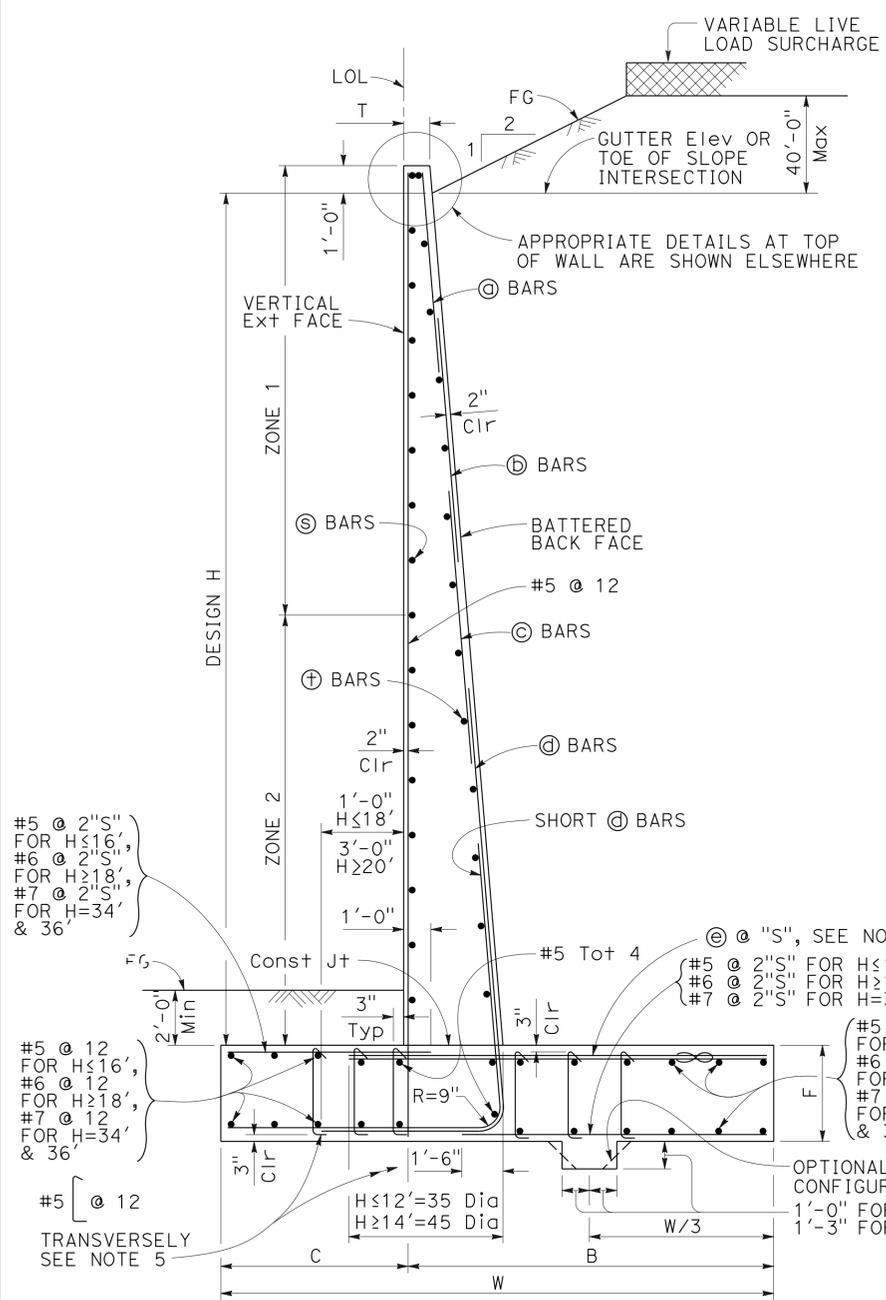
Design H may be exceeded by 6" before going to the next size. Special footing design is required where foundation material is incapable of supporting bearing stress listed in the table.

**DESIGN NOTES:**

- DESIGN:** AASHTO LRFD Bridge Design Specifications, 4th Edition with California Amendments
- LS:** Varied surcharge on level ground surface
- DC:** Stem Architectural Treatment of thickness up to 6" of concrete (75 psf) considered
- SEISMIC:**  $k_h = 0.2$   
 $k_v = 0.0$
- SOIL:**  $\phi = 34^\circ$   
 $\gamma = 120$  pcf
- REINFORCED CONCRETE:**  $f'_c = 3,600$  psi  
 $f_y = 60,000$  psi
- LOAD COMBINATIONS AND LIMIT STATES:**  
 Service I  $Q = 1.00DC + 1.00EV + 1.00EH + 1.00LS$   
 Strength I  $Q = \alpha DC + \beta EV + \eta EH + 1.75LS$   
 Extreme I  $Q = 1.00DC + 1.00EV + 1.00EH + 1.00EQD + 1.00EQE$
- Where:**  
 Q: Force Effects  
 $\alpha$ : 1.25 or 0.90, Whichever Controls Design  
 $\beta$ : 1.35 or 1.00, Whichever Controls Design  
 $\eta$ : 1.50 or 0.90, Whichever Controls Design  
 DC: Dead Load of Structure Components  
 EH: Horizontal Earth Fill Pressure  
 EV: Vertical Earth Pressure from Earth Fill Weight  
 LS: Live Load Surcharge  
 EQE: Seismic Earth Pressure  
 EQD: Soil and Structural and Nonstructural Components Inertia

**SYMBOLS:**

- TO ACCOMPANY PLANS DATED 8-26-13
- Ser - service limit state I  
 Str - strength limit state I  
 Ext - extreme event limit state I  
 B' - effective footing width (ft)  
 $q_0$  - net bearing stress (ksf), OG assumed to be FG at toe  
 $q_0$  - gross uniform bearing stress (ksf)  
 h1 = Top of footing to top of short @ bar  
 h2 = Top of footing to top of @ bar  
 h3 = Top of footing to top of @ bar  
 h4 = Top of footing to top of @ bar  
 Zone 1 = Top half of stem height  
 Zone 2 = Bottom half of stem height  
 ∞ - Bundle of two bars



DESIGN H	4'	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	32'	34'	36'
W	6'-0"	7'-6"	9'-6"	11'-0"	12'-6"	15'-6"	17'-3"	19'-6"	21'-9"	23'-6"	26'-0"	28'-1"	30'-3"	31'-6"	33'-0"	34'-8"	35'-11"
C	2'-0"	2'-6"	3'-3"	3'-6"	4'-3"	5'-0"	5'-3"	5'-9"	6'-9"	7'-3"	8'-3"	8'-9"	9'-0"	9'-6"	10'-0"	10'-10"	11'-3"
B	4'-0"	5'-0"	6'-3"	7'-6"	8'-3"	10'-6"	12'-0"	13'-9"	15'-0"	16'-3"	17'-9"	19'-4"	21'-3"	22'-0"	23'-0"	23'-10"	24'-8"
F	1'-6"	1'-6"	2'-0"	2'-3"	2'-6"	2'-8"	2'-10"	3'-0"	3'-4"	3'-6"	3'-6"	3'-7"	3'-7"	3'-9"	3'-9"	4'-0"	4'-4"
T	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1'-2"	1'-2"	1'-5"	1'-10"	2'-3"	2'-9"
BATTER	1/2: 12	1/2: 12	1/2: 12	1/2: 12	1/2: 12	5/8: 12	5/8: 12	3/4: 12	7/8: 12	1: 12	1 1/8: 12	1 1/8: 12	1 1/8: 12	1 1/8: 12	1 1/8: 12	1 1/8: 12	1 1/8: 12
SPACING "S"	16"	12"	10"	7"	7"	7"	7"	7"	7"	6"	6"	10"	8"	7"	7"	7"	7"
@ BARS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#5	#5	#5
@ BARS	-	-	-	-	-	-	-	-	-	#5	#5	#5	#5	#5	#7	#7	#7
@ BARS	-	-	-	-	-	#6	#6	#6	#6	#7	#8	#8	#8	#8	#8	#9	#9
@ BARS	#5	#5	#6	#6	#7	#8	#9	#10	#10	#10	#11	#11	#11	#11	#11	#11	#11
@ BARS	#5	#5	#6	#6	#7	#8	#9	#10	#10	#10	#11	#11	#11	#11	#11	#11	#11
h1	-	-	-	5'-3"	6'-4"	7'-6"	8'-9"	9'-9"	11'-0"	11'-3"	11'-6"	10'-3"	11'-9"	12'-3"	12'-6"	13'-3"	13'-8"
h2	-	-	-	-	-	-	12'-8"	15'-6"	17'-0"	16'-6"	17'-3"	18'-0"	17'-6"	17'-4"	14'-10"	15'-9"	16'-4"
h3	-	-	-	-	-	-	-	-	-	18'-9"	21'-3"	21'-3"	22'-4"	22'-8"	18'-0"	18'-6"	19'-6"
h4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26'-3"	27'-4"	28'-6"
No. of Toe Stirrups	0	0	0	0	0	0	0	0	0	0	0	5	5	6	7	8	9
No. of Heel Stirrups	0	0	0	0	0	0	0	0	4	6	7	8	10	10	11	11	11
ZONE 1 @ BARS	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 10	#6 @ 10
ZONE 2 @ BARS	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12	#7 @ 12	#7 @ 12	#7 @ 12	#7 @ 12	#7 @ 10	#7 @ 10
ZONE 1 @ BARS	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#5 @ 12	#5 @ 12	#5 @ 12
ZONE 2 @ BARS	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12	#6 @ 12
Ser: B', q <sub>0</sub>	4.0, 0.9	5.5, 1.0	9.3, 1.0	10.9, 1.3	12.3, 1.5	14.8, 1.9	16.6, 2.1	18.7, 2.4	20.6, 2.7	22.3, 3.0	24.2, 3.3	26.1, 3.5	28.2, 3.9	29.6, 4.0	31.1, 4.2	32.7, 4.4	34.1, 4.6
Str: B', q <sub>0</sub>	2.2, 2.2	3.5, 2.2	5.1, 2.3	6.3, 2.6	7.6, 2.7	12.9, 3.1	14.3, 3.6	16.5, 3.9	19.4, 4.5	20.7, 4.8	22.5, 5.2	24.3, 5.6	26.2, 6.0	27.5, 6.3	28.8, 6.6	30.3, 6.9	31.8, 7.2
Ext: B', q <sub>0</sub>	2.3, 3.4	2.7, 4.4	3.6, 5.0	3.8, 6.5	4.5, 7.0	7.0, 6.1	7.6, 6.9	9.3, 7.0	11.0, 7.1	11.8, 7.6	14.1, 7.4	15.6, 7.7	17.1, 8.0	17.2, 8.7	18.1, 9.0	19.0, 9.4	19.4, 10.0

**NOTES:**

- For details not shown and drainage notes see RSP B3-5
- For wall stem joint details see B0-3/3-3 and B0-3/3-4
- At @ and short @ bars:  
 $H \leq 6'$ , no splices are allowed within 1'-8" above the top of footing.  
 $H > 6'$ , no splices are allowed within  $H/4$  above the top of footing.
- Bundle @ bars for  $H \geq 26'$ .
- Hook stirrups around & space with alternating transverse reinforcement at  $2 \times "S"$ .

**TYPICAL SECTION**

**RETAINING WALL TYPE 1 (CASE 2)**

NO SCALE

**REVISED STANDARD PLAN RSP B3-1B**

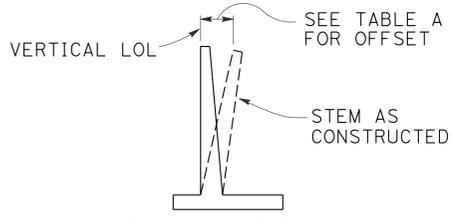
RSP B3-1B DATED APRIL 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	640	780

Gary Wang  
 REGISTERED CIVIL ENGINEER  
 April 20, 2012  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



TO ACCOMPANY PLANS DATED 8-26-13

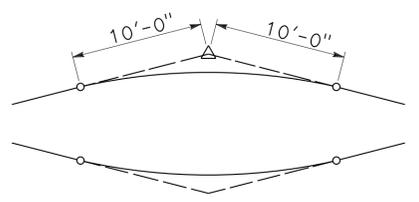


**TABLE A**

H	OFFSET
4'-12'	H/200
14'-16'	H/160
18'-20'	H/140
22'-24'	H/130
26'-36'	2 1/2"

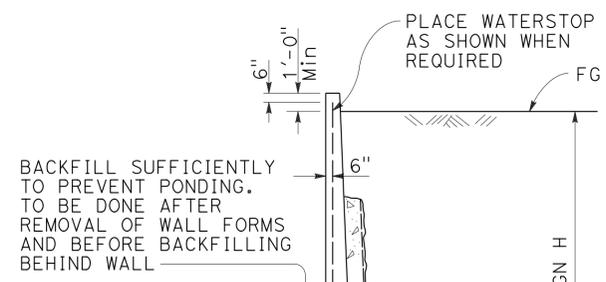
**APPROXIMATE WALL OFFSET VALUES**

Values for offsetting forms to be determined by the Engineer.



**20'-0" VC AT TOP OF WALL SLOPE CHANGE**

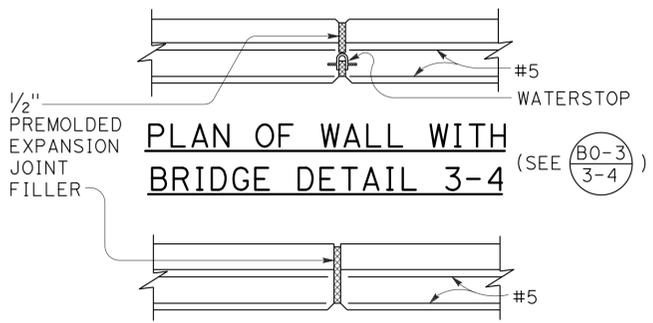
Where shown on the plans



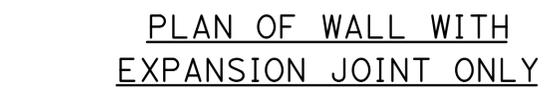
BACKFILL SUFFICIENTLY TO PREVENT PONDING. TO BE DONE AFTER REMOVAL OF WALL FORMS AND BEFORE BACKFILLING BEHIND WALL

PLACE CONCRETE IN TOE AGAINST UNDISTURBED MATERIAL EXCEPT AS PERMITTED BY THE ENGINEER

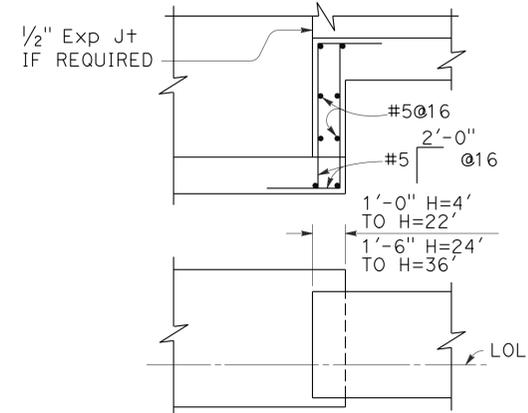
**DESIGN AND DRAINAGE**



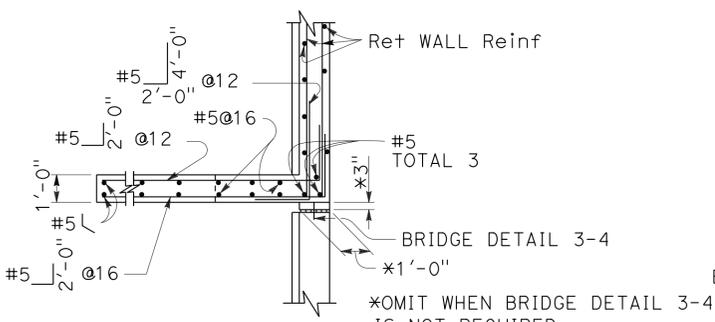
**PLAN OF WALL WITH BRIDGE DETAIL 3-4**



**PLAN OF WALL WITH EXPANSION JOINT ONLY**

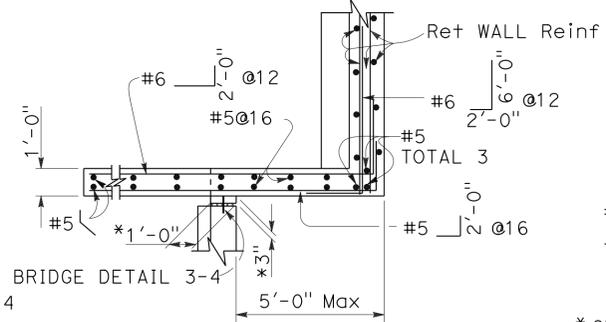


**FOOTING STEP**



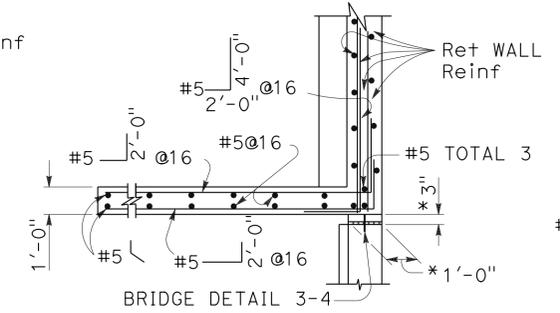
**PLAN**

(For return wall Type "A")



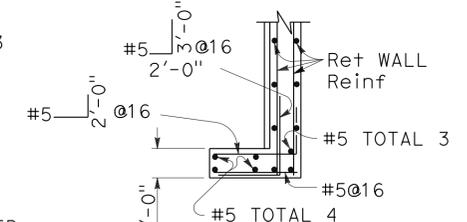
**PLAN**

(For return wall Type "B")



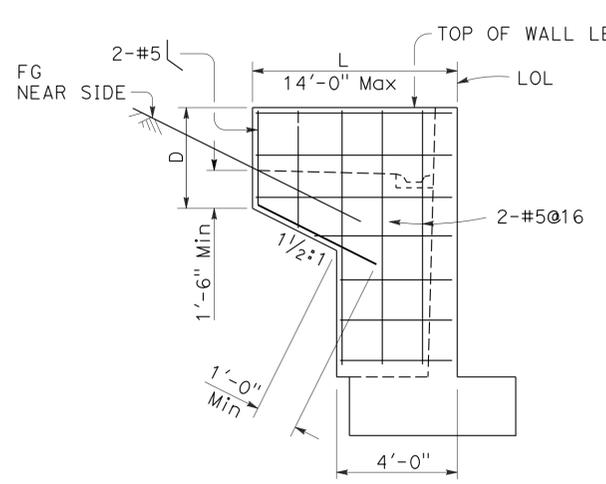
**PLAN**

(For return wall Type "C")



**PLAN**

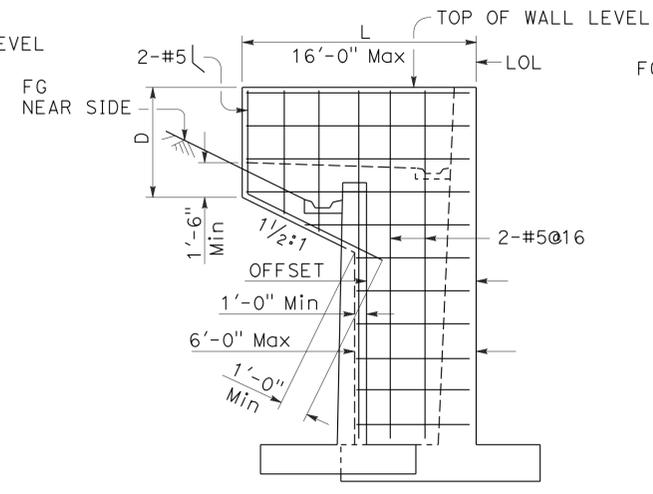
(For return wall Type "D")



**ELEVATION**

**RETURN WALL TYPE "A"**

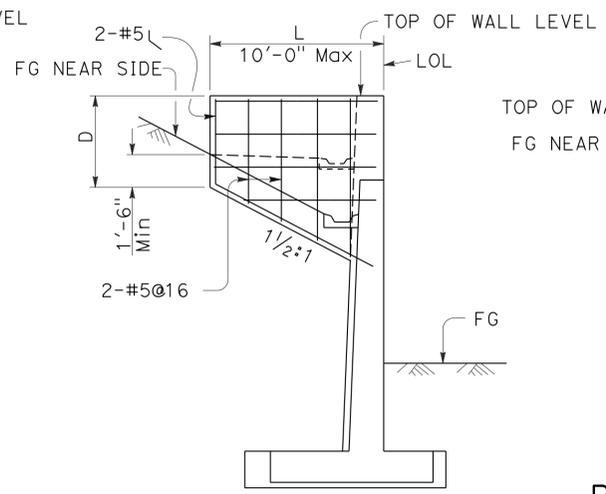
Use where H=8' or less



**ELEVATION**

**RETURN WALL TYPE "B"**

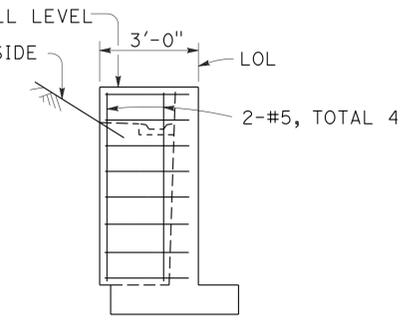
Use where H=10' or more on offset walls



**ELEVATION**

**RETURN WALL TYPE "C"**

Use where H=10' or more on straight walls



**ELEVATION**

**RETURN WALL TYPE "D"**

Use where H=6' or less

**DESIGN CONDITIONS:**

Design "H" may be exceeded by 6" before going to the next size. Special footing design is required where foundation material is incapable of supporting bearing stress listed in table

Return wall not required unless shown elsewhere

**DESIGN NOTES:**

DESIGN: AASHTO LRFD Bridge Design Specifications, 4th edition with California Amendments

LIVE LOAD: Surcharge on level ground surface

SOIL:  $\phi = 34^\circ$   
 $\gamma = 120$  pcf

REINFORCED CONCRETE:  $f_y = 60,000$  psi  
 $f_c' = 3,600$  psi

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**RETAINING WALL DETAILS No. 1**

NO SCALE

RSP B3-5 DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN B3-5 DATED MAY 20, 2011 - PAGE 277 OF THE STANDARD PLANS BOOK DATED 2010.

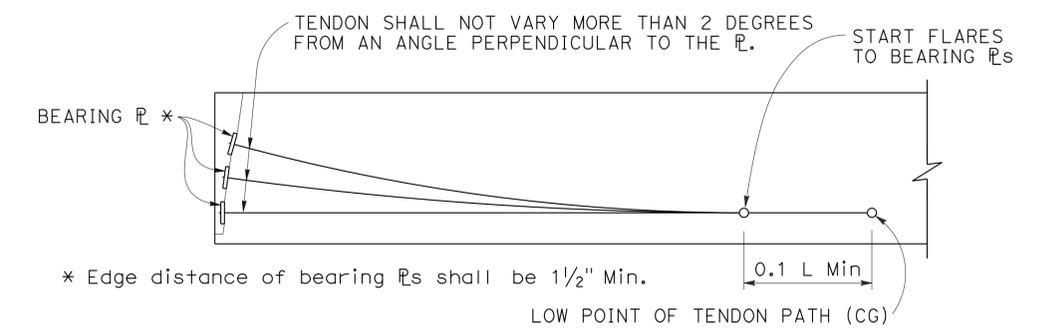
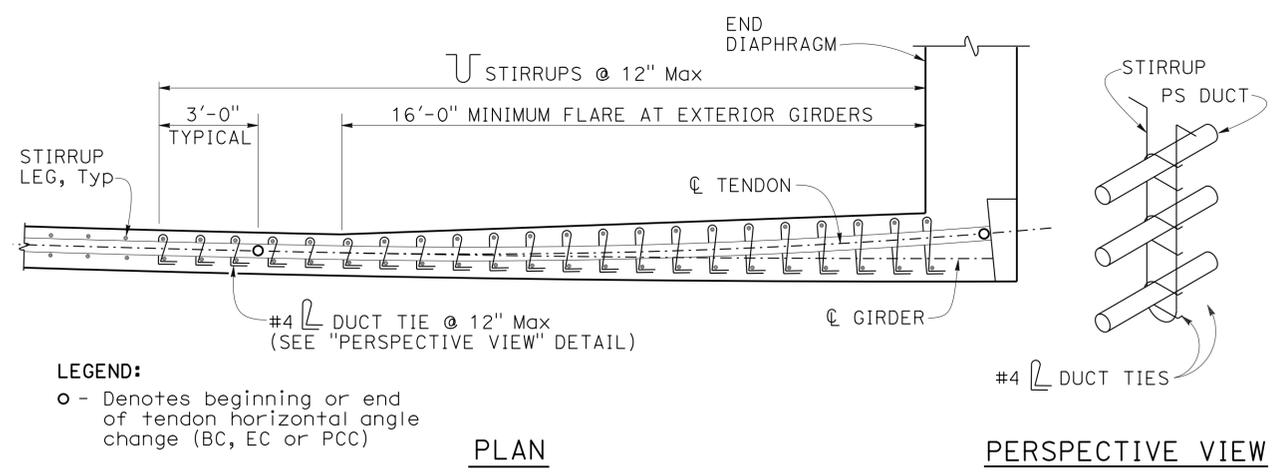
**REVISED STANDARD PLAN RSP B3-5**

2010 REVISED STANDARD PLAN RSP B3-5

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	641	780

REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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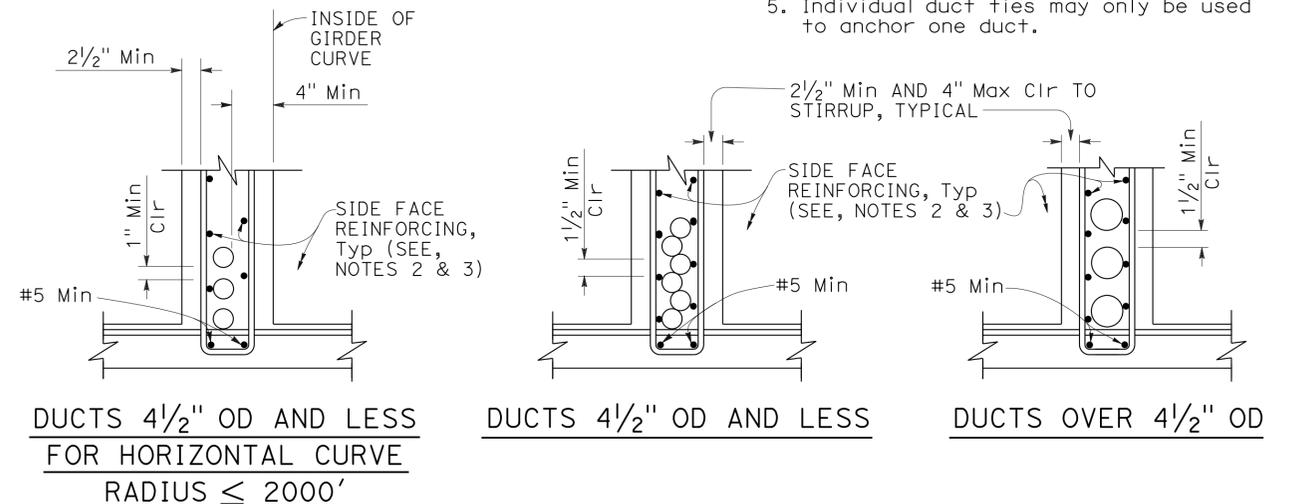
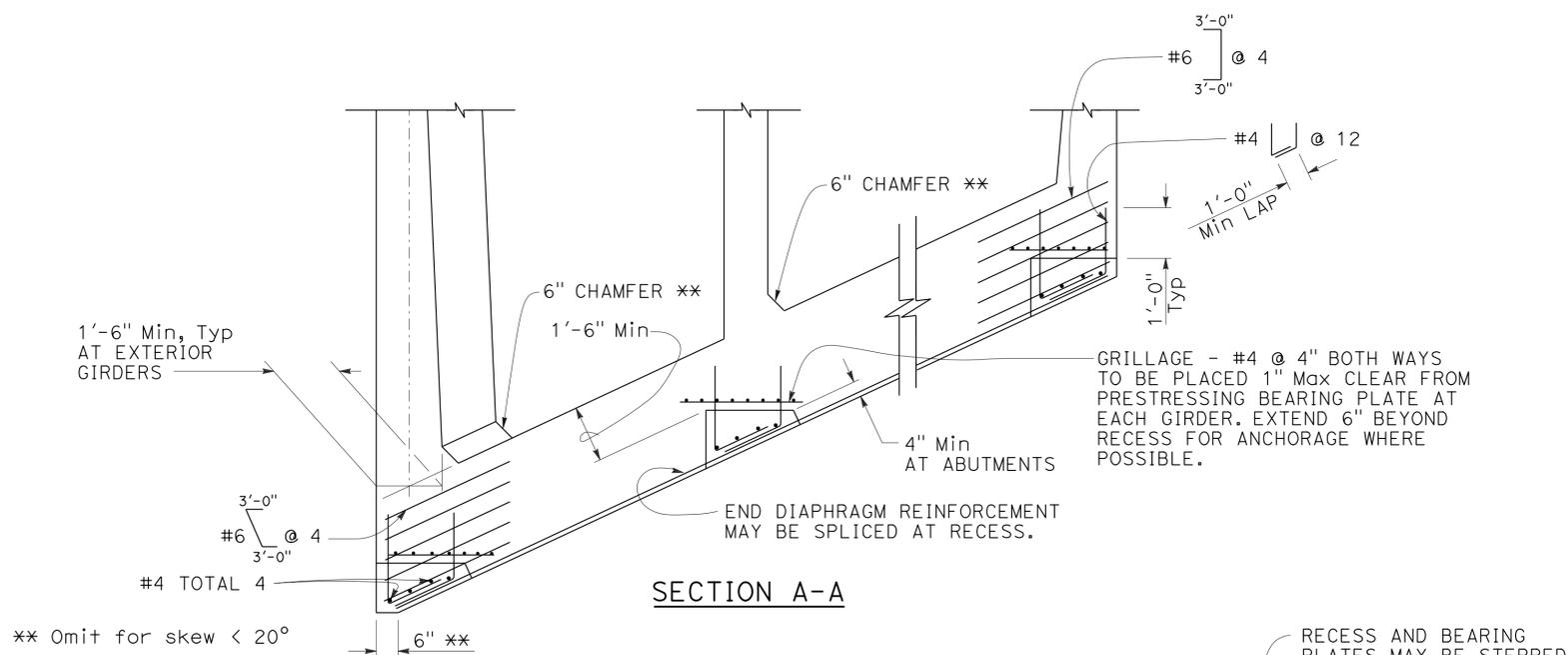
REGISTERED PROFESSIONAL ENGINEER  
 Marc Friedheim  
 No. C57968  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA



**DUCT TIES AT TENDON HORIZONTAL ANGLE CHANGES**  
**DETAIL 5-1**

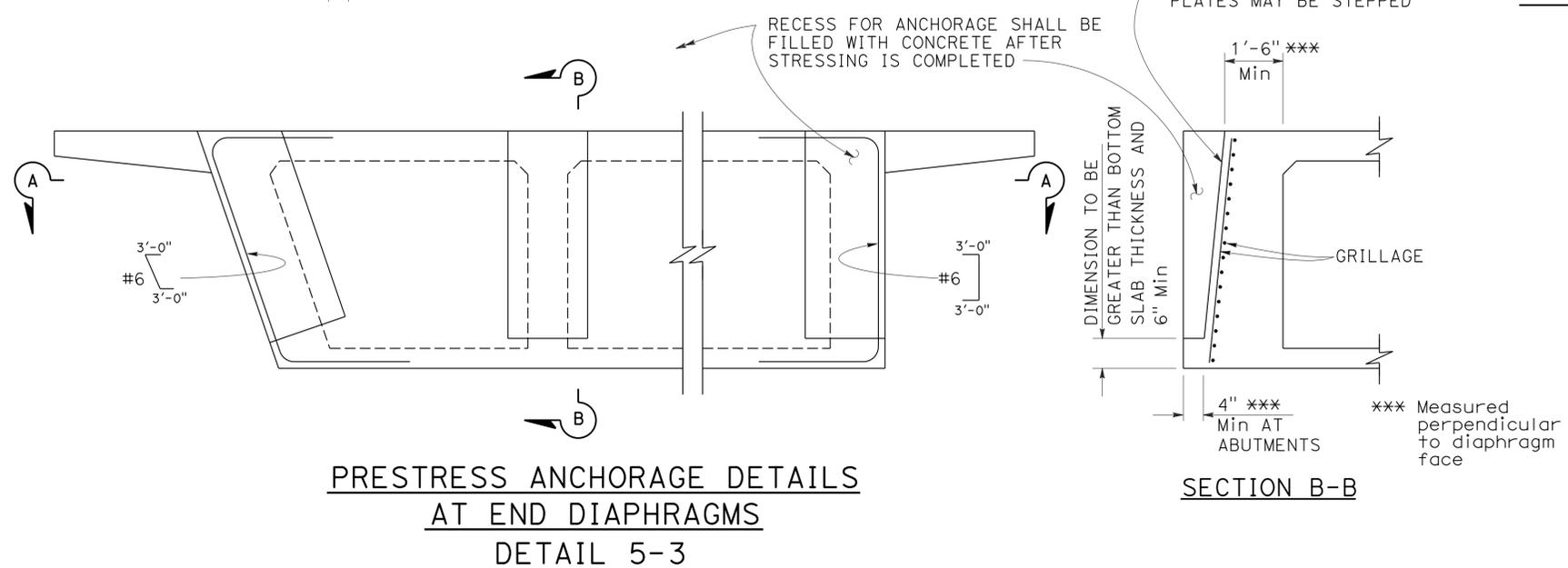
**ELEVATION - BEARING PLATE AND PRESTRESSING PATH**  
**DETAIL 5-2**

- TO ACCOMPANY PLANS DATED 8-26-13
- NOTES FOR DETAIL 5-1**
1. Tendon horizontal angle change at end diaphragm shown. Duct tie placement similar for other locations where tendon horizontal angle changes occur. For curved girders place duct ties at tendon angle changes where tendon radius is smaller than girder radius.
  2. Adjacent duct ties may be staggered to facilitate placement if stirrup spacing is less than 12 inches.
  3. Place closed end of duct ties toward inside of tendon curve.
  4. Wrap duct ties around both stirrup legs.
  5. Individual duct ties may only be used to anchor one duct.



**CLEARANCE REQUIREMENTS FOR DUCTS**  
**DETAIL 5-4**

- NOTES FOR DETAIL 5-4:**
1. Stirrups may also be used.
  2. For additional details, see Standard Plan B7-1, and Project Plans.
  3. Bar reinforcing which interferes with prestressing ducts may be adjusted as approved by the Engineer.



**PRESTRESS ANCHORAGE DETAILS**  
**AT END DIAPHRAGMS**  
**DETAIL 5-3**

**SECTION B-B**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CAST-IN-PLACE POST-TENSIONED GIRDER DETAILS**  
 NO SCALE

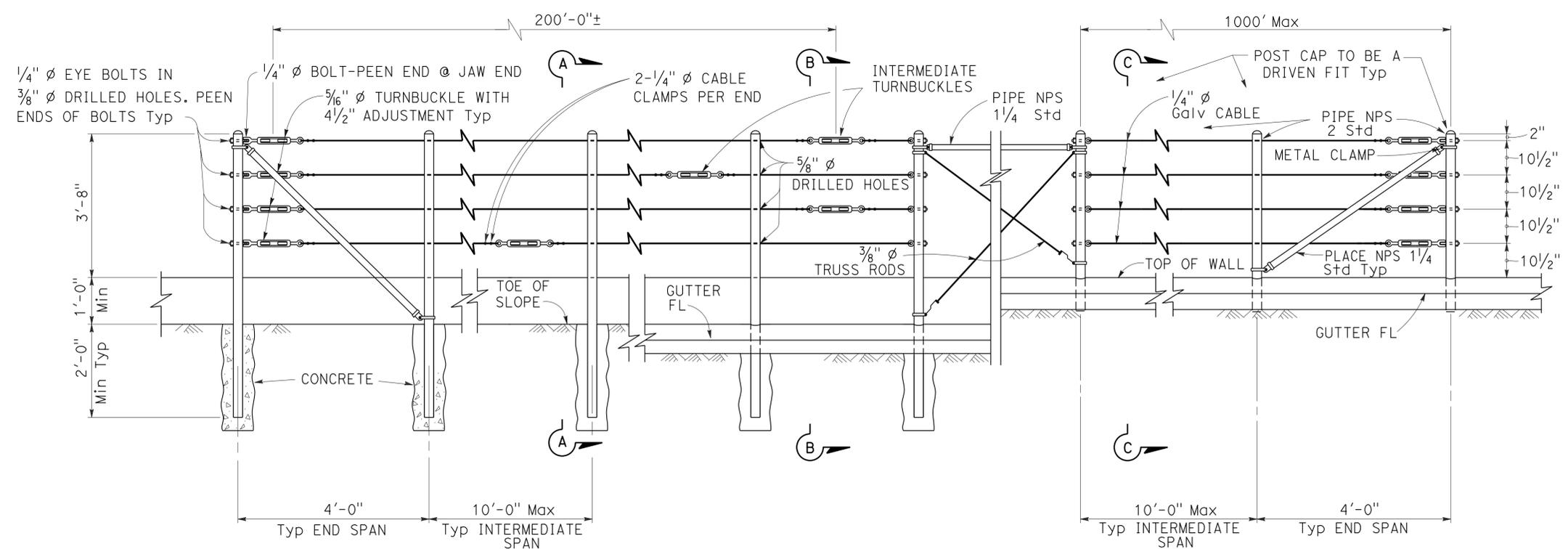
RSP B8-5 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN B8-5 DATED MAY 20, 2011 - PAGE 291 OF THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP B8-5**

2010 REVISED STANDARD PLAN RSP B8-5

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	642	780

REGISTERED CIVIL ENGINEER  
 October 21, 2011  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

Tillett Satter  
 No. C42892  
 Exp. 3-31-12  
 CIVIL  
 STATE OF CALIFORNIA

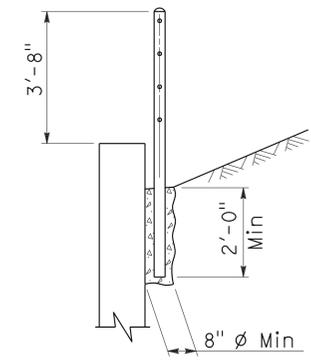


**EXISTING WALL (WITHOUT GUTTER)** Existing  
**RETAINING WALL (WITH GUTTER)** Existing  
**RETAINING WALL (WITH GUTTER)** New construction

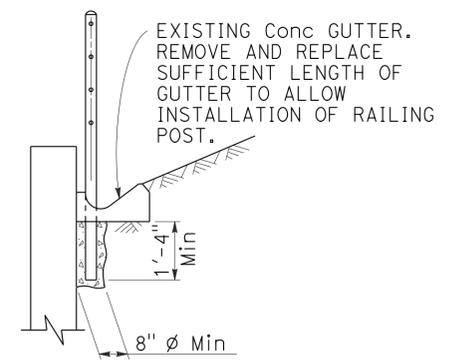
**ELEVATION**

**NOTES:**

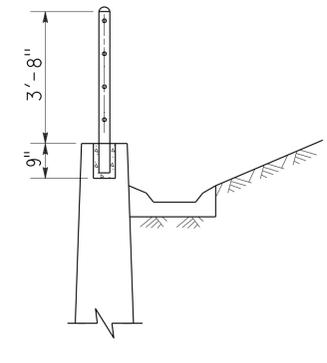
1. Maximum distance between turnbuckles shall be 200'-0"±.
2. Intermediate turnbuckles to be placed in adjacent spans.
3. Cable shall not be spliced between intermediate turnbuckles and end posts.
4. Posts to be vertical.
5. Alignment of holes in posts may vary to conform to slope of top of retaining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



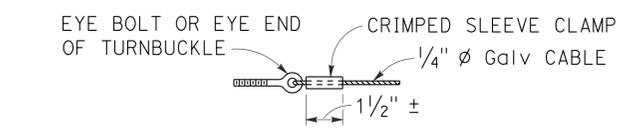
**SECTION A-A**  
Existing



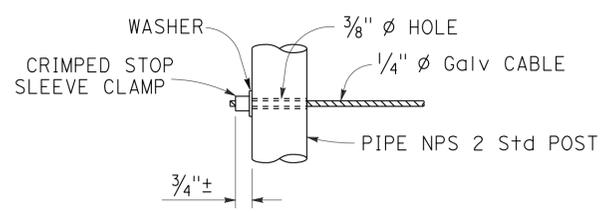
**SECTION B-B**  
Existing



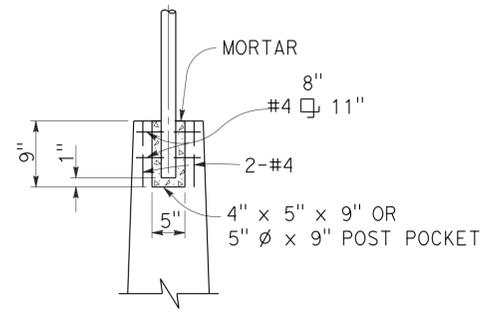
**SECTION C-C**  
New construction



**ALTERNATIVE CABLE CONNECTION**



**ALTERNATIVE DEAD END ANCHORAGE**



**POST POCKET**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CABLE RAILING**

NO SCALE

RSP B11-47 DATED OCTOBER 21, 2011 SUPERSEDES STANDARD PLAN B11-47 DATED MAY 20, 2011 - PAGE 293 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP B11-47**

2010 REVISED STANDARD PLAN RSP B11-47

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	643	780

REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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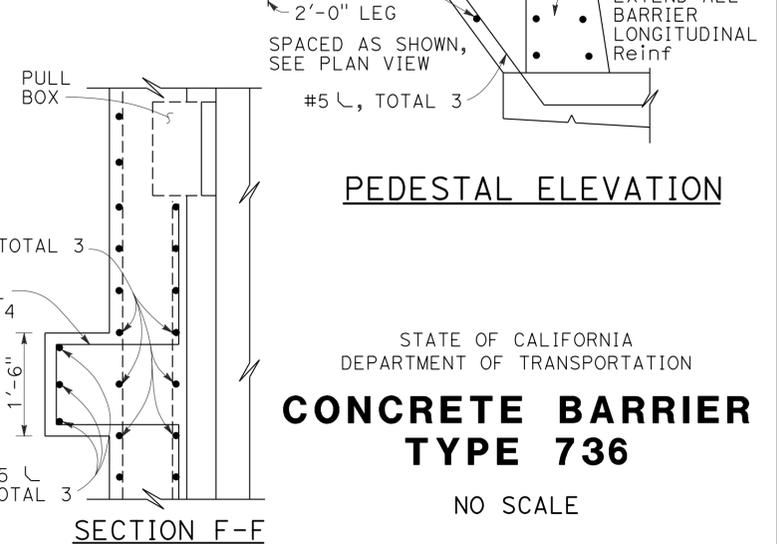
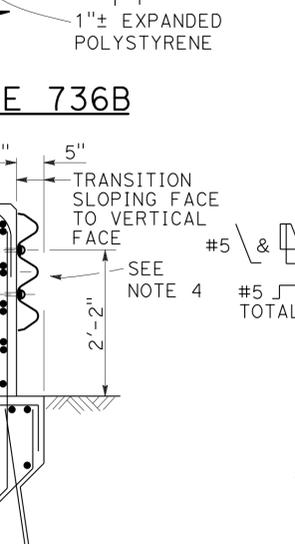
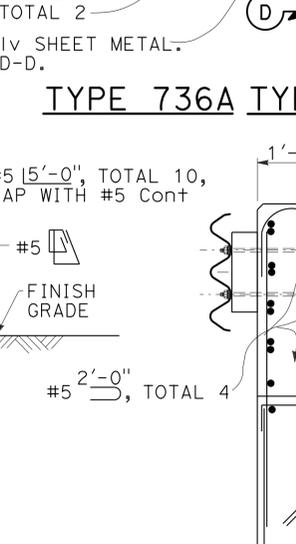
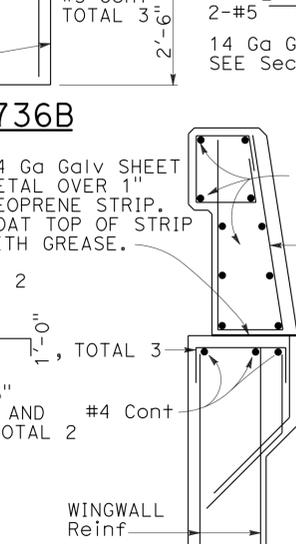
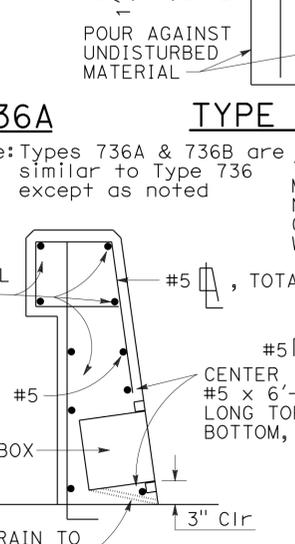
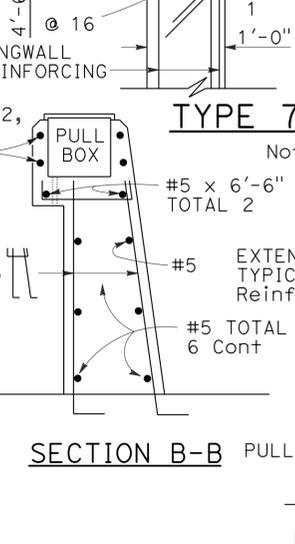
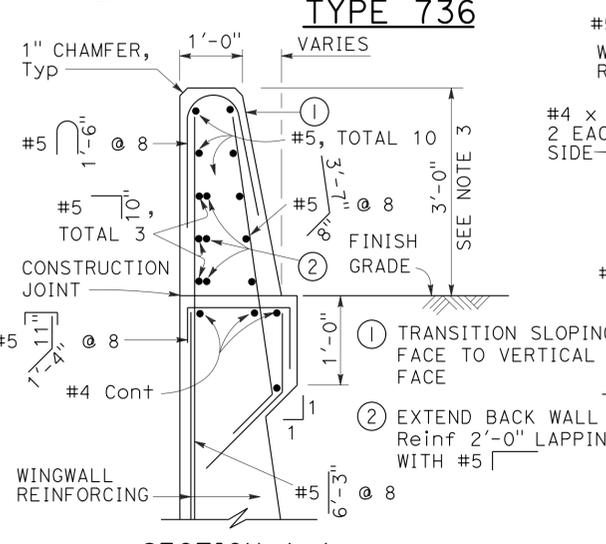
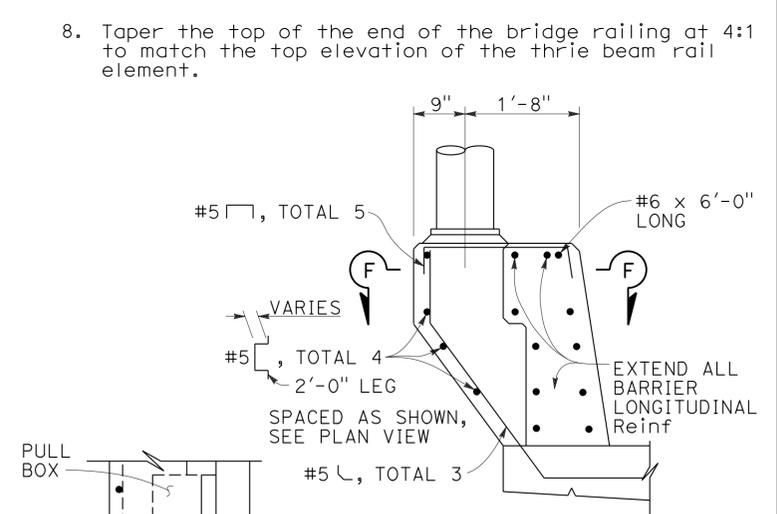
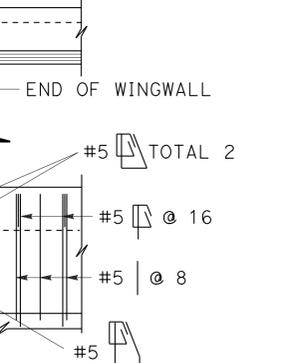
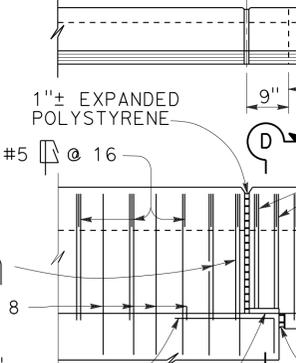
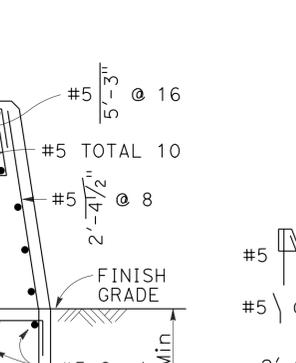
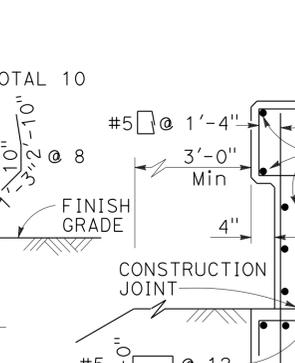
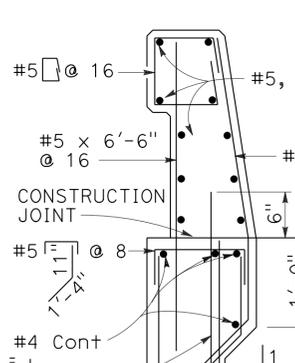
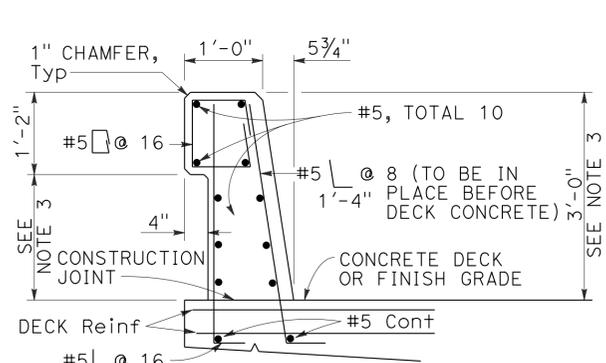
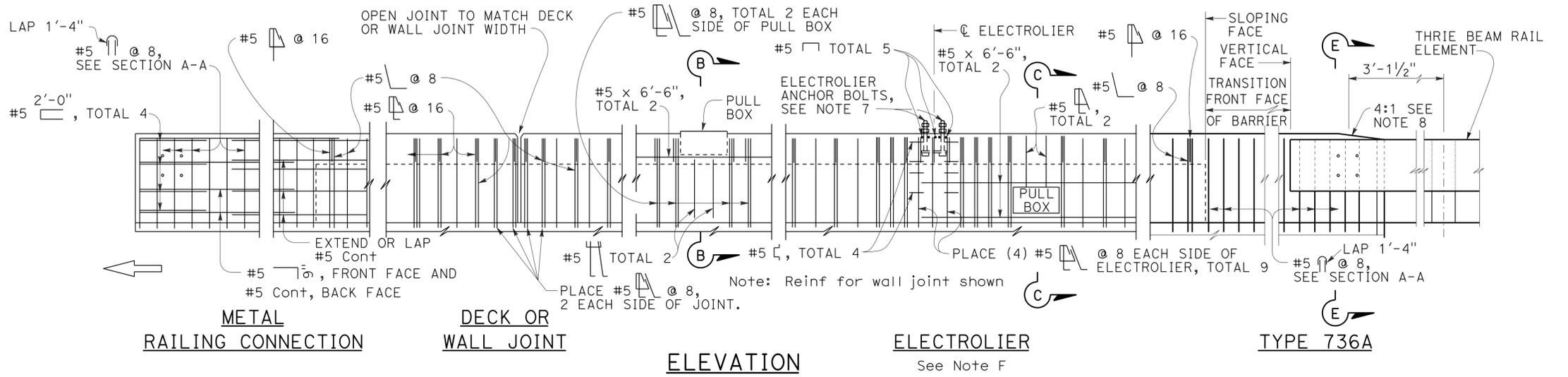
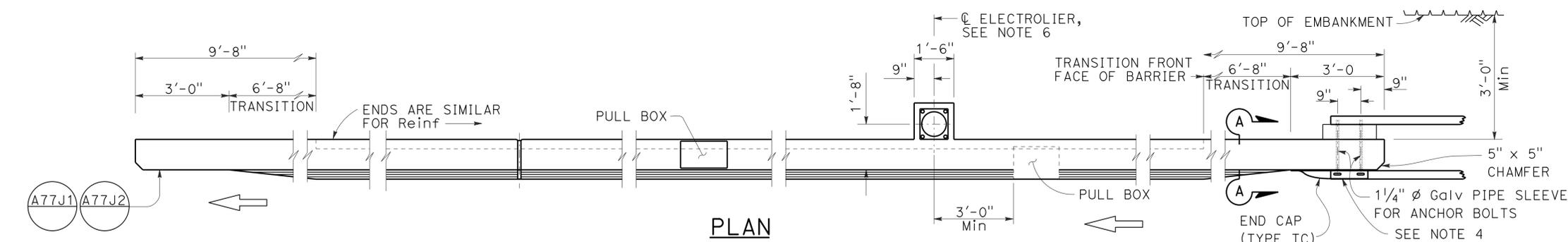
REGISTERED PROFESSIONAL ENGINEER  
Tillat Satter  
No. C42892  
Exp. 3-31-14  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-26-13

**NOTES:**

1. Walls are to be backfilled before barrier is placed.
2. Clearance to reinforcing steel in barrier to be 1", except as noted. Longitudinal 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 Revised Standard Plans RSP A77U1 and RSP A77U2.
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.

2010 REVISED STANDARD PLAN RSP B11-56



Details shown for barrier anchorage to Type 736A. Anchorage for barrier Types 736 and 736B are similar to their respective details.

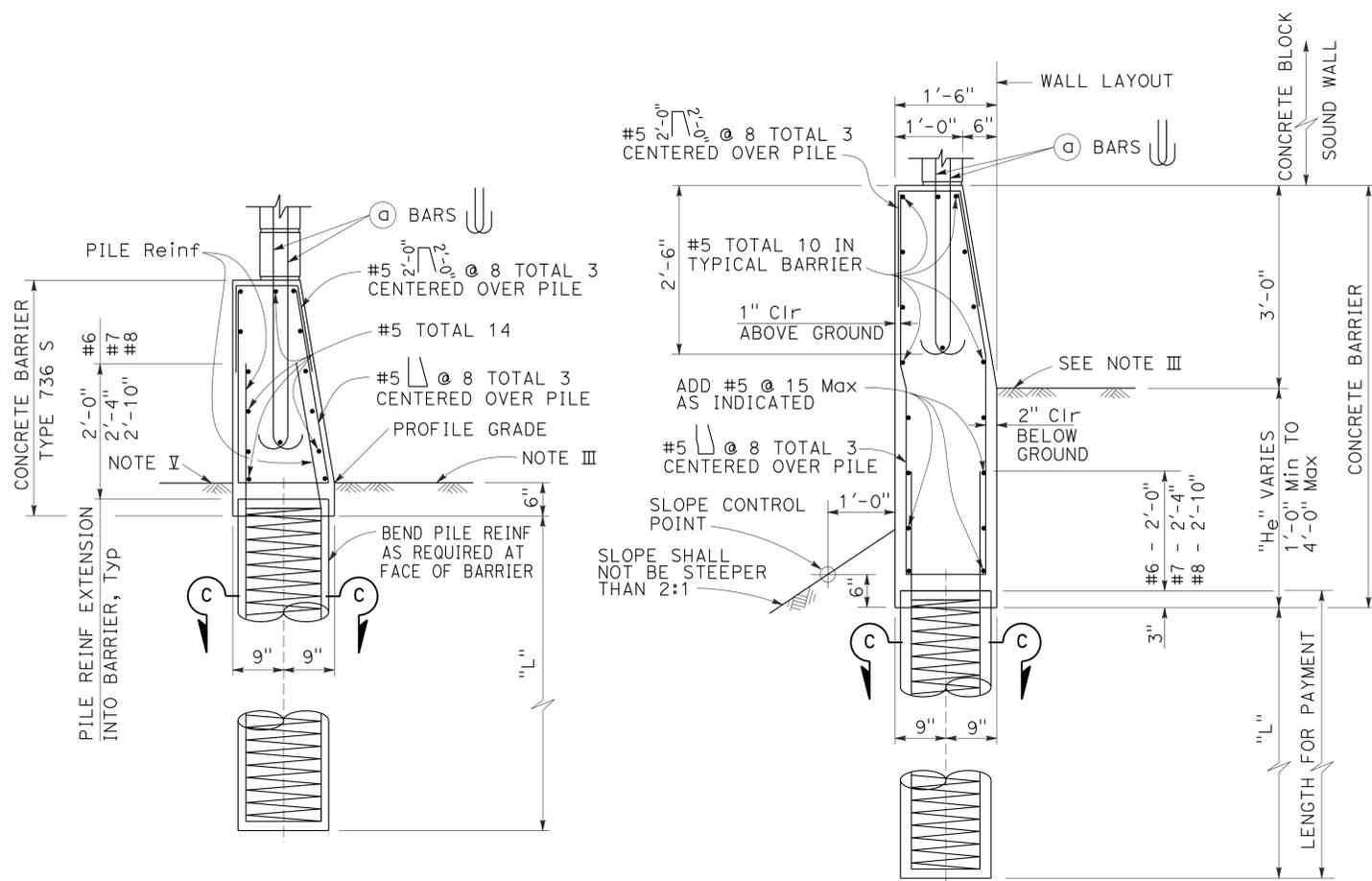
Note: Types 736A & 736B are similar to Type 736 except as noted.

14 Ga Galv SHEET METAL OVER 1" NEOPRENE STRIP. COAT TOP OF STRIP WITH GREASE.

RSP B11-56 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN B11-56 DATED MAY 20, 2011 - PAGE 298 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP B11-56**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE BARRIER  
TYPE 736**  
NO SCALE



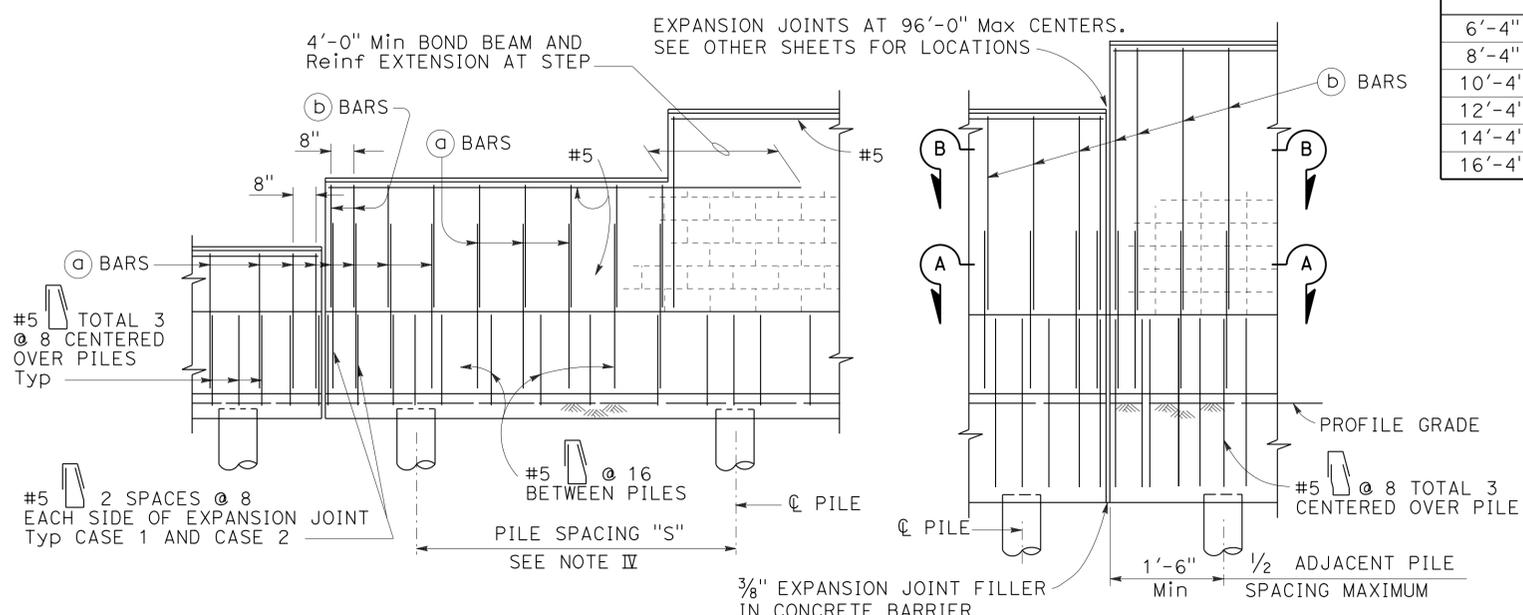
**CASE 1**

For details not shown, See Case 2.  
 Level ground ±10% on both sides of barrier.

**CASE 2**

For details not shown, See Case 1.  
 Level ground ±10% at the traffic side of barrier and sloping ground on the opposite side.

**BARRIER SECTIONS**



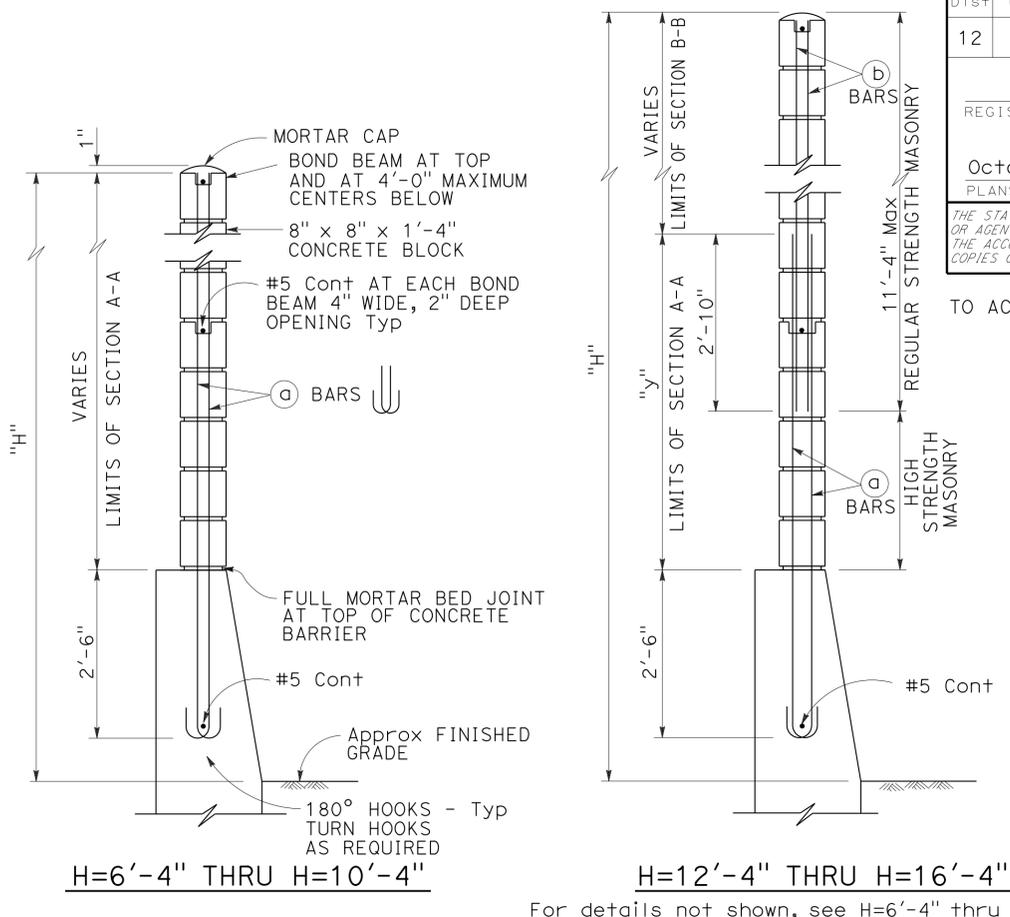
**CASE 1**

For details not shown, See Case 2.

**CASE 2**

For details not shown, See Case 1.

**PARTIAL ELEVATIONS**



**TYPICAL SECTIONS**

See Standard Plan B15-8 for pile details.

**SOUND WALL REINFORCEMENT TABLE**

MAXIMUM H	(a) BARS @ 1'-4" Max	(b) BARS @ 1'-4" Max	"y"	f'm (psi)	COMPRESSIVE STRENGTH OF CMU (psi)	H
6'-4"	#4	---	---	1500	1900	6'-4"
8'-4"	#4	---	---	1500	1900	8'-4"
10'-4"	#4	---	---	1500	1900	10'-4"
12'-4"	#5	#4	5'-0"	1500	1900	12'-4"
14'-4"	#6	#4	7'-0"	1500	1900	14'-4"
16'-4"	#6	#4	9'-0"	2500	3750	16'-4"

**NOTES I THROUGH VI:**

- I. Details shown are primarily to conform design of sound walls to Type 736S and Type 736 SV Concrete Barriers. For sound wall details conforming with barriers see Standard Plans B15-7 and B15-8.
- II. For details and sections not shown, see Standard Plans B15-7 and B15-8.
- III. Slope ground at traffic side of barrier to drain. Maximum slope ±10%. See Std Plan B11-56, Note 3.
- IV. Pile spacing may be varied, but shall not exceed the tabular values. See Standard Plan B15-8.
- V. 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.
- VI. See Standard Plan B15-9 for other details.

**NOTES A THROUGH F:**

- A. For type of block, type of block bond, and joint finish, see other sheets.
- B. 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.
- C. Horizontal joints shall be tooled concave or may be weathered. Vertical joints shall be tooled concave or may be raked.
- D. For intermediate wall heights (H), or barrier depths (H<sub>e</sub>), that are between the values given, use the tabular information for the next higher (H) or (H<sub>e</sub>).
- E. Concrete to be used for the barrier shall contain not less than 590 pounds of cementitious material per cubic yard.
- F. Masonry strengths are listed in the "SOUND WALL REINFORCEMENT TABLE".

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**SOUND WALL MASONRY BLOCK ON TYPE 736S/SV BARRIER DETAILS (1)**  
 NO SCALE

RSP B15-6 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN B15-6 DATED MAY 20, 2011 - PAGE 320 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP B15-6**

2010 REVISED STANDARD PLAN RSP B15-6

# 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 IX
- 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 Juncture 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".

### LIGHTING FIXTURE SUPPORTS:

Where distance from walkway bracket to end of sign panel exceeds 1'-4", extend lighting fixture supports 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.



### 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.

### 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:

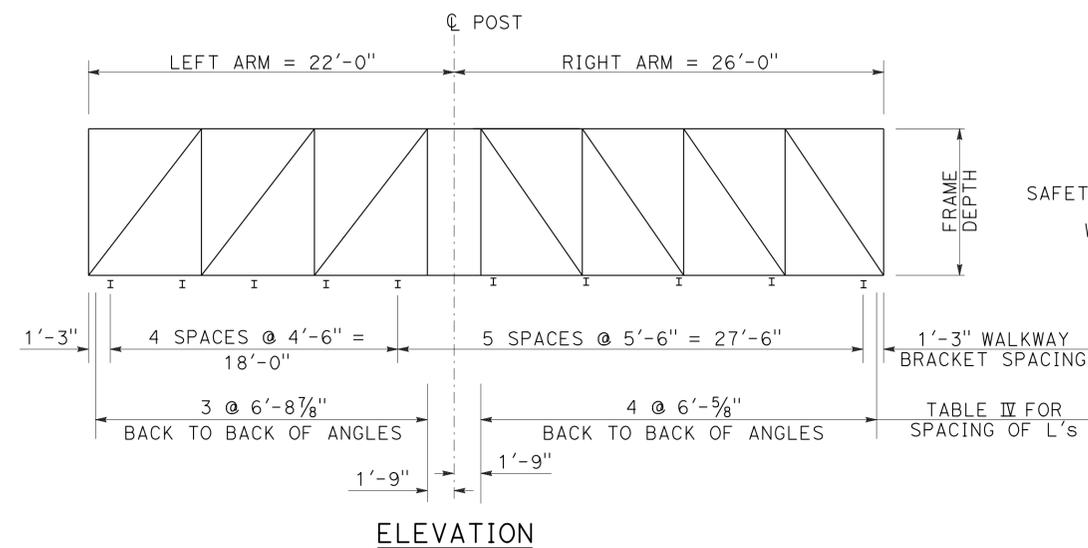
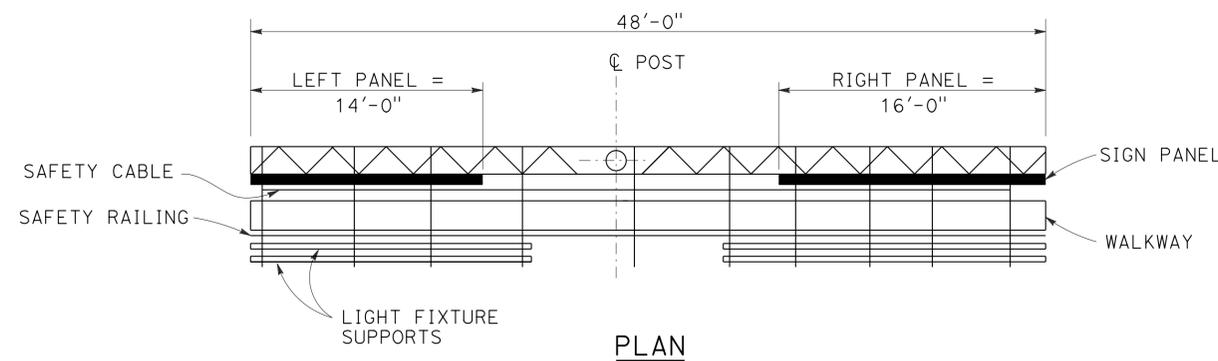
STRUCTURAL STEEL:  $f_y = 36,000$  psi  
 REINFORCED CONCRETE:  $f_y = 60,000$  psi  
 $f'_c = 3600$  psi  
 FOOTING SOIL PRESSURE: 2.5 ksf (spread footing)

#### MINIMUM CLEARANCE

Vertical roadway clearance 18'-0" (bottom of walkway system)

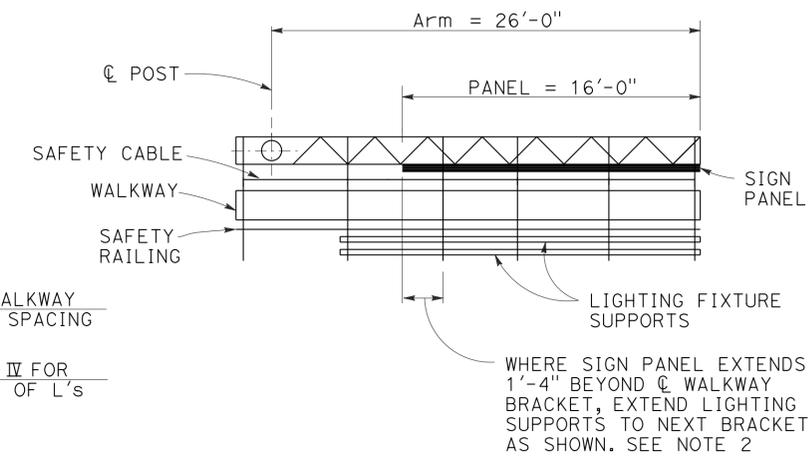
#### WELDING:

All welding continuous unless otherwise noted on the plans.



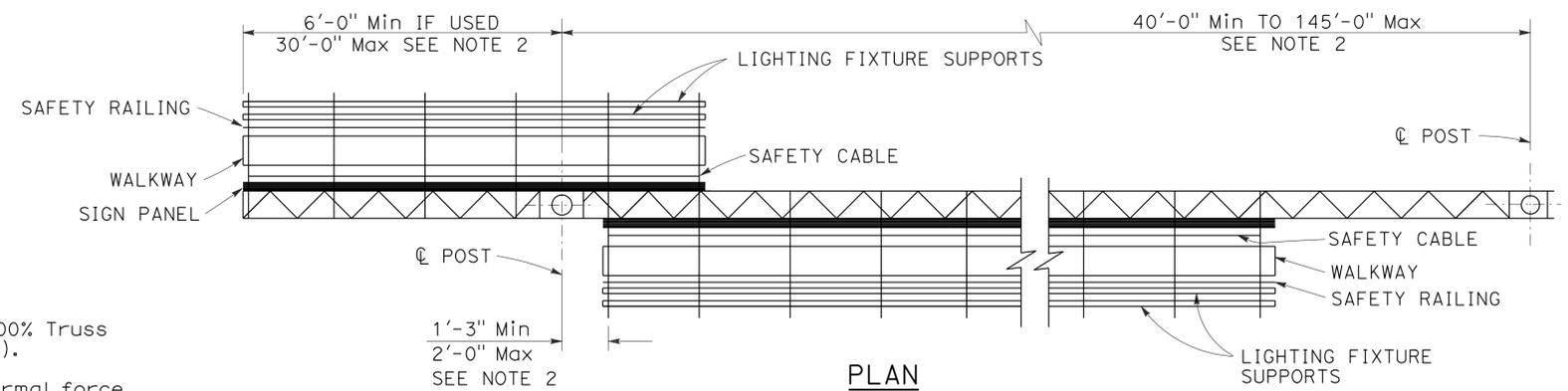
## UNBALANCED SINGLE POST TYPE

Example No. 1



## CANTILEVER SINGLE POST TYPE

Example No. 2



## 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 JULY 19, 2013 SUPERSEDES STANDARD PLAN S1 DATED MAY 20, 2011 - PAGE 334 OF THE STANDARD PLANS BOOK DATED 2010.

## REVISED STANDARD PLAN RSP S1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	645	780

Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER

July 19, 2013  
 PLANS APPROVAL DATE

Stanley P. Johnson  
 No. C57793  
 Exp. 3-31-14  
 CIVIL ENGINEER  
 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 8-26-13

2010 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					SPREAD FOOTING						
	NPS	THICKNESS			PEDESTAL SIZE Dia	VERTICAL EQUALLY SPACED TOTAL	J-BARS BAR SIZE	SPIRAL BAR SIZE	PITCH	PEDESTAL SIZE SQUARE	VERTICAL EQUALLY SPACED TOTAL	J-BARS BAR SIZE	# OF BARS EA FACE	HOOP BAR SIZE	SPACING	(SEE NOTE 2)					
	REINFORCEMENT		WIDTH													LONGITUDINAL		FOOTING STIRRUPS			
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
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 1/32"														13'-0" x 18'-0" x 2'-6"	19-#7	19-#7			
IX	24	3 1/32"														13'-0" x 18'-0" x 2'-6"	19-#7	19-#7			

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	646	780

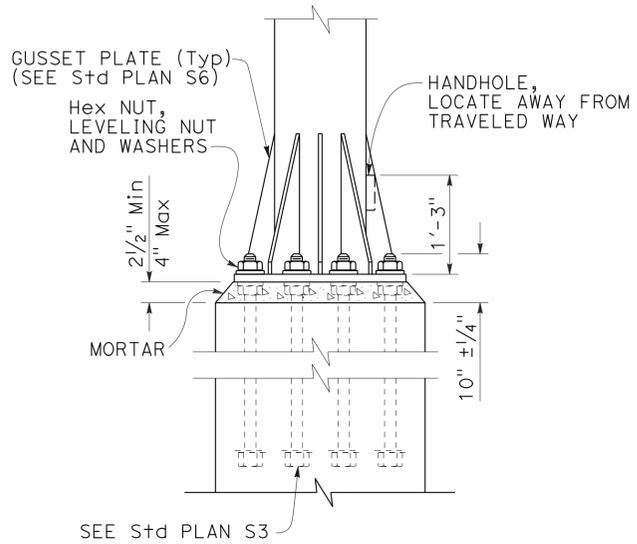
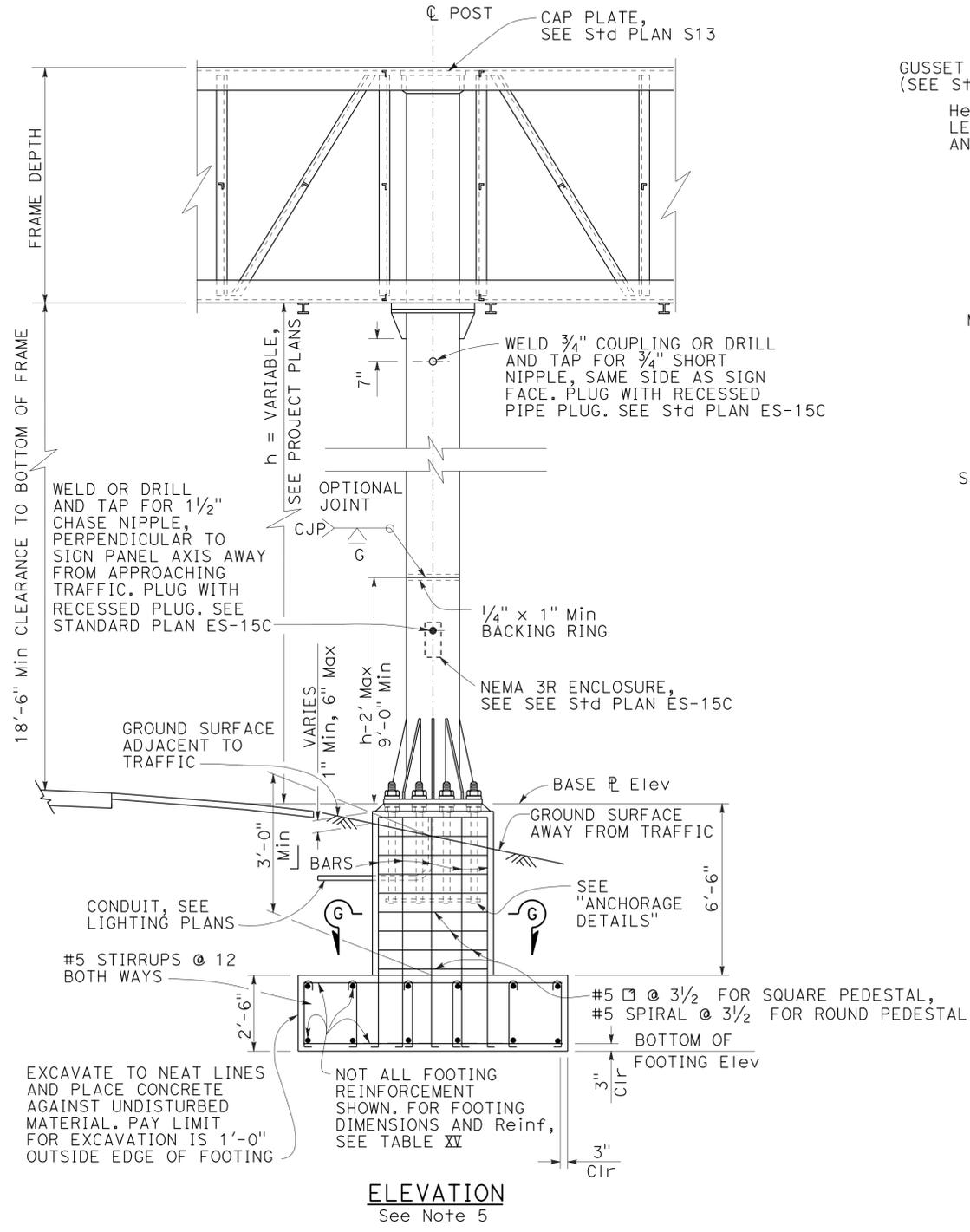
Stanley P. Johnson  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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

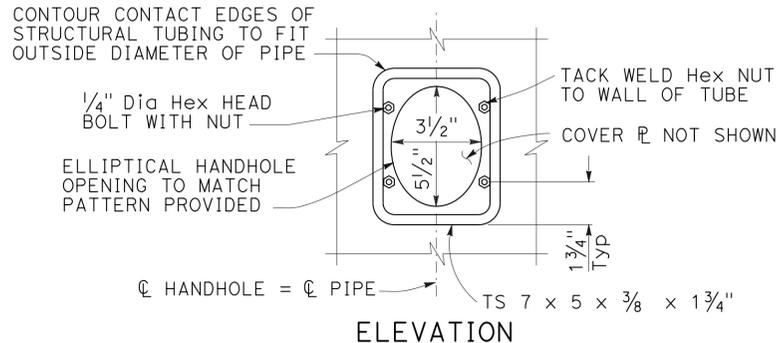
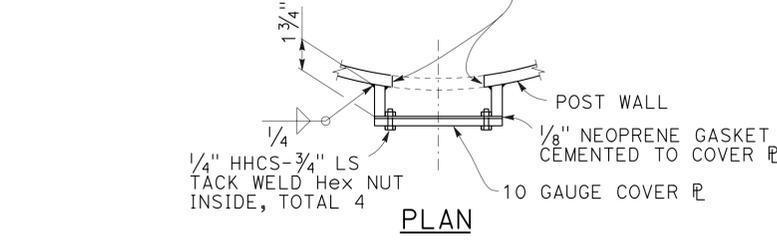
Stanley P. Johnson  
REGISTERED PROFESSIONAL ENGINEER  
No. C57793  
Exp. 3-31-14  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-26-13



**ELEVATION ANCHORAGE DETAILS**

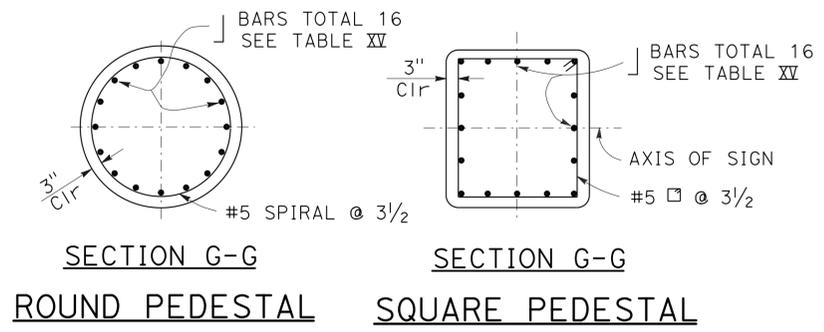
GRIND EDGES SMOOTH, ROUGHNESS OF EDGES NO GREATER THAN 1000 MICROINCHES



**TYPICAL DETAILS OF HANDHOLE AND COVER**

**NOTES:**

1. For "General Notes", see Revised Standard Plan RSP S1.
2. Longer side of footing (longitudinal) shall be normal to axis of sign.
3. Backfill shall be in place prior to erection of post.
4. Thread upper 10" of anchor bolts and galvanize upper 1'-0".
5. Spread footing with square pedestal foundation shown, use Pile Foundation when shown on the Project Plans. For pile foundation details, see Standard Plan S8.
6. Anchor plates may be retained with hexagon nut or formed head as alternatives to details shown.
7. 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.
8. At final position of post all top and bottom nuts shall be tightened against base plate.
9. 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.
10. Slope protection required when indicated on the Project Plans.



**SECTION G-G ROUND PEDESTAL SECTION G-G SQUARE PEDESTAL**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**OVERHEAD SIGNS-TRUSS  
SINGLE POST TYPE  
POST TYPES II THROUGH IX**  
NO SCALE

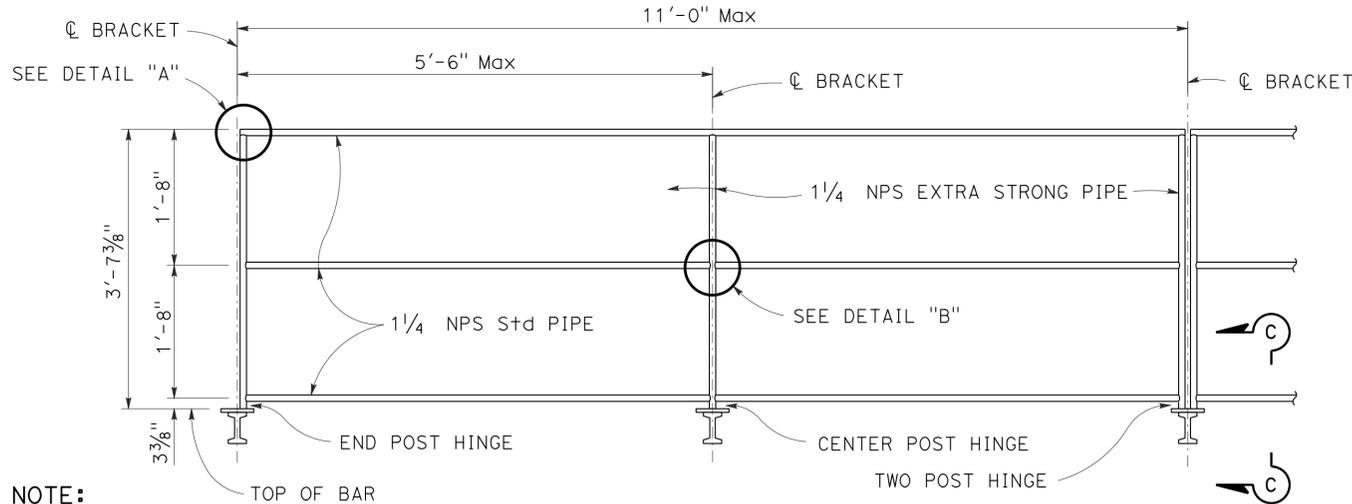
RSP S2 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN S2 DATED MAY 20, 2011 - PAGE 335 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP S2**

2010 REVISED STANDARD PLAN RSP S2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	647	780

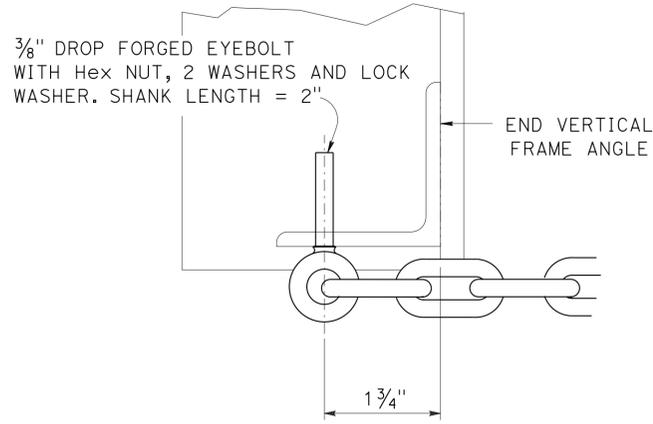
July 19, 2013  
 PLANS APPROVAL DATE  
 REGISTERED CIVIL ENGINEER  
 Stanley P. Johnson  
 No. C57793  
 Exp. 3-31-14  
 CIVIL  
 STATE OF CALIFORNIA  
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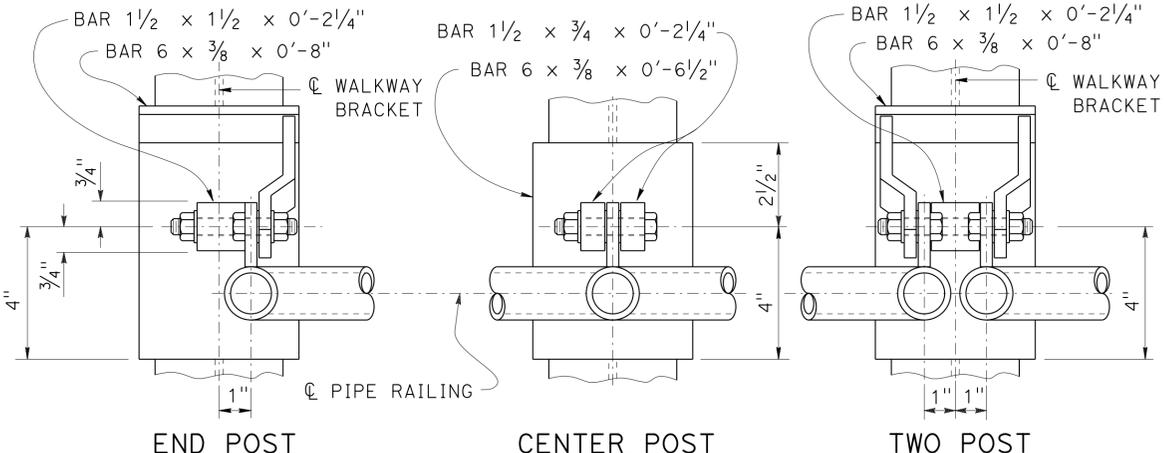
**NOTE:**  
Chain assembly behind (see detail this page)

**SAFETY RAILING ELEVATION**

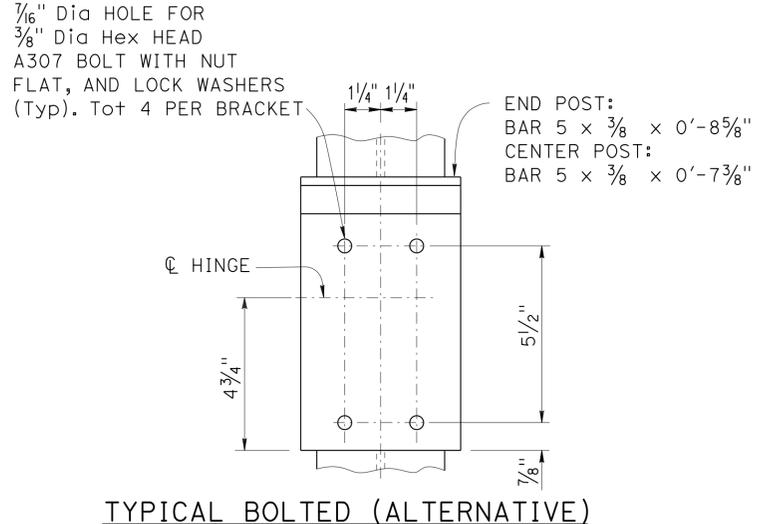
**NOTE:**  
See Standard Plans S101 and S105 and S109 for walkway bracket spacing.



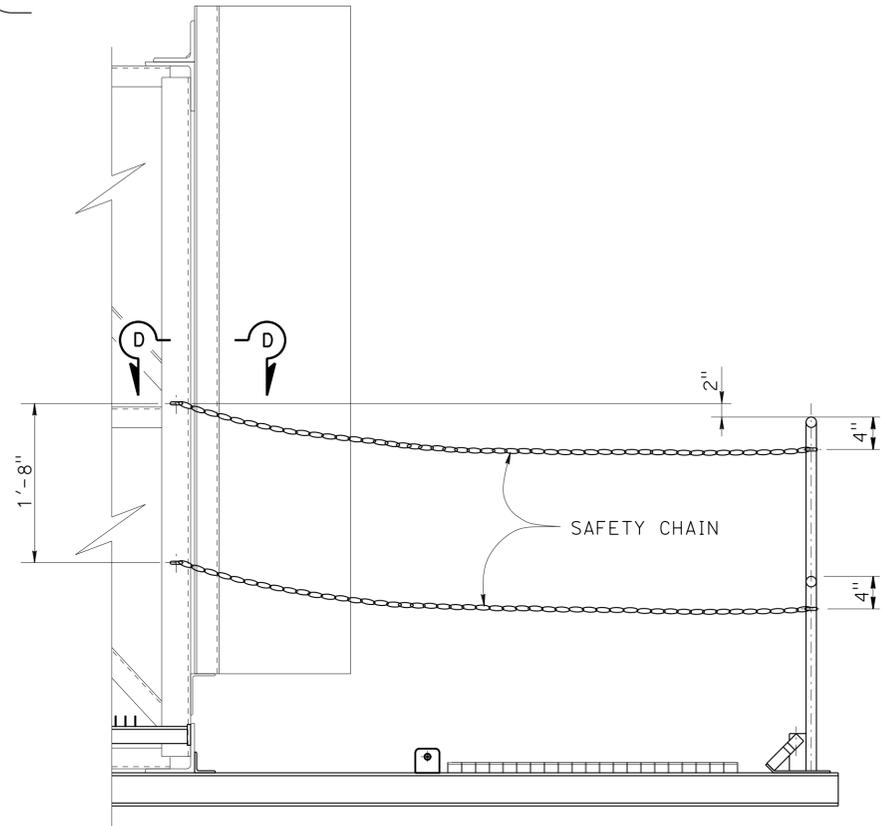
**SECTION D-D**



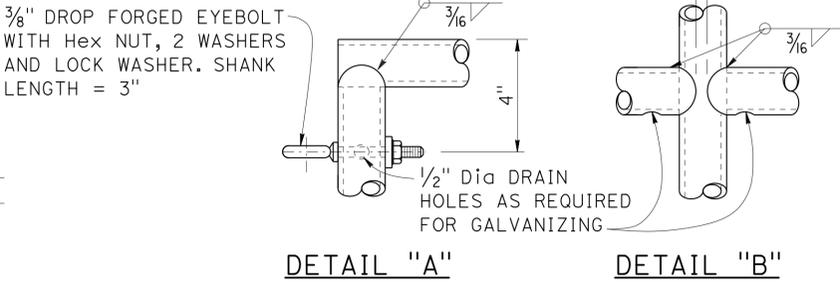
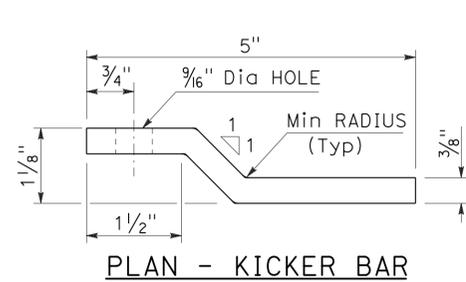
**WELDED HINGE - PLAN**



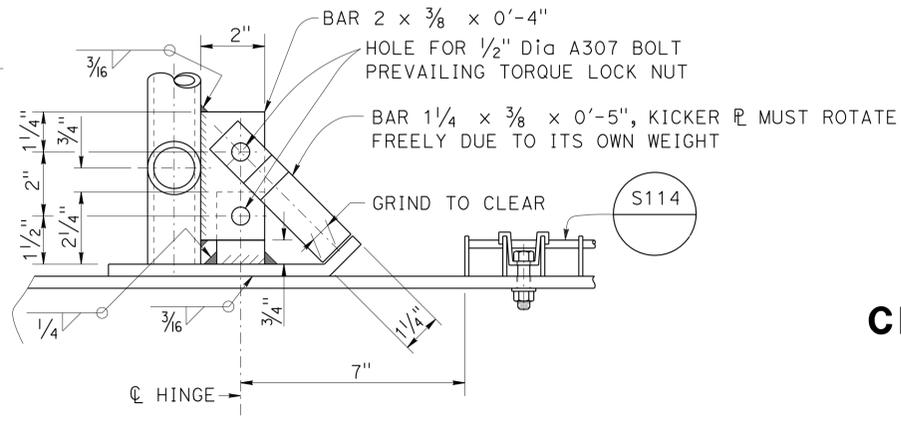
**HINGED CONNECTION**



**CHAIN ASSEMBLY**



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



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

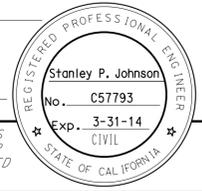
RSP S140 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN S140 DATED MAY 20, 2011 - PAGE 422 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP S140**

2010 REVISED STANDARD PLAN RSP S140

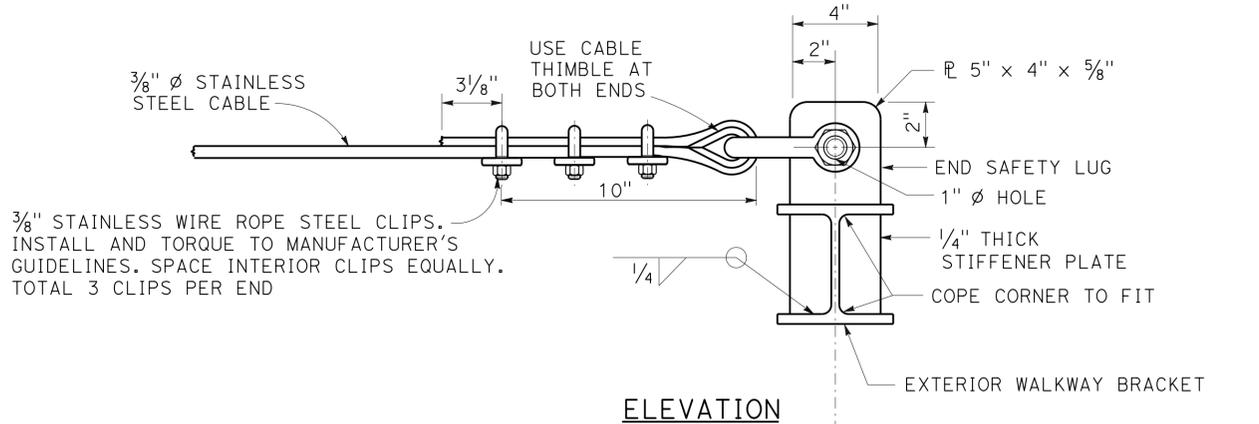
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	648	780

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

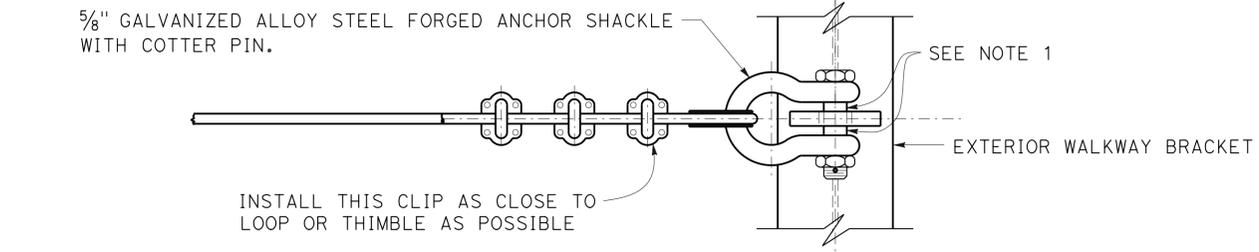


TO ACCOMPANY PLANS DATED 8-26-13

2010 REVISED STANDARD PLAN RSP S141

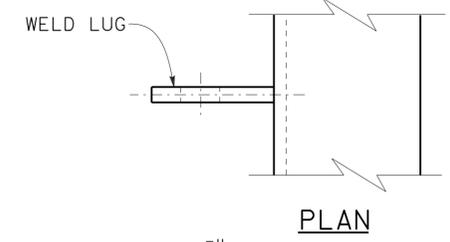


ELEVATION

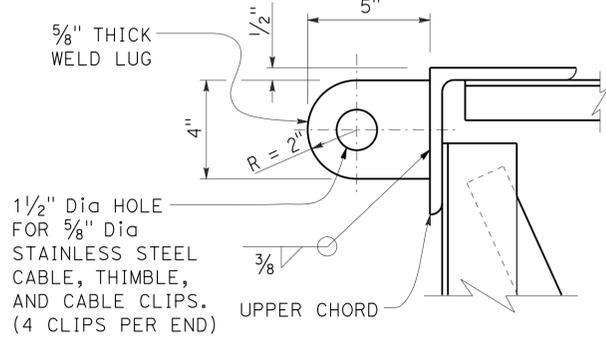


PLAN

END SAFETY CABLE DETAIL



PLAN



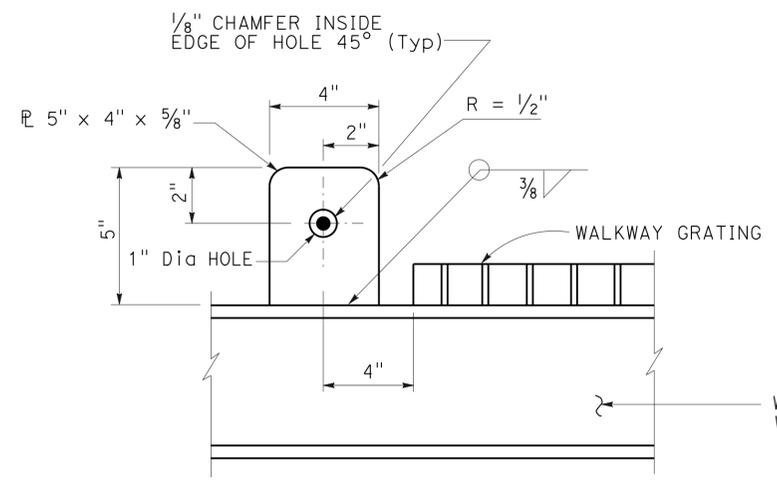
ELEVATION

BACKSIDE WELD LUG DETAIL

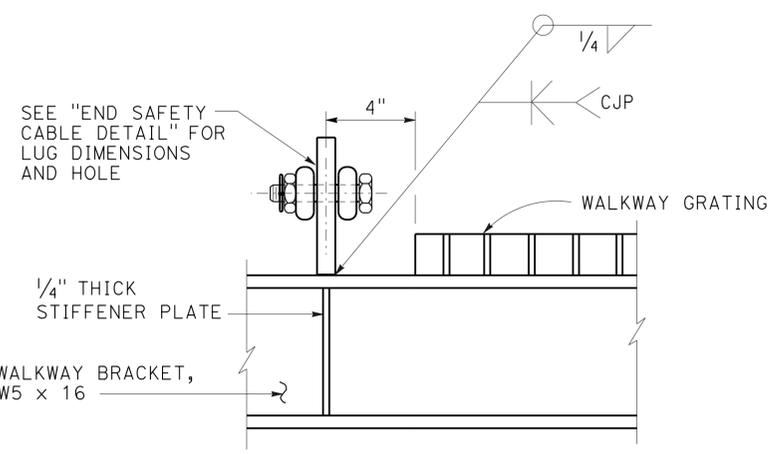
**NOTE:** Backside weld lug shall be installed only for projects requiring backside walkways.

**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.



INTERIOR SAFETY LUG DETAIL



END SAFETY LUG DETAIL

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

RSP S141 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN S141 DATED MAY 20, 2011 - PAGE 423 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP S141**

**LEGEND:**

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

**ABBREVIATIONS**

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	649	780

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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

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TO ACCOMPANY PLANS DATED 8-26-13

**SOFFIT AND WALL MOUNTED LUMINAIRES**

- PENDANT, 70 W HPS UNLESS OTHERWISE SPECIFIED
- FLUSH, 70 W HPS UNLESS OTHERWISE SPECIFIED
- WALL SURFACE, 70 W HPS UNLESS OTHERWISE SPECIFIED
- EXISTING SOFFIT OR WALL LUMINAIRE TO REMAIN UNMODIFIED
- EXISTING SOFFIT OR WALL LUMINAIRE TO BE MODIFIED AS SPECIFIED

**NOTE:**  
Arrow indicates "street side" of luminaire.

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

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

**MISCELLANEOUS ELECTROLIERS**

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

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

**STANDARD ELECTROLIER**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)**

NO SCALE

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

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

2010 REVISED STANDARD PLAN RSP ES-1A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	650	780

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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

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TO ACCOMPANY PLANS DATED 8-26-13

**CONDUIT**

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

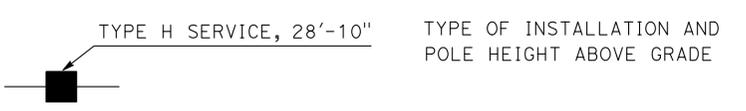
**SIGNAL EQUIPMENT**

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

**SERVICE EQUIPMENT**

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

**POLE-MOUNTED SERVICE DESIGNATION**



**FLASHING BEACON**

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

**SIGNAL EQUIPMENT Cont**

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

**NOTES:**

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

**ILLUMINATED OVERHEAD SIGN**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(LEGEND AND ABBREVIATIONS)**

NO SCALE

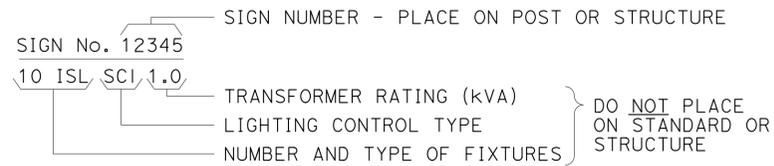
RSP ES-1B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

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

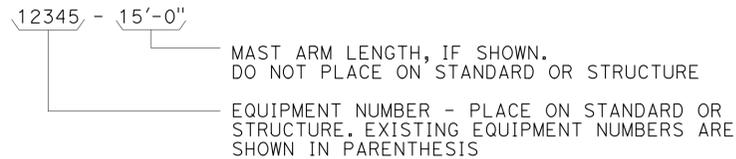
2010 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

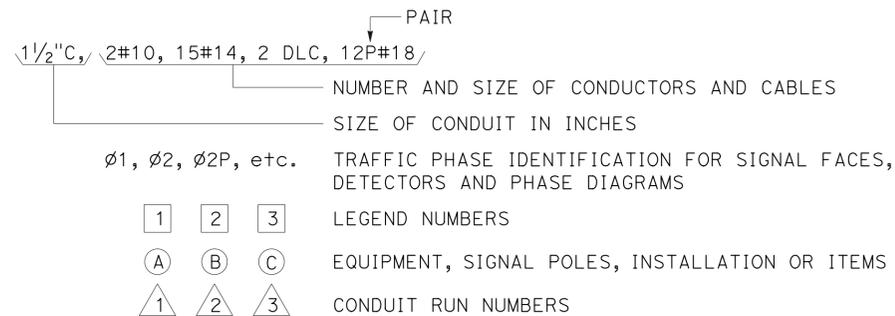
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



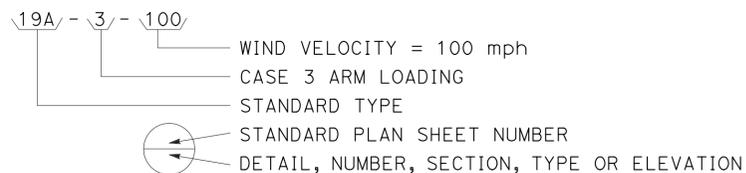
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



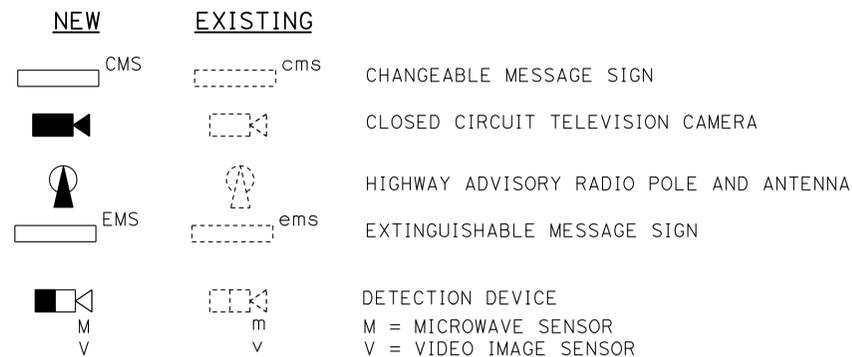
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



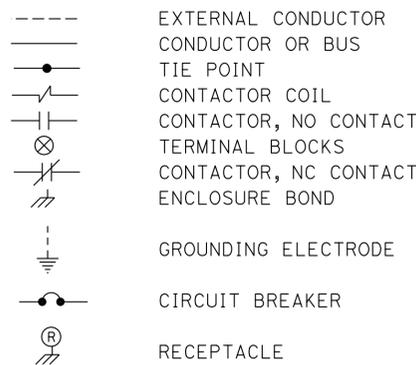
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



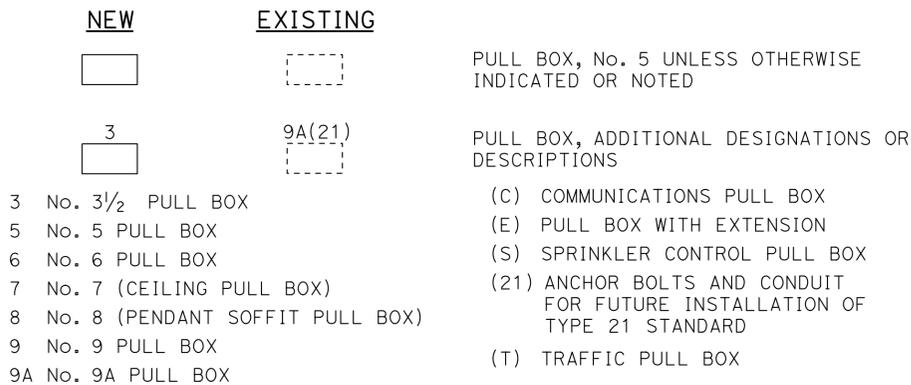
### MISCELLANEOUS EQUIPMENT



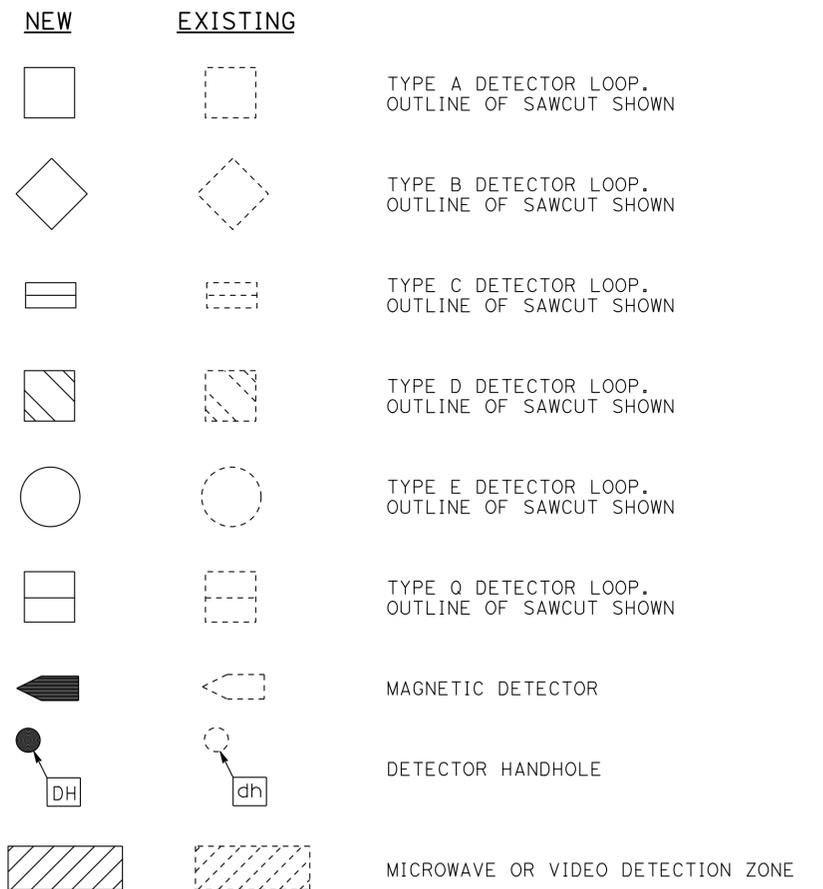
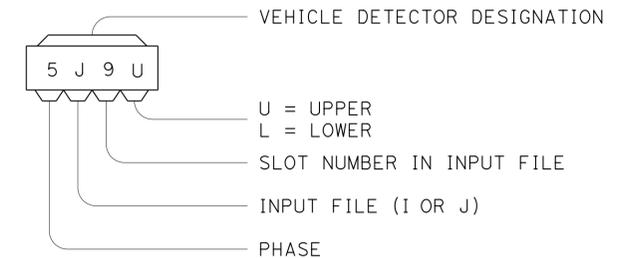
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

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

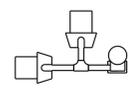
2010 REVISED STANDARD PLAN RSP ES-1C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	652	780

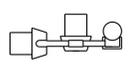
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 8-26-13

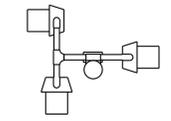
2010 REVISED STANDARD PLAN RSP ES-4A



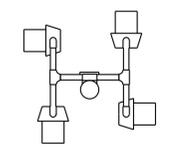
SV-2-TD



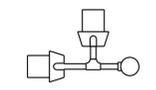
SV-2-TC



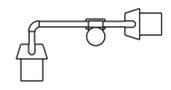
SV-3-TC



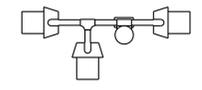
SV-4-TC



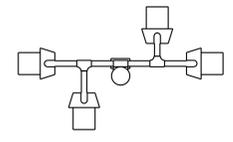
SV-2B



SV-2-TB

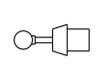


SV-3-TB

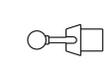


SV-4-TB

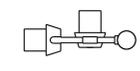
PLAN VIEW OF OTHER  
SIDE MOUNTINGS



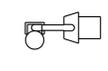
SV



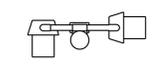
SV-1



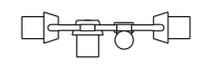
SV-2A



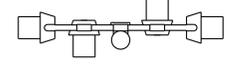
SV-1-T



SV-2-TA



SV-3-TA



SV-4-TA

SIDE MOUNTINGS

ABBREVIATIONS:

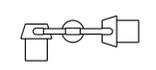
- SV SIDE MOUNTED VEHICLE SIGNALS
- T TERMINAL COMPARTMENT
- TV TOP MOUNTED VEHICLE SIGNALS
- 1, 2, 3, 4 NUMBER OF SIGNAL FACES  
(3 - SECTION, UNLESS OTHERWISE INDICATED)
- A, B, C, D CONFIGURATION OF SIGNALS

NOTES:

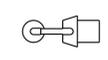
1. Mountings shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals and backplate installation.
3. See Standard Plans ES-4D and ES-4E for attachment fitting details.



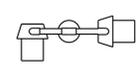
TV-1



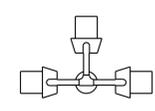
TV-2



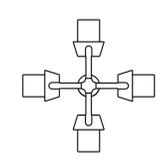
TV-1-T



TV-2-T



TV-3-T



TV-4-T

PLAN VIEW OF  
TOP MOUNTINGS

TOP MOUNTINGS

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(VEHICULAR SIGNAL HEADS  
AND MOUNTINGS)**

NO SCALE

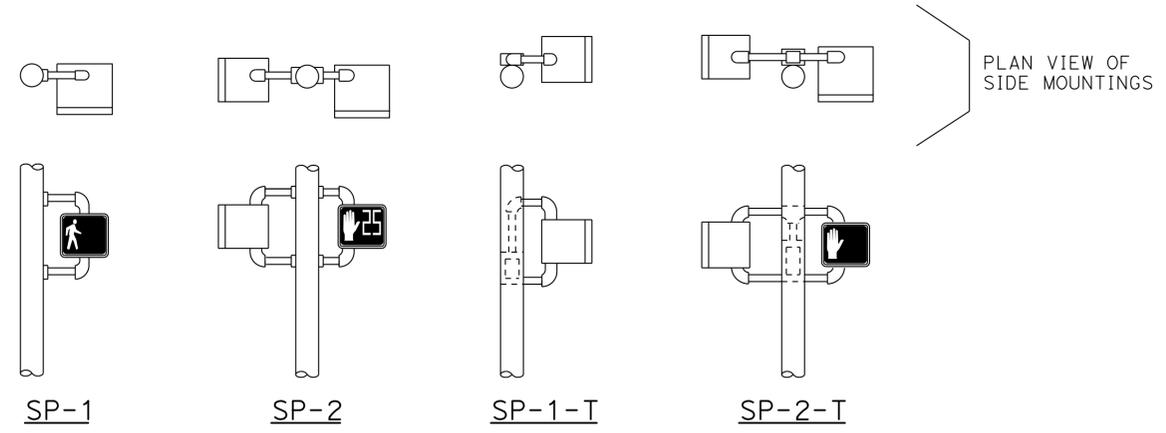
RSP ES-4A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-4A  
DATED MAY 20, 2011 - PAGE 443 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4A**

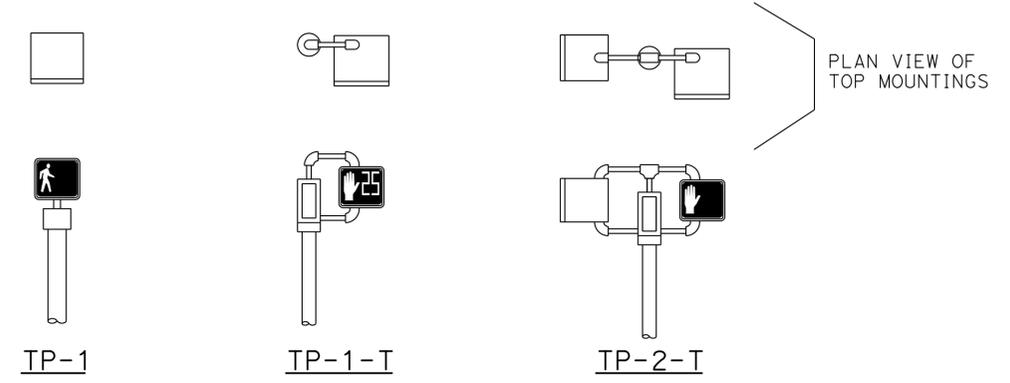
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	653	780

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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TO ACCOMPANY PLANS DATED 8-26-13



SIDE MOUNTINGS



TOP MOUNTINGS

PEDESTRIAN SIGNALS AND MOUNTINGS

DETAIL A

NOTES:

1. Mounting shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals.
3. See Standard Plan 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



PERSON WALKING INTERVAL      FLASHING UPRaised HAND INTERVAL      STEADY UPRaised HAND INTERVAL

PEDESTRIAN SIGNAL MODULE WITH COUNTDOWN

DETAIL B



RAMP METERING SIGN

DETAIL D



PERSON WALKING INTERVAL

STEADY UPRaised HAND INTERVAL

PEDESTRIAN SIGNAL MODULE WITHOUT COUNTDOWN

DETAIL C

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (PEDESTRIAN SIGNAL AND  
 RAMP METERING SIGN)**

NO SCALE

RSP ES-4B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-4B  
 DATED MAY 20, 2011 - PAGE 444 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4B**

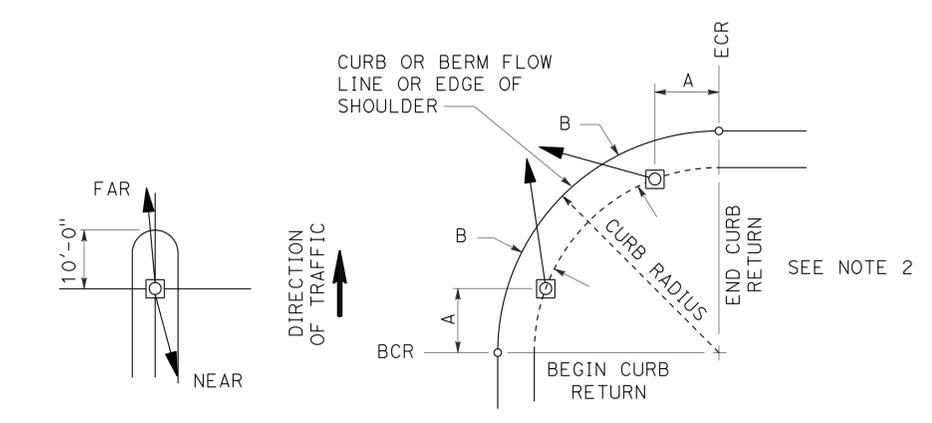
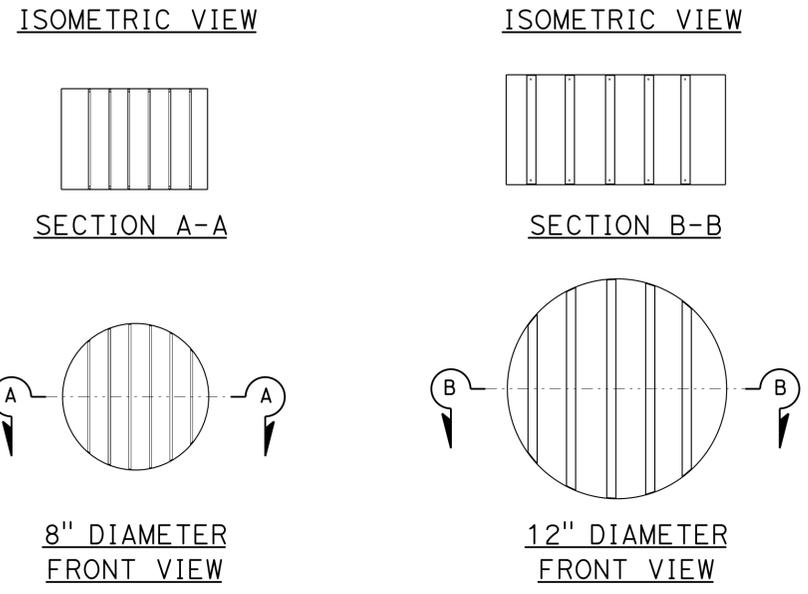
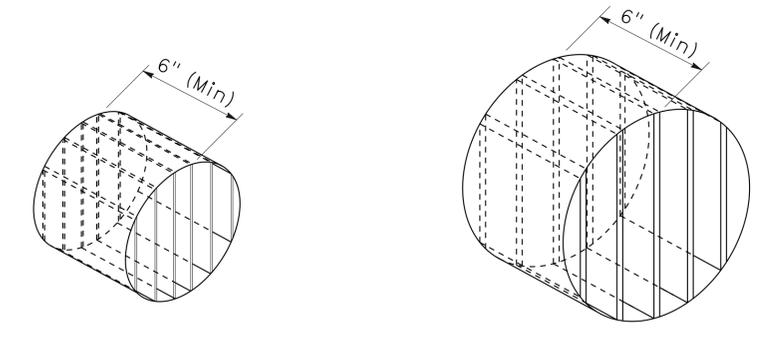
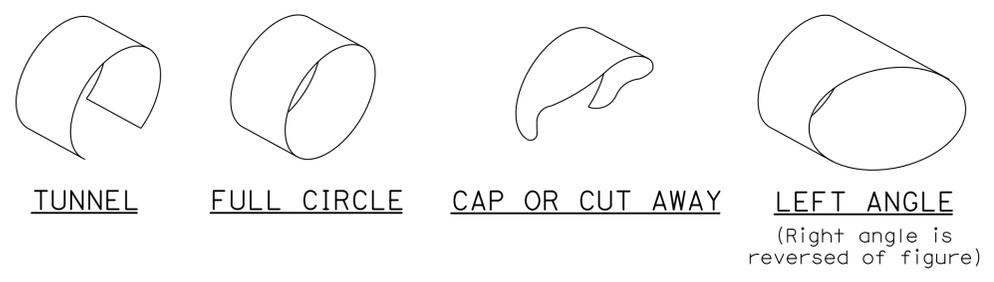
2010 REVISED STANDARD PLAN RSP ES-4B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	654	780

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

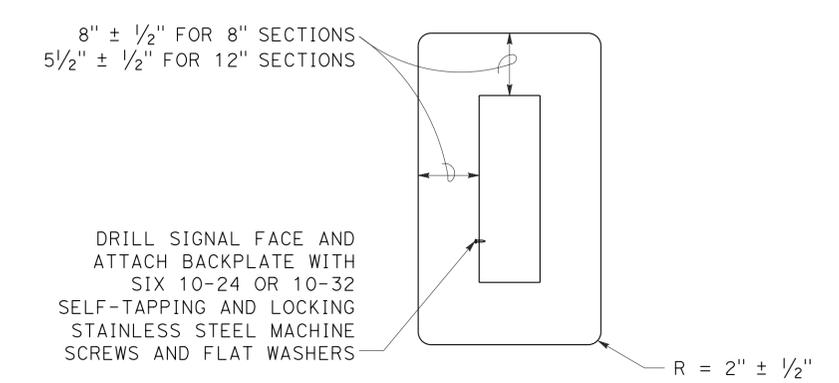
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TO ACCOMPANY PLANS DATED 8-26-13



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

**VISORS**



**8" AND 12" SECTIONS**

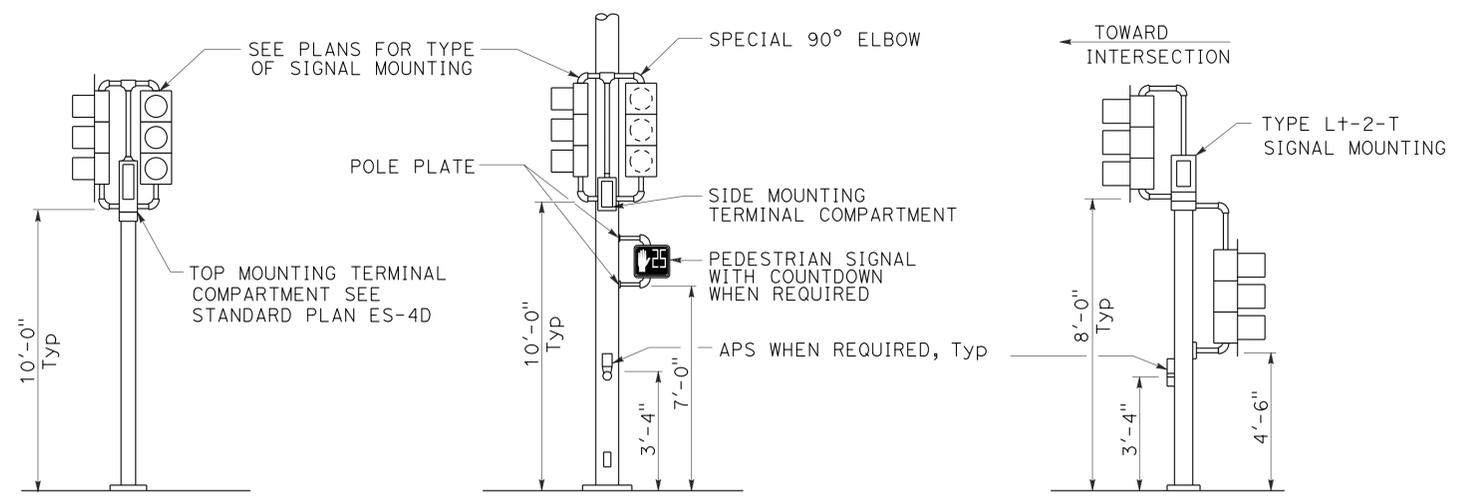
**BACKPLATE**

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

**DIRECTIONAL LOUVER**

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

**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**TOP MOUNTED SIGNALS (TV)**

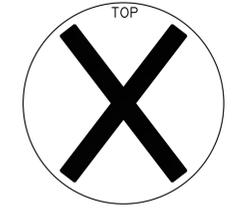
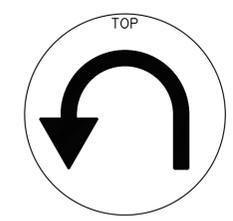
Type 1-A, 1-B, 1-C and 1-D standard as indicated on the plans

**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

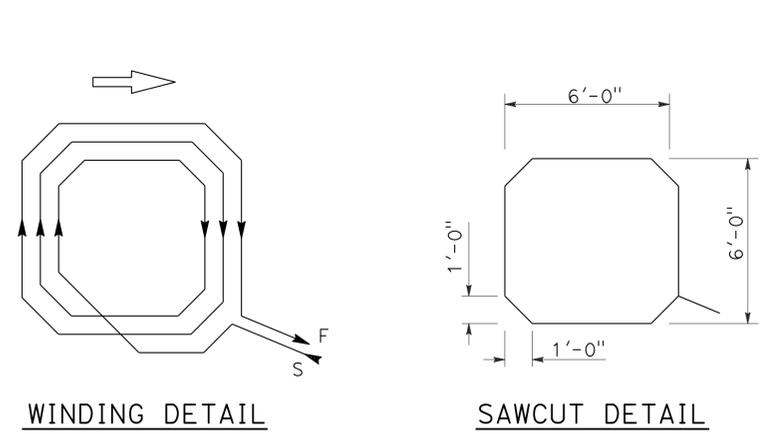
**ELECTRICAL SYSTEMS (VEHICULAR SIGNAL HEADS AND MOUNTINGS)**

NO SCALE

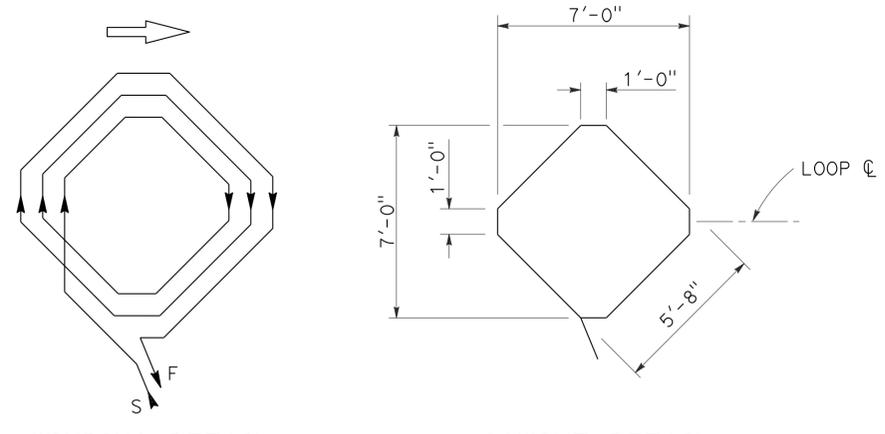
RSP ES-4C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-04C DATED MAY 20, 2011 - PAGE 445 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-4C

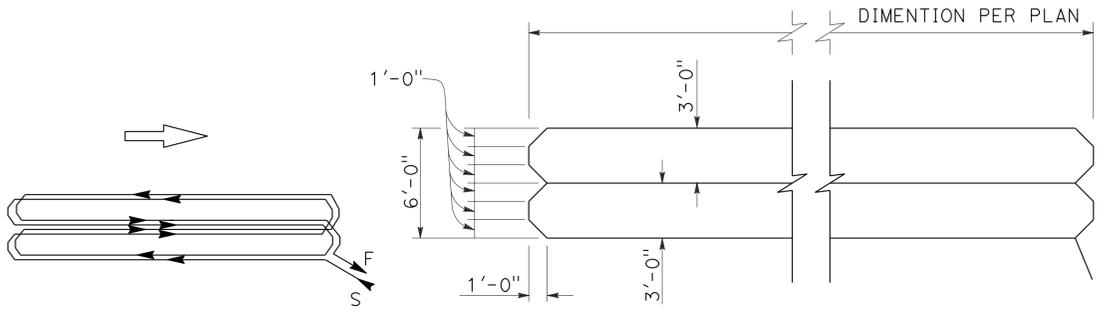
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	655	780
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER July 19, 2013 PLANS APPROVAL DATE <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
TO ACCOMPANY PLANS DATED 8-26-13					



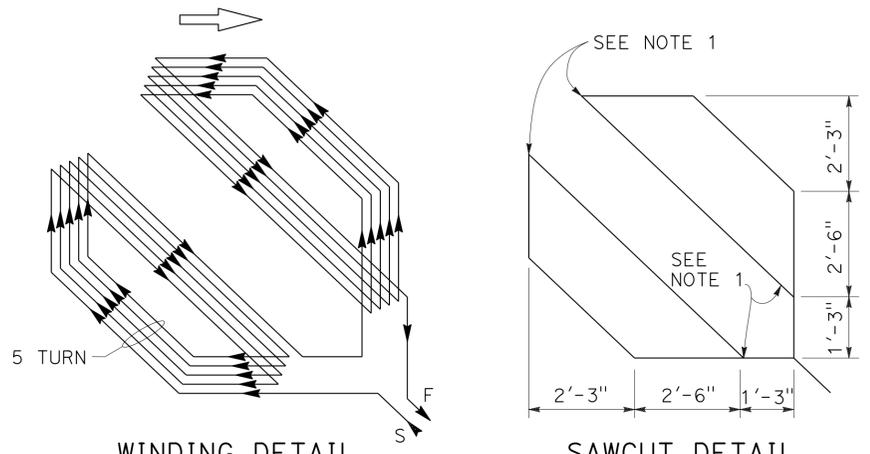
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE A LOOP DETECTOR CONFIGURATION**



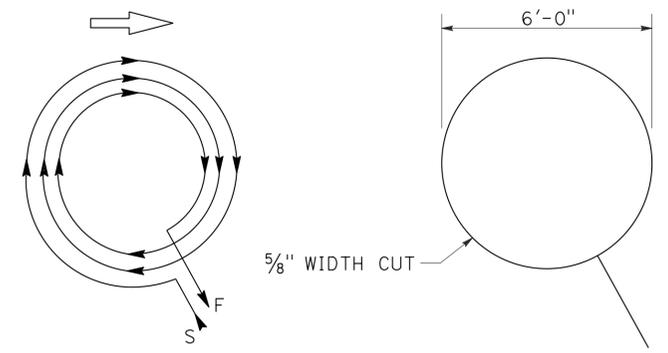
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE B LOOP DETECTOR CONFIGURATION**



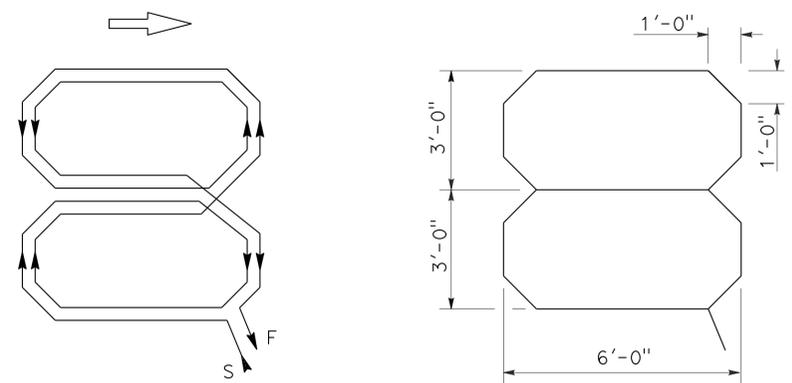
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE C LOOP DETECTOR CONFIGURATION**



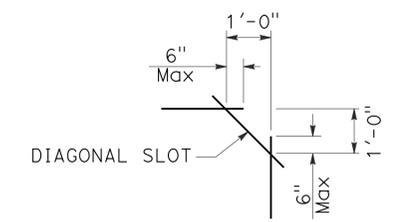
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE D LOOP DETECTOR CONFIGURATION**



WINDING DETAIL  
SAWCUT DETAIL  
**TYPE E LOOP DETECTOR CONFIGURATION**



WINDING DETAIL  
SAWCUT DETAIL  
**TYPE Q LOOP DETECTOR CONFIGURATION**



**PLAN VIEW OF  
DIAGONAL SLOT  
AT CORNERS**

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

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

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

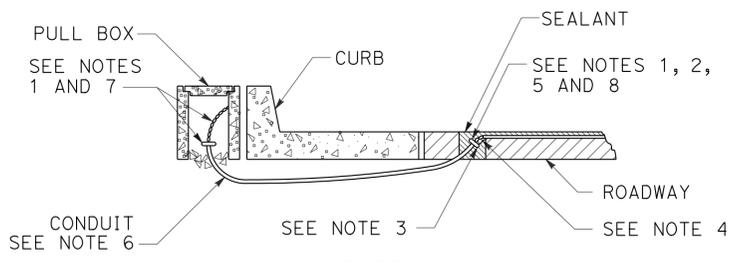
**2010 REVISED STANDARD PLAN RSP ES-5B**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	656	780

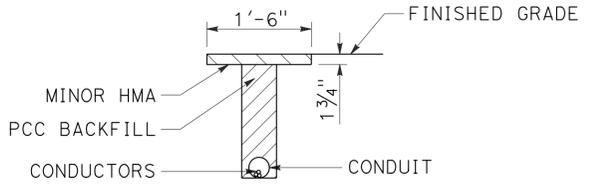
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



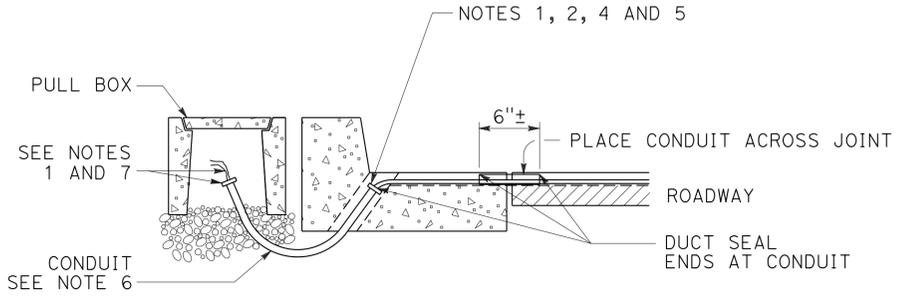
TO ACCOMPANY PLANS DATED 8-26-13



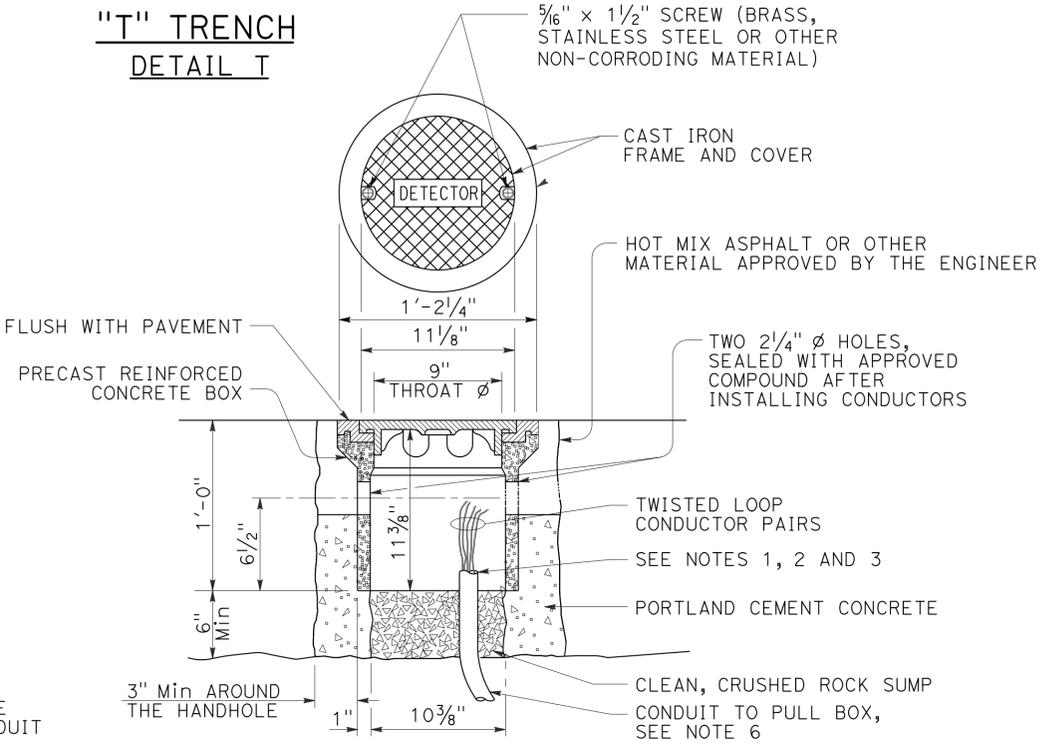
**TYPE A  
CURB TERMINATION DETAIL**



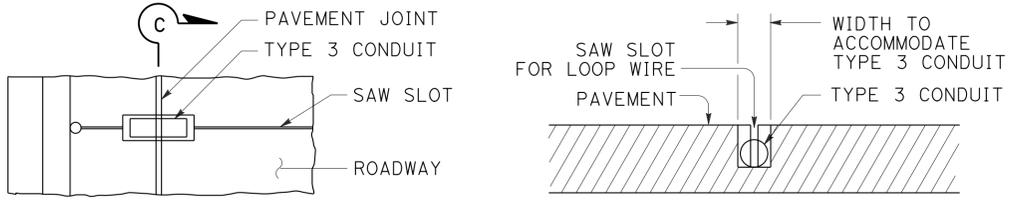
**"T" TRENCH  
DETAIL 1**



**CROSS SECTION**



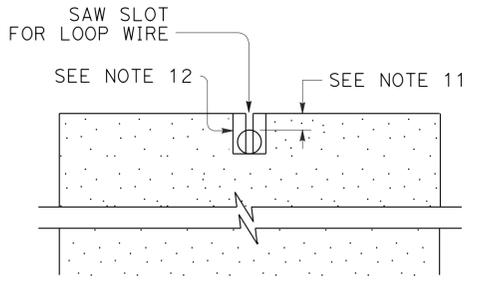
**DETECTOR HANDHOLE DETAIL**



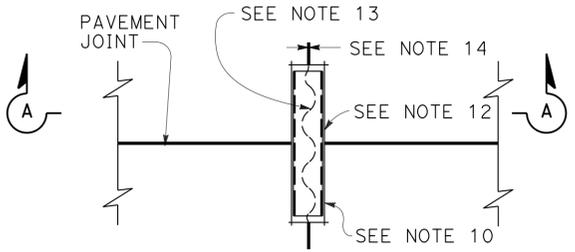
**PLAN VIEW**

**SECTION C-C**

**TYPE B  
CURB TERMINATION DETAIL**

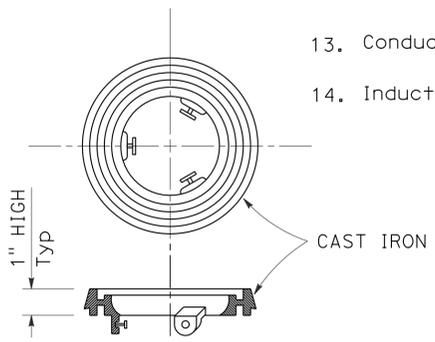


**SECTION A-A**

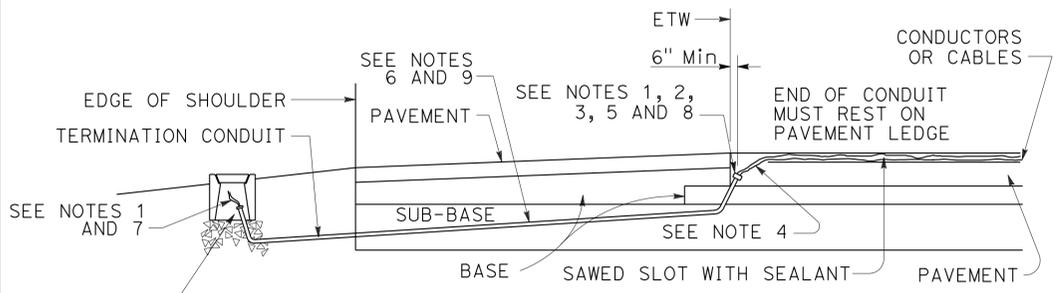


**PLAN VIEW**

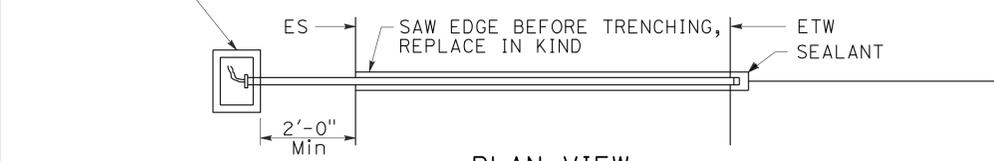
**TYPICAL LOOP LEAD-IN DETAIL  
AT PAVEMENT JOINT**



**LOCKING GRADE RING**



**CROSS SECTION**



**PLAN VIEW  
SHOULDER TERMINATION DETAILS**

**NOTES:**

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

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

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

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

**2010 REVISED STANDARD PLAN RSP ES-5D**

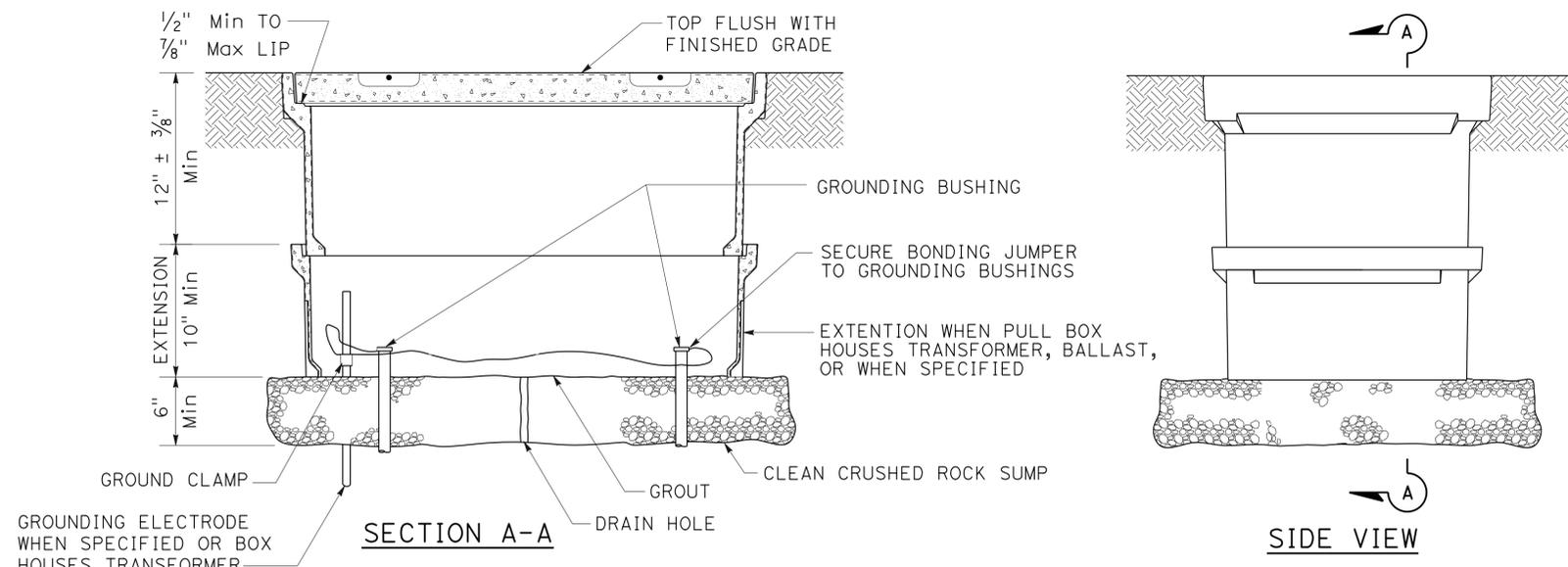
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	5	3.7/6.2	657	780

Theresa Gabriel  
REGISTERED ELECTRICAL ENGINEER

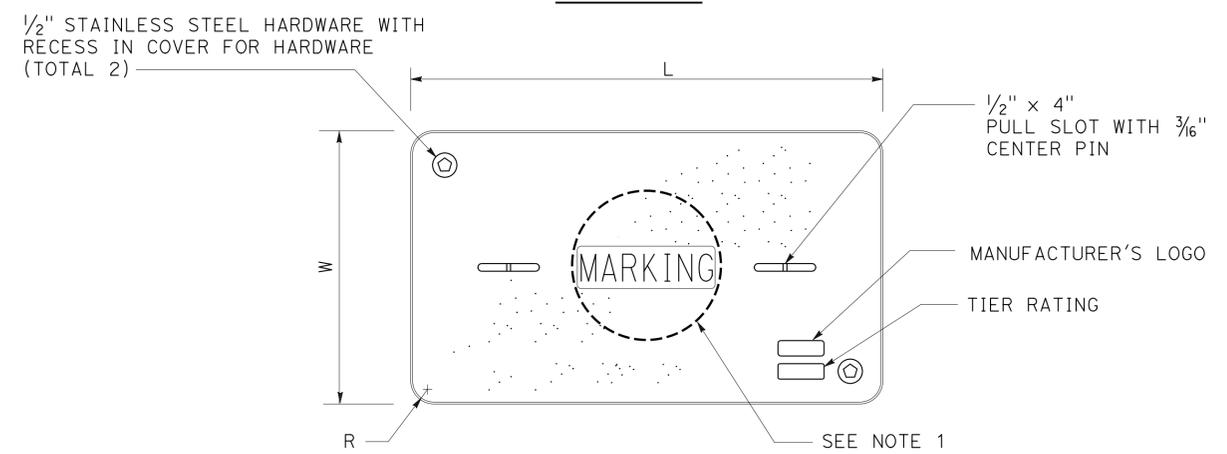
July 19, 2013  
PLANS APPROVAL DATE

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

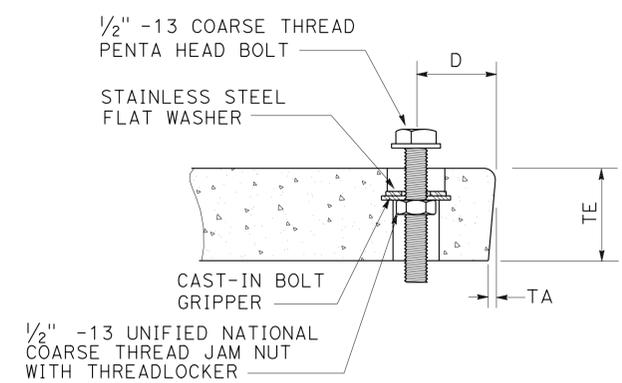
TO ACCOMPANY PLANS DATED 8-26-13



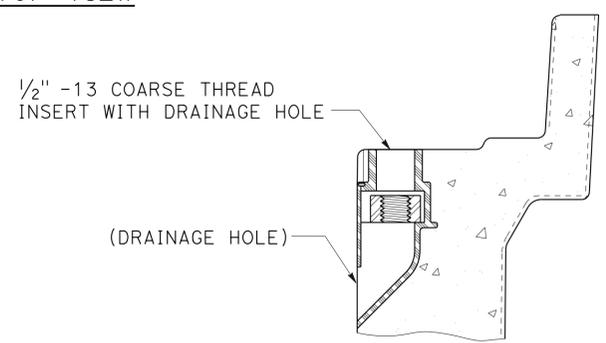
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



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



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

**NOTES:**

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

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

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

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

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

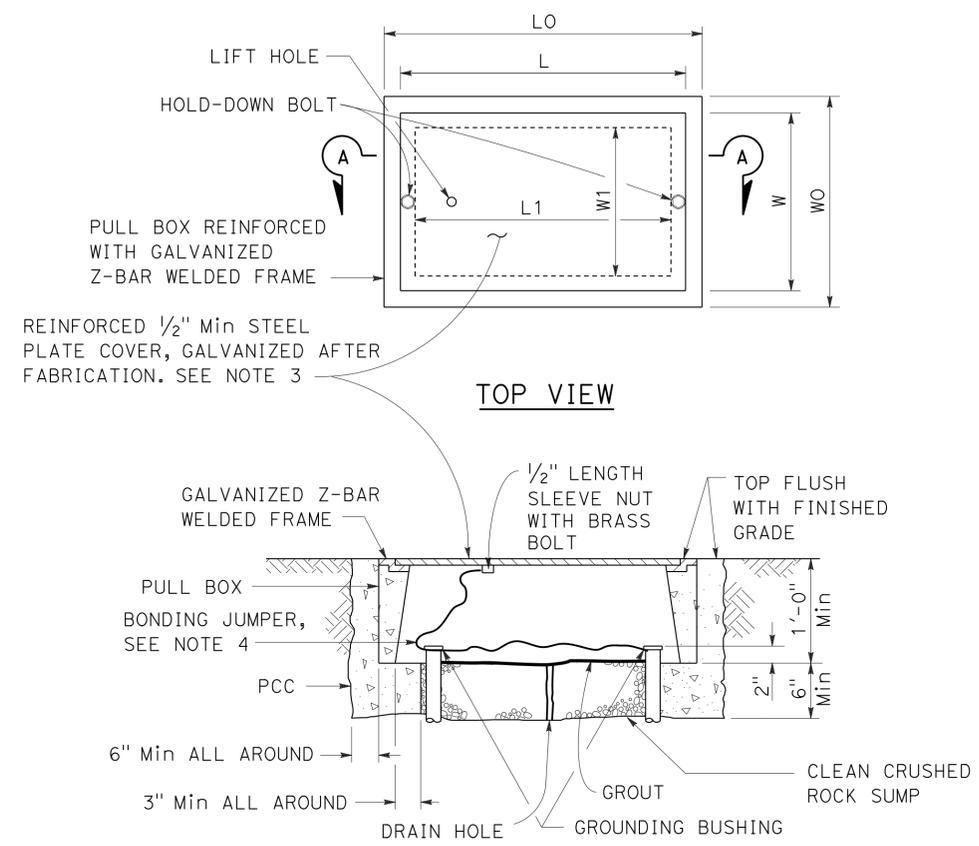
2010 REVISED STANDARD PLAN RSP ES-8A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	5	3.7/6.2	658	780

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED 8-26-13



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

**NOTES:**

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

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

\* EXCLUDING CONDUIT WEB      \*\* TOP DIMENSION

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

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

2010 REVISED STANDARD PLAN RSP ES-8B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	659	780

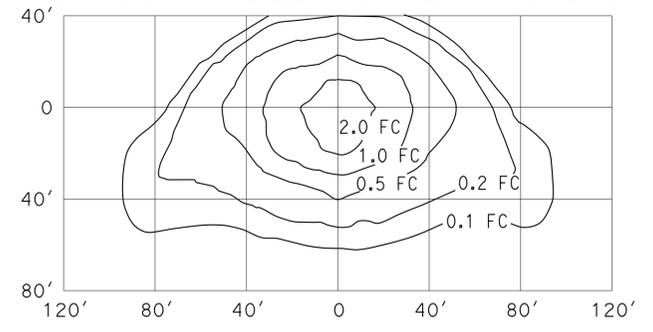
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

July 19, 2013  
 PLANS APPROVAL DATE

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

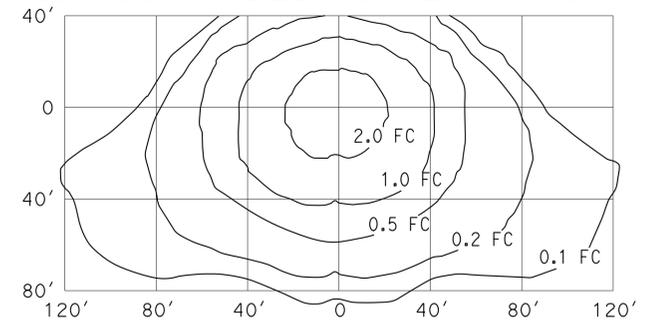
TO ACCOMPANY PLANS DATED 8-26-13

**ISOFOOTCANDLE CURVE - MINIMUM**



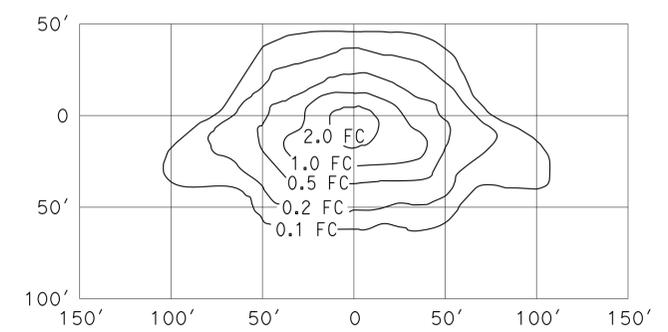
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 34' Mounting Height  
 Lamp operated at 22,000 lm  
 200-W high pressure sodium lamp  
 ANSI Designation S66

**ISOFOOTCANDLE CURVE - MINIMUM**



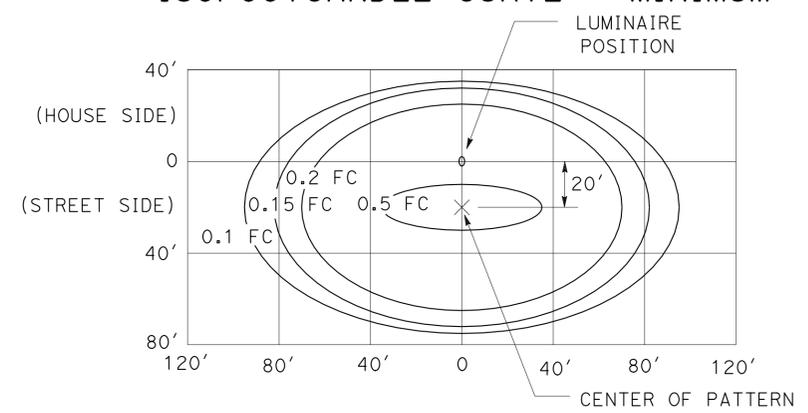
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 40' Mounting Height  
 Lamp operated at 37,000 lm  
 310-W high pressure sodium lamp  
 ANSI Designation S67

**ISOFOOTCANDLE CURVE - MINIMUM**



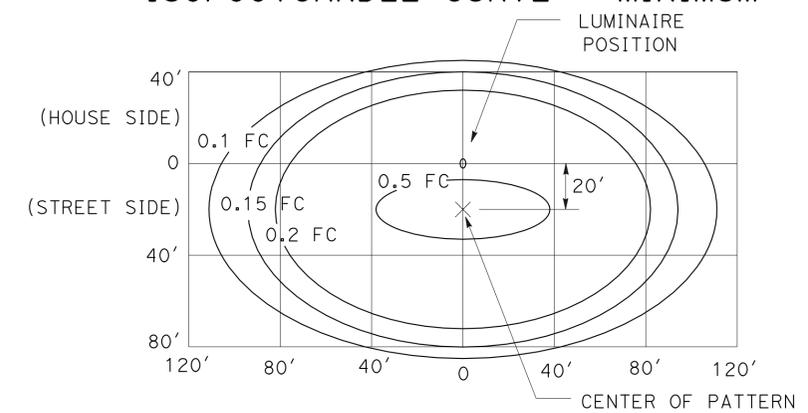
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 30' Mounting Height  
 Lamp operated at 16,000 lm  
 150-W high pressure sodium lamp  
 ANSI Designation S55

**ISOFOOTCANDLE CURVE - MINIMUM**



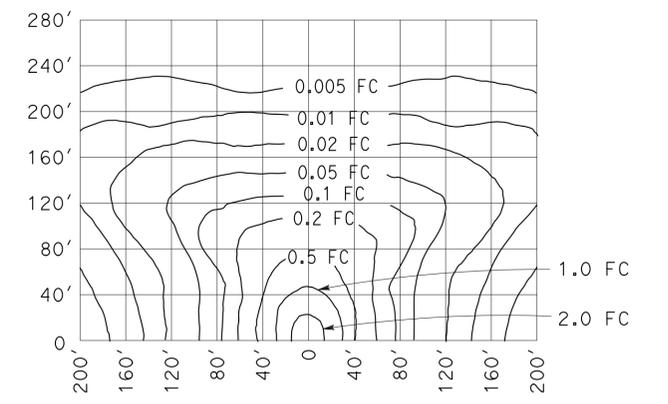
**LED LUMINAIRE ROADWAY 1**  
 165-W at 34' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



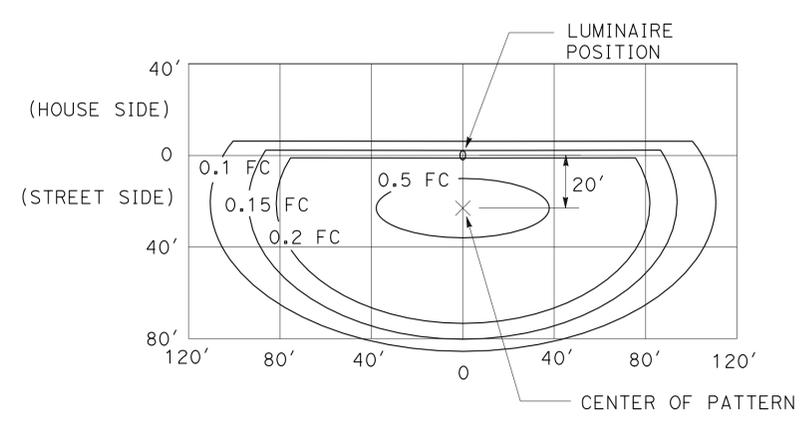
**LED LUMINAIRE ROADWAY 2**  
 235-W at 40' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



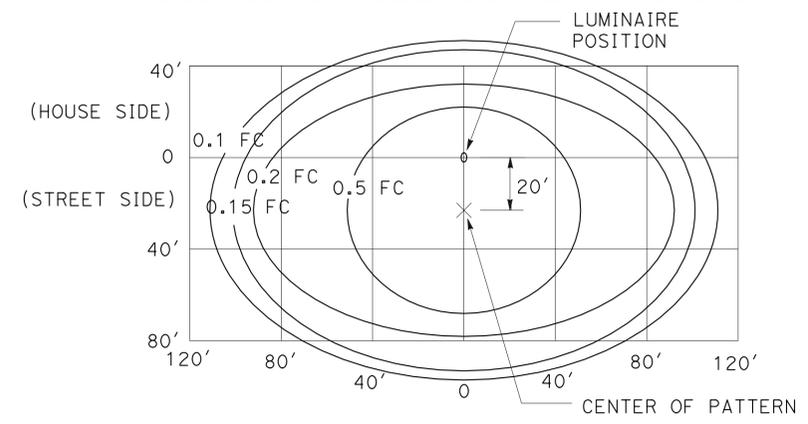
**LOW PRESSURE SODIUM LUMINAIRE**  
 40' Mounting Height  
 Lamp operated at 33,000 lm  
 180-W low pressure sodium lamp

**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 3**  
 235-W at 40' Mounting Height  
 with back side control

**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 4**  
 300-W at 40' Mounting Height

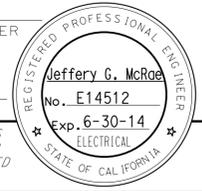
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (ISOFOOTCANDLE DIAGRAMS)**

NO SCALE  
 RSP ES-10A DATED JULY 19, 2013 SUPERSEDES RSP ES-10A DATED JULY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-10A

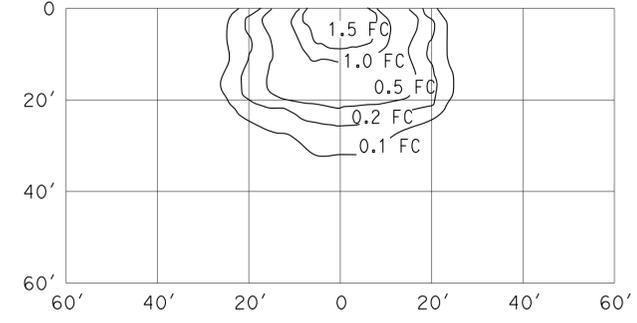
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	660	780

Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 July 20, 2012  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



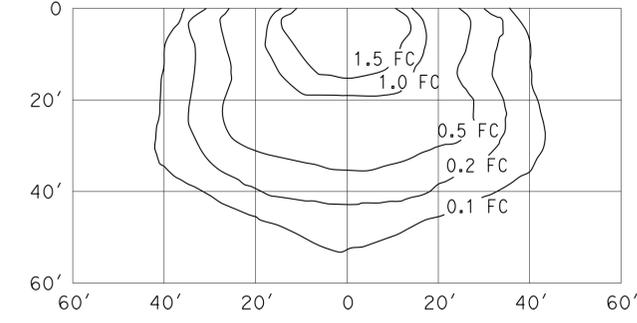
TO ACCOMPANY PLANS DATED 8-26-13

**ISOFOOTCANDLE CURVE - MINIMUM**



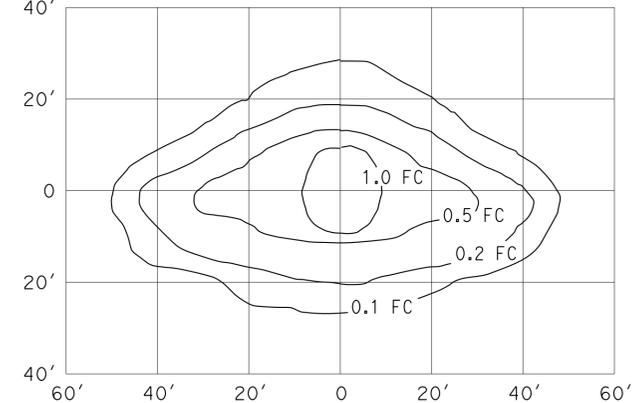
**WALL LUMINAIRE**  
 15' Mounting Height  
 Lamp operated at 5,800 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S62

**ISOFOOTCANDLE CURVE - MINIMUM**



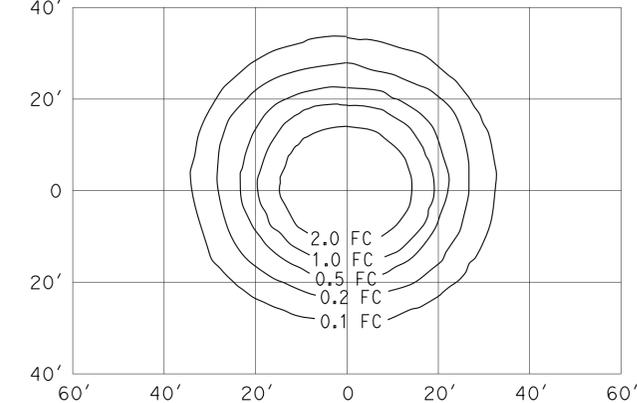
**WALL LUMINAIRE**  
 15' Mounting Height  
 Lamp operated at 9,500 lm  
 100-W high pressure sodium lamp  
 ANSI Designation S54

**ISOFOOTCANDLE CURVE - MINIMUM**



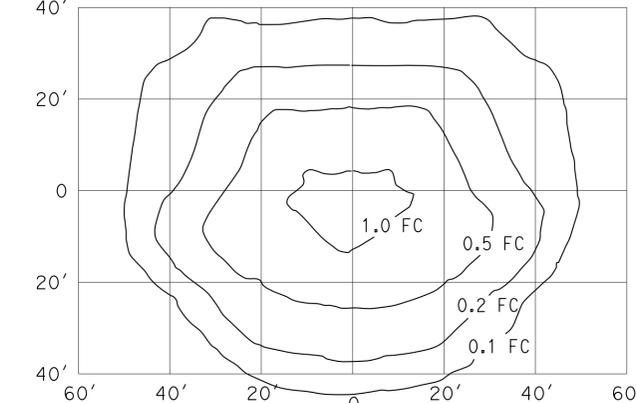
**PENDANT SOFFIT LUMINAIRE  
 TYPE III SHORT**  
 17' Mounting Height  
 Lamp operated at 5,800 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S62

**ISOFOOTCANDLE CURVE - MINIMUM**

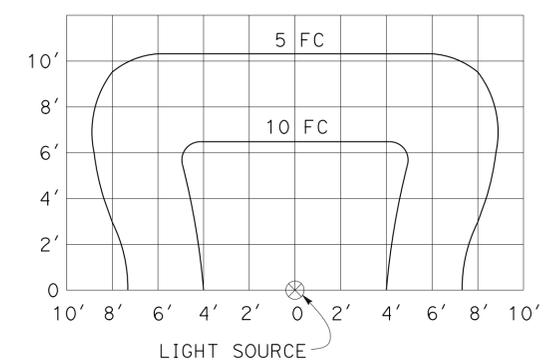


**PENDANT SOFFIT LUMINAIRE**  
 17' Mounting Height  
 Lamp operated at 5,800 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S62

**ISOFOOTCANDLE CURVE - MINIMUM**



**FLUSH SOFFIT LUMINAIRE**  
 17' Mounting Height  
 Lamp operated at 5,800 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S62



**SIGN LIGHTING FIXTURE  
 ISOFOOTCANDLE DIAGRAM**

- NOTES:**
- Curves represent the minimum footcandle (FC) of initial illumination on a 10'-0" x 20'-0" panel.
  - The FC shown are with the fixture attached to the light fixture mounting channel which places the center of the source 4'-8" in front of panel and 1'-0" below the bottom edge.
  - Applicable lamp: 85-W fluorescent phosphor coated induction lamp.

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

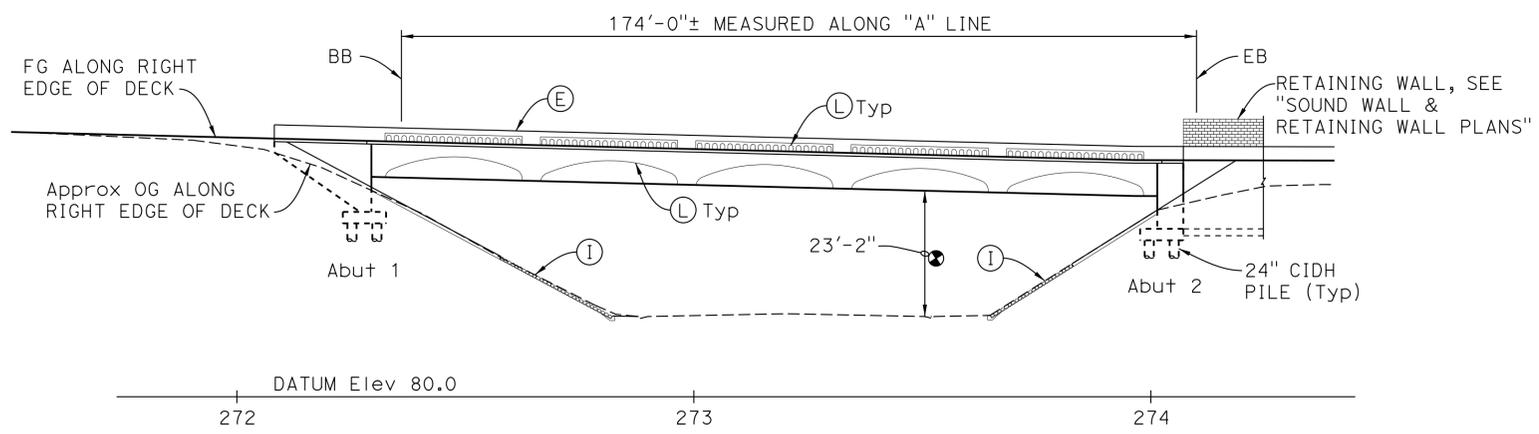
RSP ES-10B DATED JULY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-10B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	661	780

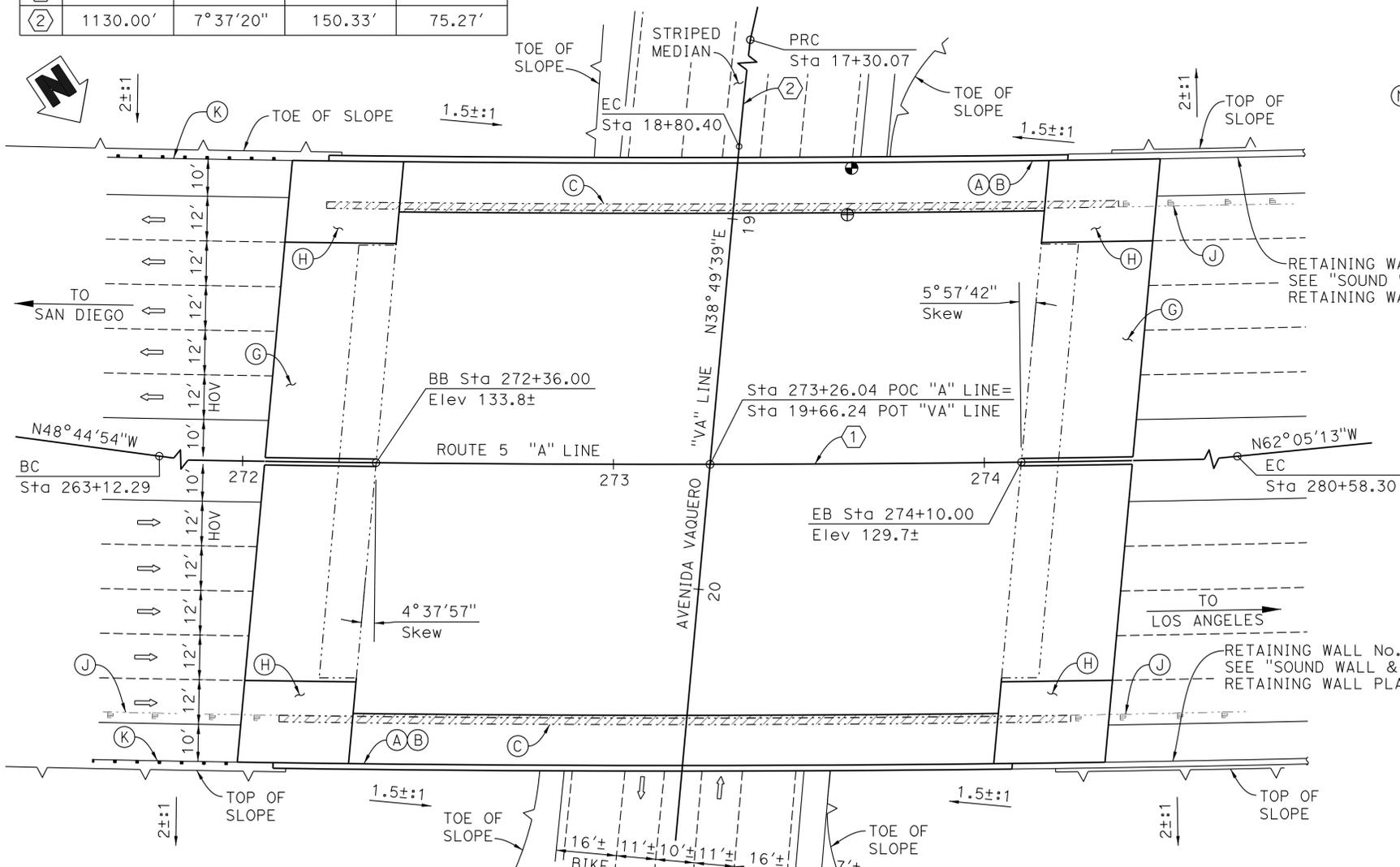
**Mohan**  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 8-26-13  
 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

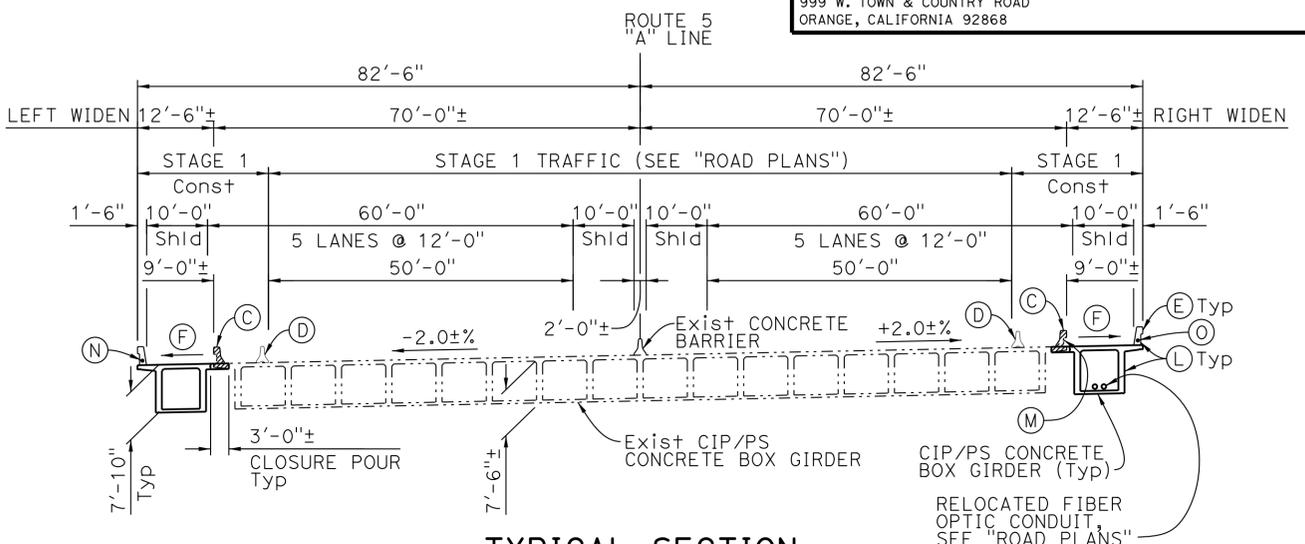


**ELEVATION**  
 1" = 20'

CURVE DATA				
No.	R	Δ	L	T
①	7500.00'	13°20'19"	1746.01'	876.97'
②	1130.00'	7°37'20"	150.33'	75.27'



**PLAN**  
 1" = 20'



**TYPICAL SECTION**  
 1" = 15'

- NOTES:
- (A) Paint "BR NO. 55-0223"
  - (B) Paint "AVENIDA VAQUERO UC"
  - (C) Remove existing Type 25 barrier and portion of overhang
  - (D) Temporary Railing Type K, see "ROAD PLANS"
  - (E) Concrete Barrier Type 736 (Mod)
  - (F) Cross slope to match existing
  - (G) Structure Approach Type R(30D)
  - (H) Structure Approach Type N(30D)
  - (I) Slope Paving
  - (J) Remove existing MGS, see "ROAD PLANS"
  - (K) MGS, see "ROAD PLANS"
  - (L) Architectural Treatment
  - (M) Relocate existing fiber optic conduit, see "ROAD PLANS"
  - (N) 2" Conduit (Irrigation), see "ROAD PLANS"
  - (O) 2" Conduit (Lighting), see "ROAD PLANS"
- For "GENERAL NOTES", "INDEX TO PLANS" and "QUANTITIES", see "GENERAL NOTES & INDEX TO PLANS" sheet.

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

**Luqi Yang**  
 DESIGN OR SIGN OFF DATE  
 5-15-13

DESIGN	BY D. Kim	CHECKED W. Chu	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY J. Quinovega	CHECKED W. Chu	LAYOUT	BY J. Quinovega
QUANTITIES	BY D. Kim	CHECKED W. Chu	SPECIFICATIONS	BY M. Char

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**  
 Mohan S. Char  
 PROJECT ENGINEER

**AVENIDA VAQUERO UC (WIDEN) GENERAL PLAN**  
 BRIDGE NO. 55-0223  
 PROJECT MILES 4.97

**GENERAL NOTES**

**LOAD AND RESISTANCE FACTOR DESIGN**

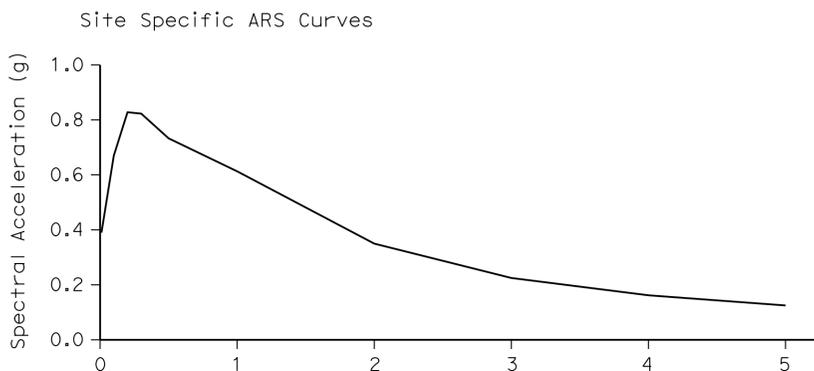
Design:  
AASHTO LRFD Bridge Design Specifications, 4th edition and the California Amendments, preface dated November 2011.

Seismic Design:  
Caltrans Seismic Design Criteria (SDC), Version 1.6 November 2010.

Dead Load:  
Includes 35 psf for future wearing surface.

Live Load:  
HL93 and permit design load

Seismic Loading:  
Soil profile:  $V_{s30} = 830 - 1350$  ft/s  
Magnitude =  $6.5 \pm 0.25$   
Peak Ground Acceleration: 0.390g



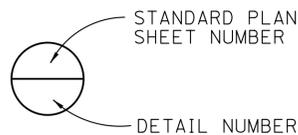
Concrete:  
 $f_y = 60.0$  ksi  
 $f'_c = 3.6$  ksi, unless otherwise noted  
 $n = 8$   
See "PRESTRESSING NOTES" on "GIRDER LAYOUT" sheet

**INDEX TO PLANS**

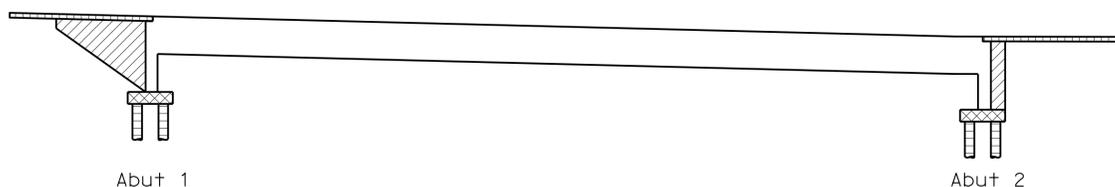
No.	Title
1	GENERAL PLAN
2	GENERAL NOTES & INDEX TO PLANS
3	BRIDGE REMOVAL DETAILS
4	FOUNDATION PLAN
5	ABUTMENT 1 LAYOUT
6	ABUTMENT 2 LAYOUT
7	ABUTMENT DETAILS NO. 1
8	ABUTMENT DETAILS NO. 2
9	TYPICAL SECTION
10	GIRDER LAYOUT
11	GIRDER REINFORCEMENT
12	STRUCTURE APPROACH TYPE N(30D)
13	STRUCTURE APPROACH TYPE R(30D)
14	STRUCTURE APPROACH DRAINAGE DETAILS
15	SLOPE PAVING - FULL SLOPE
16	SLOPE PAVING DETAILS
17	ARCHITECTURAL DETAILS
18	LOG OF TEST BORINGS NO. 1 OF 3
19	LOG OF TEST BORINGS NO. 2 OF 3
20	LOG OF TEST BORINGS NO. 3 OF 3

**STANDARD PLANS 2010 EDITION**

A10A	ABBREVIATIONS (SHEET 1 OF 2)
A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)
A10F	LEGEND - SOIL (SHEET 1 OF 2)
A10G	LEGEND - SOIL (SHEET 2 OF 2)
A10H	LEGEND - ROCK
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL - BRIDGE SURCHARGE AND WALL
A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL - BRIDGE
B0-1	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
B2-3	16" AND 24" CAST-IN-DRILLED-HOLE CONCRETE PILE
B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING = 2")
B7-1	BOX GIRDER DETAILS
B7-10	UTILITY OPENING - BOX GIRDER
RSP B8-5	CAST-IN-PLACE PRESTRESSED GIRDER DETAILS
RSP B11-56	CONCRETE BARRIER TYPE 736



NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



**CONCRETE STRENGTH AND TYPE LIMITS**

NO SCALE

	Structural Concrete, Bridge ( $f'_c$ per "PRESTRESSING NOTES" on "GIRDER LAYOUT" sheet)
	Structural Concrete, Bridge
	Structural Concrete, Bridge Footing
	Cast-In-Drilled-Hole Concrete Piling ( $f'_c = 4.0$ ksi @ 28 days)
	Structural Concrete, Approach Slab

AVENIDA VAQUERO UC (WIDEN) BRIDGE NO 55-0223

**QUANTITIES**

BRIDGE REMOVAL (PORTION)	LUMP	SUM
STRUCTURE EXCAVATION (BRIDGE)	280	CY
STRUCTURE BACKFILL (BRIDGE)	217	CY
24" CAST-IN-DRILLED-HOLE CONCRETE PILING	1,029	LF
PRESTRESSING CAST-IN-PLACE CONCRETE	LUMP	SUM
STRUCTURAL CONCRETE, BRIDGE FOOTING	60	CY
STRUCTURAL CONCRETE, BRIDGE	475	CY
AGGREGATE BASE (APPROACH SLAB)	259	CY
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	98	CY
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R)	259	CY
MINOR CONCRETE	1	CY
PAVING NOTCH EXTENSION	175	CF
ARCHITECTURAL TREATMENT	2,378	SQFT
DRILL AND BOND DOWEL	12	LF
JOINT SEAL (MR 1 1/2")	332	LF
BAR REINFORCING STEEL (BRIDGE)	155,790	LB
4" PLASTIC PIPE UNDERDRAIN	413	LF
SLOPE PAVING (ROCK BLANKET)	310	CY
CONCRETE BARRIER (TYPE 736 MODIFIED)	398	LF

**PILE DATA TABLE**

LOCATION	PILE TYPE	NOMINAL RESISTANCE (KIPS)		DESIGN TIP ELEVATION (FEET)	SPECIFIED TIP Elev (FEET)
		COMPRESSION	TENSION		
Abut 1 Rt	24" CIDH	380	0	+72 (a)	+72
				+92 (c)	
				+88 (d)	
Abut 1 Lt	24" CIDH	380	0	+68 (a)	+68
				+88 (c)	
				+85 (d)	
Abut 2 Rt	24" CIDH	380	0	+58 (a)	+58
				+74 (c)	
				+79 (d)	
Abut 2 Lt	24" CIDH	380	0	+55 (a)	+55
				+71 (c)	
				+76 (d)	

NOTES:

- Design tip elevations are controlled by the following demands:  
(a) Compression, (b) Tension, (c) Settlement, and (d) Lateral Load.
- There is no design tip elevation for Tension at Abutment 1 and 2.
- The specified tip elevations shall not be raised above the design tip elevation for Settlement and Lateral Load.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	662	780

Mohar  
REGISTERED CIVIL ENGINEER  
DATE 4/22/13

8-26-13  
PLANS APPROVAL DATE

MOHAN S. CHAR  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

ORANGE COUNTY TRANSPORTATION AUTHORITY  
550 SOUTH MAIN STREET  
ORANGE, CA 92863-1584

AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868

Luqi Yang  
DESIGN OR SIGNATURE  
5-15-13  
SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.  
55-0223

POST MILES  
4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**GENERAL NOTES & INDEX TO PLANS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	5	3.7/6.2	663	780

Mohan  
REGISTERED CIVIL ENGINEER DATE 4/22/13

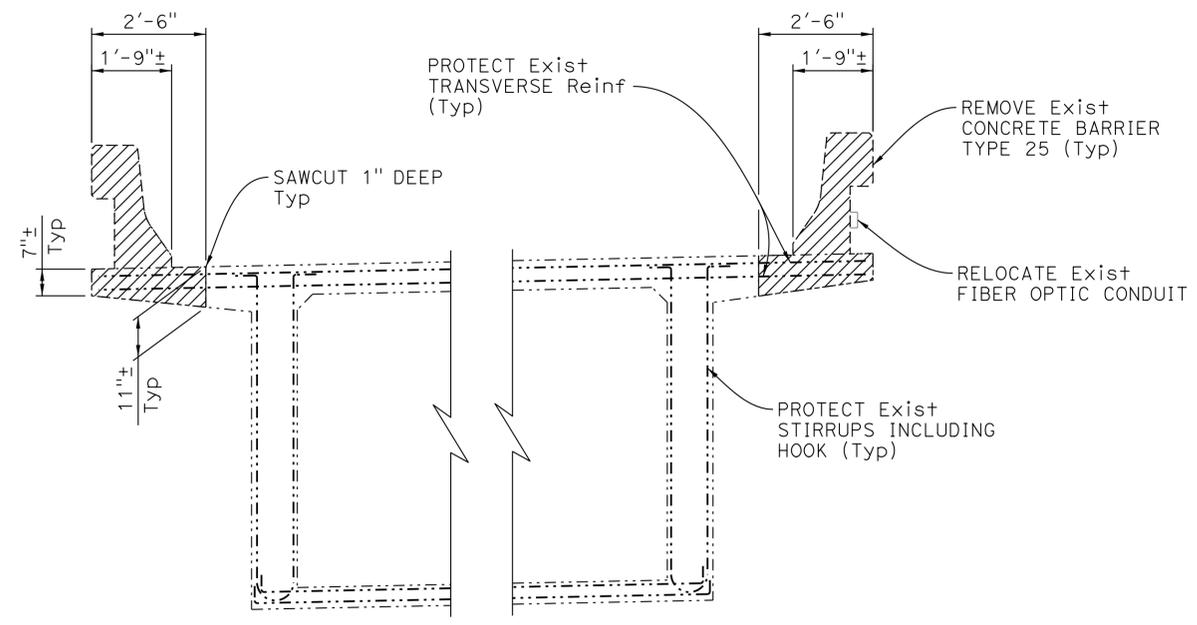
8-26-13  
PLANS APPROVAL DATE

MOHAN S. CHAR  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

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ORANGE COUNTY TRANSPORTATION AUTHORITY  
550 SOUTH MAIN STREET  
ORANGE, CA 92863-1584

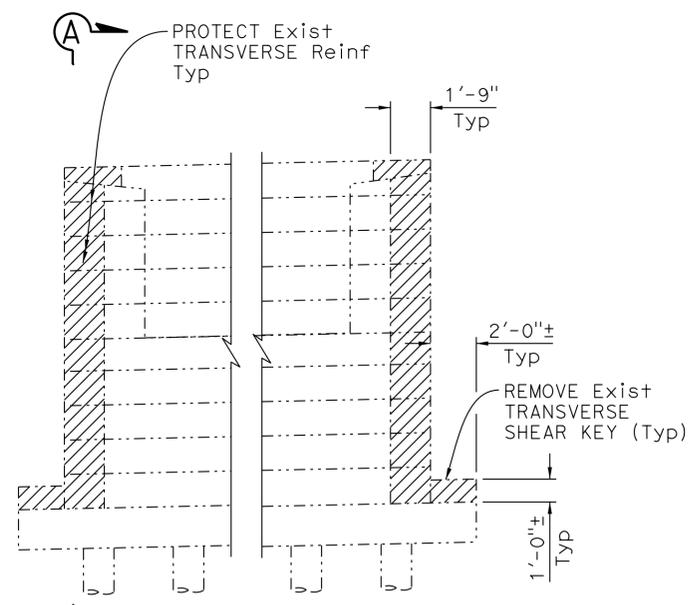
AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868



**OVERHANG REMOVAL DETAILS**  
NO SCALE

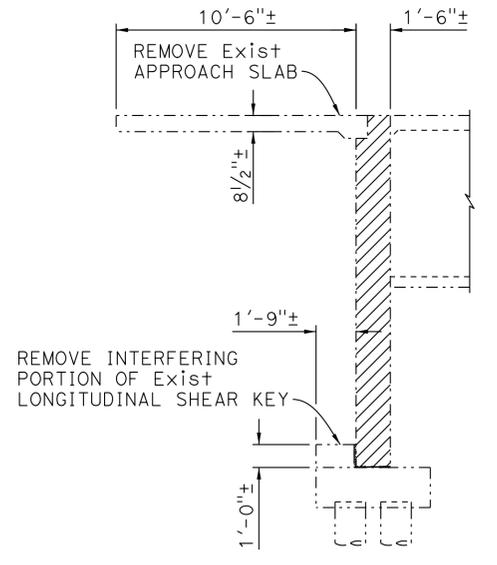
LEGEND:  
---- Denotes existing structure  
▨ Limits of Bridge Removal (Portion)

NOTES:  
1. Limit of overhang removal is from BB to EB.  
2. Limit of barrier removal is between ends of wingwall.

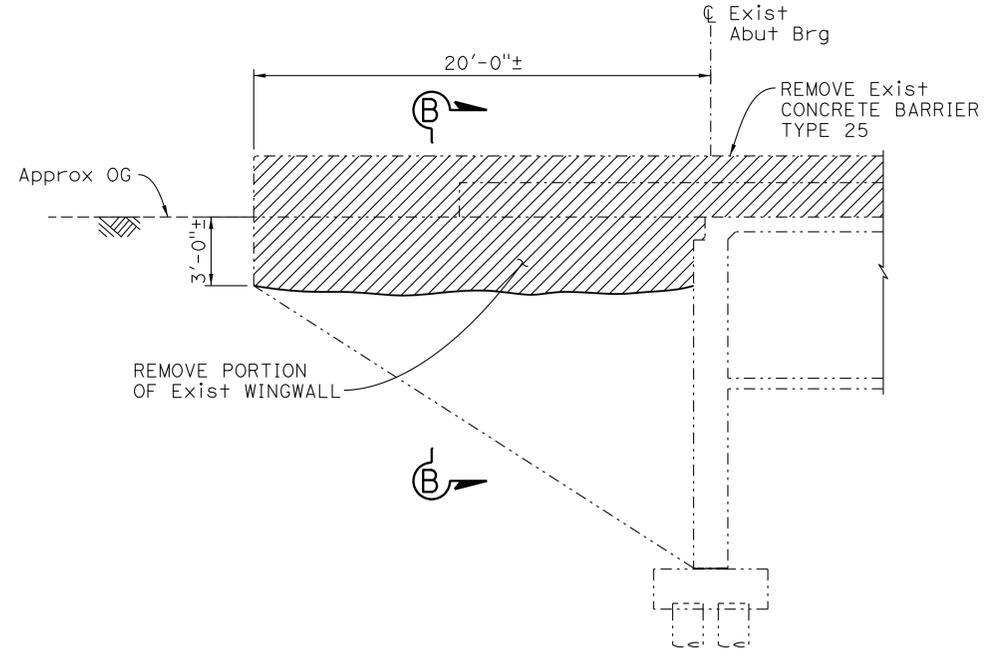


**ABUTMENT REMOVAL DETAILS**  
1/4" = 1'-0"

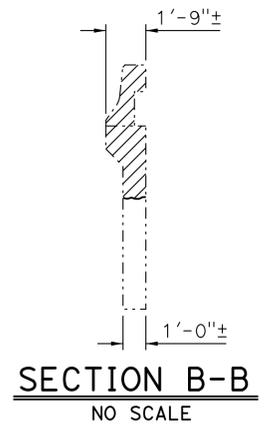
NOTE: Abut 2 shown, Abut 1 similar.



**SECTION A-A**  
NO SCALE



**WINGWALL REMOVAL DETAILS**  
NO SCALE



**SECTION B-B**  
NO SCALE

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

Luqi Yang  
DESIGN OR SUPERVISOR  
5-15-13  
SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

PREPARED FOR THE  
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.	55-0223
POST MILES	4.97

**AVENIDA VAQUERO UC (WIDEN)  
BRIDGE REMOVAL DETAILS**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	3	20

FILE => 55-0223-b-redt.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:29

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	664	780

*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE

8-26-13  
 PLANS APPROVAL DATE

MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

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ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584

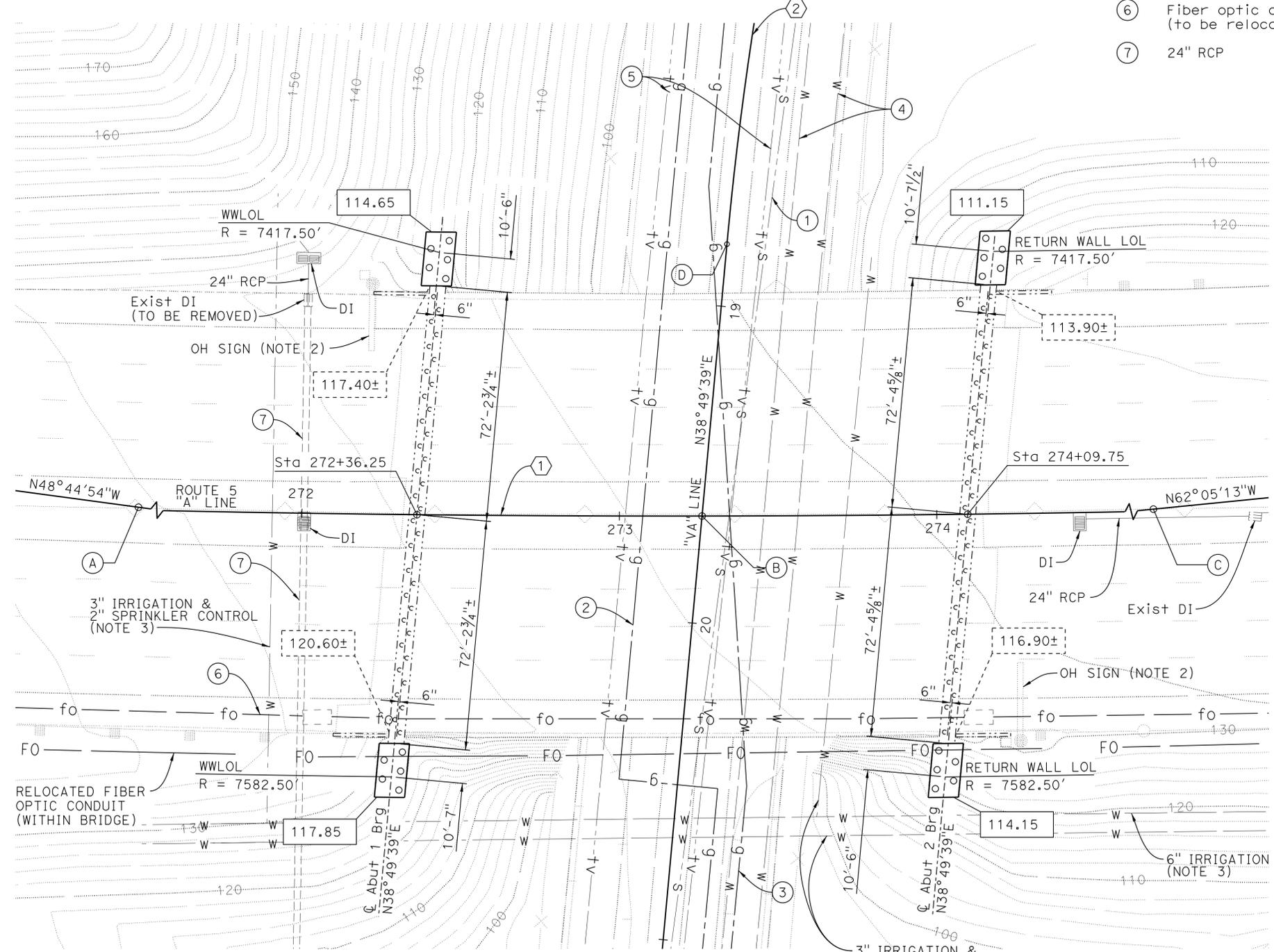
AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

(A) Sta 263+12.29 "A" LINE BC	N 2110592.76 E 6137389.95
(B) Sta 273+26.04 POC "A" LINE Sta 19+66.24 POT "VA" LINE	N 2111207.74 E 6136585.00
(C) Sta 280+58.30 "A" LINE EC	N 2111581.55 E 6135955.69
(D) Sta 18+80.40 "VA" LINE EC	N 2111140.87 E 6136531.18

No.	R	Δ	L	T
(1)	7500.00'	13°20'19"	1746.01'	876.97'
(2)	1130.00'	7°37'20"	150.33'	75.27'

**EXISTING UTILITIES**

- (1) 21" Sewer (City of San Clemente)
- (2) 3" Gas (SCG)
- (3) 6" HP Gas (SCG)
- (4) 16" AC Water (City of San Clemente)
- (5) Cable (Cox)
- (6) Fiber optic conduit on existing barrier (Caltrans) (to be relocated)
- (7) 24" RCP



**PLAN**  
 1" = 20'

**DATUM**

Vertical: North American Vertical Datum 1988  
 Horizontal: California Coordinate System 1983  
 Epoch (1991.35), Zone VI

As-Built elevations adjusted by adding 2.30 feet to match survey data based on the current vertical datum.

**BENCH MARK**

Designation: 3SS-2-82 Elev 95.558'

Described by OCS 2003 - Found 3 3/4" OCS aluminum bench mark disk stamped "3SS-2-82", set in the southeasterly corner of a 4 foot by 4.5 foot concrete catch basin. Monument is located along the northwesterly side of Avenida Vaquero, 100 feet northerly of the northerly edge of the San Diego Freeway overcrossing of Avenida Vaquero, 23 feet westerly of the centerline of Vaquero and 29.2 feet southerly of a street standard no number. Monument is set level with the top of the curb.

**NOTES:**

- 1. For "PILE DATA TABLE", see "GENERAL NOTES & INDEX TO PLANS" sheet.
- 2. To be removed, see "ROAD PLANS".
- 3. Approx location shown. For more information, see "ROAD PLANS".

**LEGEND:**

- Denotes existing structure
- Denotes new construction
- Denotes Cast-in-Drilled Hole concrete pile
- Denotes bottom of footing elevation
- Denotes bottom of existing footing elevation

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

1/14/13 APPROVAL DATE  
 MOHAN S. CHAR REGISTERED PROFESSIONAL ENGINEER

DESIGN BY Luqi Yang SURVEYED BY PSOMAS FIELD CHECKED BY PSOMAS SIGN OFF DATE 5-15-13	SCALE: PHOTOGRAMMETRY AS OF: 4-24-09	VERT. DATUM NAVD88	HORZ. DATUM CCS83	DESIGN BY D. Kim	CHECKED W. Chu	<b>PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION</b> Mohan S. Char PROJECT ENGINEER	BRIDGE NO. 55-0223	<b>AVENIDA VAQUERO UC (WIDEN) FOUNDATION PLAN</b>	
	ALIGNMENT TIES	DRAFTED BY	CHECKED W. Chu	QUANTITIES BY D. Kim	CHECKED W. Chu		POST MILES 4.97		
	CHECKED BY	CHECKED BY	CHECKED BY	CHECKED BY	CHECKED BY		REVISION DATES		SHEET 4 OF 20
	FOUNDATION PLAN SHEET (ENGLISH) (REV.7/16/10)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	UNIT: PROJECT NUMBER & PHASE: 1200020278	CONTRACT NO.: 12-0F96C1		DISREGARD PRINTS BEARING EARLIER REVISION DATES		04-27-12 09-24-12 01-14-13 04-22-13

FILE => 55-0223-e-fdpi01.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:29

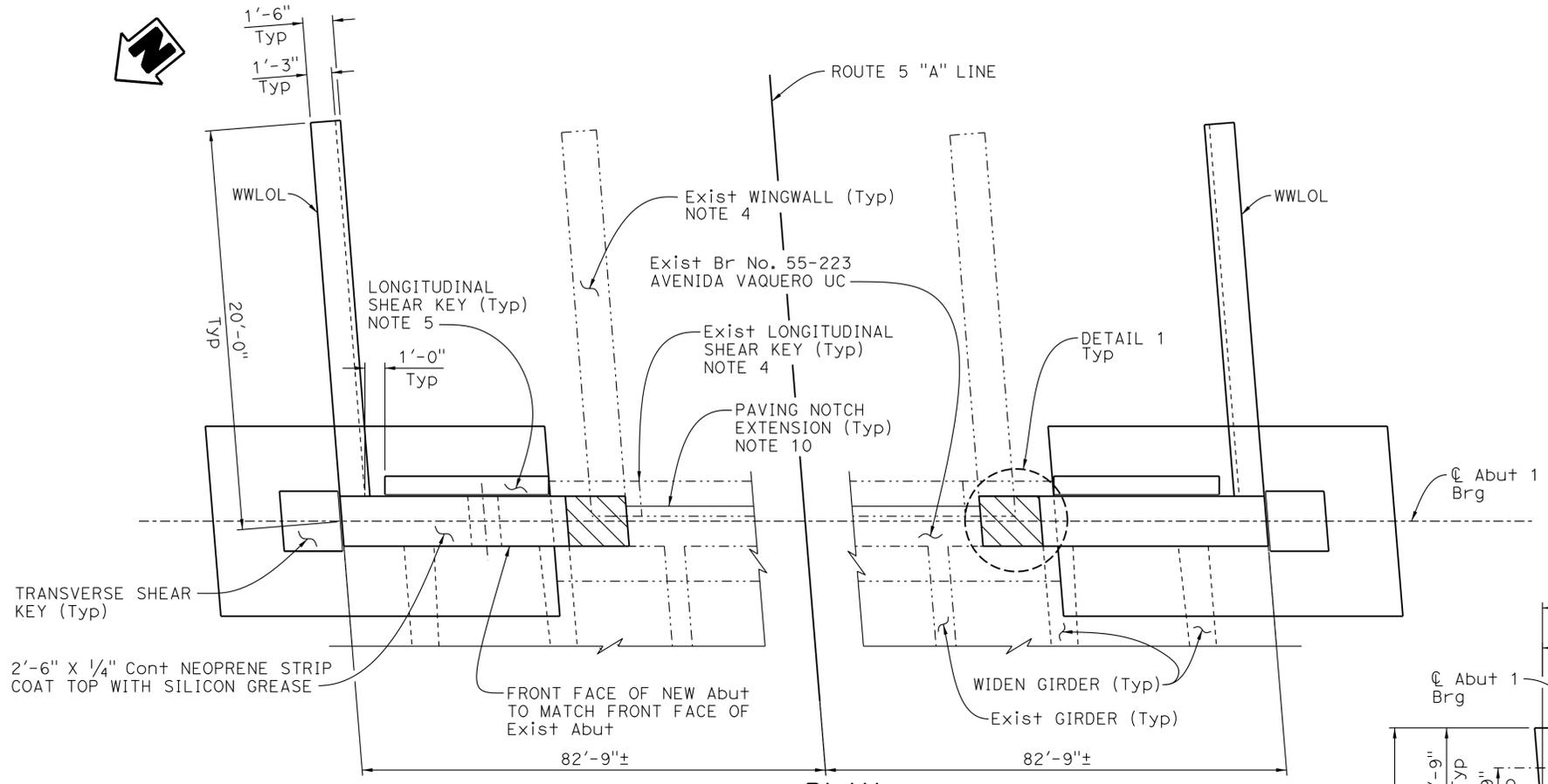
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	665	780

*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 8-26-13 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

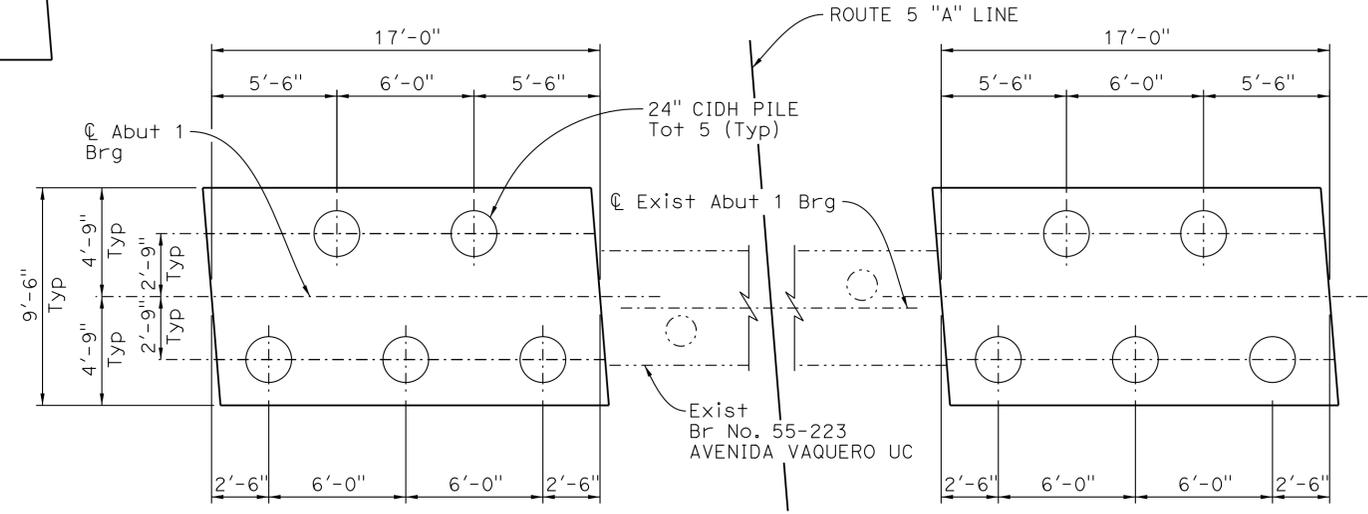
ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

NOTES:

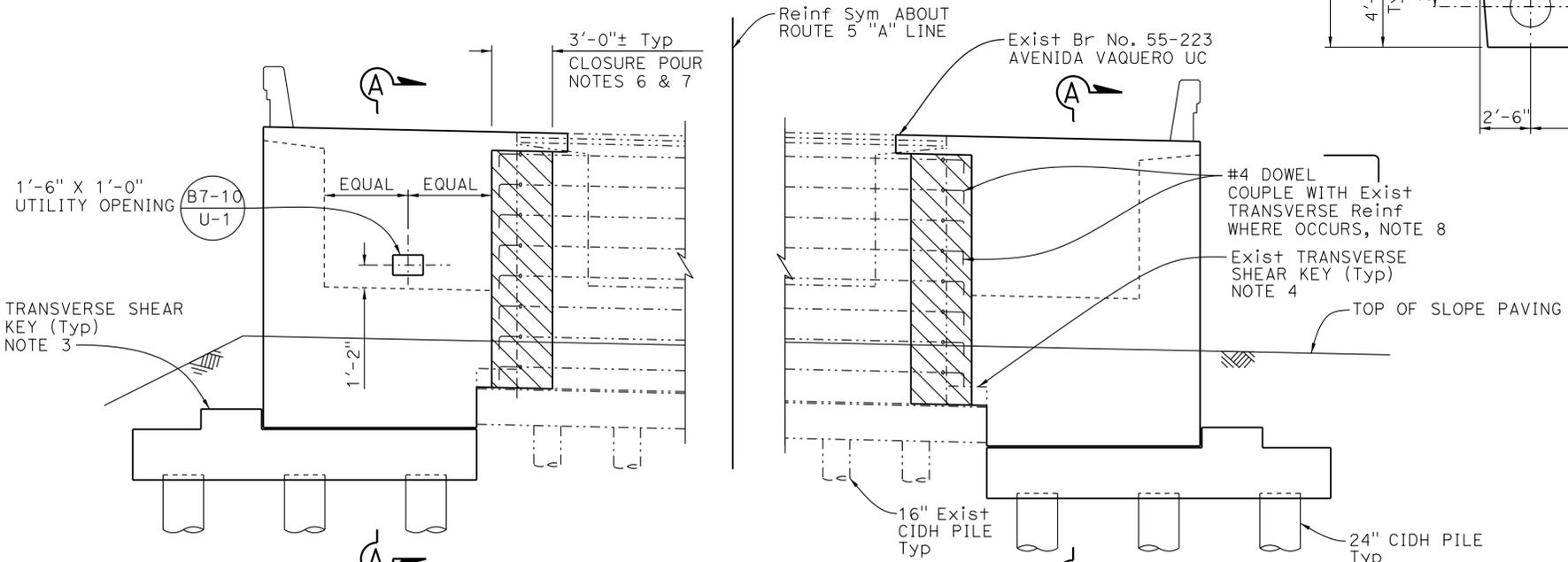
- Deck closure pour and limits of bridge removal not shown for clarity.
- For "SECTION A-A" and "DETAIL 1", see "ABUTMENT DETAILS NO. 1" sheet.
- For "TRANSVERSE SHEAR KEY DETAIL" and "SECTION B-B", see "ABUTMENT DETAILS NO. 2" sheet.
- For bridge removal details, see "BRIDGE REMOVAL DETAILS" sheet.
- Longitudinal shear key shall be placed after falsework has been released.
- Abutment closure pour shall be placed no sooner than 7 days after prestressing operations.
- For deck closure pour, see "TYPICAL SECTION" sheet.
- #4 dowels shall be "Service" spliced with mechanical couplers.
- Roughen existing concrete surface at stem and footing to 1/4" amplitude.
- For paving notch extension detail, see "STRUCTURE APPROACH TYPE R(30D)" sheet.



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



**FOOTING PLAN**  
 1/4" = 1'-0"



**ELEVATION**  
 1/4" = 1'-0"

- LEGEND:
- Denotes existing structure
  - Denotes new construction
  - ▨ Abutment closure pour
  - 24" CIDH PILE
  - 16" Exist CIDH PILE

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OR SIGN OFF  
 Luqi Yang  
 8-7-13  
 SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER  
 BRIDGE NO. 55-0223  
 POST MILES 4.97

**AVENIDA VAQUERO UC (WIDEN)  
 ABUTMENT 1 LAYOUT**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
09-24-12 01-14-13 04-22-13 08-01-13	5	20

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:29

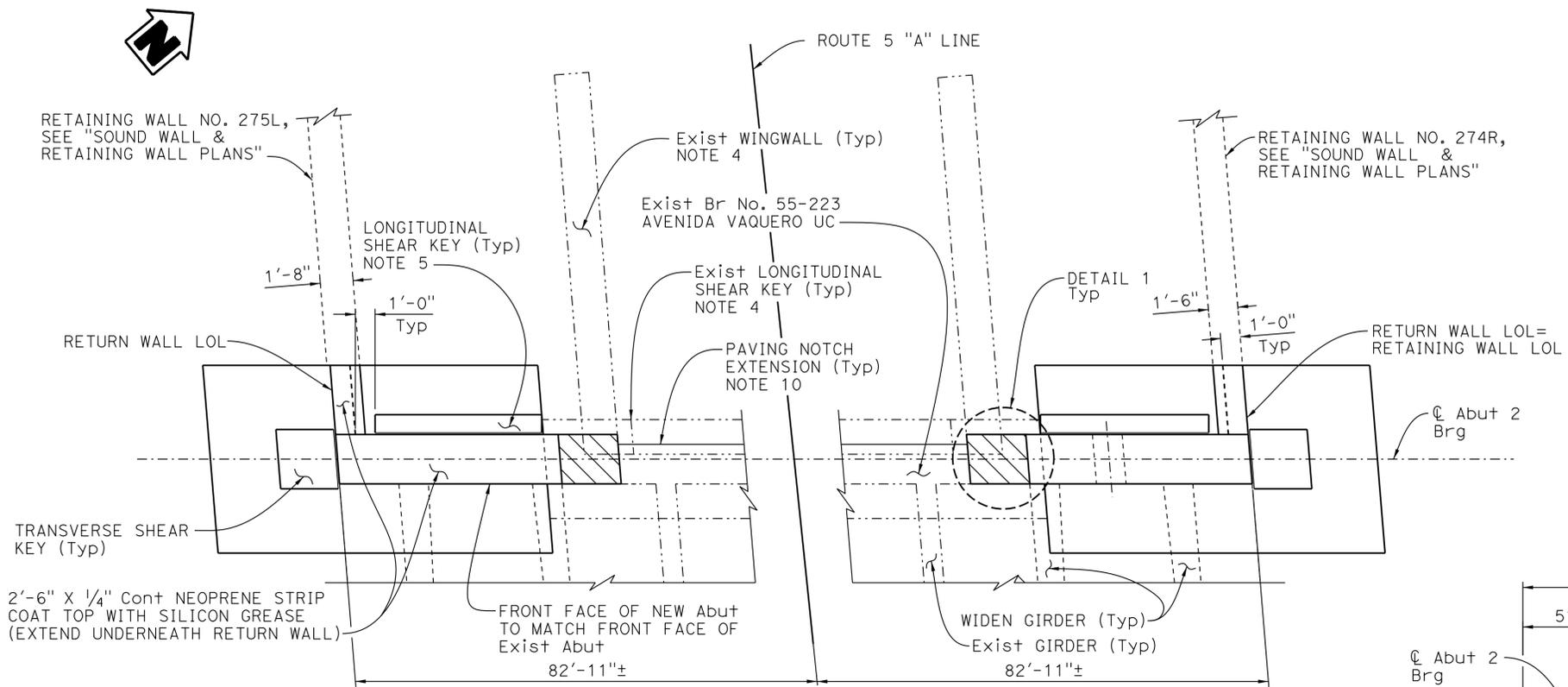
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	5	3.7/6.2	666	780

*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

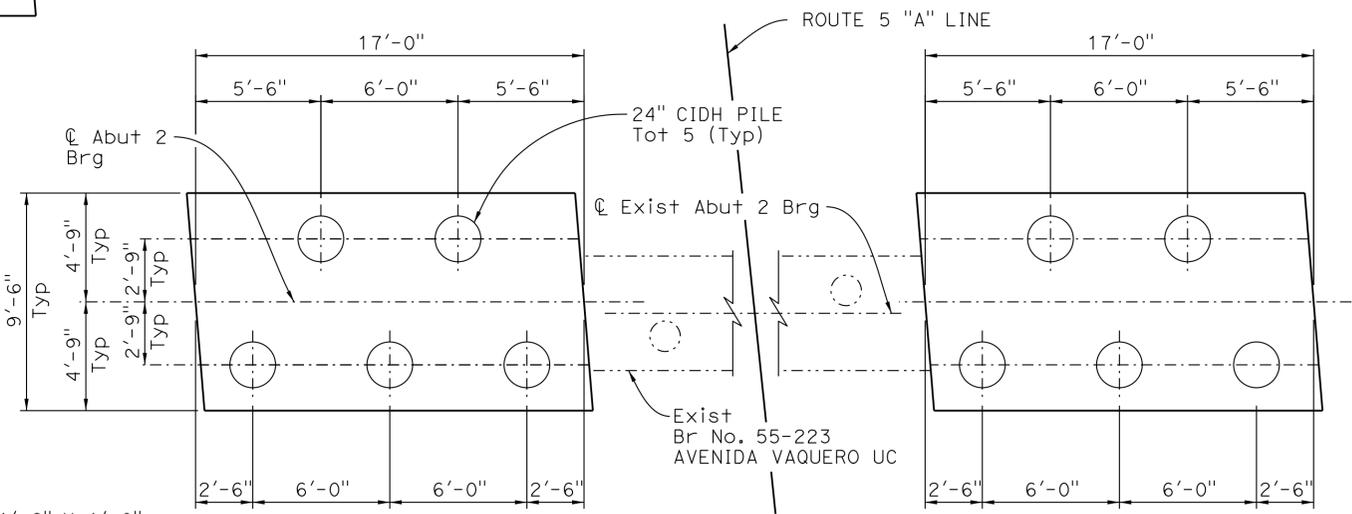
8-26-13  
 PLANS APPROVAL DATE  
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 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
**AECOM TECHNICAL SERVICES INC.**  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

NOTES:

- Deck closure pour and limits of bridge removal not shown for clarity.
- For "SECTION A-A" and "DETAIL 1", see "ABUTMENT DETAILS NO. 1" sheet.
- For "TRANSVERSE SHEAR KEY DETAIL" and "SECTION B-B", see "ABUTMENT DETAILS NO. 2" sheet.
- For bridge removal details, see "BRIDGE REMOVAL DETAILS" sheet.
- Longitudinal shear key shall be placed after falsework has been released.
- Abutment closure pour shall be placed no sooner than 7 days after prestressing operations.
- For deck closure pour, see "TYPICAL SECTION" sheet.
- #4 dowels shall be "Service" spliced with mechanical couplers.
- Roughen existing concrete surface at stem and footing to 1/4" amplitude.
- For paving notch extension detail, see "STRUCTURE APPROACH TYPE R(30D)" sheet.

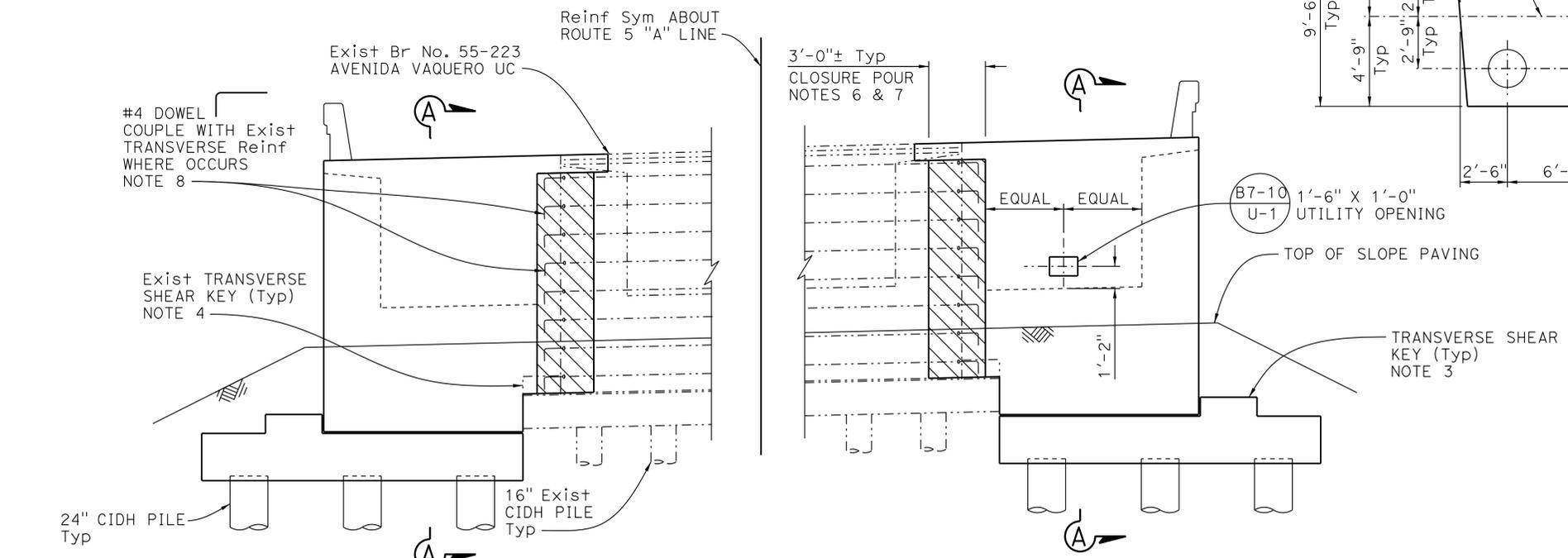


**PLAN**  
 1/4" = 1'-0"



**FOOTING PLAN**  
 1/4" = 1'-0"

- LEGEND:
- Denotes existing structure
  - Denotes new construction
  - ▨ Abutment closure pour
  - 24" CIDH PILE
  - 16" Exist CIDH PILE



**ELEVATION**  
 1/4" = 1'-0"

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OR SIGN OFF DATE  
 8-7-13  
 SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55-0223
POST MILES	4.97

**AVENIDA VAQUERO UC (WIDEN) ABUTMENT 2 LAYOUT**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

REVISION DATES	SHEET	OF
09-24-12 01-14-13 04-22-13 08-01-13	6	20

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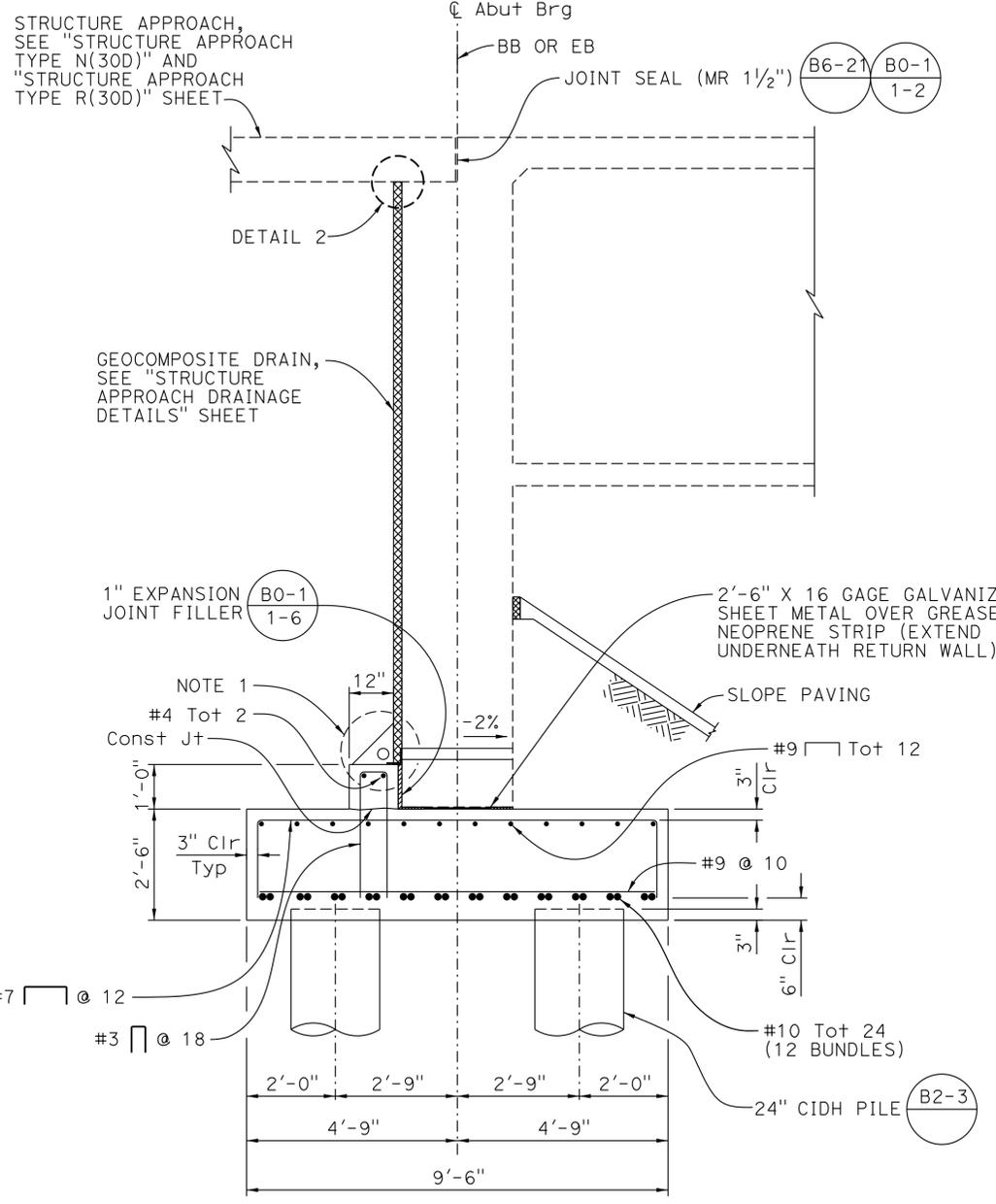
USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:29

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	667	780

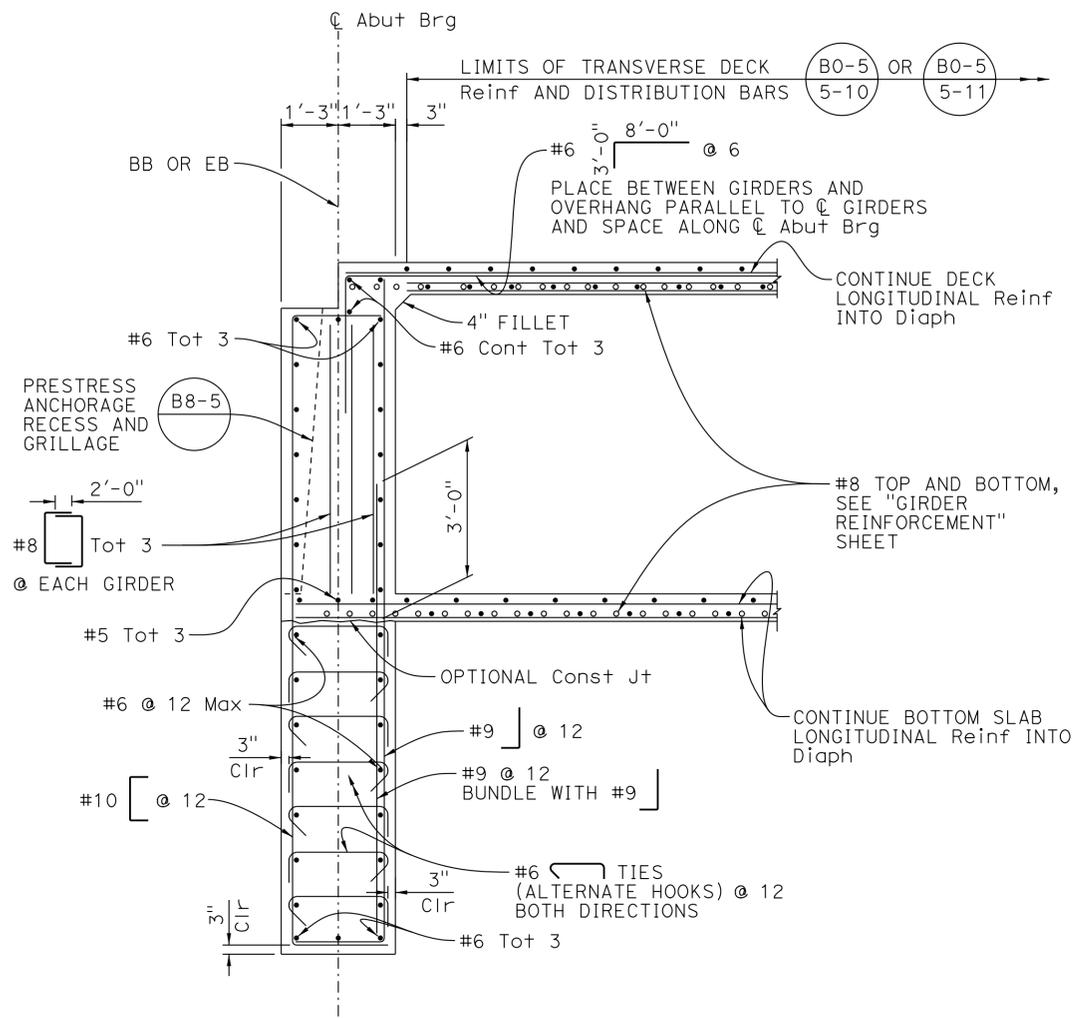
*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 8-26-13 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

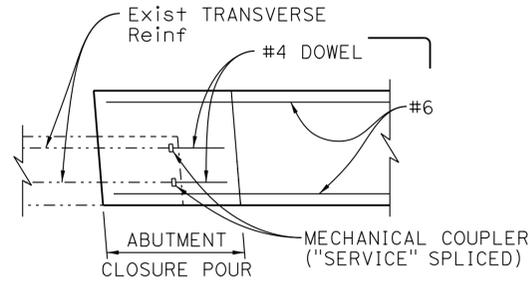
- NOTES:
- For drainage details, see "STRUCTURE APPROACH DRAINAGE DETAILS" sheet.
  - Abutment backfill shall be placed after completion of superstructure. Backfill shall be placed simultaneously at both abutments with no more than 2'-0" differential in backfill heights between each abutment.



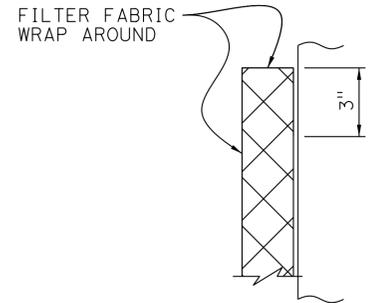
**SECTION A-A**  
 1/2" = 1'-0"



**END DIAPHRAGM DETAIL**  
 1/2" = 1'-0"



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



**DETAIL 2**  
 3" = 1'-0"

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OVERSIGHT  
 Luqi Yang  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55-0223
POST MILES	4.97

**AVENIDA VAQUERO UC (WIDEN) ABUTMENT DETAILS NO. 1**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	04-27-12 09-24-12 01-14-13 04-22-13	7	20

FILE => 55-0223-f-a01d101.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:29

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	668	780

*Mohan*  
 REGISTERED CIVIL ENGINEER  
 4/22/13  
 DATE

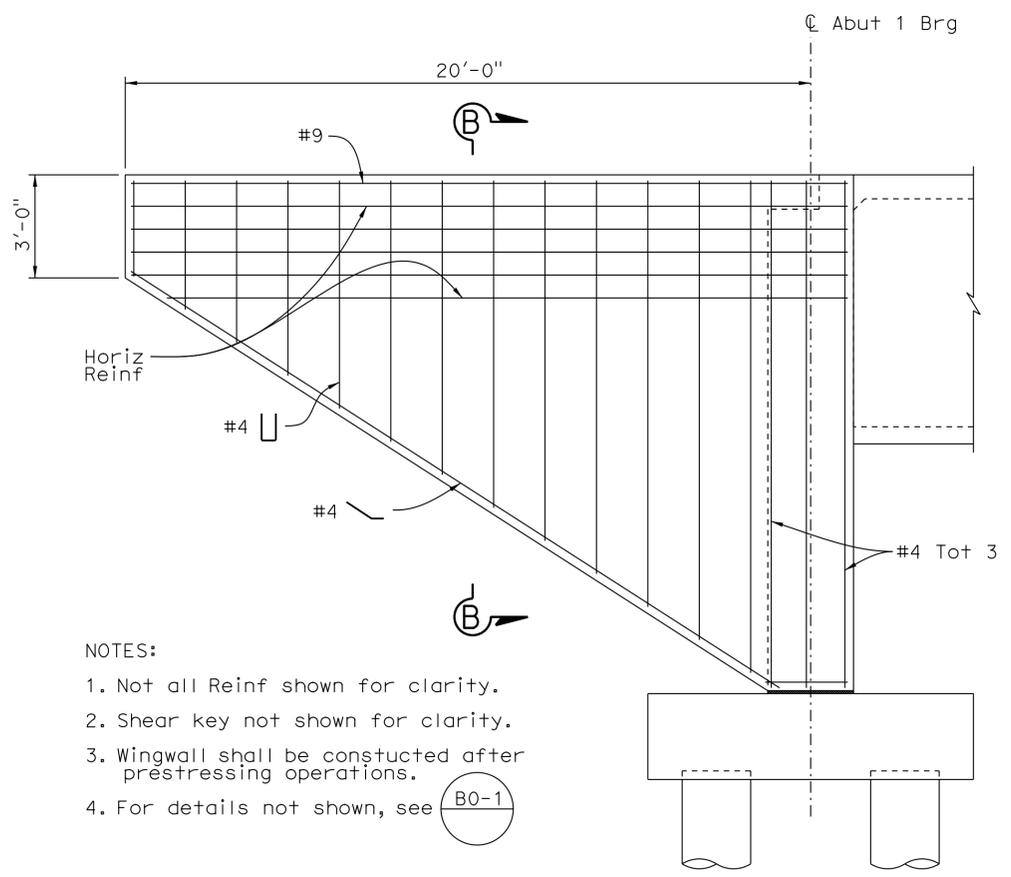
8-26-13  
 PLANS APPROVAL DATE

MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

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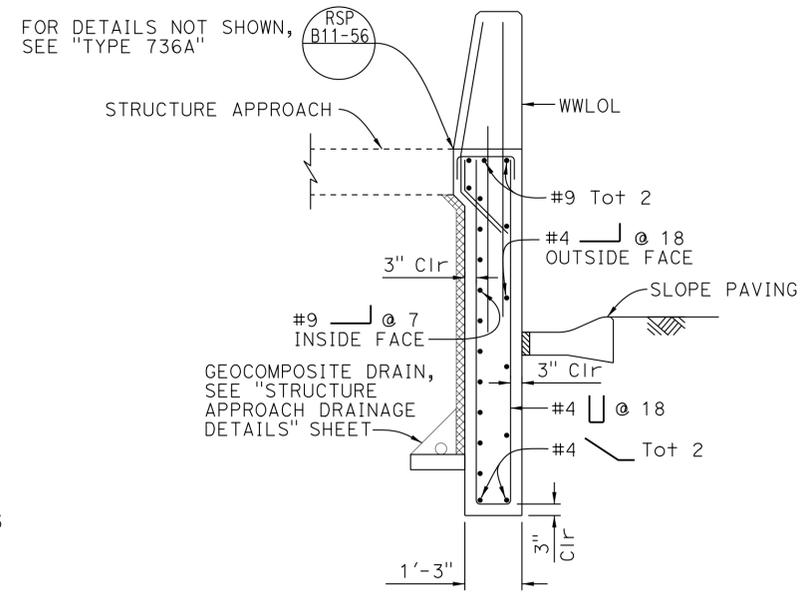
ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584

AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

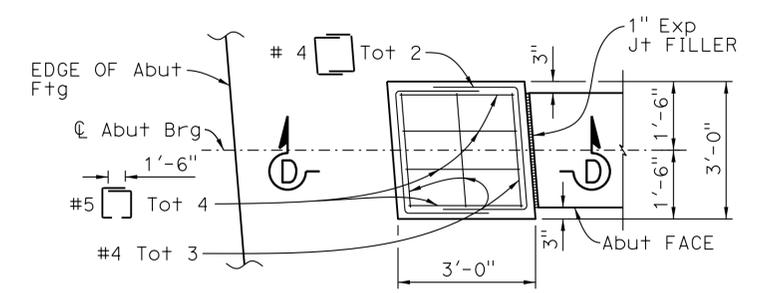


**WINGWALL ELEVATION**  
 $\frac{3}{8}'' = 1'-0''$

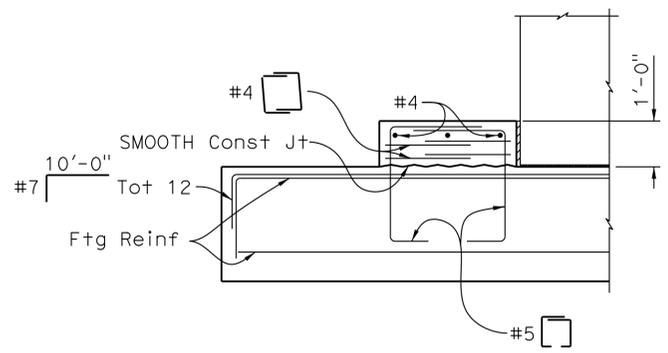
- NOTES:
1. Not all Reinf shown for clarity.
  2. Shear key not shown for clarity.
  3. Wingwall shall be constructed after prestressing operations.
  4. For details not shown, see B0-1



**SECTION B-B**  
 $\frac{1}{2}'' = 1'-0''$

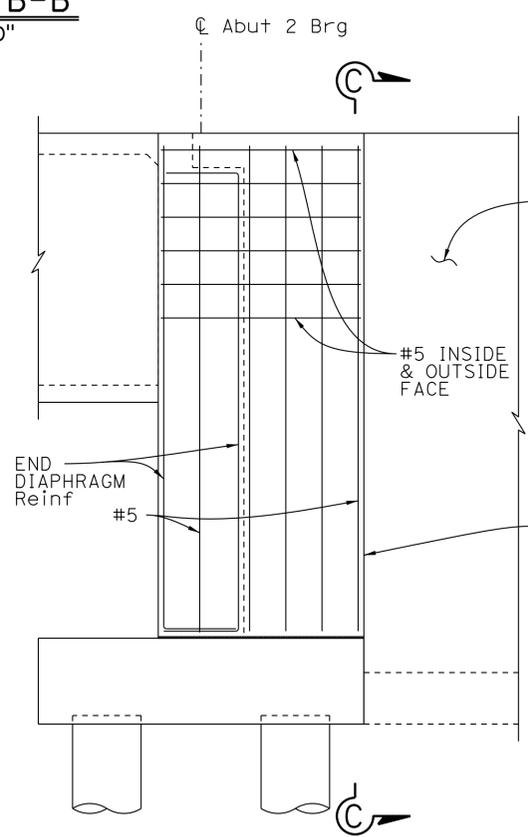


**TRANSVERSE SHEAR KEY DETAIL**  
 $\frac{1}{2}'' = 1'-0''$



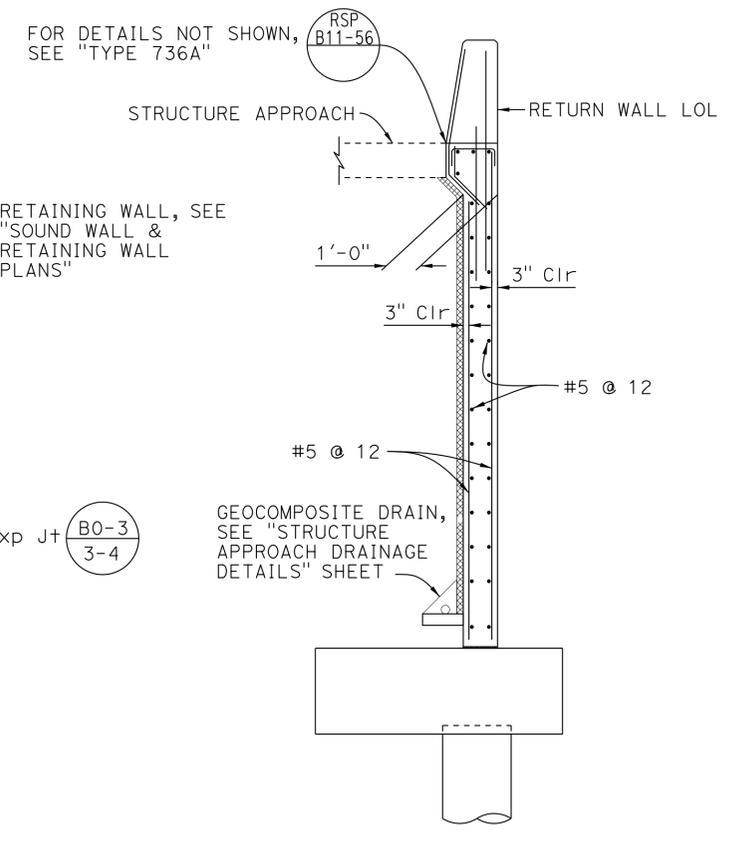
**SECTION D-D**  
 $\frac{1}{2}'' = 1'-0''$

NOTE: Not all Abut Reinf shown for clarity.



**RETURN WALL ELEVATION**  
 $\frac{3}{8}'' = 1'-0''$

NOTE: Not all Reinf shown for clarity.



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

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OVERSIGHT  
 Luqi Yang  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.  
 55-0223

POST MILES  
 4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**ABUTMENT DETAILS NO. 2**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT:  
 PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	8	20

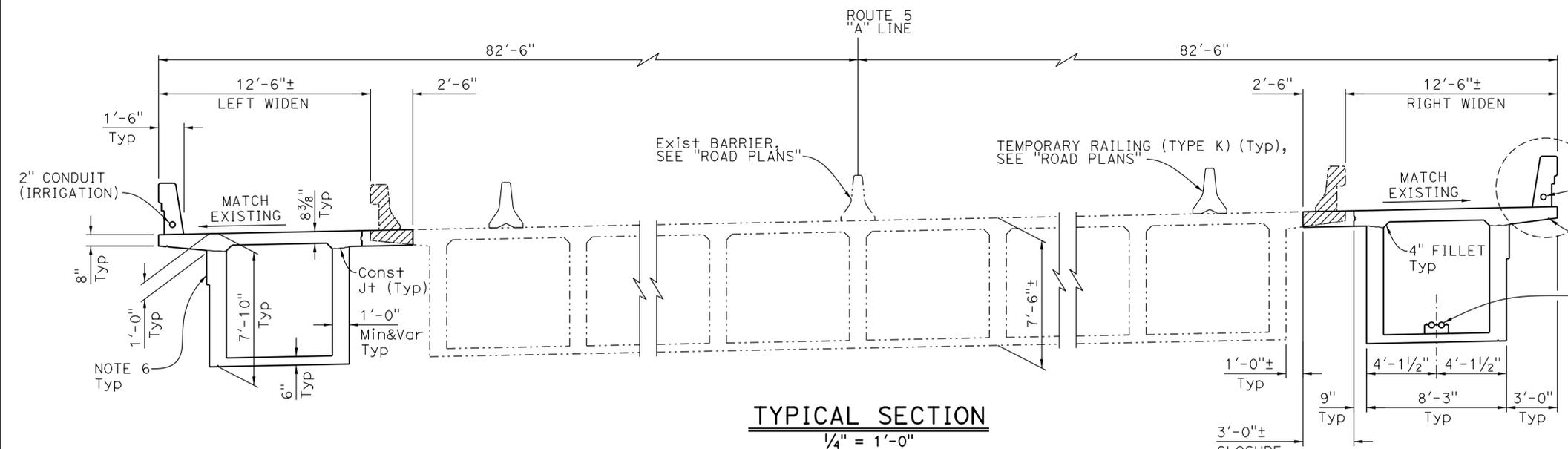
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USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:29

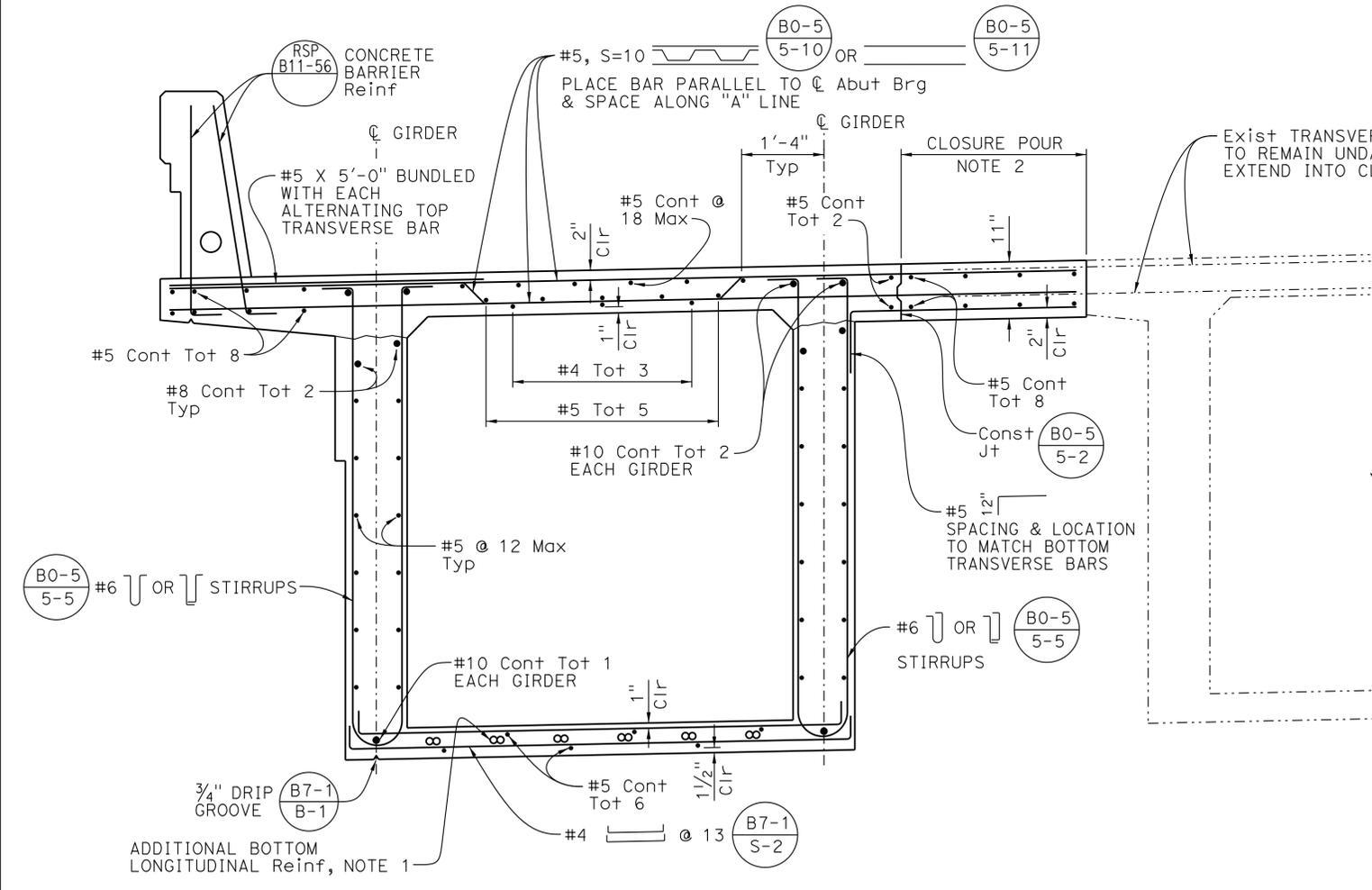
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	669	780

**Mohan**  
 REGISTERED CIVIL ENGINEER  
 4/22/13 DATE  
 8-26-13 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
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 ORANGE, CALIFORNIA 92868



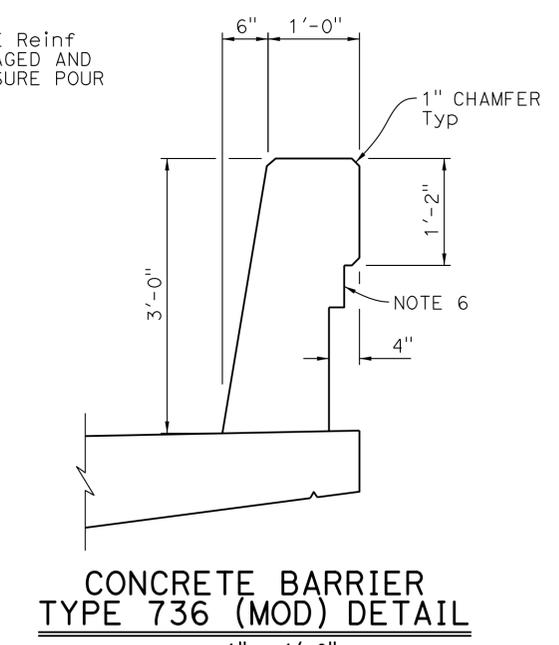
**TYPICAL SECTION**  
 1/4" = 1'-0"



**PART TYPICAL SECTION**  
 3/4" = 1'-0"

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

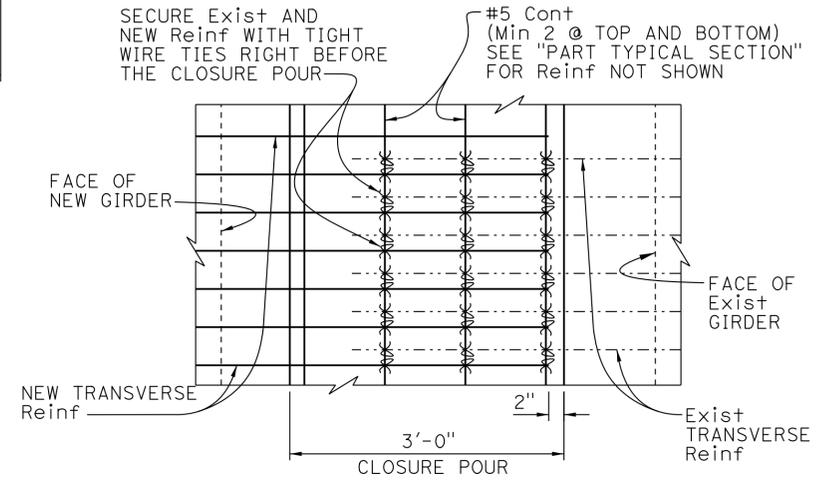
NOTE: Left Widen shown, Right Widen similar.



**CONCRETE BARRIER TYPE 736 (MOD) DETAIL**  
 1" = 1'-0"

NOTE: For details not shown, see RSP B11-56

- LEGEND:
- Denotes existing structure
  - Denotes new construction
  - ▨ Bridge Removal (Portion)
  - ⊗ Tight wire ties



**CLOSURE POUR REINFORCING**  
 1" = 1'-0"

**FALSEWORK RELEASE & CLOSURE POUR**

- Alternate 1:  
 Falsework shall be released as soon as permitted by the specifications. Closure pour shall not be placed sooner than 60 days after the falsework has been released.
- Alternate 2:  
 Falsework shall not be released less than 28 days after the last concrete has been placed. Closure pour shall not be placed sooner than 14 days after the falsework has been released.
- When Falsework Release Alternative 2 is used, camber values are 0.75 times those shown.

NOTES:

1. For additional longitudinal reinforcement, see "GIRDER REINFORCEMENT" sheet.
2. Remove deck along a straight line and protect all existing transverse deck reinforcement. Only surface saw cut allowed.
3. Continuous longitudinal reinforcement shall be "Service" spliced.
4. Any existing reinforcement damaged by Contractor shall be replaced by drill and bond dowels as approved by the Engineer.
5. For "CONDUIT SUPPORT DETAIL", see "GIRDER REINFORCEMENT" sheet.
6. For barrier and girder architectural details, see "ARCHITECTURAL DETAILS" sheet.

DESIGN BY: **Luqi Yang**  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY: D. Kim	CHECKED: W. Chu
DETAILS	BY: J. Quinoveva	CHECKED: W. Chu
QUANTITIES	BY: D. Kim	CHECKED: W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55-0223
POST MILES	4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**TYPICAL SECTION**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	9	20

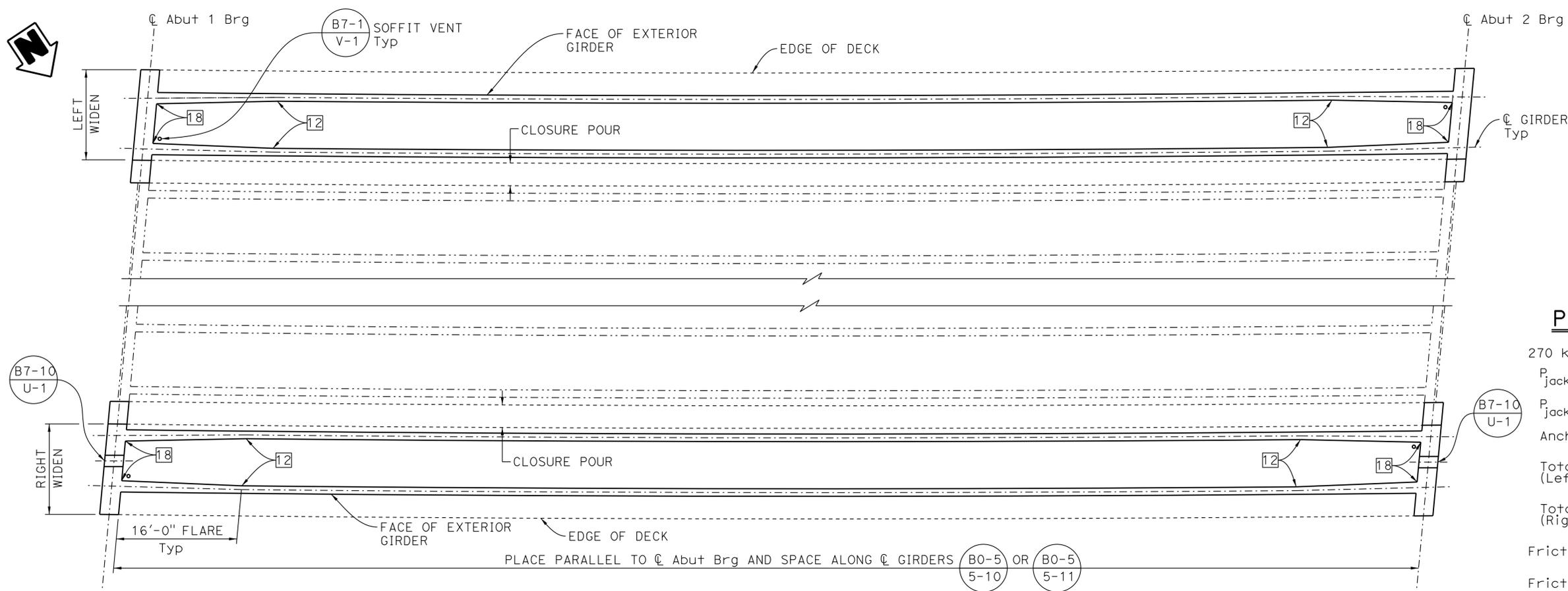
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USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:29

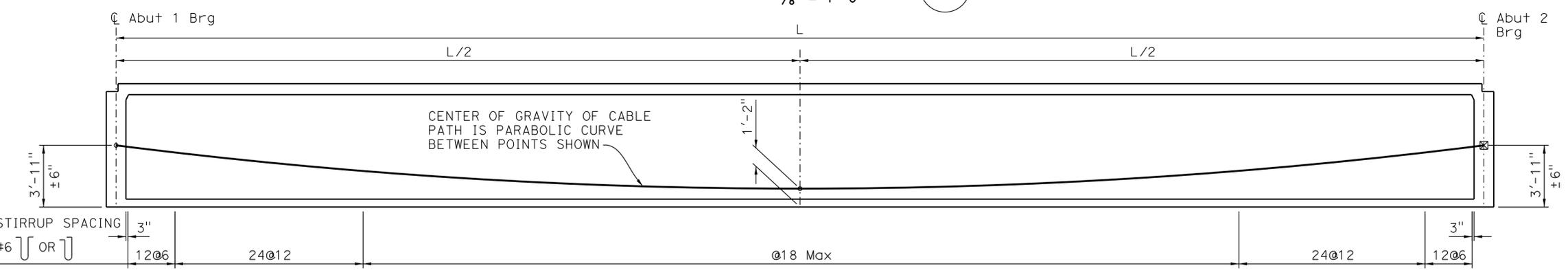
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12	Ora	5	3.7/6.2	670	780

**Mohan**  
 REGISTERED CIVIL ENGINEER  
 DATE: 4/22/13  
 PLANS APPROVAL DATE: 8-26-13  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

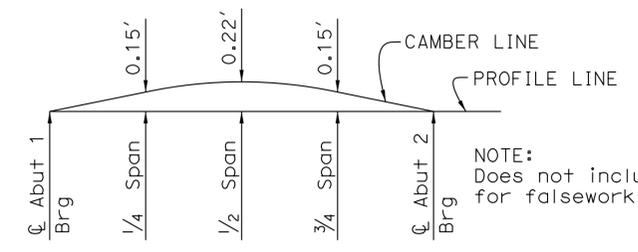
ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



**GIRDER LAYOUT** (B7-1)  
 $\frac{1}{8}'' = 1'-0''$



**LONGITUDINAL SECTION** (RSP B8-5)  
 HORIZ  $\frac{1}{8}'' = 1'-0''$   
 VERT  $\frac{1}{4}'' = 1'-0''$



**CAMBER DIAGRAM**  
 NO SCALE

**PRESTRESSING NOTES**

270 ksi Low Relaxation Strand:  
 $P_{jack}$  (Left Widen) = 5,900 kips  
 $P_{jack}$  (Right Widen) = 5,900 kips  
 Anchor Set =  $\frac{3}{8}$  inch  
 Total Number of Girders (Left Widen) = 2  
 Total Number of Girders (Right Widen) = 2  
 Friction Curvature Coefficient  $\mu = 0.15$   
 Friction Wobble Coefficient  $K = 0.0002$   
 Distribution of prestress force ( $P_{jack}$ ) between girders shall not exceed the ratio of 3:2.  
 Maximum final force variation between girders shall not exceed 725 kips.  
 Concrete:  $f'_c = 6,000$  psi @ 28 days  
 $f'_{ci} = 3,500$  psi @ time of stressing  
 Contractor shall submit elongation calculations based on initial stress at  
 $\lambda = 0.948$  times jacking stress.  
 One end stressing shall be performed from Abutment 1 only.

LEGEND:  
 □ Girder stem width in inches  
 ⊠ Theoretical point of no movement

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN BY: Luqi Yang  
 SIGN OFF DATE: 5-15-13

DESIGN	BY: D. Kim	CHECKED: W. Chu
DETAILS	BY: J. Quinoveva	CHECKED: W. Chu
QUANTITIES	BY: D. Kim	CHECKED: W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION  
 PROJECT ENGINEER: Mohan S. Char

BRIDGE NO.	55-0223
POST MILES	4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**GIRDER LAYOUT**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

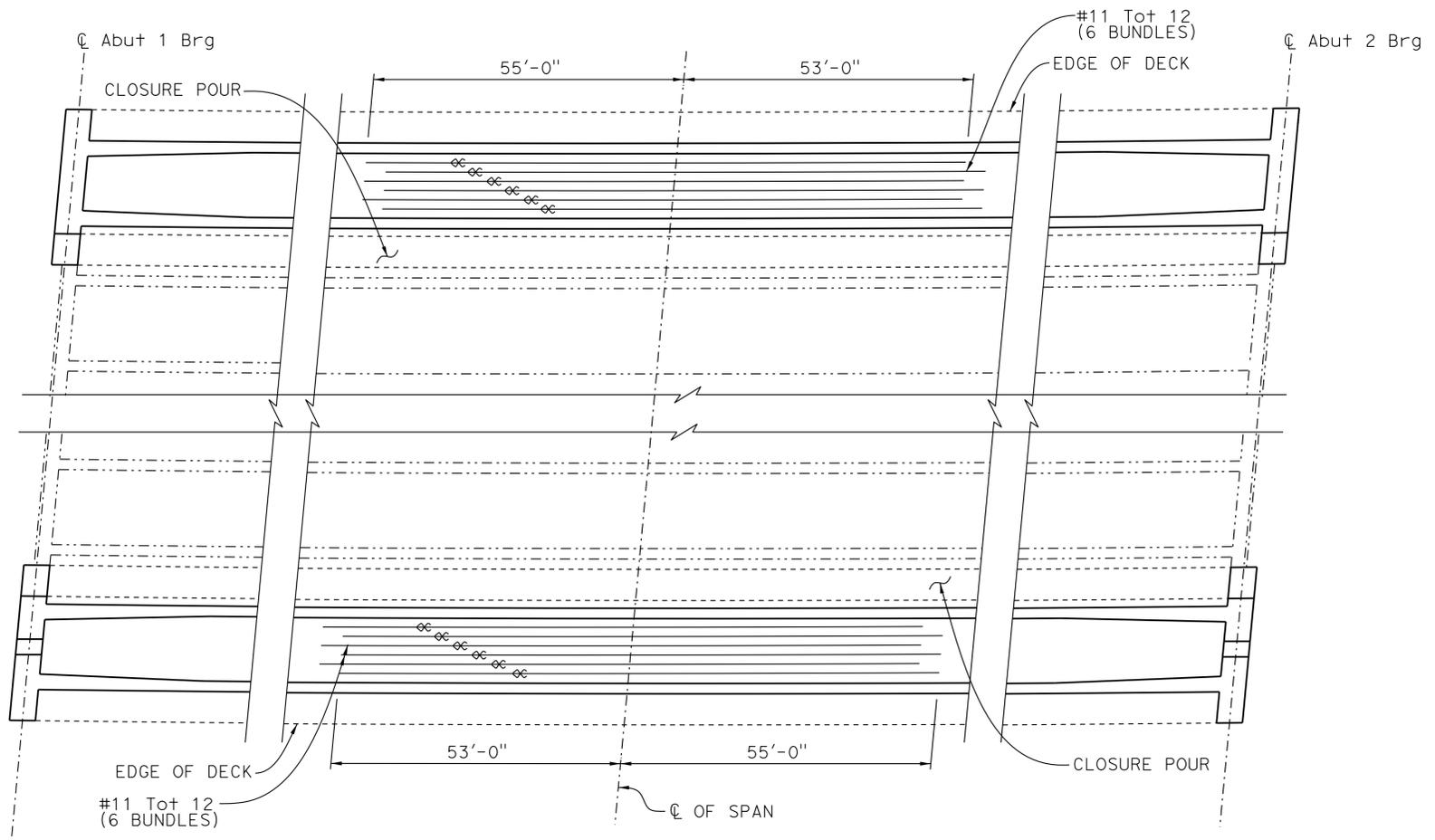
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04-27-12 09-24-12 01-14-13 04-22-13	10	20

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:30

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	671	780

*Mohan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13  
 8-26-13  
 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

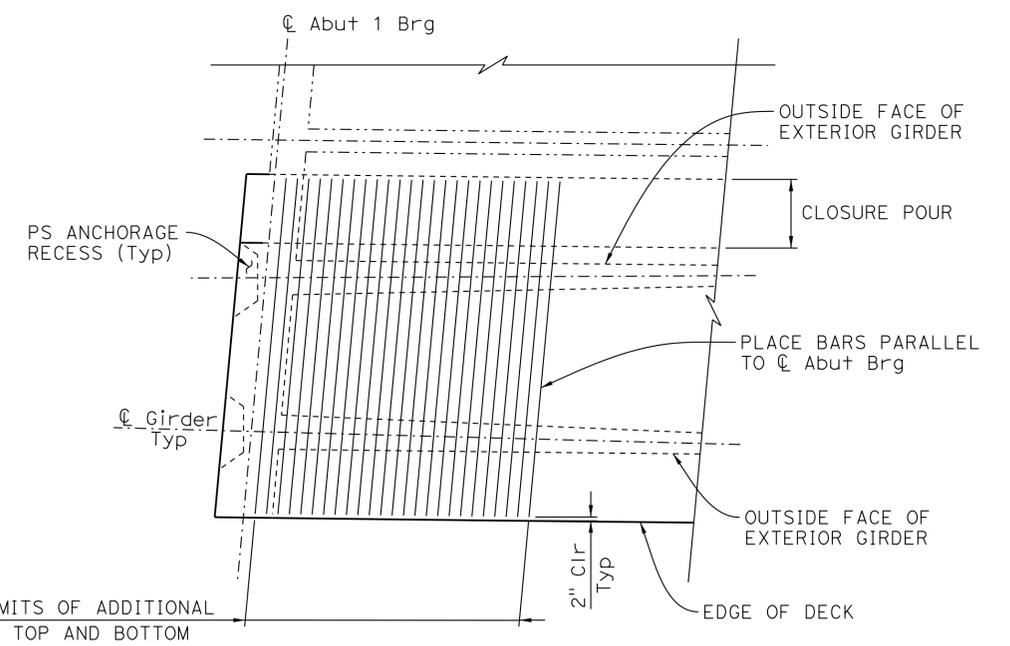
ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



LEGEND:  
 ∞ Bundled bars

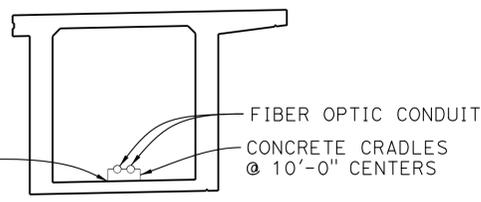
- NOTES:
- Not all reinforcement shown for clarity.
  - Additional reinforcement shall be evenly spaced between the inside faces of girders.
  - Additional longitudinal reinforcement shall be "Service" spliced.

**ADDITIONAL BOTTOM LONGITUDINAL REINFORCEMENT**  
 NO SCALE



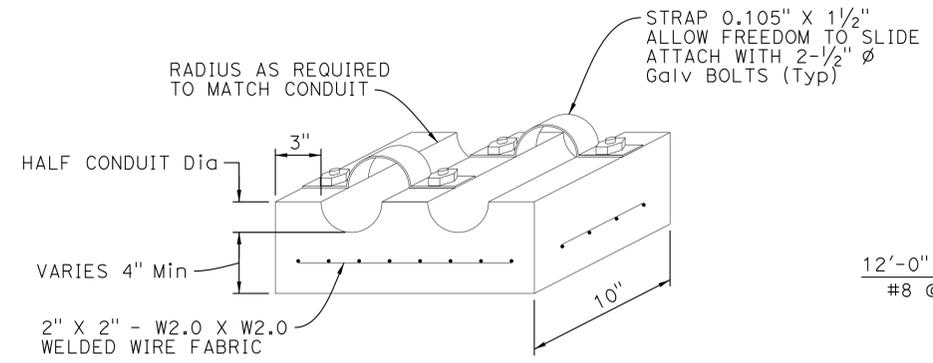
**DECK SLAB & BOTTOM SLAB GENERAL ZONE ANCHORAGE REINFORCEMENT DETAIL**  
 1/4" = 1'-0"

NOTE: Top slab shown, bottom slab similar. Abut 1 Left Widen shown, all others similar.



UNDER THE FIRST CRADLE SUPPORT INSIDE BRIDGE NEAR ABUTMENT, EPOXY 12 GAGE GALVANIZED STEEL SHEET 3'-0" X 1'-6" TO THE FLOOR OF CELL. DO NOT SECURE CRADLE TO STEEL SHEET. CRADLE SHALL BE FREE TO SLIDE TO ACCOMODATE LATERAL MOVEMENT.

**CONDUIT SUPPORT DETAIL**  
 NO SCALE



**CONCRETE CRADLE**  
 NO SCALE

- NOTES:
- Cradles to be precast concrete.
  - Secure all cradles to bottom slab of bridge with epoxy adhesive, except as noted in "CONDUIT SUPPORT DETAIL".

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGNER  
 Luqi Yang  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER  
 BRIDGE NO. 55-0223  
 POST MILES 4.97

**AVENIDA VAQUERO UC (WIDEN)  
 GIRDER REINFORCEMENT**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	11	20

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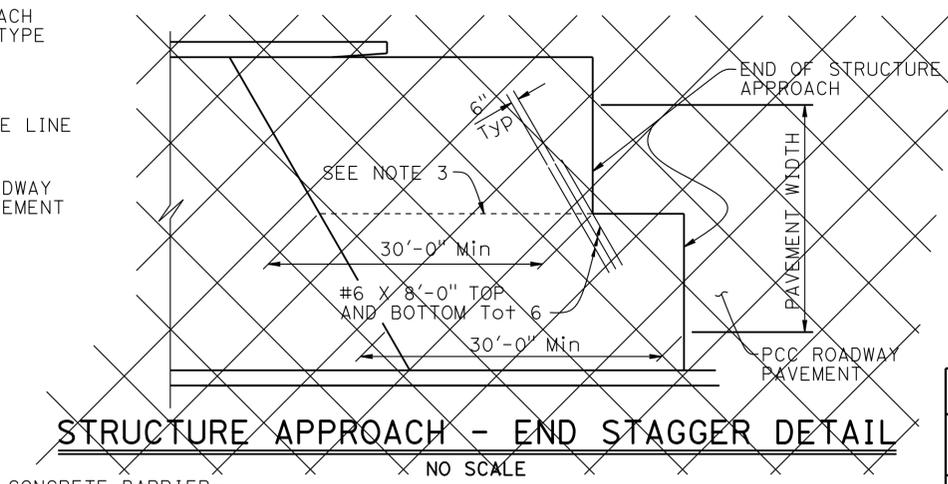
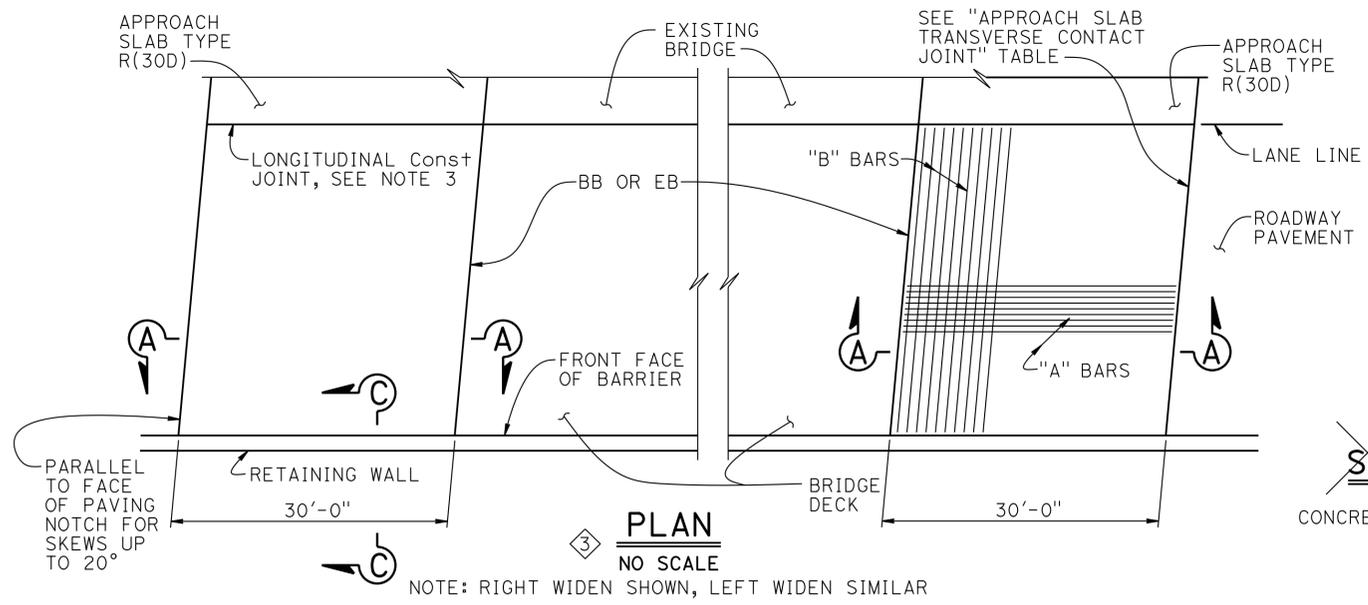
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12	Ora	5	3.7/6.2	672	780

Mohan  
REGISTERED CIVIL ENGINEER  
DATE 4/22/13

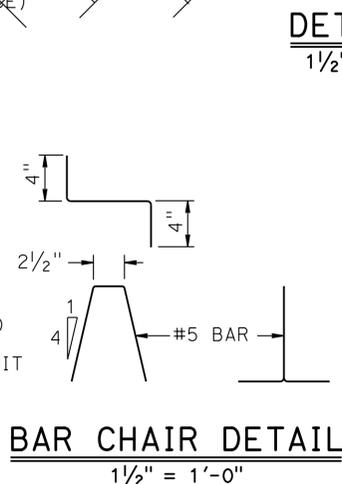
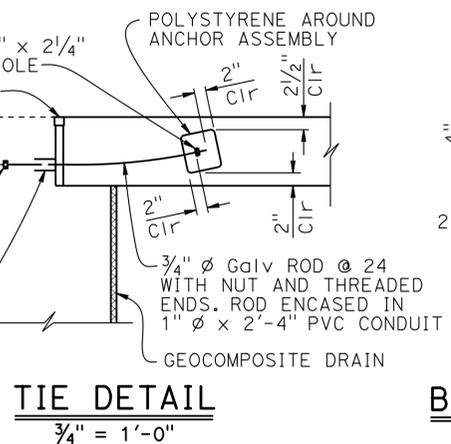
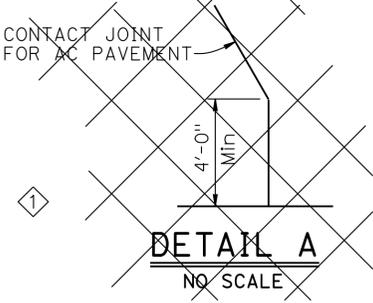
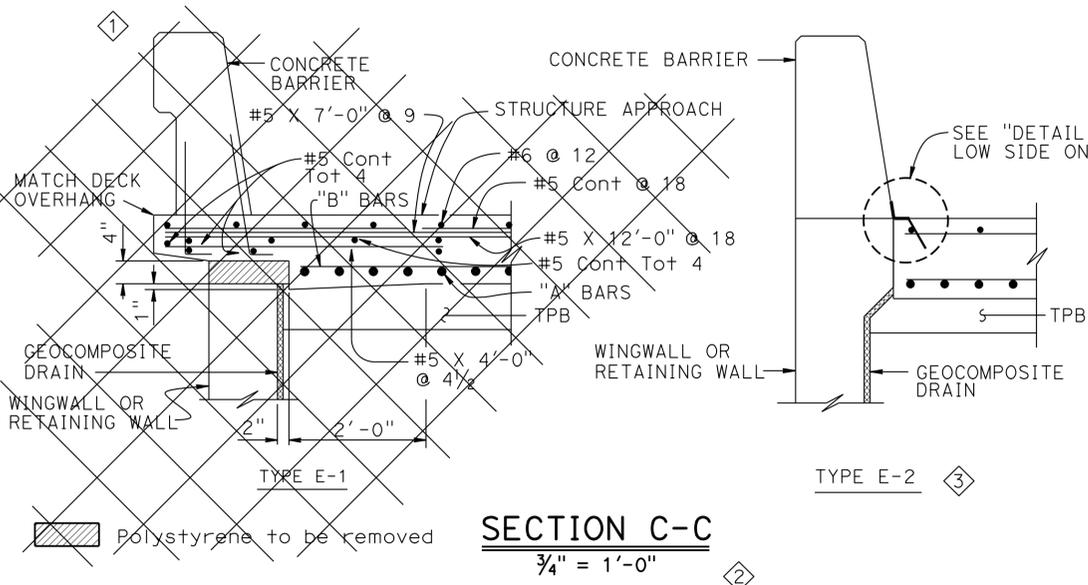
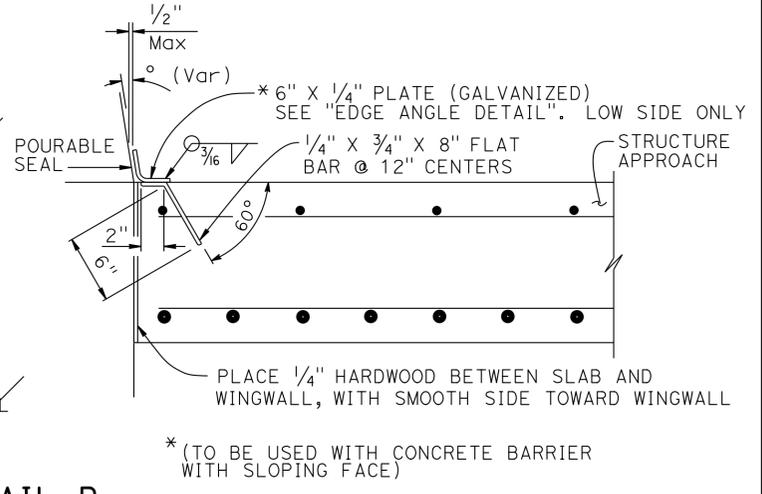
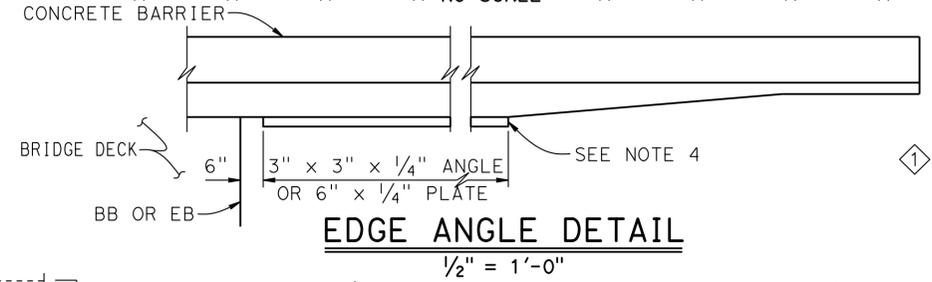
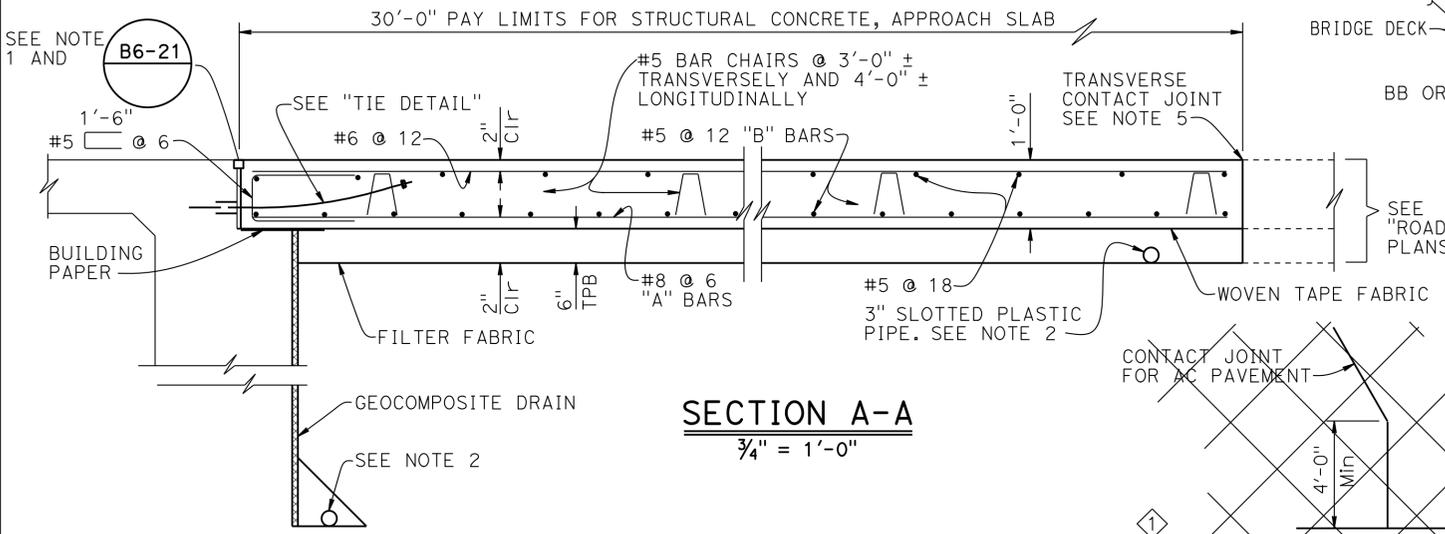
8-26-13  
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
Mohan S. Char  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA



APPROACH SLAB TRANSVERSE CONTACT JOINT		
APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 20°	PARALLEL TO FACE OF PN	PARALLEL TO FACE OF PN
20° - 45°	PARALLEL TO FACE OF PN USE "DETAIL A"	STAGGER LINES 24' TO 36' APART
> 45°	PARALLEL TO FACE OF PN USE "DETAIL A"	STAGGER AT EACH LANE LINE



- NOTES:
- For details not noted or shown, see Structure Plans
  - For drainage details, see "STRUCTURE APPROACH DRAINAGE DETAILS" sheet
  - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines
  - End angle or plate at beginning of barrier transition, end of wingwall or end of structure approach, as applicable
  - For transverse contact joint with new PCC paving, refer to Standard Plan P10
  - At the contractor's option, approach slab transverse reinforcement may be placed parallel to paving notch. Spacing of transverse reinforcement is measured along  $\bar{C}$  roadway

**SPECIAL DETAILS**

REVISED STANDARD DRAWING

FILE NO. **xs3-140**

APPROVAL DATE July 2011

- ① DOES NOT APPLY      ③ MODIFIED DETAIL
- ② DELETED NOTE

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. 55-0223  
POST MILE 4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**STRUCTURE APPROACH TYPE N(30D)**

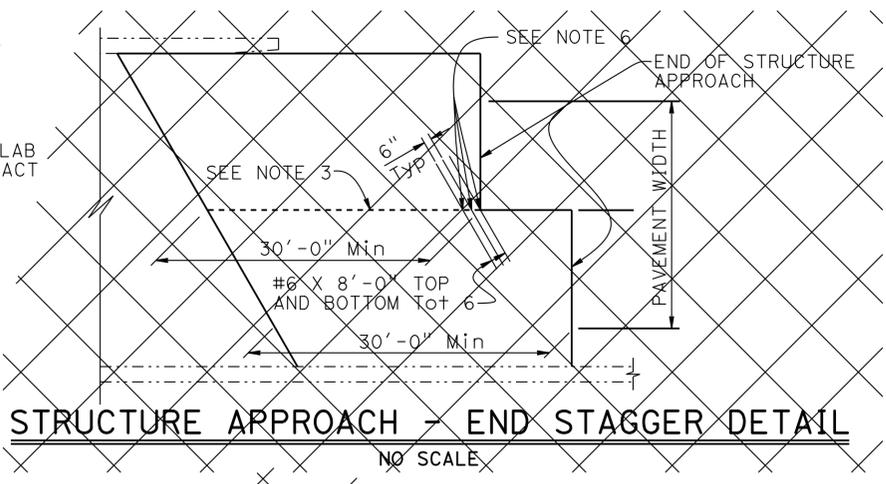
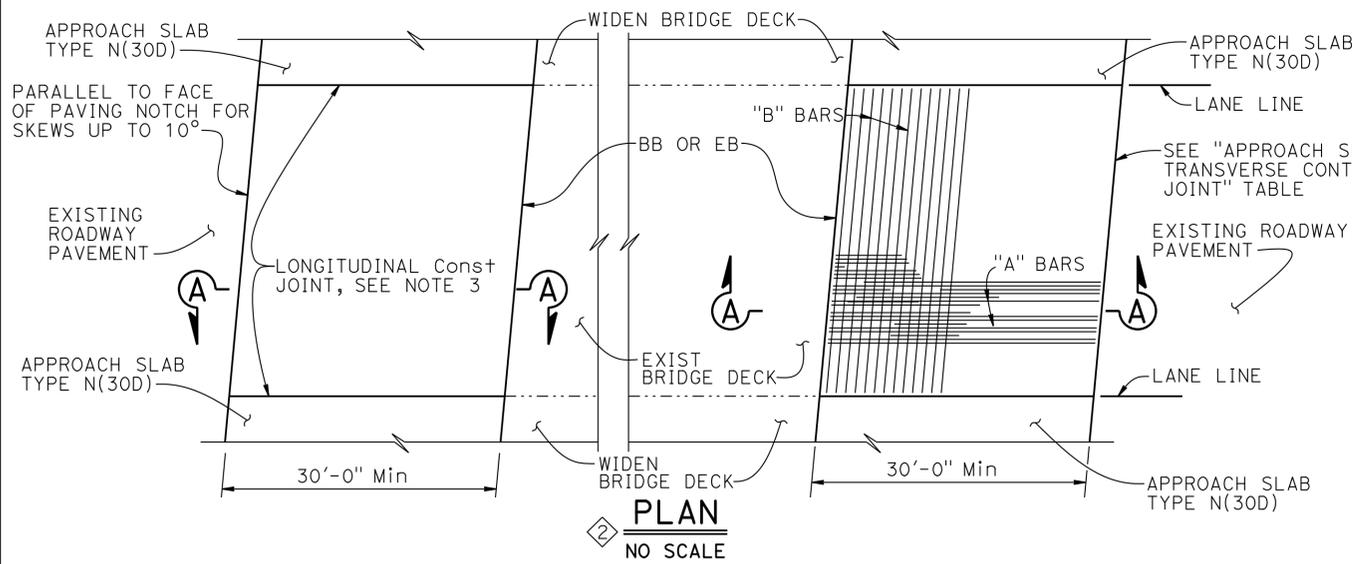
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12	Ora	5	3.7/6.2	673	780

Mohar  
REGISTERED CIVIL ENGINEER 4/22/13 DATE

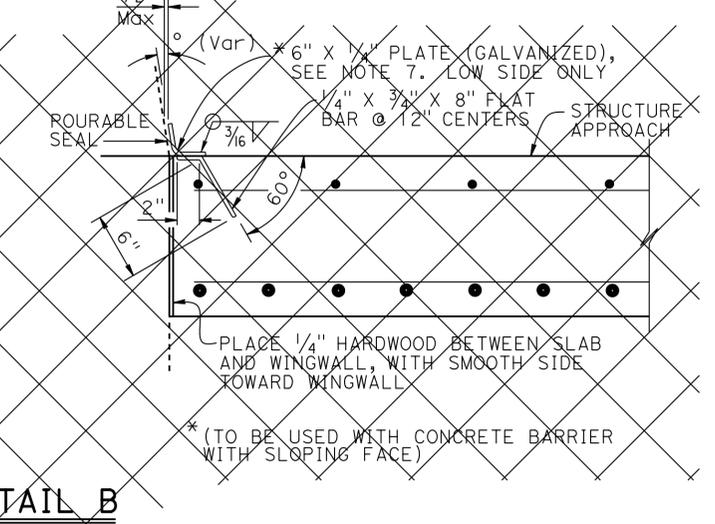
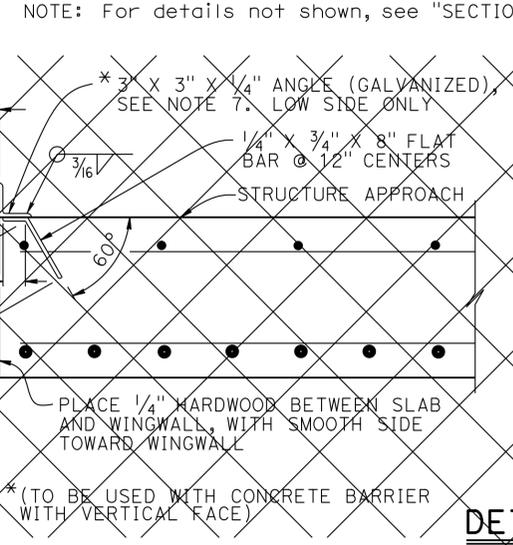
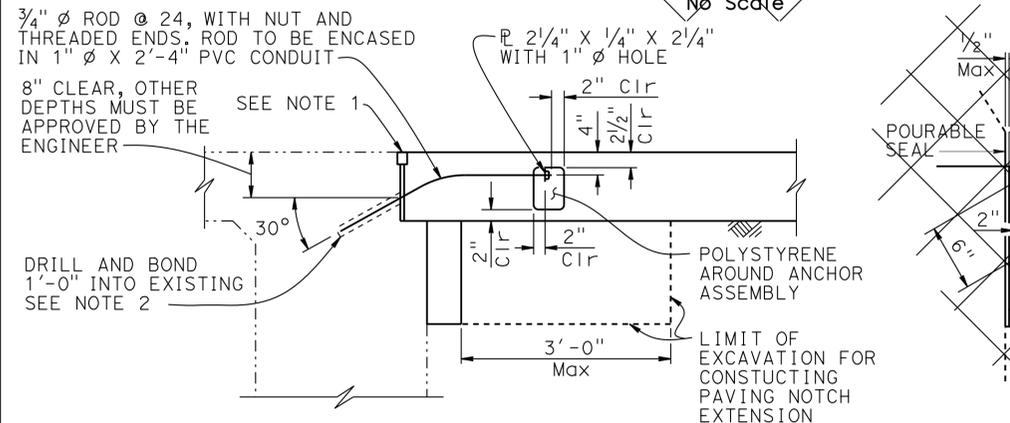
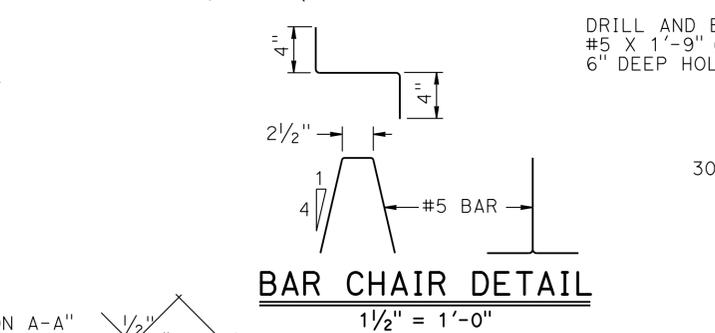
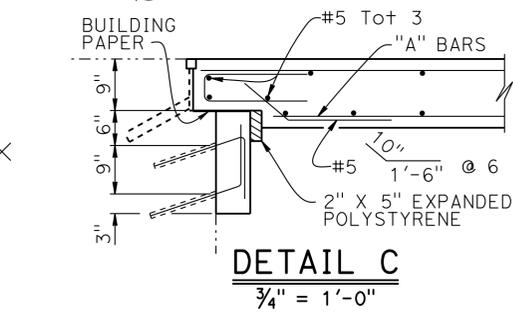
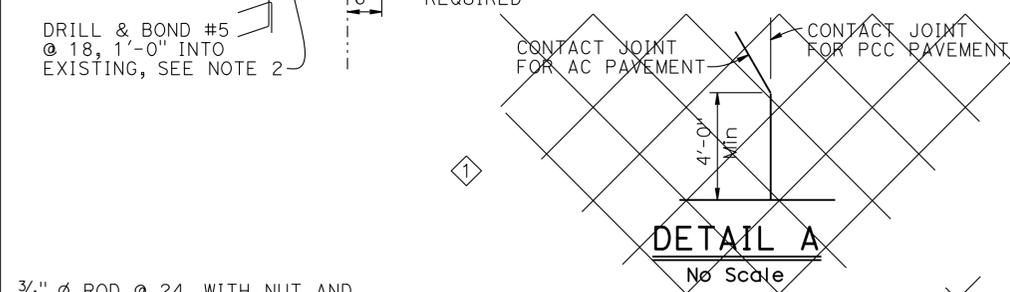
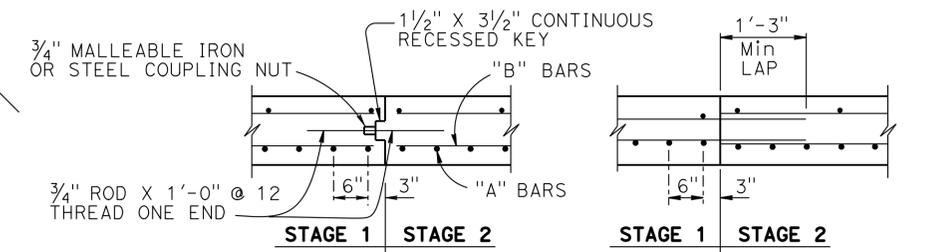
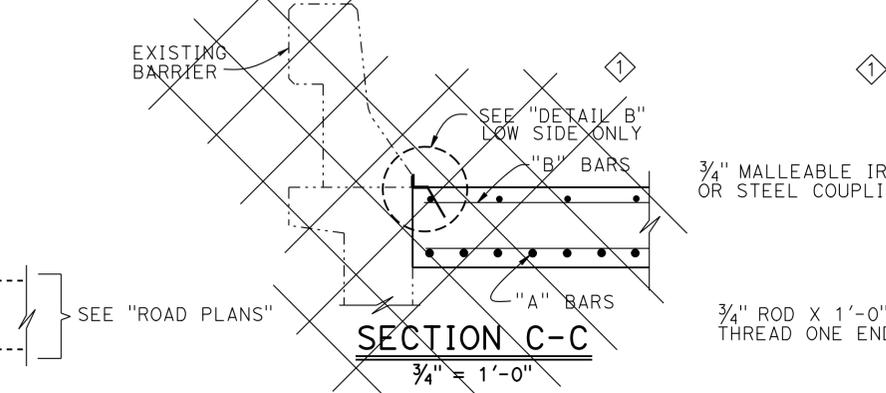
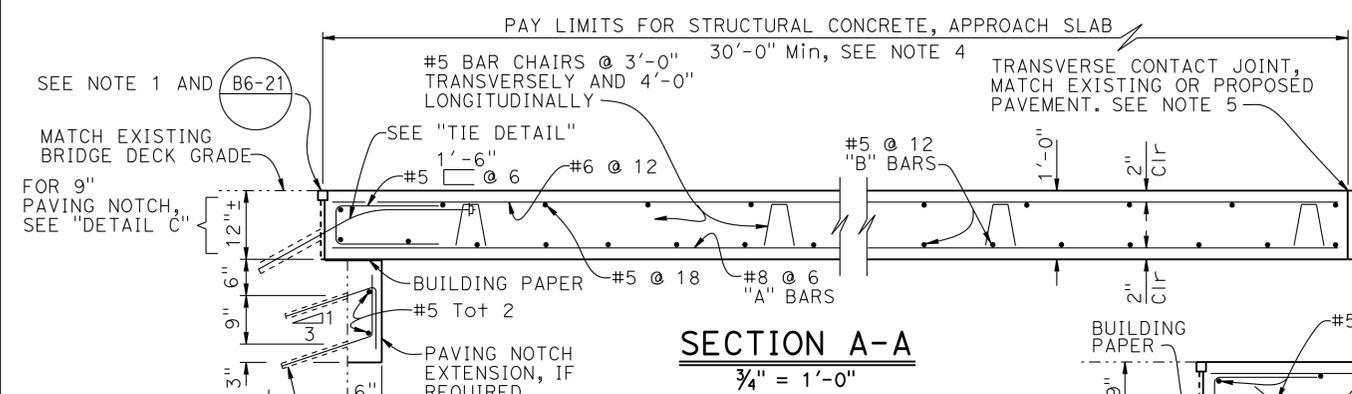
8-26-13  
PLANS APPROVAL DATE

Mohan S. Char  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

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APPROACH SLAB TRANSVERSE CONTACT JOINT		
APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 10°	PARALLEL TO FACE OF PN	PARALLEL TO FACE OF PAVING NOTCH
10° - 45°	PARALLEL TO FACE OF PN USE "DETAIL A"	STAGGER LINES 24' TO 36' APART
> 45°	PARALLEL TO FACE OF PN USE "DETAIL A"	STAGGER AT EACH LANE LINE



- NOTES:
- For details not shown or noted, see Structure Plans. Adjust bar reinforcement to clear a sawcut for sealed joint, when required
  - Space to avoid existing prestress anchorages and main reinforcement
  - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines
  - Transverse contact joint shall be a minimum of 5'-0" from an existing or constructed weakened plane joint
  - For transverse contact joint with new PCC paving, refer to Standard Plan P10
  - Couplers are required for stage construction
  - End angle or plate at beginning of barrier transition, end of wingwall or end of structure approach as applicable

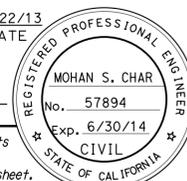
NOTE: THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

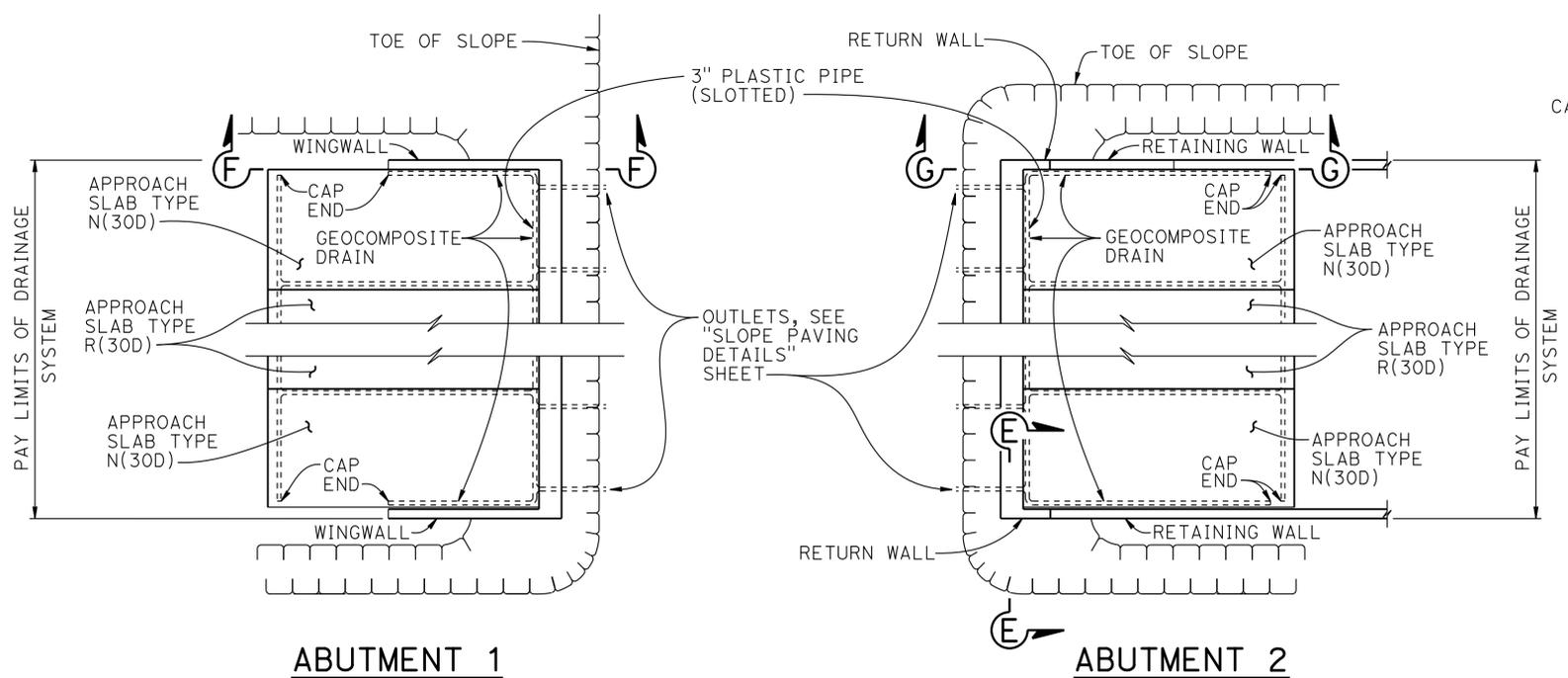
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FILE NO. <b>xs3-150</b>	2 MODIFIED DETAIL
APPROVAL DATE July 2011	

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES	BRIDGE NO. 55-0223 POST MILE 4.97	AVENIDA VAQUERO UC (WIDEN) STRUCTURE APPROACH TYPE R(30D)
-----------------------------------------------------	----------------------------------	--------------------------------------	--------------------------------------------------------------

PROJECT NUMBER & PHASE: 1200020278	CONTRACT NO.: 12-0F96C1	REVISION DATES	SHEET 13 OF 20
		04-27-12 09-24-12 01-14-13 04-22-13	

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 13 OF 20
	04-27-12 09-24-12 01-14-13 04-22-13	

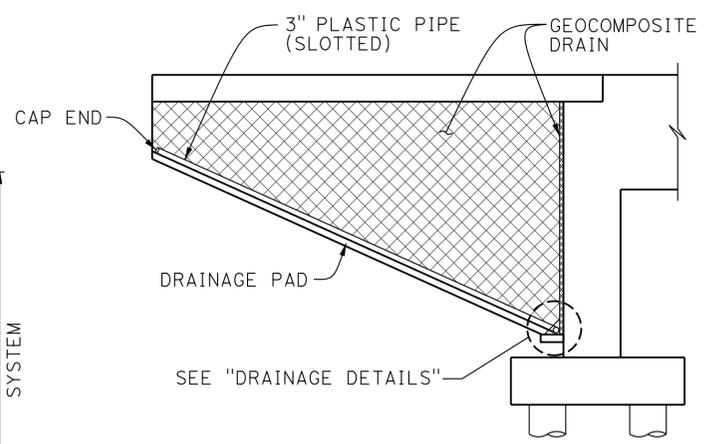
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	674	780
			4/22/13		
REGISTERED CIVIL ENGINEER			DATE		
8-26-13			PLANS APPROVAL DATE		
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



**ABUTMENT 1**

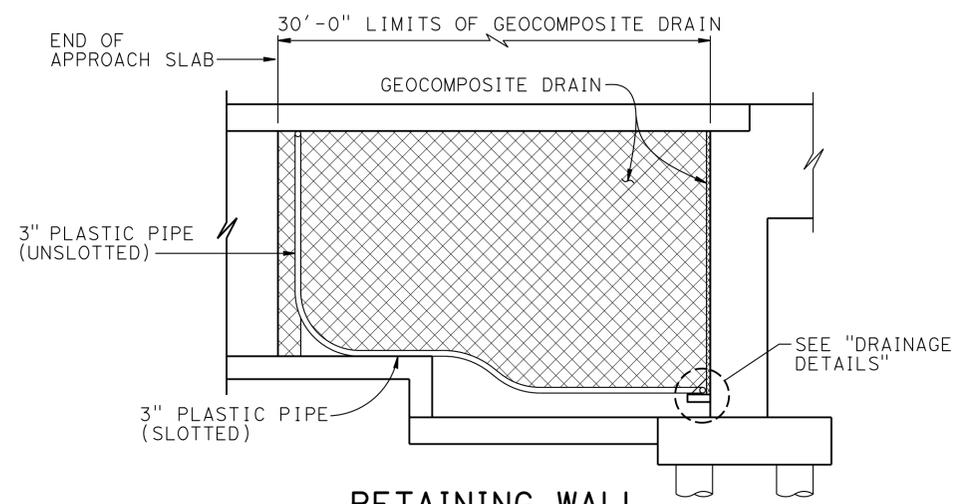
**ABUTMENT 2**

**TYPICAL PLAN**  
1" = 10'



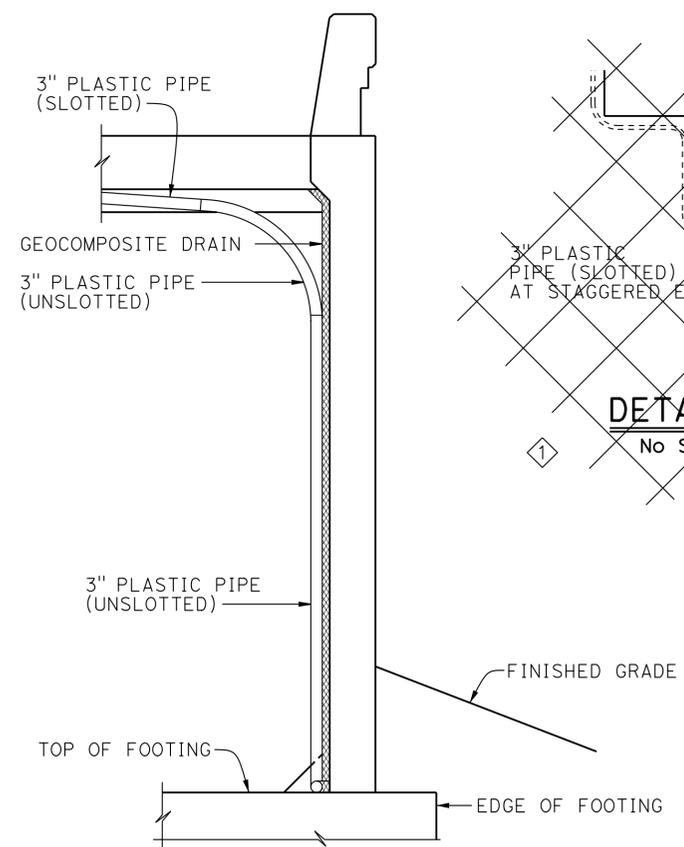
**CANTILEVER WINGWALL**

**SECTION F-F**  
1/4" = 1'-0"



**RETAINING WALL**

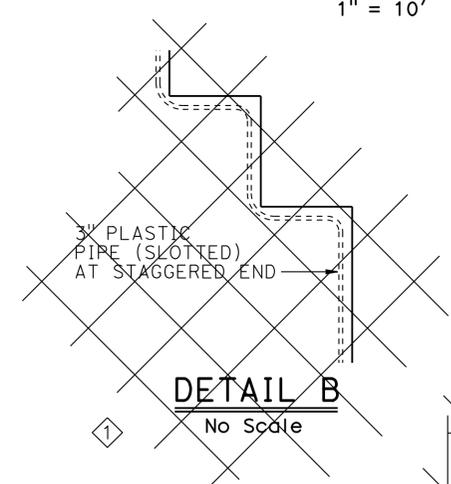
**SECTION G-G**  
1/4" = 1'-0"



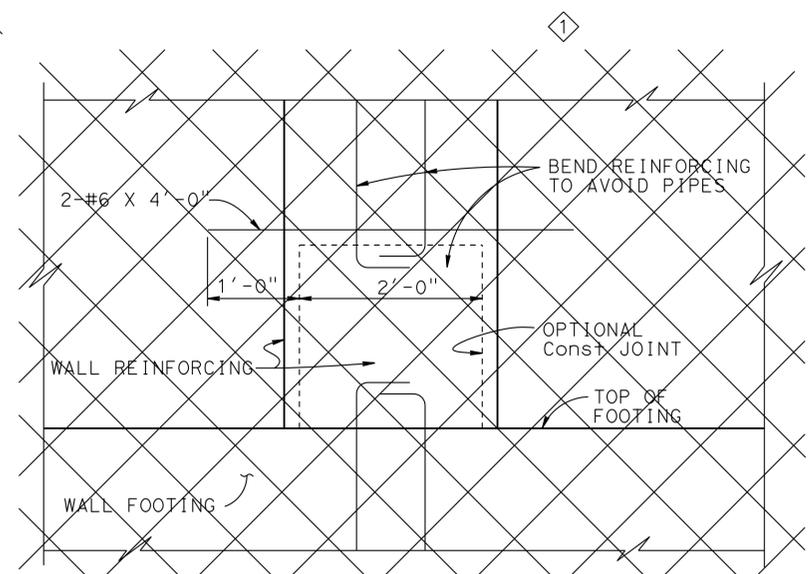
**SECTION E-E**

1/2" = 1'-0"

NOTE: Bends and junctions in 3" plastic pipe are 30" radius Min

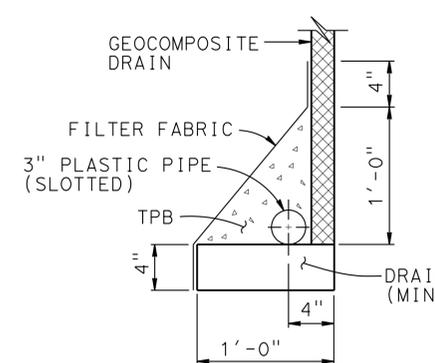


**DETAIL B**  
No Scale

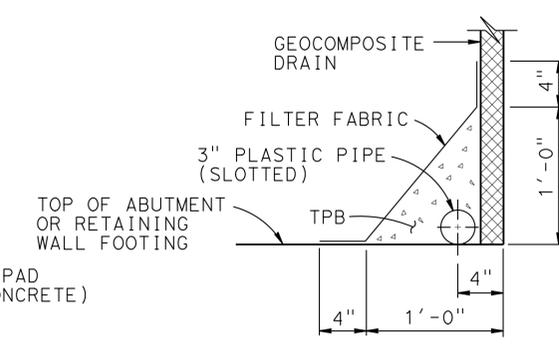


**SECTION H-H**

1" = 1'-0"



**WITHOUT FOOTING**



**WITH FOOTING**

**3** **DRAINAGE DETAILS**  
1 1/2" = 1'-0"

**SPECIAL DETAILS**

<b>REVISED STANDARD DRAWING</b>	
FILE NO. <b>xs3-110</b>	APPROVAL DATE <u>July 2011</u>

- 1 DOES NOT APPLY
- 2 MODIFIED DETAIL
- 3 MIRRORED DETAIL
- 4 MODIFIED TITLE

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

**DIVISION OF ENGINEERING SERVICES**

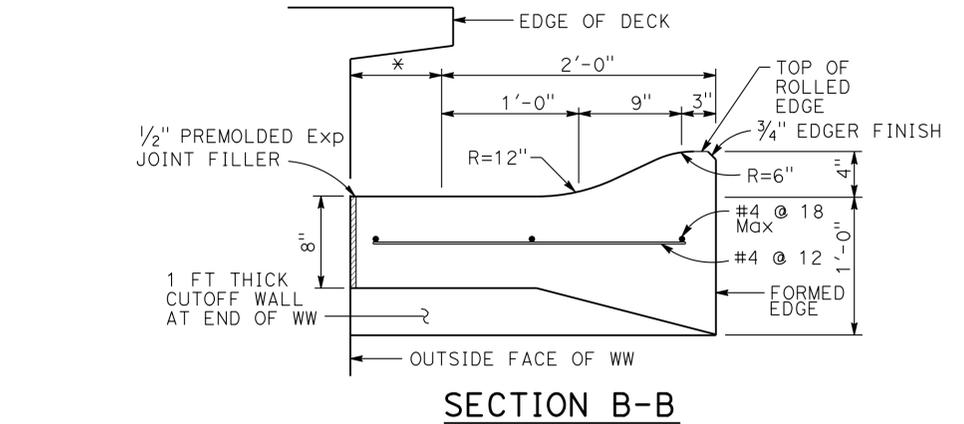
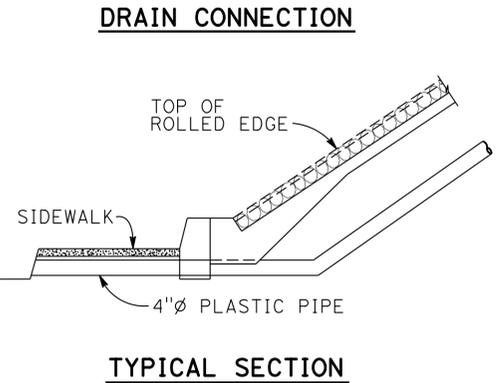
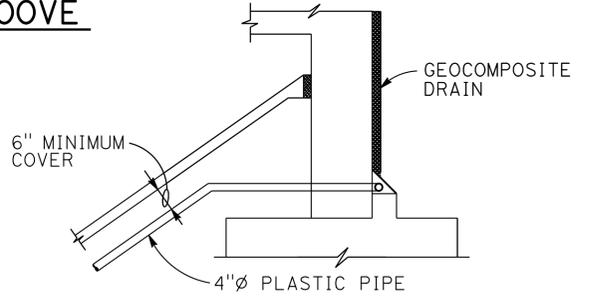
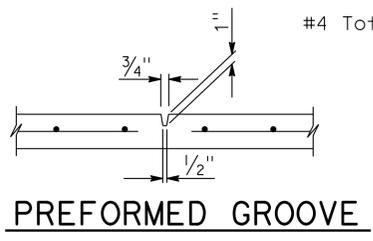
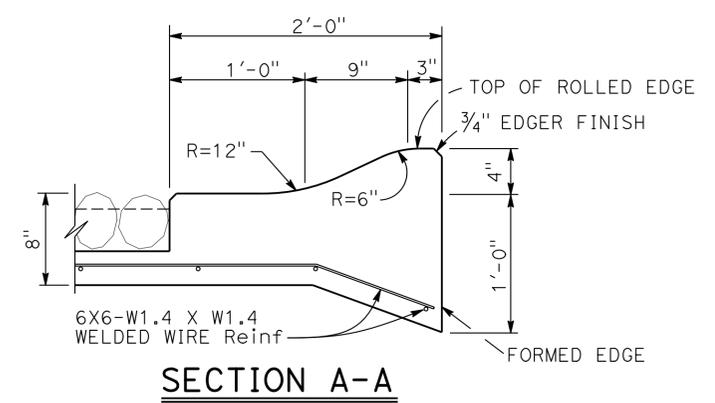
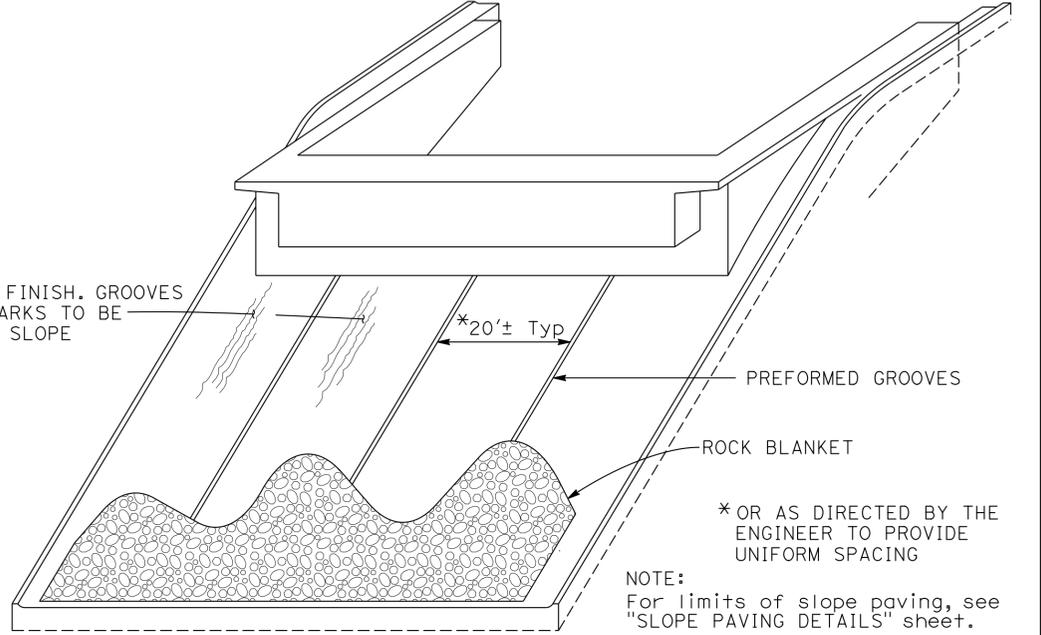
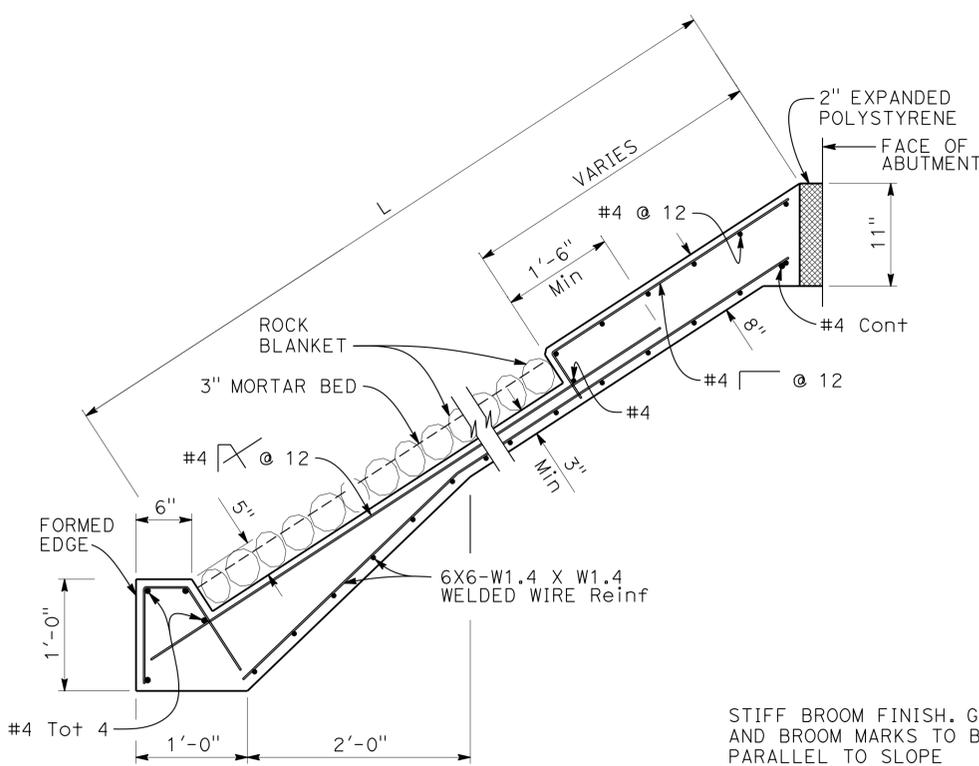
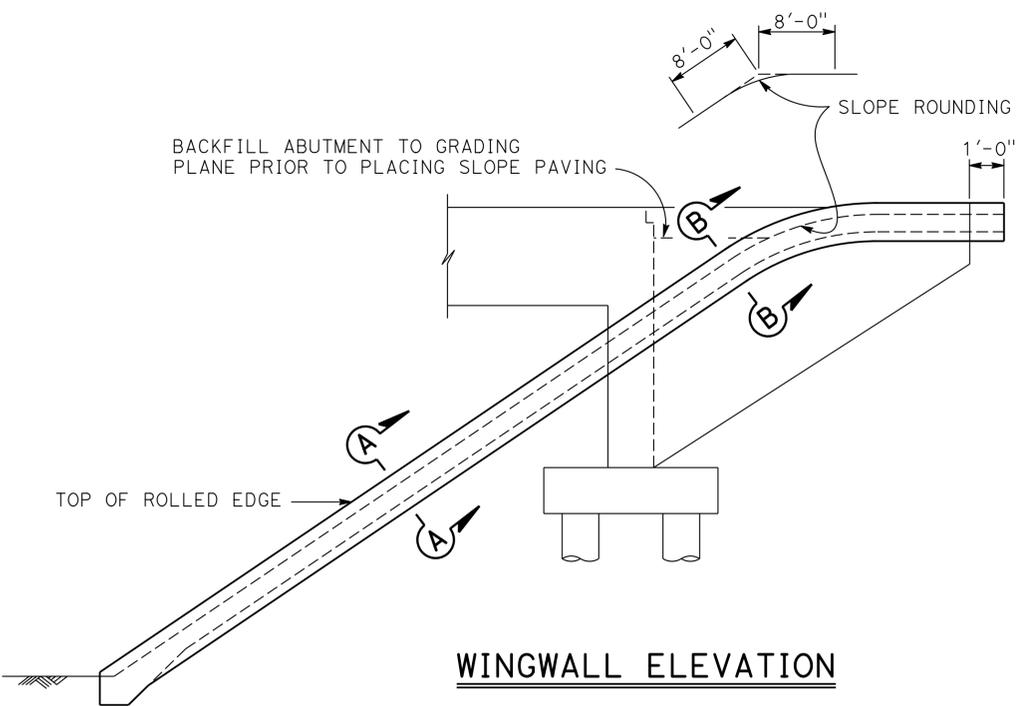
BRIDGE NO.	55-0223
POST MILE	4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**STRUCTURE APPROACH DRAINAGE DETAILS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	675	780

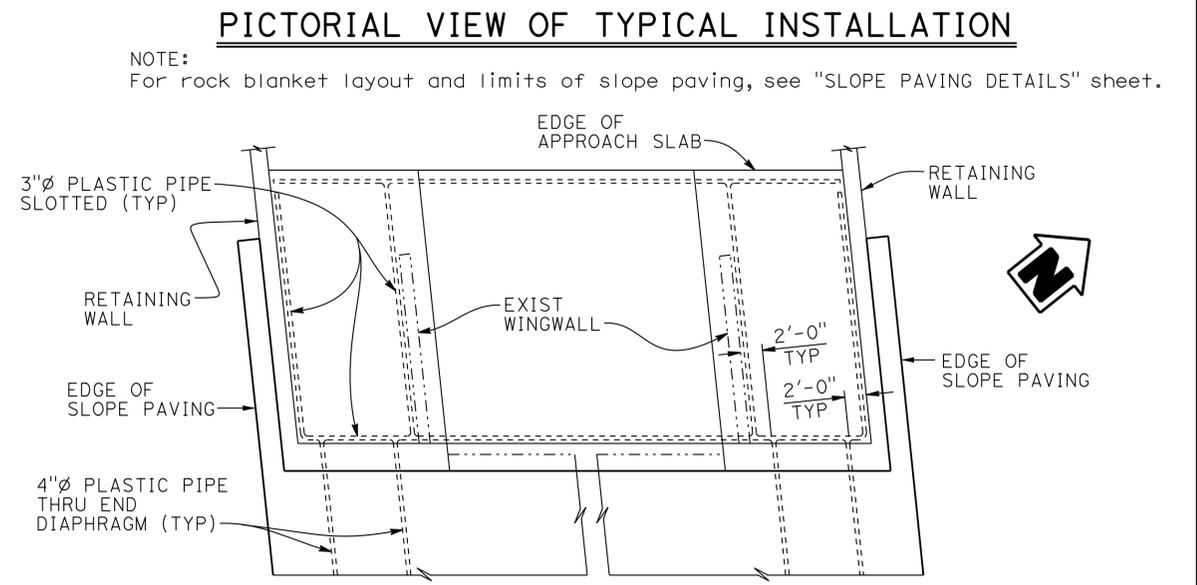
**Mohan S. Char**  
 REGISTERED CIVIL ENGINEER  
 DATE: 4/22/13  
 PLANS APPROVAL DATE: 8-26-13  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



\* THIS DIMENSION BECOMES ZERO WHEN EDGE OF DECK IS AT OUTSIDE FACE OF WW

NOTE: THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



DESIGN OVERSIGHT	DESIGN	BY	CHECKED	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 55-0223	<b>AVENIDA VAQUERO UC (WIDEN) SLOPE PAVING - FULL SLOPE</b>
SIGN OFF DATE	DETAILS	BY	CHECKED	Mohan S. Char PROJECT ENGINEER	POST MILES 4.97	
DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)	QUANTITIES	BY	CHECKED	UNIT: PROJECT NUMBER & PHASE: 1200020278	CONTRACT NO.: 12-0F96C1	REVISION DATES: 04-27-12, 09-24-12, 01-14-13, 04-22-13
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	FILE => 55-0223-x-spd01.dgn	SHEET 15 OF 20

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	676	780

*Mohan*  
REGISTERED CIVIL ENGINEER DATE 4/22/13

8-26-13  
PLANS APPROVAL DATE

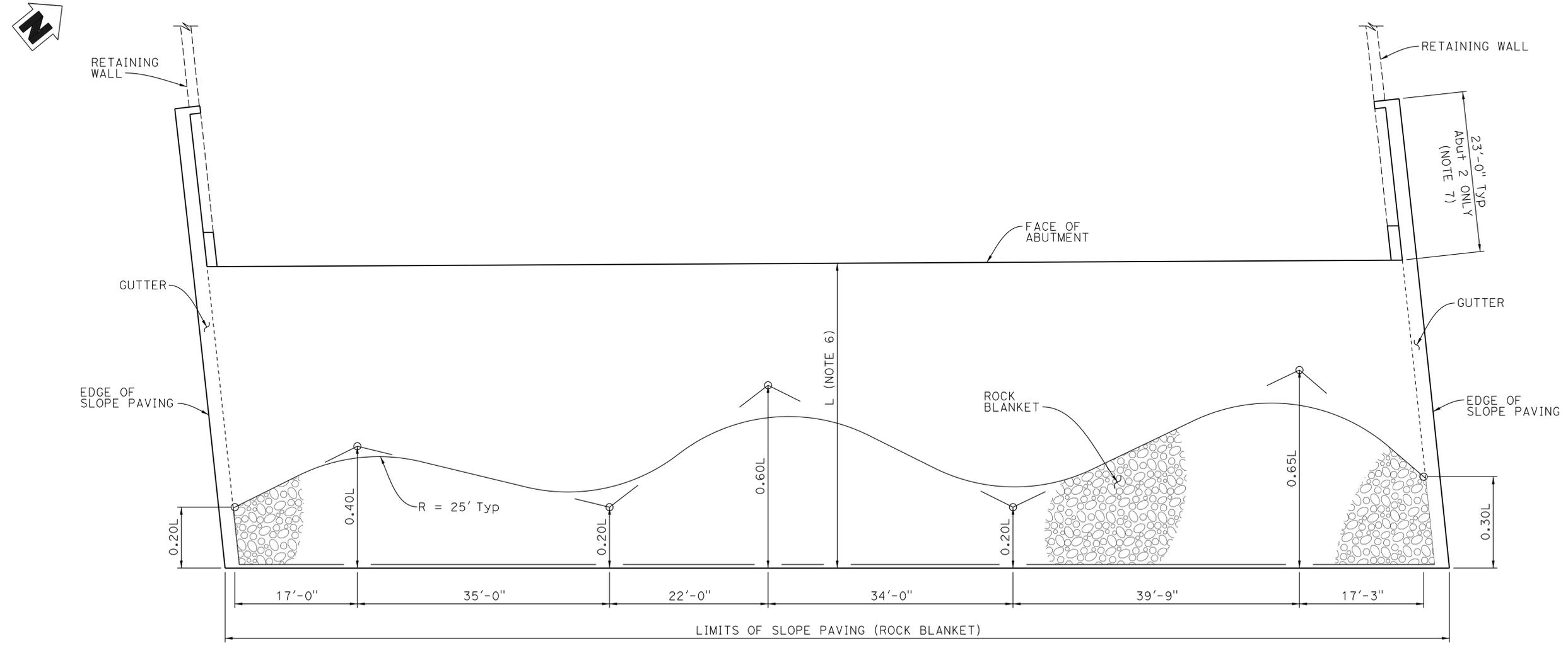
MOHAN S. CHAR  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

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ORANGE COUNTY TRANSPORTATION AUTHORITY  
550 SOUTH MAIN STREET  
ORANGE, CA 92863-1584

AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868

- NOTE:
1. Rock size: 5" min diameter  
7" max diameter
  2. Rocks shall be fully seated in mortar bed. Mortar surface shall be trimmed to mid depth of rocks.
  3. Excess mortar shall be removed and rock surfaces shall be cleaned after installation.
  4. Rocks are to be gray in color.
  5. Bottom of slope paving to match toe of slope. Dimensions to be field verified.
  6. For details and dimensions not shown, see "SLOPE PAVING - FULL SLOPE" sheet.
  7. For Abut 1 dimensions, see "WINGWALL ELEVATION" on "SLOPE PAVING DETAILS" sheet.



**LIMITS OF SLOPE PAVING**

NOTE: Abut 2 shown, Abut 1 opposite hand.  
1/8" = 1'-0"

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
DESIGN SUPERVISOR Luqi Yang  
5-15-13  
SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.	55-0223
POST MILES	4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**SLOPE PAVING DETAILS**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

UNIT:  
PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET OF
	01-14-13 04-22-13	16 20

FILE => 55-0223-x-spd02.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:30

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	677	780

*Mohan*  
REGISTERED CIVIL ENGINEER DATE 4/22/13

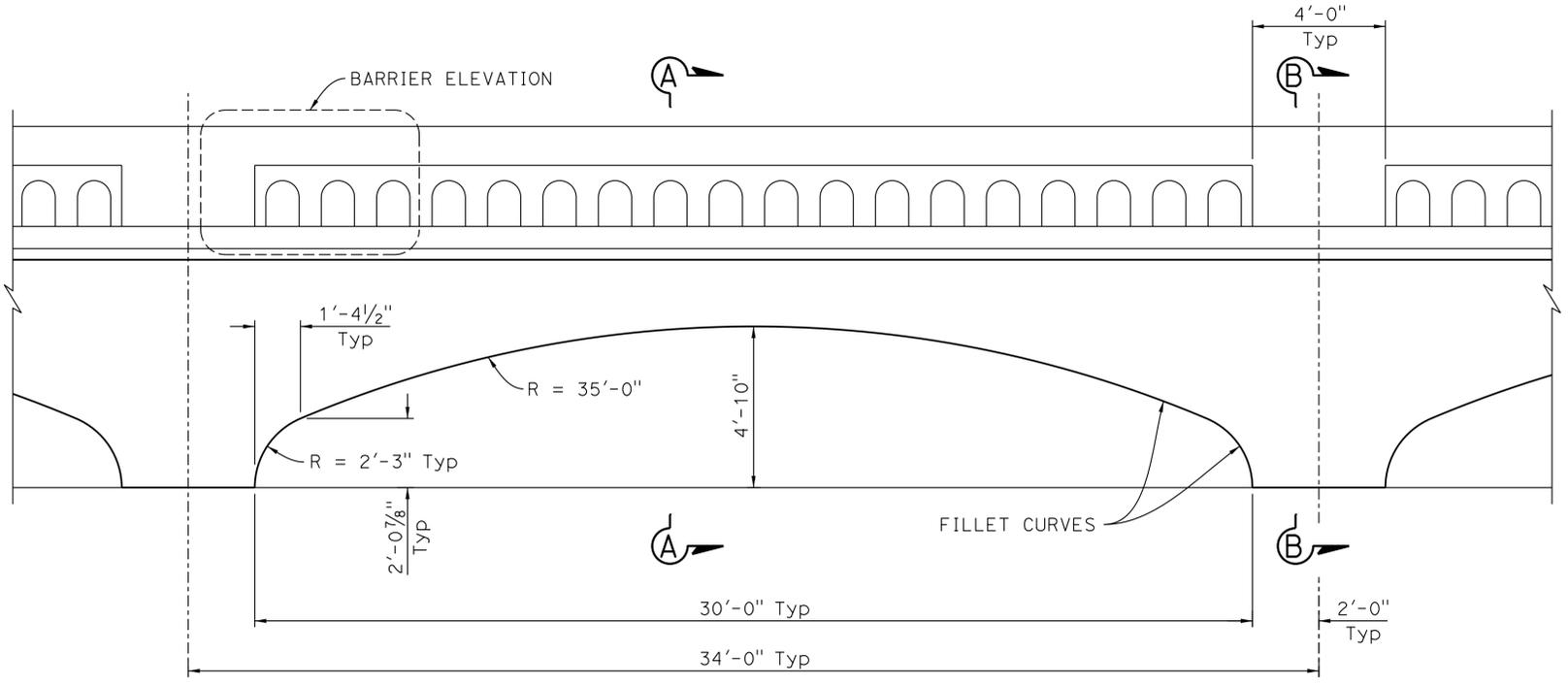
8-26-13  
PLANS APPROVAL DATE

MOHAN S. CHAR  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

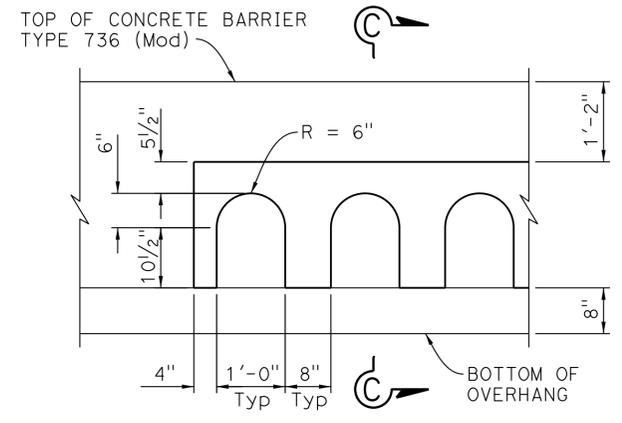
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ORANGE COUNTY TRANSPORTATION AUTHORITY  
550 SOUTH MAIN STREET  
ORANGE, CA 92863-1584

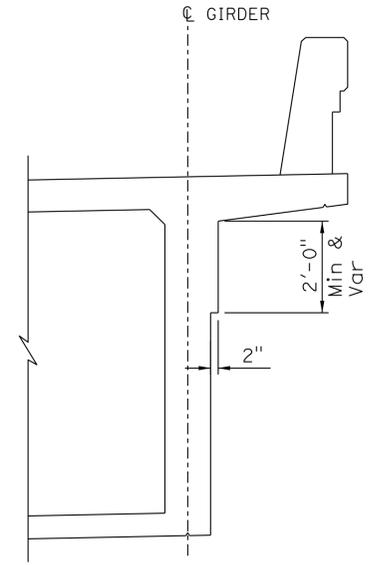
AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868



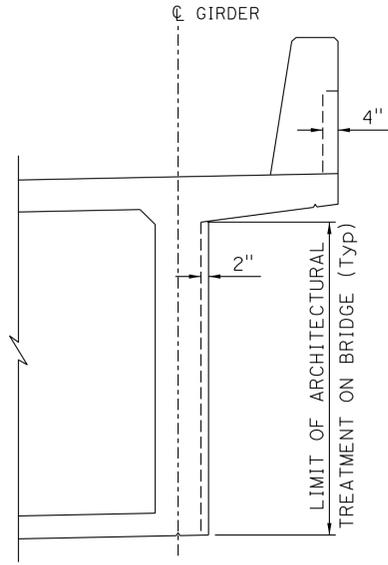
**PARTIAL ELEVATION**  
 $\frac{3}{8}'' = 1'-0''$



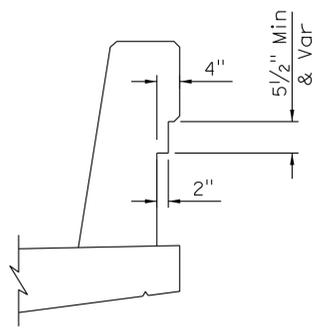
**BARRIER ELEVATION**  
 $\frac{3}{4}'' = 1'-0''$



**SECTION A-A**  
 $\frac{1}{2}'' = 1'-0''$



**SECTION B-B**  
 $\frac{1}{2}'' = 1'-0''$



**SECTION C-C**  
 $\frac{3}{4}'' = 1'-0''$

NOTES:

- For details not shown, "TYPICAL SECTION" sheet.
- Limit of architectural treatment on bridge and barrier is from BB to EB.

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
DESIGN OVERSIGHT Luqi Yang  
5-15-13  
SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED W. Chu
DETAILS	BY J. Quinoveva	CHECKED W. Chu
QUANTITIES	BY D. Kim	CHECKED W. Chu

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.	55-0223
POST MILES	4.97

**AVENIDA VAQUERO UC (WIDEN)**  
**ARCHITECTURAL DETAILS**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

REVISION DATES	SHEET	OF
01-14-13 04-22-13	17	20

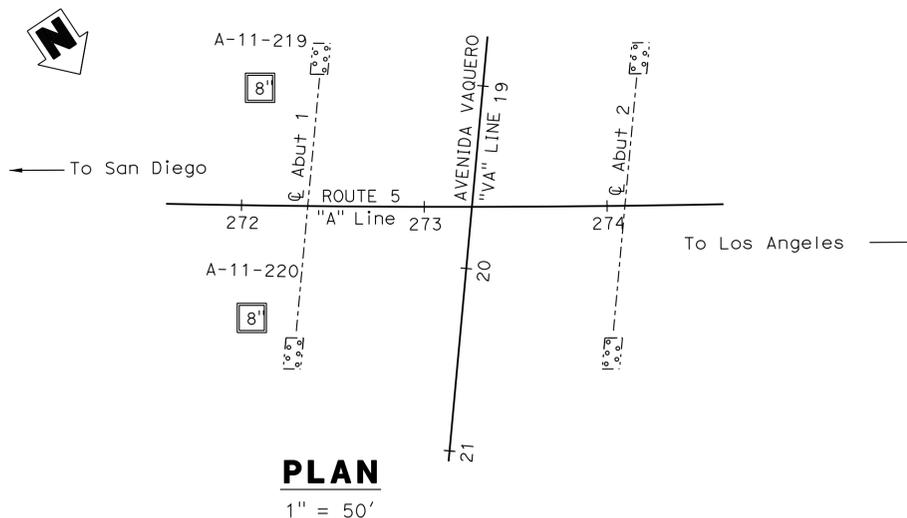
USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 07:30

BENCH MARK  
 DESIGNATION: 3SS-2-82 ELEV 95.558'

DESCRIBED BY OCS 2003 - FOUND 3 3/4" OCS ALUMINUM BENCH MARK DISK STAMPED "3SS-2-82", SET IN THE SOUTHEASTERLY CORNER OF A 4 FT. BY 4.5 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE NORTHWESTERLY SIDE OF AVENIDA VAQUERO, 100 FT. NORTHERLY OF THE NORTHERLY EDGE OF THE SAN DIEGO FREEWAY OVERCROSSING OF AVENIDA VAQUERO, 23 FT. WESTERLY OF THE CENTERLINE OF VAQUERO AND 29.2 FT. SOUTHERLY OF A STREET STANDARD NO NUMBER. MONUMENT IS SET LEVEL WITH THE TOP OF THE CURB.

NOTES:

- (1) This LOTB sheet was prepared in accordance with the Caltrans Soil and Rock Logging, Classification and Presentation Manual (June 2010).
- (2) 2.4" samples were taken using a California Modified Sampler.
- (3) An automatic trip hammer system consisting of a hammer weight of 140 lbs falling a distance of 30" was used to advance the drive sampler.
- (4) Conversion factor from 2.4" Modified California Ring Sampler blowcounts to Standard Penetration Test (SPT) blowcounts is 0.5.



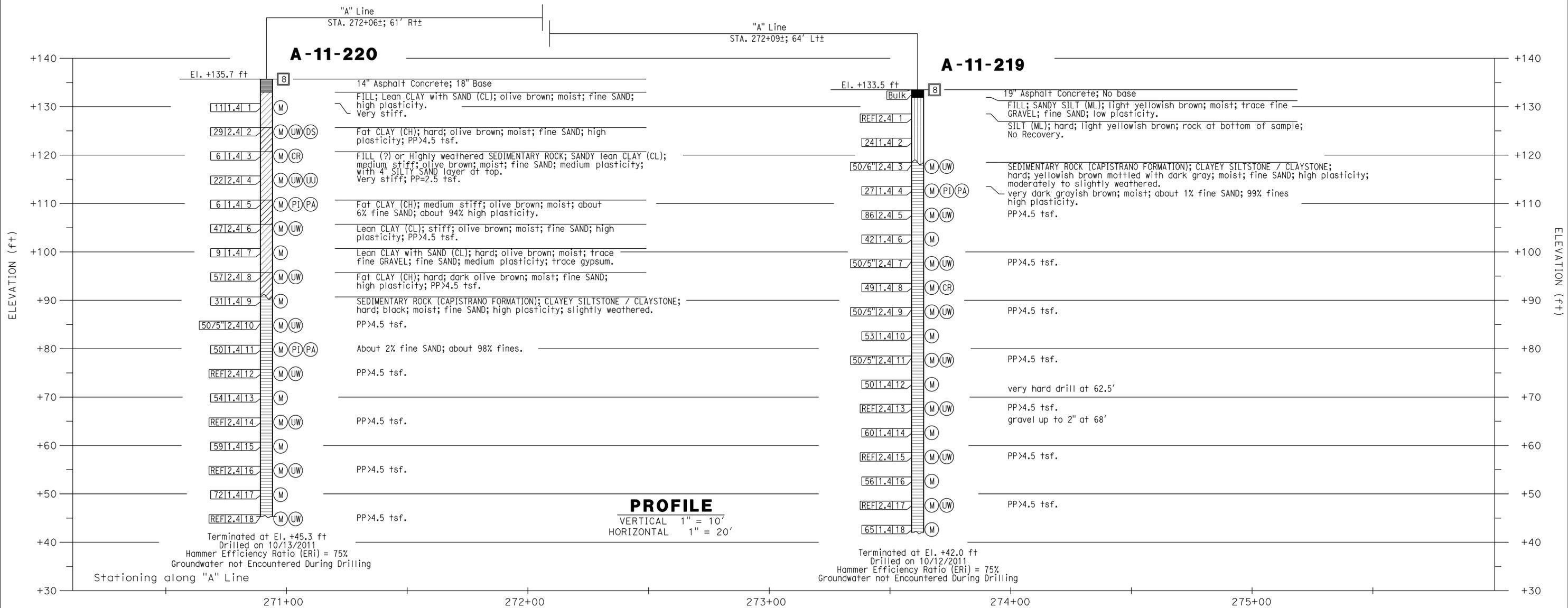
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	678	780

REGISTERED ENGINEER  
 DATE: 4/22/13  
 8-26-13  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 A. KORKOS  
 NO. GE 2357  
 EXP. 3-31-14  
 STATE OF CALIFORNIA

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 S. MAIN STREET  
 ORANGE, CA 92863-1584

EARTH MECHANICS, INC.  
 17800 NEWHOPE STREET, SUITE B  
 FOUNTAIN VALLEY, CA 92708



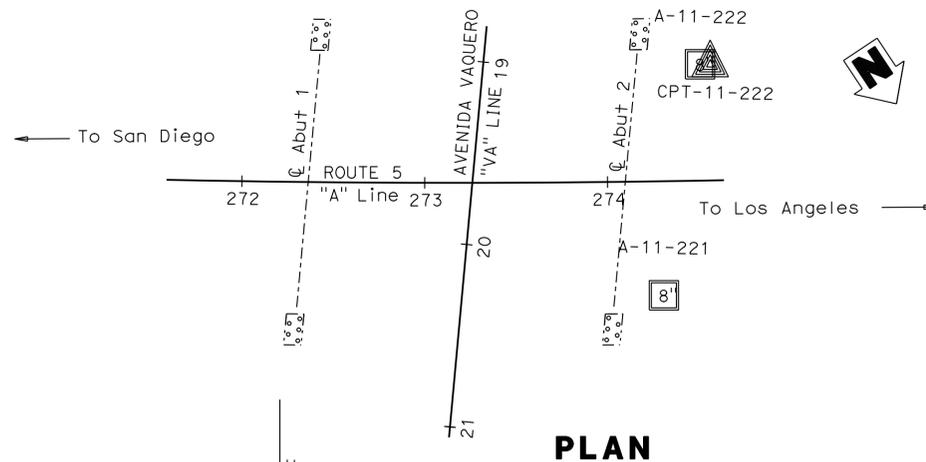
DESIGNER: Luqi Yang	DRAWN BY: J. FANG	CHECKED BY: G. J. GUNARANJAN	FIELD INVESTIGATION BY: R. JIE	DATE: 9/2011, 10/2011	BRIDGE NO.: 55-0223	POST MILES: 4.97	AVENIDA VAQUERO UC (WIDEN)
DESIGN DATE: 5-15-13	SIGN OFF DATE		PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		PROJECT ENGINEER: A. KORKOS		LOG OF TEST BORINGS NO. 1 OF 3
GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: PROJECT NUMBER & PHASE: 1200020278		DISREGARD PRINTS BEARING EARLIER REVISION DATES
				FILE => 55-0223-2-10+b1.dgn		CONTRACT NO.: 12-OF-96C1 PROJECT ID: 1200020278	

BENCH MARK  
 DESIGNATION: 3SS-2-82 ELEV 95.558'

DESCRIBED BY OCS 2003 - FOUND 3 3/4" OCS ALUMINUM BENCH MARK DISK STAMPED "3SS-2-82", SET IN THE SOUTHEASTERLY CORNER OF A 4 FT. BY 4.5 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE NORTHWESTERLY SIDE OF AVENIDA VAQUERO, 100 FT. NORTHERLY OF THE NORTHERLY EDGE OF THE SAN DIEGO FREEWAY OVERCROSSING OF AVENIDA VAQUERO, 23 FT. WESTERLY OF THE CENTERLINE OF VAQUERO AND 29.2 FT. SOUTHERLY OF A STREET STANDARD NO NUMBER. MONUMENT IS SET LEVEL WITH THE TOP OF THE CURB.

NOTES:

- (1) This LOTB sheet was prepared in accordance with the Caltrans Soil and Rock Logging, Classification and Presentation Manual (June 2010).
- (2) 2.4" samples were taken using a California Modified Sampler.
- (3) An automatic trip hammer system consisting of a hammer weight of 140 lbs falling a distance of 30" was used to advance the drive sampler.
- (4) Conversion factor from 2.4" Modified California Ring Sampler blowcounts to Standard Penetration Test (SPT) blowcounts is 0.5.



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	679	780

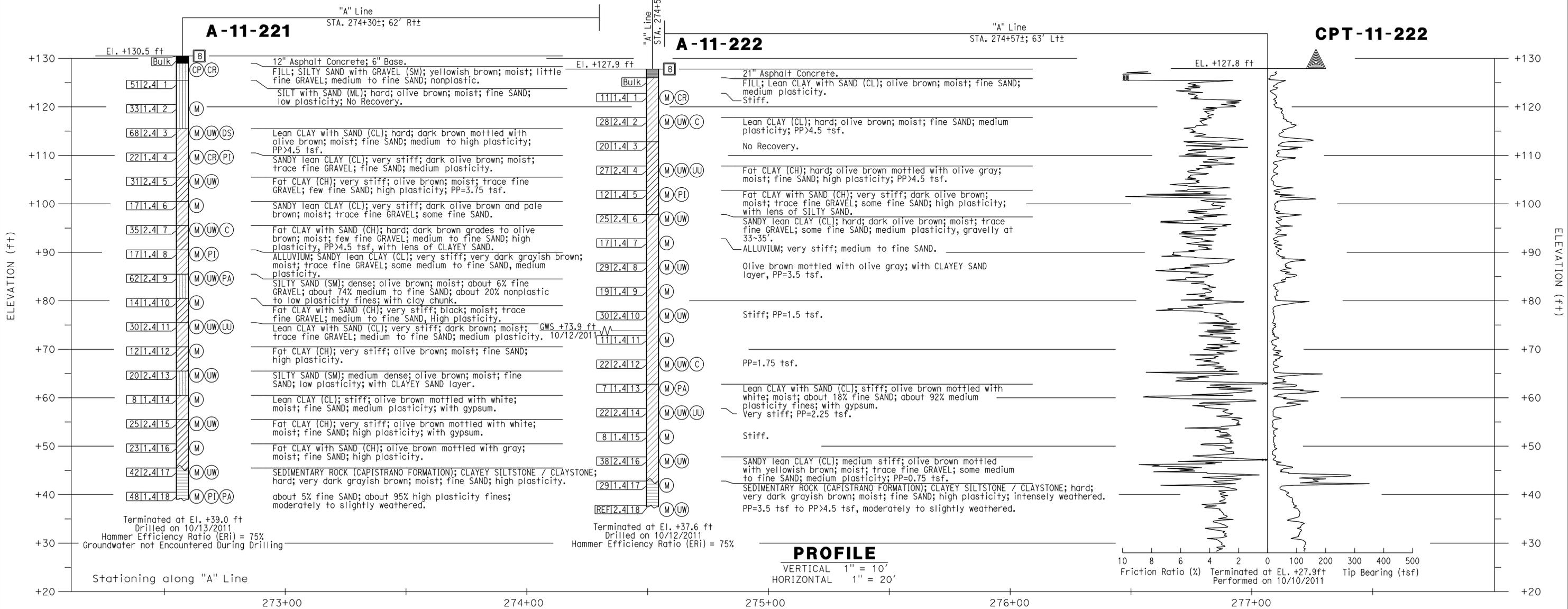
REGISTERED ENGINEER: *A. KORKOS* DATE: 4/22/13

8-26-13 PLANS APPROVAL DATE

STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER  
 A. KORKOS  
 NO. GE 2357  
 EXP. 3-31-14

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 S. MAIN STREET  
 ORANGE, CA 92863-1584

EARTH MECHANICS, INC.  
 17800 NEWHOPE STREET, SUITE B  
 FOUNTAIN VALLEY, CA 92708



DESIGN: <i>Luqi Yang</i> 5-15-13 SIGN OFF DATE	DRAWN BY: J. FANG	R. JIE FIELD INVESTIGATION BY:	PREPARED FOR THE <b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	BRIDGE NO.: 55-0223	<b>AVENIDA VAQUERO UC (WIDEN)</b> <b>LOG OF TEST BORINGS NO. 2 OF 3</b>
	CHECKED BY: G. J. GUNARANJAN	DATE: 9/2011, 10/2011		PROJECT ENGINEER: A. KORKOS	

TERMINATED AT EL. +39.0 FT  
 DRILLED ON 10/13/2011  
 HAMMER EFFICIENCY RATIO (ERI) = 75%  
 GROUNDWATER NOT ENCOUNTERED DURING DRILLING

TERMINATED AT EL. +37.6 FT  
 DRILLED ON 10/12/2011  
 HAMMER EFFICIENCY RATIO (ERI) = 75%

TERMINATED AT EL. +27.9 FT  
 PERFORMED ON 10/10/2011

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3

UNIT: PROJECT NUMBER & PHASE: 1200020278

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 04-27-12, 09-24-12, 01-14-13, 04-22-13

SHEET 19 OF 20

CONTRACT NO.: 12-OF-96C1 PROJECT ID: 1200020278

DATE	QUANTITY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
07/08/68	3	5	105274	538	538
11/30/72	3	5	105274		

*John L. Jayne*, #165  
 March 12, 1972

**DIVISION OF ENGINEERING SERVICES - GEOTECHNICAL SERVICES**  
 As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.

DIST.	COUNTY	ROUTE	POST MILES-TOTAL PROJECT	Sheet No.	Total Sheets
12	Ora	5	3.7/6.2	680	780

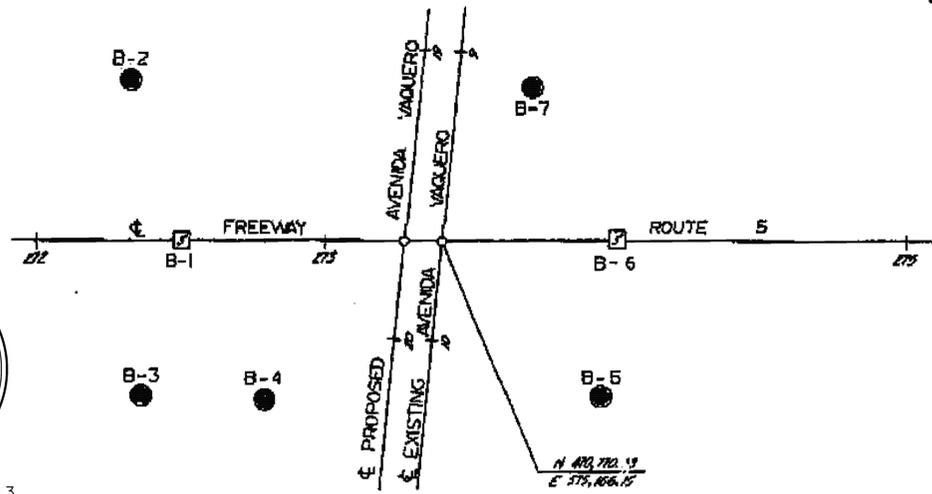
**AVENIDA VAQUERO UC (WIDEN)**  
**LOG OF TEST BORINGS NO. 3 OF 3**

NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA

UNIT: PROJECT NUMBER & PHASE: 12000202781

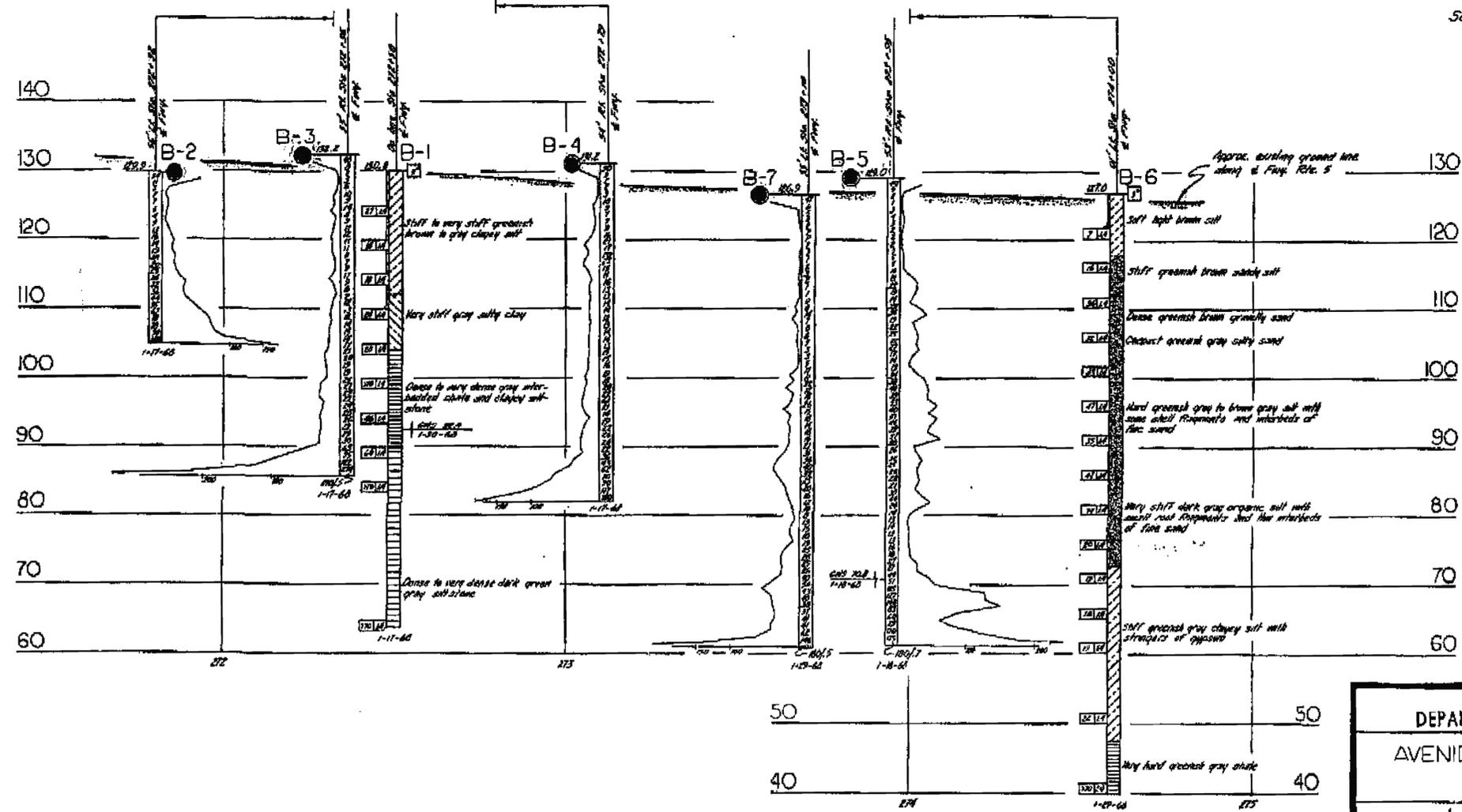
Revisions made to this Log of Test Borings from the original Log of Test Borings are the addition of the following table and notes:

Boring	Station	Offset from C/L Rte. 101	To Accompany Plans Dated
			8-26-13



Boring	Station	Offset from C/L Rte. 101

**PROFILE**  
 Scale: Vert 1"=10'  
 Horiz 1"=20'



NO AS BUILT CORRECTION  
**AS BUILT**  
 CORRECTIONS BY S/L Lohse  
 CONTRACT NO. 07-105274  
 DATE 4-1-88 ind. 10-18-88

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**AVENIDA VAQUERO UNDERCROSSING**  
**LOG OF TEST BORINGS**

SCALE: As Shown | BRIDGE 55-223 | FILE | DRAWING 55223-7

PREL. DRAWING NO. PR- [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

FIELD CHECKED BY	DATE
BRIDGE ENGINEER	11-17-68
CHECKED BY	DATE
J. R. GARDNER	11-17-68

BRIDGE DEPARTMENT  
 ENGINEERING GEOLOGY SECTION

526

**LEGEND**

**CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS**

Gravel: 4.75 to 19.0 mm  
 Sand: 0.075 to 4.75 mm  
 Silt: 0.075 to 0.075 mm  
 Clay: 0.075 to 0.075 mm

**CLASSIFICATION OF EARTH MATERIALS**

CLAY: CLAY or CLAYEY SILT  
 SILT: SILT or SILTY CLAY  
 SAND: SAND or SANDY SILT  
 GRAVEL: GRAVEL or GRAVELLY SAND

**CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS**

Very stiff to stiff greenish brown sandy silt  
 Dense greenish brown gravelly sand  
 Hard greenish gray to brown gray silt with some shell fragments and interbeds of fine sand  
 Very stiff dark gray organic silt with some shell fragments and interbeds of fine sand  
 Soft greenish gray clayey silt with streaks of yellow  
 Very hard greenish gray shale

**NOTE:** Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	681	780

*Mkhan*  
REGISTERED CIVIL ENGINEER DATE 4/22/13

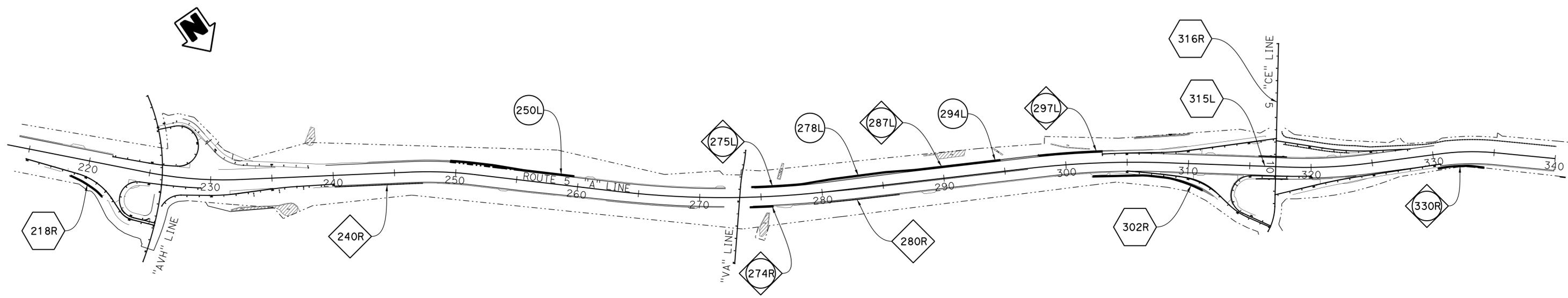
8-26-13  
PLANS APPROVAL DATE

*Mohan S. Char*  
REGISTERED PROFESSIONAL ENGINEER  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

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ORANGE COUNTY TRANSPORTATION AUTHORITY  
550 SOUTH MAIN STREET  
ORANGE, CA 92863-1584

AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868



**WALL LOCATION KEY MAP**  
1" = 400'

LEGEND:

	Retaining Wall		Retaining Wall		Retaining Wall
	Sound Wall on Retaining Wall		Sound Wall on Retaining Wall		Retaining Wall
	Retaining Wall, see "ROAD PLANS"		Sound Wall on Retaining Wall		Retaining Wall
	Sound Wall, see "ROAD PLANS"		Retaining Wall		

*Luqi Yang*  
DESIGN OVERSIGHT Luqi Yang  
5-15-13  
SIGN OFF DATE

DESIGN	BY J. Quinoveva	CHECKED C. Weber
DETAILS	BY J. Quinoveva	CHECKED C. Weber
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.	<b>SOUND WALL &amp; RETAINING WALL KEY MAP</b>
POST MILES	

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



UNIT: PROJECT NUMBER & PHASE: 1200020278 CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	04-27-12 09-24-12 01-14-13 04-22-13	1	1

FILE => RW000-a-gp01.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:20

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	682	780

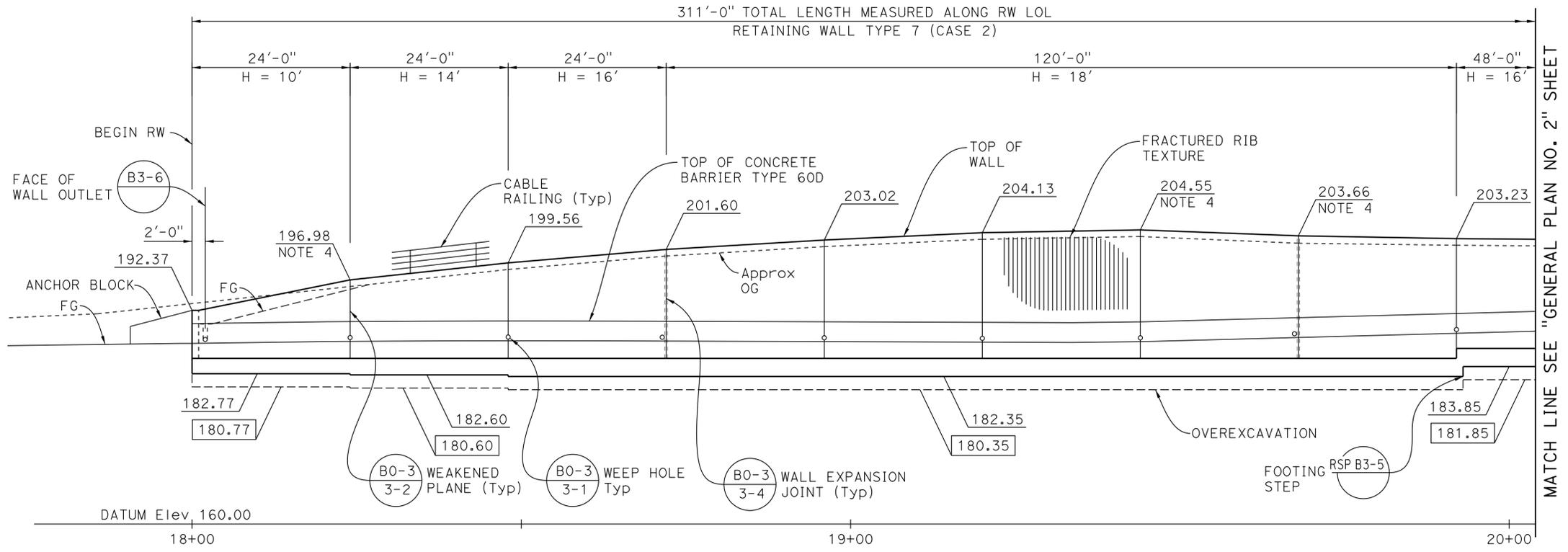
**Mohan S. Char**  
 REGISTERED CIVIL ENGINEER  
 DATE: 4/22/13  
 PLANS APPROVAL DATE: 8-26-13  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

**ORANGE COUNTY TRANSPORTATION AUTHORITY**  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584

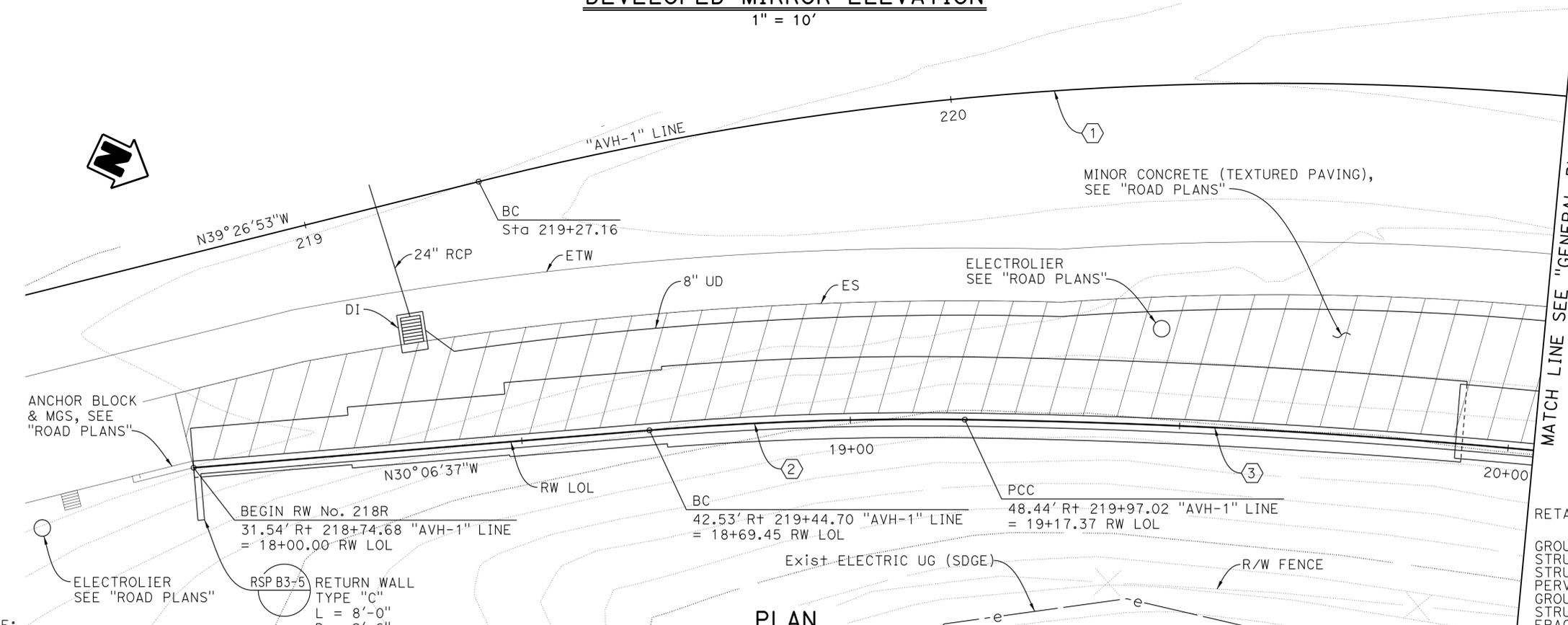
**AECOM TECHNICAL SERVICES INC.**  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

CURVE DATA				
No.	R	Δ	L	T
①	500.00'	40°36'31"	354.38'	185.00'
②	500.00'	5°29'30"	47.92'	23.98'
③	1092.46'	5°58'25"	113.90'	57.00'

- NOTES:
- All wall expansion joints, weakened planes and footing steps occur at intervals of 24'-0" unless shown otherwise.
  - For "INDEX TO PLANS" and "LEGEND", see "INDEX TO PLANS" sheet.
  - For "TYPICAL SECTION", see "GENERAL PLAN NO. 2" sheet.
  - Construct 20'-0" VC at slope change per RSP B3-5



**DEVELOPED MIRROR ELEVATION**  
 1" = 10'



**PLAN**  
 1" = 10'

QUANTITIES		BRIDGE NO 55E0129	
DESCRIPTION	AMOUNT	UNIT	SUM
GROUND MONITORING PROGRAM	1,720	CY	
STRUCTURE EXCAVATION (RETAINING WALL)	980	CY	
STRUCTURE BACKFILL (RETAINING WALL)	110	CY	
PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	51	EA	
GROUND ANCHOR (VERTICAL)	744	CY	
STRUCTURAL CONCRETE, RETAINING WALL	3,040	SQFT	
FRACTURED RIB TEXTURE	94,740	LB	
BAR REINFORCING STEEL (RETAINING WALL)	313	LF	
MINOR CONCRETE (GUTTER) (LF)	313	LF	
CABLE RAILING	313	LF	

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

**Luqi Yang**  
 DESIGNER  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY J. Quinovega	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY J. Quinovega	CHECKED C. Weber	LAYOUT	BY J. Quinovega
QUANTITIES	BY J. Quinovega	CHECKED D. Kim	SPECIFICATIONS	BY M. Char

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**  
 PROJECT ENGINEER: Mohan S. Char

BRIDGE NO.	55E0129
POST MILES	3.94

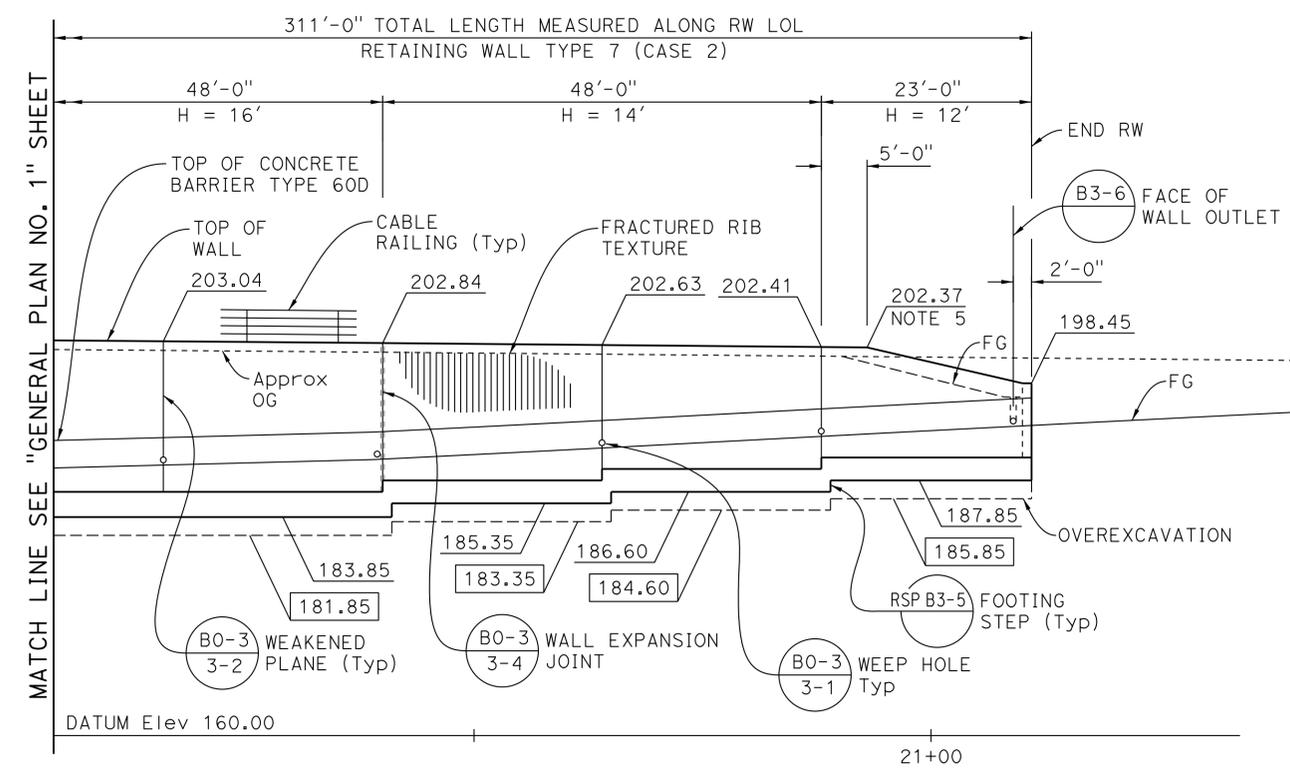
**RETAINING WALL NO. 218R**  
**GENERAL PLAN NO. 1**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	683	780

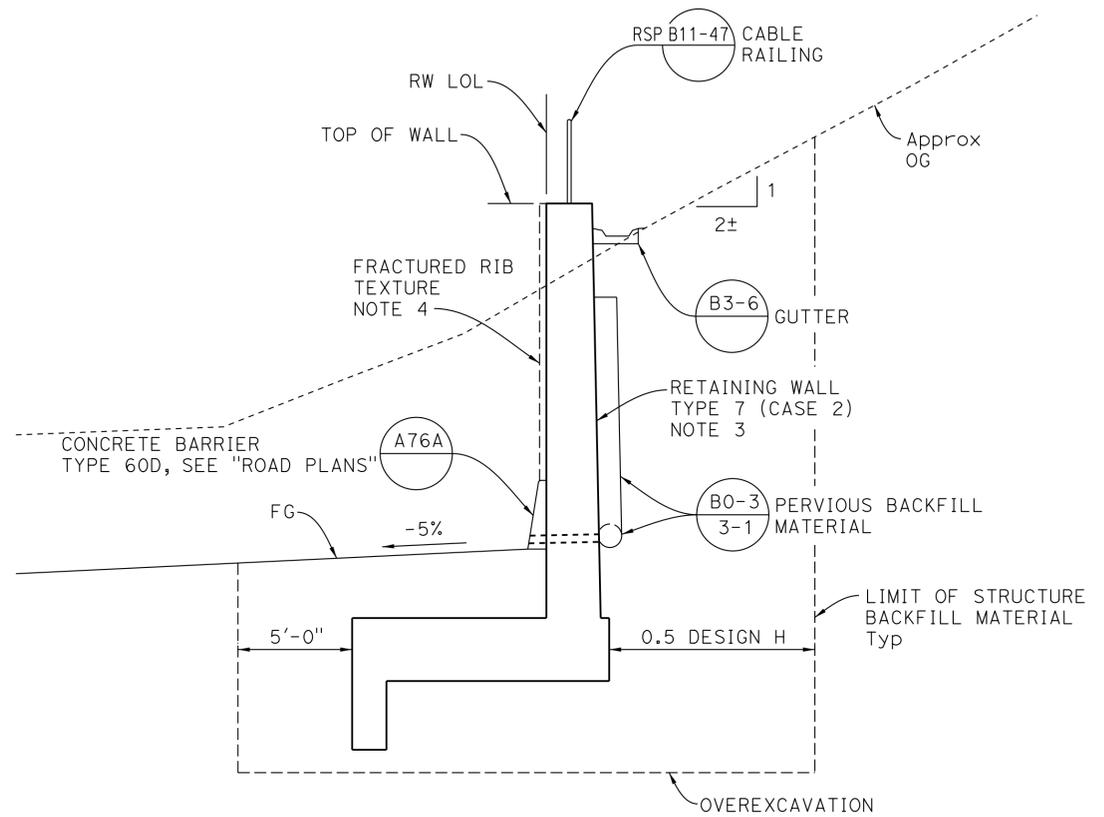
*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 8-26-13 PLANS APPROVAL DATE  
 MOHAN S. CHAR No. 57894 Exp. 6/30/14 CIVIL  
 STATE OF CALIFORNIA

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

CURVE DATA				
No.	R	Δ	L	T
①	500.00'	40°36'31"	354.38'	185.00'
③	1092.46'	5°58'25"	113.90'	57.00'
④	250.00'	9°22'41"	40.92'	20.51'

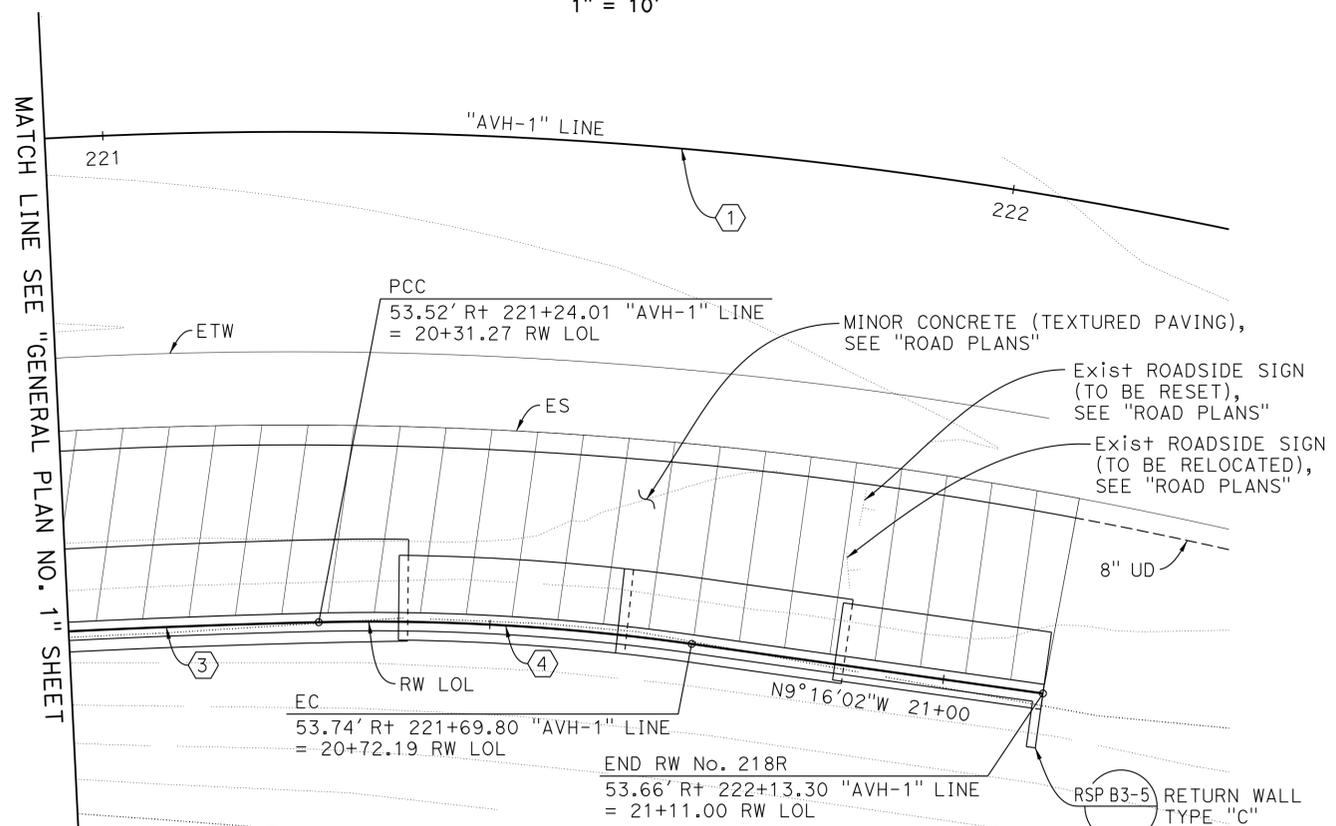


**DEVELOPED MIRROR ELEVATION**  
 1" = 10'



**TYPICAL SECTION**  
 1/4" = 1'-0"

- NOTES:
- All wall expansion joints, weakened planes and footing steps occur at intervals of 24'-0" unless shown otherwise.
  - For "INDEX TO PLANS" and "LEGEND", see "INDEX TO PLANS" sheet.
  - For Retaining Wall Type 7 (Case 2) details, see "RETAINING WALL TYPE 7 (CASE 2)-DETAILS NO. 1", "VERTICAL GROUND ANCHOR DETAILS NO. 1" and "VERTICAL GROUND ANCHOR DETAILS NO. 2" sheets.
  - For "FRACTURED RIB TEXTURE", see "INDEX TO PLANS" sheet.
  - Construct 20'-0" VC at slope change per RSP B3-5



**PLAN**  
 1" = 10'

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OR SIGN OFF DATE  
 5-15-13

DESIGN	BY J. Quinovega	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY J. Quinovega	CHECKED C. Weber	LAYOUT	BY J. Quinovega
QUANTITIES	BY J. Quinovega	CHECKED D. Kim	SPECIFICATIONS	BY M. Char

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER  
 BRIDGE NO. 55E0129  
 POST MILES 3.94

**RETAINING WALL NO. 218R**  
**GENERAL PLAN NO. 2**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	684	780

### INDEX TO PLANS

No.	Title
1	GENERAL PLAN NO. 1
2	GENERAL PLAN NO. 2
3	INDEX TO PLANS
4	RETAINING WALL TYPE 7 (CASE 2)-DETAILS NO. 1
5	RETAINING WALL TYPE 7 (CASE 2)-DETAILS NO. 2
6	VERTICAL GROUND ANCHOR DETAILS NO. 1
7	VERTICAL GROUND ANCHOR DETAILS NO. 2
8	LOG OF TEST BORINGS

### STANDARD PLANS 2010 EDITION

A10A	ABBREVIATIONS (SHEET 1 OF 2)
A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)
A10F	LEGEND - SOIL (SHEET 1 OF 2)
A10G	LEGEND - SOIL (SHEET 2 OF 2)
A10H	LEGEND - ROCK
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL - BRIDGE SURCHARGE AND WALL CONCRETE BARRIER TYPE 60
A76A	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
RSP B3-5	RETAINING WALL DETAILS NO. 1
B3-6	RETAINING WALL DETAILS NO. 2
RSP B11-47	CABLE RAILING

### LEGEND

- Denotes top of wall elevation (feet)
- Denotes bottom of footing elevation (feet)
- Denotes bottom of overexcavation (feet)

*M. Char*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13

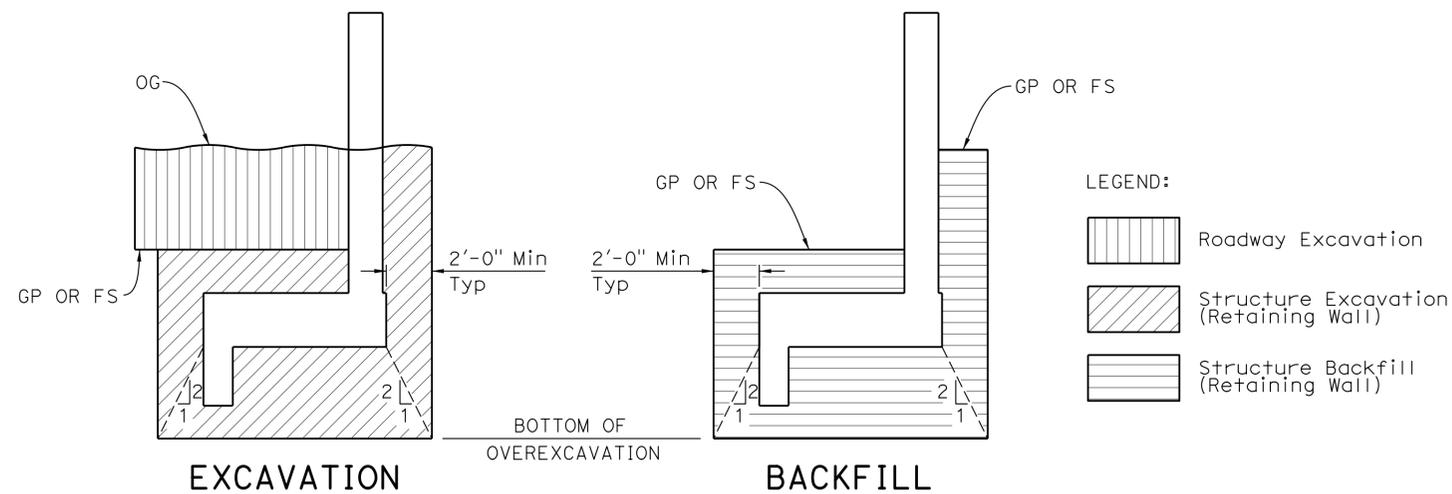
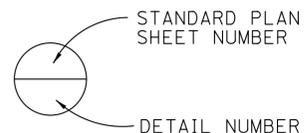
8-26-13  
 PLANS APPROVAL DATE

MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

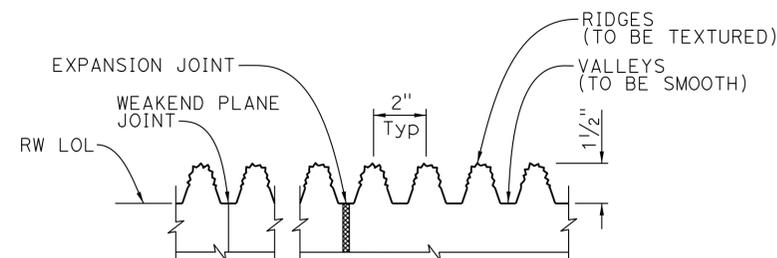
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 ORANGE, CALIFORNIA 92868



**LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL**  
 NO SCALE



**FRACTURED RIB TEXTURE**  
 NO SCALE

NOTE:  
 Weakened Plane and Expansion Joints to be centered in valleys.

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

 Luqi Yang DESIGNER 5-15-13 SIGN OFF DATE	DESIGN	BY J. Quinoveva	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	<b>PREPARED FOR THE STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	<b>RETAINING WALL NO. 218R</b> <b>INDEX TO PLANS</b>
	DETAILS	BY H. Withers	CHECKED C. Weber	LAYOUT	BY J. Quinoveva		CHECKED C. Weber	
	QUANTITIES	BY J. Quinoveva	CHECKED D. Kim	SPECIFICATIONS	BY M. Char	PLANS AND SPECS COMPARED M. Char	POST MILES	3.94

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

UNIT: PROJECT NUMBER & PHASE: 1200020278 CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	3	8

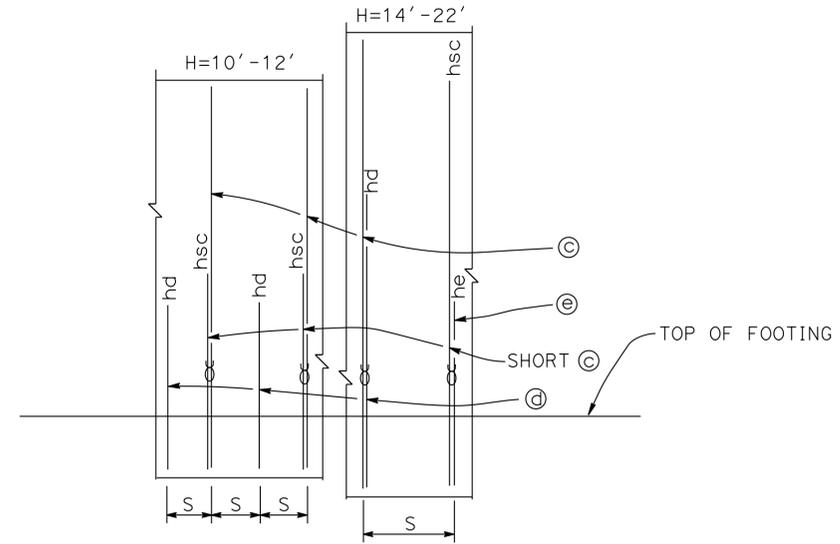
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USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:20

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	685	780

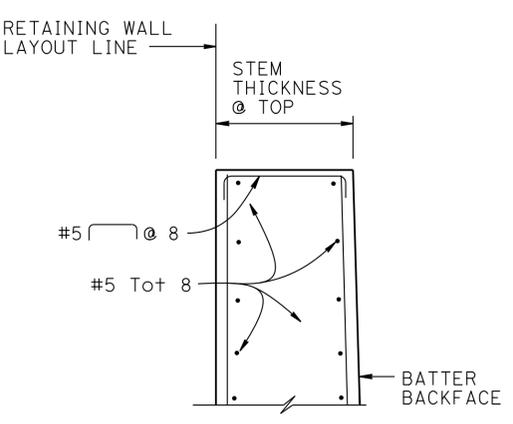
*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

8-26-13  
 PLANS APPROVAL DATE  
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 ORANGE, CALIFORNIA 92868

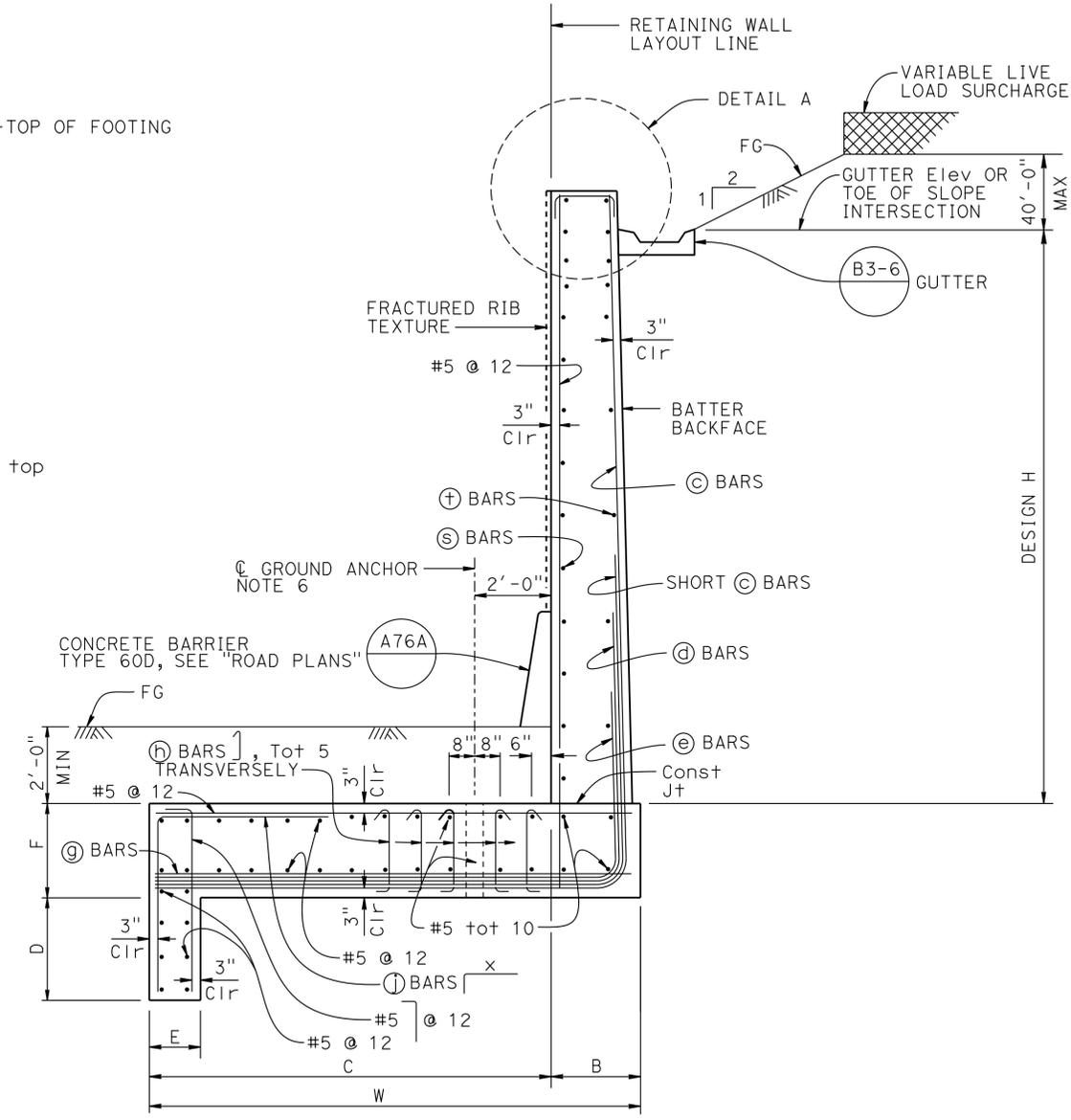


**ELEVATION**  
 No Scale

NOTE:  
 "hsc", "hd" and "he" above bars indicate distance from top of footing to upper end of the bars, see table.



**DETAIL A**  
 $\frac{3}{4} = 1'-0"$



**SPREAD FOOTING SECTION**  
 No Scale

**DESIGN DATA**

Design: AASHTO LRFD Bridge Design Specifications, 4th edition with California Amendments  
 LS: Varied surcharge on level ground surface  
 EQE: Trial Wedge Method  
 $K_h = 0.2$   
 $K_v = 0.0$   
 Soil:  $\phi = 34^\circ$   
 $\gamma = 120$  pcf  
 Reinforced Concrete:  $f'_c = 3600$  psi  
 $f_y = 60,000$  psi  
 Load Combinations and Limit States  
 Service I  $Q=1.00DC+1.00EV+1.00EH+1.00LS+Td$   
 Strength I  $Q=\alpha DC+BEV+1.50EH+1.75LS+Td$   
 Extreme I  $Q=1.00DC+1.00EV+1.00EH+1.00EQD+1.00EQE+Td$   
 Where: Q: Force Effects  
 $\alpha$ : 1.25 or 0.90, whichever Controls Design  
 B: 1.35 or 1.00, whichever Controls Design  
 DC: Dead Load of Structure Components  
 EV: Vertical Earth Fill Pressure  
 LS: Live Load Surcharge  
 EQE: Seismic Earth Pressure  
 EQD: Soil and Structure Components Inertia. Soil inertia ignored for stem design  
 Td: Anchor Design Load

- NOTES:
- For "FRACTURED RIB TEXTURE", see "INDEX TO PLANS" sheet.
  - For details not shown and drainage notes, see RSP B3-5 & B3-6
  - Shift © bars, Ⓧ bars and Ⓟ bars as required to clear formed hole for ground anchor.
  - Footing is designed to resist 1.33 Td assuming the maximum anchor spacing shown in the table on "RETAINING WALL TYPE 7 (CASE 2) - DETAILS NO. 2" sheet.
  - For wall dimensions, reinforcing steel and bearing stress data, see table on "RETAINING WALL TYPE 7 (CASE 2) - DETAILS NO. 2" sheet.
  - For ground anchor details, see "VERTICAL GROUND ANCHOR DETAILS NO. 1" and "VERTICAL GROUND ANCHOR DETAILS NO. 2" sheets.

*Luqi Yang*  
 DESIGN OVERSIGHT  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED M. Wise
DETAILS	BY H. Withers	CHECKED M. Wise
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

PREPARED FOR THE  
 STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55E0129
POST MILES	3.94

**RETAINING WALL NO. 218R**  
**RETAINING WALL TYPE 7 (CASE 2)-DETAILS NO. 1**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	04-27-12 09-24-12 01-14-13 04-22-13	4	8

FILE => RW218R-g-rwdt01.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:20

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	686	780

*Mohan*  
REGISTERED CIVIL ENGINEER DATE 4/22/13

8-26-13  
PLANS APPROVAL DATE

MOHAN S. CHAR  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

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ORANGE COUNTY TRANSPORTATION AUTHORITY  
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ORANGE, CA 92863-1584

AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868

TABLE OF WALL DIMENSIONS, REINFORCING STEEL AND BEARING STRESS DATA							
DESIGN H	10'	12'	14'	16'	18'	20'	22'
W	7'-6"	8'-6"	9'-3"	11'-3"	12'-3"	13'-3"	14'-9"
C	6'-0"	6'-9"	7'-3"	9'-0"	9'-6"	10'-6"	11'-4"
B	1'-6"	1'-9"	2'-0"	2'-3"	2'-9"	2'-9"	3'-5"
F	2'-4"	2'-6"	2'-6"	2'-9"	2'-9"	3'-0"	3'-6"
D (FOOTING KEY DEPTH)	1'-0"	1'-0"	2'-0"	3'-0"	3'-0"	3'-0"	3'-0"
E	1'-0"	1'-0"	1'-3"	1'-6"	1'-6"	1'-6"	1'-6"
STEM THICKNESS AT TOP	1'-3"	1'-7"	1'-9"	2'-0"	2'-0"	2'-0"	2'-0"
BATTER	0	0	0	0	1/4:12	1/4:12	1/2:12
S	0'-8"	0'-8"	0'-7"	0'-6"	0'-8"	0'-7"	0'-6"
⊙ BARS	#5 ⌀	#5 ⌀	#5	#5	#5	#5	#5
hsc	8'-9"	9'-0"	11'-6"	12'-6"	13'-6"	14'-6"	16'-0"
Ⓢ BARS	#7	#8	#6	#6	#8	#9	#8
hd	5'-9"	6'-0"	9'-6"	10'-6"	11'-6"	12'-6"	13'-9"
Ⓣ BARS			#9	#10	#10	#11	#11
he			7'-6"	8'-6"	9'-6"	10'-6"	11'-6"
Ⓤ BARS	#5 @ 16	#6 @ 16	#5 @ 14	#5 @ 12	#8 @ 16	#8 @ 14	#8 @ 12
BARS BUNDLED WITH Ⓤ in ftg	Ⓢ	Ⓢ	SHORT Ⓢ & Ⓣ				
Ⓢ BARS		#4 @ 16	#4 @ 14	#4 @ 12	#6 @ 16	#6 @ 14	#6 @ 12
Ⓣ BARS	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#6 @ 12
x	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"
Ⓢ BARS	#5 @ 15	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#6 @ 12
Ⓣ BARS	#4 @ 18	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12
Td (KIPS/FT)	7.50	9.0	11.25	9.0	11.25	16.50	20.25
To (KIPS/FT)	7.50	9.0	11.25	9.0	11.25	16.50	20.25
Tp = Larger of 1.33 Td & 1.25 To (KIPS/FT)	10.0	12.0	15.0	12.0	15.0	22.0	27.0
MAX. ANCHOR SPACING	9'-6"	7'-9"	6'-3"	7'-9"	6'-3"	6'-3"	6'-3"
SER I: B'(ft), q <sub>0</sub> (ksf)	6.5, 1.3	7.5, 1.2	8.0, 1.4	10.7, 0.7	11.0, 0.8	12.9, 0.8	15.0, 0.8
STR Ia: B'(ft), q <sub>0</sub> (ksf)	5.9, 3.3	6.8, 3.5	7.2, 4.1	9.6, 3.4	9.8, 4.0	11.6, 4.3	13.6, 4.6
STR, Ib: B'(ft), q <sub>0</sub> (ksf)	5.5, 3.1	6.3, 3.4	6.5, 4.0	8.8, 3.2	8.9, 3.9	10.9, 4.1	12.6, 4.3
Ext I: B'(ft), q <sub>0</sub> (ksf)	4.1, 4.2	4.4, 5.0	4.4, 6.1	5.3, 5.5	5.3, 6.8	6.5, 7.0	7.4, 7.6

NOTE:  
Ⓢ Bar spacing shown is along the length of the retaining wall.

LEGEND:  
SER: service limit state  
STR: strength limit state  
EXT: extreme event limit state  
B': effective footing width (ft)  
q<sub>0</sub>: net bearing stress (ksf)  
q<sub>u</sub>: gross uniform bearing stress (ksf)  
⌀: 2 bar bundle  
To: Anchor Lockoff Load  
Tp: Anchor Factored Test Load

*Luqi Yang*  
DESIGN OR SURVEY Luqi Yang  
5-15-13  
SIGN OFF DATE

DESIGN	BY D. Kim	CHECKED M. Wise
DETAILS	BY H. Withers	CHECKED M. Wise
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

PREPARED FOR THE  
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.	55E0129
POST MILES	3.94

RETAINING WALL NO. 218R  
RETAINING WALL TYPE 7 (CASE 2)-DETAILS NO. 2

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: PROJECT NUMBER & PHASE: 1200020278 CONTRACT NO.: 12-0F96C1

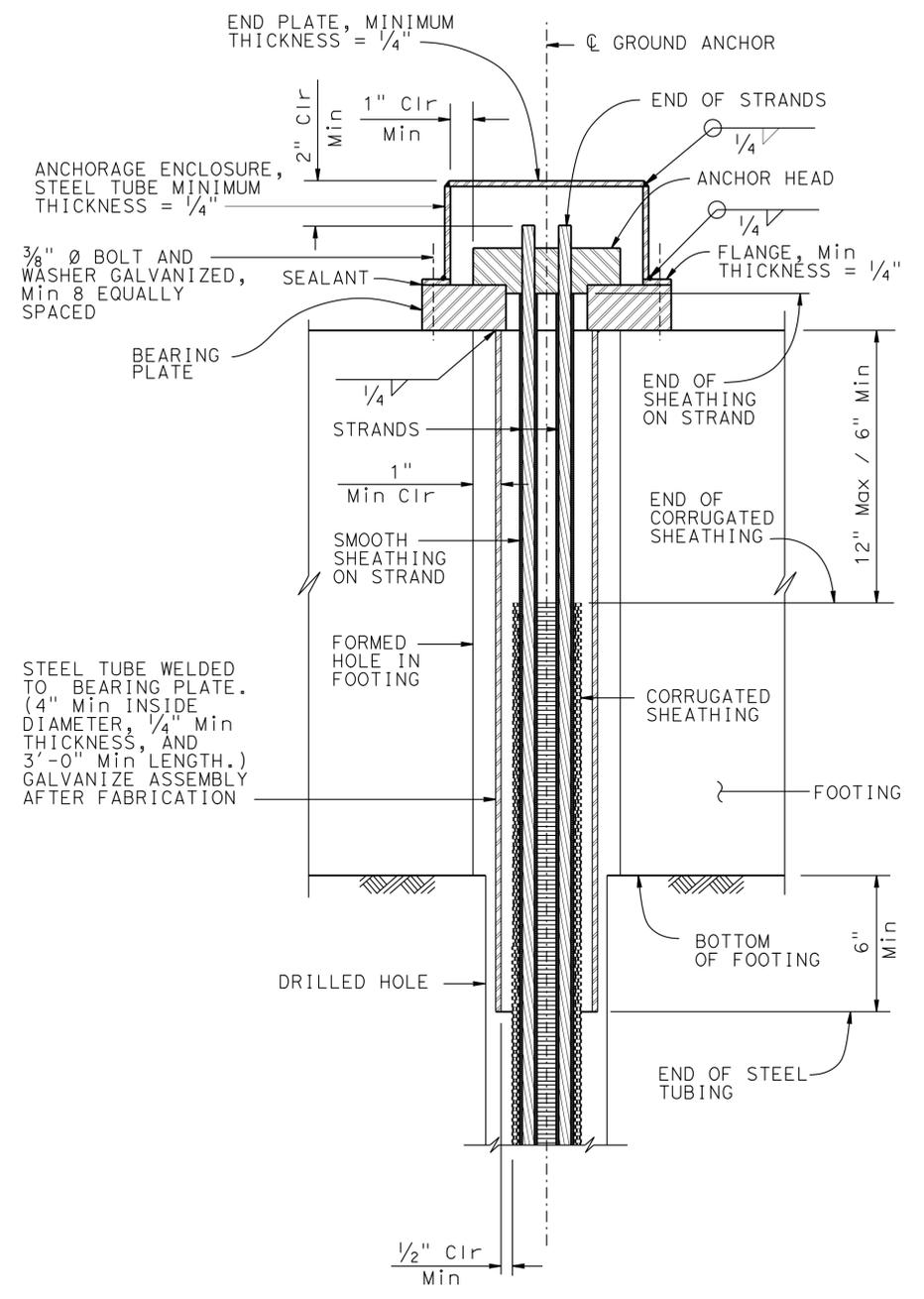
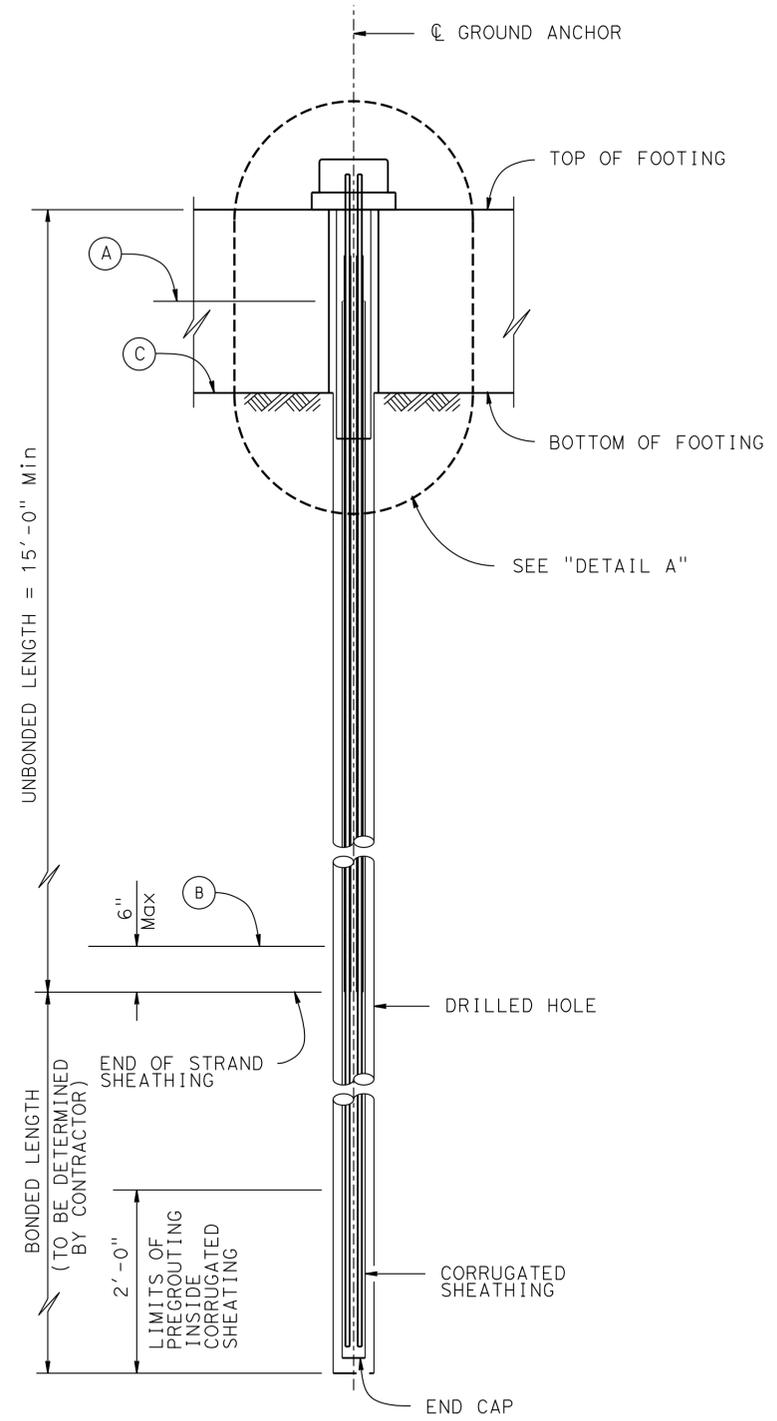
DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	04-27-12 09-24-12 01-14-13 04-22-13	5	8

FILE => RW218R-g-rwdt02.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:21

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	687	780

*Mkhan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13  
 8-26-13  
 PLANS APPROVAL DATE  
 Mohan S. Char  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA  
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**DETAIL A**  
 3" = 1'-0"

**GENERAL NOTES**

DESIGN: AASHTO LRFD Bridge Design Specifications, 4th edition with California Amendments.  
 PRESTRESSING STEEL (GROUND ANCHORS):  
 STRANDS - ASTM Designation: A416  
 Tp = Factored test load per tendon (Kips)  
 fpu = Minimum tensile strength of prestressing steel (ksi)  
 As = Minimum cross sectional area of prestressing steel in tendon (square inches)  

$$As (Min) = \frac{1.0 Tp}{0.75 fpu} \text{ (Strand)}$$

**NOTES:**

1. Anchorage enclosure shall have provisions to allow injecting grout at low end and venting at high end. Galvanize enclosure after fabrication.
  2. Alternative anchor enclosure shown on sheet "VERTICAL GROUND ANCHOR DETAILS No. 2" sheet
- (A) Level of initial grouting inside corrugated sheathing  
 (B) Level of initial grouting in drilled hole  
 (C) Level of secondary grouting in drilled hole

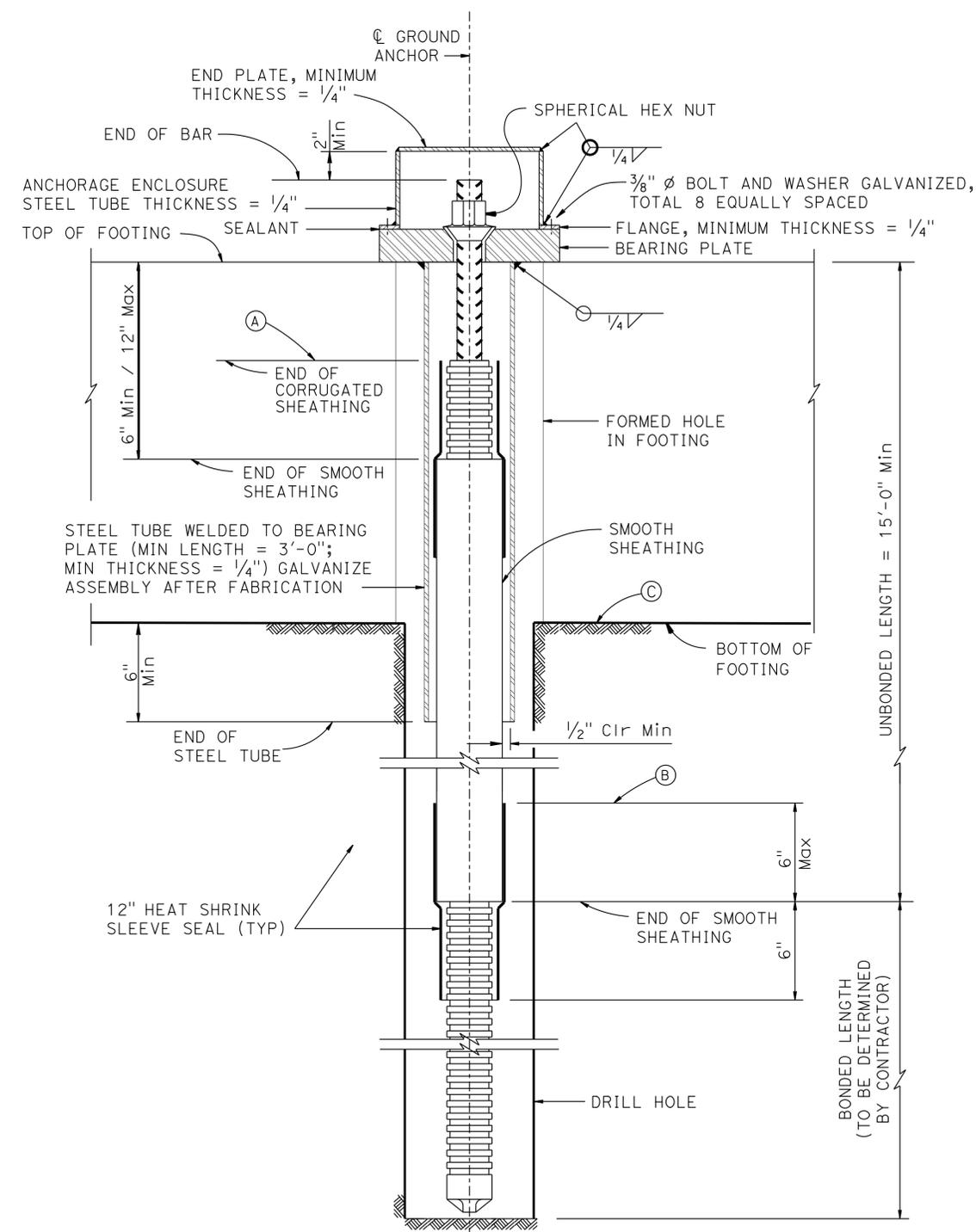
**GROUND ANCHOR TENDON DETAILS (STRANDS)**  
 1" = 1'-0"

**SPECIAL DETAILS**

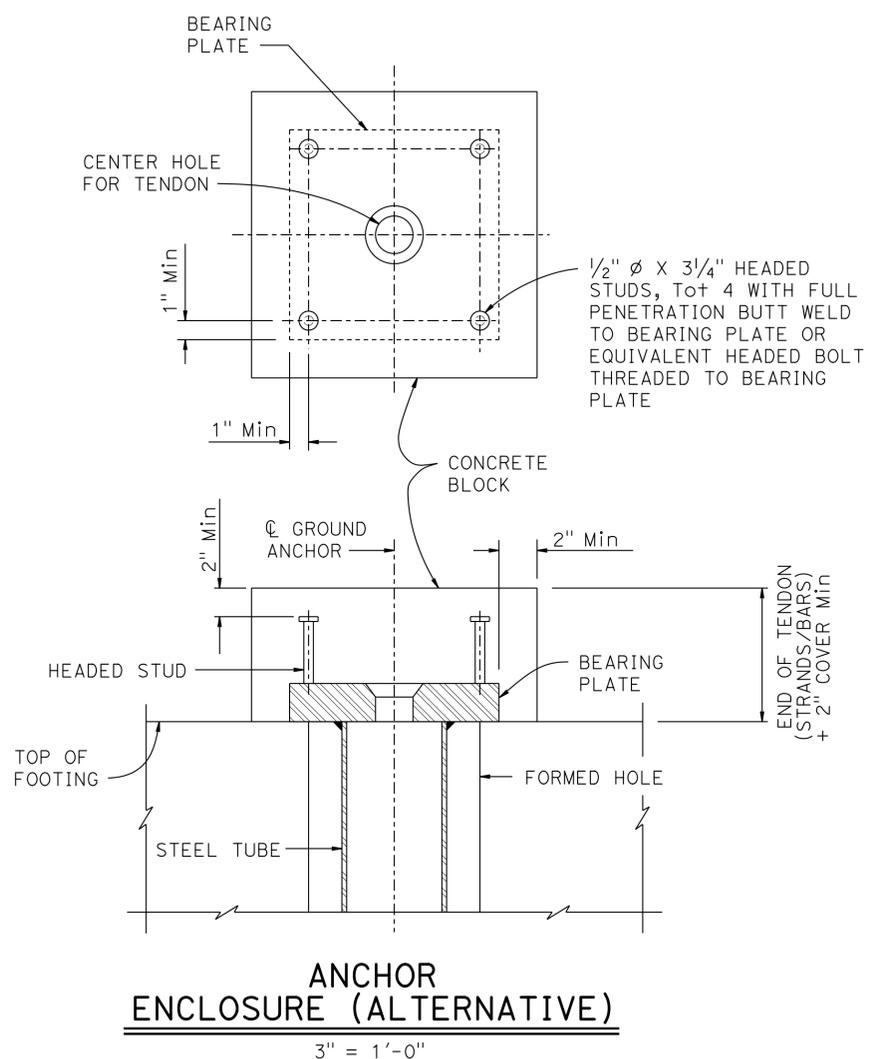
REVISED STANDARD DRAWING		REVISED DETAIL	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES		BRIDGE NO. 55E0129	RETAINING WALL 218R		
FILE NO. <b>xs12-030-1</b>	APPROVAL DATE July 2011		PROJECT NUMBER & PHASE: 1200020278		CONTRACT NO.: 12-0F96C1		POST MILE 3.94	VERTICAL GROUND ANCHOR DETAILS NO. 1		
DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11))		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	SHEET	OF
						04-27-12 09-24-12 01-14-13 04-22-13		6	8	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	3.7/6.2	688	780

*Mohan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13  
 8-26-13  
 PLANS APPROVAL DATE  
 Mohan S. Char  
 No. 57894  
 Exp. 6/30/14  
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 STATE OF CALIFORNIA  
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① **GROUND ANCHOR TENDON DETAILS (BAR)**  
 3" = 1'-0"



**ANCHOR ENCLOSURE (ALTERNATIVE)**  
 3" = 1'-0"

**GENERAL NOTES**

DESIGN: AASHTO LRFD Bridge Design Specifications, 4th edition with California Amendments.  
 PRESTRESSING STEEL (GROUND ANCHORS):  
 BARS - ASTM Designation: A722 Type II  
 Tp = Factored test load per tendon (Kips)  
 fpu = Minimum tensile strength of prestressing steel (ksi)  
 As = Minimum cross sectional area of prestressing steel in tendon (square inches)  

$$A_s (\text{Min}) = \frac{1.0 T_p}{0.75 f_{pu}} \quad (\text{Bar})$$

- NOTES:
- Anchorage enclosure shall have provision to allow injecting grout at low end and venting at high end. Galvanize enclosure after fabrication.
  - Ⓐ Level of initial grouting inside corrugated sheathing
  - Ⓑ Level of initial grouting in drilled hole
  - Ⓒ Level of secondary grouting in drilled hole

**SPECIAL DETAILS**

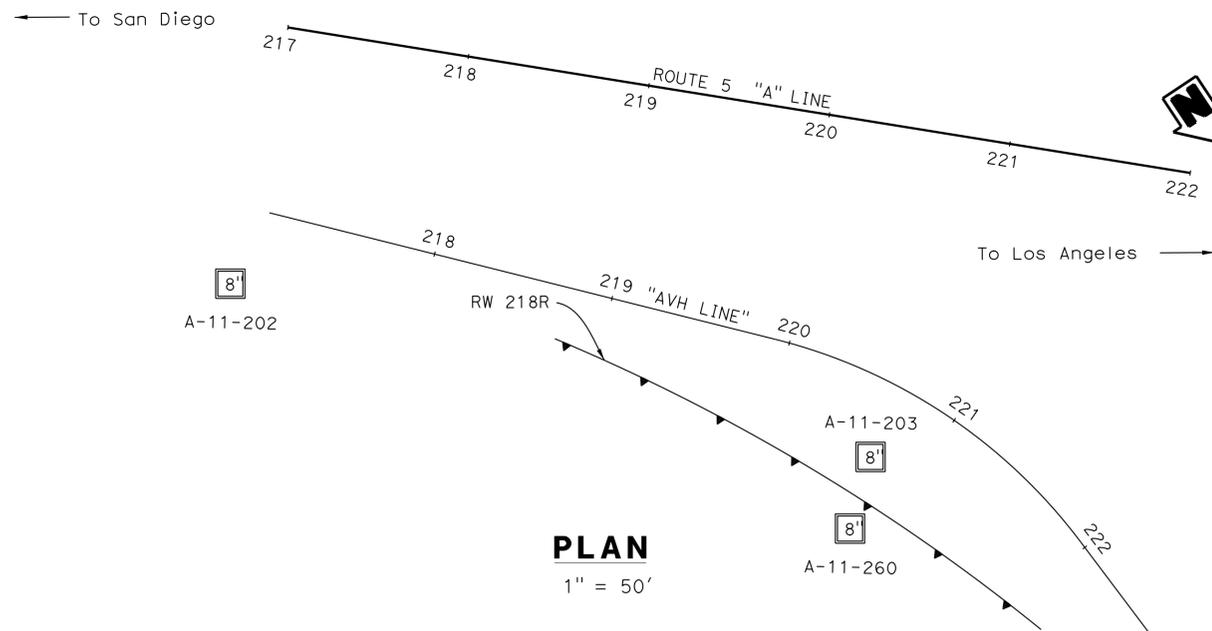
REVISED STANDARD DRAWING		① REVISED DETAIL	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES		BRIDGE NO. 55E0129	RETAINING WALL 218R			
FILE NO. <b>xs12-030-2</b>	APPROVAL DATE July 2011		PROJECT NUMBER & PHASE: 1200020278		CONTRACT NO.: 12-0F96C1		POST MILE 3.94	VERTICAL GROUND ANCHOR DETAILS NO. 2			
DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11))		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		UNIT: PROJECT NUMBER & PHASE: 1200020278		CONTRACT NO.: 12-0F96C1		DISREGARD PRINTS BEARING EARLIER REVISION DATES	
						REVISION DATES		SHEET 7		OF 8	

BENCH MARK  
 DESIGNATION: 3SS-2-82 ELEV 95.558'

DESCRIBED BY OCS 2003 - FOUND 3 3/4" OCS ALUMINUM BENCH MARK DISK STAMPED "3SS-2-82", SET IN THE SOUTHEASTERLY CORNER OF A 4 FT. BY 4.5 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE NORTHWESTERLY SIDE OF AVENIDA VAQUERO, 100 FT. NORTHERLY OF THE NORTHERLY EDGE OF THE SAN DIEGO FREEWAY OVERCROSSING OF AVENIDA VAQUERO, 23 FT. WESTERLY OF THE CENTERLINE OF VAQUERO AND 29.2 FT. SOUTHERLY OF A STREET STANDARD NO NUMBER. MONUMENT IS SET LEVEL WITH THE TOP OF THE CURB.

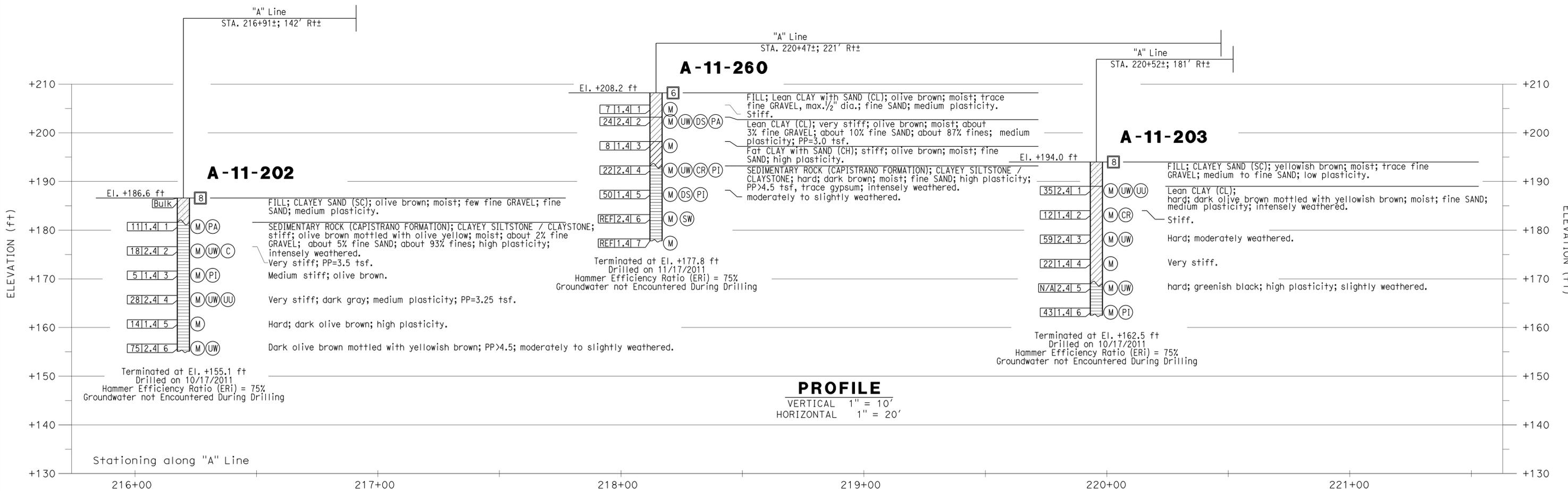
**NOTES:**

- (1) This LOTB sheet was prepared in accordance with the Caltrans Soil and Rock Logging, Classification and Presentation Manual (June 2010).
- (2) 2.4" samples were taken using a California Modified Sampler.
- (3) An automatic trip hammer system consisting of a hammer weight of 140 lbs falling a distance of 30" was used to advance the drive sampler.
- (4) Conversion factor from 2.4" Modified California Ring Sampler blowcounts to Standard Penetration Test (SPT) blowcounts is 0.5.



**PLAN**

1" = 50'



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	689	780

REGISTERED ENGINEER  
 DATE 4/22/13  
 8-26-13  
 PLANS APPROVAL DATE

**REGISTERED PROFESSIONAL ENGINEER**  
 A. KORKOS  
 NO. GE 2357  
 EXP. 3-31-14  
 STATE OF CALIFORNIA  
 GEOTECHNICAL

**ORANGE COUNTY TRANSPORTATION AUTHORITY**  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584

**EARTH MECHANICS, INC.**  
 17800 NEWHOPE STREET, SUITE B  
 FOUNTAIN VALLEY, CA 92708

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

DESIGN BY: <u>Luqi Yang</u> SIGN OFF DATE: 5-15-13	DRAWN BY: J. FANG CHECKED BY: G. J. GUNARANJAN	R. JIE FIELD INVESTIGATION BY: DATE: 9/2011, 10/2011	<b>PREPARED FOR THE STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	A. KORKOS PROJECT ENGINEER	BRIDGE NO.: 55E0129 POST MILES: 3.94	<b>RETAINING WALL NO. 218R</b> <b>LOG OF TEST BORINGS</b>
GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3	UNIT: PROJECT NUMBER & PHASE: 12000202781	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES: 04-27-12, 09-24-12, 01-11-13, 04-22-13 SHEET 8 OF 8

FILE => RW218R-z-lotb1.dgn  
 CONTRACT NO.: 12-OF-96C1  
 PROJECT ID: 1200020278

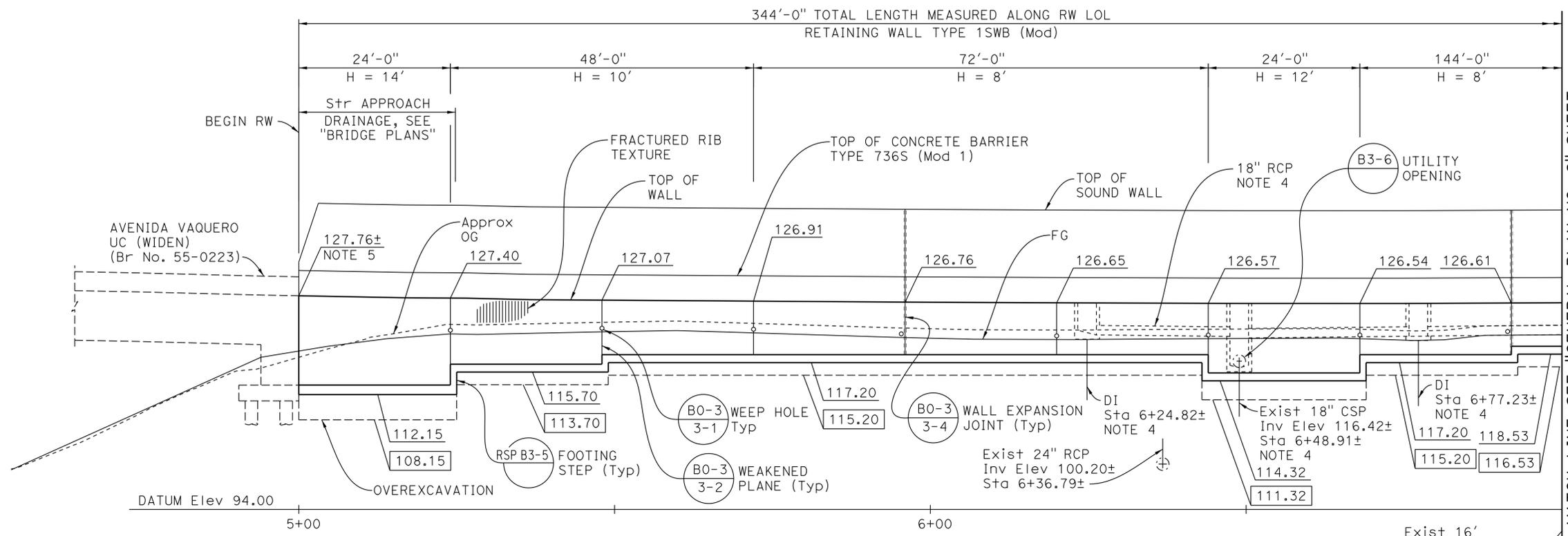
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	690	780

*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 8-26-13 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

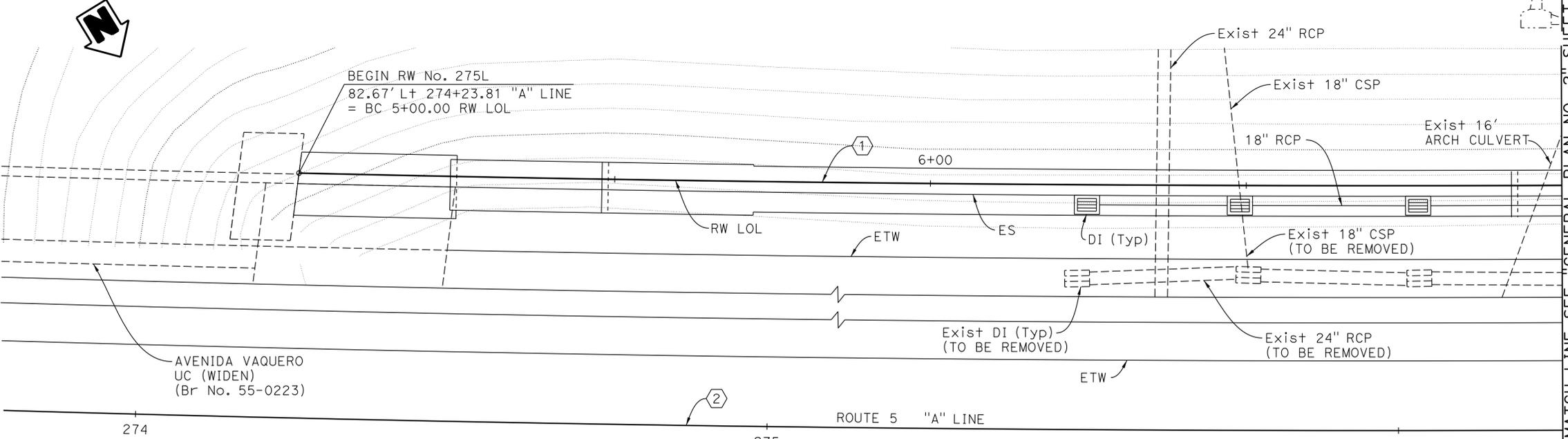
ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

CURVE DATA				
No.	R	Δ	L	T
①	7417.29'	2°39'26"	344.00'	172.03'
②	7500.00'	13°20'19"	1746.01'	876.97'

- NOTES:
1. All wall expansion joints, weakened planes and footing steps occur at intervals of 24'-0" unless shown otherwise.
  2. For "INDEX TO PLANS" and "LEGEND", see "INDEX TO PLANS" sheet.
  3. For "TYPICAL SECTION", see "GENERAL PLAN NO. 2" sheet.
  4. For "SECTION AT INLET" and "SECTION AT PIPE", see "INDEX TO PLANS" sheet.
  5. Top of wall to match top of bridge deck.



**DEVELOPED MIRROR ELEVATION**  
 1" = 10'



**PLAN**  
 1" = 10'

RETAINING WALL NO. 275L  
 QUANTITIES

STRUCTURE EXCAVATION (RETAINING WALL)	1,350	CY
STRUCTURE BACKFILL (RETAINING WALL)	1,090	CY
PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	33	CY
STRUCTURAL CONCRETE, RETAINING WALL	293	CY
ARCHITECTURAL TREATMENT (CONCRETE PANEL)	3,670	SQFT
FRACTURED RIB TEXTURE	2,140	SQFT
BAR REINFORCING STEEL (RETAINING WALL)	40,000	LB
SOUND WALL (MASONRY BLOCK)	3,670	SQFT
CONCRETE BARRIER (TYPE 736S MODIFIED 1)	344	LF

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OR SIGNATURE  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY J. Quinovega	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY J. Quinovega	CHECKED C. Weber	LAYOUT	BY J. Quinovega
QUANTITIES	BY J. Quinovega	CHECKED D. Kim	SPECIFICATIONS	BY M. Char

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION  
 Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55E0150
POST MILES	4.99

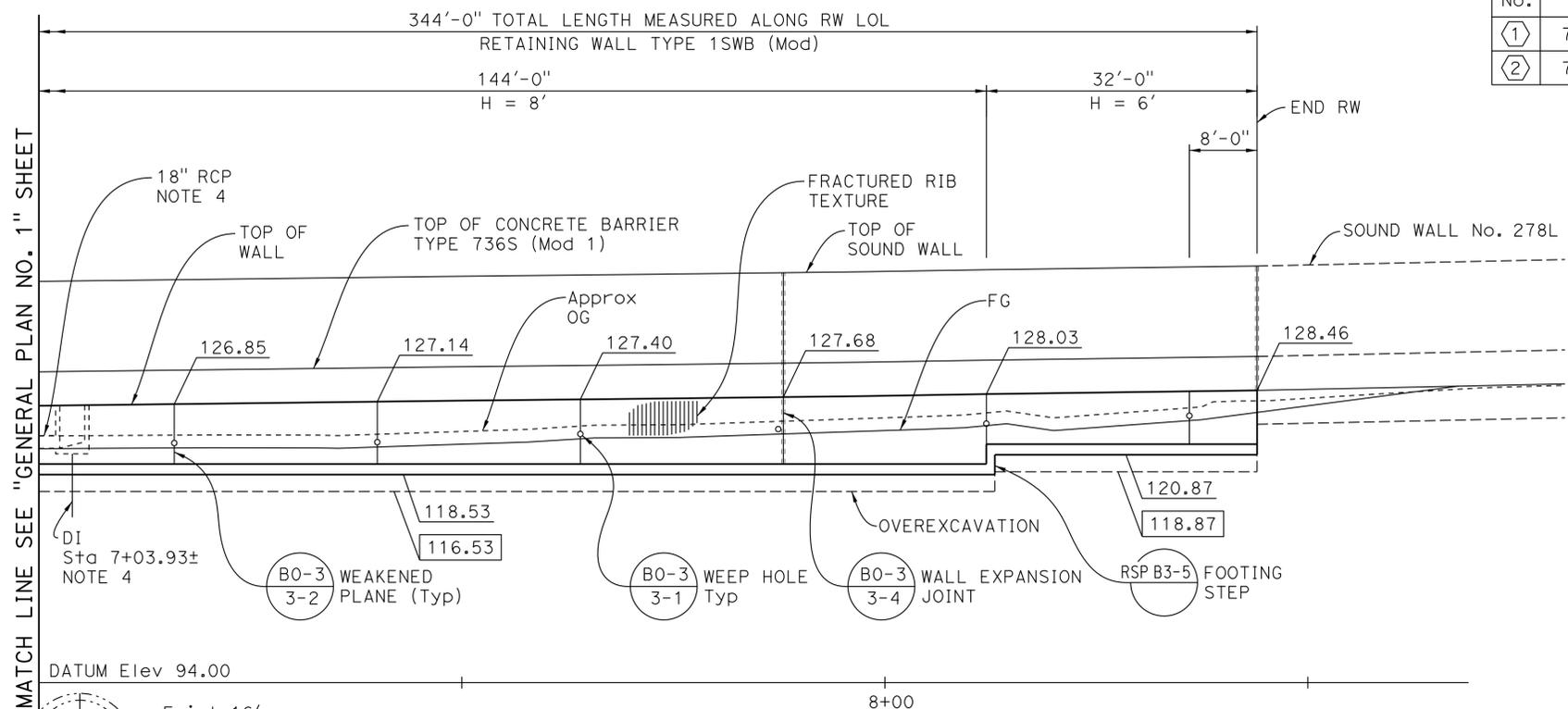
**RETAINING WALL NO. 275L**  
**GENERAL PLAN NO. 1**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	691	780

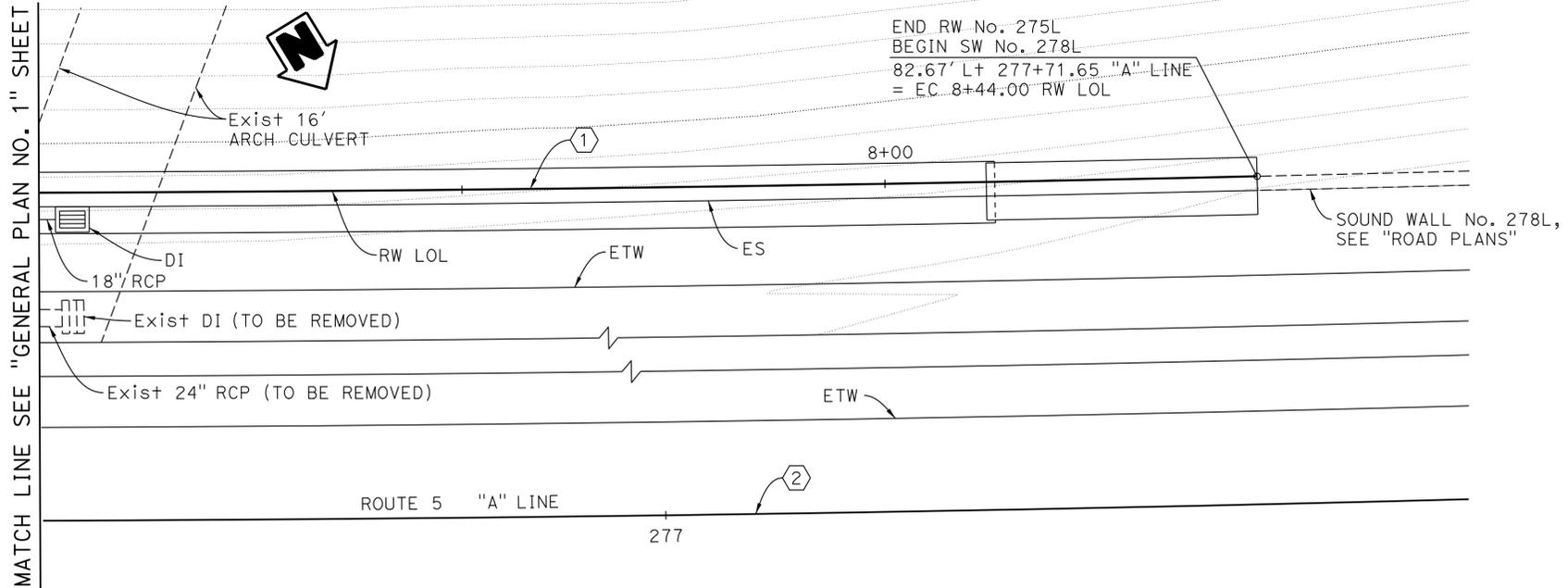
CURVE DATA				
No.	R	Δ	L	T
①	7417.29'	2°39'26"	344.00'	172.03'
②	7500.00'	13°20'19"	1746.01'	876.97'

*Mohan*  
 REGISTERED CIVIL ENGINEER 4/22/13 DATE  
 8-26-13 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

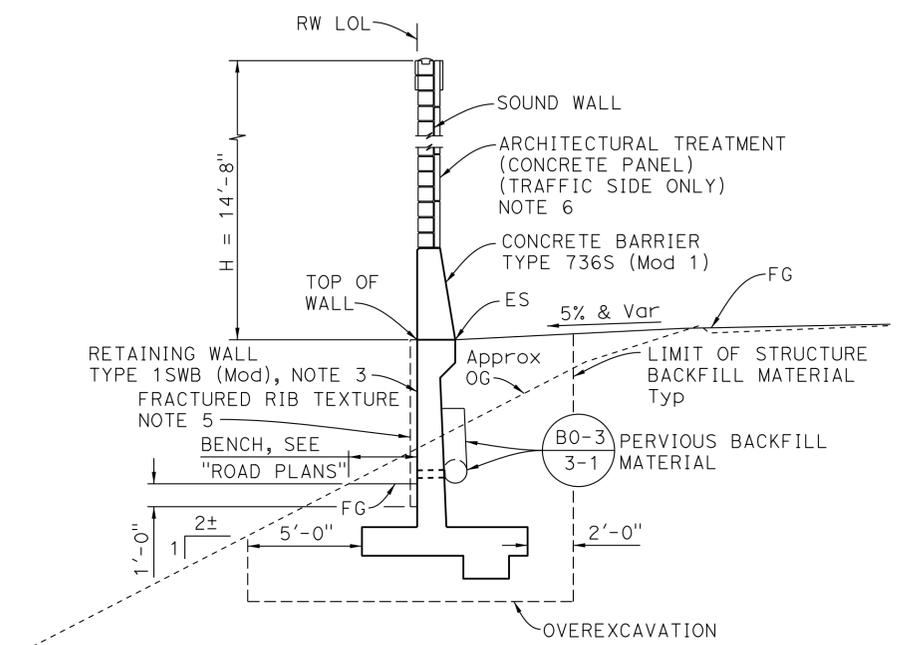
ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



**DEVELOPED MIRROR ELEVATION**  
 1" = 10'



**PLAN**  
 1" = 10'



**TYPICAL SECTION**  
 1/4" = 1'-0"

- NOTES:
- All wall expansion joints, weakened planes and footing steps occur at intervals of 24'-0" unless shown otherwise.
  - For "INDEX TO PLANS" and "LEGEND", see "INDEX TO PLANS" sheet.
  - For Retaining Wall Type 1SWB (Mod) details, see "RETAINING WALL TYPE 1SWB (MOD)-DETAILS NO. 1" sheet.
  - For "SECTION AT INLET" and "SECTION AT PIPE", see "INDEX TO PLANS" sheet.
  - For "FRACTURED RIB TEXTURE", see "INDEX TO PLANS" sheet.
  - For architectural treatment details, see "SOUND WALL DETAILS" sheet.

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OR SIGNATURE  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY J. Quinovega	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY J. Quinovega	CHECKED C. Weber	LAYOUT	BY J. Quinovega
QUANTITIES	BY J. Quinovega	CHECKED D. Kim	SPECIFICATIONS	BY M. Char

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55E0150
POST MILES	4.99

**RETAINING WALL NO. 275L**  
**GENERAL PLAN NO. 2**

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	692	780

*Mohan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13  
 PLANS APPROVAL DATE 8-26-13  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

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ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584

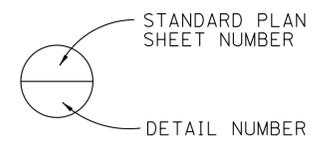
AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

### INDEX TO PLANS

No.	Title
1	GENERAL PLAN NO. 1
2	GENERAL PLAN NO. 2
3	INDEX TO PLANS
4	RETAINING WALL TYPE 1SWB (MOD)-DETAILS NO. 1
5	RETAINING WALL TYPE 1SWB (MOD)-DETAILS NO. 2
6	MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL-DETAILS NO. 1
7	MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL-DETAILS NO. 2
8	SOUND WALL DETAILS
9	LOG OF TEST BORINGS

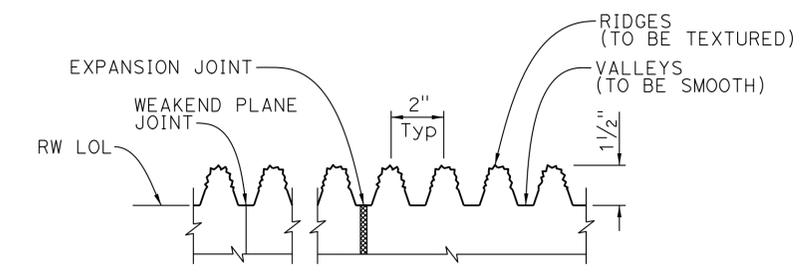
### STANDARD PLANS 2010 EDITION

A10A	ABBREVIATIONS (SHEET 1 OF 2)
A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)
A10F	LEGEND - SOIL (SHEET 1 OF 2)
A10G	LEGEND - SOIL (SHEET 2 OF 2)
A10H	LEGEND - ROCK
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL - BRIDGE SURCHARGE AND WALL BRIDGE DETAILS
B0-3	BRIDGE DETAILS
RSP B3-5	RETAINING WALL DETAILS NO. 1
B3-6	RETAINING WALL DETAILS NO. 2
RSP B11-56	CONCRETE BARRIER TYPE 736
RSP B15-6	SOUND WALL MASONRY BLOCK ON TYPE 736S/SV BARRIER DETAILS (1)
B15-9	SOUND WALL MASONRY BLOCK MISCELLANEOUS DETAILS



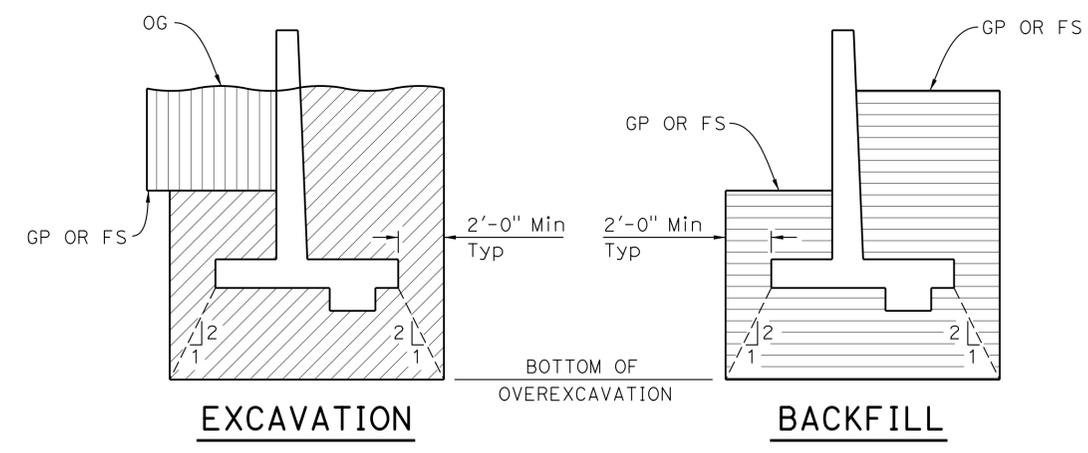
### LEGEND

- Denotes top of wall elevation (feet)
- Denotes bottom of footing elevation (feet)
- Denotes bottom of overexcavation (feet)



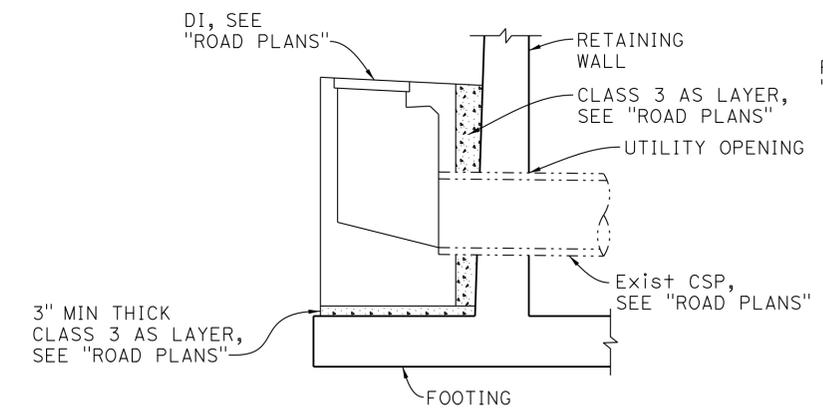
**FRACTURED RIB TEXTURE**  
 NO SCALE

NOTE:  
 Weakened Plane and Expansion Joints to be centered in valleys.

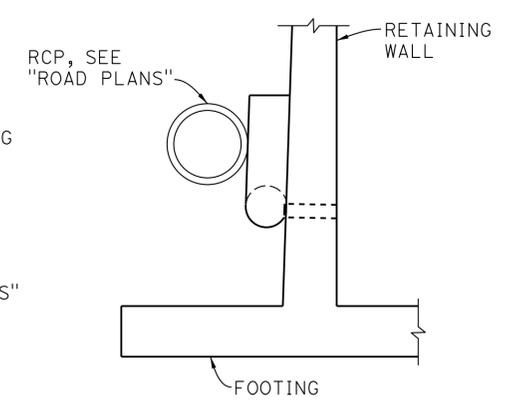


**LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL**  
 NO SCALE

- LEGEND:
- Roadway Excavation
  - Structure Excavation (Retaining Wall)
  - Structure Backfill (Retaining Wall)



**SECTION AT INLET**  
 NO SCALE



**SECTION AT PIPE**  
 NO SCALE

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN OR SIGN OFF DATE 5-15-13

DESIGN	BY J. Quinoveva	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY H. Withers	CHECKED C. Weber	LAYOUT	BY J. Quinoveva
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim	SPECIFICATIONS	BY M. Char

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55E0150
POST MILES	4.99

## RETAINING WALL NO. 275L INDEX TO PLANS

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

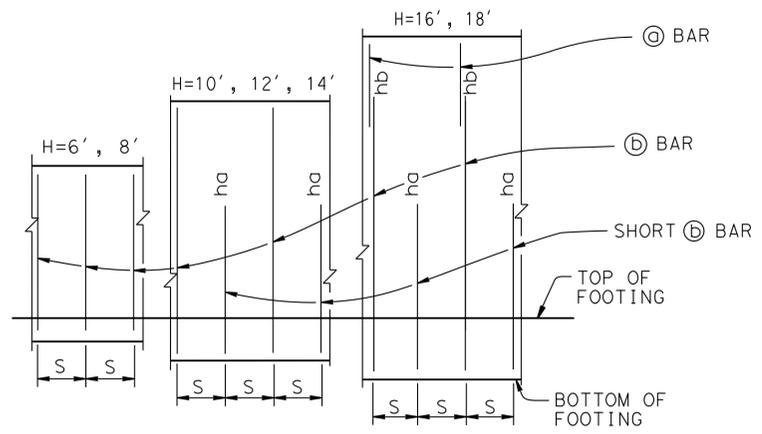
REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	3	9

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	693	780

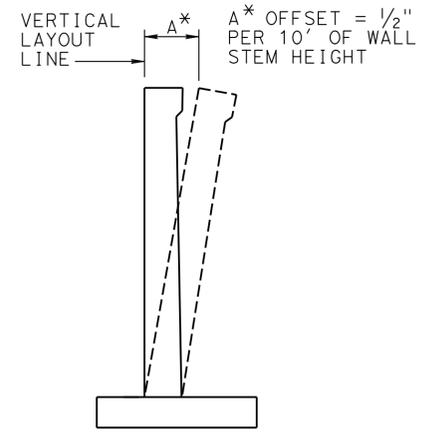
*Mohan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

8-26-13  
 PLANS APPROVAL DATE  
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**ORANGE COUNTY TRANSPORTATION AUTHORITY**  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
**AECOM TECHNICAL SERVICES INC.**  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



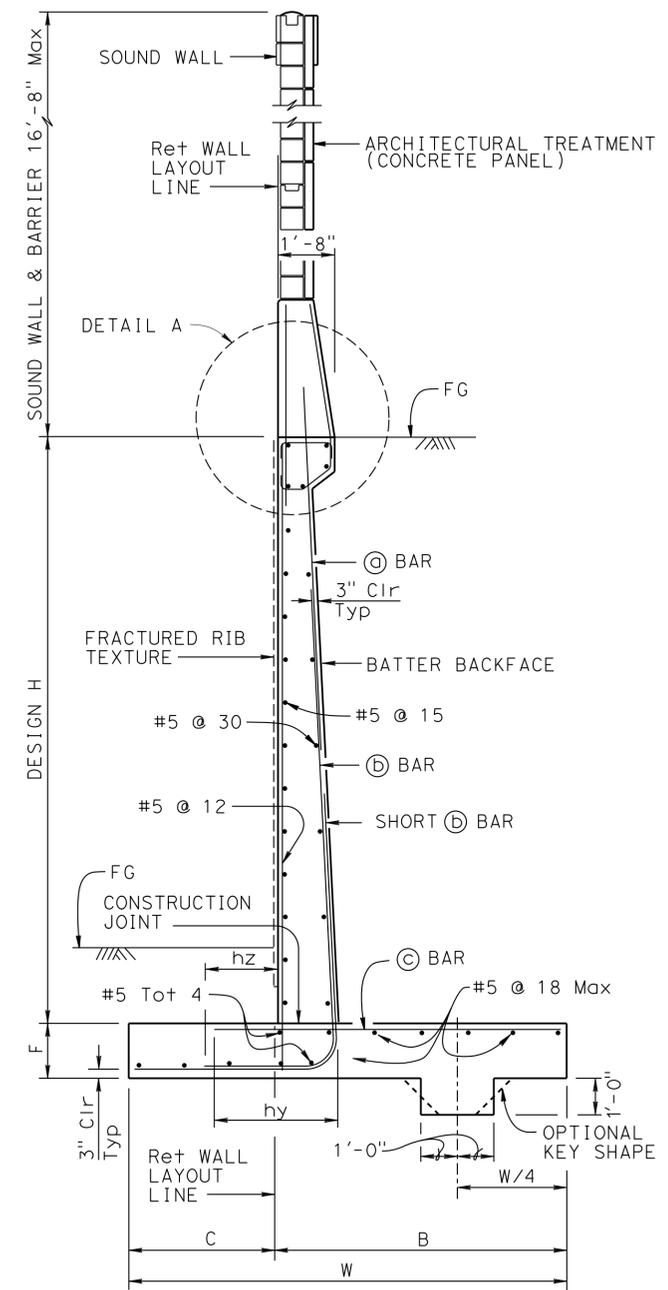
**ELEVATION**  
 No Scale

NOTES:  
 "ha" and "hb" above B bars indicate distance from top of footing to upper end of B bars, see table.  
 "S" is @ bar spacing, see table.



**WALL OFFSET**  
 No Scale

Values for offsetting forms to be determined by the Engineer

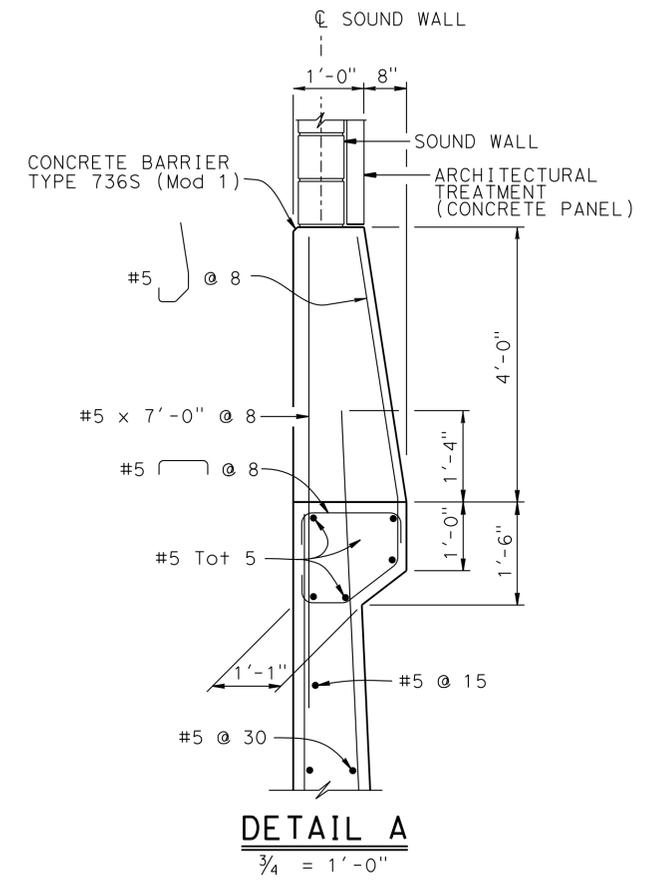


**SPREAD FOOTING SECTION**  
 No Scale

**DESIGN DATA**

Design: AASHTO LRFD Bridge Design Specifications, 4th edition with California Amendments  
 WS: 33 psf on Sound Wall and Barrier  
 LS: Varied surcharge on level ground surface  
 CT: 54 kip maximum traffic impact loading evenly distributed over 10 feet at top of the barrier and 1:1 distribution down and outward  
 EQE: Trial Wedge Method  
 $K_h = 0.2$   
 $K_v = 0.0$   
 Soil:  $\phi = 34^\circ$   
 $\gamma = 120$  pcf  
 Reinforced Concrete:  $f'_c = 3600$  psi  
 $f_y = 60,000$  psi  
 Load Combinations and Limit States  
 Service I  $Q=1.00DC+1.00EV+1.00EH+1.00LS+0.30WS$   
 Service II  $Q=1.00DC+1.00EV+1.00EH+1.00WS$   
 Strength I  $Q=aDC+\beta EV+1.50EH+1.75LS$   
 Strength III  $Q=aDC+\beta EV+1.50EH+1.40WS$   
 Strength V  $Q=aDC+\beta EV+1.50EH+1.35LS+0.40WS$   
 Extreme I  $Q=1.00DC+1.00EV+1.00EH+1.00EQD+1.00EQE$   
 Extreme II  $Q=1.00DC+1.00EV+1.00EH+1.00CT$   
 Where:  
 Q: Force Effects  
 a: 1.25 or 0.90, which ever Controls Design  
 B: 1.35 or 1.00, which ever Controls Design  
 DC: Dead Load of Structure Components  
 EV: Vertical Earth Fill Pressure  
 LS: Live Load Surcharge  
 EQE: Seismic Earth Pressure  
 EQD: Soil and Structure Components Inertia. Soil inertia ignored for stem design  
 WS: Wind Load on Sound Wall and Barrier  
 CT: Vehicular Collision Force

- NOTES:  
 1. For retaining wall fractured rib texture, see "INDEX TO PLANS" sheet and for sound wall aesthetics, see "SOUND WALL DETAILS" sheet.  
 2. For details not shown and drainage notes see RSP B3-5  
 3. Footing cover, 1'-6" minimum.  
 4. For sound wall and barrier reinforcement details, see "MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL-DETAILS NO. 1" sheet.  
 5. For H = 6' through 14', extend B bars into Barrier for stem with haunch.  
 6. For H ≥ 16', extend @ bars into Barrier for stem with haunch.



**DETAIL A**  
 $\frac{3}{4} = 1'-0"$

*Luqi Yang*  
 DESIGN OVERSIGHT  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY L. He	CHECKED J. Leimberger
DETAILS	BY H. Withers	CHECKED C. Weber
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**

Mohan S. Char  
 PROJECT ENGINEER  
 BRIDGE NO. 55E0150  
 POST MILES 4.99

**RETAINING WALL NO. 275L**  
**RETAINING WALL TYPE 1SWB (MOD)-DETAILS NO. 1**

DATE PLOTTED => \$TIME USERNAME => \$USER

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	694	780

*Mohan*  
REGISTERED CIVIL ENGINEER DATE 4/22/13

8-26-13  
PLANS APPROVAL DATE

MOHAN S. CHAR  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

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ORANGE COUNTY TRANSPORTATION AUTHORITY  
550 SOUTH MAIN STREET  
ORANGE, CA 92863-1584

AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA							
DESIGN H	6'	8'	10'	12'	14'	16'	18'
W	6'-9"	7'-3"	8'-0"	8'-9"	10'-0"	11'-6"	12'-9"
C	2'-3"	2'-5"	2'-8"	2'-11"	3'-4"	3'-10"	4'-3"
B	4'-6"	4'-10"	5'-4"	5'-10"	6'-8"	7'-8"	8'-6"
F SPREAD FOOTING	1'-3"	1'-3"	1'-3"	1'-3"	1'-6"	1'-9"	1'-9"
STEM WITH HAUNCH, BATTER	0	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12
Ⓐ BARS						#7 @ 15	#7 @ 12
Ⓑ BARS	#8 @ 12	#8 @ 12	#7 @ 6	#7 @ 6	#7 @ 6	#9 @ 7.5	#9 @ 6
ha			5'-0"	6'-0"	7'-0"	7'-0"	6'-0"
hb						11'-6"	12'-0"
hy	2'-0"	2'-4"	1'-8"	2'-0"	2'-4"	2'-10"	2'-10"
hz					3'-6"	4'-0"	4'-6"
Ⓒ BARS	#6 @ 12	#7 @ 12	#5 @ 6	#6 @ 6	#7 @ 6	#8 @ 7.5	#8 @ 6
SER I: B'(ft), q <sub>0</sub> (ksf)	5.3, 1.0	5.8, 1.3	6.5, 1.5	7.2, 1.7	8.4, 1.8	9.9, 1.9	11.2, 2.0
STR Ia: B'(ft), q <sub>0</sub> (ksf)	5.8, 1.8	6.2, 2.1	6.7, 2.4	7.2, 2.7	8.3, 3.0	9.7, 3.1	10.9, 3.3
STR, Ib: B'(ft), q <sub>0</sub> (ksf)	4.7, 1.4	4.5, 1.8	4.6, 2.2	4.7, 2.6	5.7, 2.8	7.1, 2.8	8.3, 2.9
STR, IIIa: B'(ft), q <sub>0</sub> (ksf)	4.3, 2.2	5.0, 2.4	5.7, 2.6	6.3, 2.8	7.5, 3.0	9.1, 3.1	10.4, 3.3
STR, IIIb: B'(ft), q <sub>0</sub> (ksf)	3.4, 2.1	3.9, 2.2	4.5, 2.5	5.0, 2.7	6.1, 2.8	7.6, 2.8	8.7, 2.9
STR, Va: B'(ft), q <sub>0</sub> (ksf)	5.3, 1.8	5.8, 2.1	6.4, 2.4	6.9, 2.7	8.0, 2.9	9.4, 3.1	10.6, 3.3
STR, Vb: B'(ft), q <sub>0</sub> (ksf)	4.3, 1.5	4.2, 1.9	4.5, 2.2	4.7, 2.6	5.7, 2.8	7.1, 2.8	8.3, 2.9
Ext I: B'(ft), q <sub>0</sub> (ksf)	4.1, 1.8	3.9, 2.2	3.7, 2.8	3.4, 3.6	3.8, 4.2	4.5, 4.5	5.0, 5.0
Ext II: B'(ft), q <sub>0</sub> (ksf)	1.7, 4.3	2.7, 3.1	3.8, 2.8	5.2, 2.5	6.9, 2.4	8.8, 2.4	10.3, 2.4

LEGEND:  
SER: service limit state  
STR: strength limit state  
EXT: extreme event limit state  
B': effective footing width (ft)  
q<sub>0</sub>: net bearing stress (ksf)  
q<sub>0</sub>: gross uniform bearing stress (ksf)

*Luqi Yang*  
DESIGN OVERSIGHT Luqi Yang  
5-15-13  
SIGN OFF DATE

DESIGN	BY L. He	CHECKED J. Leimberger
DETAILS	BY H. Withers	CHECKED C. Weber
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

PREPARED FOR THE  
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.	55E0150
POST MILES	4.99

RETAINING WALL NO. 275L  
RETAINING WALL TYPE 1SWB (MOD)-DETAILS NO. 2

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0	1	2	3
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UNIT:  
PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
01-14-13 04-22-13	5	9

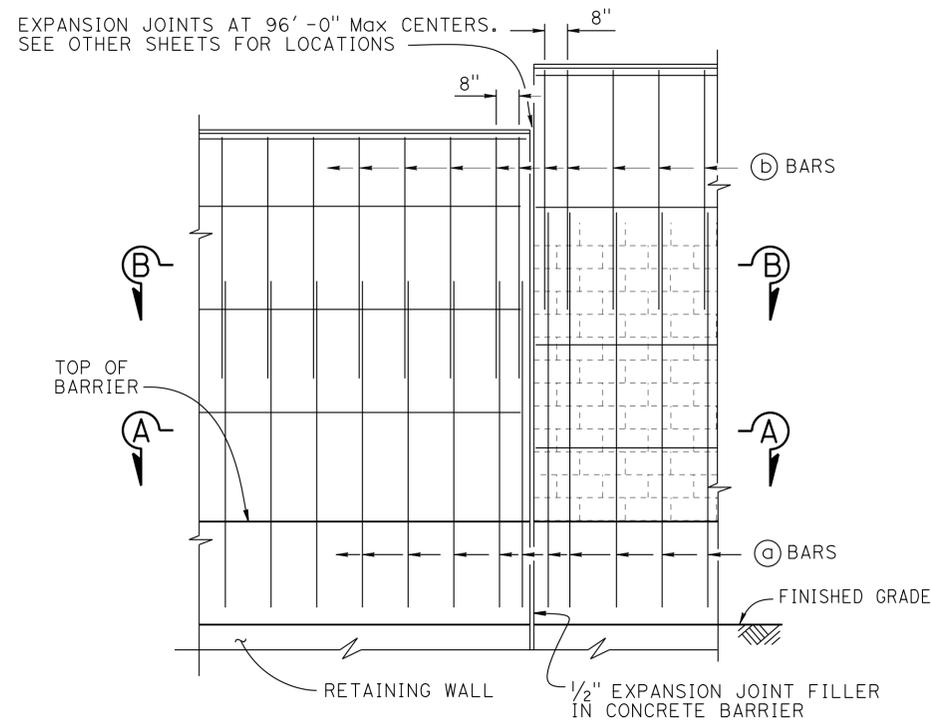
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USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:35

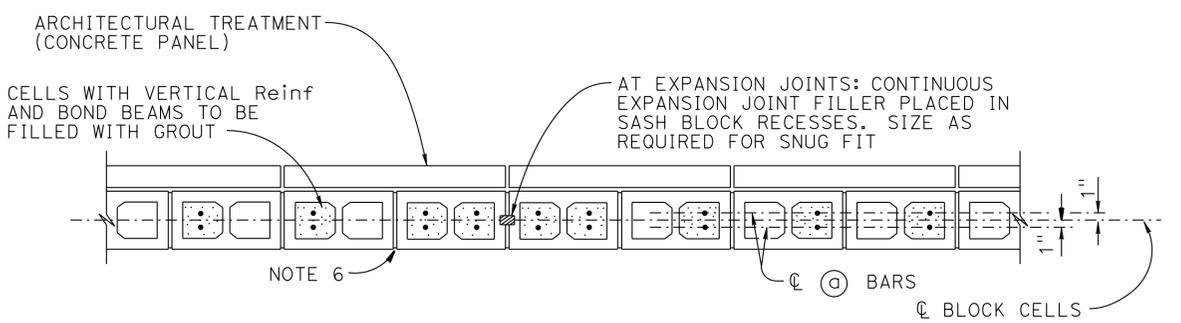
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	5	3.7/6.2	695	780

*Mohan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13  
 8-26-13  
 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

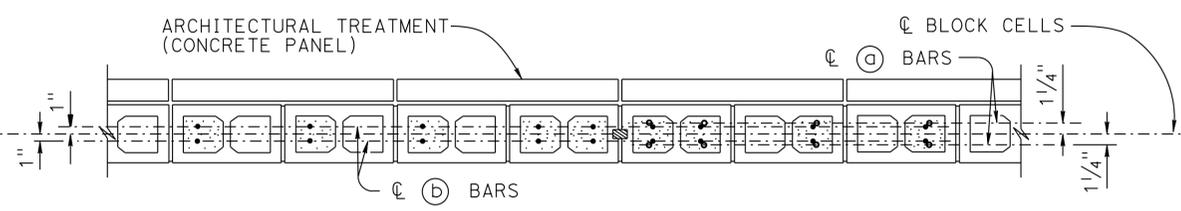
ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



**PART ELEVATION**  
 No Scale



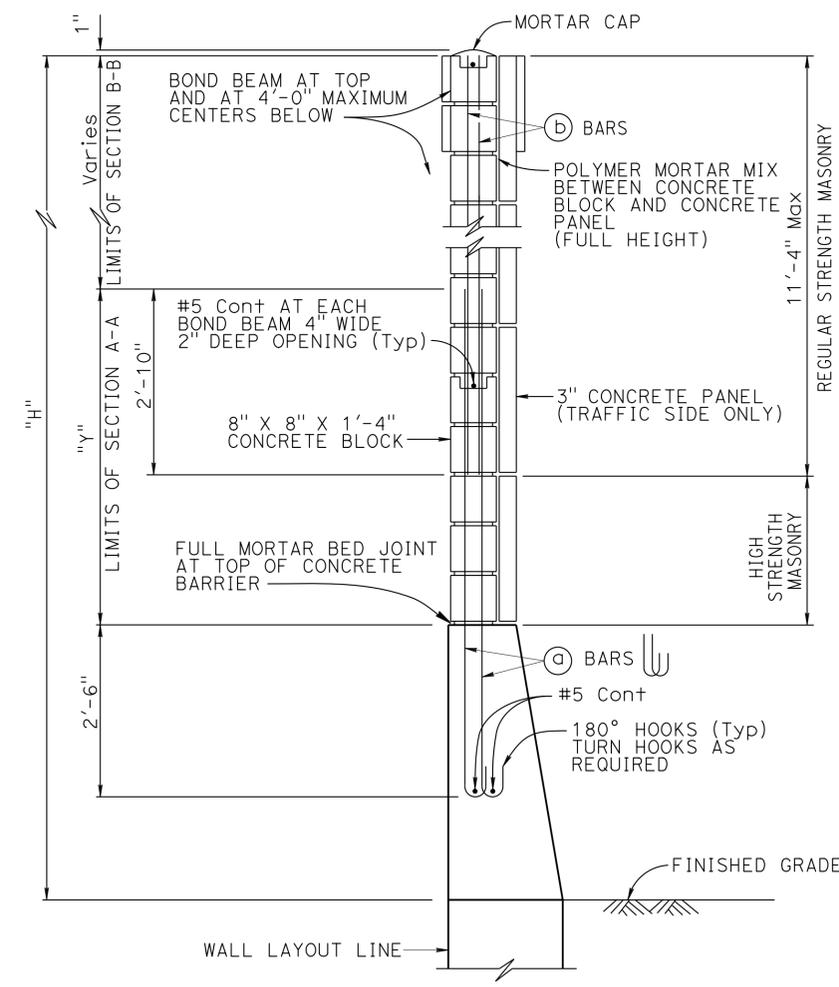
**SECTION A-A**  
 No Scale



**SECTION B-B**  
 No Scale

**SOUND WALL REINFORCEMENT TABLE**

MAXIMUM "H"	(a) BARS @ 1'-4" Max	(b) BARS @ 1'-4" Max	"Y"	f'm (psi)	COMPRESSIVE STRENGTH OF CMU (psi)	MAXIMUM "H"
14'-8"	#6	#4	7'-0"	1500	1900	14'-8"
16'-8"	#6	#4	9'-0"	2500	3700	16'-8"



**TYPICAL SECTION**  
 No Scale

- NOTES:
- For details not shown, see "MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL-DETAILS NO. 2" sheet.
  - Slope ground at traffic side of barrier to drain. Maximum slope ±10%.
  - See STANDARD PLANS B15-9 for other details.
  - 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 wire 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 may be weathered. Vertical joints shall be tooled concave or may be raked.
  - For intermediate wall heights that are between the "H's" given, use the tabular information for the next higher "H".
  - Masonry strengths are listed in "SOUND WALL REINFORCEMENT TABLE".
  - Concrete to be used for the barrier shall contain not less than 590 pounds of cementitious material per cubic yard.

*Luqi Yang*  
 DESIGN OVERSIGHT  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY L. He	CHECKED J. Leimberger
DETAILS	BY H. Withers	CHECKED C. Weber
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**  
 Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55E0150
POST MILES	4.99

**RETAINING WALL NO. 275L**  
**MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL**  
**DETAILS NO. 1**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

REVISION DATES	SHEET	OF
01-14-13 04-22-13	6	9

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	696	780

*Mohan*  
REGISTERED CIVIL ENGINEER DATE 4/22/13

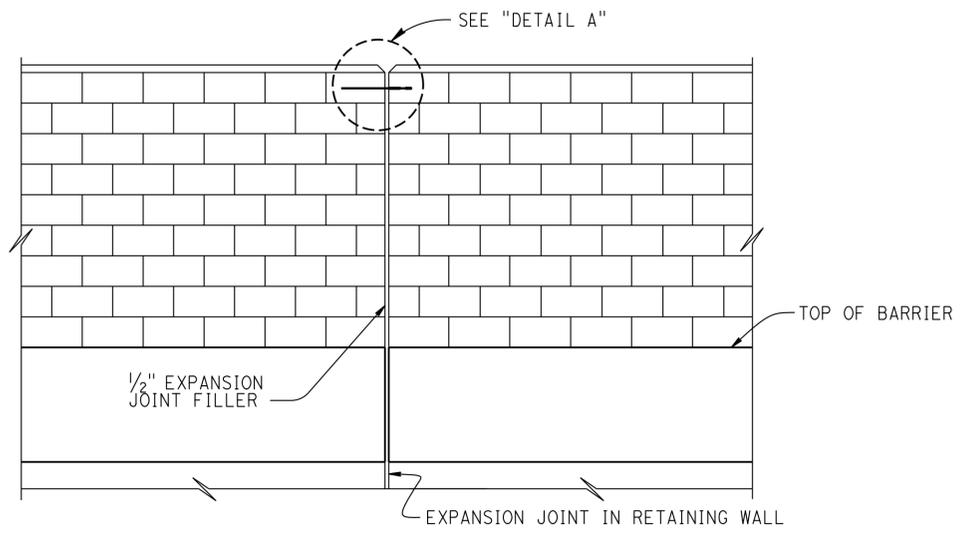
8-26-13  
PLANS APPROVAL DATE

MOHAN S. CHAR  
No. 57894  
Exp. 6/30/14  
CIVIL  
STATE OF CALIFORNIA

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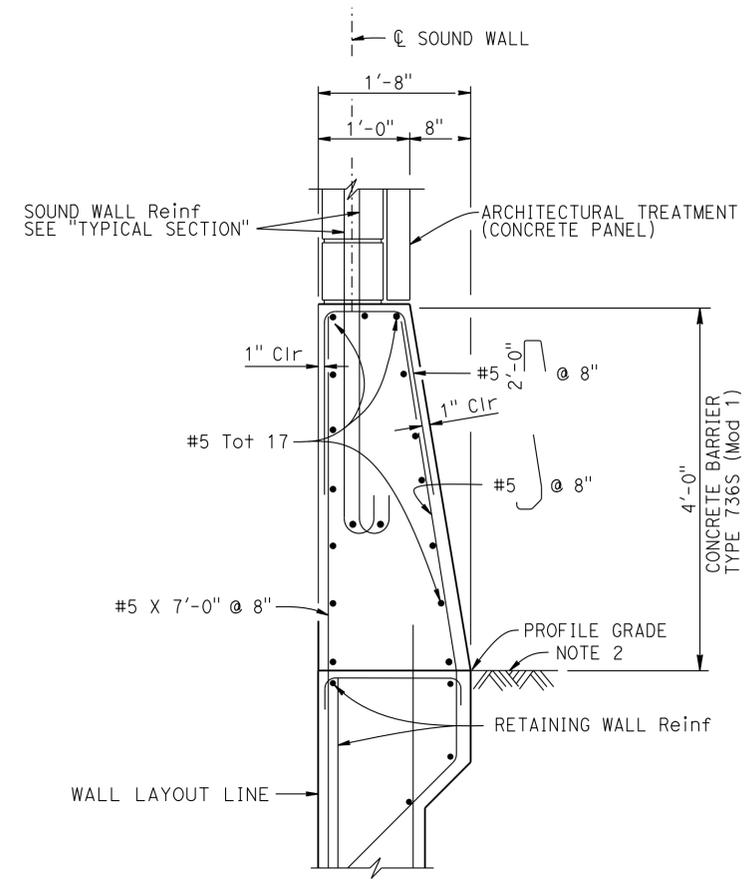
ORANGE COUNTY TRANSPORTATION AUTHORITY  
550 SOUTH MAIN STREET  
ORANGE, CA 92863-1584

AECOM TECHNICAL SERVICES INC.  
999 W. TOWN & COUNTRY ROAD  
ORANGE, CALIFORNIA 92868

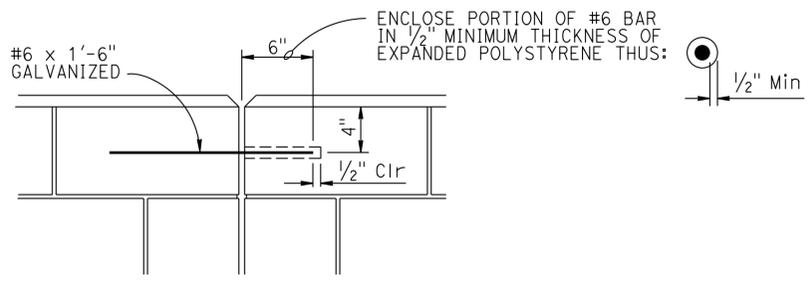


**ALIGNMENT KEY DETAIL**  
No Scale

- NOTES:
1. For sound wall block type, see "SOUND WALL DETAILS" sheet.
  2. Concrete panel not shown for clarity.



**BARRIER SECTION**  
No Scale



**DETAIL A**  
No Scale

**DESIGN NOTES**

DESIGN  
Uniform Building Code, 1997 Edition and the Bridge Design Specifications

DESIGN WIND LOAD 33 psf	DESIGN SEISMIC LOAD 0.57 Dead load
----------------------------	---------------------------------------

REINFORCED CONCRETE f'c = 3600 psi fy = 60 ksi	REGULAR STRENGTH f'm = 1500 psi fb = 495 psi fs = 24,000 psi n = 25.8	HIGH STRENGTH f'm = 2000 psi fb = 660 psi fs = 24,000 psi n = 19.3	f'm = 2500 psi fb = 830 psi fs = 24,000 psi n = 15.5
------------------------------------------------------	-----------------------------------------------------------------------------------	--------------------------------------------------------------------------------	---------------------------------------------------------------

- NOTES:
1. For details not shown, see STANDARD PLAN B15-6.
  2. Slope ground at traffic side of barrier to drain.  
Maximum slope ±10%  
See STANDARD PLAN B11-56, Note D.

*Luqi Yang*  
DESIGN OVERSIGHT  
5-15-13  
SIGN OFF DATE

DESIGN	BY L. He	CHECKED J. Leimberger
DETAILS	BY H. Withers	CHECKED C. Weber
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
PROJECT ENGINEER

BRIDGE NO.	55E0150
POST MILES	4.99

**RETAINING WALL NO. 275L**

**MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL**

**DETAILS NO. 2**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	01-14-13 04-22-13	7	9

FILE => RW275L-g-rwdt04.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	5	3.7/6.2	697	780

*Mohan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13

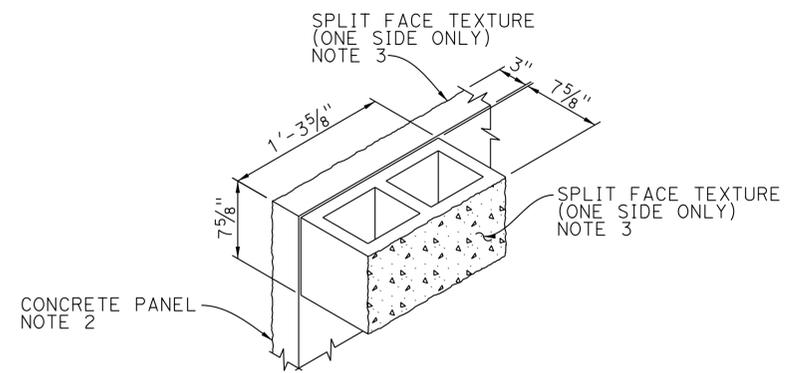
8-26-13  
 PLANS APPROVAL DATE

MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

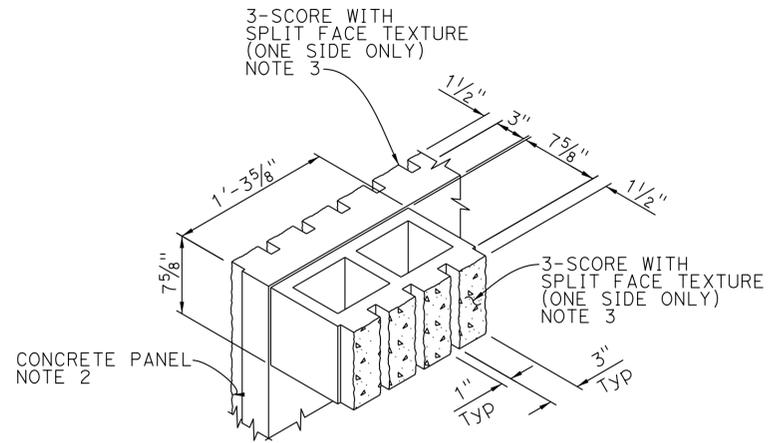
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ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584

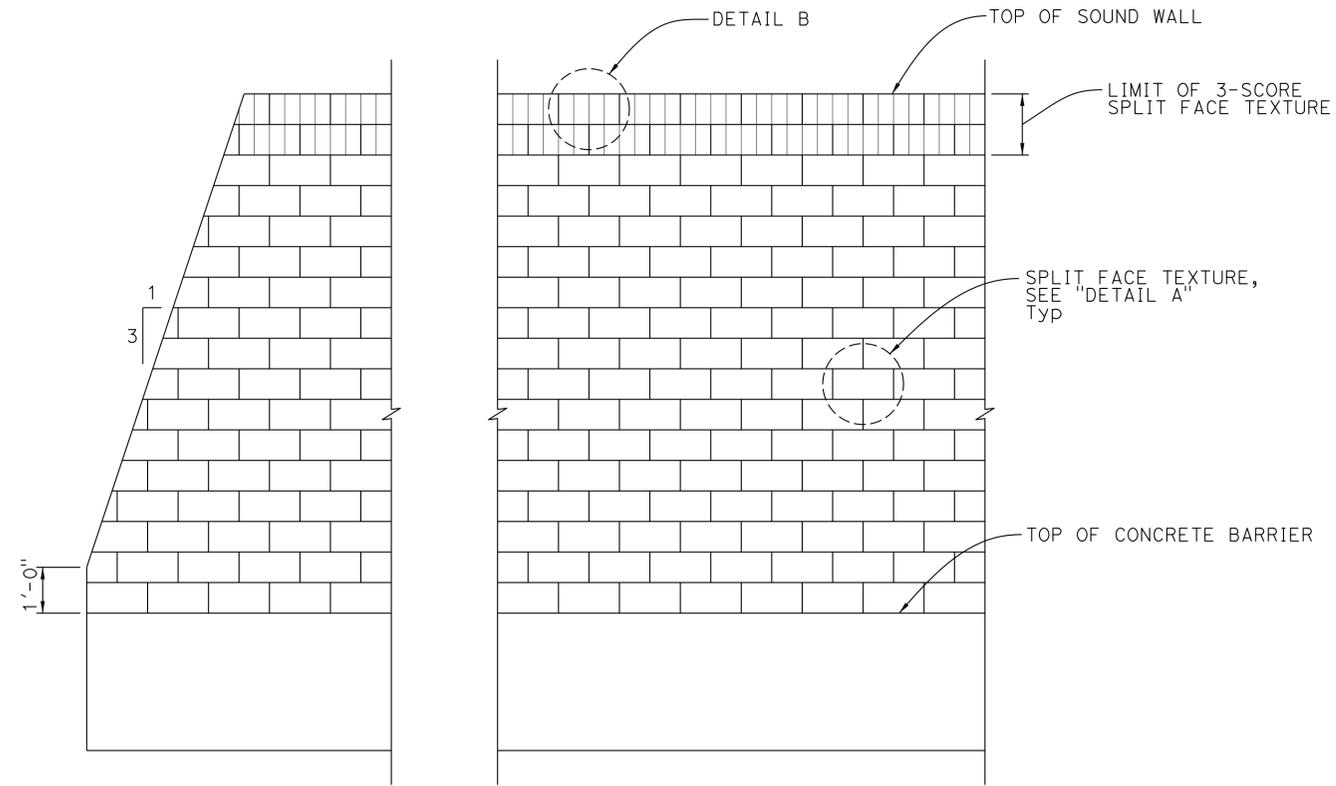
AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



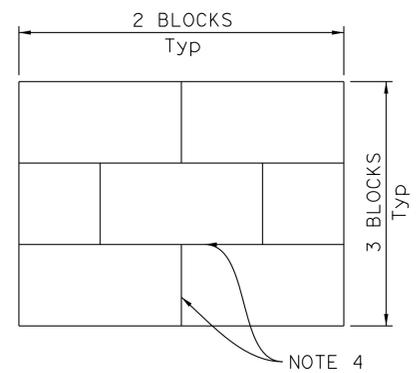
**DETAIL A**  
NO SCALE



**DETAIL B**  
NO SCALE



**PART ELEVATION**  
NO SCALE



**TYPICAL CONCRETE PANEL**  
NO SCALE

- NOTES:
1. Block size shall be 8" x 8" x 1'-4".
  2. Concrete panel shall be SoundSorb panel.
  3. Block and concrete panel color shall match existing sound walls nearby.
  4. Concrete panel shall simulate block horizontal and vertical joints.

*Luqi Yang*  
 DESIGNER  
 Luqi Yang  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY J. Quinoveva	CHECKED C. Weber
DETAILS	BY H. Withers	CHECKED C. Weber
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.	55E0150
POST MILES	4.99

**RETAINING WALL NO. 275L**  
**SOUND WALL DETAILS**

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

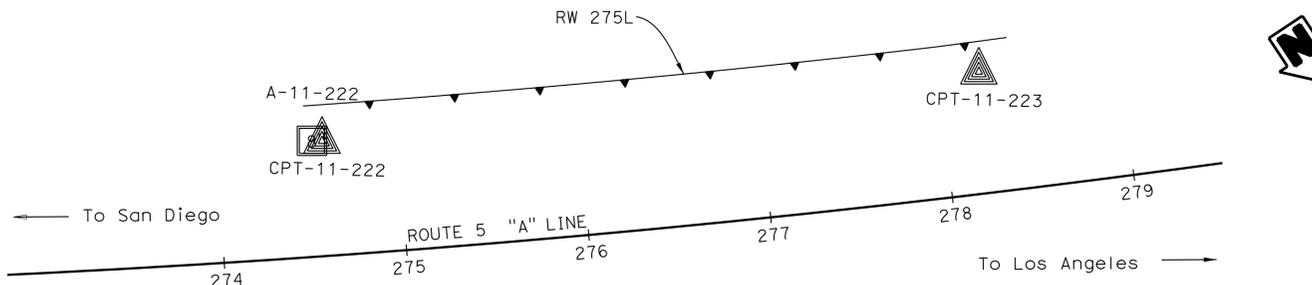
DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	09-24-12 01-14-13 04-22-13	8	9

FILE => RW275L-g-rwd+05.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:36

BENCH MARK  
 DESIGNATION: 3SS-2-82 ELEV 95.558'

DESCRIBED BY OCS 2003 - FOUND 3/4" OCS ALUMINUM BENCH MARK DISK STAMPED "3SS-2-82", SET IN THE SOUTHEASTERLY CORNER OF A 4 FT. BY 4.5 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE NORTHWESTERLY SIDE OF AVENIDA VAQUERO, 100 FT. NORTHERLY OF THE NORTHERLY EDGE OF THE SAN DIEGO FREEWAY OVERCROSSING OF AVENIDA VAQUERO, 23 FT. WESTERLY OF THE CENTERLINE OF VAQUERO AND 29.2 FT. SOUTHERLY OF A STREET STANDARD NO NUMBER. MONUMENT IS SET LEVEL WITH THE TOP OF THE CURB.



**PLAN**

1" = 50'

**NOTES:**

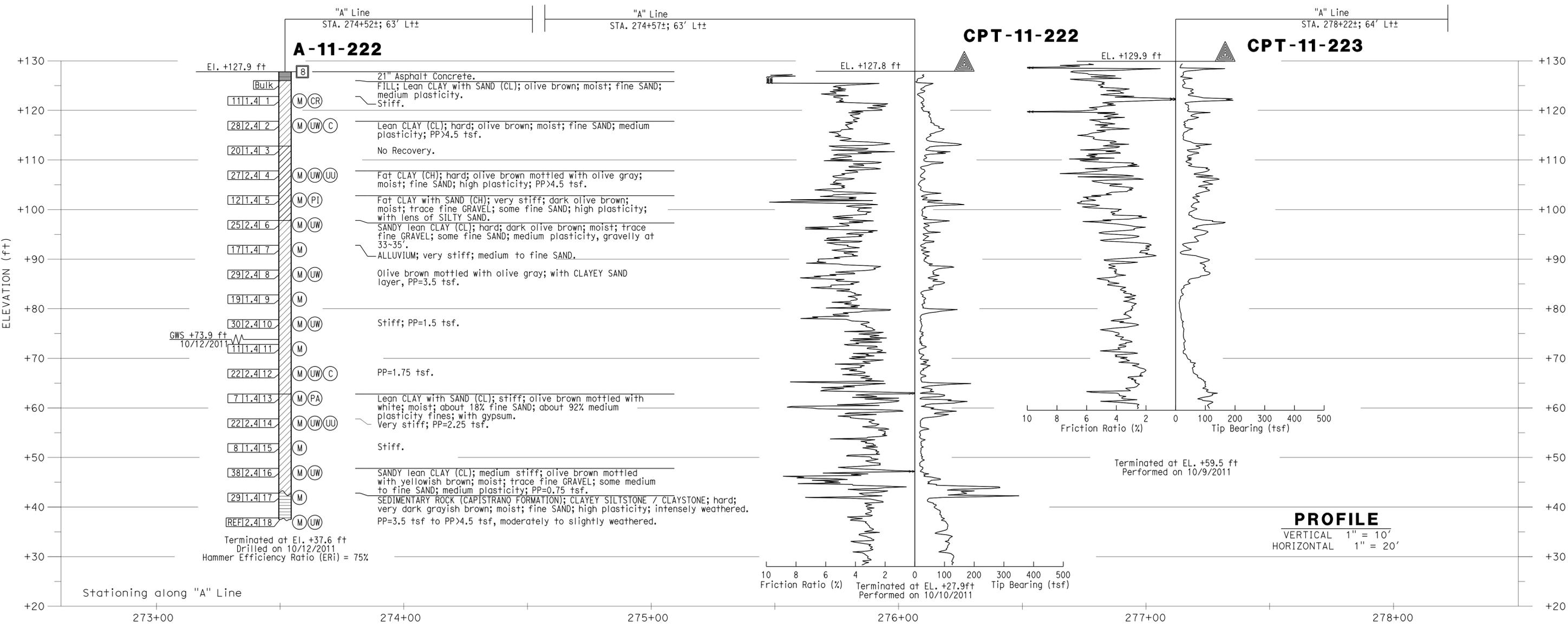
- (1) This LOTB sheet was prepared in accordance with the Caltrans Soil and Rock Logging, Classification and Presentation Manual (June 2010).
- (2) 2.4" samples were taken using a California Modified Sampler.
- (3) An automatic trip hammer system consisting of a hammer weight of 140 lbs falling a distance of 30" was used to advance the drive sampler.
- (4) Conversion factor from 2.4" Modified California Ring Sampler blowcounts to Standard Penetration Test (SPT) blowcounts is 0.5.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	698	780

REGISTERED ENGINEER  
 DATE 4/22/13  
 PLANS APPROVAL DATE 8-26-13  
 A. KORKOS  
 NO. GE 2357  
 EXP. 3-31-14  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF CALIFORNIA  
 PEOTECHNICAL

ORANGE COUNTY TRANSPORTATION AUTHORITY  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584

EARTH MECHANICS, INC.  
 17800 NEWHOPE STREET, SUITE B  
 FOUNTAIN VALLEY, CA 92708



**PROFILE**

VERTICAL 1" = 10'  
 HORIZONTAL 1" = 20'

Luqi Yang  
 DESIGN OR SIGNATURE  
 5-15-13  
 SIGN OFF DATE

DRAWN BY J. FANG  
 CHECKED BY G. J. GUNARANJAN

R. JIE  
 FIELD INVESTIGATION BY:  
 DATE: 9/2011, 10/2011

PREPARED FOR THE  
 STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

A. KORKOS  
 PROJECT ENGINEER

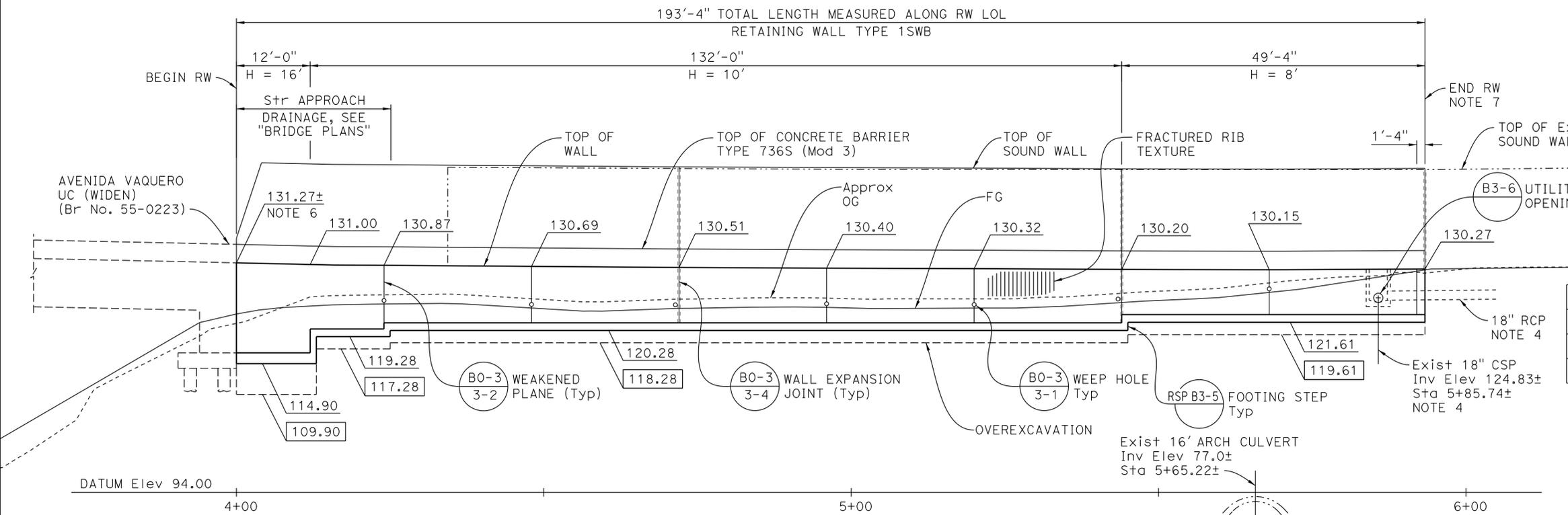
BRIDGE NO. 55E0150  
 POST MILES 4.99

**RETAINING WALL NO. 275L  
 LOG OF TEST BORINGS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Orca	5	3.7/6.2	699	780

**Mohan S. Char**  
 REGISTERED CIVIL ENGINEER  
 4/22/13 DATE  
 8-26-13 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

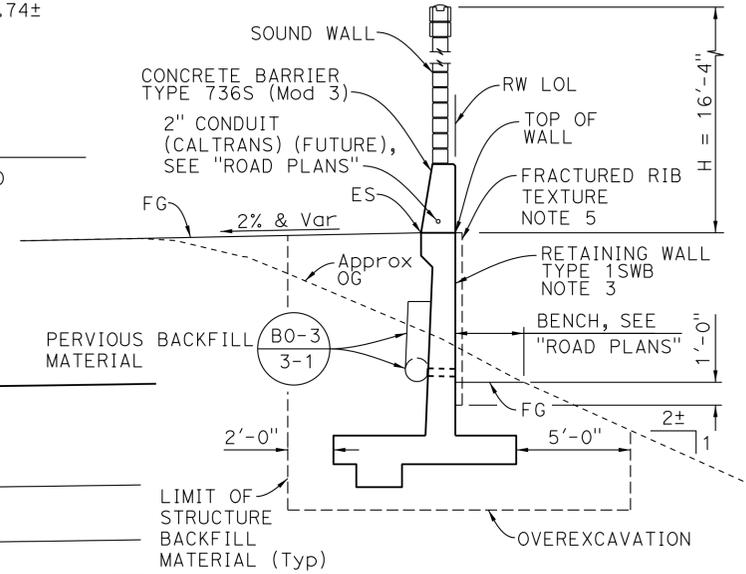
**ORANGE COUNTY TRANSPORTATION AUTHORITY**  
 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
**AECOM TECHNICAL SERVICES INC.**  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868



**DEVELOPED ELEVATION**  
 1" = 10'

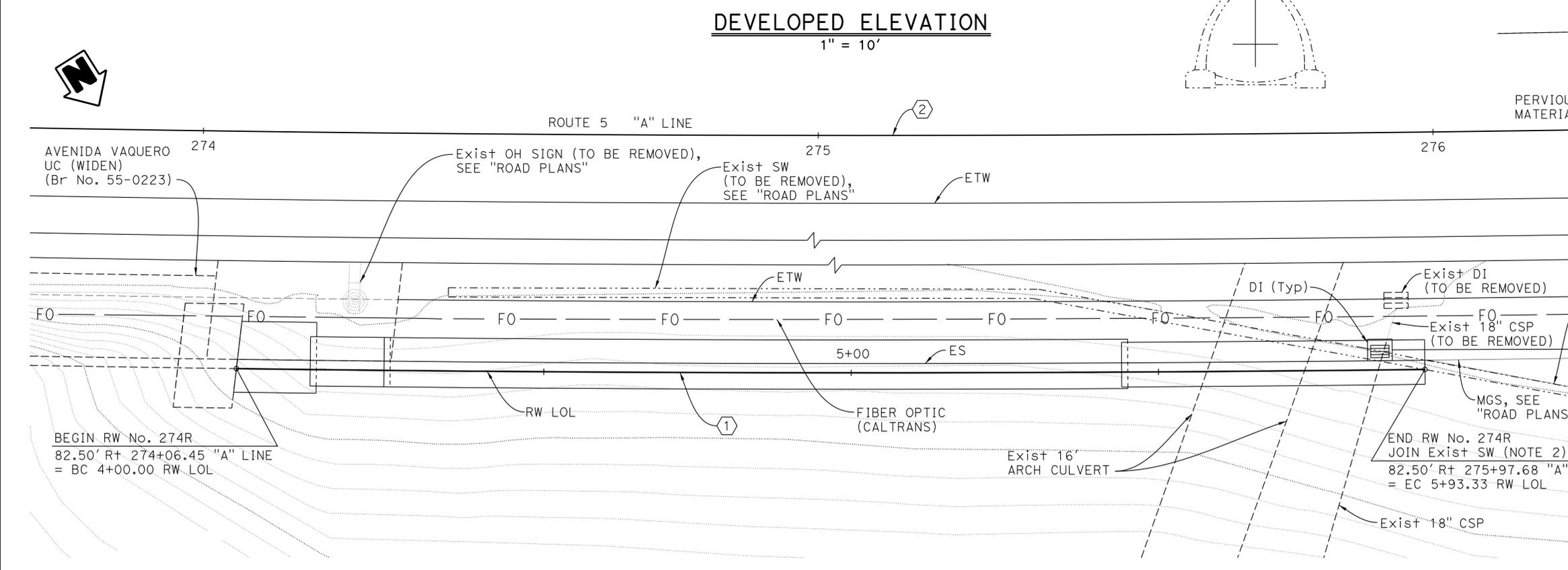
**CURVE DATA**

No.	R	Δ	L	T
①	7582.50'	1°27'39"	193.33'	96.67'
②	7500.00'	13°20'19"	1746.01'	876.97'



**TYPICAL SECTION**  
 1/4" = 1'-0"

- NOTES:
- All wall expansion joints, weakened planes and footing steps occur at intervals of 24'-0" unless shown otherwise.
  - For "INDEX TO PLANS", "LEGEND", "QUANTITIES" and "JOIN DETAIL", see "INDEX TO PLANS" sheet.
  - For Retaining Wall Type 1SWB details, see "RETAINING WALL TYPE 1SWB-DETAILS NO. 1" sheet.
  - For "SECTION AT INLET" and "SECTION AT PIPE", see "INDEX TO PLANS" sheet.
  - For "FRACTURED RIB TEXTURE", see "INDEX TO PLANS" sheet.
  - Top of wall to match top of bridge deck.
  - Top of sound wall to match top of exist sound wall.



**PLAN**  
 1" = 10'

NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

<b>Luqi Yang</b> DESIGN OR SIGNATURE 5-15-13 SIGN OFF DATE	DESIGN	BY J. Quinovega	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	<b>PREPARED FOR THE STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION Mohan S. Char PROJECT ENGINEER	BRIDGE NO.	<b>RETAINING WALL NO. 274R</b> <b>GENERAL PLAN</b>
	DETAILS	BY J. Quinovega	CHECKED C. Weber	LAYOUT	BY J. Quinovega		CHECKED C. Weber	
	QUANTITIES	BY J. Quinovega	CHECKED D. Kim	SPECIFICATIONS	BY M. Char	CHECKED M. Char	POST MILES	4.99

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: PROJECT NUMBER & PHASE: 1200020278 CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	1	8

FILE => RW274R-a-gp01.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	5	3.7/6.2	700	780

*Mohan*  
 REGISTERED CIVIL ENGINEER DATE 4/22/13  
 8-26-13  
 PLANS APPROVAL DATE  
 MOHAN S. CHAR  
 No. 57894  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

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 550 SOUTH MAIN STREET  
 ORANGE, CA 92863-1584  
 AECOM TECHNICAL SERVICES INC.  
 999 W. TOWN & COUNTRY ROAD  
 ORANGE, CALIFORNIA 92868

### INDEX TO PLANS

No.	Title
1	GENERAL PLAN
2	INDEX TO PLANS
3	RETAINING WALL TYPE 1SWB-DETAILS NO. 1
4	RETAINING WALL TYPE 1SWB-DETAILS NO. 2
5	MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL-DETAILS NO. 1
6	MASONRY BLOCK SOUND WALL WITH BARRIER ON RETAINING WALL-DETAILS NO. 2
7	SOUND WALL DETAILS
8	LOG OF TEST BORINGS

### STANDARD PLANS 2010 EDITION

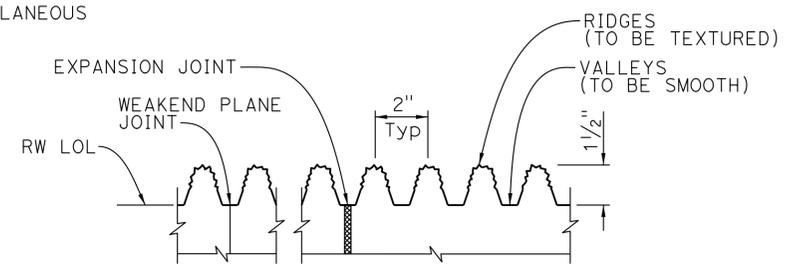
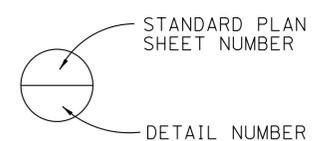
A10A	ABBREVIATIONS (SHEET 1 OF 2)
A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)
A10F	LEGEND - SOIL (SHEET 1 OF 2)
A10G	LEGEND - SOIL (SHEET 2 OF 2)
A10H	LEGEND - ROCK
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL - BRIDGE SURCHARGE AND WALL METAL BEAM GUARD RAILING CONNECTIONS TO ABUTMENTS AND WALLS
A77J3	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
RSP B3-5	RETAINING WALL DETAILS NO. 1
B3-6	RETAINING WALL DETAILS NO. 2
RSP B11-56	CONCRETE BARRIER TYPE 736
RSP B15-6	SOUND WALL MASONRY BLOCK ON TYPE 736S/SV BARRIER DETAILS (1)
B15-9	SOUND WALL MASONRY BLOCK MISCELLANEOUS DETAILS

### LEGEND

- Denotes top of wall elevation (feet)
- Denotes bottom of footing elevation (feet)
- Denotes bottom of overexcavation (feet)

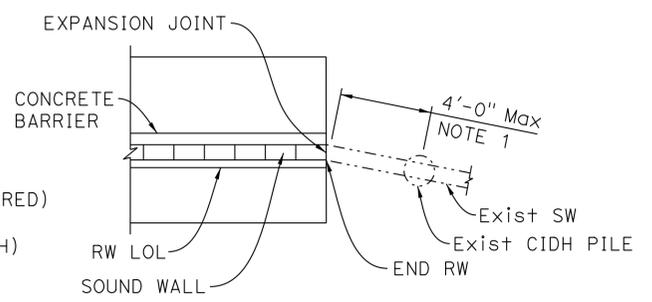
#### RETAINING WALL NO. 274R QUANTITIES

STRUCTURE EXCAVATION (RETAINING WALL)	775	CY
STRUCTURE BACKFILL (RETAINING WALL)	650	CY
PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	25	CY
STRUCTURAL CONCRETE, RETAINING WALL	182	CY
FRACTURED RIB TEXTURE	1,300	SQFT
BAR REINFORCING STEEL (RETAINING WALL)	24,780	LB
SOUND WALL (MASONRY BLOCK)	2,570	SQFT
CONCRETE BARRIER (TYPE 736S MODIFIED 3)	194	LF



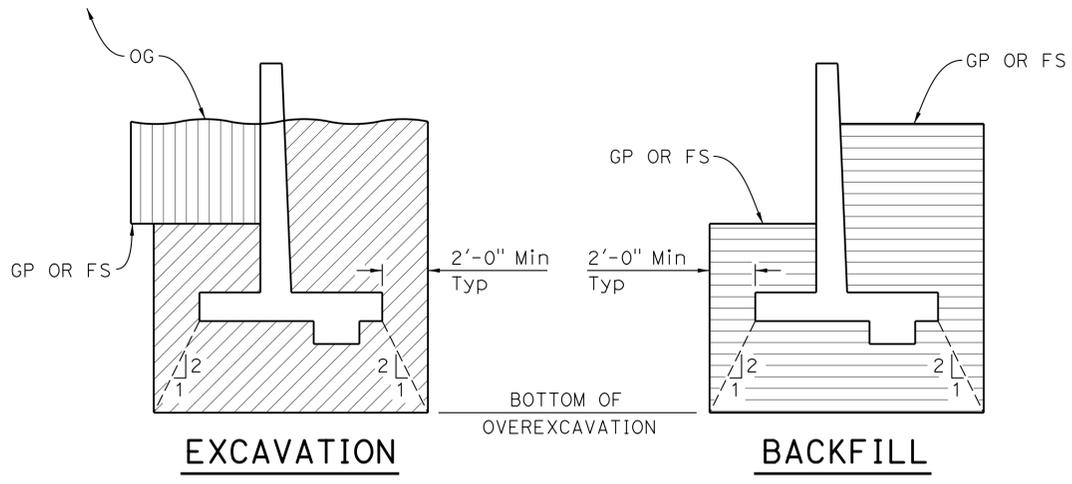
#### FRACTURED RIB TEXTURE NO SCALE

NOTE:  
Weakened Plane and Expansion Joints to be centered in valleys.



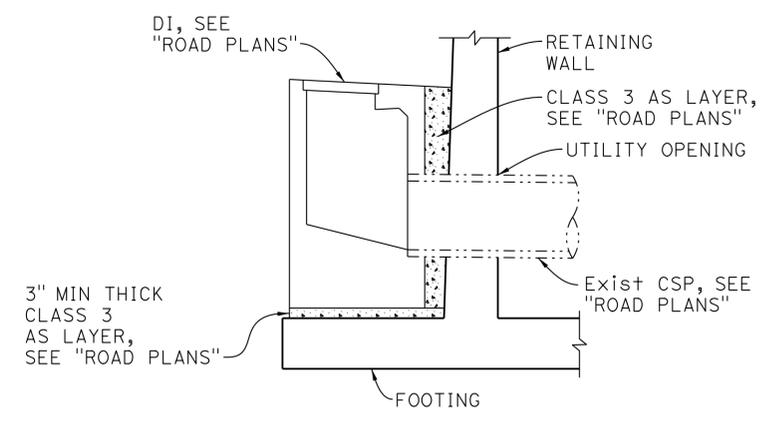
#### JOIN DETAIL 1/4" = 1'-0"

- NOTES:
- The location of existing piles shall be field verified. End of retaining wall may be adjusted as needed to satisfy pile spacing requirement.
  - MBGR not shown for clarity.

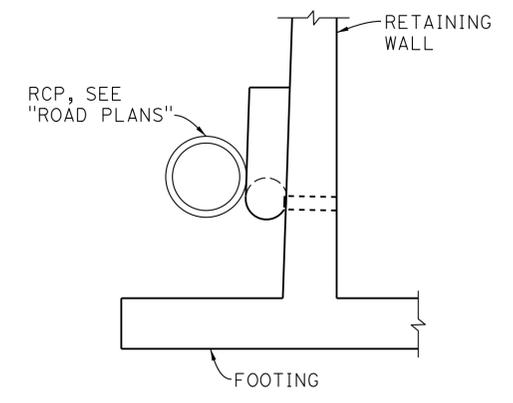


#### LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL NO SCALE

- LEGEND:
- ▨ Roadway Excavation
  - ▨ Structure Excavation (Retaining Wall)
  - ▨ Structure Backfill (Retaining Wall)



#### SECTION AT INLET NO SCALE



#### SECTION AT PIPE NO SCALE

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

*Luqi Yang*  
 DESIGN SUPERVISOR  
 5-15-13  
 SIGN OFF DATE

DESIGN	BY J. Quinoveva	CHECKED C. Weber	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY H. Withers	CHECKED C. Weber	LAYOUT	BY J. Quinoveva
QUANTITIES	BY J. Quinoveva	CHECKED D. Kim	SPECIFICATIONS	BY M. Char

PREPARED FOR THE  
**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

Mohan S. Char  
 PROJECT ENGINEER

BRIDGE NO.		RETAINING WALL NO. 274R	
55E0153		INDEX TO PLANS	
PROJECT MILES			
4.99			

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

UNIT: PROJECT NUMBER & PHASE: 1200020278

CONTRACT NO.: 12-0F96C1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
04-27-12 09-24-12 01-14-13 04-22-13	2	8

FILE => RW274R-a-1+tp01.dgn

USERNAME => s124496 DATE PLOTTED => 29-AUG-2013 TIME PLOTTED => 08:36