DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	301	457

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-07
CIVIL
STATE OF CALIFORNIA

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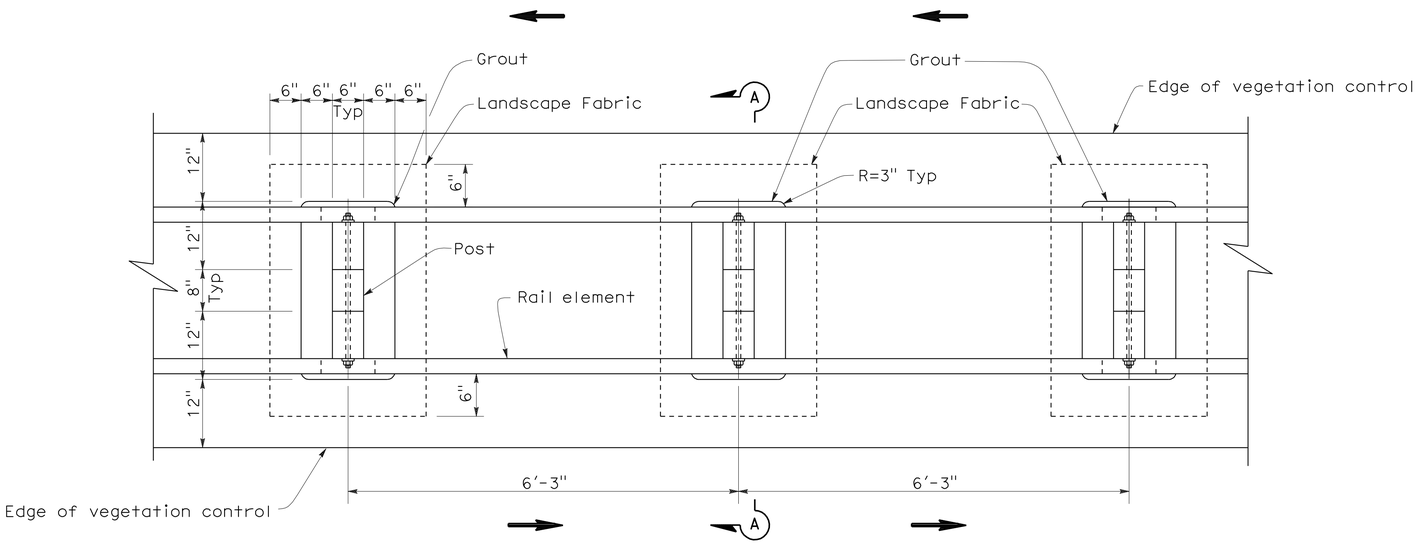
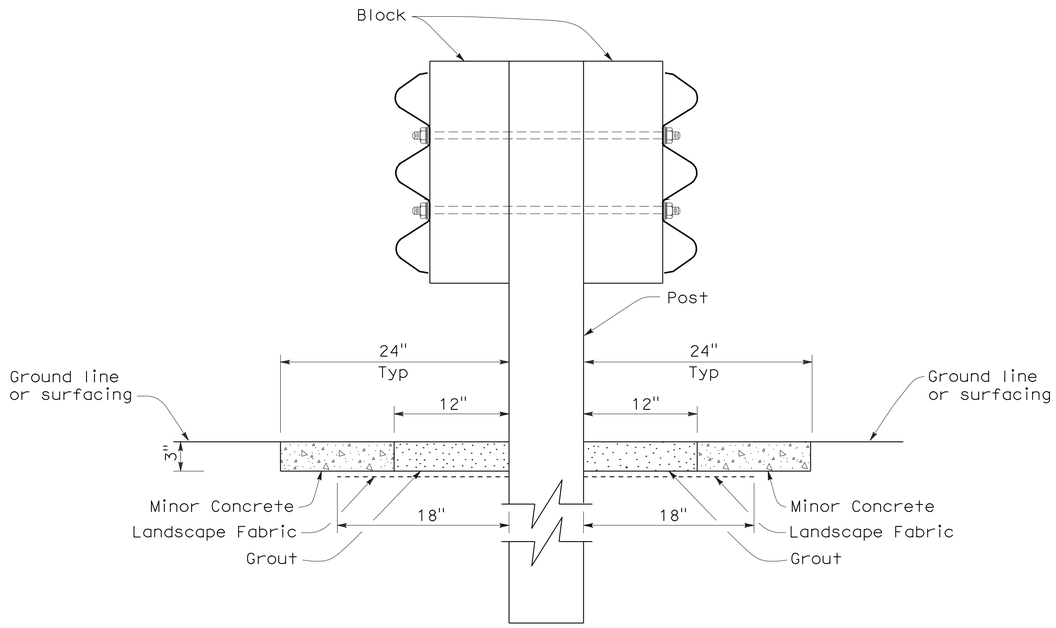
To accompany plans dated 1-23-12



PLAN



SECTION A-A

NOTE:

1. Direction of adjacent traffic indicated by →.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DOUBLE THRIE BEAM BARRIER
TYPICAL VEGETATION CONTROL
STANDARD BARRIER RAILING SECTION

NO SCALE

NSP A78C4 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP A78C4

2006 NEW STANDARD PLAN NSP A78C4

7-17-06

To accompany plans dated 1-23-12

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	302	457

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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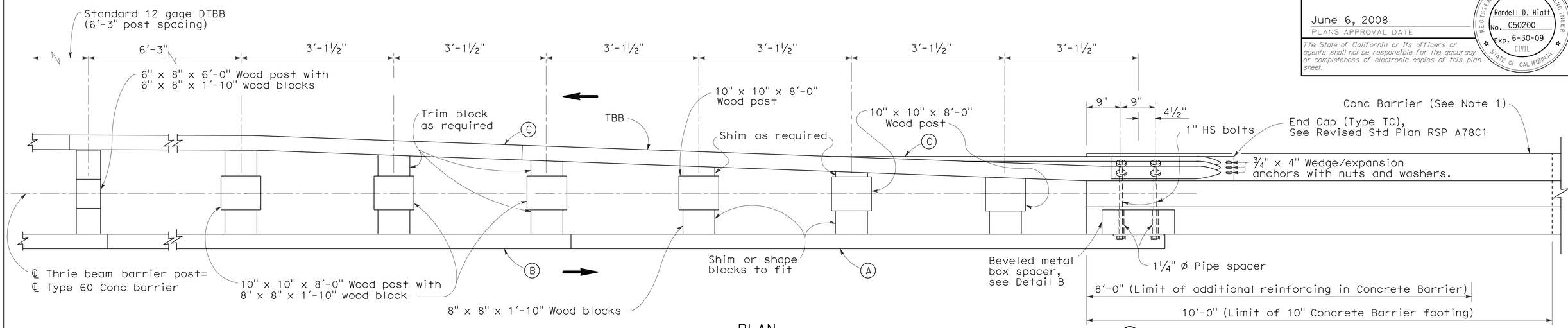
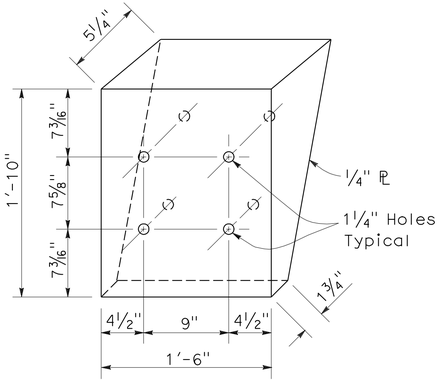
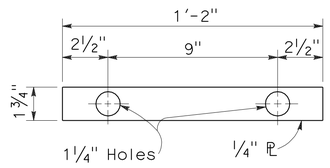


PLAN



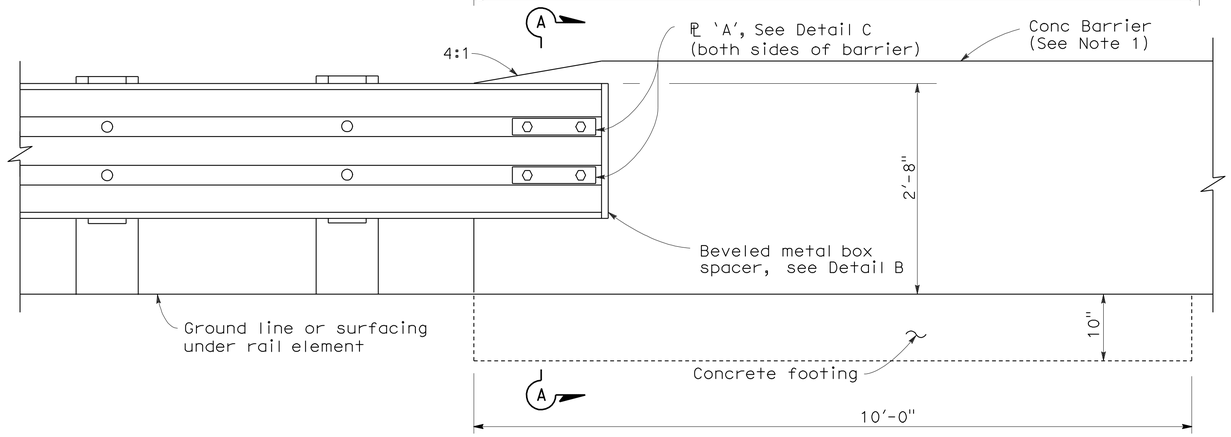
DETAIL B

Beveled metal box spacer
See Note 3

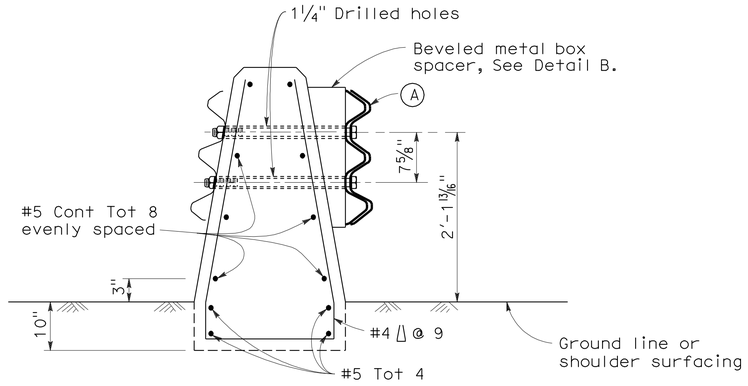


DETAIL C

PLATE 'A'



ELEVATION



SECTION A-A

(Type 60 Conc Barrier shown)

LEGEND

- (A) Nested thrie beam elements (one 12 gage element nested over one 10 gage element).
- (B) One 10 gage thrie beam element.
- (C) One 12 gage thrie beam element.

10 gage = 0.135" thick

12 gage = 0.108" thick

NOTES:

1. For details of Concrete Barrier Type 60, see Revised Standard Plan RSP A76A. Thrie beam barrier connections to Concrete Barrier Type 60S and Type 60G are similar to details shown on this plan.
2. For additional thrie beam barrier details, see Standard Plan A78A, Revised Standard Plans RSPs A78B and A78C1, and Standard Plan A78C2.
3. Where beveled metal box spacer is installed, place 1¼" ø x 3¼" and 1¼" ø x 2" pipe spacers on 1" HS bolts passing through interior of box.
4. Direction of traffic indicated by ➔.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DOUBLE THRIE BEAM BARRIER CONNECTION TO CONCRETE BARRIER

NO SCALE

RSP A78I DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A78I
DATED MAY 1, 2006 - PAGE 96 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A78I

2006 REVISED STANDARD PLAN RSP A78I

5-1-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	303	457

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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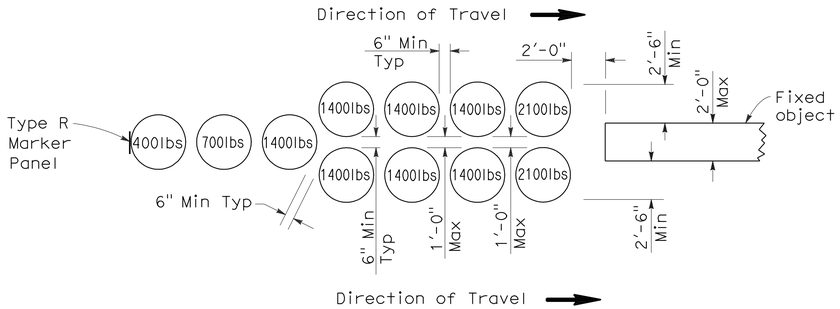
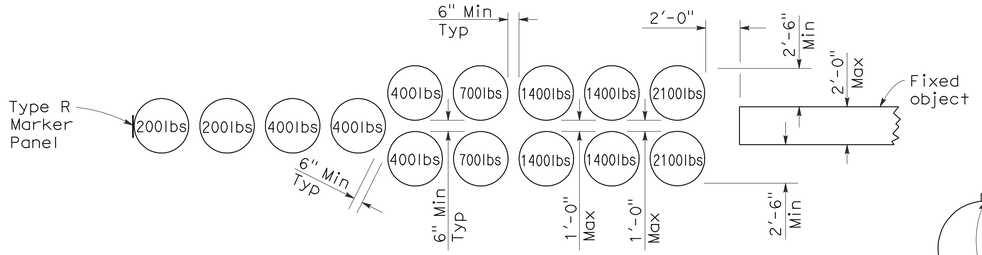
To accompany plans dated 1-23-12



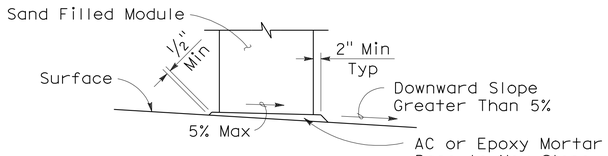
ARRAY 'U11'

Approach speed less than 45 mph



ARRAY 'U14'

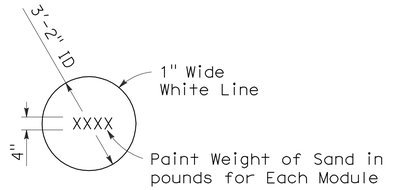
Approach speed 45 mph or more



ELEVATION

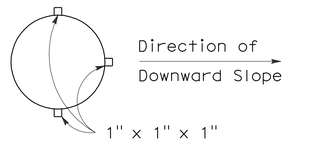
SLOPED SEAT DETAIL

(See Note 4)

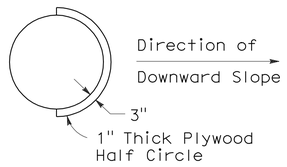


PAINTING DETAIL

(See Note 5)

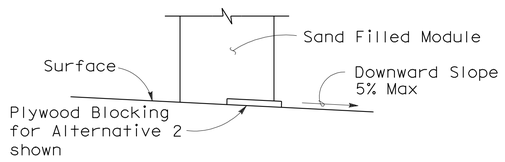


ALTERNATIVE 1



ALTERNATIVE 2

PLAN



ELEVATION

BRIDGE DECK MODULE BLOCKING DETAILS

(See Note 6)

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CRASH CUSHION, SAND FILLED (UNIDIRECTIONAL)

NO SCALE

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

REVISED STANDARD PLAN RSP A81A

2006 REVISED STANDARD PLAN RSP A81A

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	304	457

REGISTERED CIVIL ENGINEER

November 17, 2006
PLANS APPROVAL DATE

Michael Janzen No. 44788 Exp. 03-31-08 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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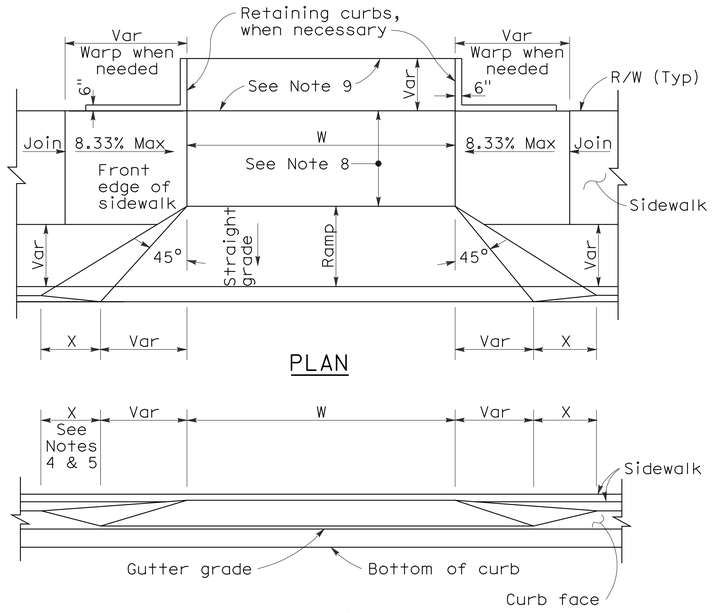
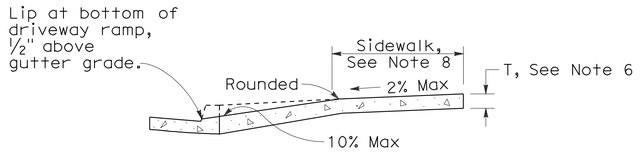
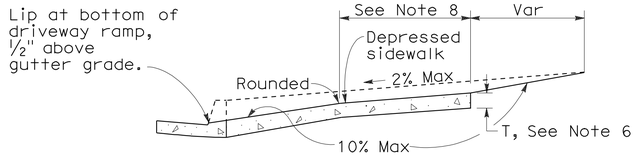
To accompany plans dated 1-23-12





CASE A

Typical driveway, sidewalk not depressed



CASE B

Driveway with depressed sidewalk

SECTIONS

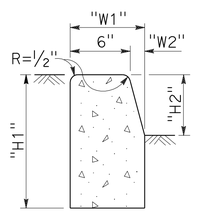
CURB QUANTITIES

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

TABLE A

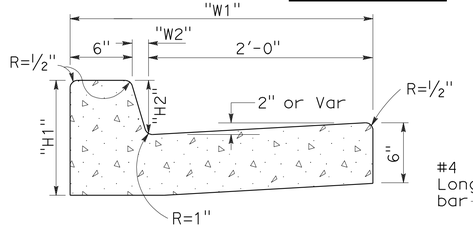
CURB TYPE	DIMENSIONS "H1"	"H2"	"W1"	"W2"
A1-6	1′-2"	6"	7½"	1½"
A1-8	1′-4"	8"	8"	2"
A2-6	1′-0"	6"	2′-7½"	1½"
A2-8	1′-2"	8"	2′-8"	2"
A3-6	6"	5"	7¼"	1¼"
A3-8	8"	7"	7¾"	1¾"
B1-4	1′-0"	4"	7½"	2½"
B1-6	1′-2"	6"	9"	4"
B2-4	10"	4"	2′-7½"	2½"
B2-6	1′-0"	6"	2′-9"	4"
B3-4	4"	3"	7"	2"
B3-6	6"	5"	8½"	3½"
D-4	10"	4"	1′-6"	1′-1"
D-6	1′-0"	6"	2′-2"	1′-8"

DRIVEWAYS



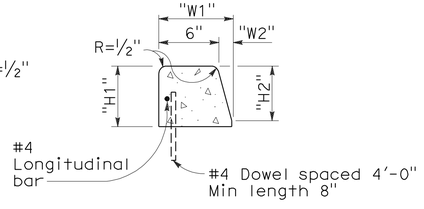
TYPE A1 CURBS

See Table A



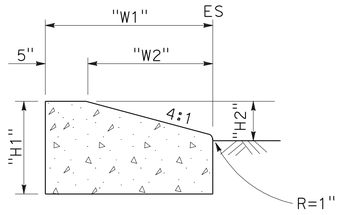
TYPE A2 CURBS

See Table A



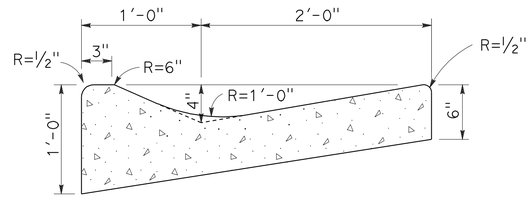
TYPE A3 CURBS

Superimposed on existing pavement
See Table A

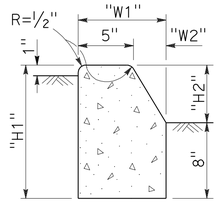


TYPE D CURBS

See Table A

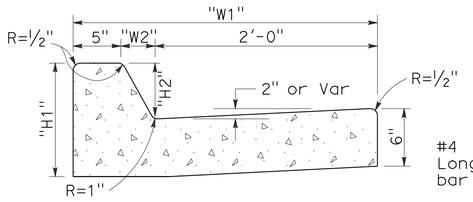


TYPE E CURB



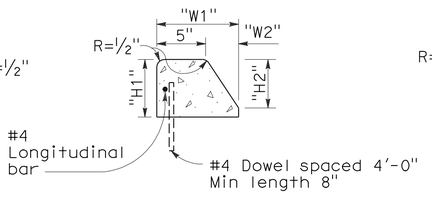
TYPE B1 CURBS

See Table A



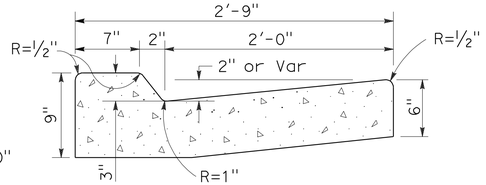
TYPE B2 CURBS

See Table A

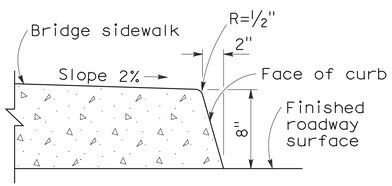


TYPE B3 CURBS

Superimposed on existing pavement
See Table A



TYPE B4 CURBS



TYPE H CURB

On Bridges

NOTES:

1. Case A driveway section typically applies.
2. Use Case B driveway section when ramp slopes would exceed 10% in Case A.
3. Use Case B driveway section when sidewalk cross slope would exceed 2% in Case A.
4. X=3′-0" except for curb heights over 10" where 4:1 slopes shall be used on curb slope.

CURBS

5. X is a variable when sidewalk is located where wheelchairs may traverse the surface. Slopes shall not exceed 8.33%.
6. Sidewalk and ramp thickness "T" at driveway shall be 4" for residental and 6" for commercial.
7. 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.
8. Minimum width of clear passageway for sidewalk shall be 4′-0".
9. Retaining curbs and acquisition of construction easement may be necessary for narrow sidewalks or curb heights in excess of 6".
10. 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 NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN A87A
DATED MAY 1, 2006 - PAGE 113 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A87A

2006 REVISED STANDARD PLAN RSP A87A

10-25-06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	305	457

William K. Farnbach
REGISTERED CIVIL ENGINEER

May 15, 2009
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — William K. Farnbach — No. C49042 — Exp. 9-30-10 CIVIL — STATE OF CALIFORNIA

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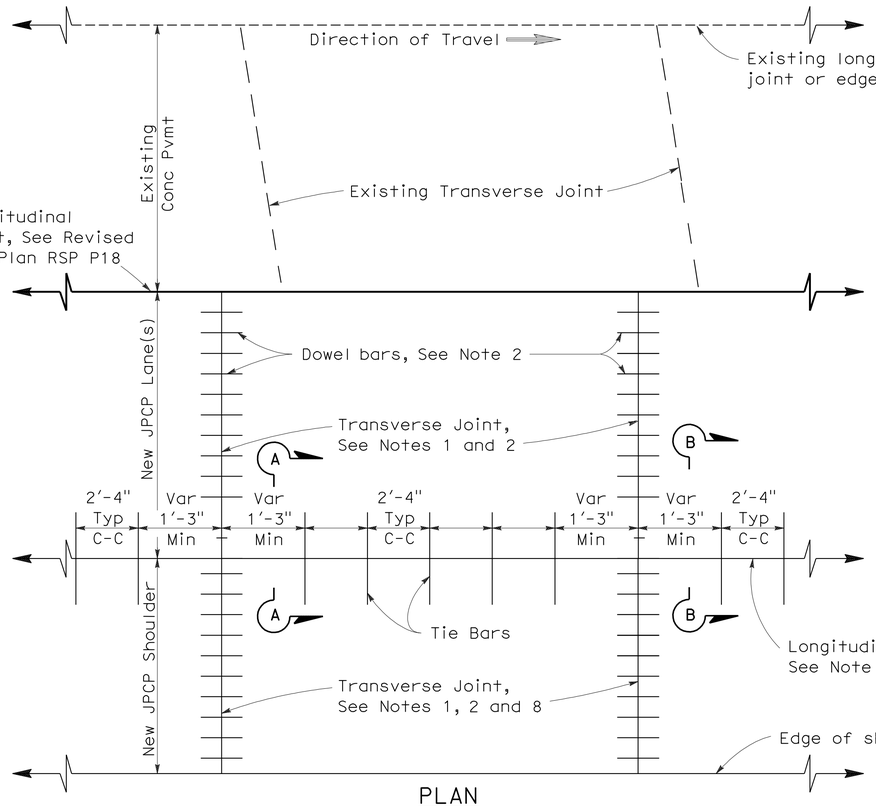
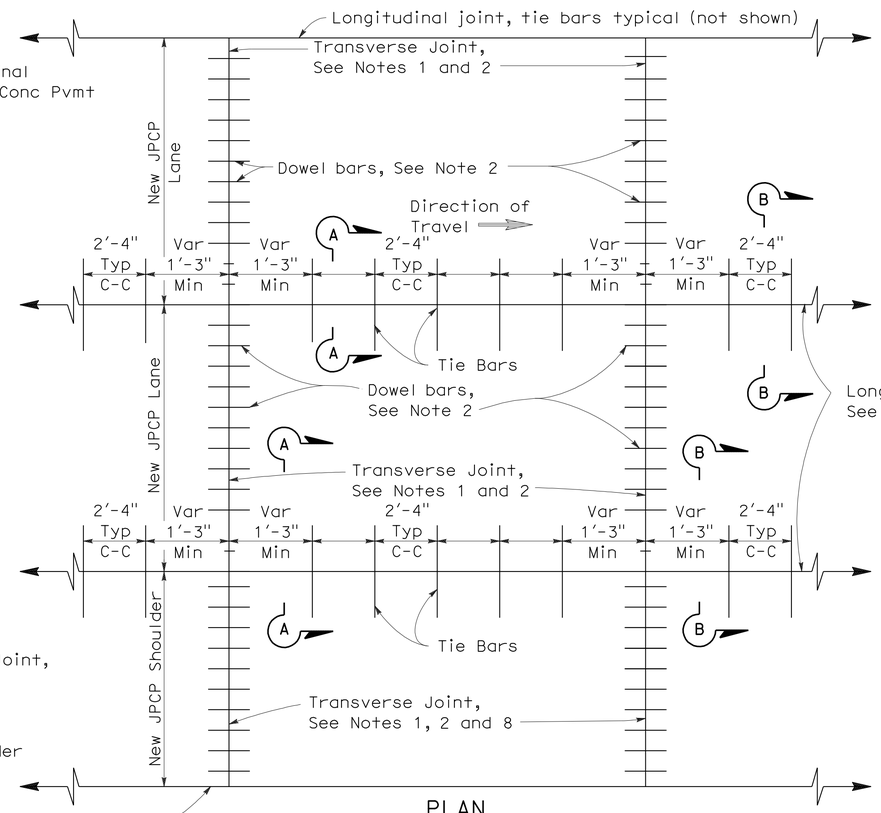
To accompany plans dated 1-23-12



PLAN

LANE/SHOULDER ADDITION OR RECONSTRUCTION

See Notes 6 and 7



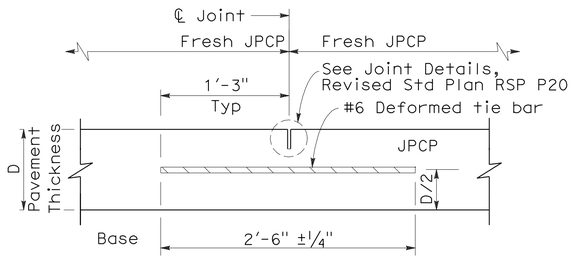
PLAN

NEW CONSTRUCTION

See Notes 6 and 7

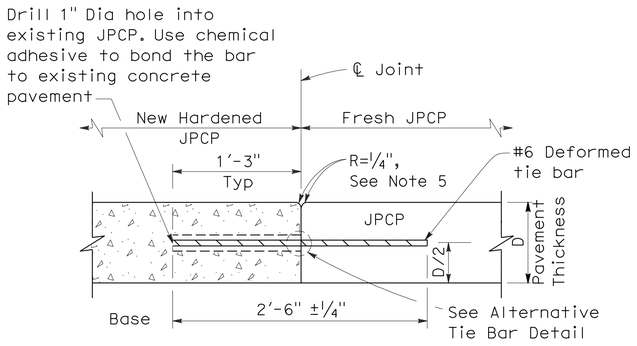
NOTES:

1. Transverse joints shall be constructed at right angles to the longitudinal pavement joints in new jointed plain concrete pavement and spaced at successive repeated intervals of 12', 15', 13' and 14'.
2. For transverse joint and dowel bar details not shown, See Revised Standard Plan RSP P10.
3. Construct longitudinal contraction joints as shown in Section A-A when more than one lane or shoulder widths are placed at one time. If constructing one lane at a time, use longitudinal construction joint, as shown in Section B-B.
4. For additional longitudinal joint details, see Revised Standard Plan RSP P18.
5. If fresh concrete is placed adjacent to existing concrete, the top corner of the new hardened concrete does not need to be rounded to the 1/4" radius as shown.
6. Joint spacing patterns do not apply to intersections.
7. Details can also apply to inside widening.
8. Dowel bars may be omitted from shoulders when the shoulder cross slope is not the same as the adjacent traffic lane.



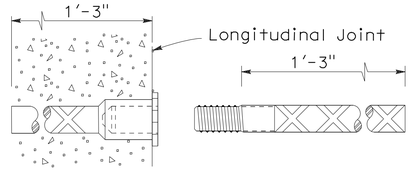
SECTION A-A

LONGITUDINAL CONTRACTION JOINT



SECTION B-B

LONGITUDINAL CONSTRUCTION JOINT



ALTERNATIVE TIE BAR SPLICE DETAIL

(Splice Coupler)

TIE BAR DETAILS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

JOINTED PLAIN CONCRETE PAVEMENT

NO SCALE

RSP P1 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P1
DATED MAY 1, 2006 - PAGE 119 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP P1

2006 REVISED STANDARD PLAN RSP P1

5-8-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	306	457

William K. Farnbach
REGISTERED CIVIL ENGINEER

May 15, 2009
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — William K. Farnbach — No. C49042 — Exp. 9-30-10 CIVIL — STATE OF CALIFORNIA

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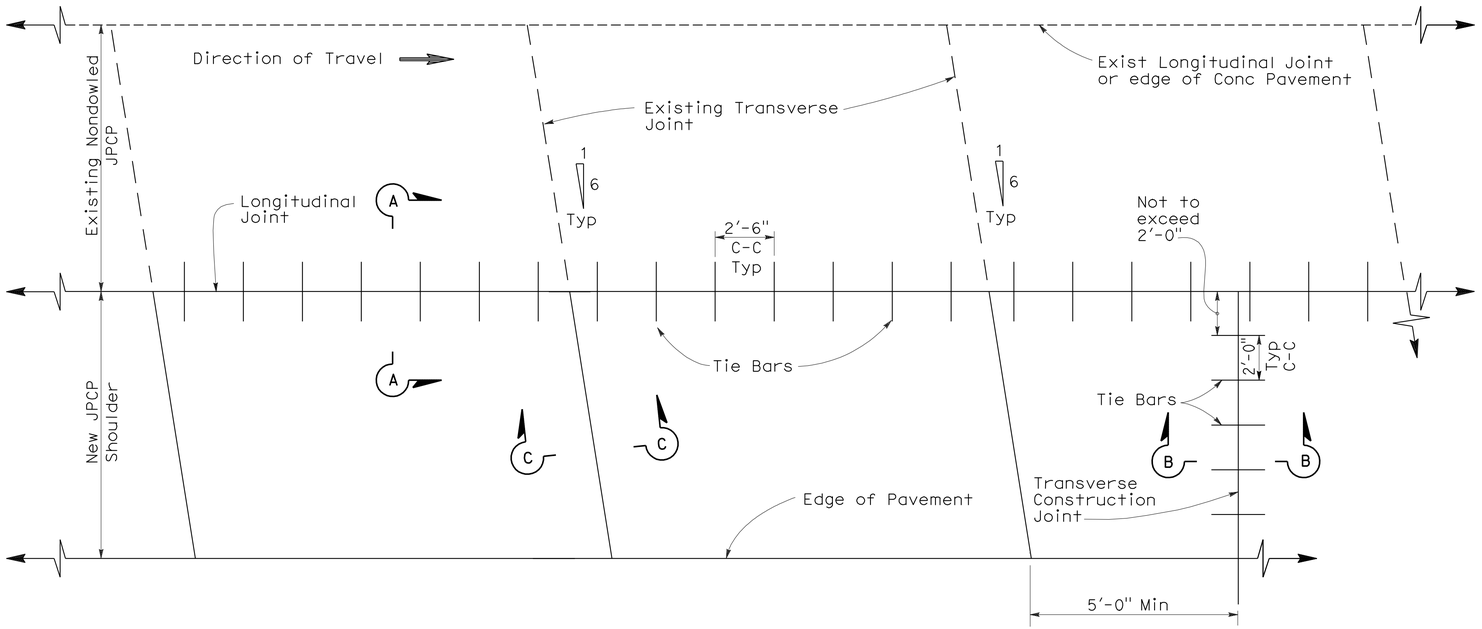
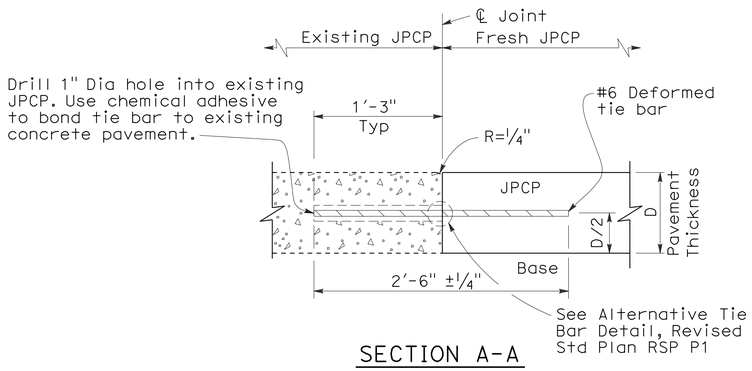
To accompany plans dated 1-23-12

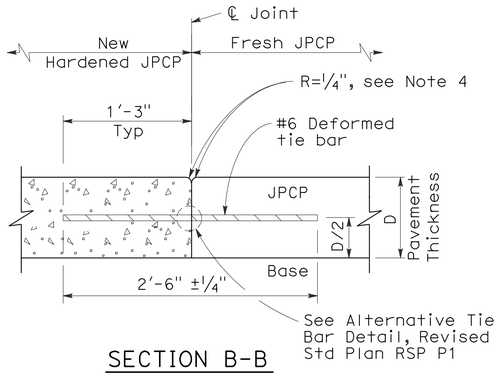


PLAN



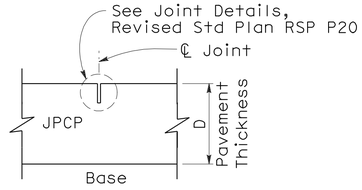
SECTION A-A

LONGITUDINAL JOINT
(Between fresh and hardened concrete)



SECTION B-B

TRANSVERSE CONSTRUCTION JOINT



SECTION C-C

TRANSVERSE CONTRACTION JOINT

NOTES:

1. New transverse contraction joints shall match the skewed offset and spacing of the adjacent existing contraction joints, as shown.
2. Transverse construction joints, with tie bars spaced as shown, shall be installed at the end of paving operations. Transverse construction joints shall be placed at least 5'-0" from any contraction joint.
3. This Standard Plan only applicable for constructing a nondoweled Jointed Plain Concrete Pavement shoulder next to existing nondoweled Jointed Plain Concrete Pavement lane.
4. If fresh concrete is placed adjacent to existing concrete, the top corner of the new hardened concrete does not need to be rounded to the 1/4" radius as shown.

TABLE A

Tie Bar Spacing		
Slab Length	Total Tie Bars per Slab	Clearance Tie Bar to Transverse Joint
9'-0"	3	1'-3"
9'-6"	3	1'-4 1/2"
12'-0"	5	1'-4"
13'-0"	5	1'-10"
14'-0"	5	2'-3 3/4"
15'-0"	6	1'-8"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

JOINTED PLAIN CONCRETE PAVEMENT-NONDOWELED SHOULDER ADDITION/RECONSTRUCTION

NO SCALE

RSP P3 DATED MAY 15, 2009 SUPERSEDES RSP P3 DATED NOVEMBER 17, 2006 AND STANDARD PLAN P3 DATED MAY 1, 2006 - PAGE 121 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP P3

2006 REVISED STANDARD PLAN RSP P3

5-8-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	307	457

William K. Farnbach
REGISTERED CIVIL ENGINEER

May 15, 2009
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — William K. Farnbach — No. C49042 — Exp. 9-30-10 CIVIL — STATE OF CALIFORNIA

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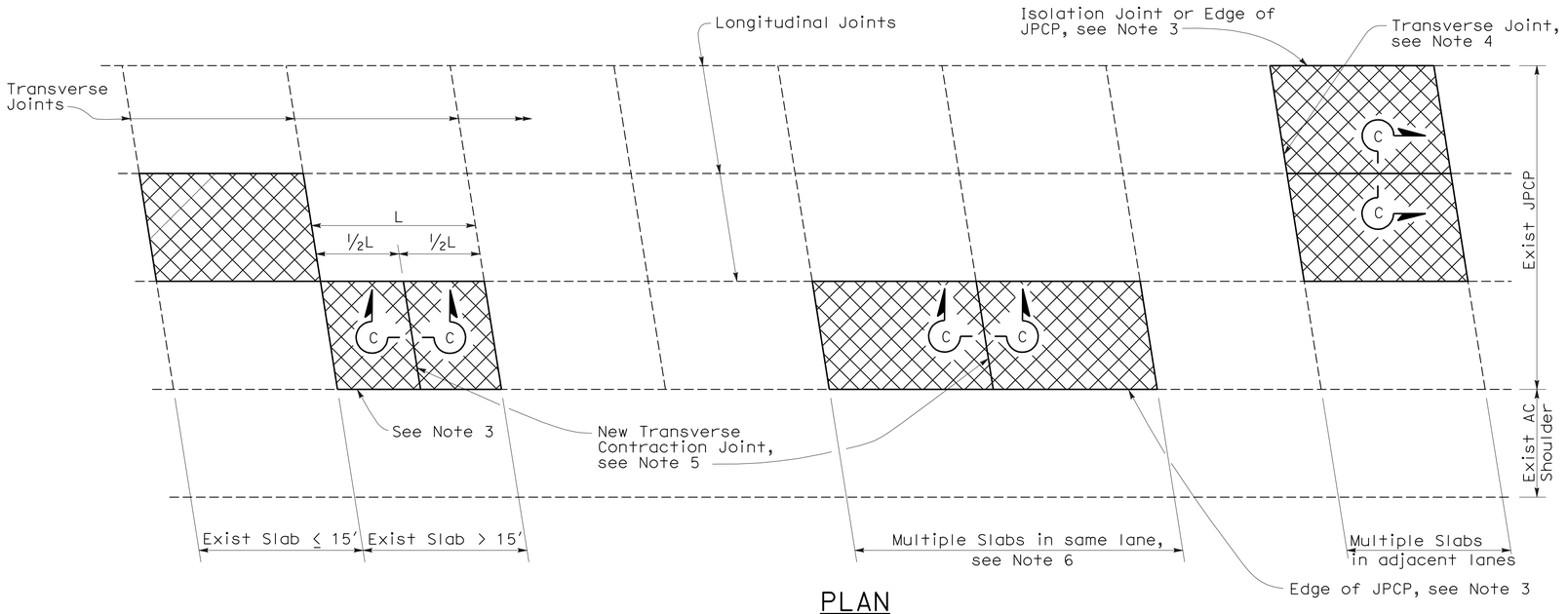
To accompany plans dated 1-23-12



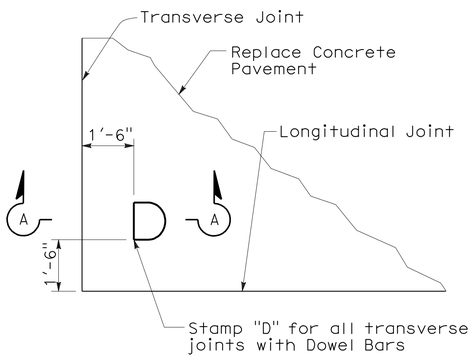
PLAN

NOTES:

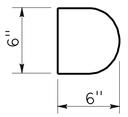
1. For details not shown, see Revised Standard Plan RSP P10.
2. Where the existing outer shoulder pavement is asphalt concrete pavement, the "a" dimension shall be 1′-0" and the "b" dimension shall be 2′-0".
3. Side forms shall be used where edge of pavement is adjacent to asphalt concrete.
4. For detail, see Transverse Construction Joint for existing concrete pavement detail on Revised Standard Plan RSP P10.
5. Transverse joint to match skew of existing joint. Omit dowel bars.
6. This Standard Plan only applicable when replacing multiple slabs in the same lane is less than 100′.

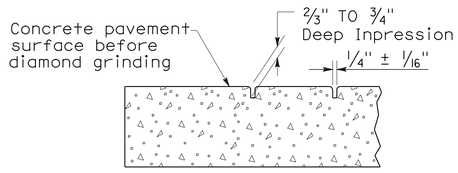
LEGEND

Replace Concrete Pavement (See Slab Layout Detail)

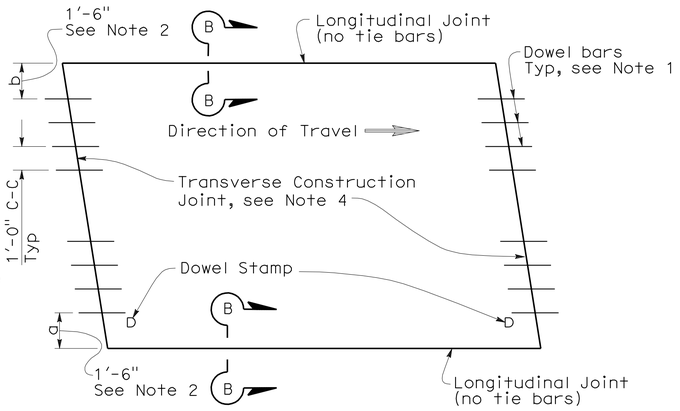


DOWEL STAMP DETAIL



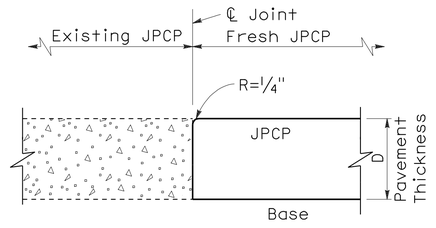


SECTION A-A

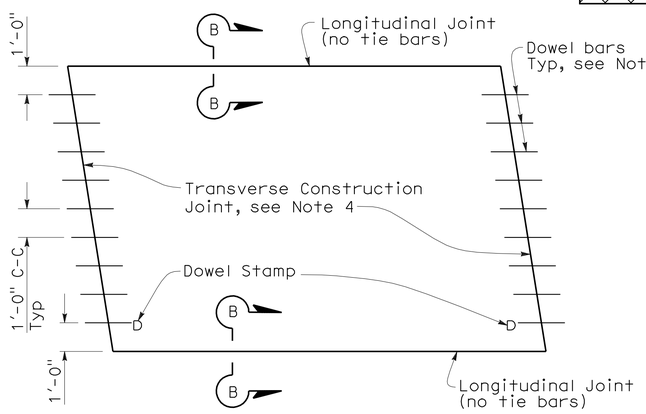


TYPE I

(traffic lane lines match longitudinal joints)



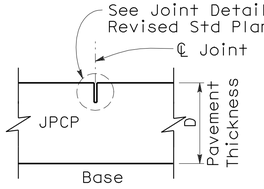
SECTION B-B



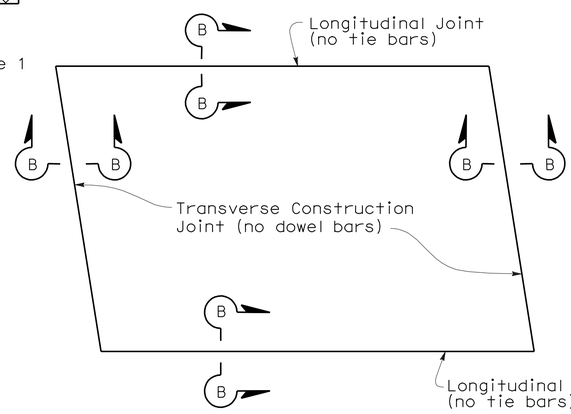
TYPE II

(traffic lane lines do not match longitudinal joints)

SLAB LAYOUT



SECTION C-C



TYPE III

(for short term repairs < 5 yrs design life or for slab replacements with a cracking and seating operation)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

JOINTED PLAIN CONCRETE PAVEMENT-INDIVIDUAL SLAB REPLACEMENT

NO SCALE

RSP P8 DATED MAY 15, 2009 SUPERSEDES RSP P8 DATED SEPTEMBER 1, 2006 AND STANDARD PLAN P8 DATED MAY 1, 2006 - PAGE 123 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP P8

2006 REVISED STANDARD PLAN RSP P8

5-8-09

NOTE:

1. Tie bars, dowel bars, and reinforcement are not shown in joint seal details, see Revised Standard Plans RSP P1, RSP P3, RSP P10, RSP P35, RSP P45, or RSP P46 as applicable.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	308	457

William K. Farnbach
REGISTERED CIVIL ENGINEER

May 15, 2009
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — William K. Farnbach — No. C49042 — Exp. 9-30-10 CIVIL — STATE OF CALIFORNIA

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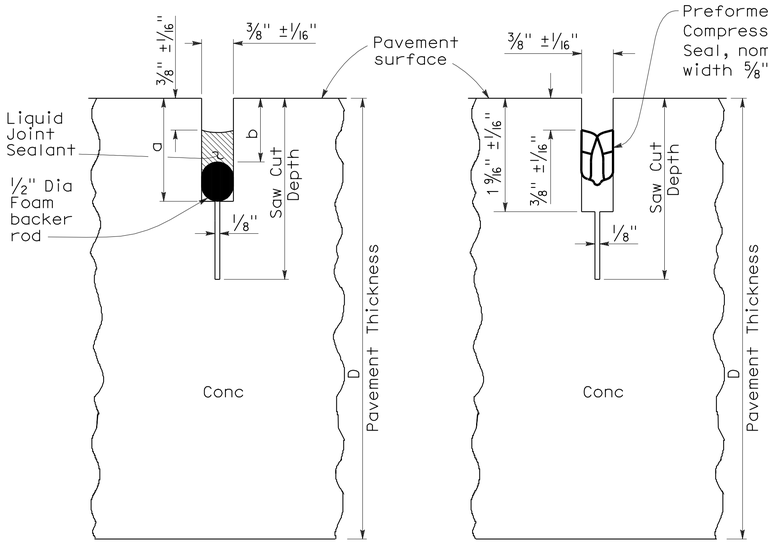
To accompany plans dated 1-23-12

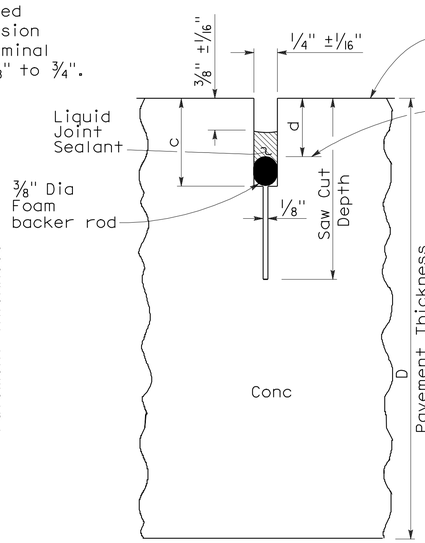


LIQUID SEALANT

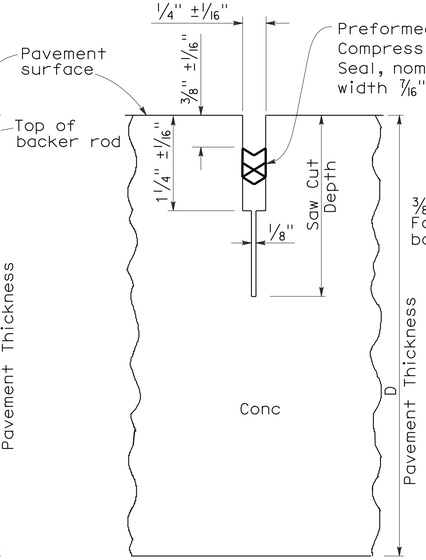
COMPRESSION SEAL

TYPE A1

Transverse Contraction Joints



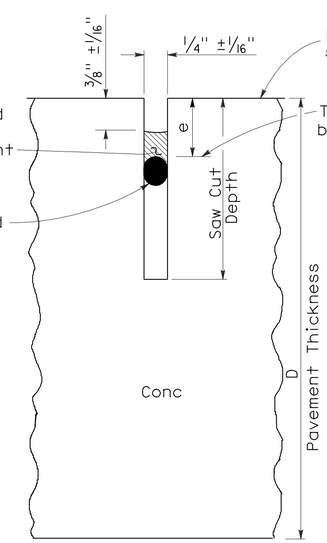
LIQUID SEALANT



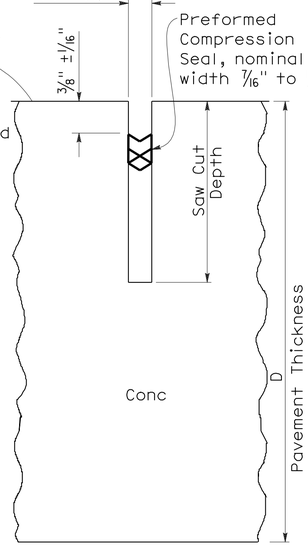
COMPRESSION SEAL

TYPE A2

Longitudinal Contraction Joints



LIQUID SEALANT



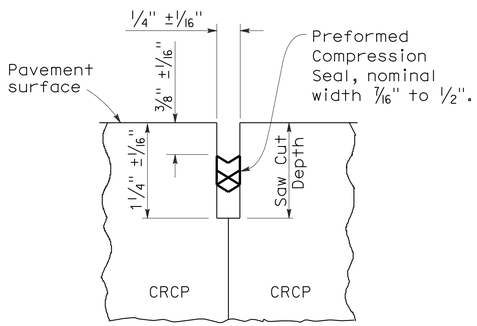
COMPRESSION SEAL

TYPE B

Longitudinal or Transverse Contraction Joint

LIQUID SEALANT RESERVOIR DEPTH

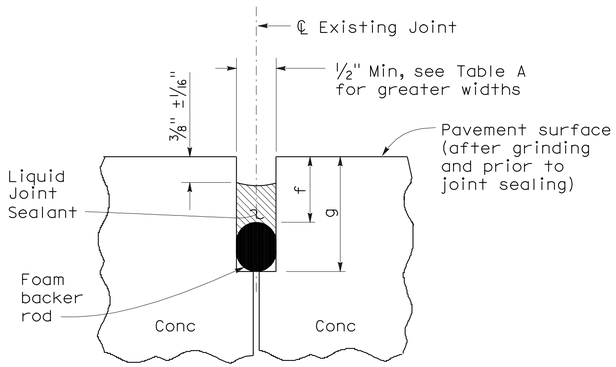
LIQUID SEALANT MATERIAL	3/8" Joint Width Type A1		1/4" Joint Width Type A2		1/4" Joint Width Type B
	DIMENSION		DIMENSION		DIMENSION
	a	b	c	d	e
SILCONE	1" ±1/16"	5/8" ±1/16"	15/16" ±1/16"	9/16" ±1/16"	9/16" ±1/16"
ASPHALT RUBBER	1 3/16" ±1/16"	3/4" ±1/16"	1 1/16" ±1/16"	11/16" ±1/16"	11/16" ±1/16"



COMPRESSION SEAL

TYPE C

Transverse and Longitudinal Construction Joints (For CRCP)



LIQUID SEALANT

TYPE R

Retrofit Transverse and Longitudinal Joints

TABLE A (TYPE R JOINT)

Sawn Joint Width	Backer Rod Diameter ± 1/16"	DIMENSION "f"	DIMENSION "g"
1"	1 5/16"	7/8"	2 1/4"
7/8"	1 3/16"	13/16"	2"
3/4"	1"	3/4"	1 3/4"
5/8"	7/8"	11/16"	1 1/2"
1/2"	11/16"	5/8"	1 1/4"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT-JOINT DETAILS

NO SCALE

RSP P20 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P20 DATED MAY 1, 2006 - PAGE 128 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP P20

2006 REVISED STANDARD PLAN RSP P20

5-8-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	309	457

REGISTERED ELECTRICAL ENGINEER

Cornelis M. Hakim
No. C55610
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STATE OF CALIFORNIA

January 20, 2012
PLANS APPROVAL DATE

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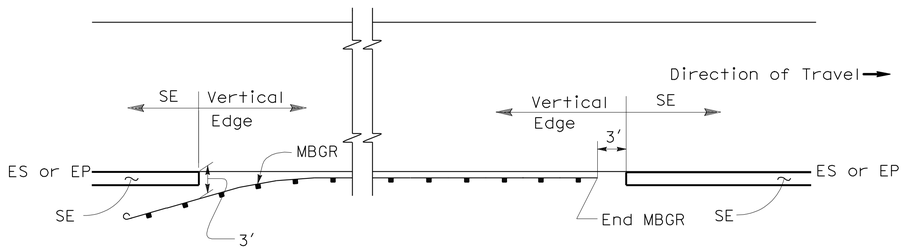
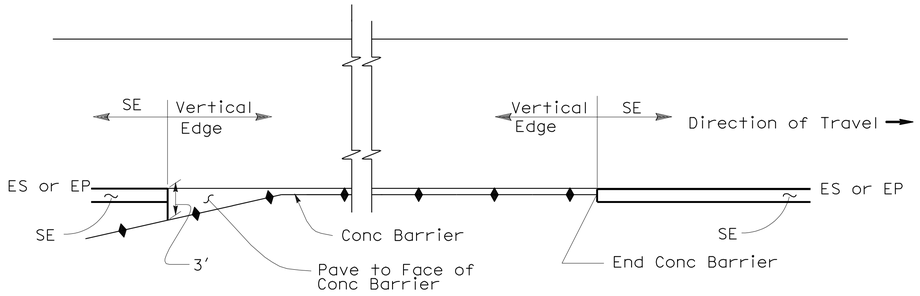
To accompany plans dated 1-23-12



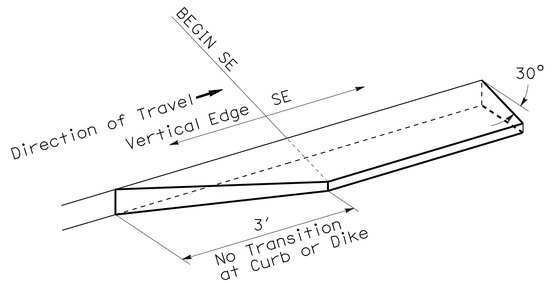
MBGR



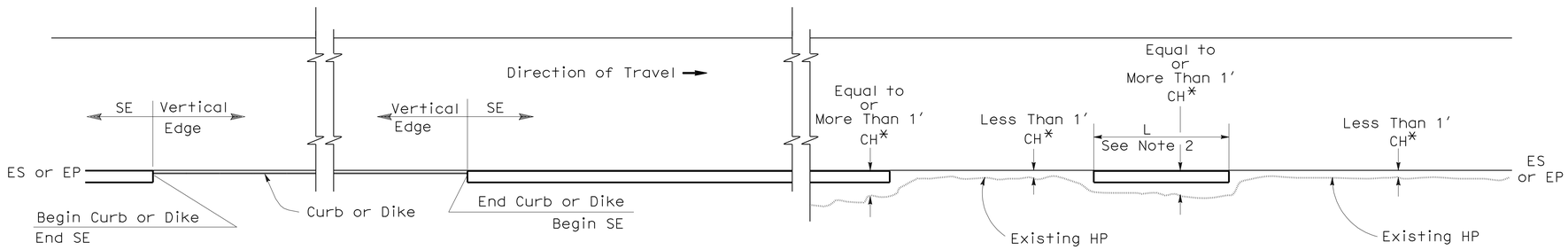
CONCRETE BARRIER

ABBREVIATIONS:

SE Safety Edge



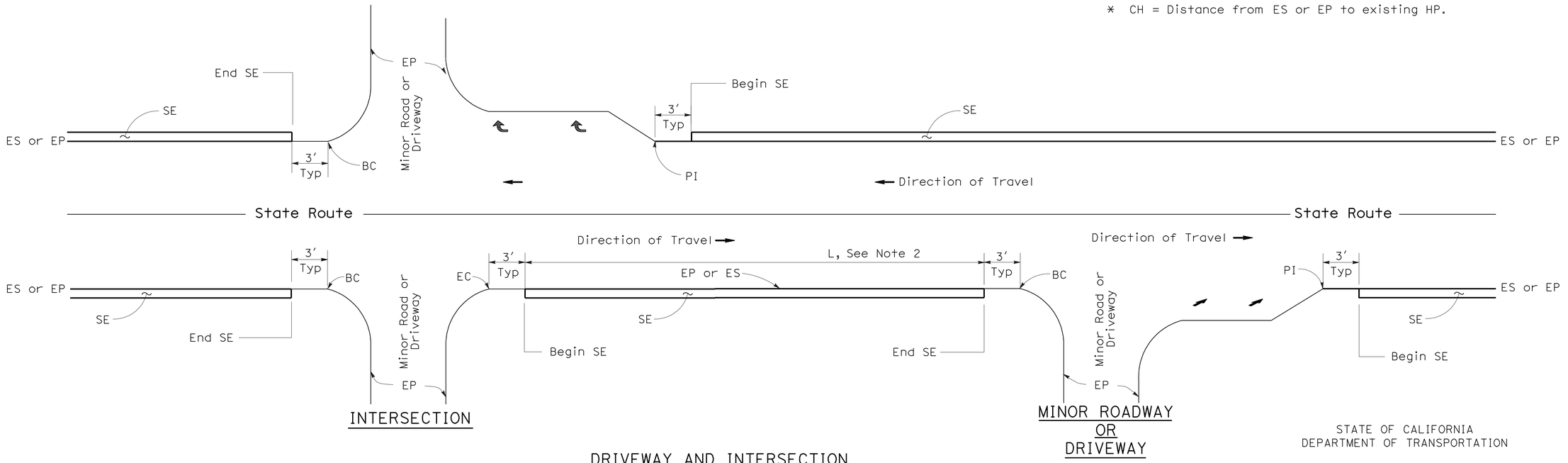
TRANSITION DETAIL
FOR CONCRETE ONLY



CURB OR DIKE

NARROW SIDE SLOPE

* CH = Distance from ES or EP to existing HP.



INTERSECTION

MINOR ROADWAY OR DRIVEWAY

DRIVEWAY AND INTERSECTION

NOTES:

1. For details not shown, see New Standard Plans NSP P75 and NSP P76.
2. Safety edge is optional when L is less than 30′.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT EDGE TREATMENTS

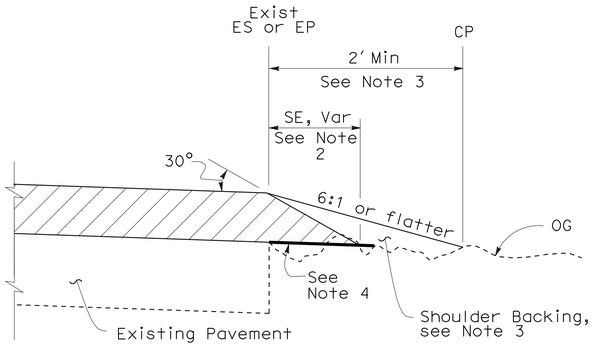
NO SCALE

NSP P74 DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

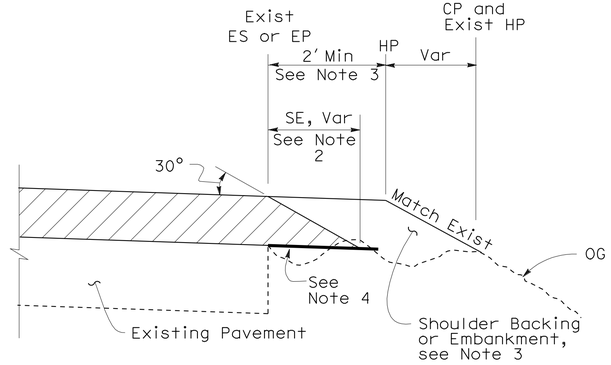
NEW STANDARD PLAN NSP P74

2006 NEW STANDARD PLAN NSP P74

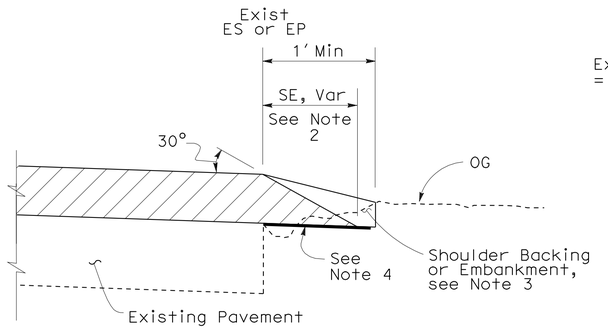
01-05-12



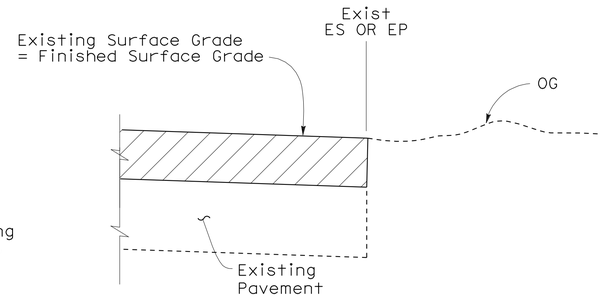
CASE A
Safety Edge



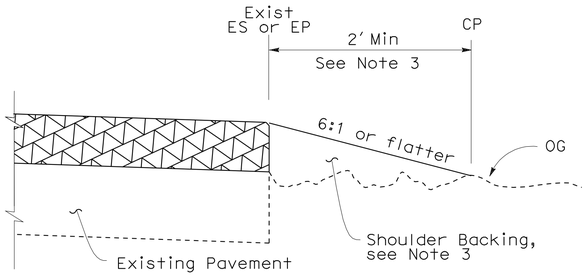
CASE B
Safety Edge



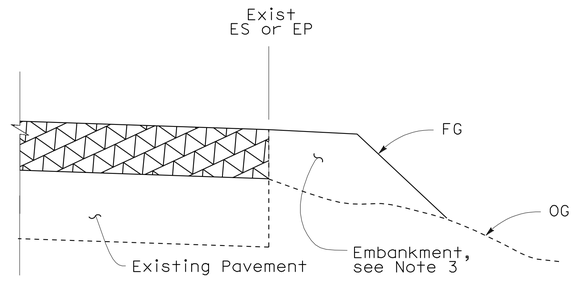
CASE C
Safety Edge



CASE D
Vertical Edge



CASE E
Vertical Edge



CASE F
Vertical Edge
* See Table A and New Std Plan NSP P74

LEGEND:

- HMA Overlay
- HMA or Concrete Overlay
- Concrete Overlay

ABBREVIATIONS:

SE	Safety Edge
TT	Total Thickness of SE

TABLE A
EDGE TREATMENT FOR VARIOUS OVERLAY THICKNESS AND CONDITIONS

	OVERLAY THICKNESS	
FIELD CONDITION	Less Than 0.15'	0.15' or More
Exist Slope 6:1 or Flatter	Case E	Case A
Exist Slope 3:1 to 6:1	Case E	Case B
Exist Slope Steeper Than 3:1	Case F	Case F
Cut Section (Replace, Cold Plane, Mill Pavement)	Case D	Case C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	310	457

REGISTERED ELECTRICAL ENGINEER

Cornelis M. Hakim
No. C55610
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January 20, 2012
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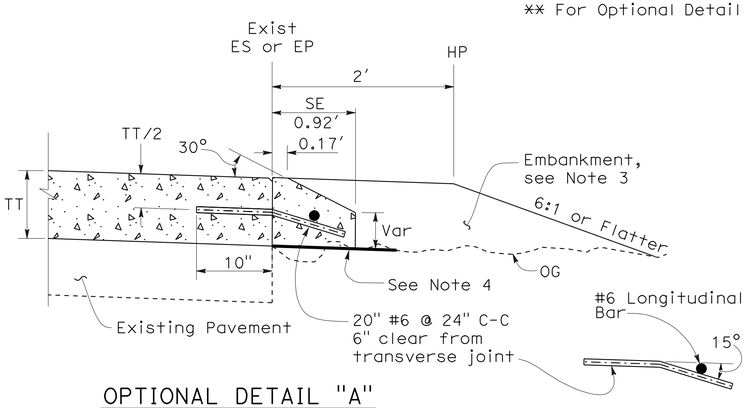
To accompany plans dated 1-23-12

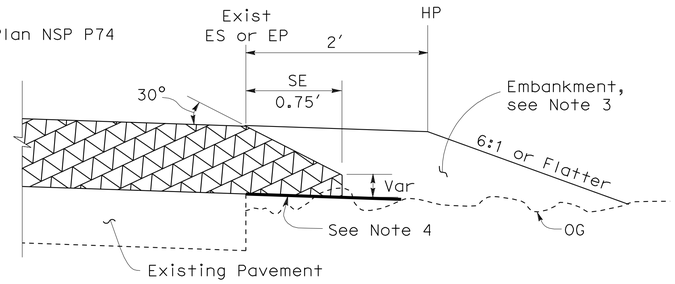
ADDITIONAL HMA OR CONCRETE QUANTITIES FOR SE/SIDE/MILE

TYPICAL CROSS SECTION	TT	TOTAL ADDITIONAL MATERIAL FOR SE/SIDE/MILE		
		HMA (TON)	CONCRETE (CY)*	CONCRETE (CY)**
TT	0.15'	NA	NA	NA
	0.20'	13.7	NA	NA
	0.30'	30.9	NA	NA
	0.40'	54.9	NA	NA
	0.45'	69.4	NA	NA
TT, 0.43'	0.50'	84.2	NA	NA
	0.60'	113.9	NA	NA
	0.70'	143.6	70.9	94.2
	0.80'	173.3	85.6	112.2
	0.90'	203.0	100.3	130.2
	1.00'	232.7	114.9	148.2
	1.10'	262.4	129.6	166.2
	1.20'	292.1	144.3	184.2

* For Detail "A"
** For Optional Detail "A"



OPTIONAL DETAIL "A"
For concrete overlay
See Note 5



DETAIL "A"
For HMA overlay thickness more than 0.43' or concrete overlay

NOTES:

1. For limits of safety edge and vertical edge treatments, see New Standard Plan NSP P74.
2. Details shown for HMA overlay thickness less than 0.43'. See Detail "A" for HMA overlay thickness more than 0.43' or concrete overlay.
3. For locations and limits of shoulder backing or embankment see project plans.
4. Grade existing ground to place safety edge. 1' minimum width.
5. Safety edge transverse joint must match overlay transverse joint. End of #6 longitudinal bar must be 2" ±½" clear from transverse joint.
6. Safety edge is not needed in the area of MBGR, barrier, right turn lane and acceleration lane. See New Standard Plan NSP P74.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT EDGE TREATMENTS-OVERLAYS

NO SCALE

NSP P75 DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP P75

2006 NEW STANDARD PLAN NSP P75

01-05-12

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	311	457

REGISTERED ELECTRICAL ENGINEER

Cornelis M. Hakim
No. C55610
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CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

January 20, 2012
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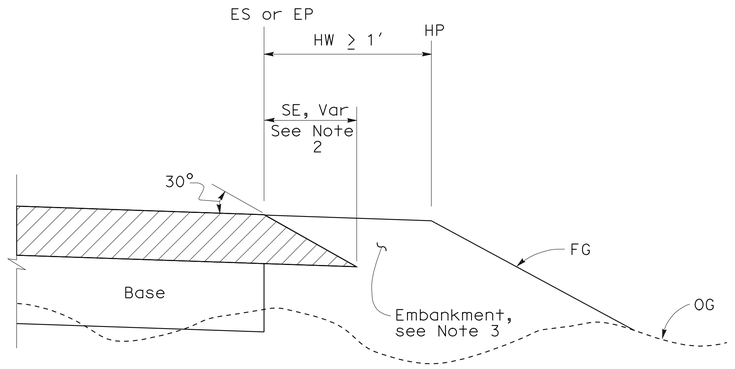
To accompany plans dated 1-23-12

LEGEND:

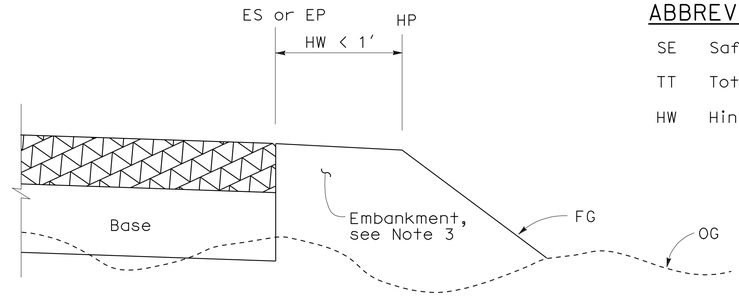
- HMA Pavement
- HMA or Concrete Pavement
- Concrete Pavement

ABBREVIATIONS:

SE	Safety Edge
TT	Total Thickness of SE
HW	Hinge Width, distance from ES or EP to HP

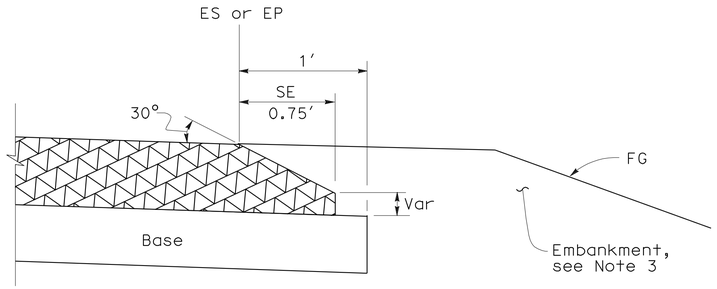


CASE K
Safety Edge - Fill Section, HW ≥ 1′

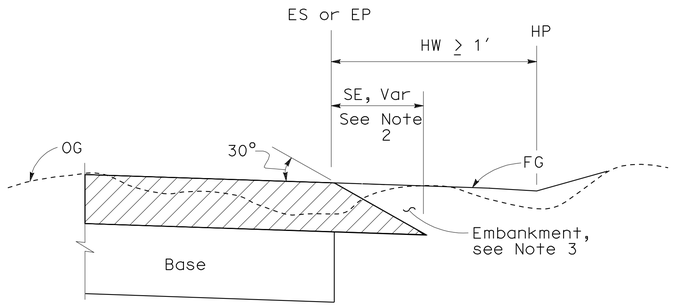


CASE L
Vertical Edge - Fill Section, HW < 1′

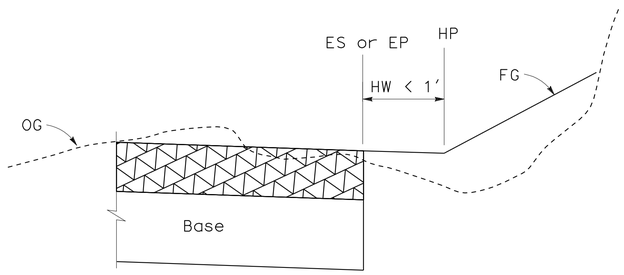
FILL SECTION



DETAIL "B"
For HMA pavement thickness more than 0.43′ or concrete pavement

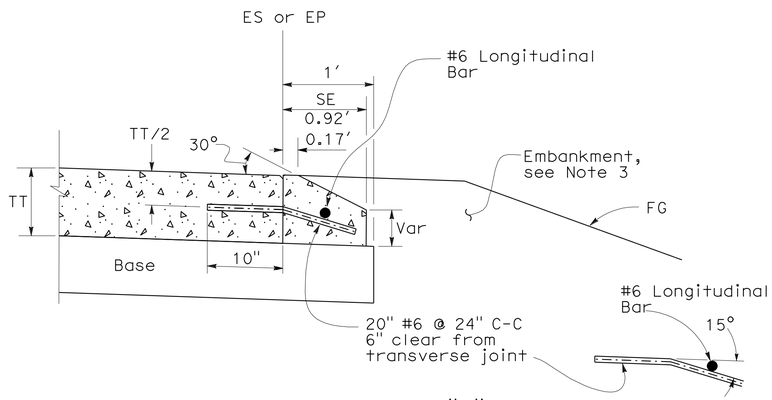


CASE M
Safety Edge - Cut Section, HW ≥ 1′



CASE N
Vertical Edge - Cut Section, HW < 1′

CUT SECTION



OPTIONAL DETAIL "B"
For concrete pavement
See Note 4

NOTES:

1. For limits of safety edge and vertical edge treatments, see New Standard Plan NSP P74
2. Details shown for HMA pavement thickness less than 0.43′. See Detail "B" for HMA pavement thickness more than 0.43′ or concrete pavement.
3. For locations and limits of embankment see project plans.
4. Safety edge transverse joint must match pavement transverse joint. End of #6 longitudinal bar must be 2" ±½" clear from transverse joint.
5. Safety edge is not needed in the area of MBGR, barrier, right turn lane and acceleration lane. See New Standard Plan NSP P74.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT EDGE TREATMENTS- NEW CONSTRUCTION

NO SCALE

NSP P76 DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP P76

2006 NEW STANDARD PLAN NSP P76

01-05-12

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	312	457

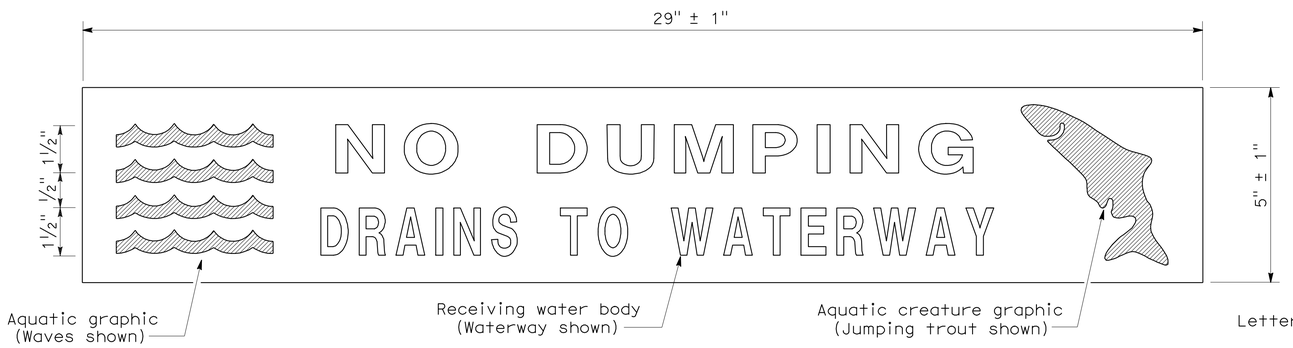
Robert B Schott
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

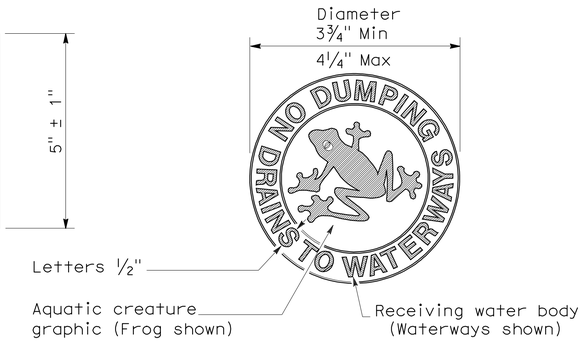
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3035 — Signature 11-30-10 Renewal Date — 2-25-09 Date — STATE OF CALIFORNIA

To accompany plans dated 1-23-12

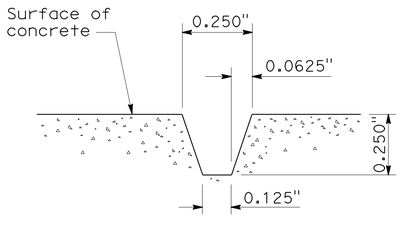


PLAN
DRAINAGE INLET MARKER
(PREFABRICATED THERMOPLASTIC)

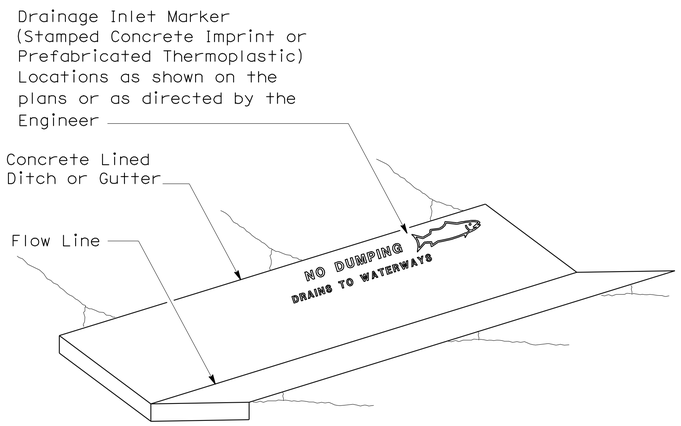


PLAN
DRAINAGE INLET MARKER
(MEDALLION)

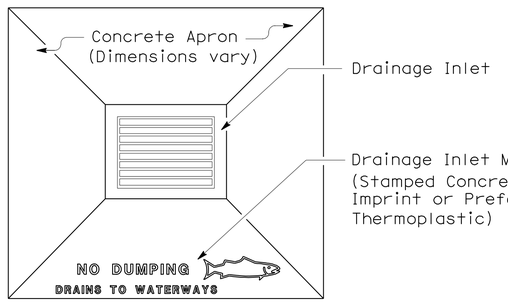
PLAN
DRAINAGE INLET MARKER
(STAMPED CONCRETE IMPRINT)



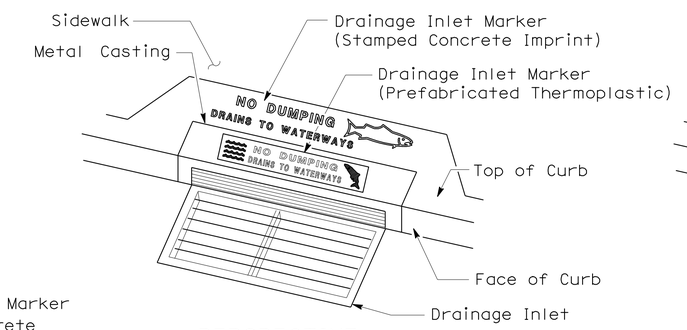
SECTION A-A
STAMPED CONCRETE
IMPRINT DETAIL



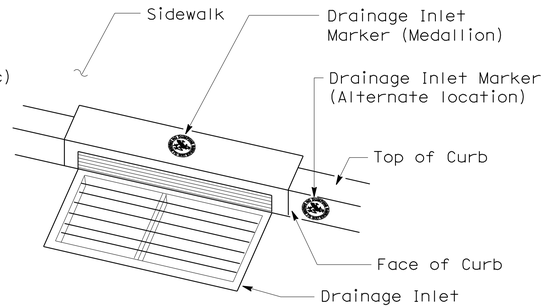
PERSPECTIVE
DRAINAGE INLET MARKER ON
CONCRETE LINED DITCH



PLAN
DRAINAGE INLET MARKER ON
DRAINAGE INLET APRON



PERSPECTIVE
DRAINAGE INLET MARKER ON
DRAINAGE INLET



PERSPECTIVE
DRAINAGE INLET MARKER (MEDALLION)
ON DRAINAGE INLET

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DRAINAGE INLET MARKERS

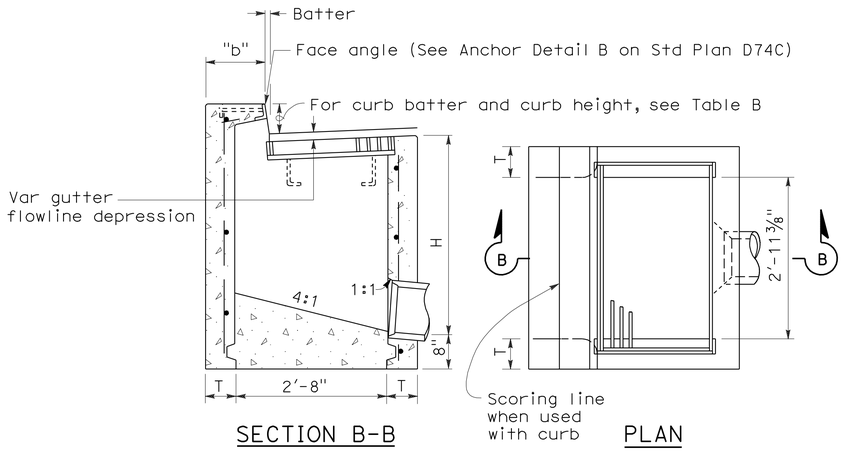
NO SCALE

NSP D71 DATED APRIL 3, 2009 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP D71

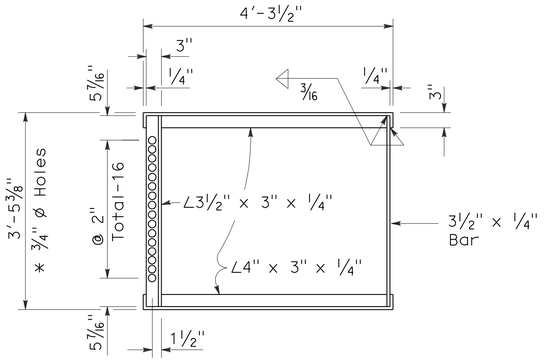
2006 NEW STANDARD PLAN NSP D71

7-24-08



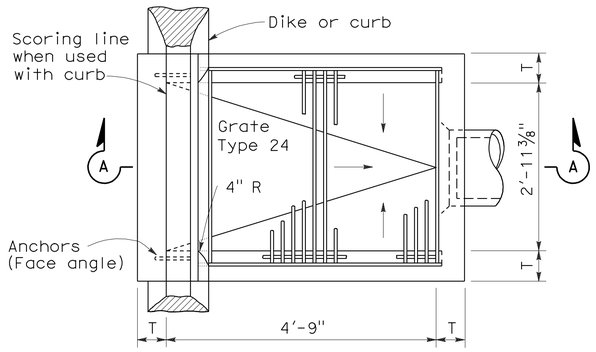
SECTION B-B PLAN

TYPE GO



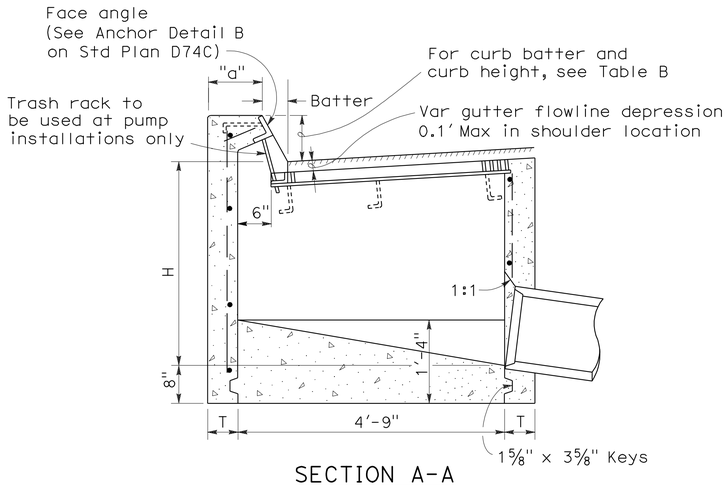
* 3/4" ø Holes required only with trash rack

GRATE FRAME FOR TYPE GDO INLET

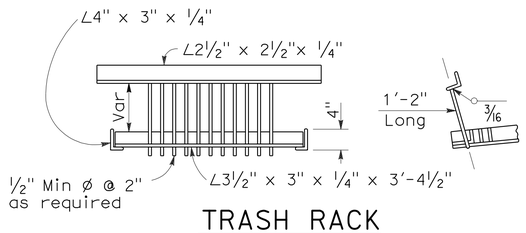


PLAN

TYPE GDO



SECTION A-A



TRASH RACK

(For use with pump installation)

TABLE A

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

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

TABLE B

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	313	457

REGISTERED CIVIL ENGINEER

June 15, 2007
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Glenn DeCou — No. C34547 — Exp. 9-30-07 CIVIL — STATE OF CALIFORNIA

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

To accompany plans dated 1-23-12

NOTES:

1. "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
2. For "T" wall thickness, see Table A below.
3. Wall reinforcing not required when "H" is 8'-0" or less and the unsupported width or length is 7'-0" or less. Walls exceeding these limits shall be reinforced with #4 @ 18"± centers placed 1½" clear to inside of box unless otherwise shown.
4. Inlet bottom reinforcing not required. See Standard Plan D74C for alternative reinforced bottom.
5. Steps - None required where "H" is less than 2'-6" Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of inlet. The distance between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Step inserts may be substituted for the bar steps. Step Inserts shall comply with State Industrial Safety requirements. See Standard Plan D74C for step details.
6. When shown on the project plans, place a ¾" plain round protection bar horizontally across the length of the opening and bend back 4" into the inlet wall on each side.
7. Pipe(s) can be placed in any wall.
8. Curb section shall match adjacent curb.
9. Basin floors shall have wood trowel finish and shall slope toward the outlet pipe as shown.
10. Galvanizing - See Standard Specifications or Special Provisions.
11. See Standard Plan D77A and D77B for grate and frame details and weights of miscellaneous iron and Steel.
12. See Standard Plan D78A for gutter depression details.
13. Full penetration butt welds may be substituted for the fillet welds on all anchors.
14. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
15. Cast-in-place or precast alternative is optional with contractor. See Standard Specifications.
16. Cast-in-place inlets to be formed around all pipes/stubs intersecing the inlet and concrete poured in one continuous operation. Precast inlets shall have mortared pipe connections conforming to details for Type GCP inlets on Standard Plan D75B. See Standard Specifications for mortar composition.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DRAINAGE INLETS

NO SCALE

RSP D74B DATED JUNE 15, 2007 SUPERSEDES STANDARD PLAN D74B DATED MAY 1, 2006 - PAGE 150 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D74B

2006 REVISED STANDARD PLAN RSP D74B

4-16-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	314	457

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

January 18, 2008
PLANS APPROVAL DATE

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

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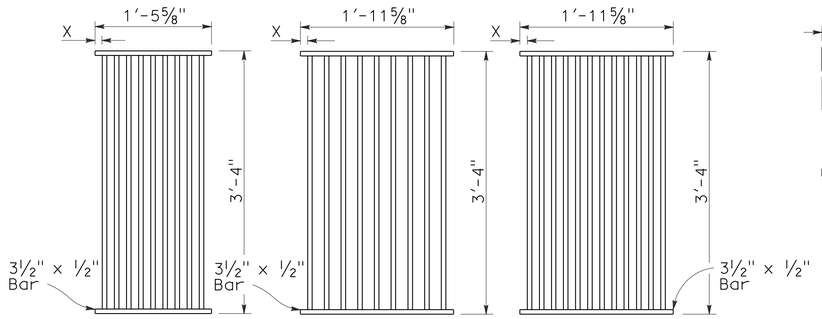
To accompany plans dated 1-23-12



TYPE 18-9

1⅜" Clear spacing. Use within the roadbed on highways where bicycles and pedestrians are excluded.

TYPE 24-9

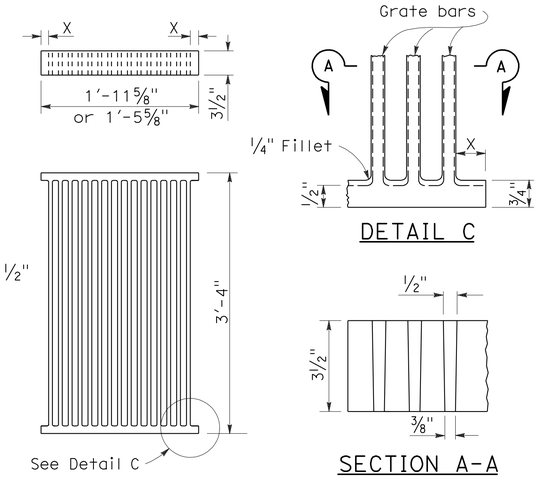
2" Clear spacing. Use in locations off the roadbed on all types of highways.

TYPE 24-12

1⅜" Clear spacing. Use within the roadbed on highways where bicycles and pedestrians are excluded.

RECTANGULAR GRATE DETAILS

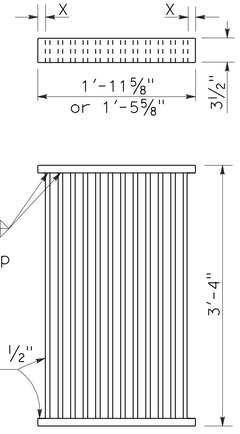
(See table below)



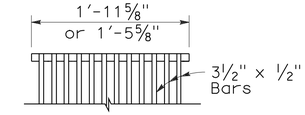
DETAIL C

SECTION A-A

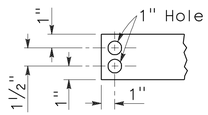
ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE



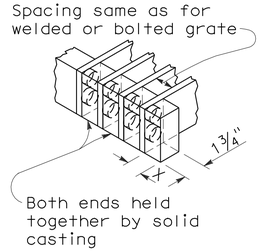
ALTERNATIVE WELDED GRATE



CAST END BLOCK



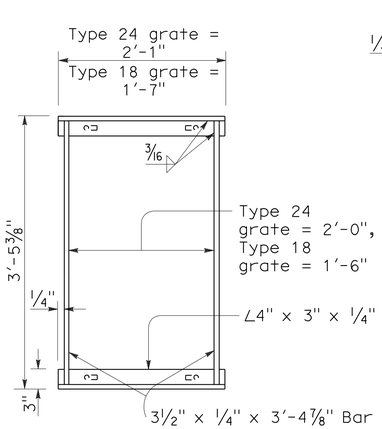
END OF BAR



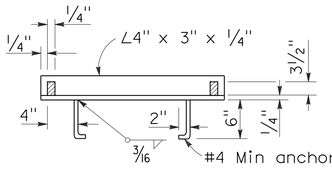
ALTERNATIVE CAST NODULAR IRON OR CAST STEEL END BLOCK GRATE

NOTES:

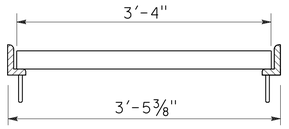
1. Grate type numbers refer to approximate width of grate in inches and number of bars, respectively.
2. Contractor has the option of using cast nodular iron, cast steel, welded, bolted, or cast end block grate.
3. See Special Provisions for requirements pertaining to galvanizing or asphalt dipping of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



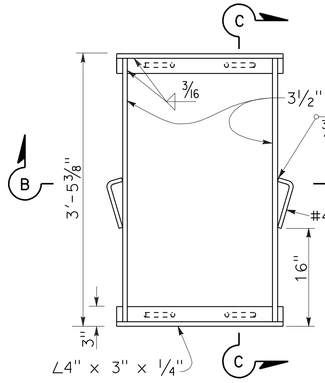
TYPICAL FRAME



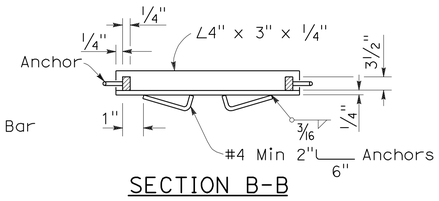
CROSS SECTION
(Thru frame)



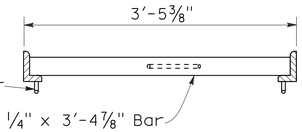
LONGITUDINAL SECTION
(Thru frame and grate)



TYPICAL FRAME



SECTION B-B



SECTION C-C

ALTERNATIVE ANCHOR FOR RECTANGULAR FRAME

(For details not shown, See Rectangular Frame Details)

RECTANGULAR FRAME DETAILS

(For all rectangular grates)

GRATE BAR SPACING TABLE

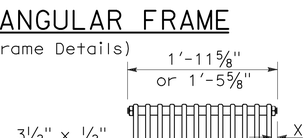
TYPE	No. OF BARS	CLEAR BAR SPACING	X
18-9	9	1⅜"	1 1⁄16"
24-9	9	2"	1⅜16"
24-12	12	1⅜"	1¼"

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
OCP	PLATE	112
OCPI	PLATE	112
OCPI	REDWOOD	42
OMP	PLATE	177
OMPI	PLATE	177

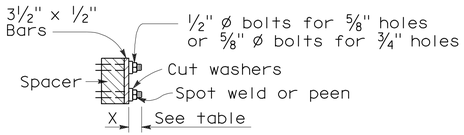
INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDO	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
GO,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22

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

(See General Notes, No 8)

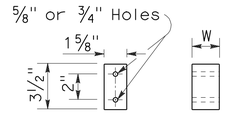


BOLTED END BLOCK

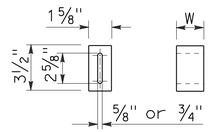


BOLTING DETAIL

ALTERNATIVE BOLTED GRATE



BAR SPACER



ALTERNATIVE SPACER
W = 1⅜" or 2"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

GRATE DETAILS

NO SCALE

RSP D77A DATED JANUARY 18, 2008 SUPERSEDES STANDARD PLAN D77A DATED MAY 1, 2006 - PAGE 155 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D77A

2006 REVISED STANDARD PLAN RSP D77A

12-14-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	315	457

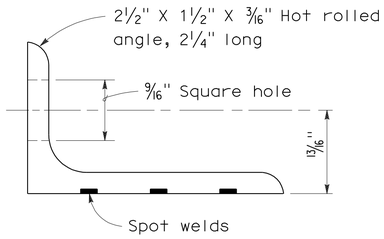
Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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

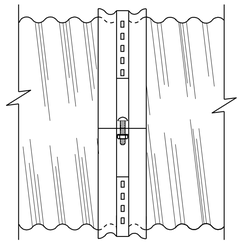
To accompany plans dated 1-23-12



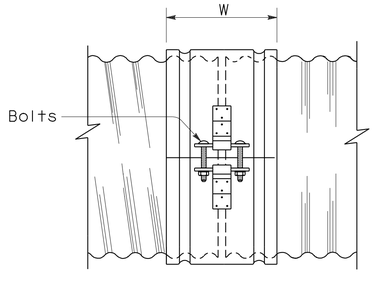
ANGLE

NOTES:

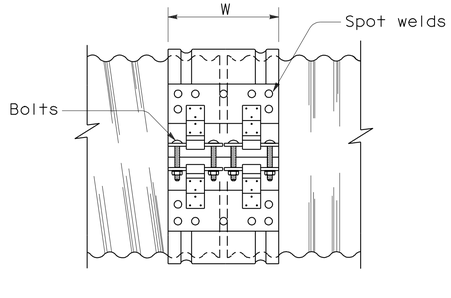
1. All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
2. Dimensions and thicknesses shown are minimum.
3. Spot welds shall develop minimum required strength of strap.
4. Fillet welds of equivalent strength may be substituted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



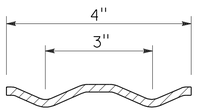
SIDE VIEW
ANGLE



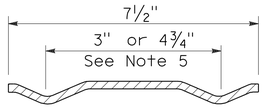
SIDE VIEW
SINGLE BAR AND STRAP



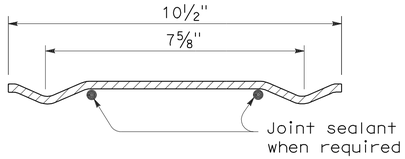
SIDE VIEW
DOUBLE BAR AND STRAP



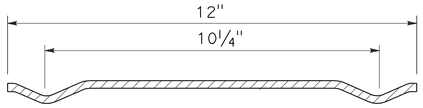
SECTION
H-4 HUGGER BAND



SECTION
H-7 HUGGER BAND



SECTION
H-10 HUGGER BAND



SECTION
H-12 HUGGER BAND

HUGGER COUPLING BANDS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 4 HUGGER COUPLING BANDS

NO SCALE

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

REVISED STANDARD PLAN RSP D97D

2006 REVISED STANDARD PLAN RSP D97D

3-24-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	316	457

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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ANNULAR AND HELICAL PROFILE

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

SPIRAL RIB PROFILE

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

* See Note 14.

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

NOTES:

To accompany plans dated 1-23-12

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 5 STANDARD JOINT

NO SCALE

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

REVISED STANDARD PLAN RSP D97E

2006 REVISED STANDARD PLAN RSP D97E

4-2-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	317	457

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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

To accompany plans dated 1-23-12

ANNULAR AND HELICAL PROFILE

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

SPIRAL RIB PROFILE

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

* See Note 13.

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 6 POSITIVE JOINT

NO SCALE

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

REVISED STANDARD PLAN RSP D97F

2006 REVISED STANDARD PLAN RSP D97F

4-2-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	318	457

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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To accompany plans dated 1-23-12

ANNULAR AND HELICAL PROFILE

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

SPIRAL RIB PROFILE

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

* See Note 12.

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 7 DOWNDRAIN

NO SCALE

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

REVISED STANDARD PLAN RSP D97G

2006 REVISED STANDARD PLAN RSP D97G

4-4-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	319	457

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

March 7, 2008
PLANS APPROVAL DATE

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

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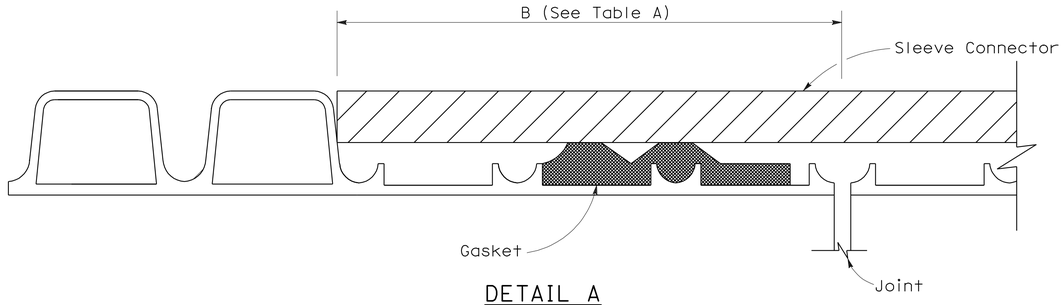
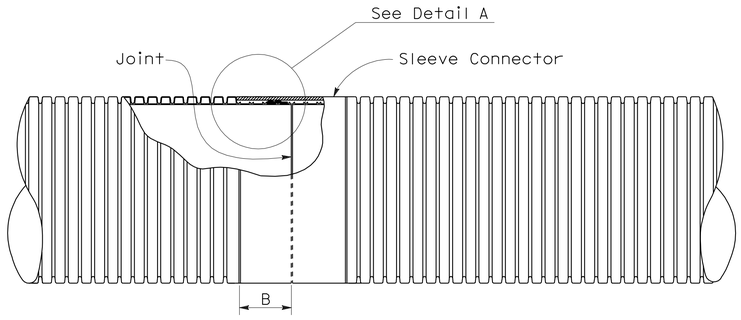
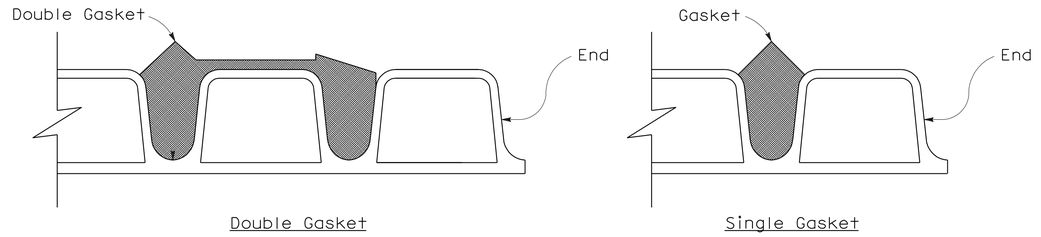
To accompany plans dated 1-23-12



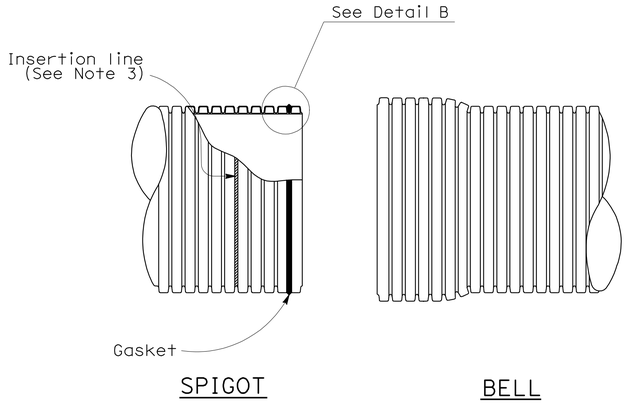
DETAIL A



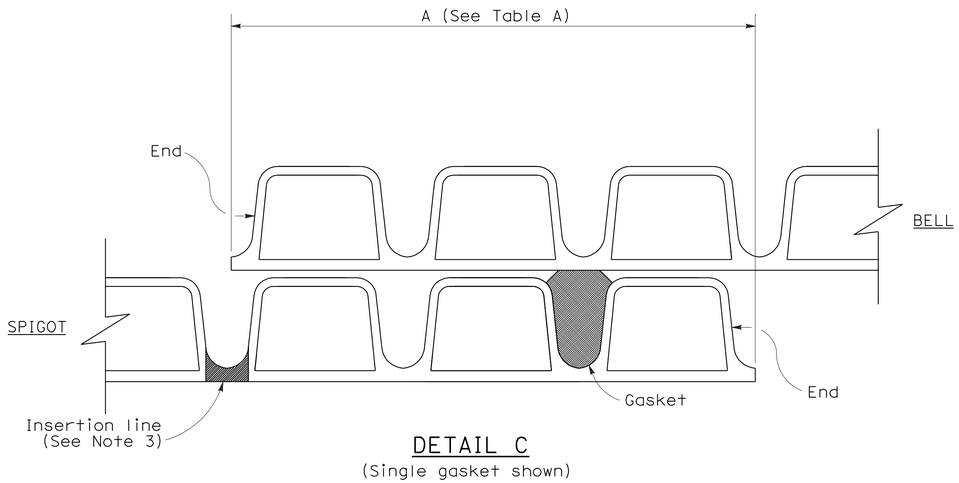
PLAN VIEW
Liner Insert
See Note 4



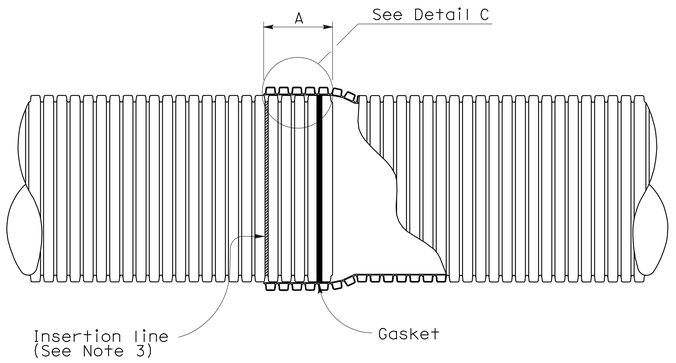
DETAIL B



SPIGOT BELL



DETAIL C
(Single gasket shown)



BELL AND SPIGOT JOINT

NOTES:

1. For pipe sections installed on straight alignment, the pipe sections shall be joined to achieve maxium joint overlap at all points on the periphery as indicated in Table A where the plans call for positive or watertight joints. Maxium joint overlap is recommended where the plans call for standard joints, but in no case shall the joint overlap be less than 3½".
2. For pipe sections installed on curved alignment, the maxium angle of deflection from straight alignment at any joint shall not exceed two degrees. Where the plans call for watertightness, field testing for compliance is required. Where plans call for positive joints, the pipe sections shall be joined to achieve Table A Dimensions on one side of the joint. Joints classified as standard shall have no less than 3½" joint overlap at any point on the periphery.
3. Factory applied insertion line limit shall be placed on spigot.
4. Liner insert to be used inside of existing pipe.

TABLE A

JOINT OVERLAP DIMENSIONS		
PIPE Dia (NOMINAL)	A	B
12"	5¾"	4¼"
15"	6¾"	5⅝"
18"	6¾"	5⅝"
21"	8½"	5⅝"
24"	8½"	6⅛"
30"	8½"	7⅛"
36"	8½"	8⅛"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED POLYVINYL CHLORIDE PIPE WITH SMOOTH INTERIOR STANDARD AND POSITIVE JOINTS

NO SCALE

NSP D97I DATED MARCH 7, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP D97I

2006 NEW STANDARD PLAN NSP D97I

2-13-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	320	457

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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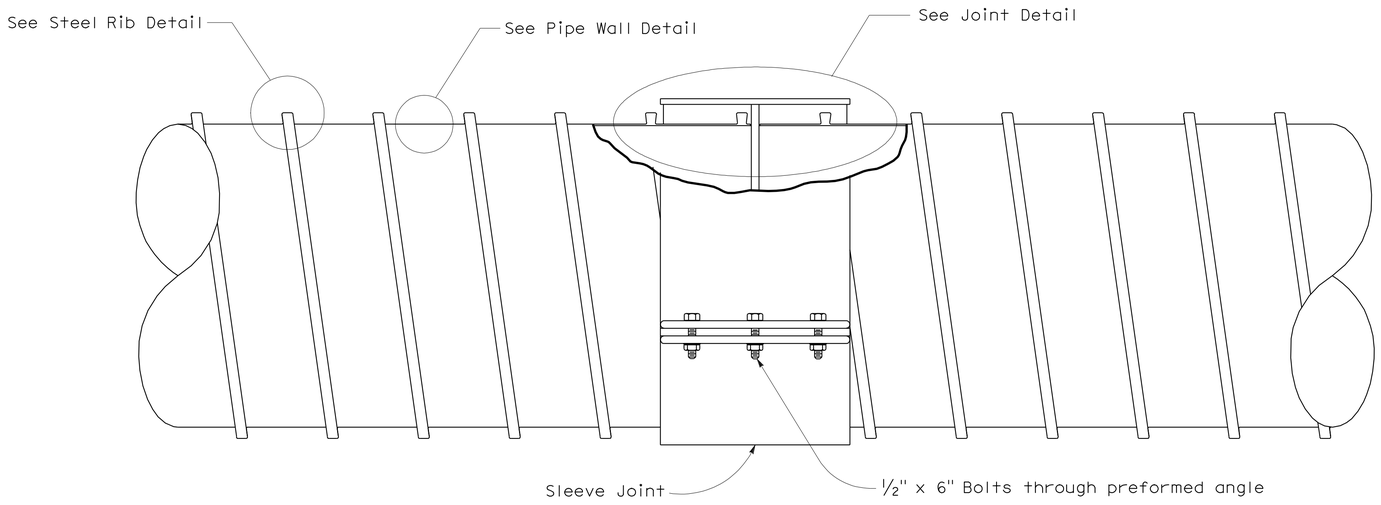
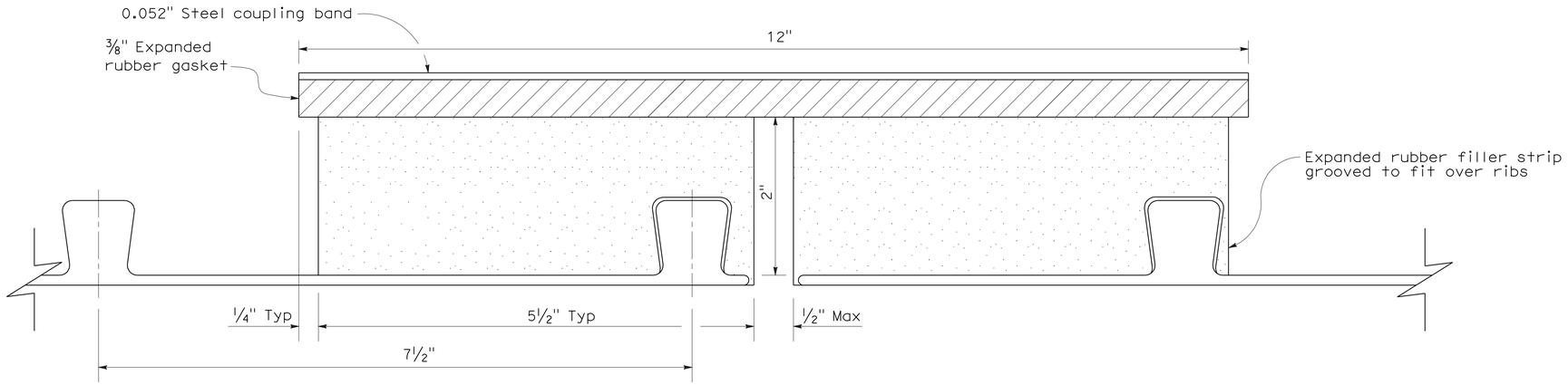
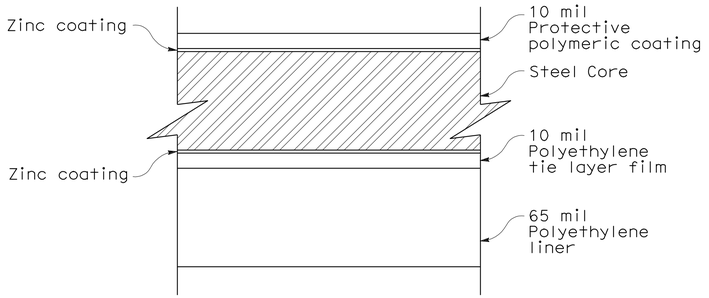
To accompany plans dated 1-23-12



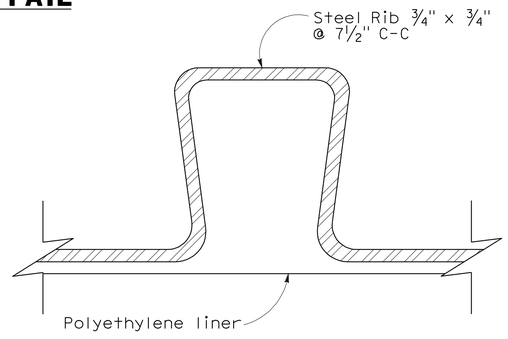
COMPOSITE STEEL SPIRAL RIB PIPE



JOINT DETAIL



PIPE WALL DETAIL



STEEL RIB DETAIL

NOTES:

1. Pipe to conform to ASTM A 978.
2. See Standard Plan A62F for backfill details.
3. Protective polymer film to conform to ASTM A 742 and AASHTO M 246.
4. See Standard Plan D97C for Universal Coupling details.
5. Strap joint connection shall consist of 2 separate bolted preformed connectors joined to form one strap when pipe inside diameter is greater than or equal to 60".

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

COMPOSITE STEEL SPIRAL RIB PIPE WITH SMOOTH INTERIOR STANDARD JOINT

NO SCALE

NSP D97J DATED JUNE 6, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP D97J

2006 NEW STANDARD PLAN NSP D97J

4-24-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	321	457

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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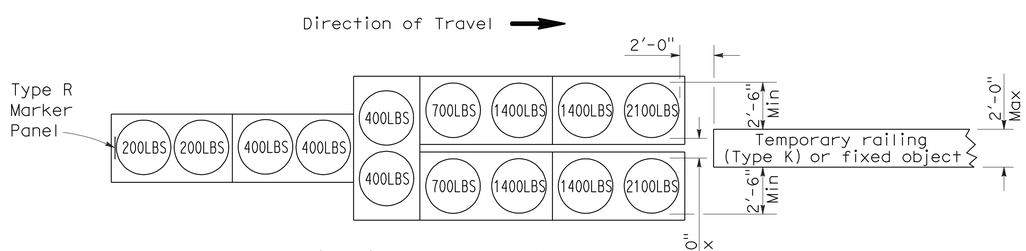
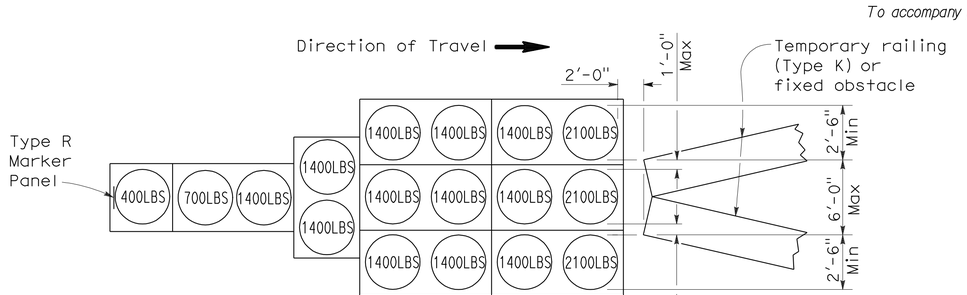
To accompany plans dated 1-23-12



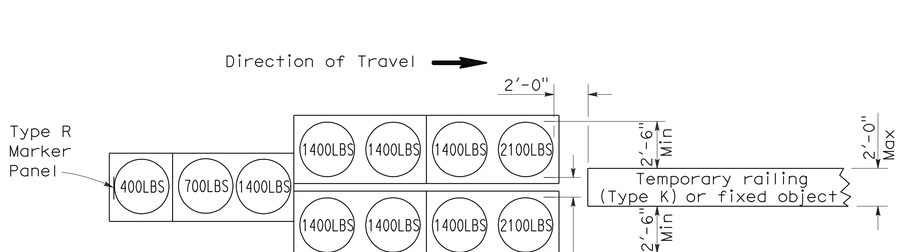
ARRAY 'TU14'

Approach speed 45 mph or more



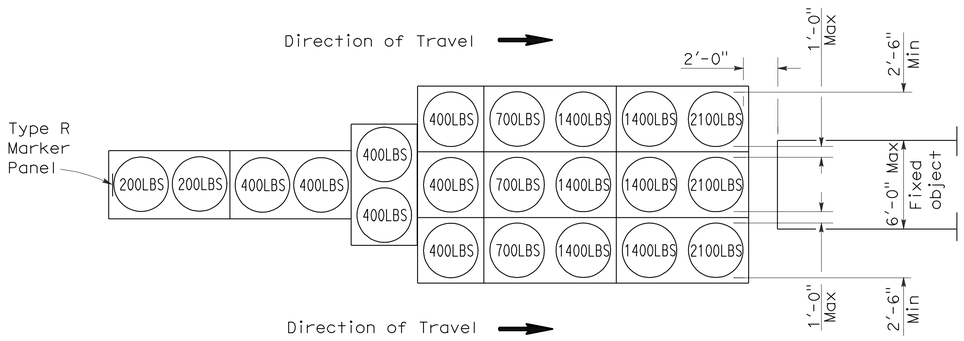
ARRAY 'TU17'

Approach speed less than 45 mph



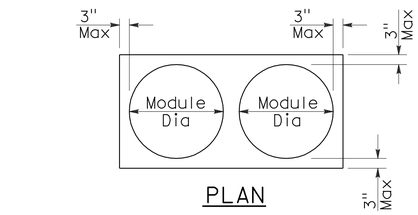
ARRAY 'TU11'

Approach speed less than 45 mph

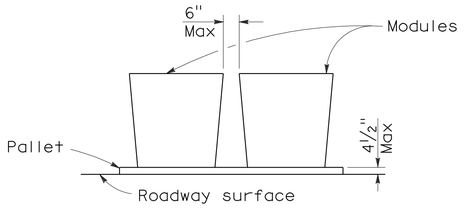


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (UNIDIRECTIONAL)

NO SCALE

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

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	322	457

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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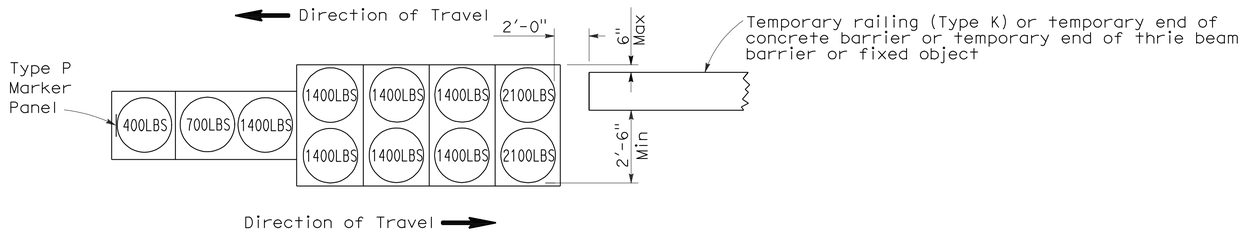
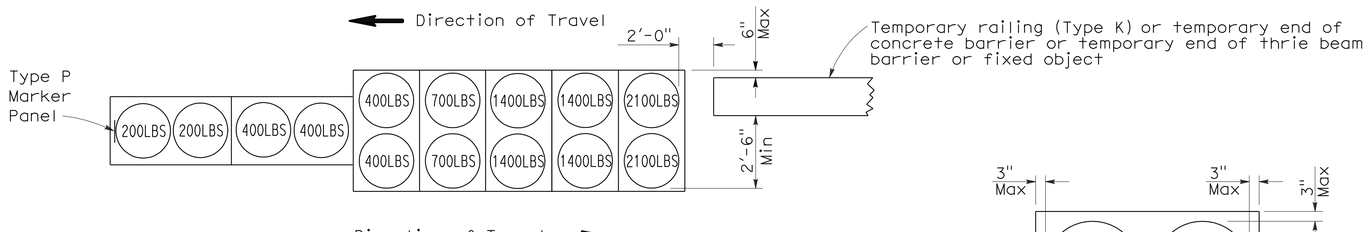
REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 1-23-12



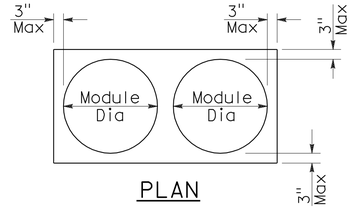
ARRAY 'TB11'

Approach speed less than 45 mph

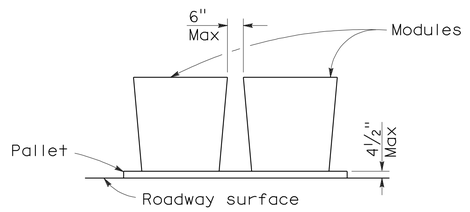


ARRAY 'TB14'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (BIDIRECTIONAL)

NO SCALE

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

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	323	457

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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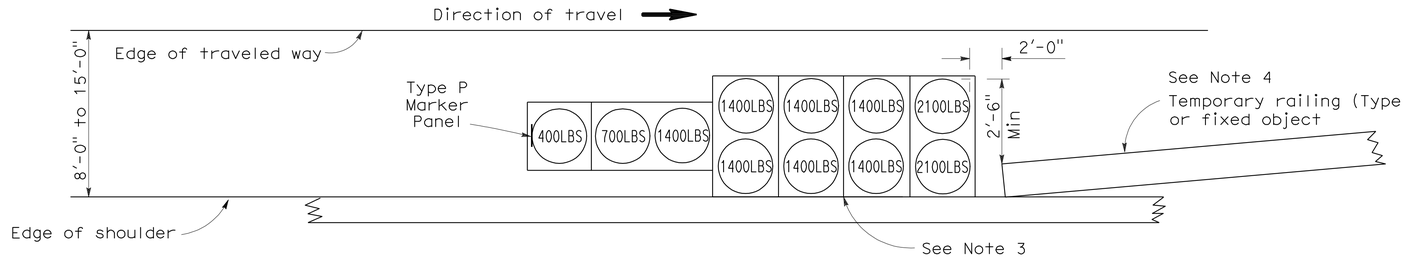
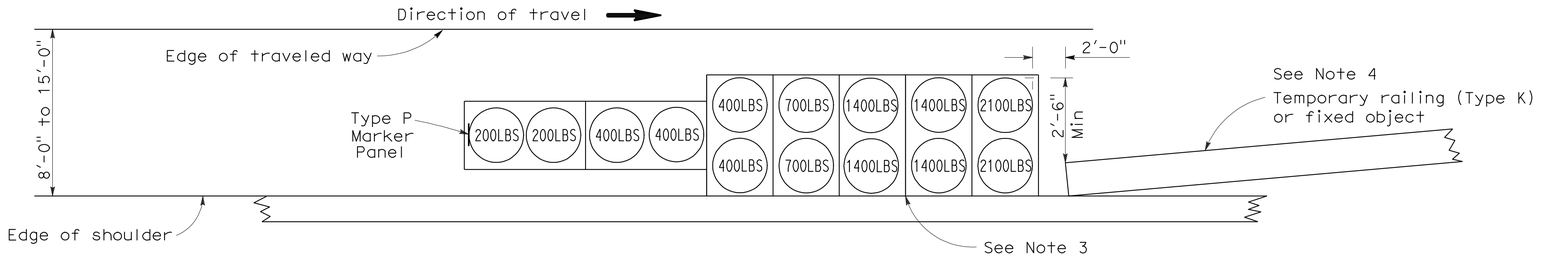
To accompany plans dated 1-23-12



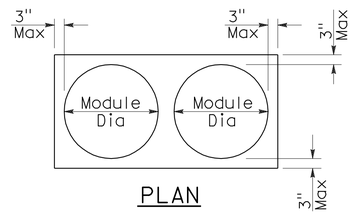
ARRAY 'TS11'

Approach speed less than 45 mph
See Note 9

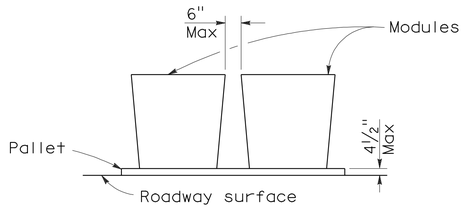


ARRAY 'TS14'

Approach speed 45 mph or more
See Note 9



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 11

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (SHOULDER INSTALLATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

5-15-08

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	324	457

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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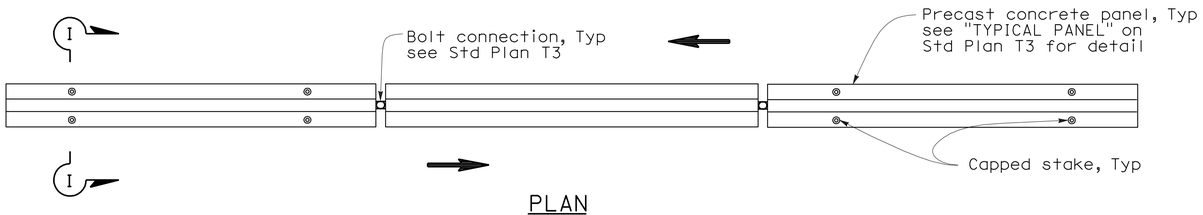
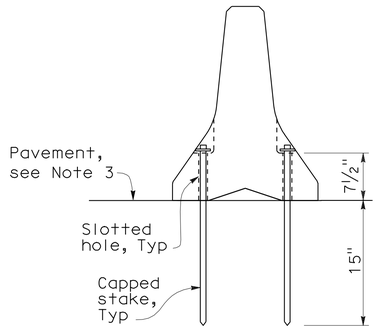
To accompany plans dated 1-23-12



PLAN

RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC

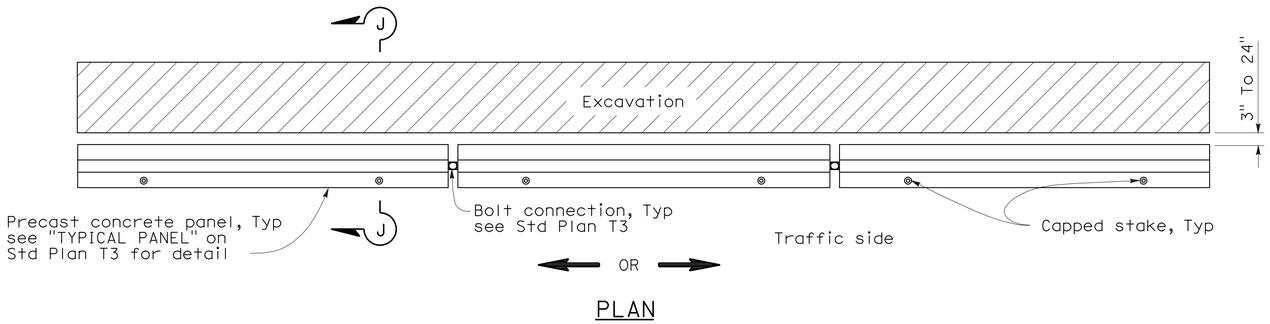
See Note 1



SECTION I-I

NOTES:

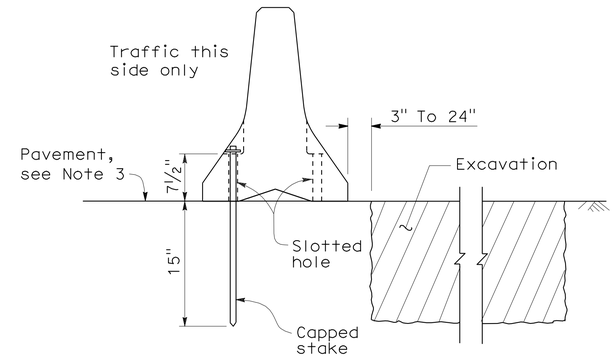
1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of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



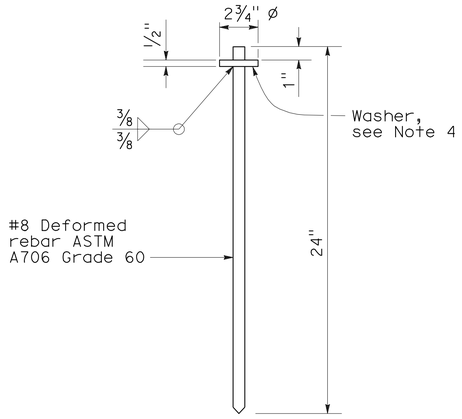
PLAN

RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION

See Note 2



SECTION J-J



CAPPED STAKE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY RAILING (TYPE K)

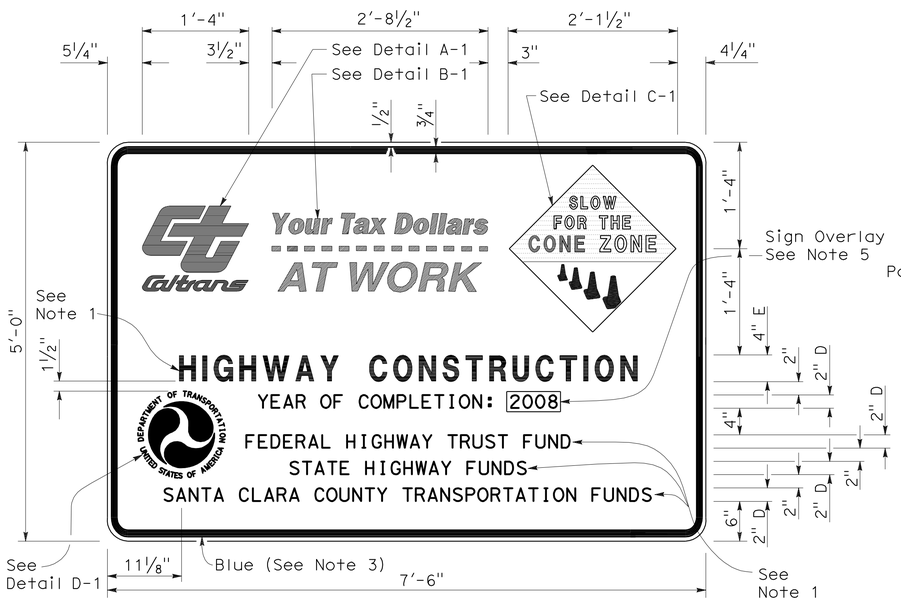
NO SCALE

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

NEW STANDARD PLAN NSP T3A

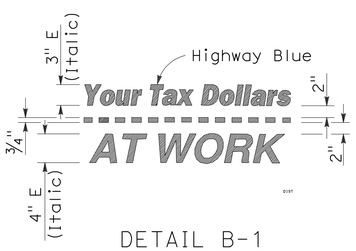
2006 NEW STANDARD PLAN NSP T3A

8-31-10

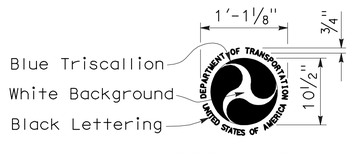


TYPE 1

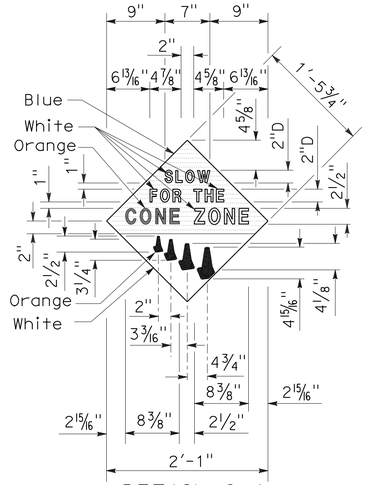
DETAIL A-1



DETAIL B-1
(See Note 3)



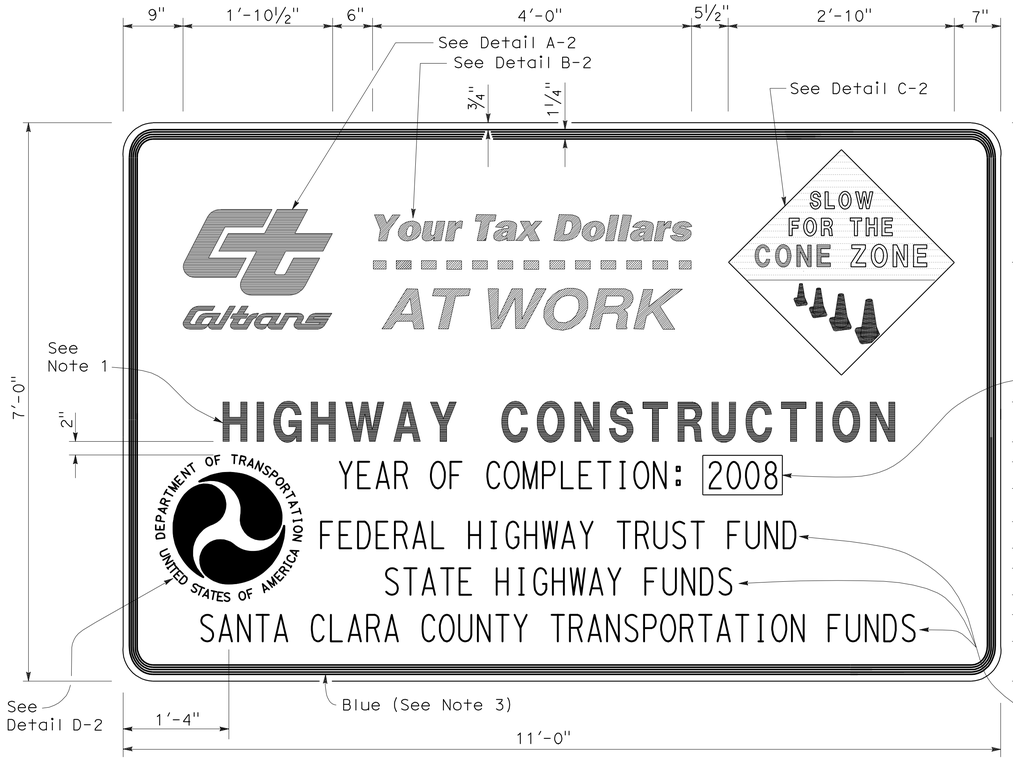
DETAIL D-1
(See Note 6)



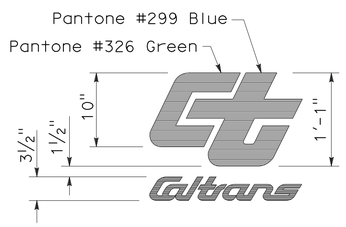
DETAIL C-1
(See Note 4)

NOTES:

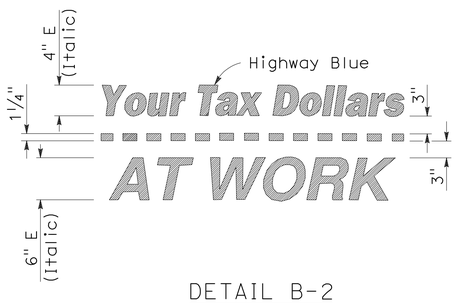
1. The sign messages shown for type of project and fund types are examples only. See the Special Provisions for the applicable type of project and fund type messages to be used.
2. Except as otherwise shown, the legend of sign shall be black on a white background (non-reflective).
3. The border of the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



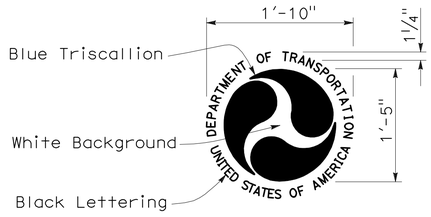
TYPE 2



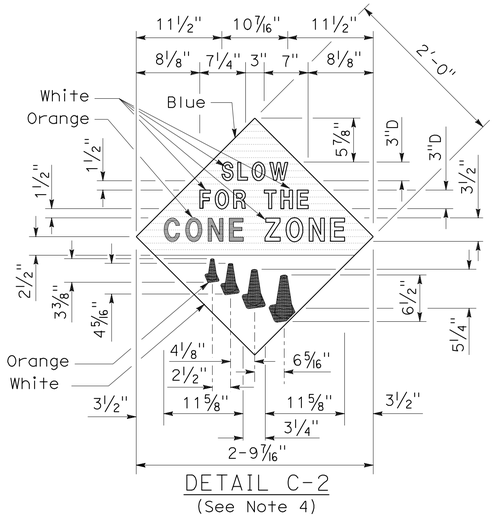
DETAIL A-2



DETAIL B-2
(See Note 3)



DETAIL D-2
(See Note 6)



DETAIL C-2
(See Note 4)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS

NO SCALE

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

REVISED STANDARD PLAN RSP T7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	325	457

Greg W. Edwards
REGISTERED CIVIL ENGINEER

November 17, 2006
PLANS APPROVAL DATE

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

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To accompany plans dated 1-23-12

2006 REVISED STANDARD PLAN RSP T7

9-7-06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	326	457

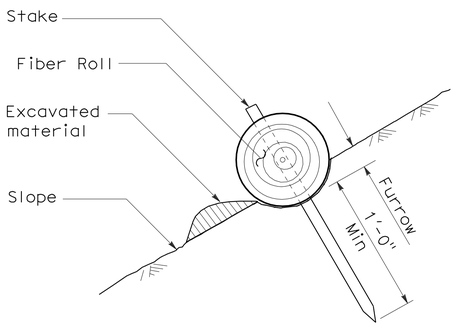
Robert B. Schott
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

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

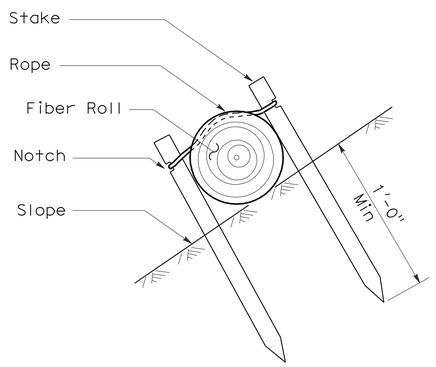
LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3035 — Registration Date 11-30-10 — Renewal Date 2-25-09 — Date — STATE OF CALIFORNIA

To accompany plans dated 1-23-12

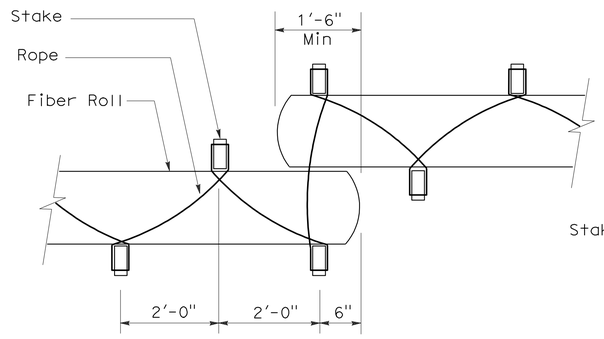


SECTION

TEMPORARY FIBER ROLL (TYPE 1)

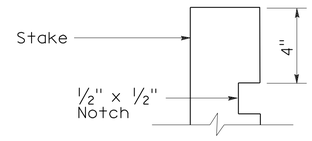


SECTION



PLAN

TEMPORARY FIBER ROLL (TYPE 2)

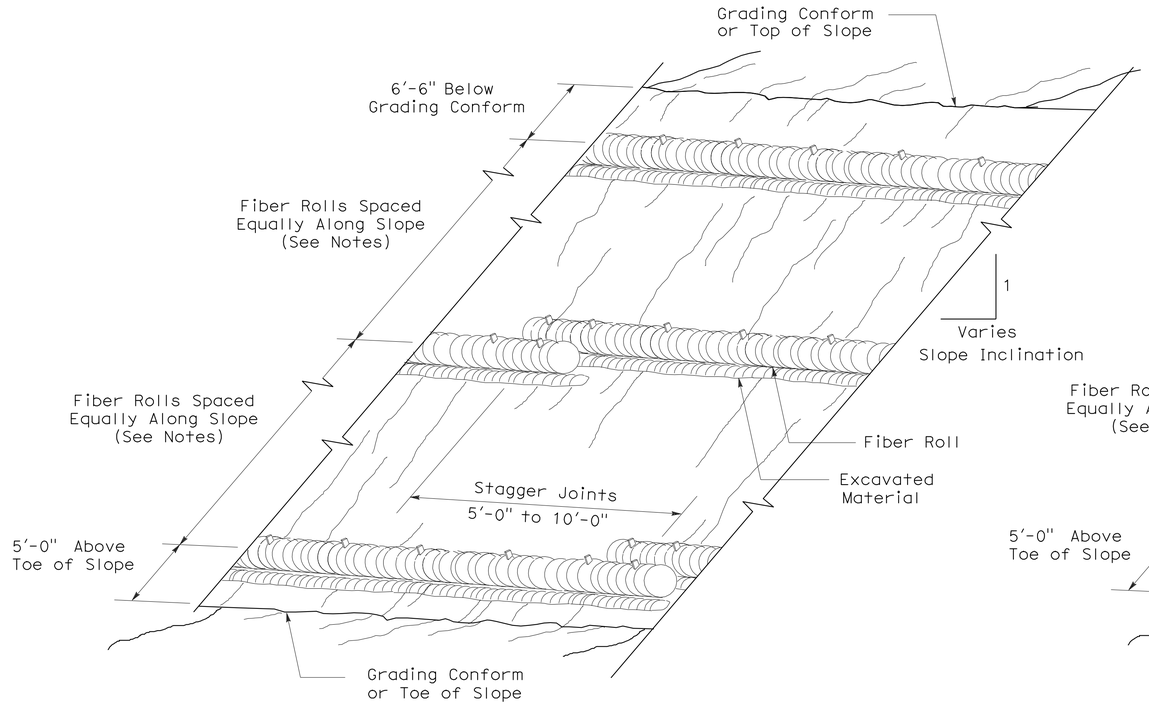


ELEVATION

STAKE NOTCH DETAIL

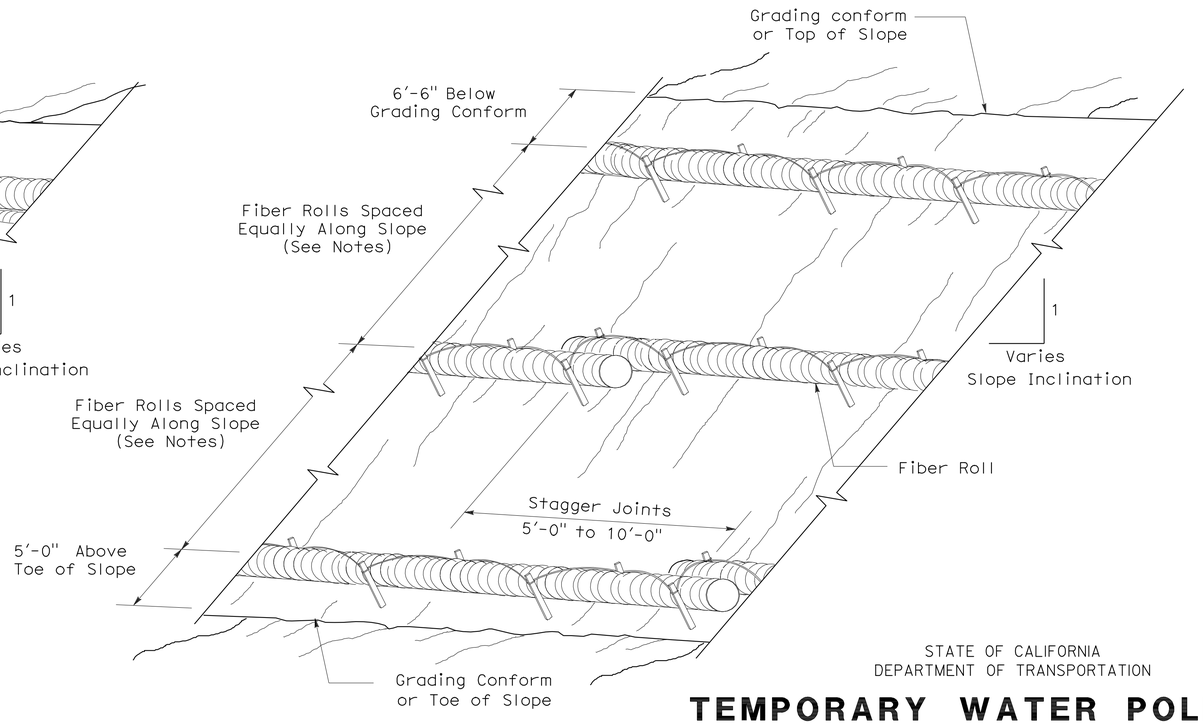
NOTES:

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



PERSPECTIVE

TEMPORARY FIBER ROLL (TYPE 1)



PERSPECTIVE

TEMPORARY FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLL)

NO SCALE

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

REVISED STANDARD PLAN RSP T56

2006 REVISED STANDARD PLAN RSP T56

2-23-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	327	457

Robert B Schott
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3035 — Signature 11-30-10 Renewal Date — 2-25-09 Date — STATE OF CALIFORNIA

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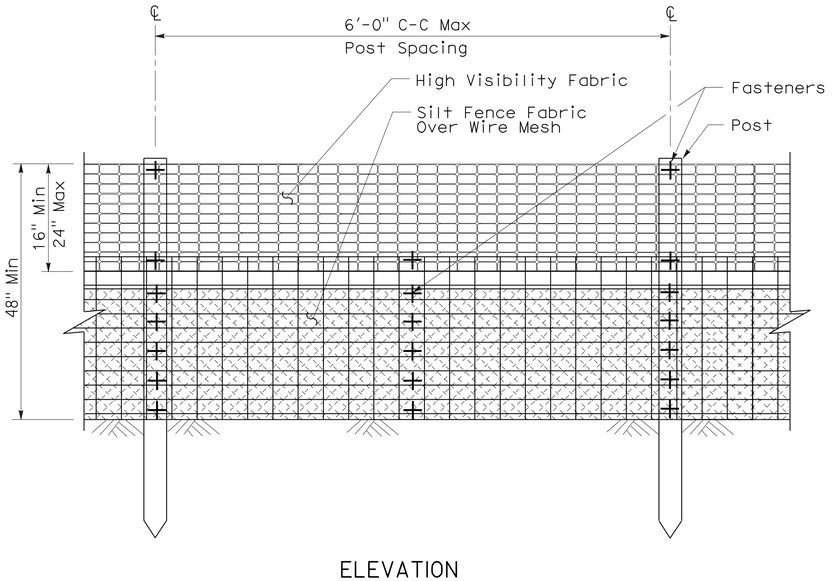
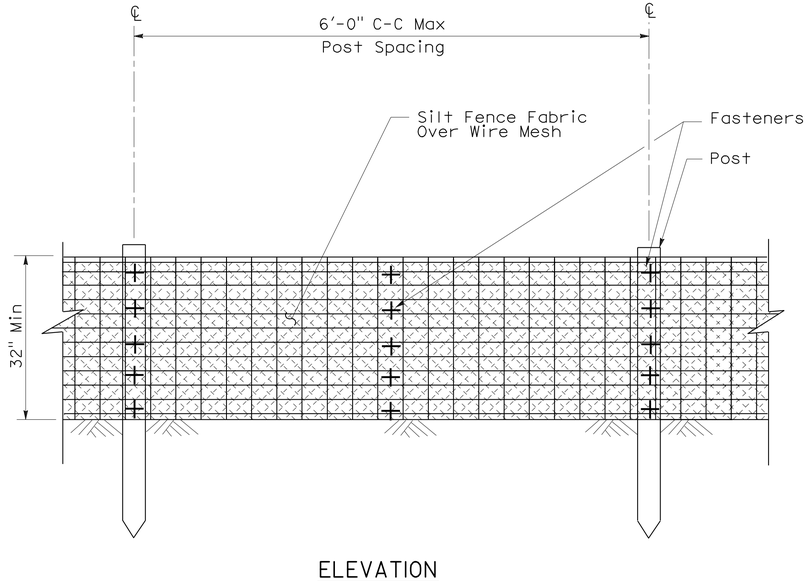
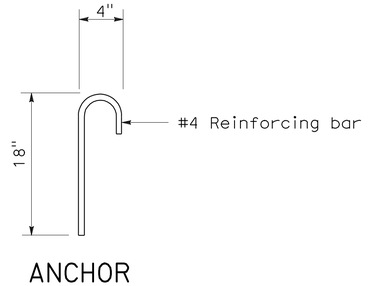
To accompany plans dated 1-23-12



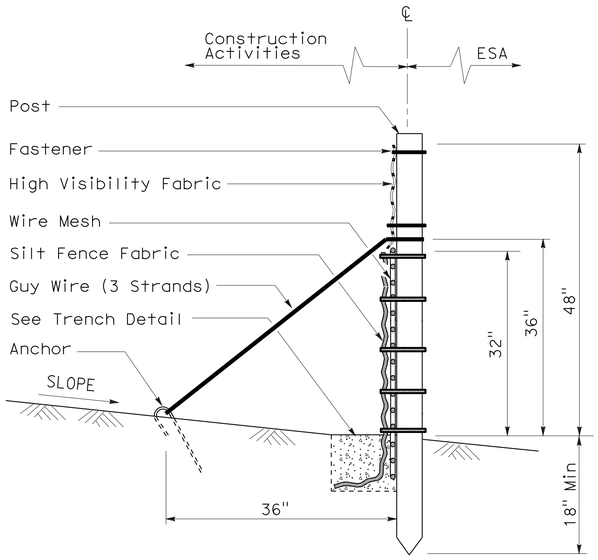
ELEVATION



ELEVATION

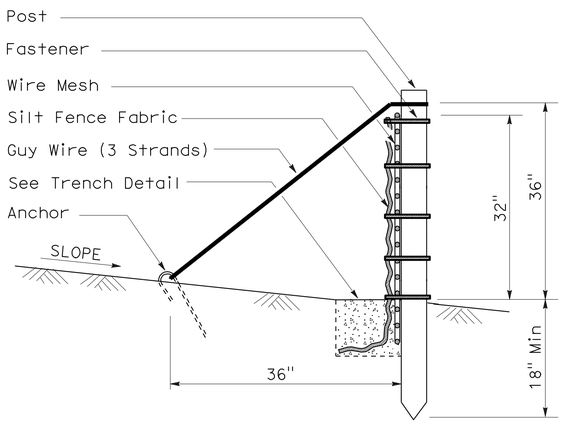


ANCHOR



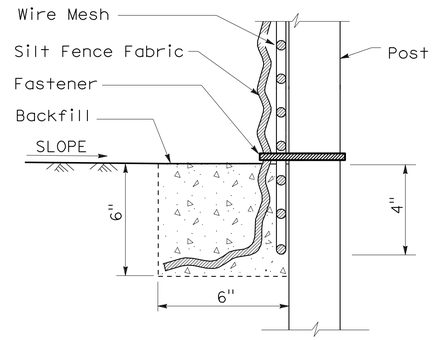
SECTION

TEMPORARY REINFORCED SILT FENCE (TYPE 1)



SECTION

TEMPORARY REINFORCED SILT FENCE (TYPE 2)



SECTION

TRENCH DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY REINFORCED SILT FENCE)

NO SCALE

NSP T60 DATED APRIL 3, 2009 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T60

2006 NEW STANDARD PLAN NSP T60

1-7-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	328	457

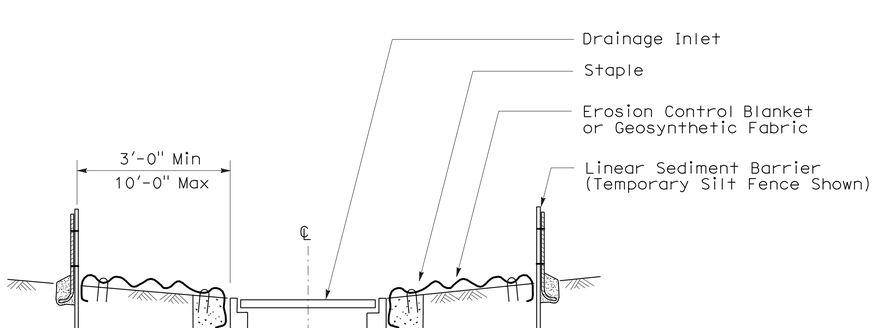
Robert B Schott
LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS Approval DATE

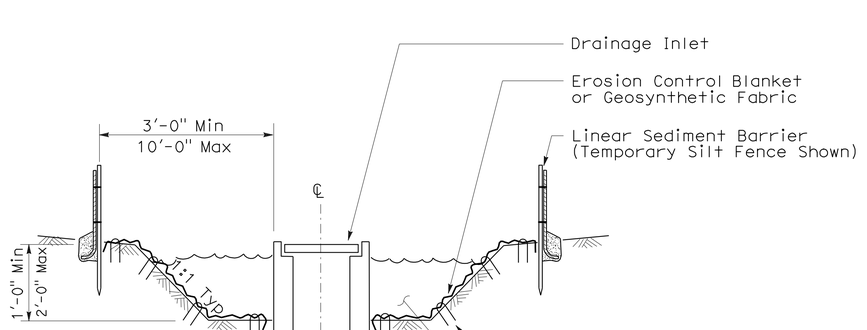
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3035 — Signature — 11-04-08 Renewal Date — 08-11-08 Date — STATE OF CALIFORNIA

To accompany plans dated 1-23-12



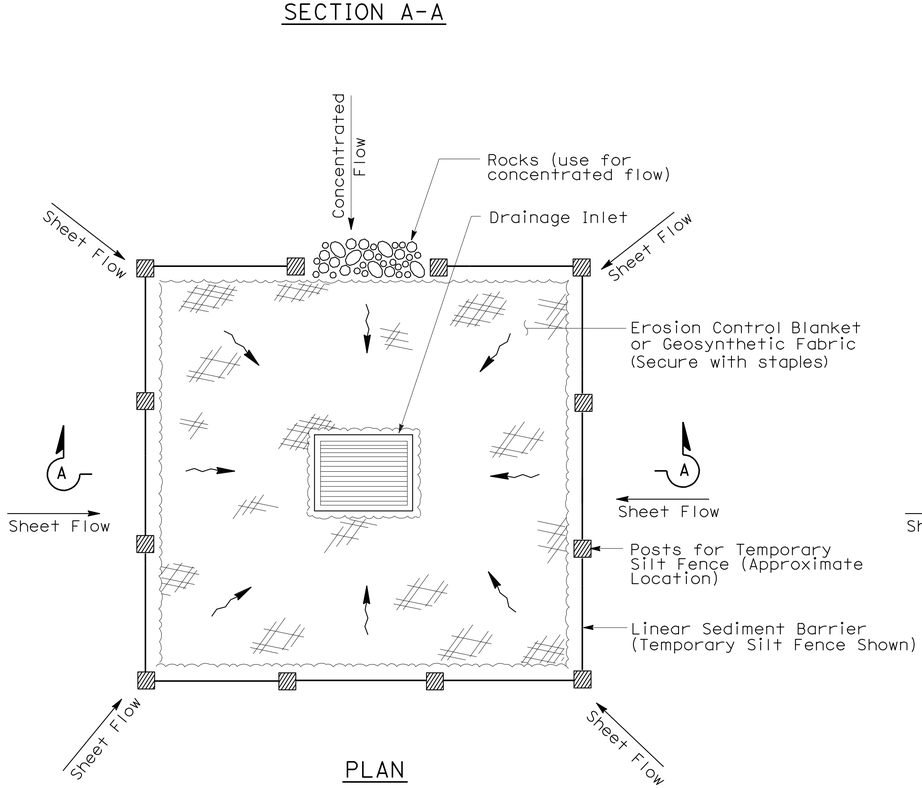
SECTION A-A



SECTION B-B

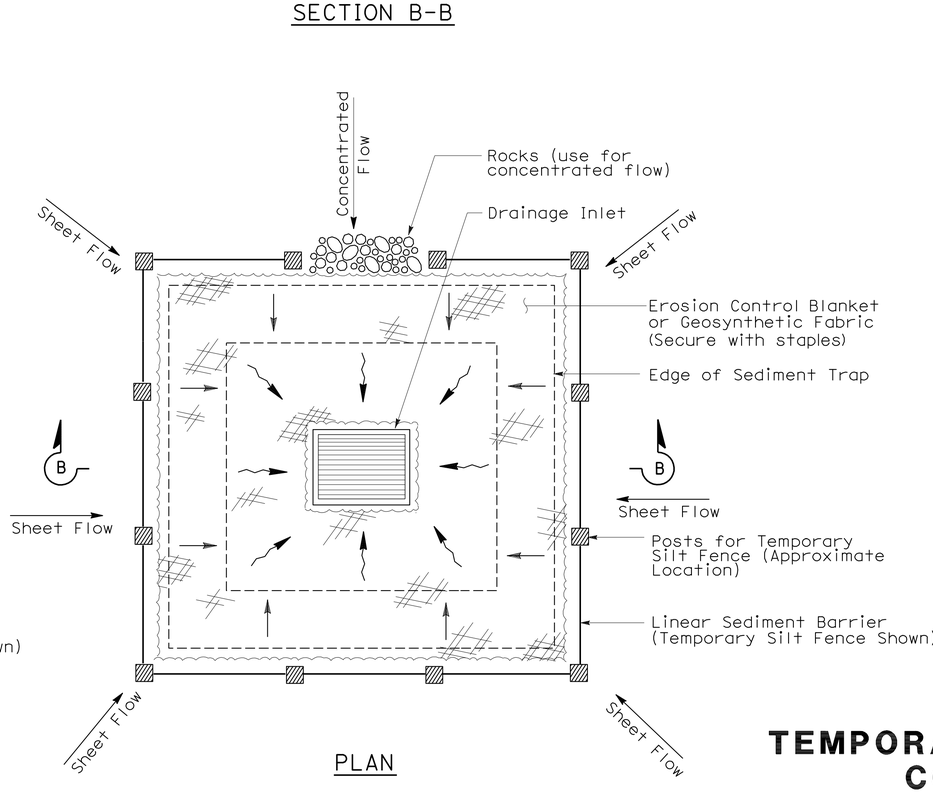
NOTES:

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



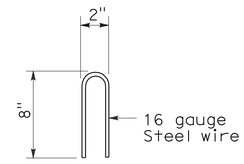
PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



PLAN

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



STAPLE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

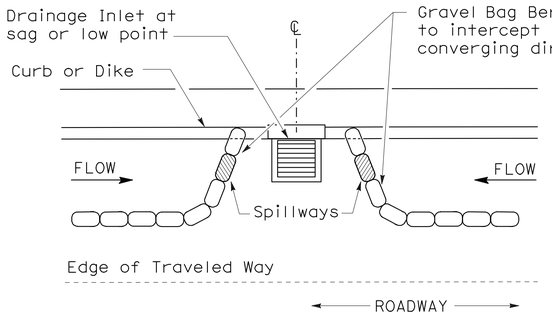
NO SCALE

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

NEW STANDARD PLAN NSP T61

2006 NEW STANDARD PLAN NSP T61

7-11-08



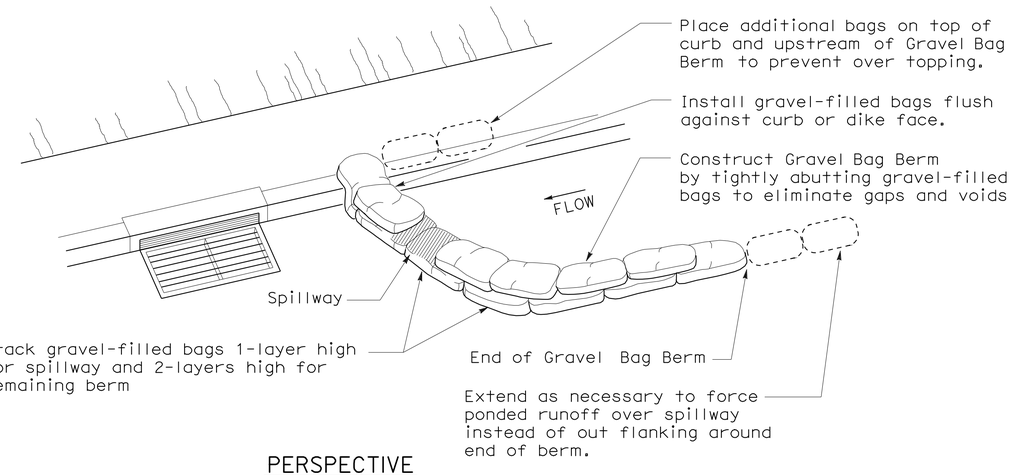
PLAN

CONFIGURATION FOR SAG POINT INLET (GRAVEL BAG BERM)

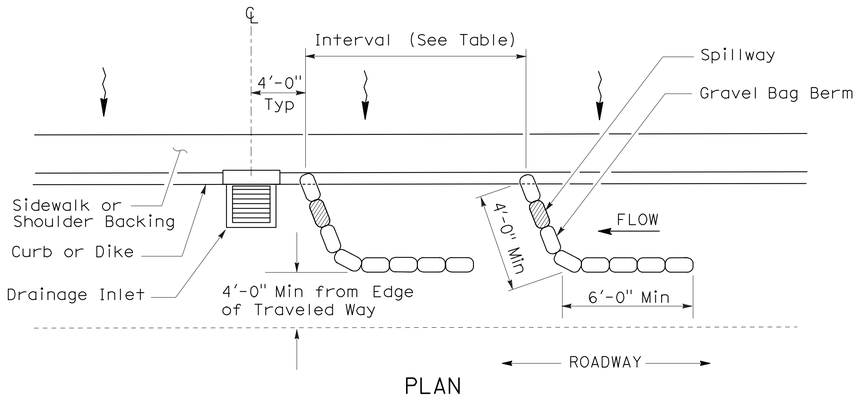
GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

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

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

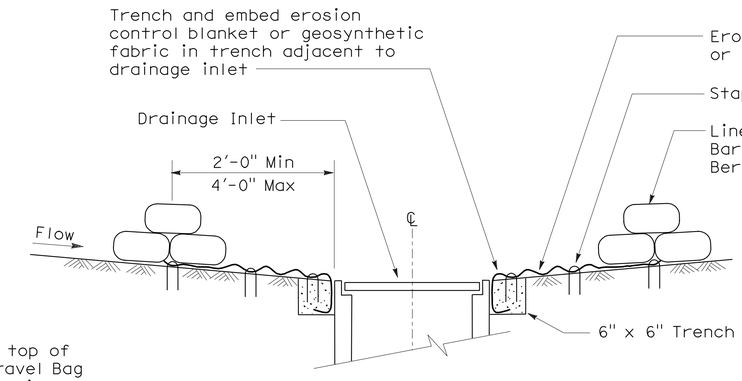


PERSPECTIVE

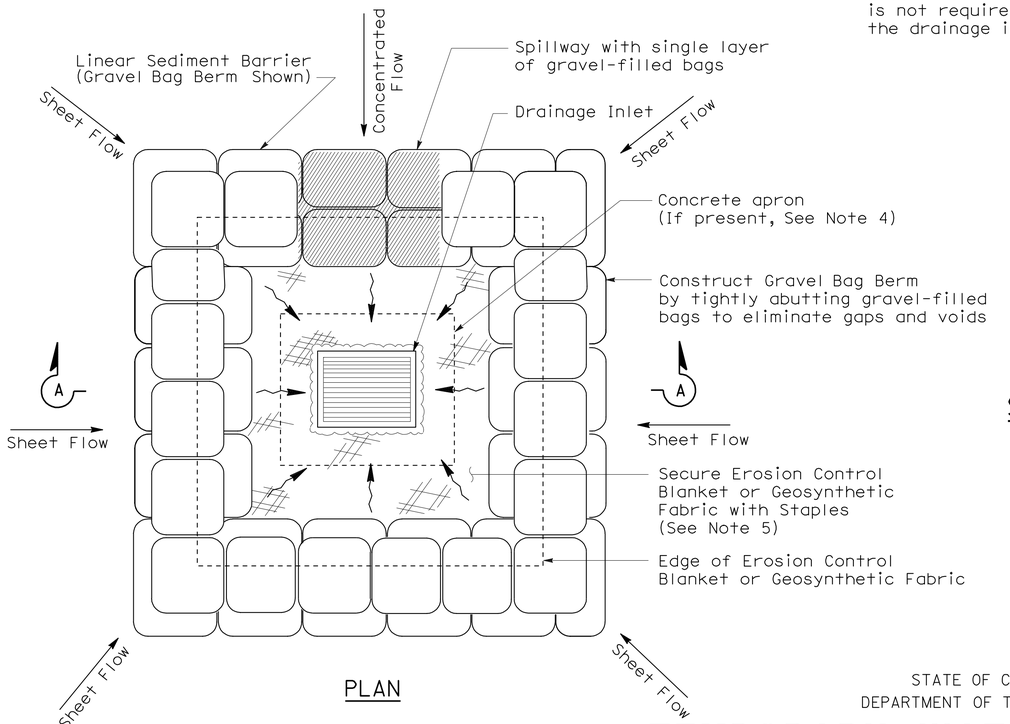


PLAN

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

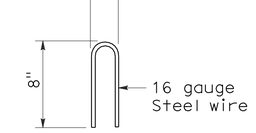


SECTION A-A



PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3B)



STAPLE DETAIL

NOTES:

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	329	457

Robert B Schott
LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3025 — Signature 11-04-08 Renewal Date — 08-11-08 Date — STATE OF CALIFORNIA

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To accompany plans dated 1-23-12

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T62

2006 NEW STANDARD PLAN NSP T62

7-11-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	330	457

Robert B Schott
LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3895 — Signature Date 11-04-08 — Renewal Date 08-11-08 — STATE OF CALIFORNIA

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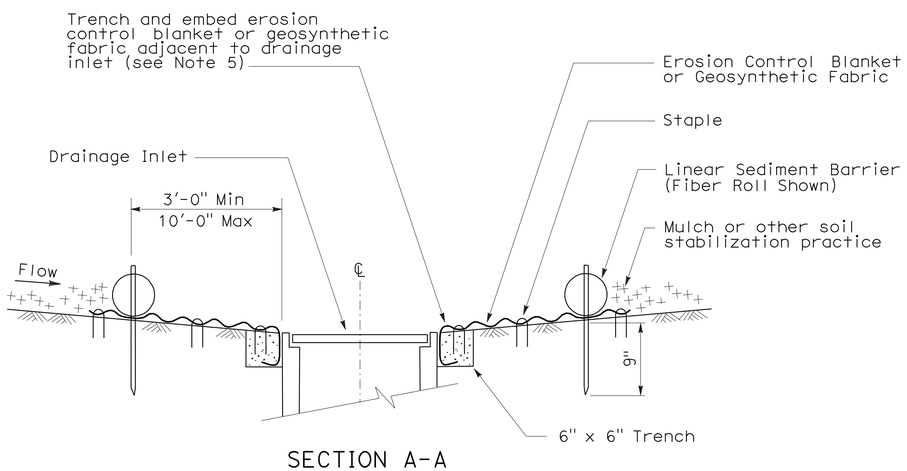
To accompany plans dated 1-23-12

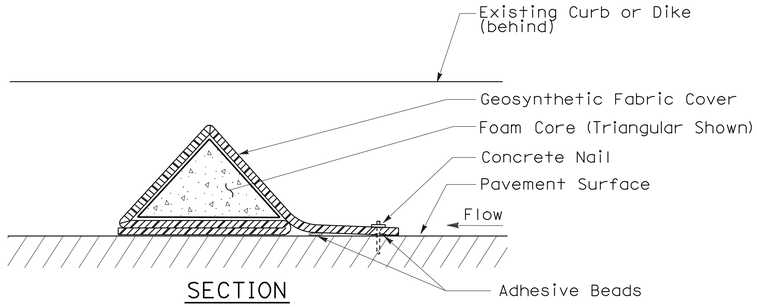
2006 NEW STANDARD PLAN NSP T63

FLEXIBLE SEDIMENT BARRIER SPACING TABLE

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

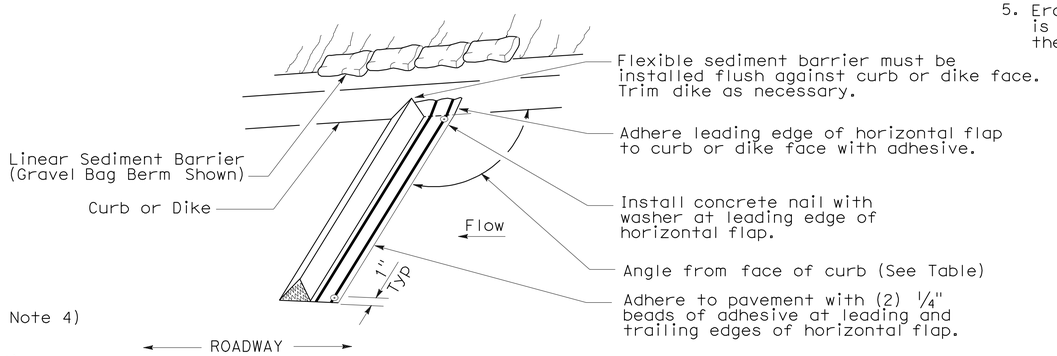


SECTION A-A



SECTION

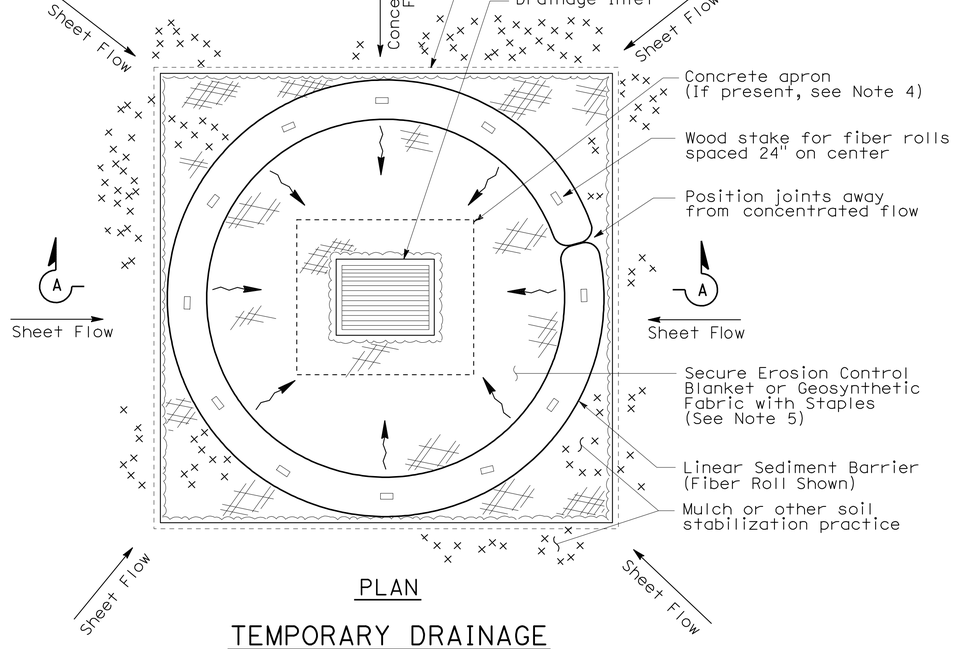
FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)



PERSPECTIVE

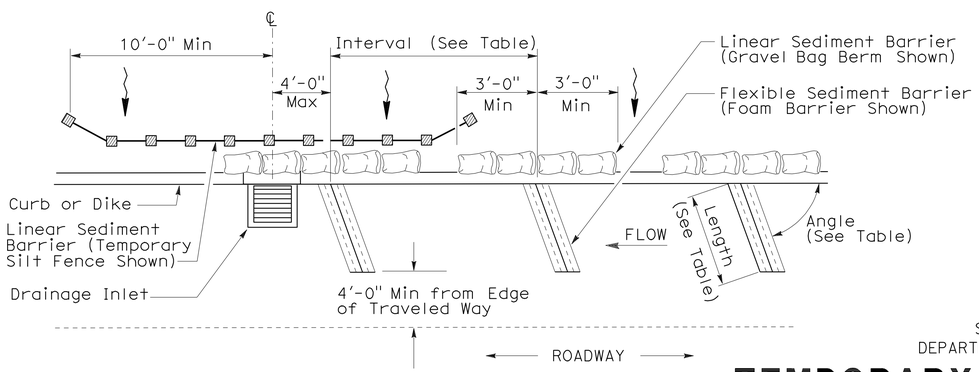
NOTES:

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



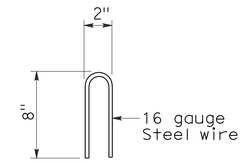
PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)



PLAN

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



STAPLE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

NSP T63 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T63

7-11-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	331	457

Robert B Schott
LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3035 — Signature — 11-04-08 Renewal Date — 08-11-08 Date — STATE OF CALIFORNIA

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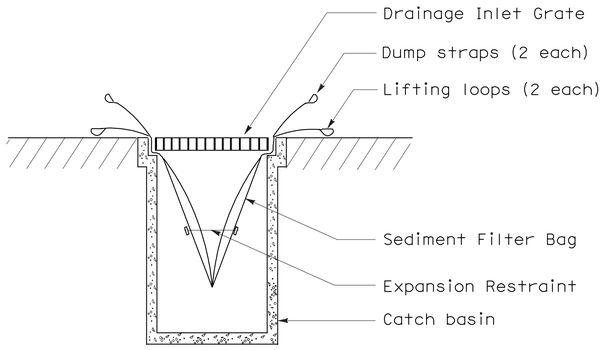
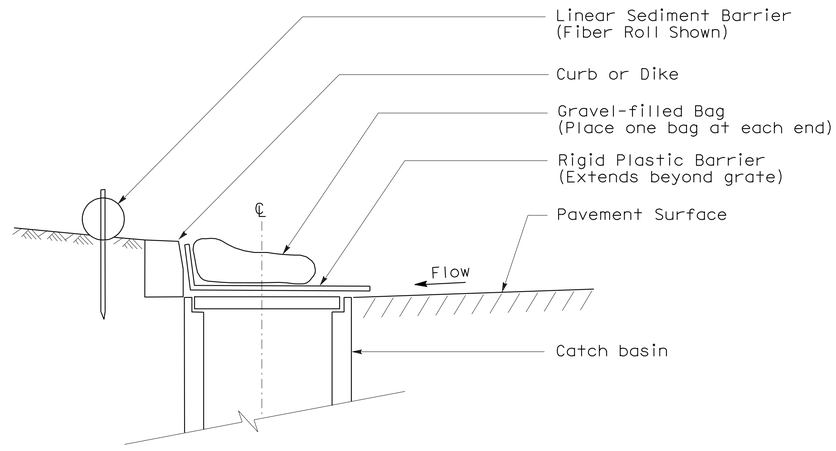
To accompany plans dated 1-23-12



SECTION B-B

SEDIMENT FILTER BAG DETAIL

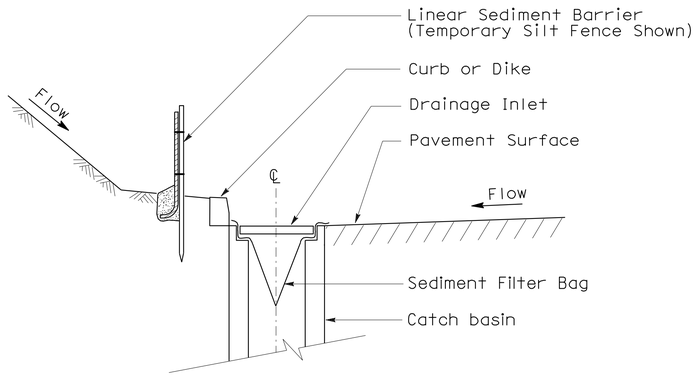


SECTION

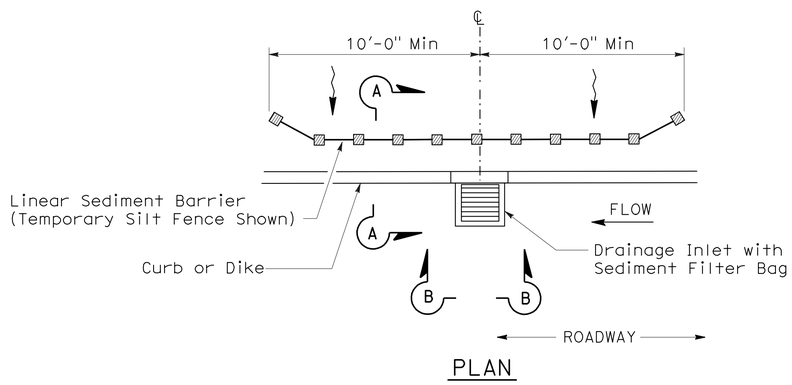
TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6A) (CATCH BASIN WITH GRATE)

NOTES:

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

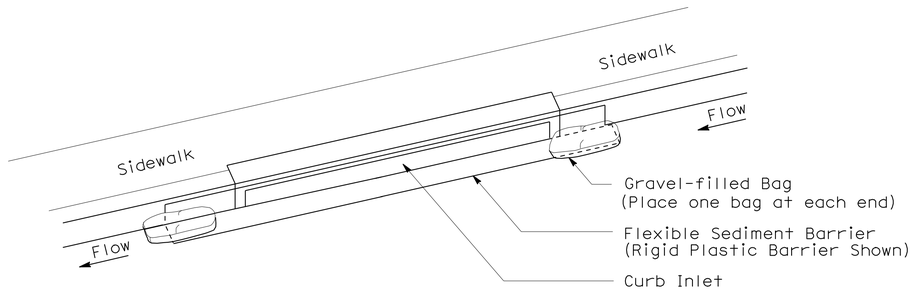


SECTION A-A



PLAN

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



PERSPECTIVE

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

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

NEW STANDARD PLAN NSP T64

2006 NEW STANDARD PLAN NSP T64

7-11-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	332	457

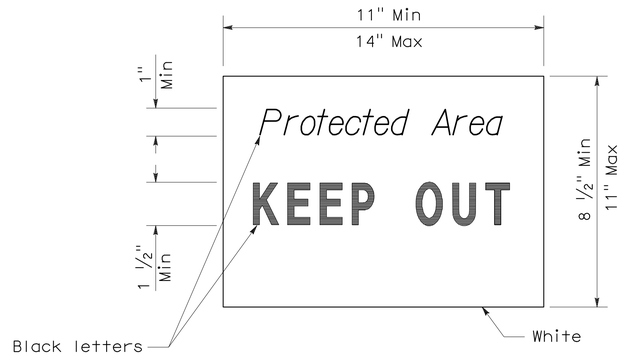
Robert B Schott
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3035 — Signature — 11-30-10 Renewal Date — 2-25-09 Date — STATE OF CALIFORNIA

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

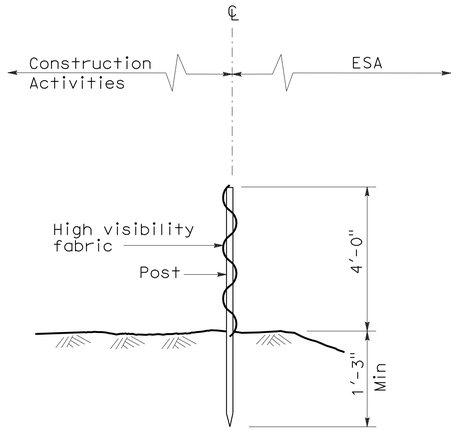
To accompany plans dated 1-23-12



SIGN DETAIL

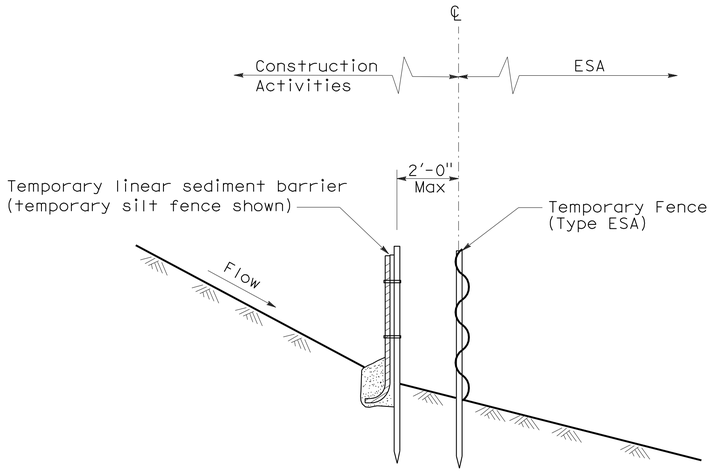
NOTE:

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



SECTION

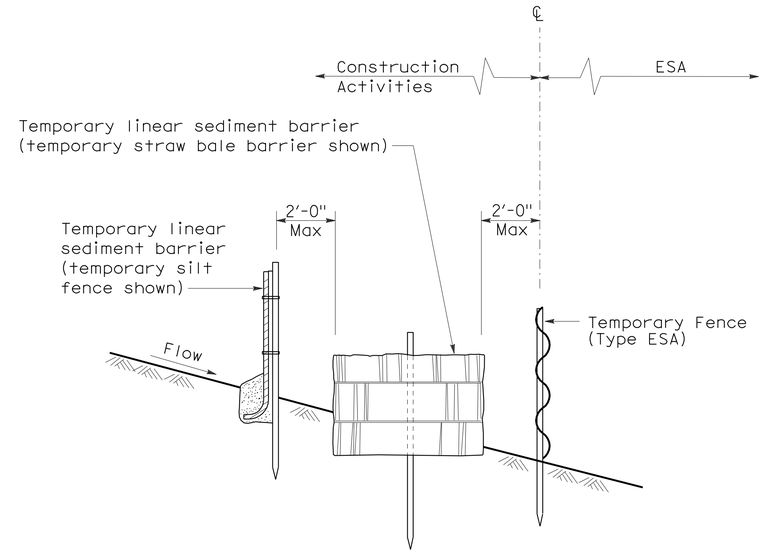
TEMPORARY FENCE (TYPE ESA)



SECTION

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

(See Note 1)



SECTION

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

(See Note 1)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

NEW STANDARD PLAN NSP T65

2006 NEW STANDARD PLAN NSP T65

1-7-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	333	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

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

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

To accompany plans dated 1-23-12

ELECTROLIERS

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

High mast light pole

Double Arm lighting standard

Existing electrolier

Electrolier foundation (Future installation)

NOTES:

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

Electrolier (see project notes or project plans)

Luminaire on wood pole

STANDARD NOTES:

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

ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

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

SOFFIT AND WALL MOUNTED LUMINAIRES

Pendant, 70 W HPS unless otherwise specified.

Flush, 70 W HPS unless otherwise specified.

Wall surface, 70 W HPS unless otherwise specified.

Existing soffit or wall luminaire to remain unmodified.

Existing soffit or wall luminaire to be modified as specified.

NOTE:
Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-1A

2006 REVISED STANDARD PLAN RSP ES-1A

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	334	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

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

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

To accompany plans dated 1-23-12

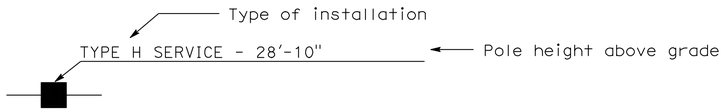
CONDUIT

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

SERVICE EQUIPMENT

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

POLE-MOUNTED SERVICE DESIGNATION



ILLUMINATED OVERHEAD SIGN

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

SIGNAL EQUIPMENT

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

SIGNAL EQUIPMENT Cont

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

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-1B

2006 REVISED STANDARD PLAN RSP ES-1B

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	335	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

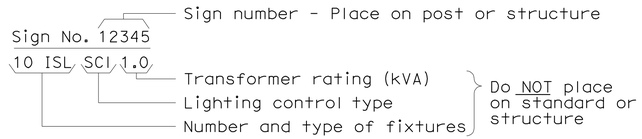
Jeffery G. McRae
No. E14512
Exp. 6-30-08
ELECTRICAL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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

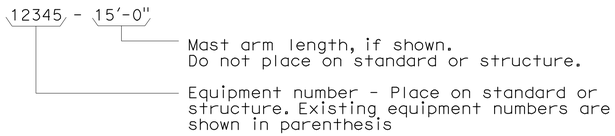
To accompany plans dated 1-23-12

EQUIPMENT IDENTIFICATION

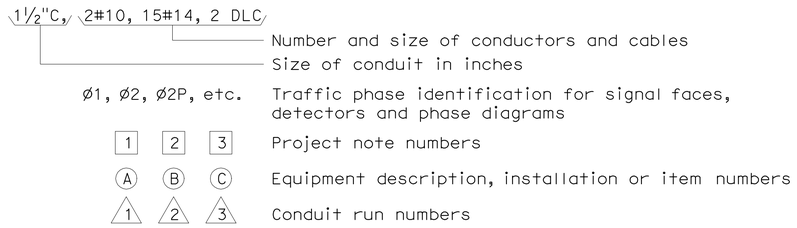
ILLUMINATED SIGN IDENTIFICATION NUMBER:



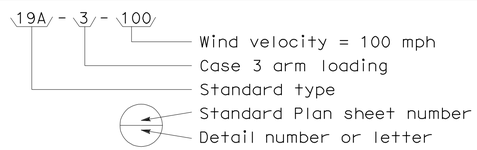
ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



CONDUIT AND CONDUCTOR IDENTIFICATION:

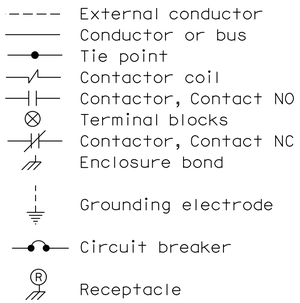


SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



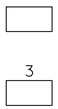
WIRING DIAGRAM LEGEND

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



PULL BOXES

PROPOSED EXISTING



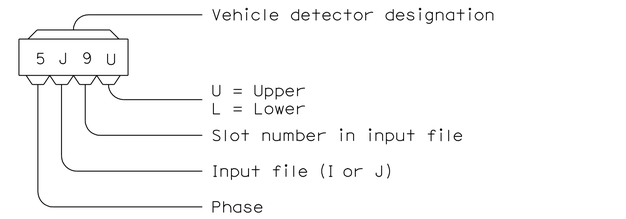
3 = No. 3½ pull box
5 = No. 5 pull box
6 = No. 6 pull box
7 = No. 7 (Ceiling pull box)
8 = No. 8 (Pendant soffit pull box)
9 = No. 9 pull box
9A = No. 9A pull box

Pull box-No. 5 unless otherwise indicated or noted.

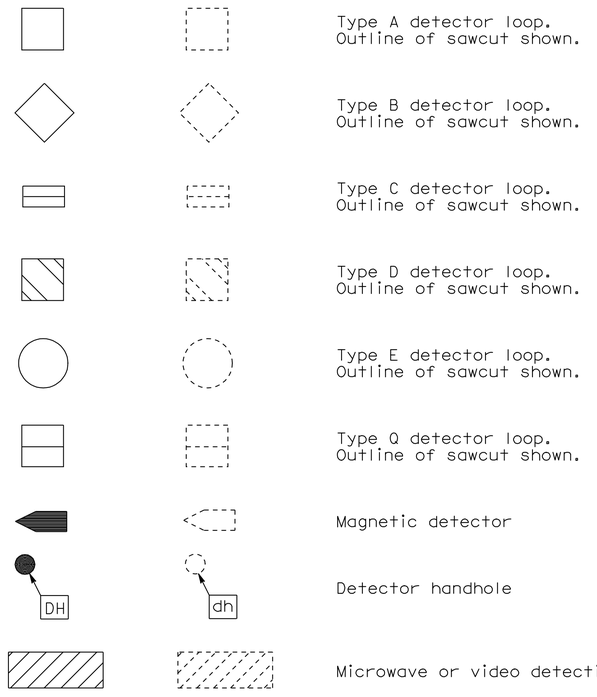
Pull box-Additional designations or descriptions

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

VEHICLE DETECTORS

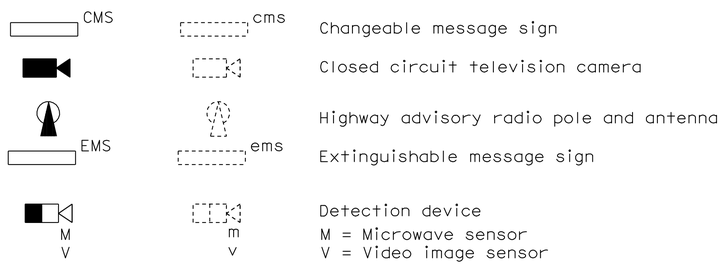


PROPOSED EXISTING



MISCELLANEOUS EQUIPMENT

PROPOSED EXISTING



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-1C

2006 REVISED STANDARD PLAN RSP ES-1C

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	336	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

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

October 5, 2007
PLANS APPROVAL DATE

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

To accompany plans dated 1-23-12

NOTES-TYPE III SERVICE EQUIPMENT ENCLOSURES:

1. Service equipment enclosure and metering equipment shall meet the requirements of the service utility. The meter area shall have a sealable, lockable, weathertight cover that can be removed without the use of tools.

2. Service equipment enclosures shall be factory wired and conform to NEMA standards.

3. Dimensions of service equipment enclosures shall meet the requirements of the service utility.

4. The dead front panels on Type III service equipment enclosures shall have a continuous stainless steel or aluminum piano hinge. The panel in front of the breakers shall be secured with a latch or captive screws. No live parts shall be mounted on the dead front panel.

5. The exterior door shall have provisions for padlocking. The padlock hole shall be a minimum diameter of 7/16".

6. Enclosures housing transformers of more than one kVA shall have effective screened ventilation louver of not less than 50 square inches. Screen shall be stainless steel No. 304, with a No. 10 size mesh. Framed screen shall be secured with at least four bolts.

7. Fasteners on the exterior of the enclosure shall be vandal-resistant and shall not be removable from the exterior. Exterior screws, nuts, bolts and washers shall be stainless steel.

8. Landing lugs for incoming service conductors shall be compatible with either copper or aluminum conductors sized to suit the conductors shown on the plan. Landing lugs shall be copper or tin-plated aluminum. Neutral bus shall be rated for 125 A and be suitable for copper or aluminum conductors unless otherwise specified. The terminal shall include but not be limited to:

   a) Incoming terminals (landing lugs)
   b) Neutral lugs
   c) Solid neutral terminal strip

9. At least 6 standard single pole circuit breaker spaces, 3/4" nominal, shall be provided for branch circuits. Circuit breaker interiors shall be copper. Interiors of enclosure shall accept plug-in or cable-in/cable-out circuit breakers.

10. Control wiring shall be 600 V, 14 stranded machine tool wire. Where subject to flexing, 19 strand wire shall be used.

11. Main bus shall be rated for 125 A and shall be tin-plated copper.

12. A plastic laminated wiring diagram shall be provided with brass mounting eyelets and attached to the inside of the enclosure and the wiring diagram shall be affixed to the interior with a UL or ETL approved method.

13. An engraved phenolic nameplate on the dead front panel indicating the function of each circuit or device shall be installed with stainless steel rivets or stainless steel screws:

    a) Adjacent to the breaker or device with character size a minimum of 1/8".

    b) At the top of the exterior door panel indicating State system number, voltage level and number of phases with character size a minimum of 3/16".

14. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.

15. In unpaved areas a raised portland cement concrete pad 2'-0" x 4" x width of foundation shall be constructed in front of new service equipment enclosure installation. Pad shall be set to elevation of foundation.

16. Foundation shall extend 2" minimum beyond edge of service equipment enclosure.

17. Internal bus, where shown, is typical only. Alternative design of proposed service equipment enclosure shall be submitted to the Engineer for approval.

18. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.

19. Type III-AF and Type III-BF service equipment enclosures shall have the meter viewing windows located on the front side of the service equipment enclosures.

20. Type III-AR and Type III-BR service equipment enclosures shall be similarly constructed as Type III-AF and Type III-BF respectively, except the meter viewing windows shall be located on the back side of the service equipment enclosures.

21. Minimum clearance shall be required for front and back of service equipment enclosure per National Electrical Code, Article 110.26, "Spaces About Electric Equipment (600 Volts, Nominal, or Less)."

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SERVICE EQUIPMENT NOTES TYPE III SERIES)

NO SCALE

RSP ES-2C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2C
DATED MAY 1, 2006 - PAGE 405 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-2C

2006 REVISED STANDARD PLAN RSP ES-2C

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	337	457

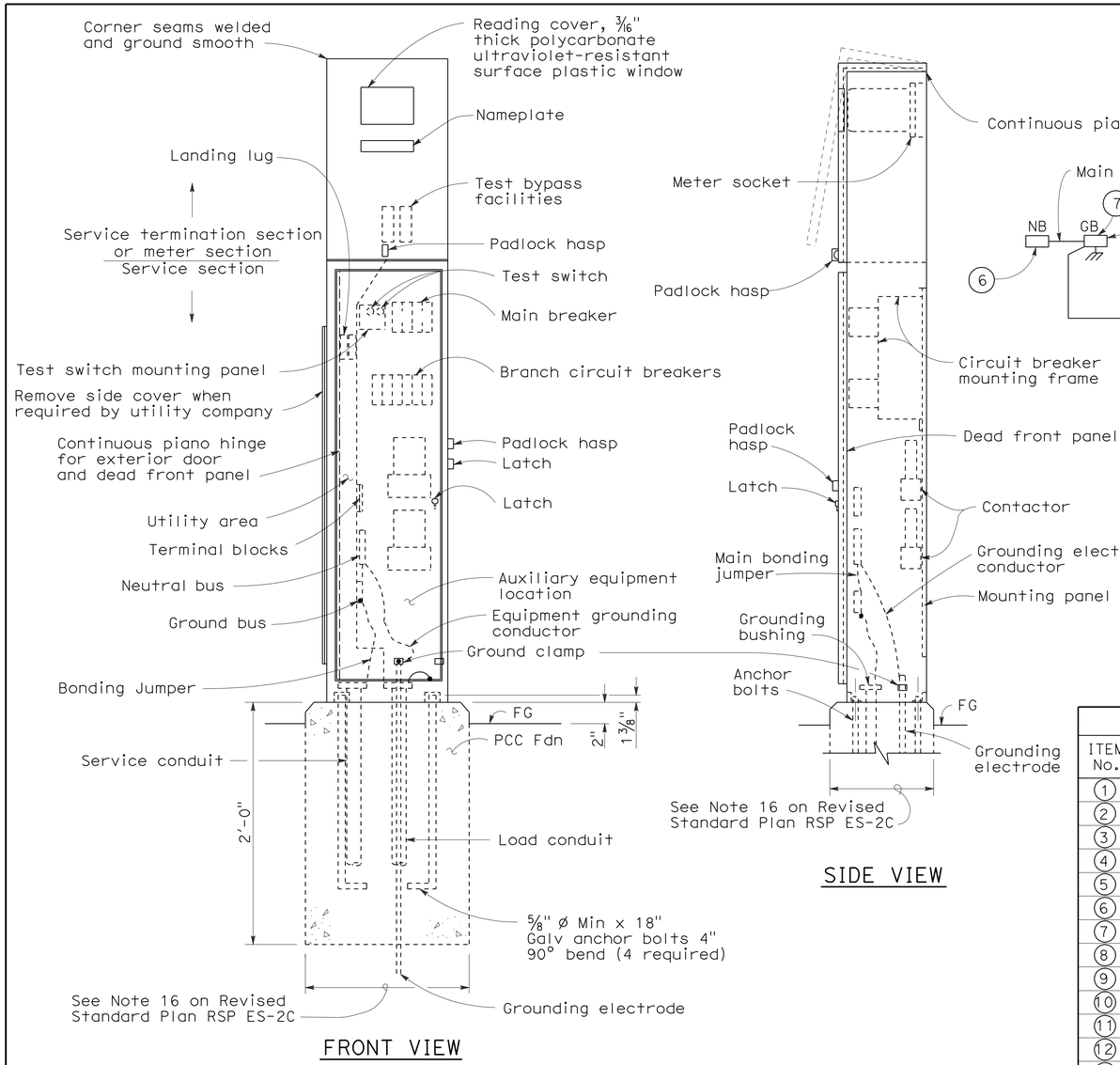
Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

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

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

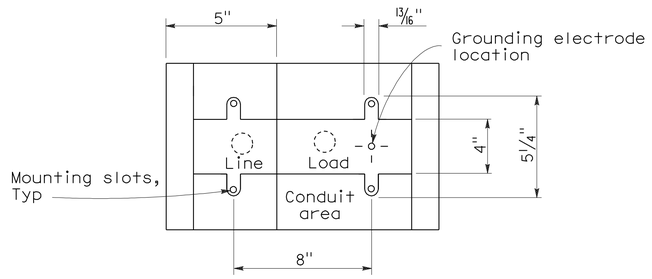
To accompany plans dated 1-23-12



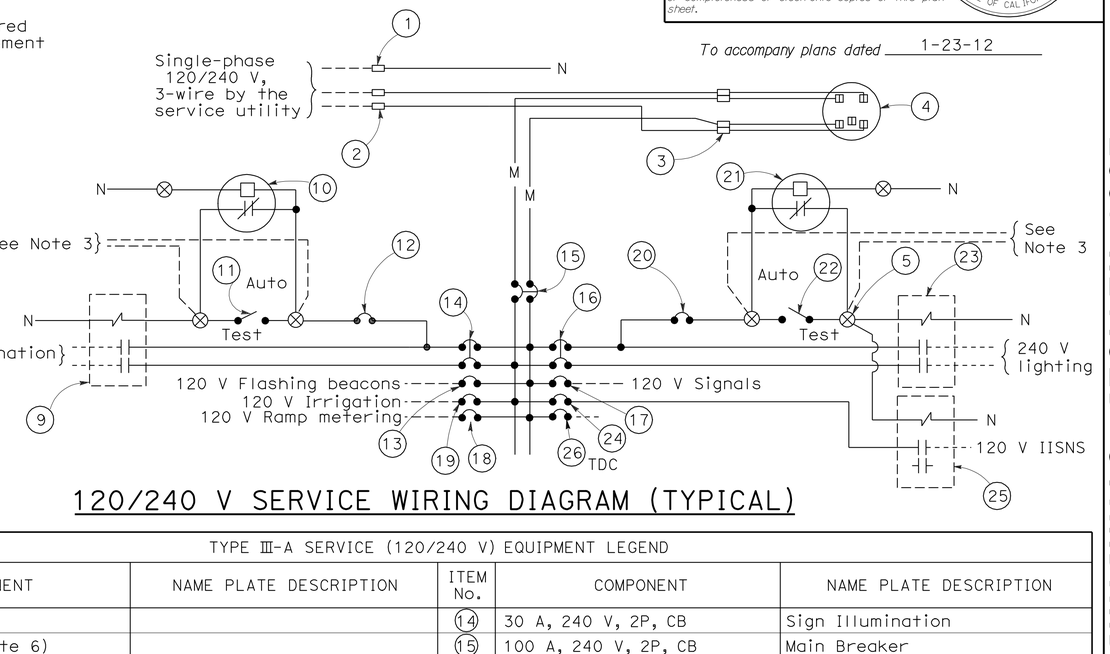
SIDE VIEW

FRONT VIEW

TYPE Ⅲ-AF SERVICE EQUIPMENT ENCLOSURE (TYPICAL)



BASE FOR TYPE Ⅲ-A SERVICE EQUIPMENT ENCLOSURE



120/240 V SERVICE WIRING DIAGRAM (TYPICAL)

TYPE Ⅲ-A SERVICE (120/240 V) EQUIPMENT LEGEND

ITEM No.	COMPONENT	NAME PLATE DESCRIPTION	ITEM No.	COMPONENT	NAME PLATE DESCRIPTION
1	Neutral lug		14	30 A, 240 V, 2P, CB	Sign Illumination
2	Landing lug (Note 6)		15	100 A, 240 V, 2P, CB	Main Breaker
3	Test bypass facility		16	30 A, 240 V, 2P, CB	Lighting
4	Meter socket and support		17	50 A, 120 V, 1P, CB	Signals
5	Terminal blocks		18	30 A, 120 V, 1P, CB	Ramp Metering
6	Neutral bus		19	20 A, 120 V, 1P, CB	Irrigation
7	Ground bus		20	15 A, 120 V, 1P, CB	Lighting Control
8	Grounding electrode		21	Photoelectric unit (Note 7)	
9	30 A, 2PNO Contactor	Sign Illumination	22	15 A, 1P, Test switch	Lighting Test Switch
10	Photoelectric unit (Note 7)		23	60 A, 2PNO Contactor	Lighting
11	15 A, 1P, Test switch	Sign Illumination Test Switch	24	15 A, 120 V, 1P, CB	IISNS
12	15 A, 120 V, 1P, CB	Sign Illumination Control	25	30 A, 2PNO Contactor	IISNS
13	15 A, 120 V, 1P, CB	Flashing Beacon	26	20 A, 120 V, 1P, CB	Telephone Demarcation Cabinet

NOTES: (FOR SERVICE EQUIPMENT ENCLOSURE)

1. Voltage ratings of service equipment shall conform to the service voltages indicated on the plans.
2. Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
3. Connect to remote test switch mounted on lighting standards, sign post or structure when required.
4. Items No. (1) and (6) shall be isolated from the service equipment enclosure.
5. Meter sockets shall be 5 clip type.
6. The landing lug shall be suitable for multiple conductors.
7. Type Ⅴ photoelectric control shall be used unless otherwise indicated on the plans.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SERVICE EQUIPMENT AND TYPICAL WIRING DIAGRAM, TYPE Ⅲ-A SERIES)

NO SCALE

RSP ES-2D DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2D DATED MAY 1, 2006 - PAGE 406 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-2D

2006 REVISED STANDARD PLAN RSP ES-2D

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	338	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

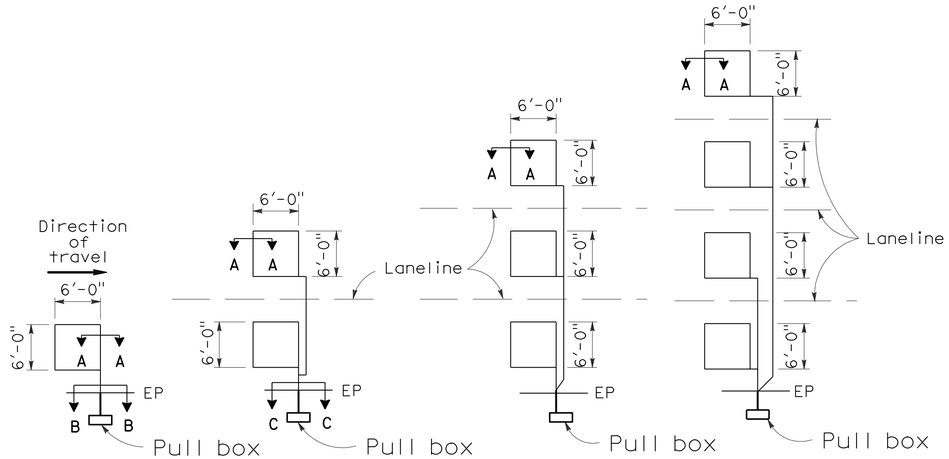
Jeffery G. McRae
No. E14512
Exp. 6-30-08
ELECTRICAL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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

To accompany plans dated 1-23-12

LOOP INSTALLATION PROCEDURE

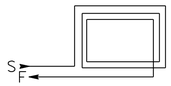
1. Loops shall be centered in lanes.
2. Saw slots in pavement for loop conductors as shown in details.
3. Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
4. Bottom of saw slot shall be smooth with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

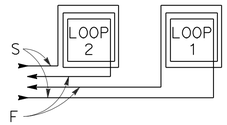


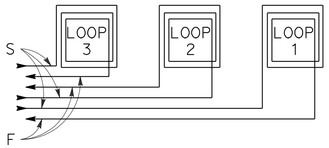
SAWCUT DETAILS

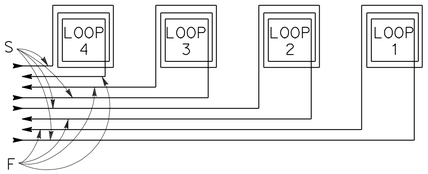
(Type A loop detector configurations illustrated)

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



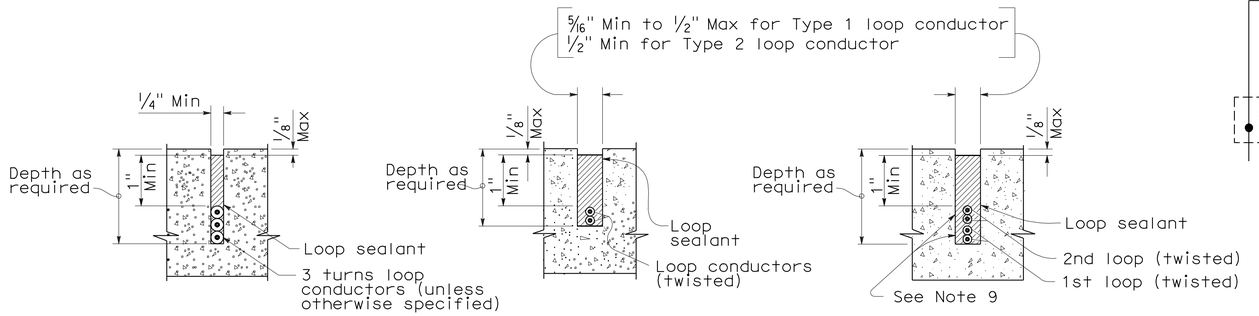






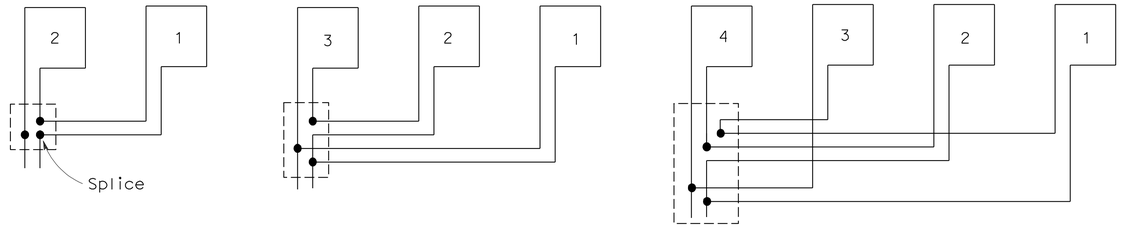
WINDING DETAILS

See Notes 6 and 7



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

SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR



TYPICAL LOOP CONNECTIONS

(Dashed lines represent the pull box)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (DETECTORS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-5A

2006 REVISED STANDARD PLAN RSP ES-5A

8-17-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	339	457

REGISTERED CIVIL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

Stanley P. Johnson
No. C57793
Exp. 3-31-08
CIVIL

REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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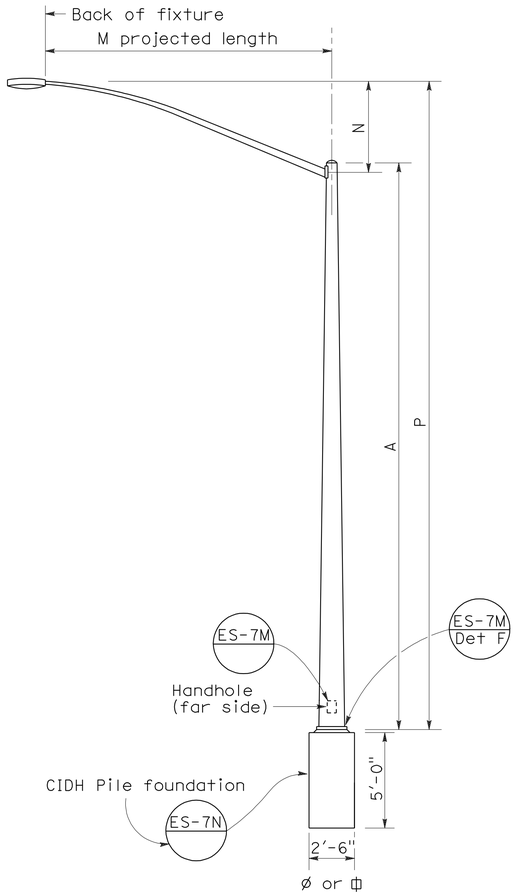
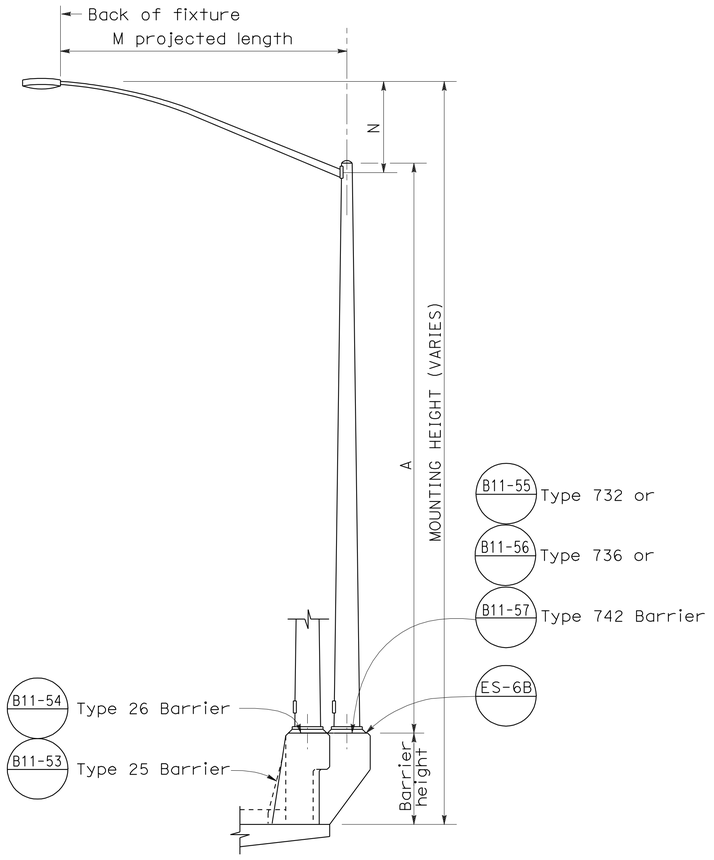
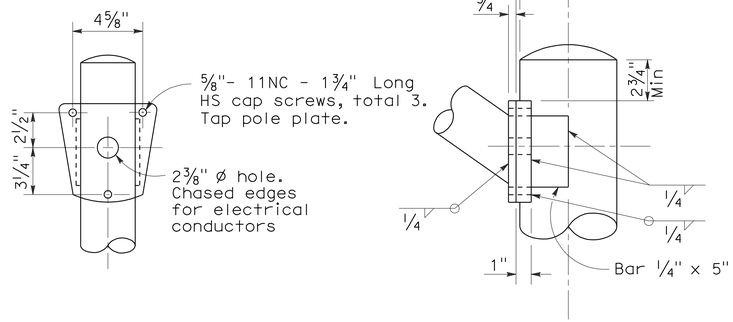
To accompany plans dated 1-23-12



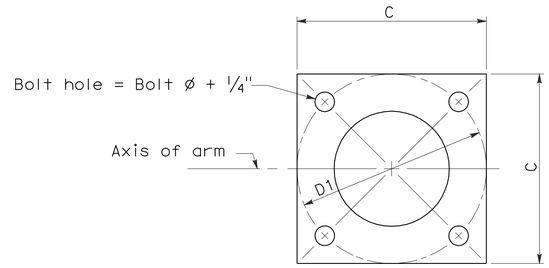
ELEVATION
TYPE 15 AND TYPE 21



ELEVATION
TYPE 15 AND TYPE 21 BARRIER RAIL MOUNTED



DETAIL R
LUMINAIRE ARM CONNECTION



BASE PLATE

POLE TYPE	POLE DATA				BASE PLATE DATA				LUMINAIRE ARM
	A Height	Min OD		Wall Thickness	C	D1 Bolt Circle	Thick-ness	Anchor Bolts Size	
		Base	Top						
15	30′	8"	3⅞"	0.1196"	1′-0"	1′-0"	1"	1" ø x 3′-0" x 4"*	6′ - 15′ [12′]
21	35′	8⅝"	3⅞"	0.1196"	1′-0"	1′-0"	1"	1¼"ø x 3′-0" x 4"*	6′ - 15′ [12′]

* For barrier rail bolts, see Standard Plan ES-6B.

LUMINAIRE ARM DATA					
M Projected Length	N Rise	Min OD At Pole	Nominal Thickness	P	
				Type 15	Type 21
6′-0"	2′-0"±	3¼"	0.1196"	31′-6"±	36′-6"±
8′-0"	2′-6"±	3½"	0.1196"	32′-0"±	37′-0"±
10′-0"	3′-3"±	3⅞"	0.1196"	32′-9"±	37′-9"±
12′-0"	4′-3"±	3⅞"	0.1196"	33′-9"±	38′-9"±
15′-0"	4′-9"±	4¼"	0.1196"	34′-3"±	39′-3"±

NOTES:

1. ☐ Indicates arm length to be used unless otherwise noted on the plans.
2. For Type 15-SB, use Type 15 standard with Type 30 slip base plate details, see Standard Plan ES-6F.
3. For additional notes, see Standard Plan ES-7M and ES-7N.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LIGHTING STANDARD TYPES 15 AND 21)

NO SCALE

RSP ES-6A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-6A
DATED MAY 1, 2006 - PAGE 427 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-6A

2006 REVISED STANDARD PLAN RSP ES-6A

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	340	457

REGISTERED CIVIL ENGINEER

January 18, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Stanley P. Johnson — No. C57793 — Exp. 03-31-08 — CIVIL — STATE OF CALIFORNIA

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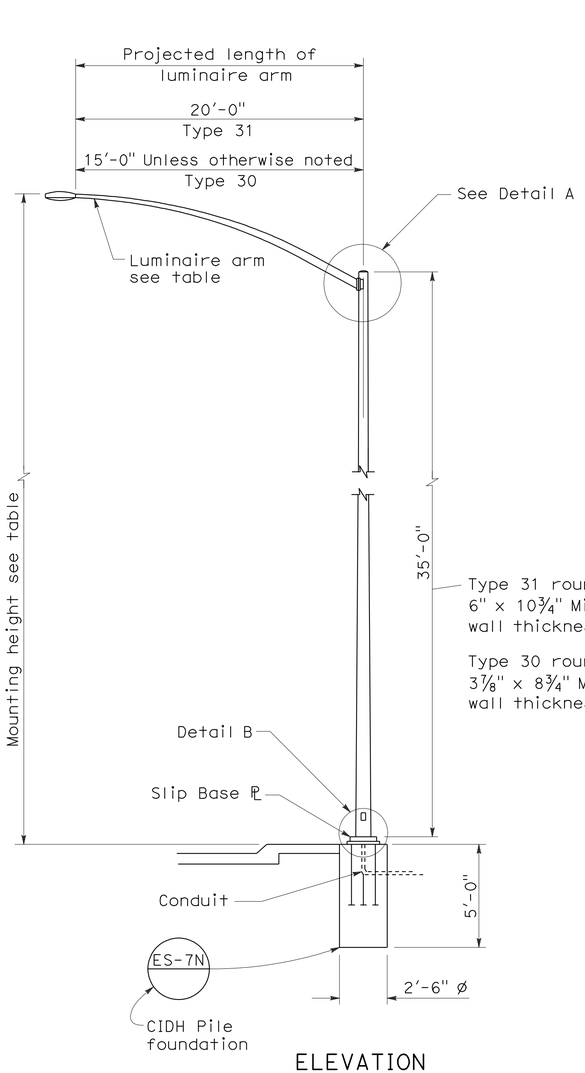
To accompany plans dated 1-23-12

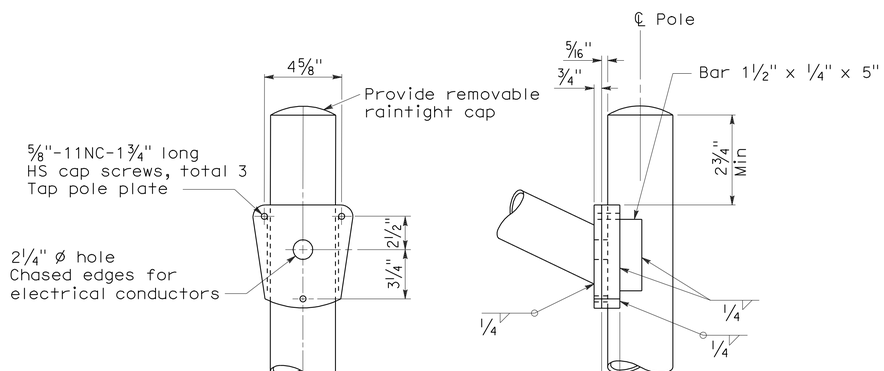
LUMINAIRE ARM DATA

PROJECTED LENGTH	THICKNESS	MINIMUM OD @ POLE	MOUNTING HEIGHT
* 6'-0"	0.1196"	3 1/4"	36'-9"±
8'-0"		3 1/2"	37'-3"±
10'-0"		3 3/4"	38'-0"±
12'-0"		3 3/4"	39'-0"±
15'-0"		4 1/4"	39'-6"±
** 20'-0"	0.1793"	5"	37'-0"±

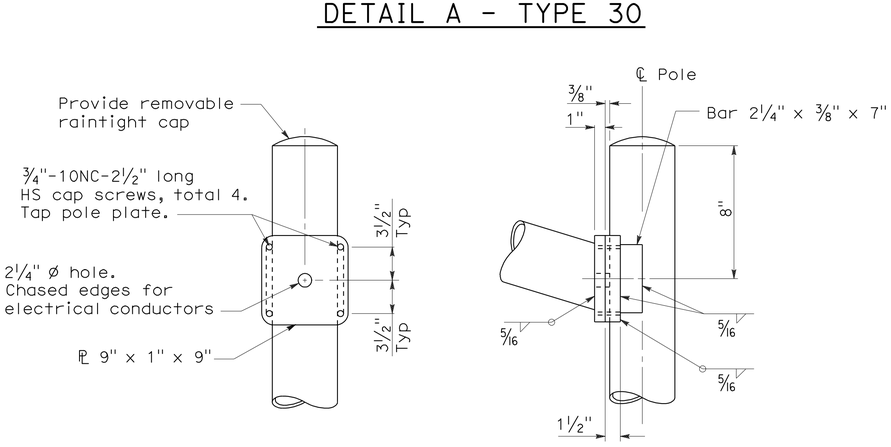
* Type 30 - arm length 6'-0" - 15'-0" maximum
** Type 31 - arm lengths 20'-0"



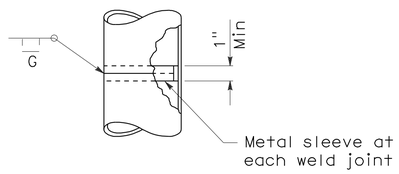
ELEVATION



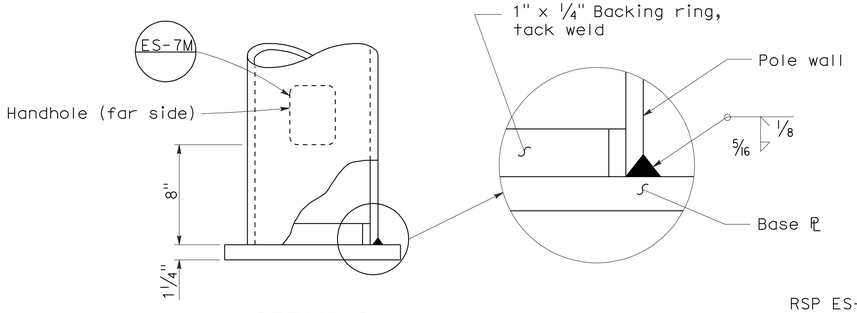
DETAIL A - TYPE 30



DETAIL A - TYPE 31



POLE SPLICE



DETAIL B

NOTES:

1. Sheet steel shall have a minimum yield of 48,000 psi.
2. For slip base details see Standard Plan ES-6F.
3. For Type 30 fixed base use Type 15 base plate, and foundation shown on Revised Standard Plan RSP ES-6A. Use 1 1/4" Dia x 3'-6" x 4" anchor bolts.
4. For Type 31 fixed base use Type 32 base plate, anchor bolts and foundation on Standard Plan ES-6G.
5. Handhole shall be located on downstream side of traffic unless noted otherwise on plans.
6. For additional general notes refer to Standard Plan ES-7M.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LIGHTING STANDARD TYPES 30 AND 31)

NO SCALE

RSP ES-6E DATED JANUARY 18, 2008 SUPERCEDES STANDARD PLAN ES-6E
DATED MAY 1, 2006 - PAGE 430 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-6E

2006 REVISED STANDARD PLAN RSP ES-6E

11-19-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	341	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

January 20, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jeffery G. McRae
No. E14512
Exp. 6-30-12
ELECTRICAL
STATE OF CALIFORNIA

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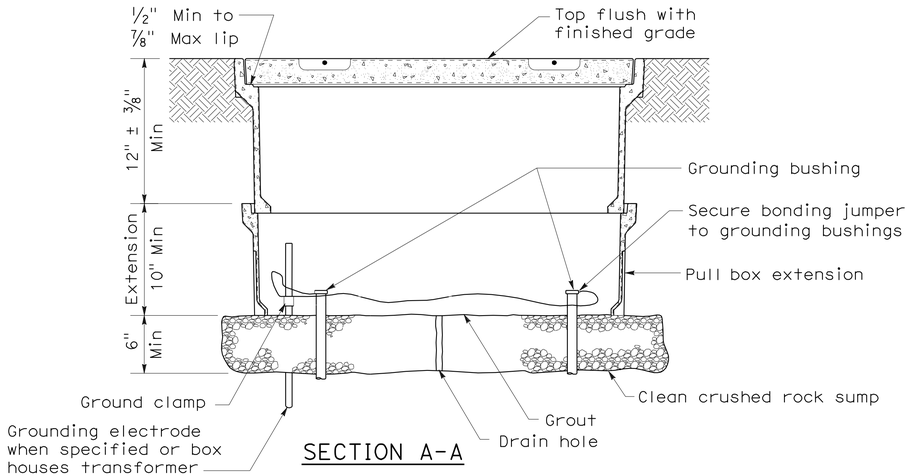
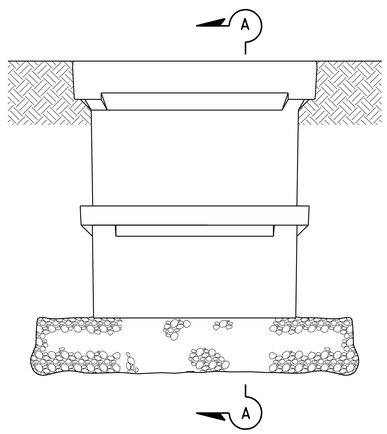
To accompany plans dated 1-23-12



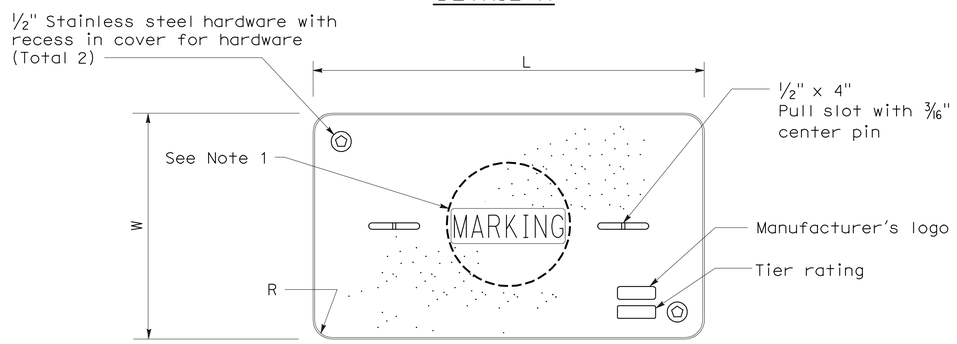
SECTION A-A



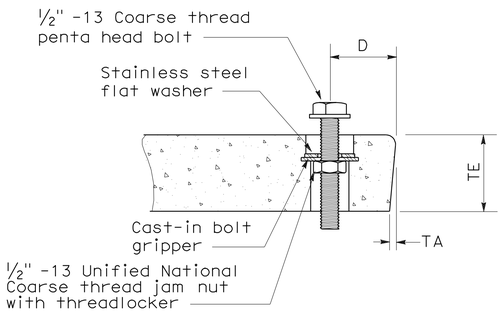
SIDE VIEW

INSTALLATION DETAILS

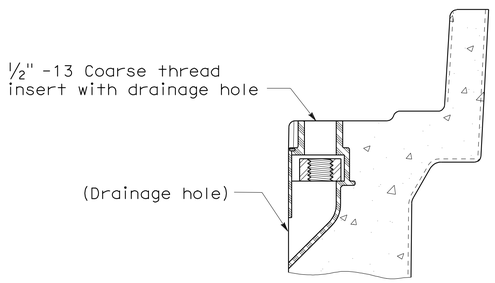
DETAIL A



COVER TOP VIEW



TYPICAL COVER CAPTIVE BOLT
(Or similar)



TYPICAL THREADED INSERT
(Or similar)

DIMENSION TABLE										
PULL BOX	PULL BOX			COVER						
	Minimum Depth Box	Minimum Depth Extension	Maximum Weight	L	W	R	TE	TA	D	Maximum Weight
No. 3½	12"	N/A	40 lb	1′ - 3⅜"	10⅛"	1⅜"	2"	⅛"	1¾"	30 lb
No. 5	12"	10"	55 lb	1′ - 11¼"	1′ - 1¾"	1⅜"	2"	⅛"	1¾"	60 lb
No. 6	12"	10"	70 lb	2′ - 6½"	1′ - 5½"	1⅜"	2"	⅛"	2"	85 lb

NOTES ON PULL BOXES:

1. Pull box covers must 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;

   A) No. 3½ pull box.
   1) "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
   2) "ST LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.

   B) No. 5, 6, 9 or 9A pull box.
   1) "TRAFFIC SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
   2) "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
   3) "STREET LIGHTING-HIGH VOLTAGE" - Street or sign lighting circuits where voltage is above 600 V.
   4) "IRRIGATION" - Circuits to irrigation controller 120 V or more.
   5) "RAMP METER" - Ramp meter circuits.
   6) "COUNT STATION" - Count or speed monitor circuits.
   7) "COMMUNICATIONS" - Communication circuits.
   8) "TOS COMMUNICATIONS" - TOS communication line.
   9) "TOS POWER" -TOS power.
   10) "TDC POWER" - Telephone demarcation cabinet power.
   11) "CCTV" - Closed circuit television circuits.
   12) "TMS" - Traffic monitoring station circuits.
   13) "CMS" - Changeable message sign circuits.
   14) "HAR" - Highway advisory radio circuits.

2. The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions (L and W) plus ⅛" or greater.
3. Covers and boxes must be interchangeable with California Standard. When interchanged with a standard, the top surfaces must be flush within ⅛". Top outside radius of covers and pull boxes must have a ⅛" radius.
4. Pull box extension may be another pull box as long as the bottom edge of the pull box can fit into the cover opening.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (PULL BOX)

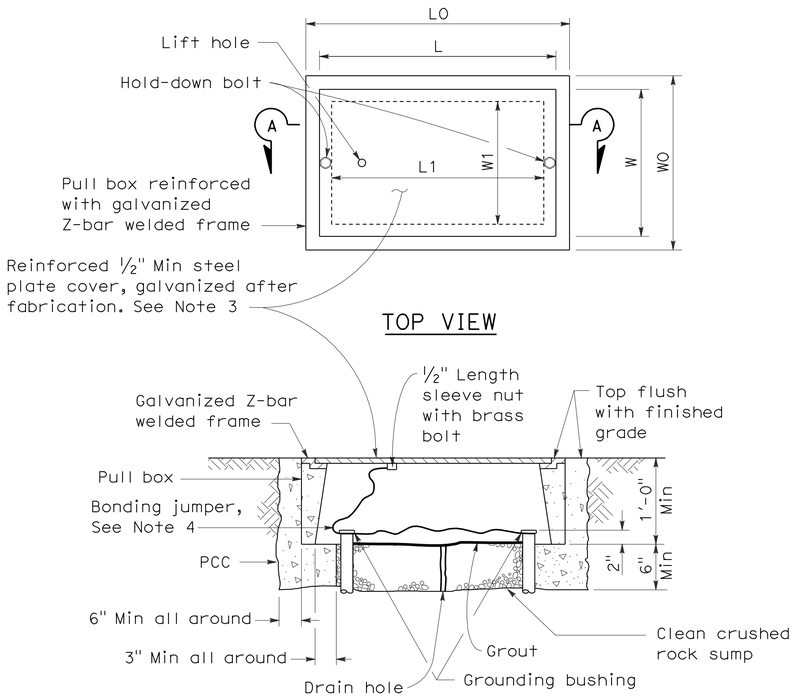
NO SCALE

NSP ES-8A DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP ES-8A

2006 NEW STANDARD PLAN NSP ES-8A

9-28-11



TOP VIEW

SECTION A-A

No. 3½(T), No. 5(T) AND No. 6(T) TRAFFIC PULL BOX

DIMENSION TABLE											
PULL BOX	BOX						COVER				
	Minimum * Thickness	Minimum Depth Box and Extension	WO	LO	L1	W1	L **	W **	R	Edge Thickness	Edge Taper
No. 3½(T)	1½"	1'-0"	1'-5"± 1"	1'-8⅜"±	1'-2½"±	10⅝"± 1"	1'-8"±	1'-1¾"±	0"	½"	None
No. 5(T)	1¾"	1'-0"	1'-11½"± 1"	2'-5½"±	1'-7"±	1'-1"± 1"	2'-3"±	1'-4"±	0"	½"	None
No. 6(T)	2"	1'-0"	2'-6"± 1"	2'-11½"±	1'-11½"±	1'-5"± 1"	2'-9"±	1'-8"±	0"	½"	None

* Excluding conduit web ** Top dimension

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	342	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

January 20, 2012
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Jeffery G. McRae — No. E14512 — Exp. 6-30-12 — ELECTRICAL — STATE OF CALIFORNIA

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

To accompany plans dated 1-23-12

NOTES ON PULL BOXES:

1. Traffic pull box shall be provided with steel cover and special concrete footing. Steel cover shall have embossed non-skid pattern.
2. Steel reinforcing shall be as regularly used in the standard products of the respective manufacturer.
3. Pull box covers must 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.
   A) No. 3½(T) pull box.
      1) "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
      2) "ST LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
   B) No. 5(T) or 6(T) pull box.
      1) "TRAFFIC SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
      2) "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
      3) "STREET LIGHTING-HIGH VOLTAGE" - Street or sign lighting circuits where voltage is above 600 V.
      4) "IRRIGATION" - Circuits to irrigation controller 120 V or more.
      5) "RAMP METER" - Ramp meter circuits.
      6) "COUNT STATION" - Count or speed monitor circuits.
      7) "COMMUNICATION" - Communication circuits.
      8) "TOS COMMUNICATIONS" - TOS communications line.
      9) "TOS POWER" - TOS power.
      10) "TDC POWER" - Telephone demarcation cabinet power.
      11) "CCTV" - Closed circuit television circuits.
      12) "TMS" - Traffic monitoring station circuits.
      13) "CMS" - Changeable message sign circuits.
      14) "HAR" - Highway advisory radio circuits.
4. Bonding jumper for metal covers shall be 3' long, minimum.
5. The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions except the length and width dimensions shall be ⅛" greater.
6. Covers and boxes must be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces must be flush within ⅛".

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (TRAFFIC RATED PULL BOX)

NO SCALE

NSP ES-8B DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP ES-8B

2006 NEW STANDARD PLAN NSP ES-8B

9-28-11

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	343	457

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

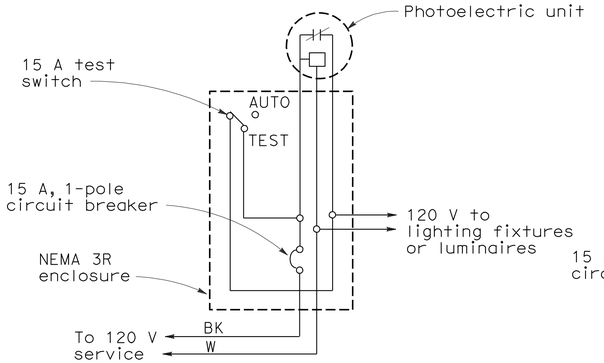
Jeffery G. McRae
No. E14512
Exp. 6-30-08
ELECTRICAL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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

To accompany plans dated 1-23-12

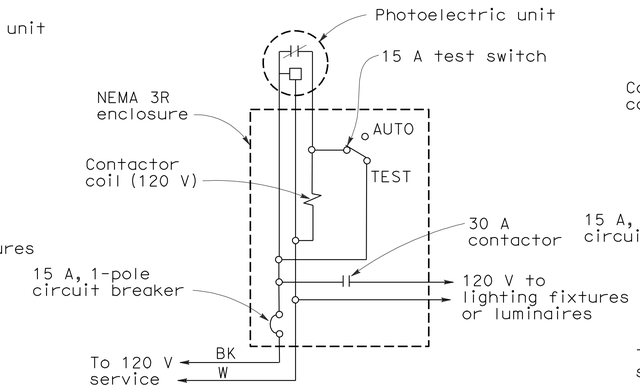
NOTES: (FOR LIGHTING AND SIGN ILLUMINATION CONTROL)

1. The ballast voltages of lighting fixtures and luminaires shall match line service voltages.
2. Voltage rating of photoelectric controls shall conform to the service voltage indicated on the plans.
3. Terminal strip shall be provided for wiring to fixtures.
4. Type SC1A, SC2A, SC3A controls are similar to Types SC1, SC2 and SC3 controls respectively except test switch and wiring are not required.



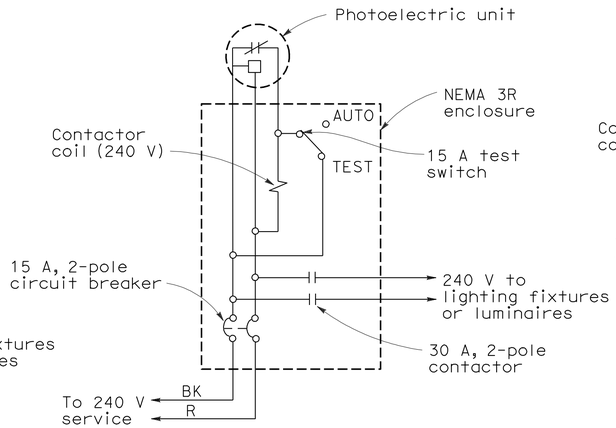
TYPE LC1 CONTROL

For 120 V unswitched circuit with no more than 800 W load.



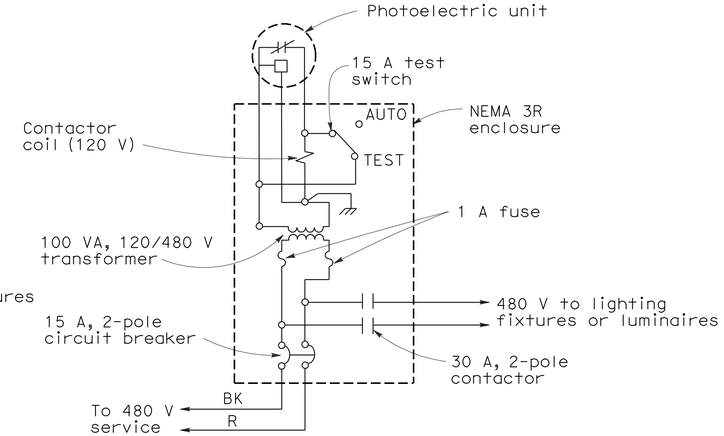
TYPE LC2 CONTROL

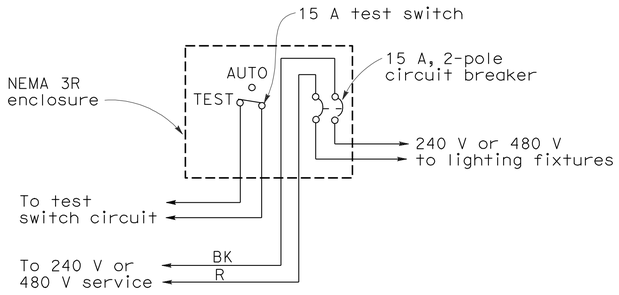
For 120 V unswitched circuit



TYPE LC3 CONTROL

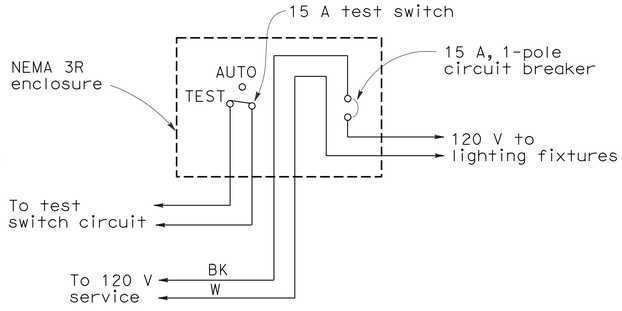
For 240 V and 480 V unswitched circuits





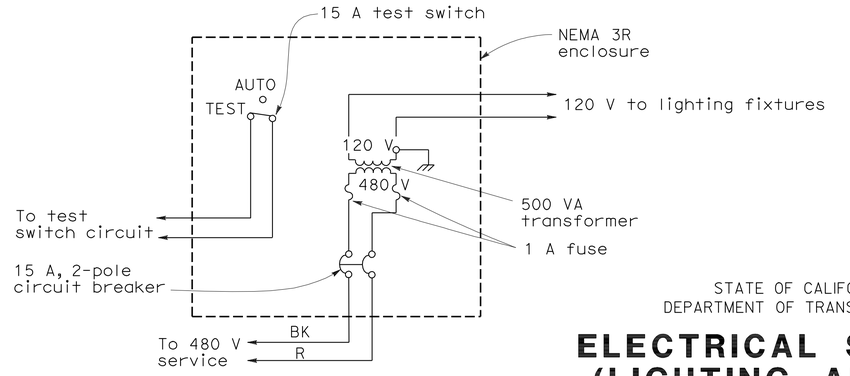
TYPE SC1 CONTROL

For 240 V or 480 V switched circuit, see Note 4 for Type SC1A



TYPE SC2 CONTROL

For 120 V switched circuit, see Note 4 for Type SC2A



TYPE SC3 CONTROL

For 480 V switched sign circuit, see Note 4 for Type SC3A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LIGHTING AND SIGN ILLUMINATION CONTROL)

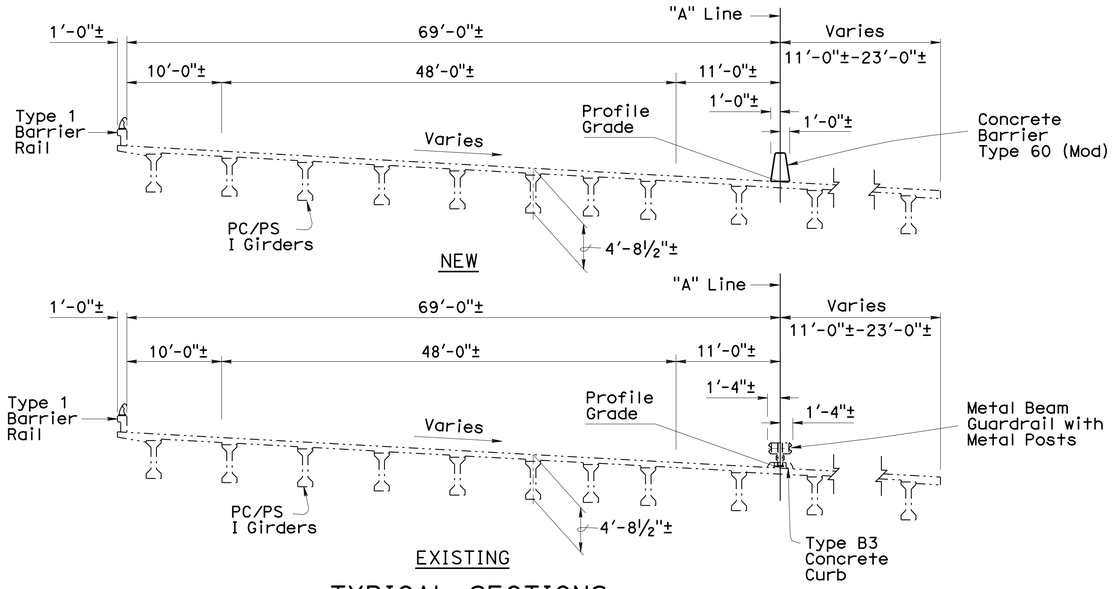
NO SCALE

RSP ES-15D DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-15D DATED MAY 1, 2006 - PAGE 472 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-15D

2006 REVISED STANDARD PLAN RSP ES-15D

9-10-07



TYPICAL SECTIONS

⅛" = 1'-0"

QUANTITIES

BRIDGE REMOVAL (PORTION)	LUMP	SUM
REFINISH BRIDGE DECK	1,605	SQFT
CONCRETE BARRIER (TYPE 60 MODIFIED)	963	LF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	344	457

Mike Van De Pol 12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Mike Van De Pol, No. C35610, Exp. 09-30-11, 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.

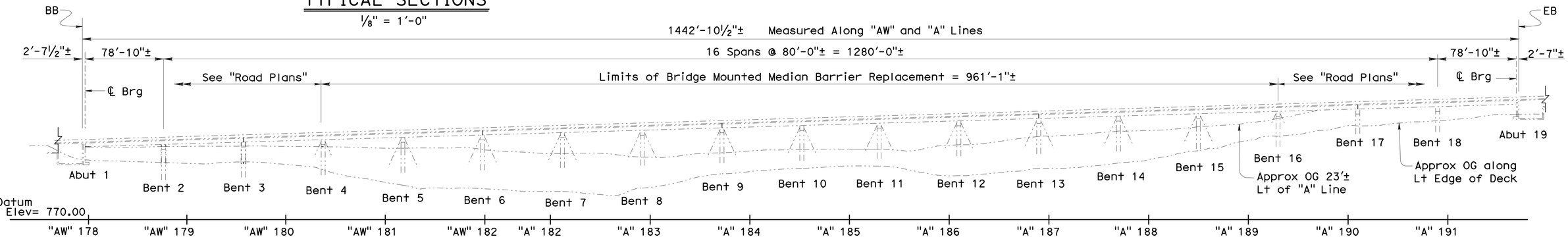
INDEX TO PLANS

GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

DESIGN:
AASHTO LRFD Bridge Design Specifications, 4th edition, 2007; ('96 AASHTO w/revisions by Caltrans).

CONCRETE:
fy = 60,000 psi
f'c = 3600 psi
n = 8

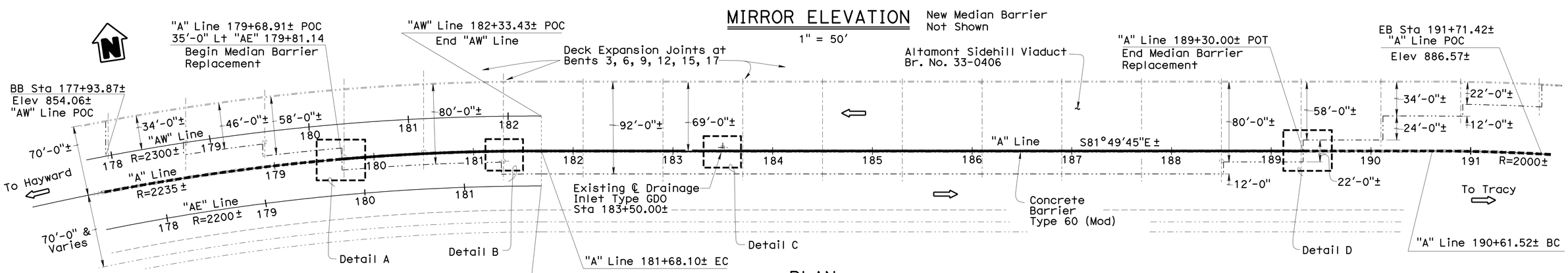
NOTES:
For Detail A, Detail B, Detail C and Detail D, see "Details No. 1" Sheet
Removal Limits Not Shown
Denote Existing Structure
Denotes New Construction



MIRROR ELEVATION

New Median Barrier Not Shown

1" = 50'



PLAN

1" = 50'

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

Gordon Danke
DESIGN ENGINEER

DESIGN	BY M. Van De Pol	CHECKED John O'Brien	LOAD & RESISTANCE FACTOR DESIGN			
DETAILS	BY M. Van De Pol/T. Fairall	CHECKED John O'Brien	LAYOUT	BY M. Van De Pol	CHECKED John O'Brien	
QUANTITIES	BY M. Van De Pol	CHECKED John O'Brien	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

CU 04
EA 4A07U1

BRIDGE NO.	33-0406
POST MILE	R6.92

MEDIAN BARRIER REPLACEMENT
ALTAMONT SIDEHILL VIADUCT
GENERAL PLAN

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES										SHEET	OF
6-28-10	3-21-11									1	4

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.07-24-06)

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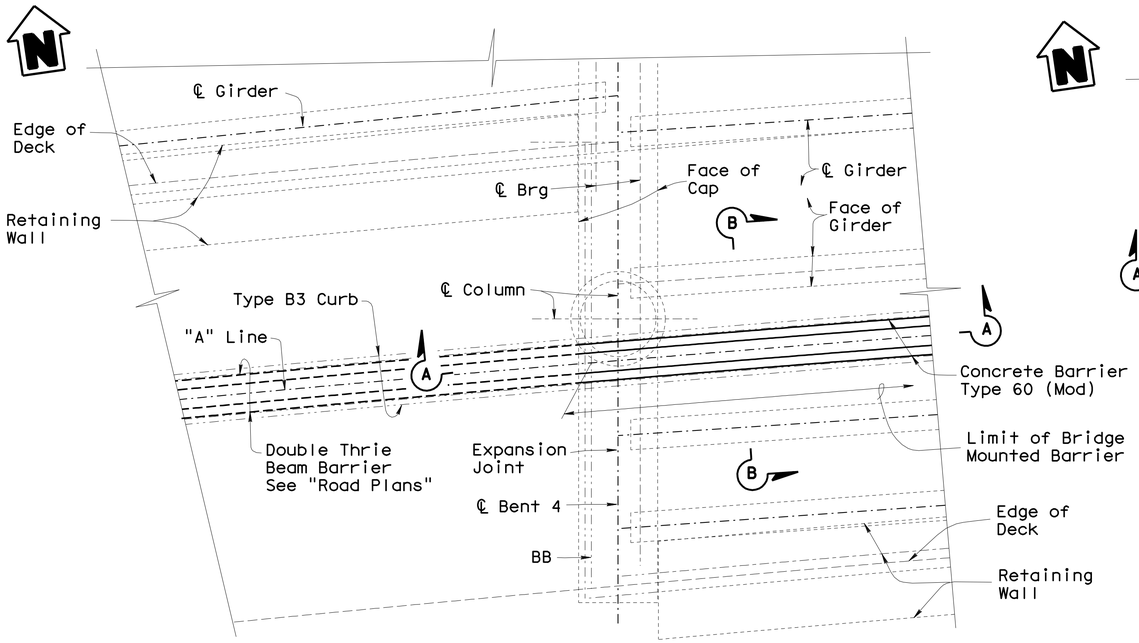
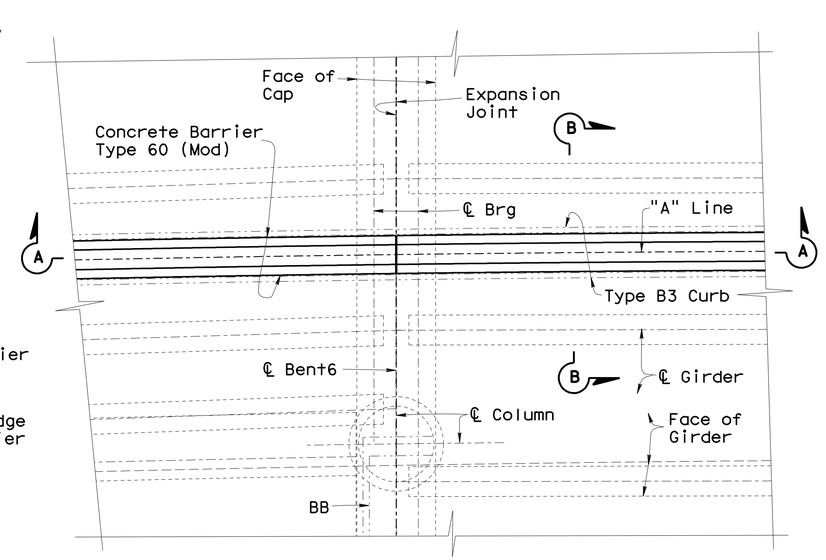


DETAIL A
1/4" = 1'-0" MBGR Not Shown



DETAIL B
1/4" = 1'-0" MBGR Not Shown

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	345	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
Mike Van De Pol
No. C35610
Exp. 09-30-11
CIVIL
STATE OF CALIFORNIA

1-23-12
PLANS APPROVAL DATE

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

..... Denotes Existing Structure
——— Denotes New Construction

Notes

For Locations of Detail A, Detail B Detail C and Detail D, see "General Plan" Sheet

For Drop Inlet Location, see "General Plan" Sheet

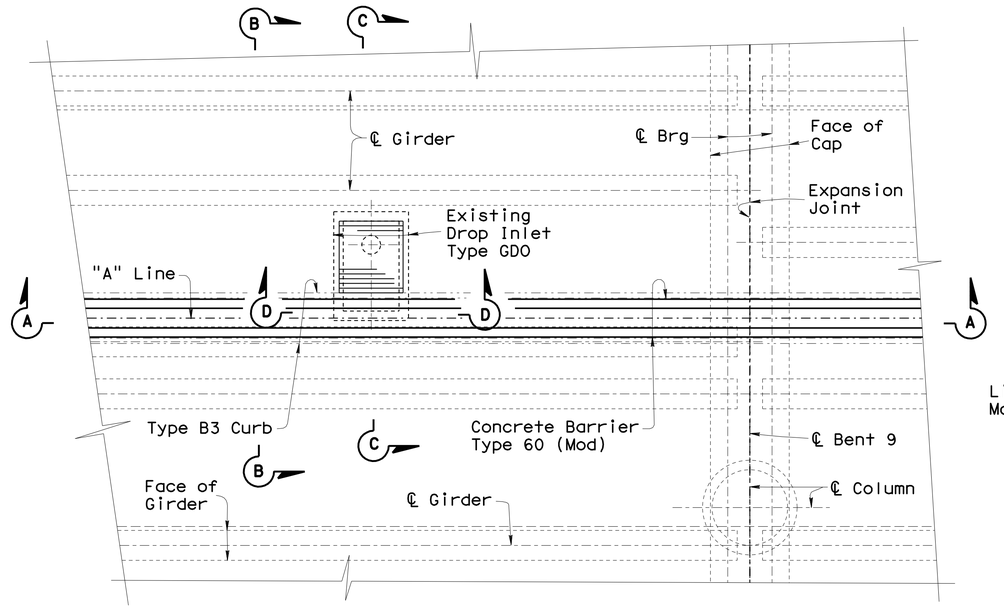
For Section A-A, Section B-B, see "Details No. 1" Sheet

For Section C-C and Section D-D, see "Details No. 2" Sheet

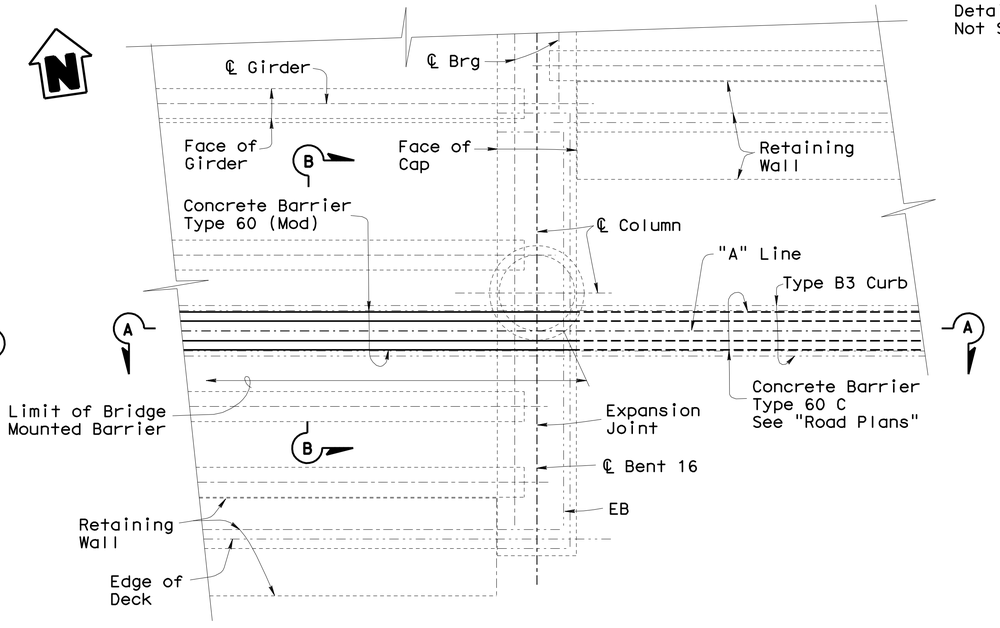
Removal Limits Not Shown. For Removal Details, see "Details No. 3" Sheet

For Other Details, see "Road Plans"

Details for Non Expansion Bents Not Shown



DETAIL C
1/4" = 1'-0" MBGR Not Shown



DETAIL D
1/4" = 1'-0" MBGR Not Shown

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

DESIGN	BY M. Van De Pol	CHECKED John O' Brien	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO. 33-0406
DETAILS	BY M. Van De Pol/R. Heider	CHECKED John O' Brien			POST MILE R6.92
QUANTITIES	BY M. Van De Pol	CHECKED John O' Brien			

MEDIAN BARRIER REPLACEMENT
ALTAMONT SIDEHILL VIADUCT
DETAILS No. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 7-02-10

SHEET 2 OF 4

FILE => 04-4a0701-alt-b-dts01.dgn

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	346	457

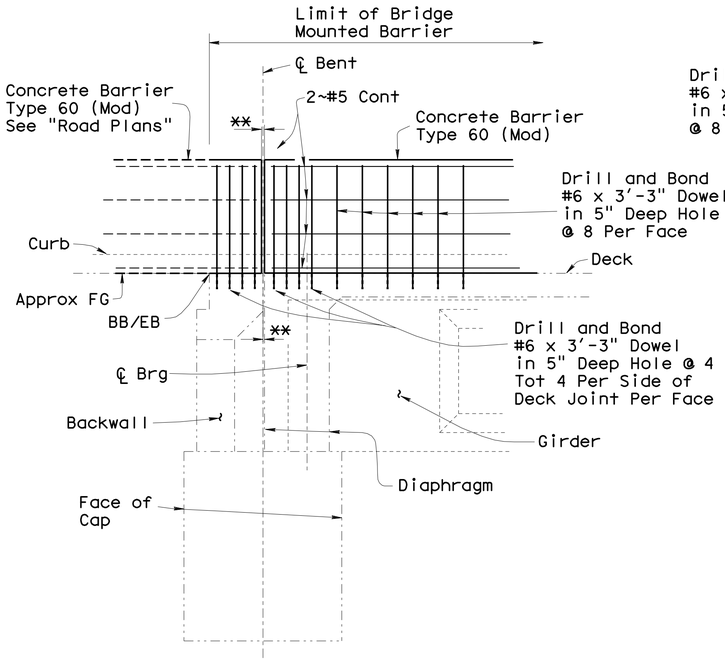
12--7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

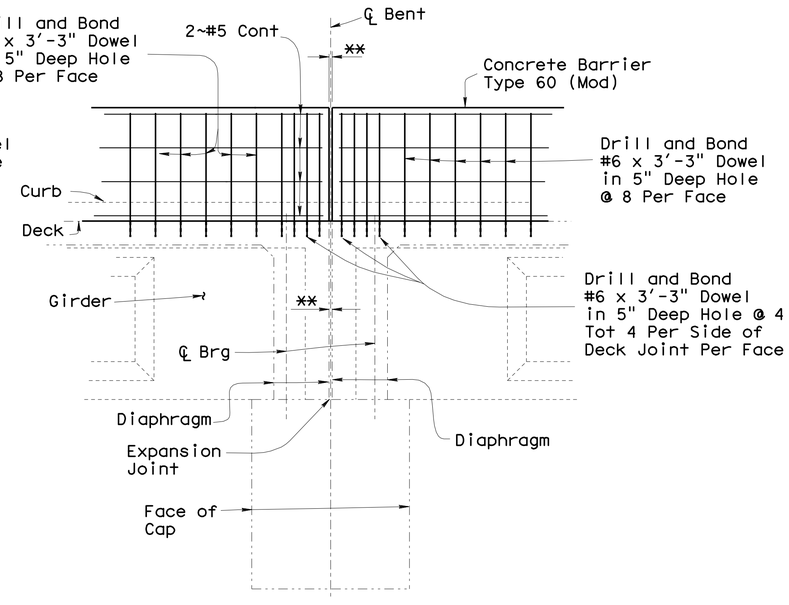
Mike Van De Pol No. C35610 Exp. 09-30-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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.

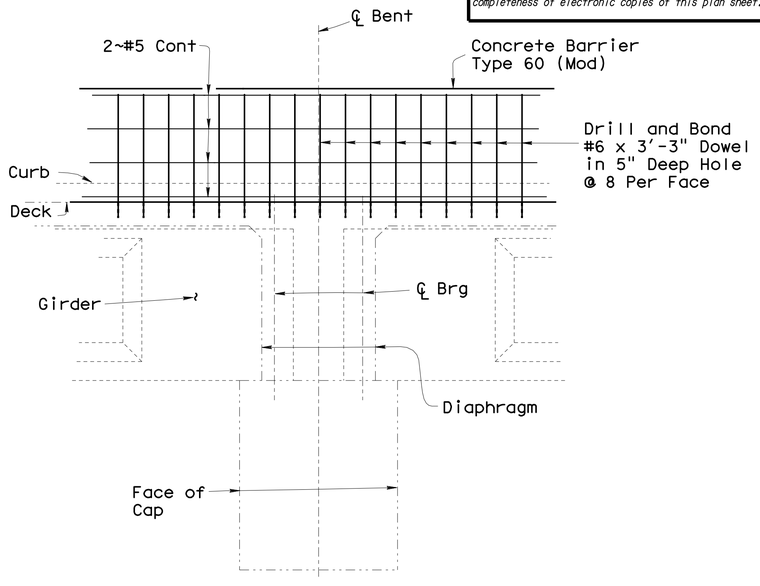
** Joint Gap in Barrier to Match Joint Gap in Deck at Location



BEGIN/END STRUCTURE
Bents 4 and 16



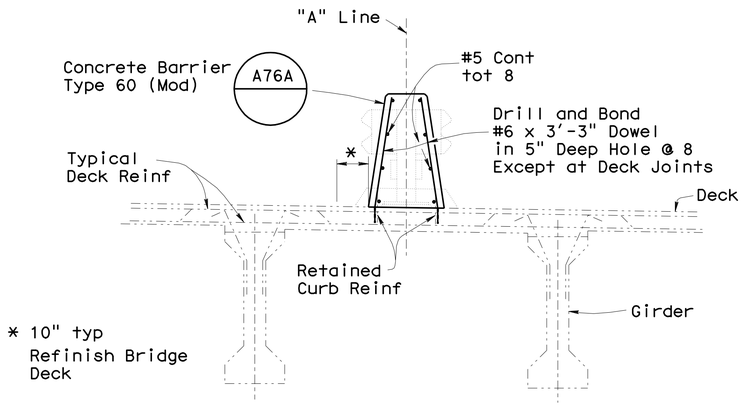
EXPANSION BENTS
Bents 6, 9, 12 and 15



NON EXPANSION BENTS
Bents 5, 7, 8, 10, 11, 13 and 14

SECTIONS A-A
½" = 1'-0"

Existing Reinforcement Not Shown
Existing MBGR Not Shown



SECTION B-B
½" = 1'-0"

Section At Span Shown,
Section at Supports Similar
For Section at Drop Inlet, see Section C-C on "Details No. 3" Sheet

·-·-·-·-·-· Denotes Existing Structure
——— Denotes New Construction

Notes

For Locations of Section A-A, and Section B-B, see "Details No. 1" Sheet

Removal Limits Not Shown. For Removal Details, see "Details No. 3" Sheet

For Other Details, see "Road Plans"

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

	BY	CHECKED
DESIGN	M. Van De Pol	John O' Brien
DETAILS	M. Van De Pol/R. Heider	John O' Brien
QUANTITIES	M. Van De Pol	John O' Brien

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 33-0406
POST MILE R6.92

MEDIAN BARRIER REPLACEMENT
ALTAMONT SIDEHILL VIADUCT
DETAILS No. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 1-02-10

SHEET 3 OF 4

FILE => 04-4a0701-alt-b-dts02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:33

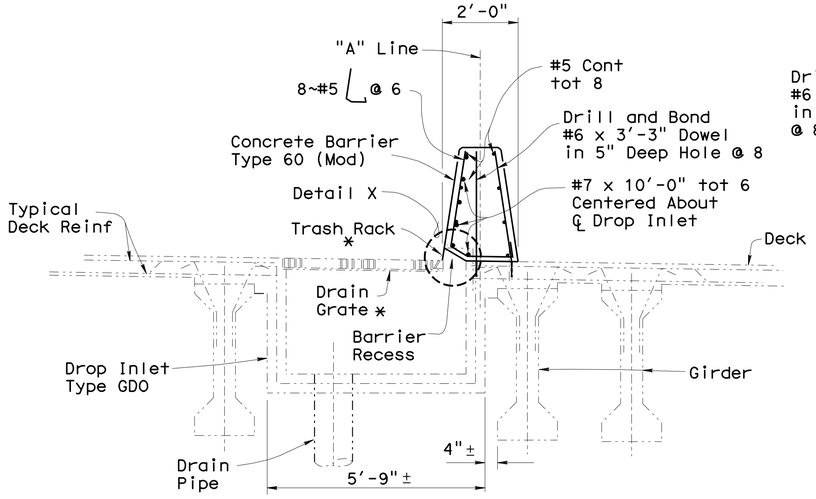
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	347	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER — Mike Van De Pol — No. C35610 — Exp. 09-30-11 — CIVIL — STATE OF CALIFORNIA

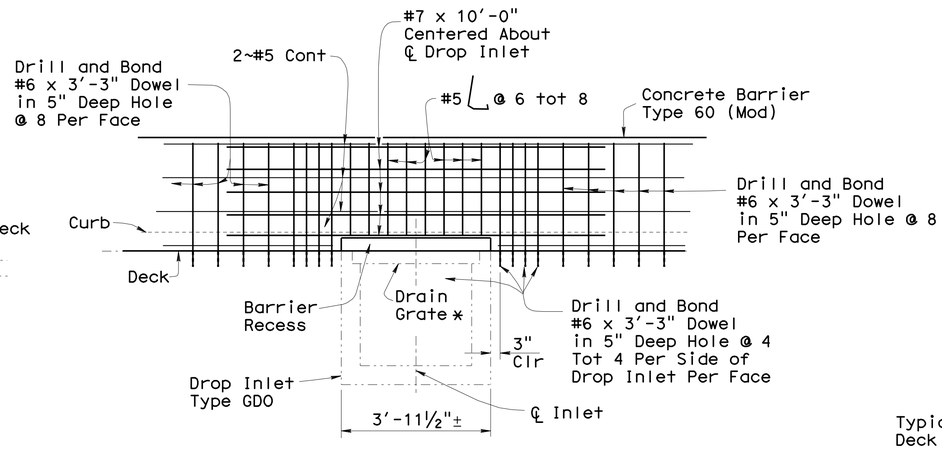


SECTION C-C

½" = 1'-0"

For Added Details, see Section B-B on "Barrier Details No. 2" Sheet

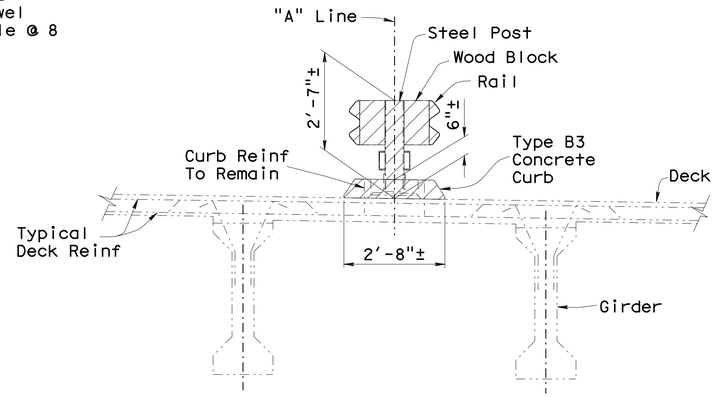
* Existing Grate and Trash Rack Shall be Reused



SECTION D-D

½" = 1'-0"

Existing Reinforcement Not Shown
Trash Rack Not Shown



SECTION AT SPANS

Section At Span Shown,
Section at Supports Similar

DETAIL X

1½" = 1'-0"

Adjust Barrier Recess to Fit Retained Grate, Grate Frame and Trash Rack

Denotes Existing Structure

Denotes New Construction

Denotes Limits of Removal of Existing Concrete Curb, Metal Posts and Metal Railing

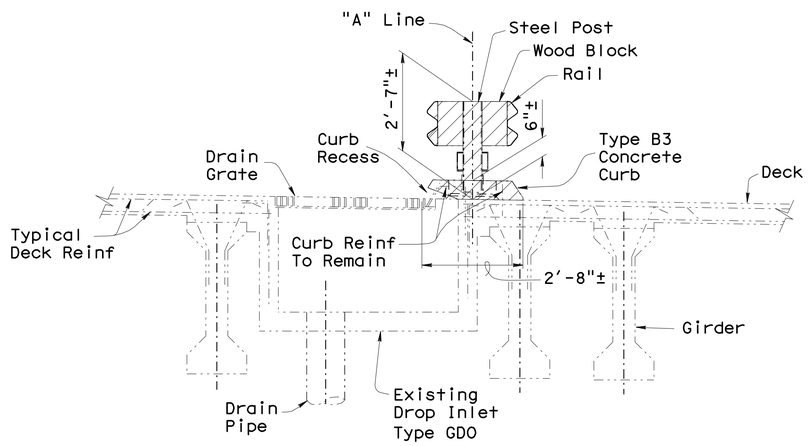
Notes

For Other Details, see "Details No. 1" and "Details No. 2" Sheets

For Locations of Section C-C, and Section D-D, see "Details No. 1" Sheet

For Drop Inlet Location, see "General Plan" Sheet

For Other Details, see "Road Plans"



SECTION AT DROP INLET

Existing Drain Grate and Trash Rack to Remain

REMOVAL DETAILS

½" = 1'-0"

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

DESIGN	BY M. Van De Pol	CHECKED John O' Brien	
DETAILS	BY M. Van De Pol/R. Heider	CHECKED John O' Brien	
QUANTITIES	BY M. Van De Pol	CHECKED John O' Brien	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 33-0406
POST MILE R6.92

MEDIAN BARRIER REPLACEMENT
ALTAMONT SIDEHILL VIADUCT
DETAILS No. 3

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES										SHEET	OF
1-02-10										4	4

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	348	457

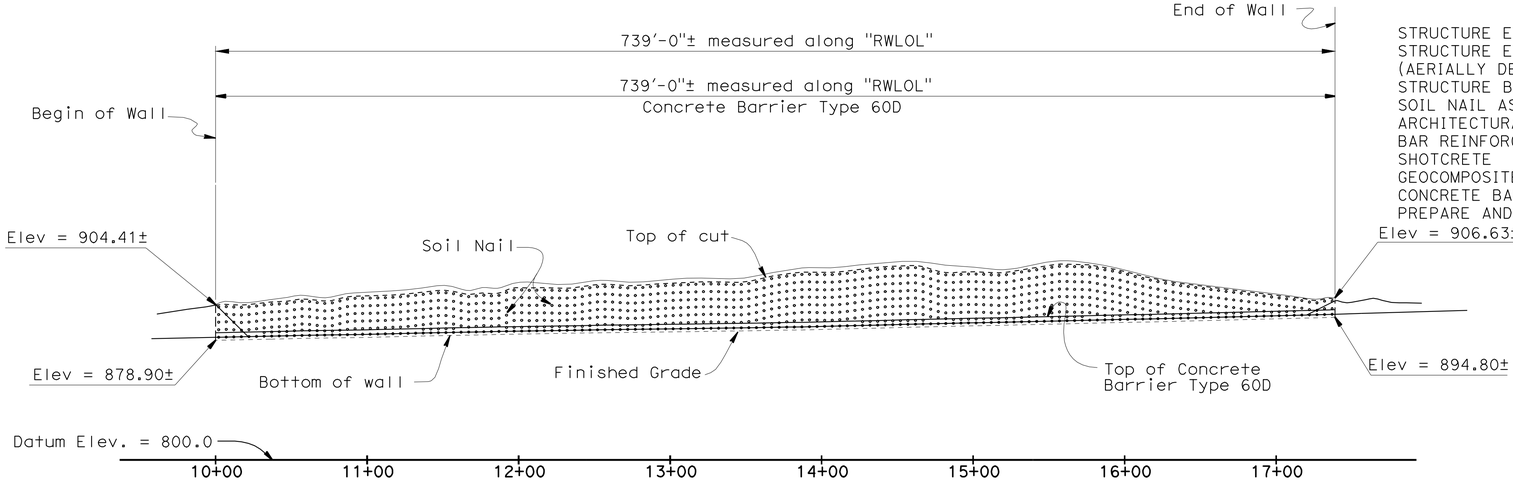
REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 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.

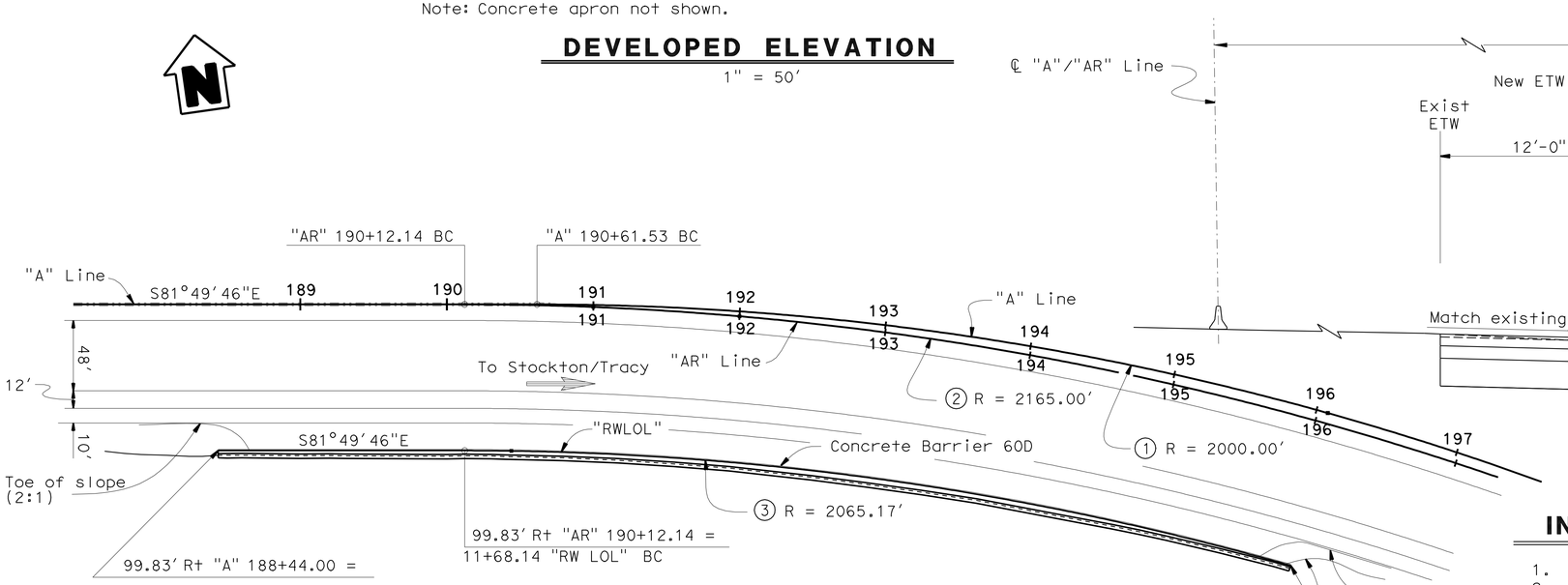
QUANTITIES		
STRUCTURE EXCAVATION (SOIL NAIL WALL)	1,700	CY
STRUCTURE EXCAVATION (TYPE Y-1) (AERIALLY DEPOSITED LEAD)	100	CY
STRUCTURE BACKFILL (SOIL NAIL WALL)	99	CY
SOIL NAIL ASSEMBLY	35,635	LF
ARCHITECTURAL TREATMENT	21,700	SQFT
BAR REINFORCING STEEL (RETAINING WALL)	81,500	LB
SHOTCRETE	1,110	CY
GEOCOMPOSITE DRAIN	4,500	SQFT
CONCRETE BARRIER (TYPE 60D)	739	LF
PREPARE AND STAIN CONCRETE	24,203	SQFT



Note: Concrete apron not shown.

DEVELOPED ELEVATION

1" = 50'



PLAN

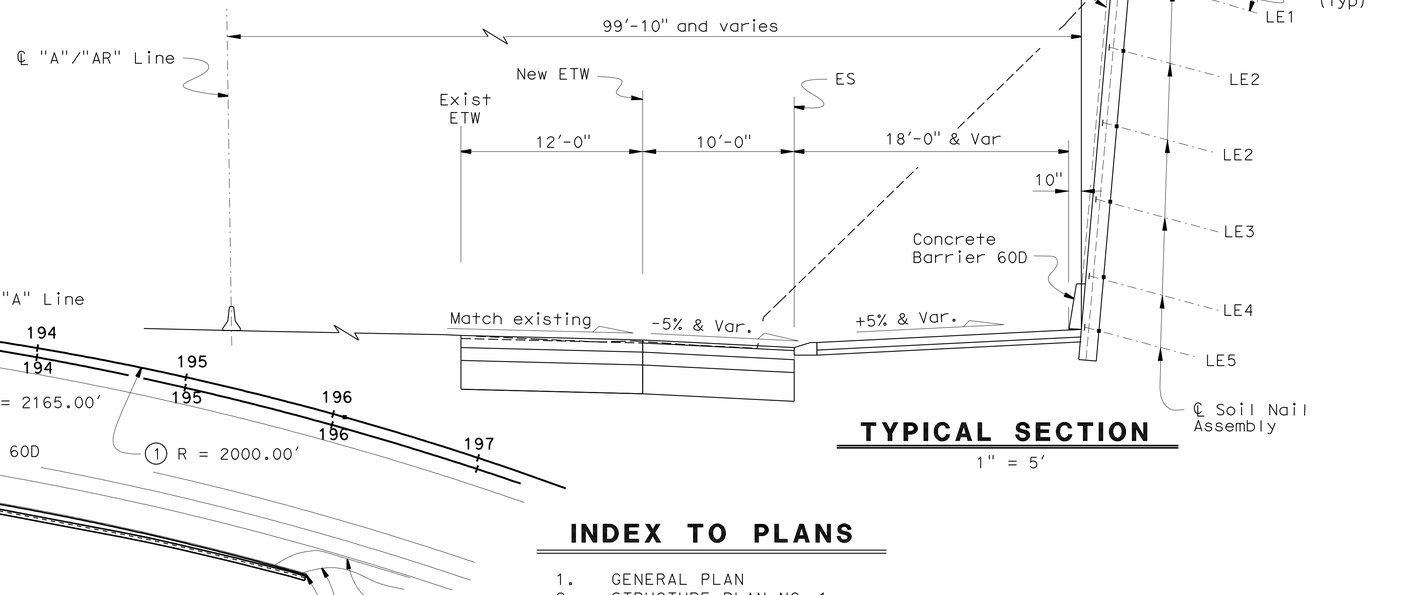
1" = 50'

Curve ①	Curve ②	Curve ③
R = 2000.00'	R = 2165.00'	R = 2065.17'
Δ = 33°19'45"	Δ = 33°19'42"	Δ = 15°50'16.3"
T = 598.68'	T = 648.06'	T = 284.52'
L = 1163.41'	L = 1259.36'	L = 570.86'

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

Notes

1. For Shotcrete Apron details, see "TYPICAL SECTION" sheet.
2. For Right of Way, see 'ROAD PLANS'



TYPICAL SECTION

1" = 5'

INDEX TO PLANS

STANDARD PLANS DATED MAY 2006

A10A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
A10B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
A10C	SYMBOLS (SHEET 1 OF 2)
A10D	SYMBOLS (SHEET 2 OF 2)
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL
A76A	CONCRETE BARRIER TYPE 60

STANDARD PLAN SHEET NO.

DETAIL NO.

For 'GENERAL NOTES' see 'STRUCTURE PLAN NO.3' sheet.

Minh Ha
DESIGN ENGINEER

	BY	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING:		
DESIGN	Ben Nguyen	Sergio Damian				
DETAILS	Jeff Thorne	Linan Wang	LAYOUT	Linan Wang	CHECKED	X
QUANTITIES	Ben Nguyen	Jeff Thorne	SPECIFICATIONS	X	PLANS AND SPECS COMPARED	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0216
POST MILE R6.94

RETAINING WALL NO.2
GENERAL PLAN

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES										SHEET	OF
03-25-10	04-26-10	07-30-10	09-23-10	10-1-10	10-20-10	1-14-11	3-16-11	3-18-11		1	17

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.07-24-06)

FILE => 04-4a0701-rw02-a-gp01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:33

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	349	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — 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.

NOTES:

o Indicates location of production nail assembly.

△ Indicates location of proof test nail.

1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST (min) = 1′-6"
ST (max) = 4′-10"

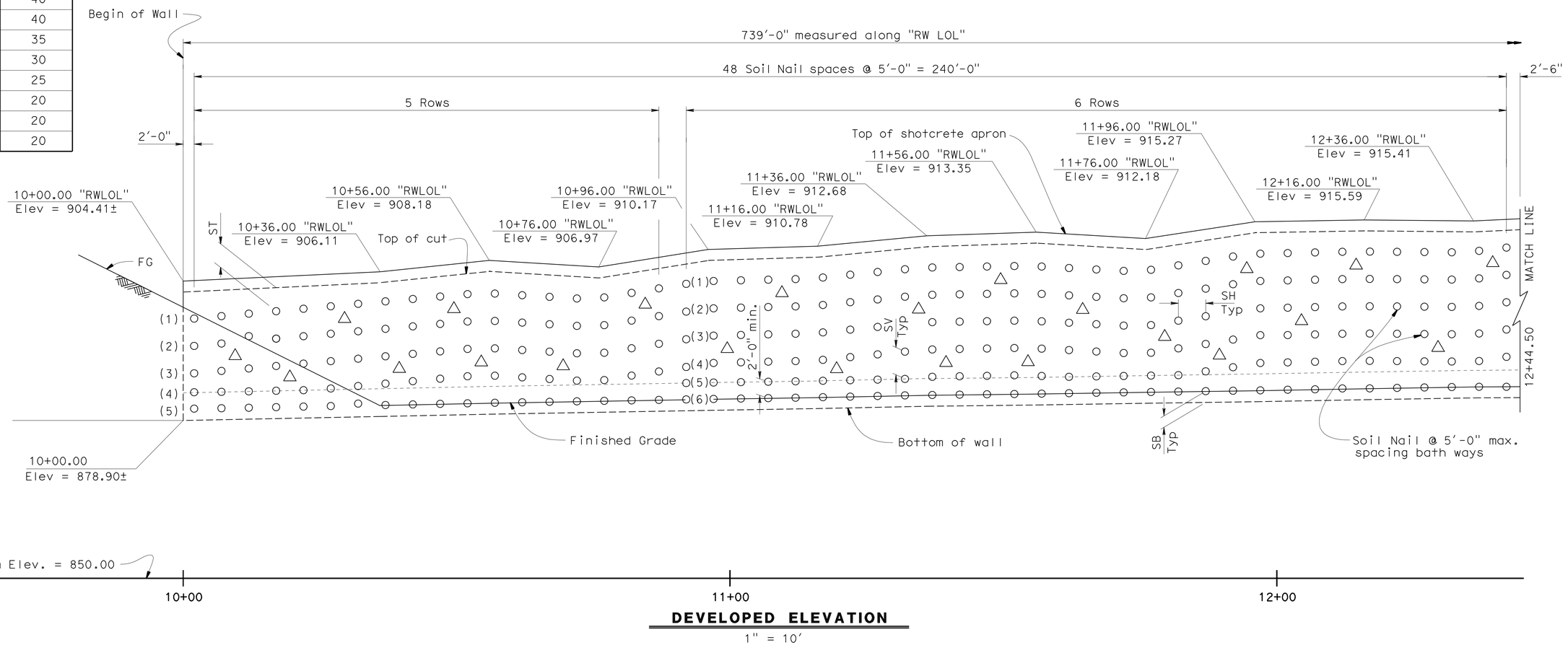
SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1′-6"
SB (max) = 3′-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2′-0"
SV (max) = 5′-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2′-0"
SH (max) = 5′-0"

SS - Horizontal distance between the beginning/end of wall and first/last Soil Nail column, SS (min) = 1′-6"
SS (max) = 2′-0"

Nail size & length at each Nail Level (Le)		
Level (Row)	Nail Size	Length (ft)
1	# 11	40
2	# 11	40
3	# 11	40
4	# 11	35
5	# 11	30
6	# 9	25
7	# 9	20
8	# 9	20
9	# 9	20



DEVELOPED ELEVATION
1" = 10′

DESIGN	BY Ben Nguyen	CHECKED Sergio Damion	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216	RETAINING WALL NO.2	
DETAILS	BY Jeff Thorne\ Wei Zhang	CHECKED Linan Wang			POST MILE R6.94	STRUCTURE PLAN NO.1	
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Thorne					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-22-10 | 7-30-10 | 10-8-10 | 10-18-10 | 10-28-10 | 1-11-11 | 3-17-11

SHEET 2 OF 17

FILE => 04-4a0701-rw02-a-sp01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

NOTES:

o Indicates location of production nail assembly.

△ Indicates location of proof test nail.

1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST (min) = 1′-6" ST (max) = 4′-10"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1′-6" SB (max) = 3′-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2′-0" SV (max) = 5′-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2′-0" SH (max) = 5′-0"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	350	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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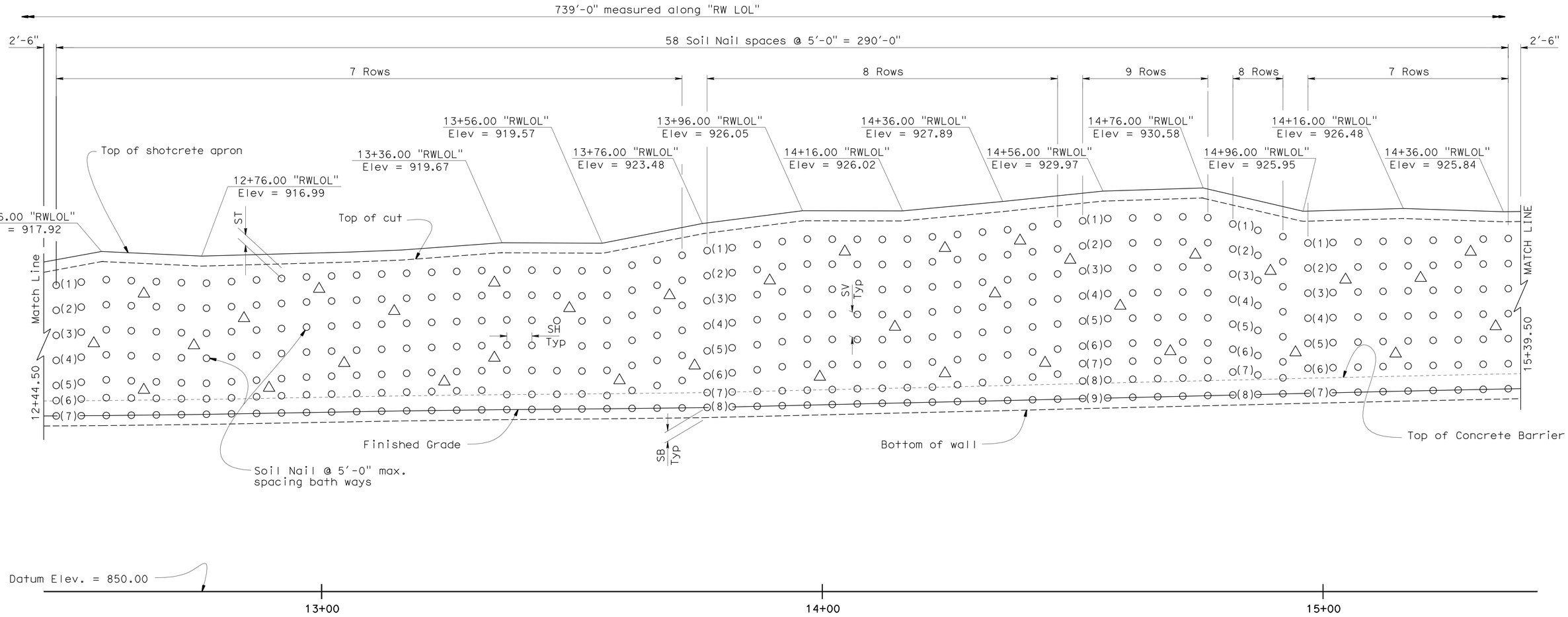

DEVELOPED ELEVATION

1" = 10′

DESIGN	BY Ben Nguyen	CHECKED Sergio	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216	RETAINING WALL NO.2 STRUCTURE PLAN NO.2	
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R6.94		
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Thorne					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-22-10 | 7-30-10 | 10-6-10 | 10-18-10 | 10-20-10 | 1-14-11 | 3-17-11

SHEET 3 OF 17

FILE => 04-4a0701-rw02-a-sp02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	351	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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NOTES:

o Indicates location of production nail assembly.

△ Indicates location of proof test nail.

1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

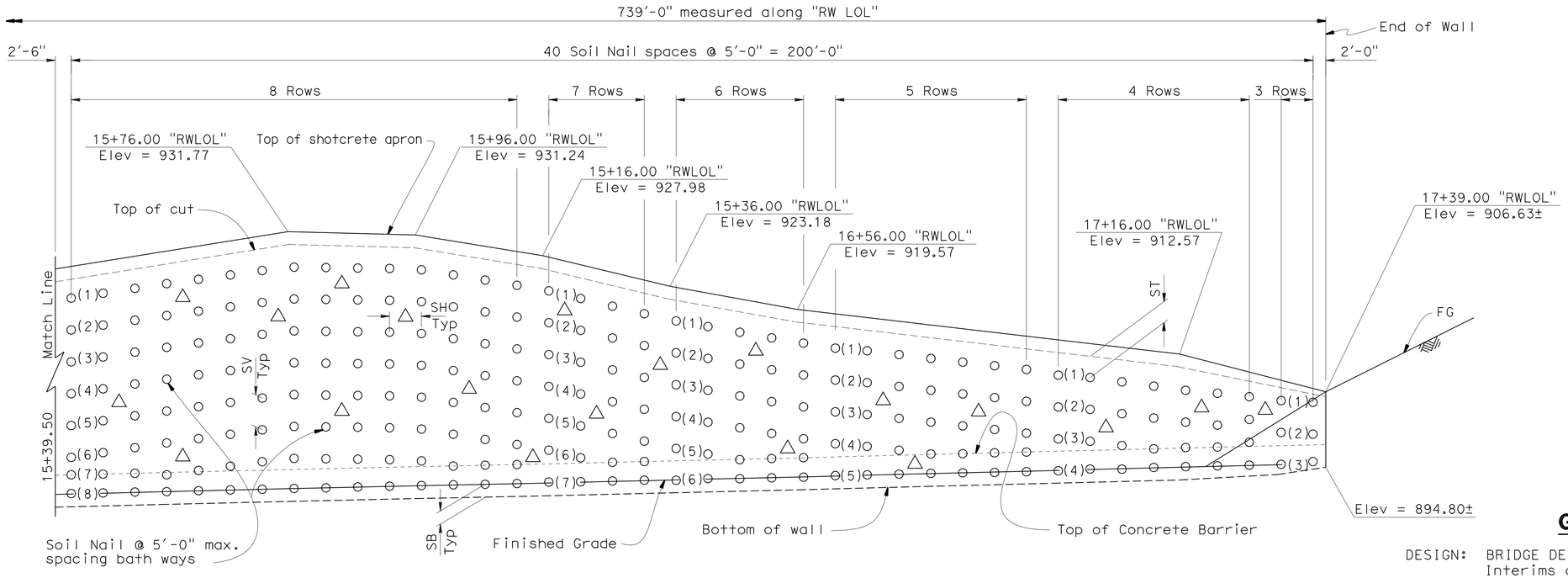
ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST (min) = 1′-6" ST (max) = 4′-10"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1′-6" SB (max) = 3′-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2′-0" SV (max) = 5′-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2′-0" SH (max) = 5′-0"

SS - Horizontal distance between the beginning/end of wall and first/last Soil Nail column, SS (min) = 1′-6" SS (max) = 2′-0"



DEVELOPED ELEVATION
1" = 10′

GENERAL NOTES:

DESIGN: BRIDGE DESIGN SPECIFICATIONS - 2000 (1996 AASHTO with Interims and Revisions by CALTRANS).

Manual for Design and Construction Monitoring of Soil Nail Walls - AASHTO 1998

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

C = 400 psf

Ø = 36° ; ϒ = 130 pcf

Pull out resistance = 140 lb/ft (Grout-soil)

GROUT

f'_c = 3.0 ksi at 28 days

REINFORCED CONCRETE & SHOTCRETE

f'_c = 4.0 ksi at 28 days
f_y = 60 ksi

SOIL NAILS

ASTM Designation: A615 / A615 M
fy = 60 ksi

STRUCTURE STEEL

ASTM Designation: A709 / A709 M
fy = 36 ksi

DESIGN	BY Ben Nguyen	CHECKED Sergio Damion	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216
DETAILS	BY Jeff Thorne\Wei Zhang	CHECKED Linan Wang			POST MILE R6.94
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Thorne			

RETAINING WALL NO.2
STRUCTURE PLAN NO.3

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-26-10 | 7-30-10 | 10-8-10 | 10-18-10 | 10-20-10 | 1-11-11 | 3-17-11

SHEET 4 OF 17

FILE => 04-4a0701-rw02-a-sp03.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	352	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
STATE OF CALIFORNIA

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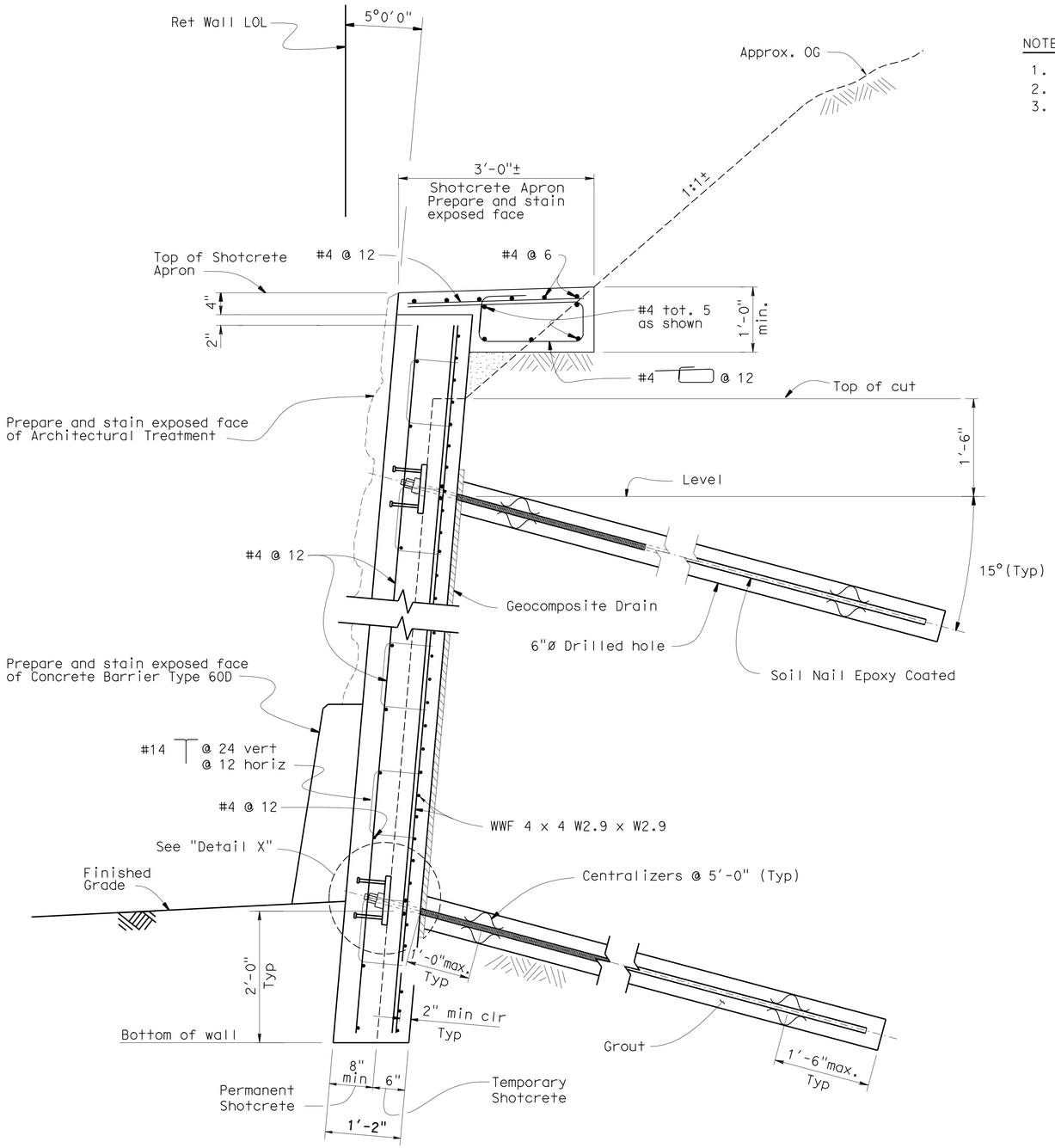
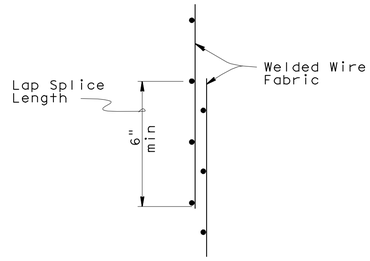
NOTES:

1. For Soil Nail spacing, see "STRUCTURE PLAN" sheets.
2. Bottom of wall to be placed against undisturbed material
3. For Drainage Details, see "DRAINAGE DETAILS" sheet



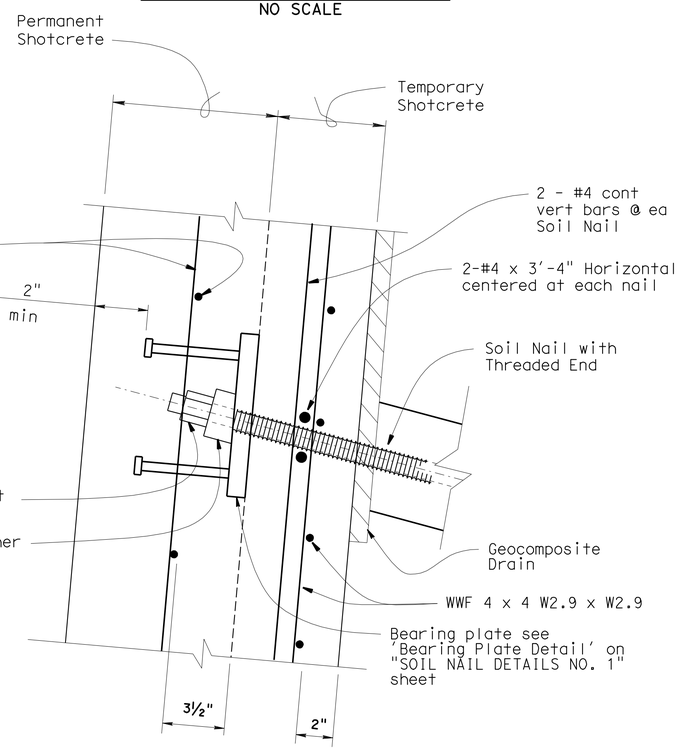
DEVELOPED ELEVATION

1" = 1'-0"



LAP SPLICE DETAIL

NO SCALE



DETAIL X

3" = 1'-0"

DESIGN	BY Ben Nguyen	CHECKED Sergio Damion	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216	RETAINING WALL NO.2
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R6.94	TYPICAL SECTION
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Throne				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES										SHEET	OF
4-22-10	7-30-10	9-2-10	10-4-10	10-20-10						5	17

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USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	353	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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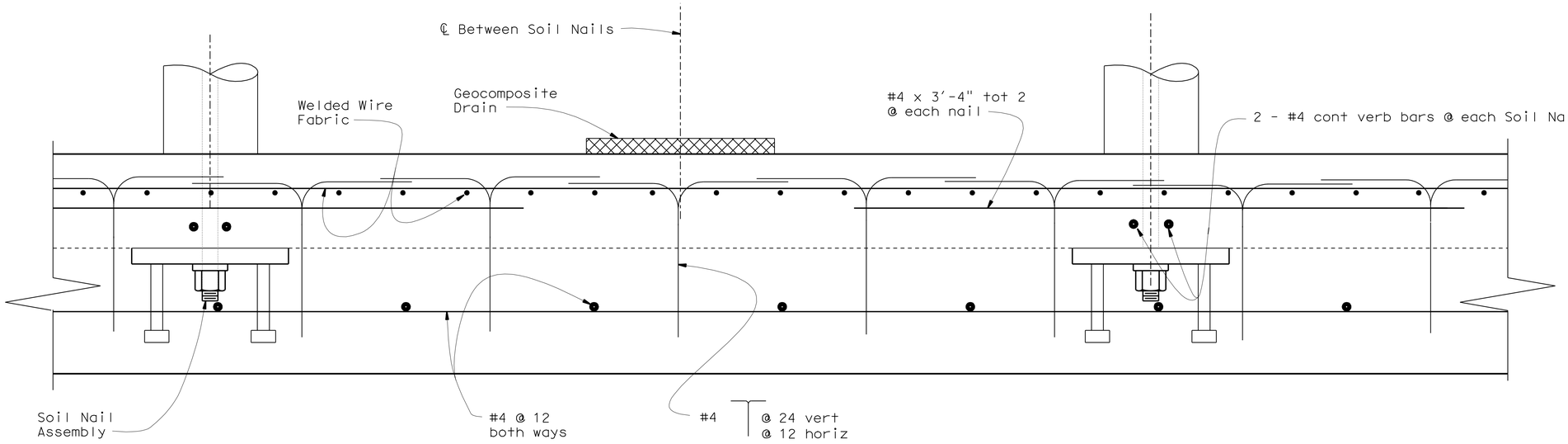
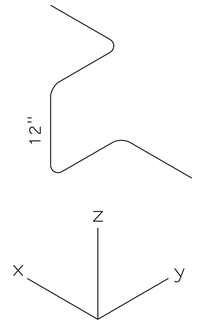


PART PLAN

1" = 1'-0"

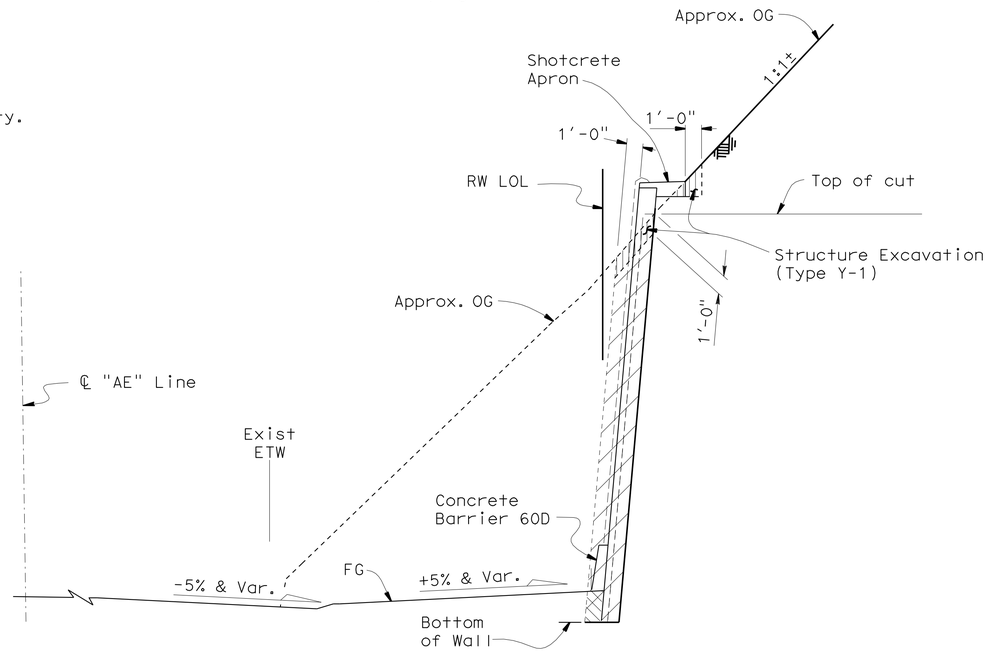


DETAIL A

NO SCALE

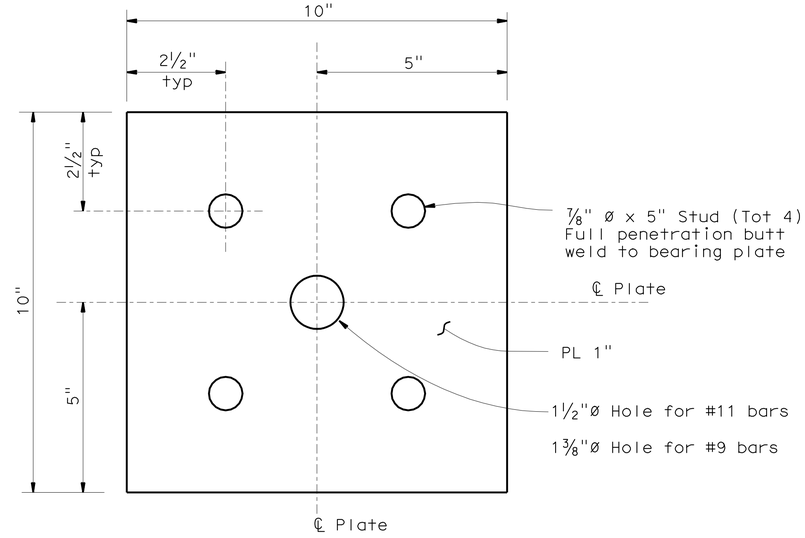
Notes:

1. For Horizontal and Vertical Soil Nail spacing, see "STRUCTURE PLAN" sheetS.
2. For details and dimensions not shown, see "Typical Section" on "TYPICAL SECTION" sheet.
3. Architectural treatment not shown for clarity.



LIMITS EXCAVATION AND BACKFILL

1" = 5'



BEARING PLATE DETAIL

6" = 1'-0"

LEGEND

- Indicates Structure Excavation (Retaining Wall)
- Indicates Structure Backfill (Retaining Wall)
- Indicates Structure Excavation (TYPE Y-1) Aerially Deposited Lead (ADL)

	BY	CHECKED
DESIGN	Ben Nguyen	Sergio Damion
DETAILS	Jeff Thorne\Wei Zhang	Linan Wang
QUANTITIES	Ben Nguyen	Jeff Throne

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0216
POST MILE R6.94

RETAINING WALL NO.2
SOIL NAIL DETAILS NO.1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-22-10 | 9-22-10 | 10-5-10 | 10-20-10 | 1-11-11 | 3-10-11 | 3-11-11

SHEET 6 OF 17

FILE => 04-4a0701-rw02-g-sndts01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	354	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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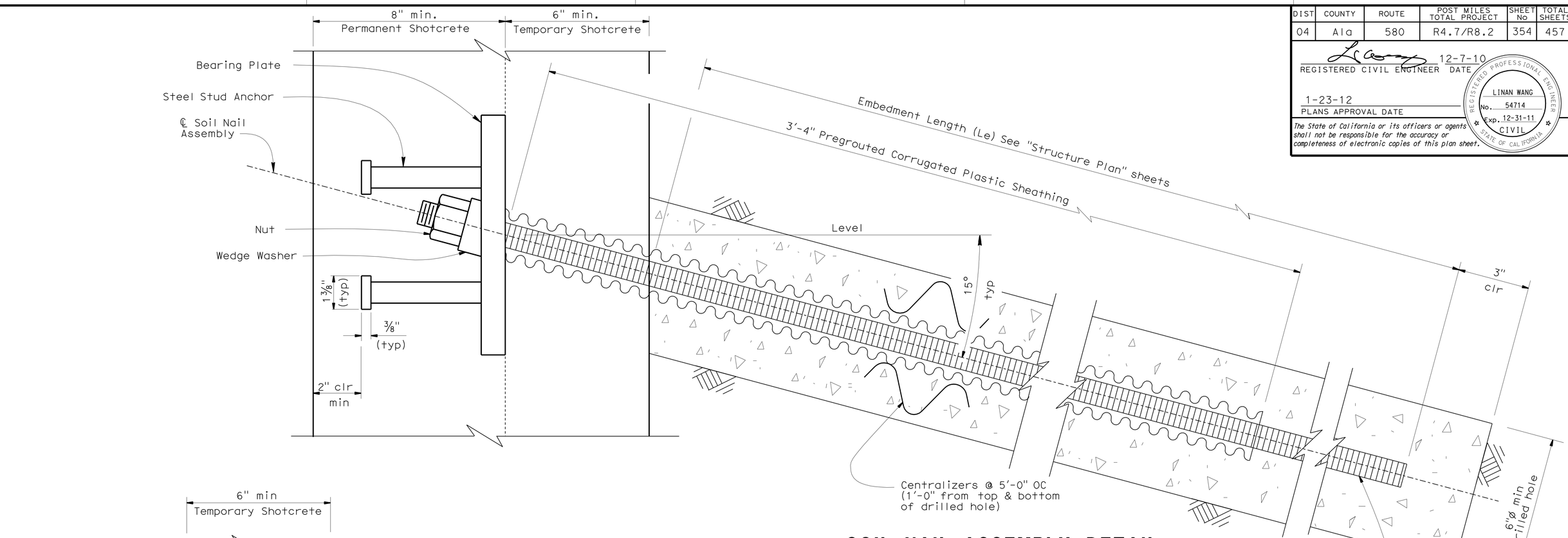
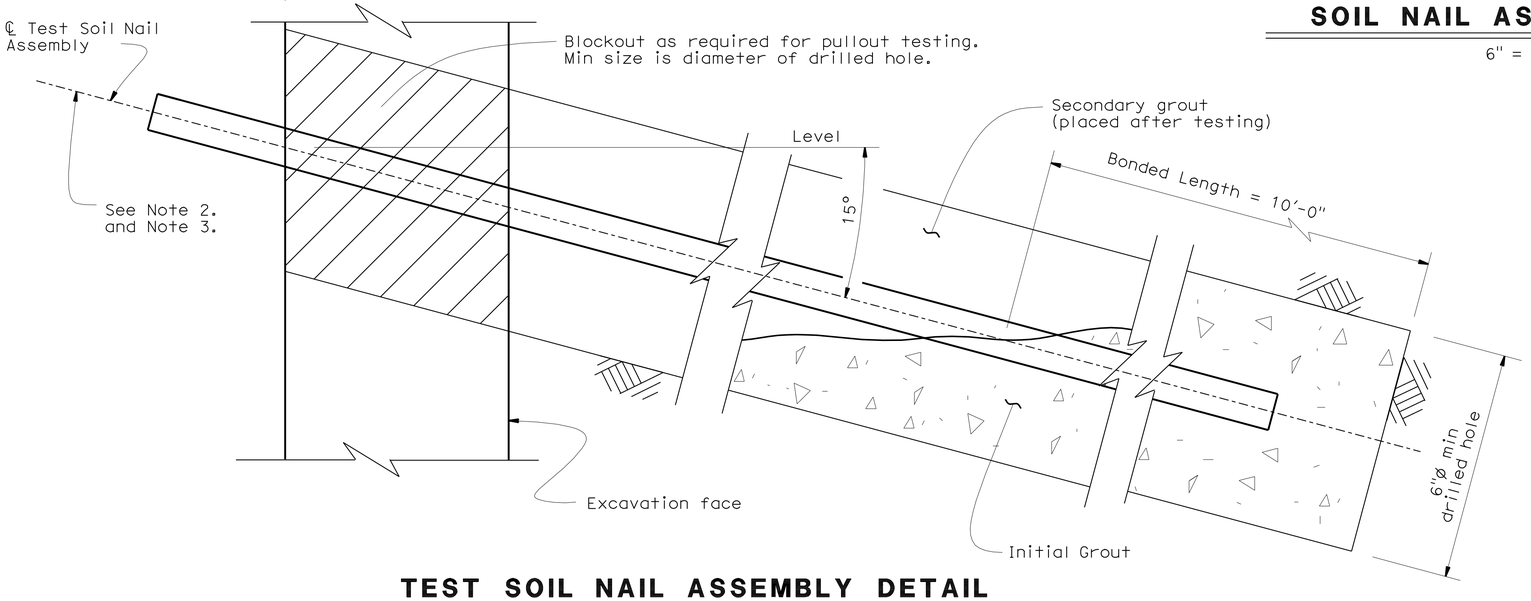


SOIL NAIL ASSEMBLY DETAIL

6" = 1'-0"



TEST SOIL NAIL ASSEMBLY DETAIL

6" = 1'-0"

NOTES:

1. Embedment length of test nails equals two thirds of the embedment length of adjacent soil nail assemblies, but not less than 13'-0"
2. Total length of test soil nail equals embedment length plus the length required for jacking equipment
3. For embedment length of production nails see 'Table' on "Structure Plan" sheets
4. Reinforcement not shown
5. Architectural treatment not shown

DESIGN	BY Ben Nguyen	CHECKED Sergio Damion	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R6.94
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Throne			

RETAINING WALL NO.2

SOIL NAIL DETAILS NO.2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-22-10 | 7-30-10 | 10-8-10 | 10-20-10 | 3-16-11 | 3-17-11

SHEET 7 OF 17

FILE => 04-4a0701-rw02-g-sndts02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	355	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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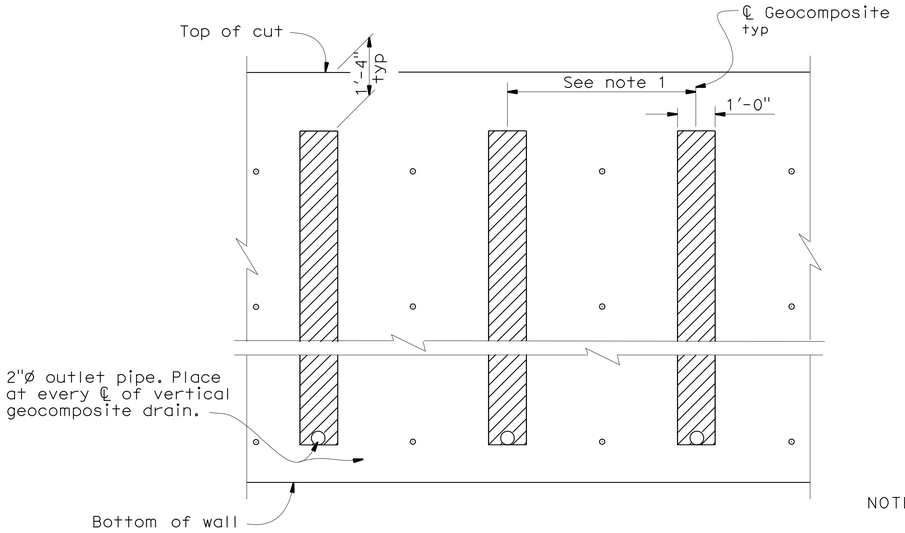
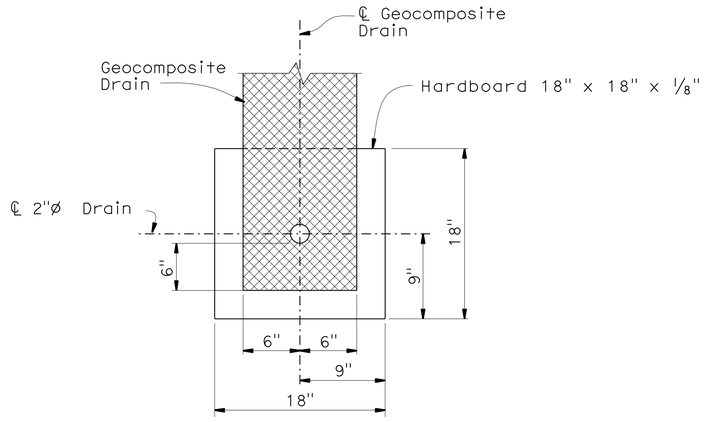


WALL PART ELEVATION

NO SCALE



VIEW A-A

NO SCALE

NOTES:

1. Center geocomposite vertical drain between soil nails.
2. ∘ Indicates soil nail locations.
3. Geocomposite drain may be omitted when conflicting with test soil nail.
4. Geocomposite drain not required for wall height less than 6 feet.

PART TYPICAL SECTION

NO SCALE

DETAIL X

NO SCALE

DESIGN	BY Ben Nguyen	CHECKED Sergio Damion	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R6.94
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Throne			

RETAINING WALL NO.2
DRAINAGE DETAILS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 4-28-10

SHEET 8 OF 17

FILE => 04-4a0701-rw02-h-drndts.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	356	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
STATE OF CALIFORNIA

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NOTES:

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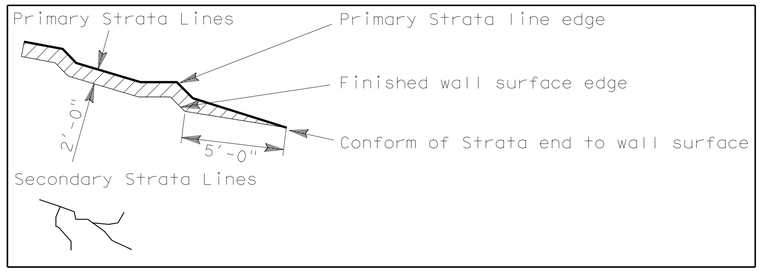
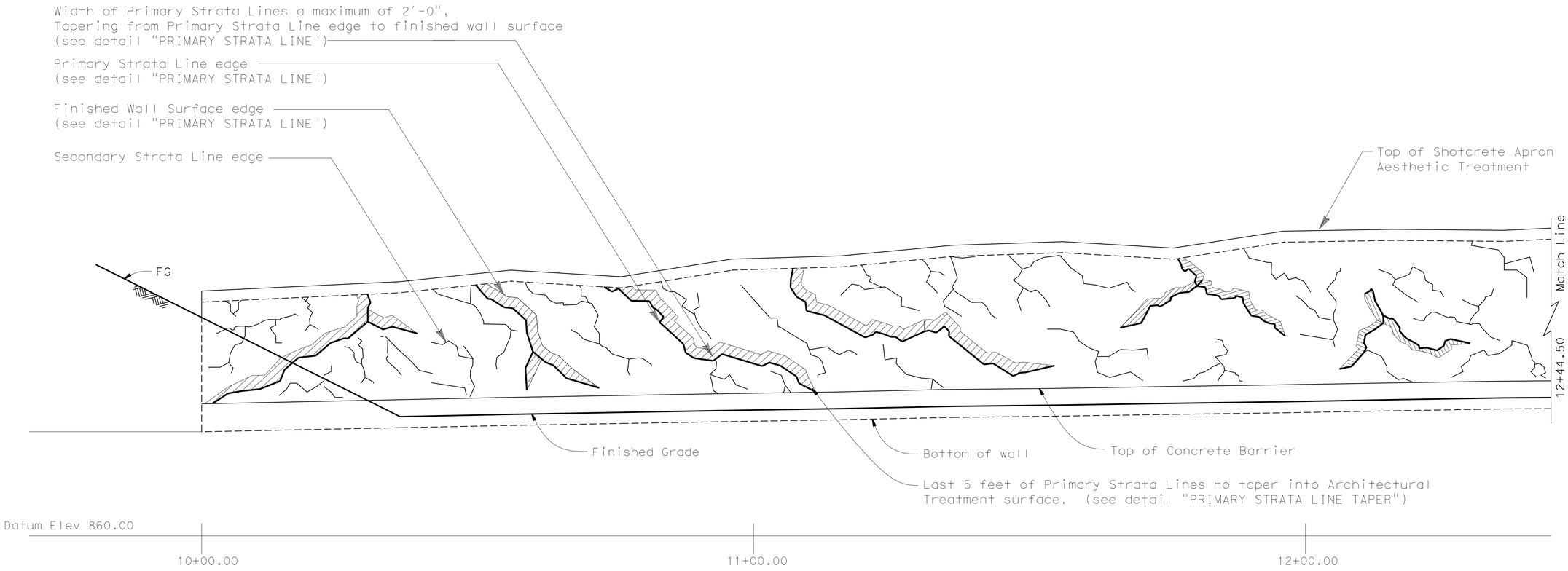
2. Secondary Strata lines drawn on the front elevation are to be used as a General Guide. Strata lines shall be sculpted to mimic local geology.
3. This sheet accurate for Architectual Treatment only.
4. Architectual Surface Treatment shall be continous throughout the face of the wall.
5. No relief shall be allowed within 6'-6" (vertical) of the roadway surface. Etching or scoring may be allowed to carry through sculpting.
6. Additiona shotcrete needed for carving the Primary Strata lines to be reinforced as shown on Structural Detail Plans.
7. Primary Strata lines to be tapered into the top and bottom of wall.
8. Secondary Strata lines are not to exceed 2" amplitude.

LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216	RETAINING WALL NO.2
DETAILS	BY Jeff Thorne\ Wei Zhang	CHECKED Linan Wang			POST MILE R6.94	ARCHITECTURAL TREATMENT LAYOUT NO. 1
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Thorne				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-22-10 | 7-30-10 | 10-5-10 | 10-18-10 | 10-20-10 | 11-18-10 | 12-6-10 | 3-17-11

SHEET 9 OF 17

FILE => 04-4a0701-rw02-h-eatlo01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	357	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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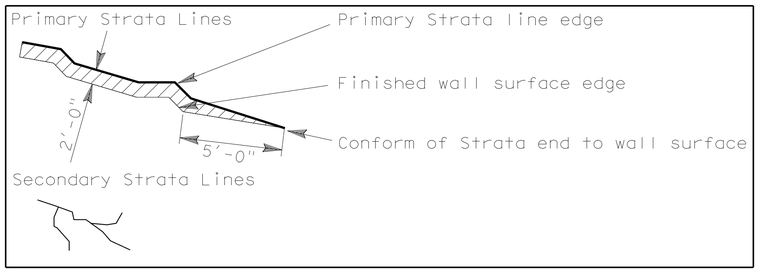
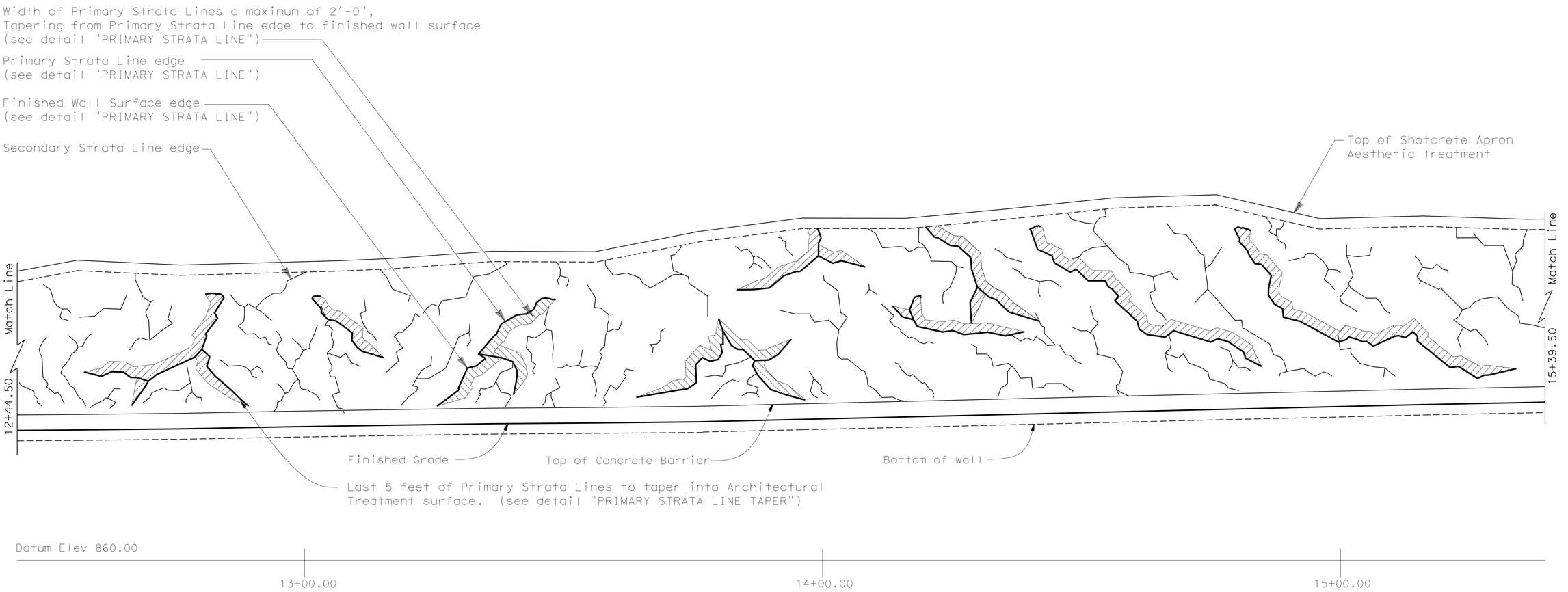
LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216	RETAINING WALL NO.2
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R6.94	ARCHITECTURAL TREATMENT LAYOUT NO. 2
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Thorne				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-22-10 | 7-30-10 | 10-6-10 | 10-18-10 | 10-28-10 | 11-18-10 | 12-6-10 | 3-17-11

SHEET 10 OF 17

FILE => 04-4a0701-rw02-h-eatlo02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	358	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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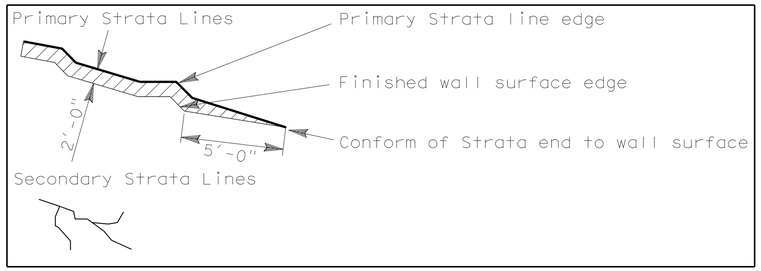
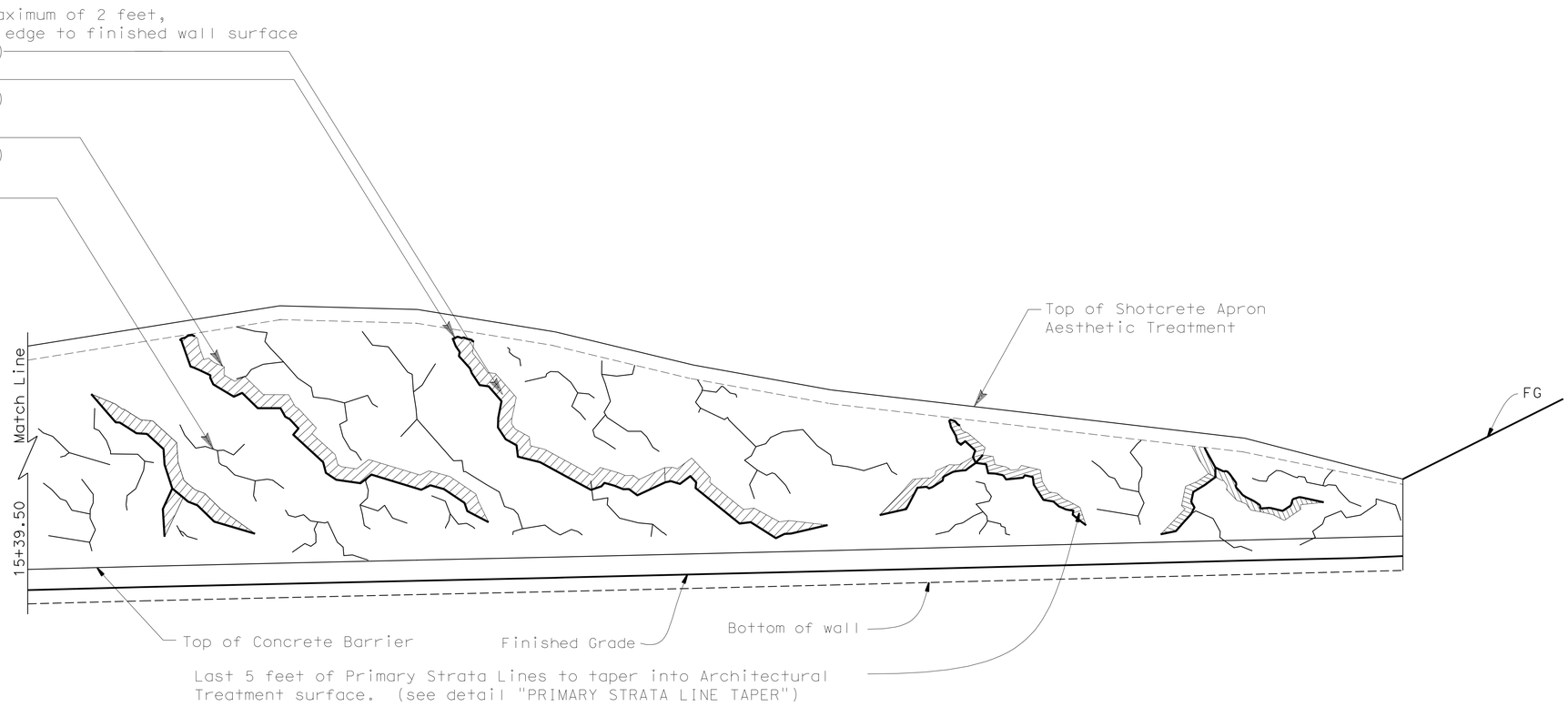
8. Secondary Strata lines are not to exceed 2" amplitude.

LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY Ken Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216	RETAINING WALL NO.2
DETAILS	BY Jeff Thorne\Wei Zhang	CHECKED Linan Wang			POST MILE R6.94	ARCHITECTURAL TREATMENT LAYOUT NO. 3
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Thorne				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-26-10 | 7-30-10 | 10-8-10 | 10-18-10 | 10-20-10 | 11-18-10 | 12-6-10 | 3-17-11

SHEET 11 OF 17

FILE => 04-4a0701-rw02-h-eat1o03.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:35

NOTES:

1. MAX 6" THICK REINFORCED SHOTCRETE ZONE FOR TOP OF WALL ARCHITECTURAL TREATMENT.
2. LONGITUDINAL BARS SHALL TAPER TO A POINT AND BE FLUSH WITH THE FINISHED WALL SURFACE AT THE END OF PRIMARY STRATA LINE WHERE THEY TRANSITIONS INTO THE WALL FACE.
3. ANGLE OF PRIMARY STRATA LINE ACROSS WALL APRON 15 DEGREES FOR CROSS SLOPES 0-10%, 45 DEGREES FOR CROSS SLOPES GREATER THAN10%
4. MAXIMUM 2" THICK UNREINFORCED SHOTCRETE ARCHITECTURAL TREATMENT ZONE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	359	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Linan Wang — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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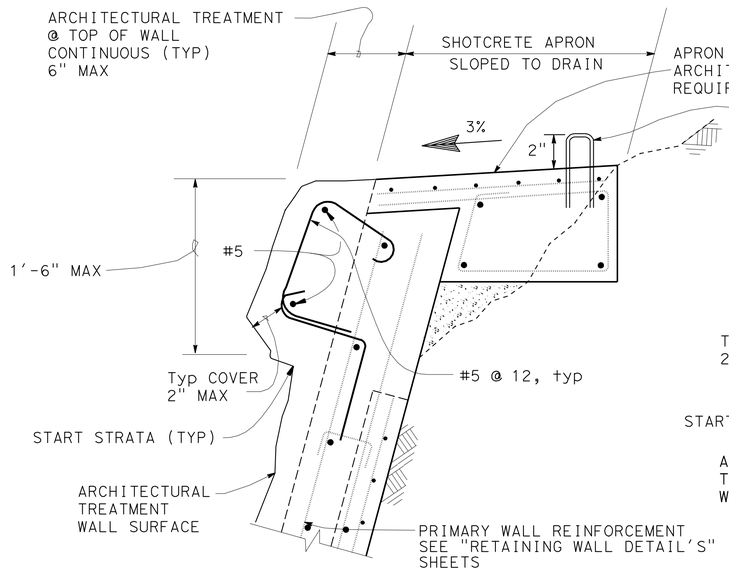
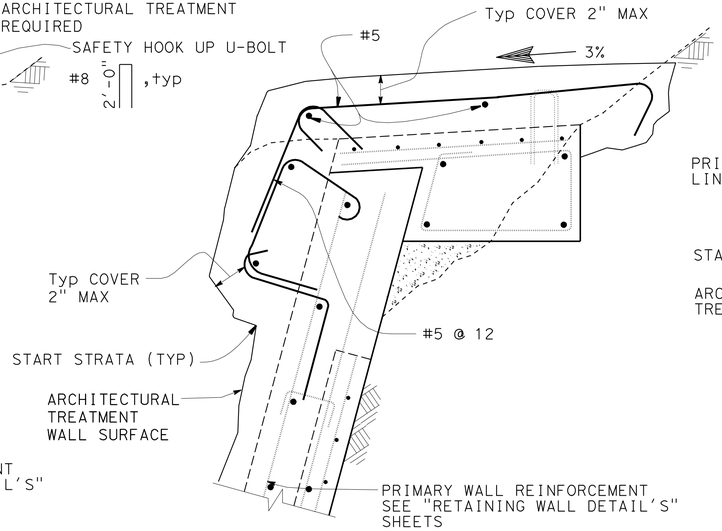
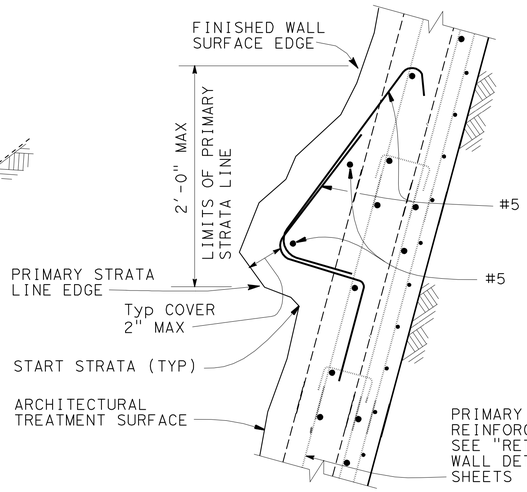


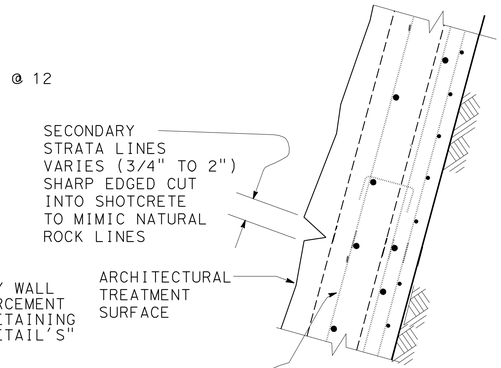
CROSS SECTION
ARCHITECTURAL TREATMENT AT TOP OF WALL



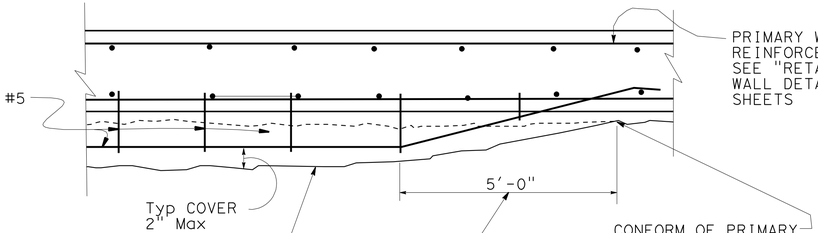
CROSS SECTION
PRIMARY STRATA LINE AT TOP OF WALL



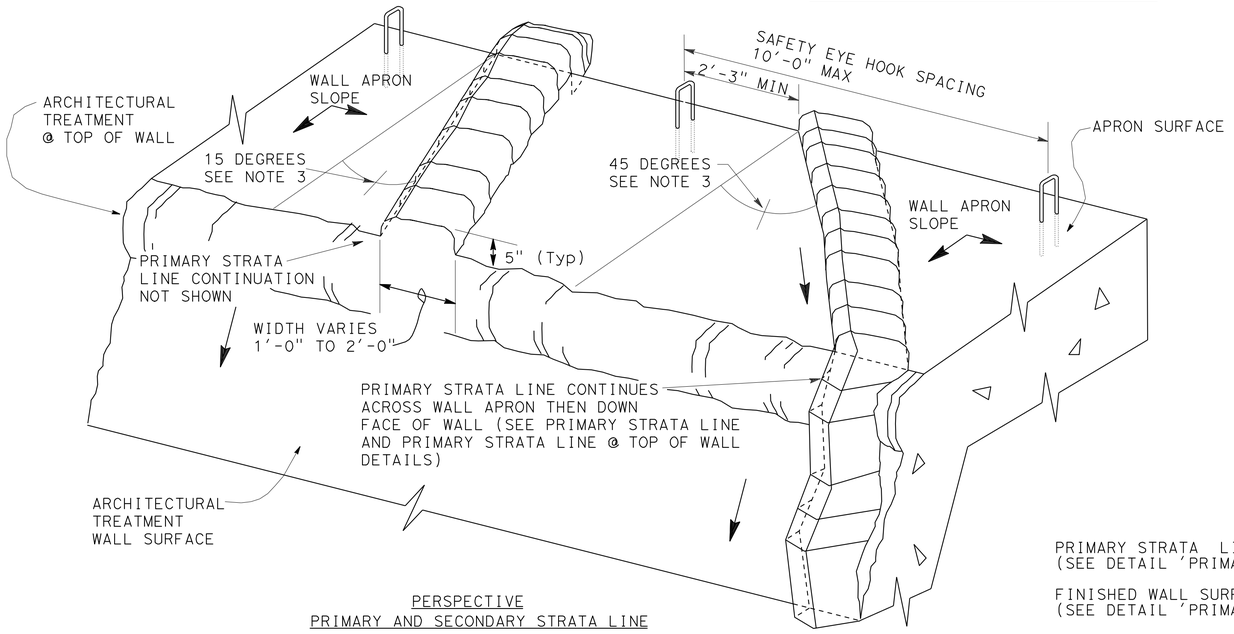
CROSS SECTION
PRIMARY STRATA LINE



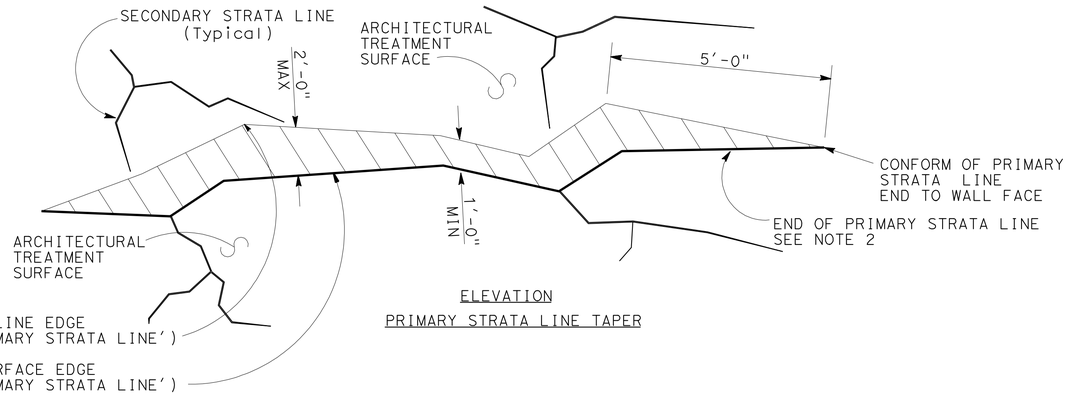
CROSS SECTION
SECONDARY STRATA LINE



Plan
PRIMARY STRATA LINE END DETAIL



PERSPECTIVE
PRIMARY AND SECONDARY STRATA LINE



ELEVATION
PRIMARY STRATA LINE TAPER

DESIGN	BY Ben Nguyen	CHECKED Sergio Damion	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0216	RETAINING WALL NO.2
DETAILS	BY Jeff Thorne/ Wei Zhang	CHECKED Linan Wang			POST MILE 6.94	ARCHITECTURAL TREATMENT DETAILS
QUANTITIES	BY Ben Nguyen	CHECKED Jeff Thorne				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 9-15-10 | 10-28-10 | 11-16-10 | 11-18-10 | 3-10-11

SHEET 12 OF 17

FILE => 04-4a0701-rw02-k-exbf01-1.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	360	457

REGISTERED CIVIL ENGINEER 12-29-10

1-23-12
PLANS APPROVAL DATE

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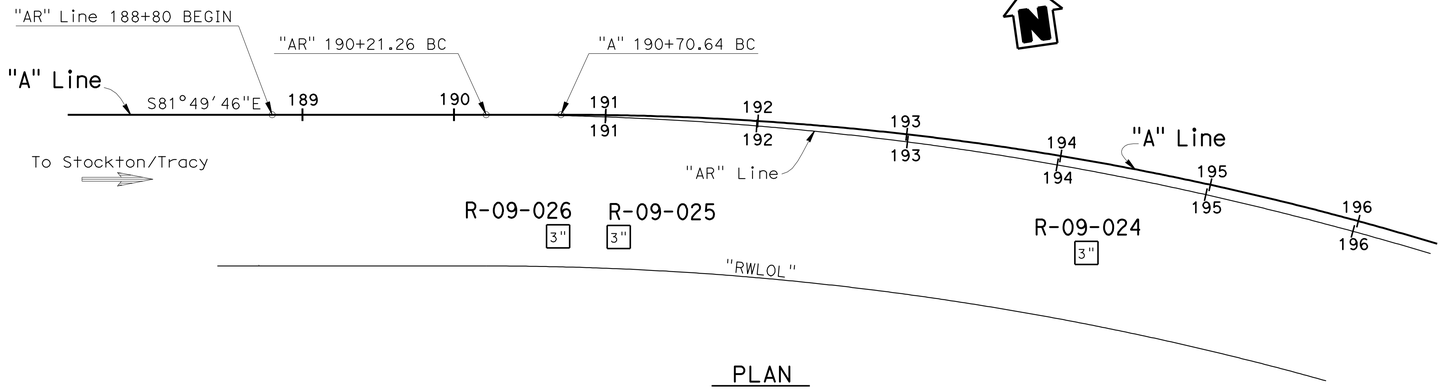
REGISTERED PROFESSIONAL ENGINEER — Eduardo Ortega — No. C41012 — Exp. 3-31-11 — CIVIL — STATE OF CALIFORNIA

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

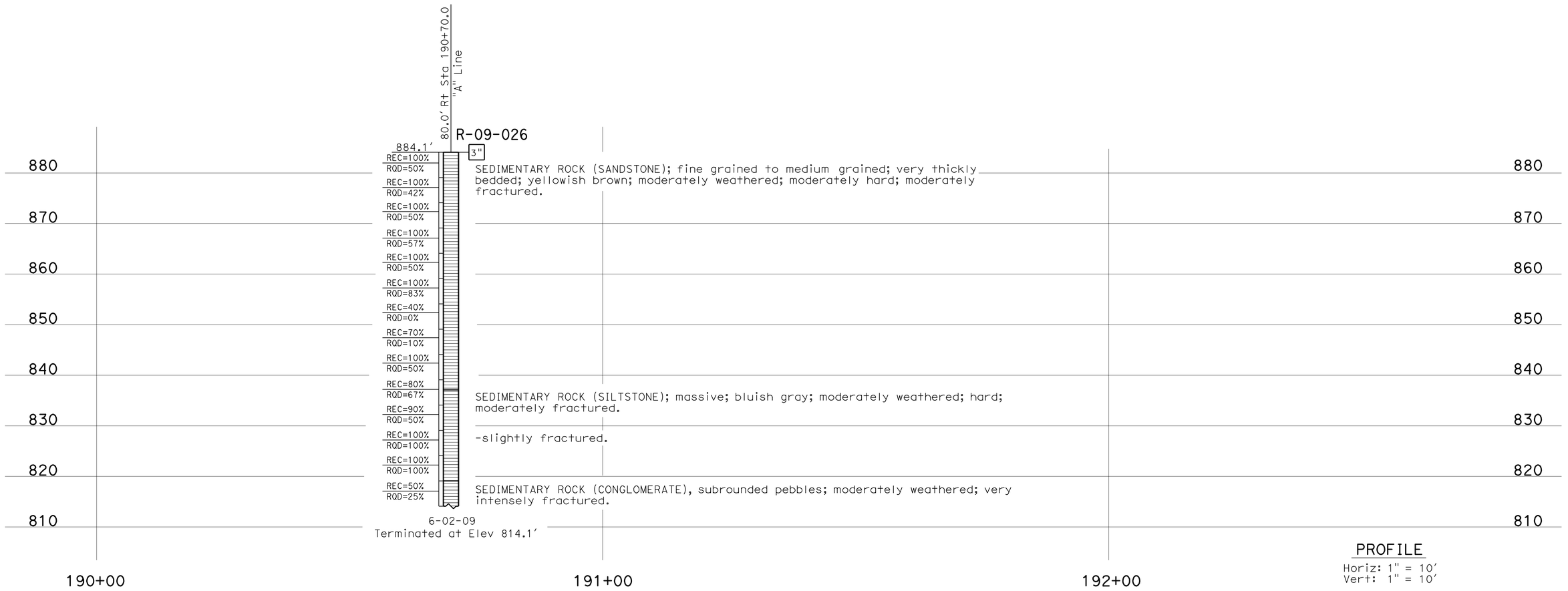
BENCH MARK

CT 229 (NAVD88)

Fnd a Mag nail and shiner in the AC shoulder along eastbound SR 580.
It is about 875' east of Westerly end of a 6' high chainlink fence.
N 2087225.153
E 6221260.158
Elev = 833.051'



PLAN
1" = 50'



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

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0216	RETAINING WALL NO. 2
FUNCTIONAL SUPERVISOR NAME: M. Momenzadeh	DRAWN BY: F. Nguyen 8/10 CHECKED BY: R. Nashed	FIELD INVESTIGATION BY: R. Karpowicz	DESIGN BRANCH	POST MILES R6.94	LOG OF TEST BORINGS 1 OF 5
OGS CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 04 EA 4A0701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES: 10-04-10, 10-08-10, 12-27-10	SHEET 13 OF 17

FILE => 04-4a0701-rw02-x-lotb1of5.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	361	457

12-29-10
REGISTERED CIVIL ENGINEER

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Eduardo Ortega
No. C41012
Exp. 3-31-11
CIVIL
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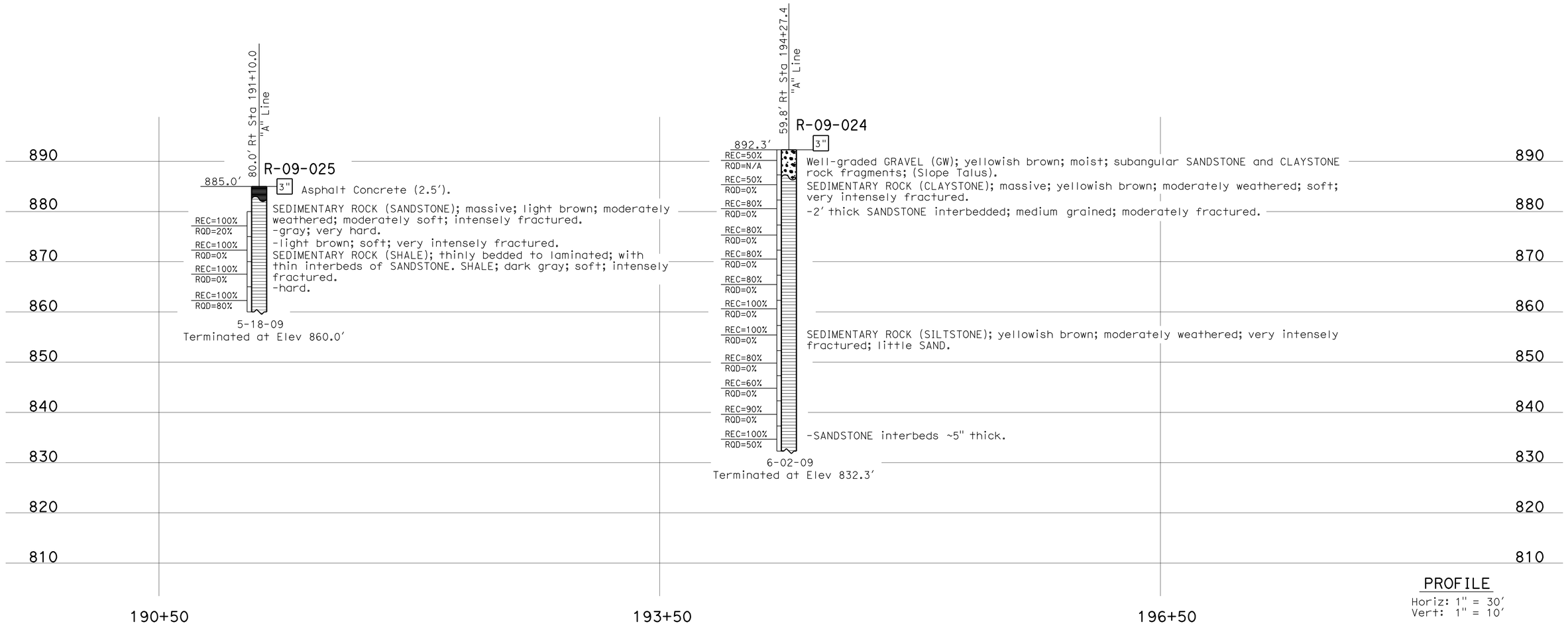
FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS 1 OF 5"



PROFILE
Horiz: 1" = 30'
Vert: 1" = 10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0216	RETAINING WALL NO. 2
FUNCTIONAL SUPERVISOR	DRAWN BY: F. Nguyen 8/10	FIELD INVESTIGATION BY:		DESIGN BRANCH	POST MILES R6.94	LOG OF TEST BORINGS 2 OF 5
NAME: M. Momenzadeh	CHECKED BY: R. Nashed	C. Koepke, R. Karpowicz				

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10 | 11-08-10 | 12-27-10

SHEET 14 OF 17

FILE => 04-4a0701-rw02-x-lotb2of5.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:35

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	362	457

Ed Ortega 12-29-10
REGISTERED CIVIL ENGINEER

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Eduardo Ortega
No. C41012
Exp. 3-31-11
CIVIL
STATE OF CALIFORNIA

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CEMENTATION

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

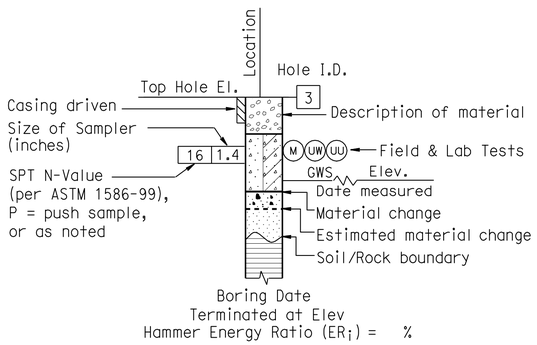
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

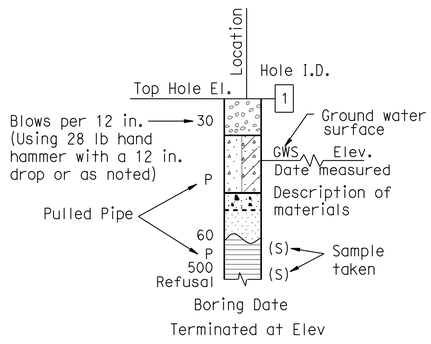
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

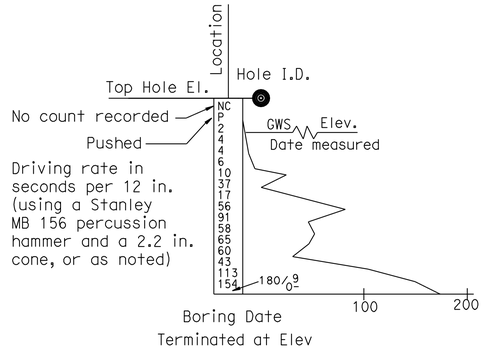
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



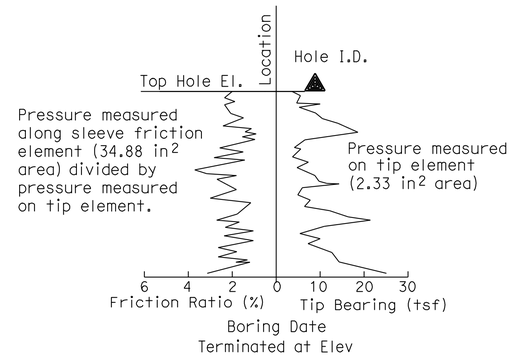
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0216	RETAINING WALL NO. 2
	PREPARED BY: F. Nguyen		DESIGN BRANCH	POST MILE R6.94	LOG OF TEST BORINGS 3 OF 5

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10

SHEET 15 OF 17

FILE => 04-4a0701-rw02-x-lotb3of5.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:35

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	363	457

REGISTERED CIVIL ENGINEER 12-29-10

1-23-12
PLANS APPROVAL DATE

Eduardo Ortega No. C41012 Exp. 3-31-11 CIVIL — REGISTERED PROFESSIONAL ENGINEER — 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.

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

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

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0216	RETAINING WALL NO. 2
	PREPARED BY: F. Nguyen		DESIGN BRANCH	POST MILE R6.94	LOG OF TEST BORINGS 4 OF 5

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04 EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10

SHEET 16 OF 17

FILE => 04-4a0701-rw02-x-lotb4of5.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:35

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	364	457

REGISTERED CIVIL ENGINEER 12-29-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eduardo Ortega — No. C41012 — Exp. 3-31-11 — CIVIL — STATE OF CALIFORNIA

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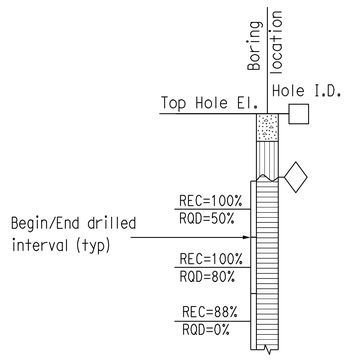
PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

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

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

RQD* Indicates soundness criteria not met.



BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft - 10 ft
Thickly Bedded	1 ft - 3 ft
Moderately Bedded	4 in. - 1 ft
Thinly Bedded	1 in. - 4 in.
Very Thinly Bedded	1/4 in. - 1 in.
Laminated	Less than 1/4 in.

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

WEATHERING DESCRIPTORS FOR INTACT ROCK

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

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0216	RETAINING WALL NO. 2
	PREPARED BY: F. Nguyen		DESIGN BRANCH	POST MILE R6.94	LOG OF TEST BORINGS 5 OF 5

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10

SHEET 17 OF 17

FILE => 04-4a0701-rw02-x-lotb5of5.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:36

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	365	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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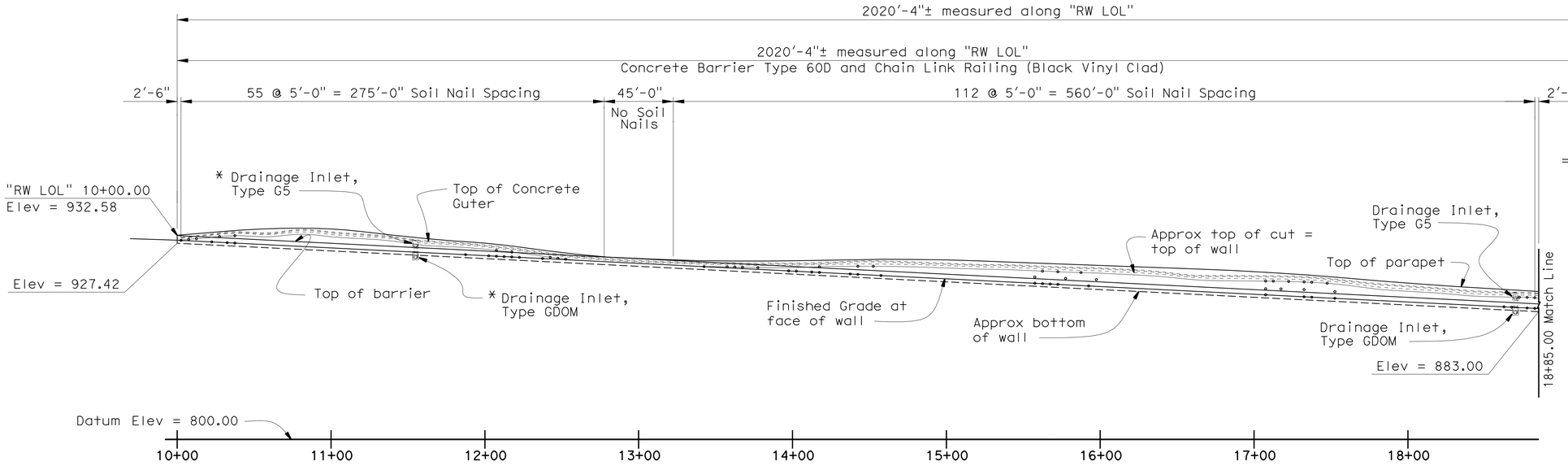
QUANTITIES

STRUCTURE EXCAVATION (SOIL NAIL WALL)	930	CY
STRUCTURE EXCAVATION (TYPE Y-1) (AERIALLY DEPOSITED LEAD)	255	CY
STRUCTURE BACKFILL (SOIL NAIL WALL)	305	CY
SOIL NAIL ASSEMBLY	20,900	LF
ARCHITECTURAL TREATMENT	10,400	SQFT
BAR REINFORCING STEEL (RETAINING WALL)	89,400	LB
SHOTCRETE	935	CY
GEOCOMPOSITE DRAIN	2,260	SQFT
MINOR CONCRETE (GUTTER)	2,120	LF
CHAIN LINK RAILING	2,120	LF
CONCRETE BARRIER (TYPE 60D)	2,120	LF
PREPARE AND STAIN CONCRETE	17,384	SQFT



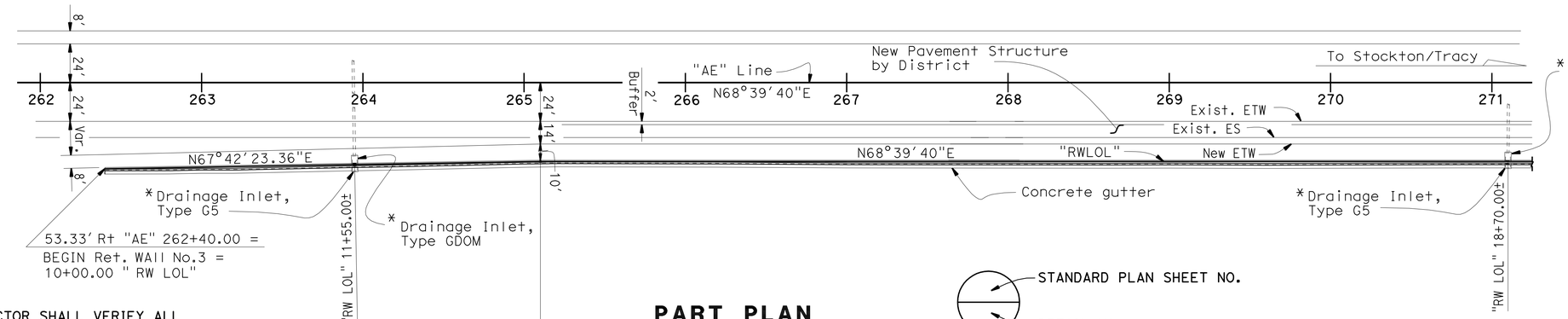
PART MIRRORED ELEVATION

1" = 10'

Notes:

1. All soil nail not shown.
2. Chain Link Railing not shown for clarity.

* - For Drainage Details see 'ROAD PLANS'



PART PLAN

1" = 40'

STANDARD PLAN SHEET NO.

DETAIL NO.

For 'GENERAL NOTES' see 'GENERAL PLAN NO. 3' sheet.

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

INDEX TO PLANS

STANDARD PLANS DATED MAY 2006

A10A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
A10B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
A10C	SYMBOLS (SHEET 1 OF 2)
A10D	SYMBOLS (SHEET 2 OF 2)
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL
A76A	CONCRETE BARRIER TYPE 60
B3-9	RETAINING WALL DETAILS NO. 2
B11-7	CHAIN LINK RAILING

Minh Ha
DESIGN ENGINEER

DESIGN	BY Tuong Ha	CHECKED Linan Wang	LOAD & RESISTANCE FACTOR DESIGN			
DETAILS	BY Wei Zhang /Jeff Thorne	CHECKED Linan Wang	LAYOUT	BY Linan Wang	CHECKED X	
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

CU 04
EA 4A07U1

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO.3
GENERAL PLAN NO.1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-14-10 | 3-16-11 | 10-12-10 | 10-26-10 | 11-8-10 | 11-9-10 | 11-16-10 | 12-22-10 | 1-5-11

SHEET 1 OF 29

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.07-24-06)

FILE => 04-4a0701-rw03-a-gp01.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:36

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	366	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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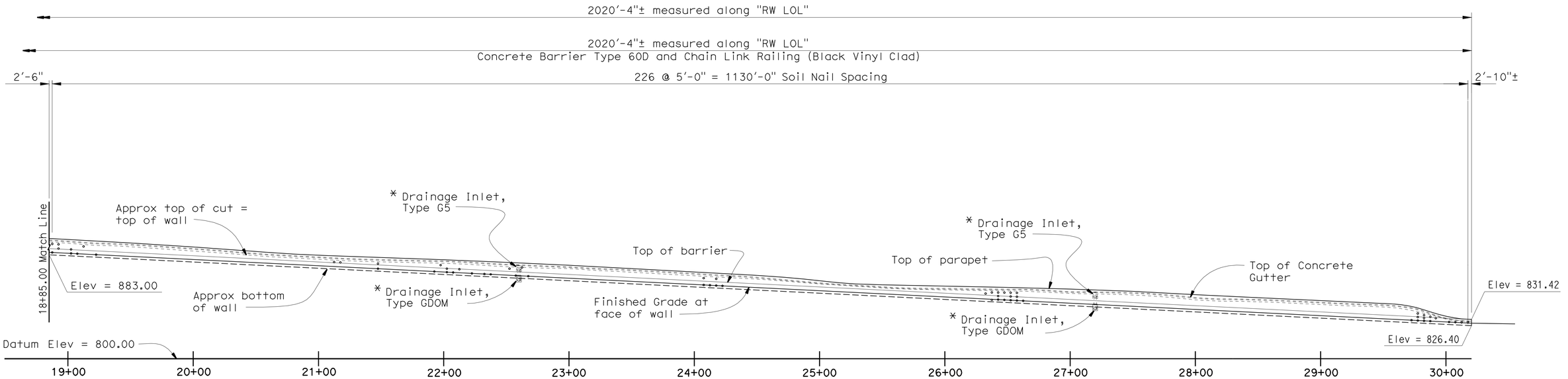


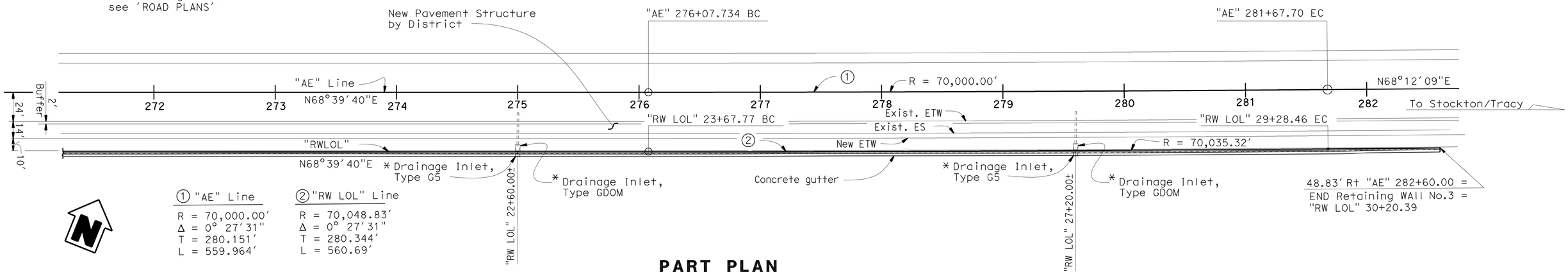
PART MIRRORED ELEVATION

1" = 10'

Notes:

1. All soil nail not shown.
2. Chain Link Railing not shown for clarity.

* - For Drainage Details see 'ROAD PLANS'



① "AE" Line
R = 70,000.00'
Δ = 0° 27' 31"
T = 280.151'
L = 559.964'

② "RW LOL" Line
R = 70,048.83'
Δ = 0° 27' 31"
T = 280.344'
L = 560.69'

PART PLAN

1" = 40'

Minh Ha, DESIGN ENGINEER	DESIGN	BY Tuong Ha	CHECKED Linan Wang	LOAD & RESISTANCE FACTOR DESIGN			
	DETAILS	BY Wei Zhang / Jeff Thorne	CHECKED Linan Wang	LAYOUT	BY Linan Wang	CHECKED X	
	QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

CU 04
EA 4A07U1

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO.3
GENERAL PLAN NO.2

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-18-10 | 7-6-10 | 8-19-10 | 10-12-10 | 10-21-10 | 11-8-10 | 11-9-10 | 12-29-10 | 1-5-11 | 3-18-11

SHEET 2 OF 29

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.07-24-06)

FILE => 04-4a0701-rw03-a-gp02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:36

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	367	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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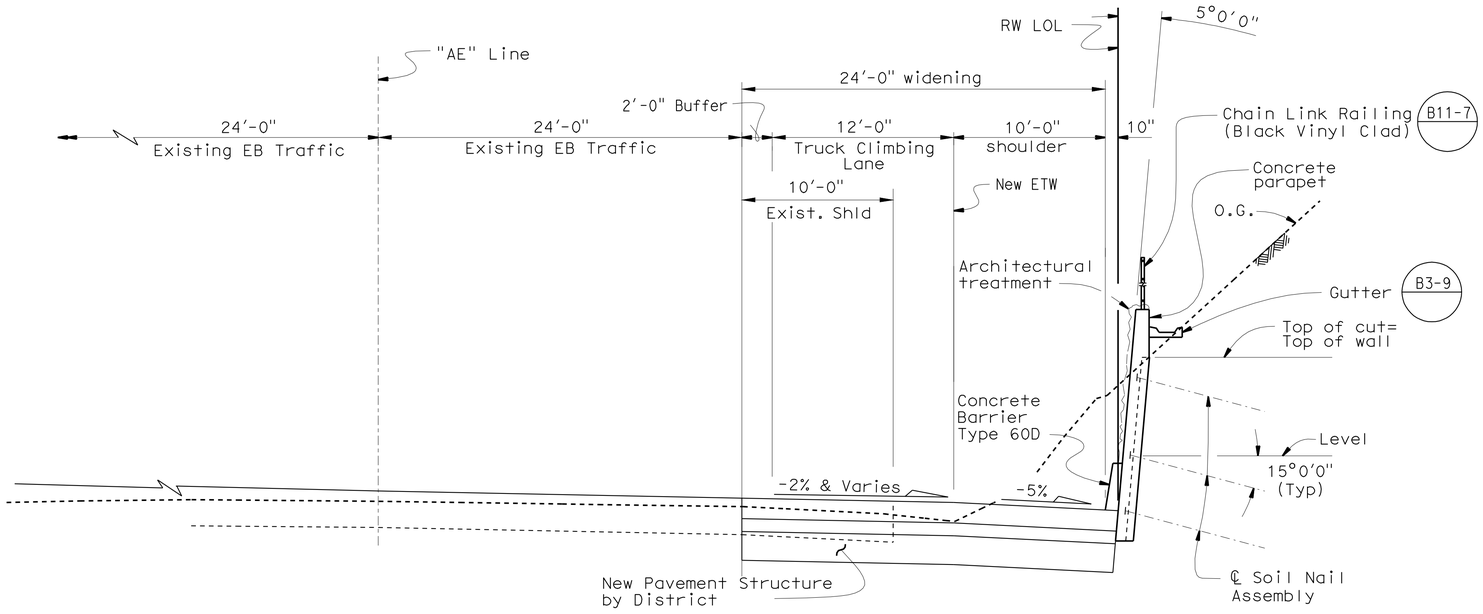

TYPICAL SECTION

1"= 5'

GENERAL NOTES

DESIGN: BRIDGE DESIGN SPECIFICATIONS - 2000 (1996 AASHTO with Interims and Revisions by CALTRANS).

Manual for Design and Construction Monitoring of Soil Nail Walls - AASHTO 1998

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

C = 400 psf

Ø = 36° ; ϒ = 130 pcf

Pull out resistance = 140 lb/ft
(Grout-soil)

GROUT

f'_c = 3.0 ksi at 28 days

REINFORCED CONCRETE & SHOTCRETE

f'_c = 4.0 ksi at 28 days
fy = 60 ksi

SOIL NAILS

ASTM Designation: A615 / A615 M
fy = 60 ksi

STRUCTURE STEEL

ASTM Designation: A709 / A709 M
fy = 36 ksi

Minh Ha
DESIGN ENGINEER

DESIGN	BY Tuong Ha	CHECKED Linan Wang	LOAD & RESISTANCE FACTOR DESIGN				
DETAILS	BY Wei Zhang / Jeff Thorne	CHECKED Linan Wang	LAYOUT	BY Linan Wang	CHECKED X		
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X		

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO.3
GENERAL PLAN NO.3

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-13-10 | 8-13-10 | 9-22-10 | 10-19-10 | 10-26-10 | 11-18-10 | 12-27-10 | 1-5-11 | 3-18-11

SHEET 3 OF 29

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.07-24-06)

FILE => 04-4a0701-rw03-a-gp03.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:36

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	368	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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Length of Nails at each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20

Notes

o Indicates location of production nail assembly.

△ Indicates location of proof test nail.

* - For Drainage Details see 'ROAD PLANS'

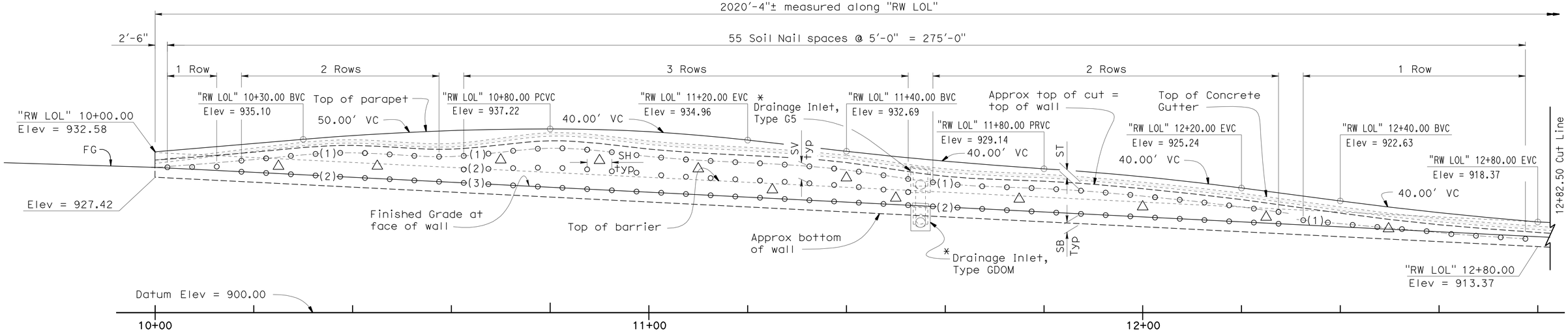
1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST = 1'-6"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1'-6"
SB (max) = 3'-0"

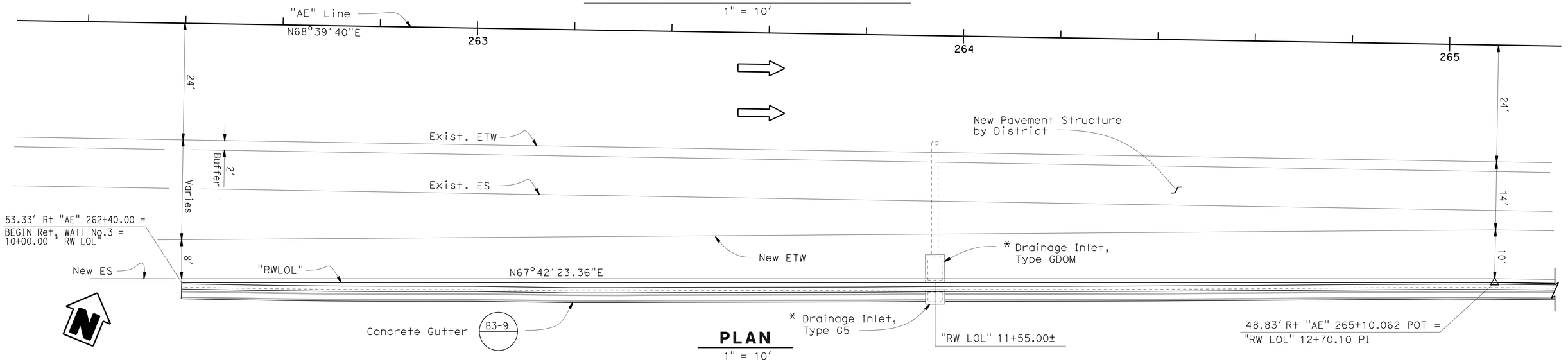
SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2'-0"
SV (max) = 5'-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0"
SH (max) = 5'-0"



PART MIRRORED ELEVATION

1" = 10'



PLAN

1" = 10'

DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN — DESIGN BRANCH 4
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO.3
STRUCTURE PLAN NO. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 7-30-10 | 8-18-10 | 10-18-10 | 10-21-10 | 11-5-10 | 1-5-11 | 3-18-11

SHEET 4 OF 29

FILE => 04-4a0701-rw03-a-sp01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 16:36 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	369	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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Length of Nails at each Nail Level (Le)

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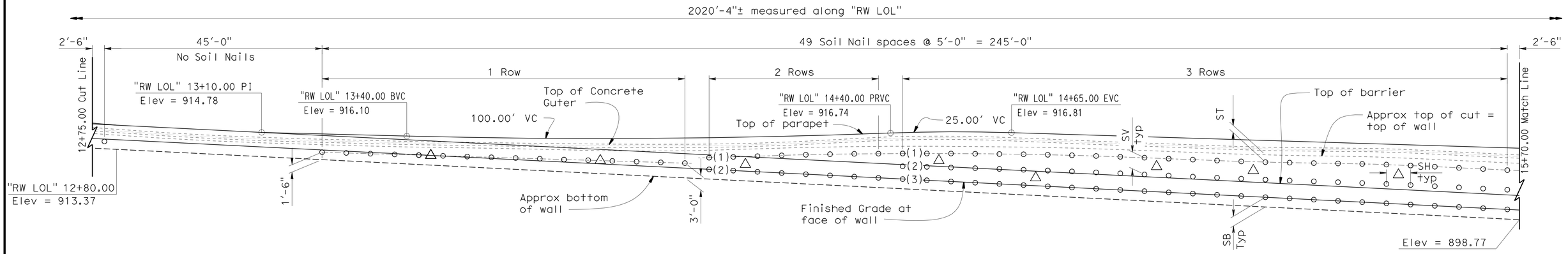
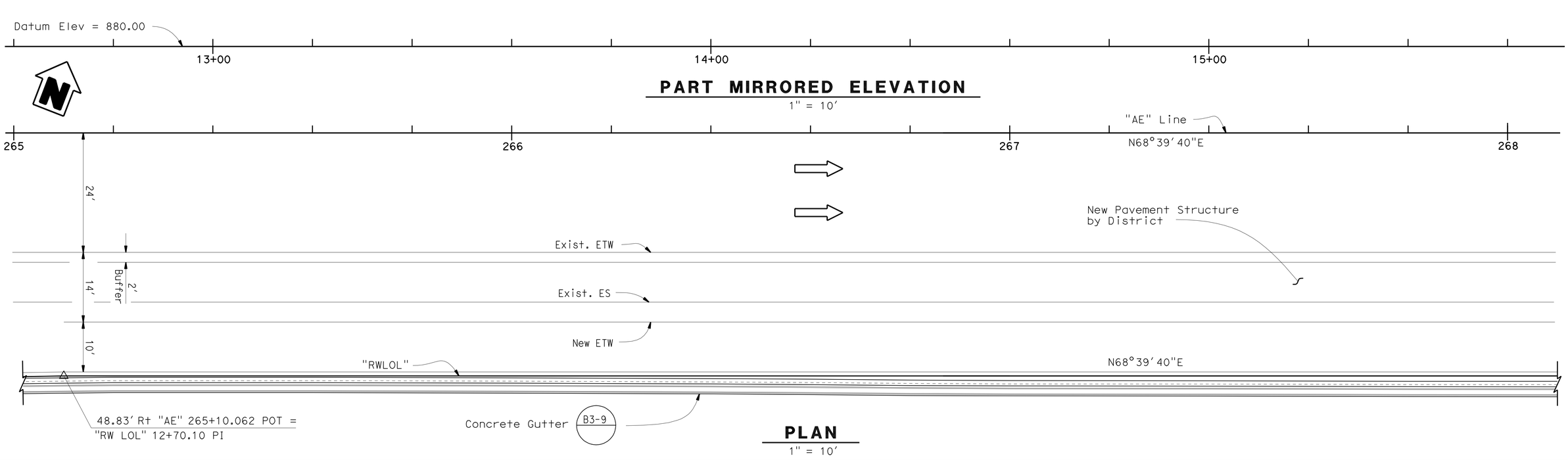
SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0"
SH (max) = 5'-0"





DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3	
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54	STRUCTURE PLAN NO. 2	
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 11-8-10 | 1-5-11 | 3-18-11

SHEET 5 OF 29

FILE => 04-4a0701-rw03-a-sp02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 T&M/PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	370	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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Length of Nails at each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20

Notes

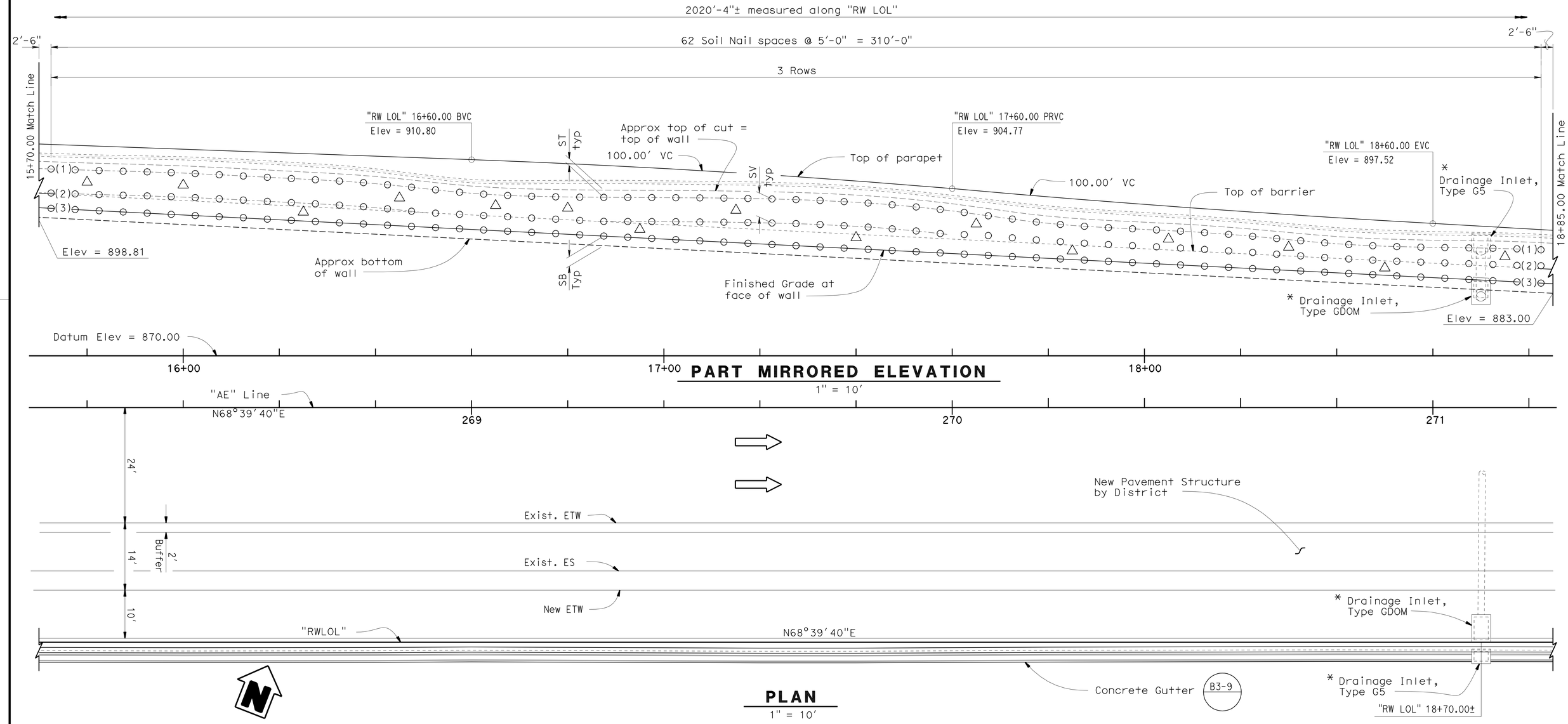
- o Indicates location of production nail assembly.
- △ Indicates location of proof test nail.
- * - For Drainage Details see 'ROAD PLANS'
1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST = 1'-6"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1'-6"
SB (max) = 3'-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2'-0"
SV (max) = 5'-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0"
SH (max) = 5'-0"



DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54	STRUCTURE PLAN NO. 3
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-26-10 | 11-8-10 | 1-5-11 | 3-18-11

SHEET 6 OF 29

FILE => 04-4a0701-rw03-a-sp03.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 16:57 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	371	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 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.

Length of Nails at each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20

Notes

o Indicates location of production nail assembly.

△ Indicates location of proof test nail.

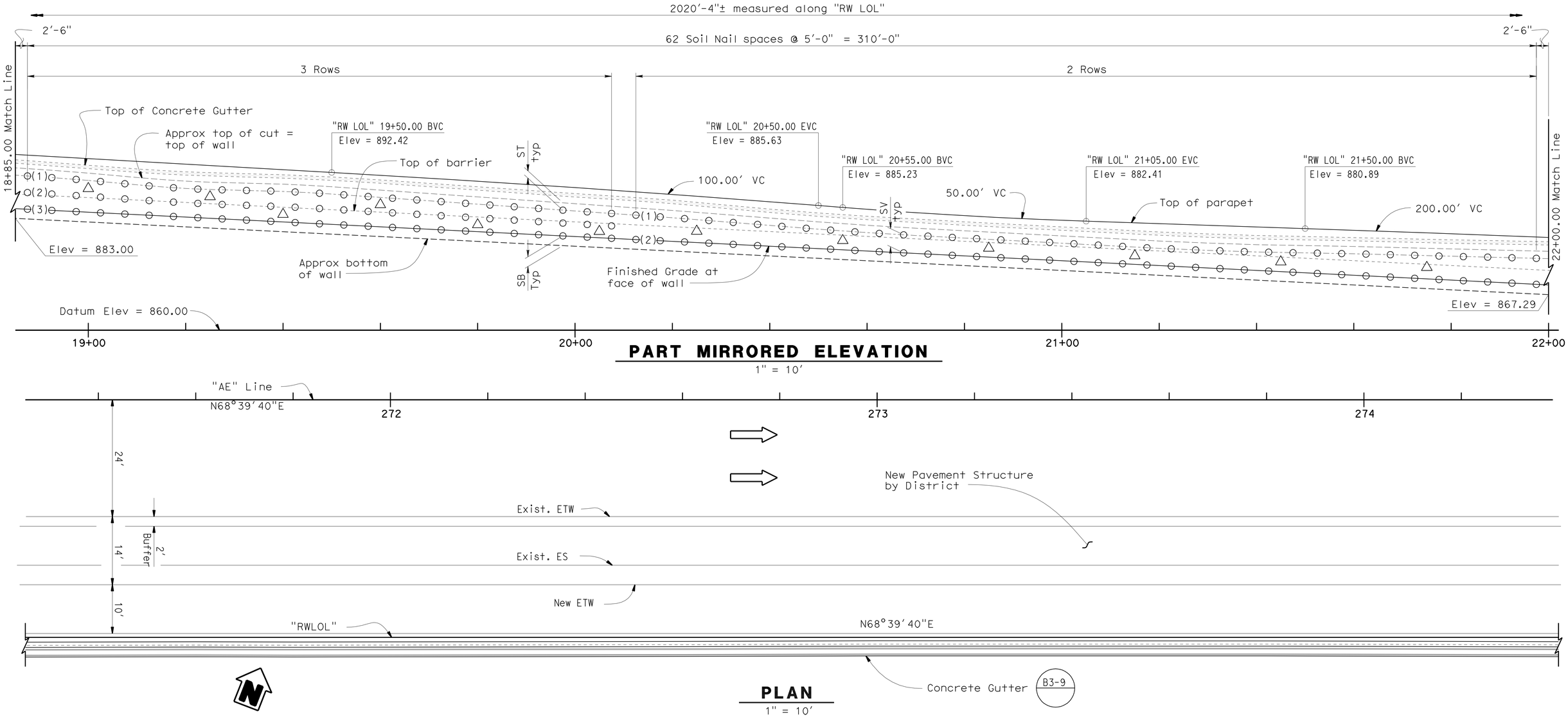
1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST = 1′-6"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1′-6"
SB (max) = 3′-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2′-0"
SV (max) = 5′-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2′-0"
SH (max) = 5′-0"



DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3	
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54	STRUCTURE PLAN NO. 4	
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 10-21-10 | 11-8-10 | 1-5-11 | 3-18-11

SHEET 7 OF 29

FILE => 04-4a0701-rw03-a-sp04.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 16:18:37 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	372	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — 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.

Length of Nails at each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20

Notes

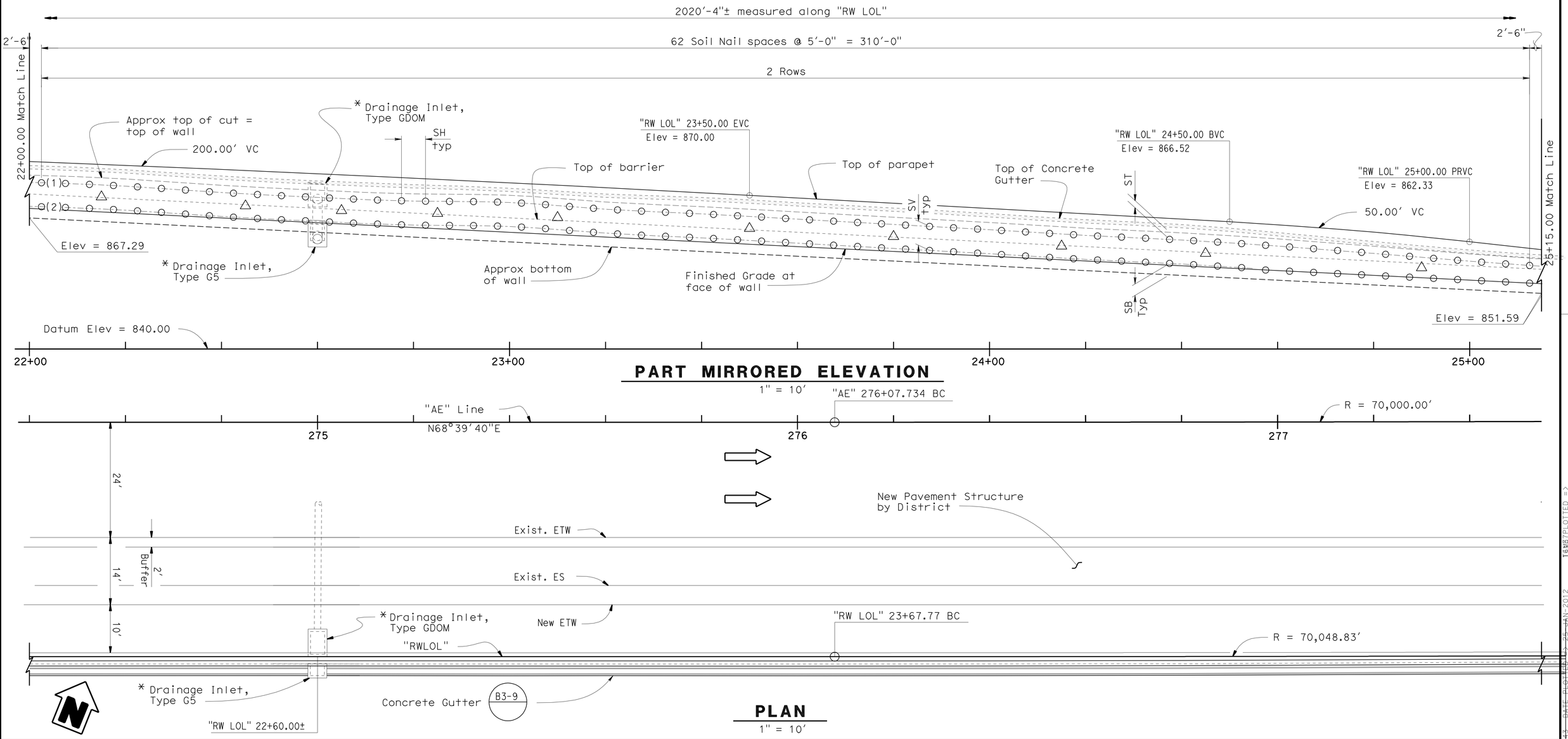
- o Indicates location of production nail assembly.
- △ Indicates location of proof test nail.
- * - For Drainage Details see 'ROAD PLANS'
1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST = 1'-6"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1'-6"
SB (max) = 3'-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2'-0"
SV (max) = 5'-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0"
SH (max) = 5'-0"



PART MIRRORED ELEVATION

1" = 10'

PLAN

1" = 10'

DESIGN	BY Tuong Ha	CHECKED Linan Wang	
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha	
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO.3
STRUCTURE PLAN NO. 5

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-29-10 | 11-8-10 | 1-5-11 | 3-18-11

SHEET 8 OF 29

FILE => 04-4a0701-rw03-a-sp05.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 16:08 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	373	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
STATE OF CALIFORNIA

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Length of Nails at each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20

Notes

o Indicates location of production nail assembly.

△ Indicates location of proof test nail.

* - For Drainage Details see 'ROAD PLANS'

1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST = 1'-6"

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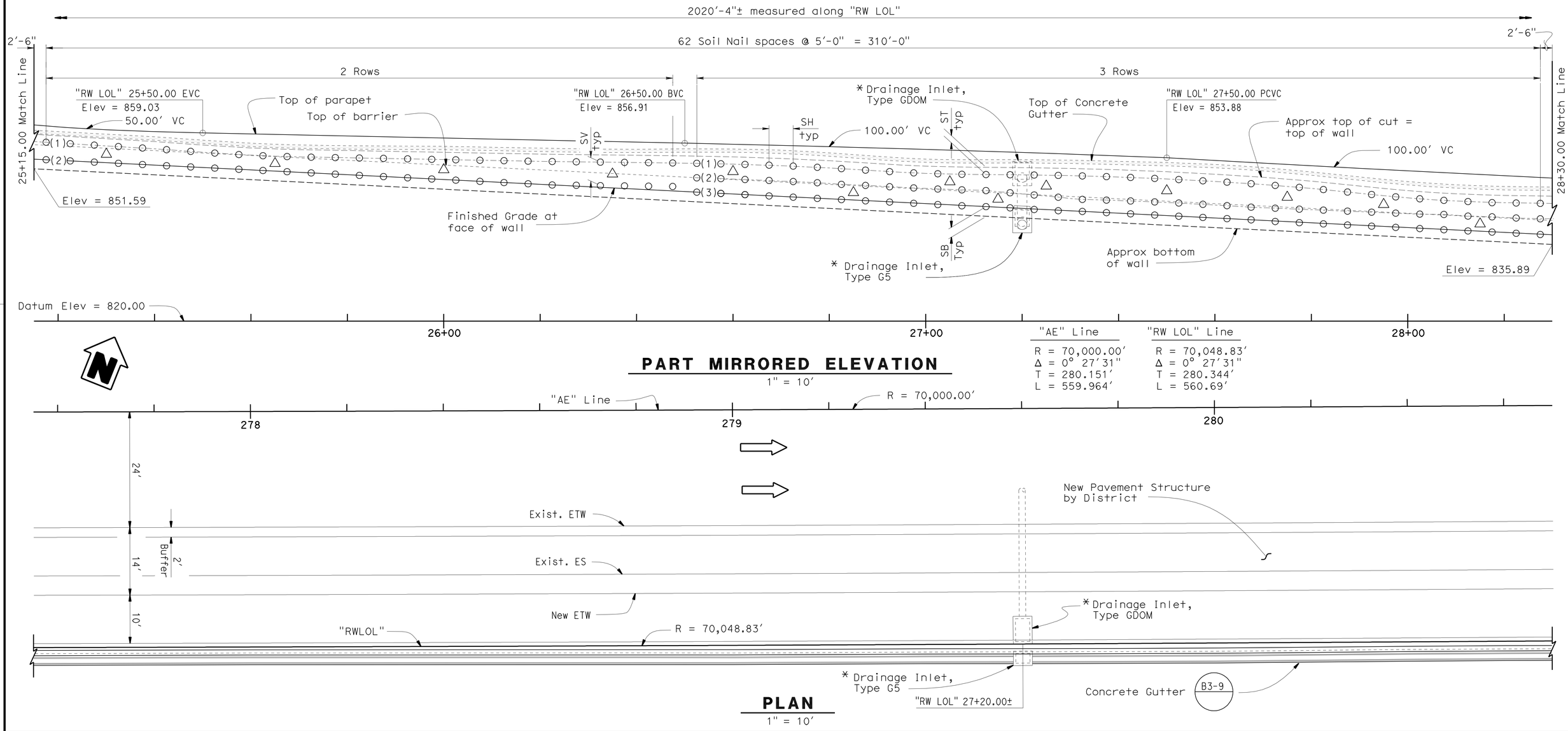
SB (max) = 3'-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2'-0"
SV (max) = 5'-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0"
SH (max) = 5'-0"



PART MIRRORED ELEVATION

1" = 10'

PLAN

1" = 10'

	BY	CHECKED
DESIGN	Tuong Ha	Linan Wang
DETAILS	Jeff Thorne	Tuong Ha
QUANTITIES	Tuong Ha	Linan Wang

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO.3
STRUCTURE PLAN NO. 6

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-30-10 | 10-18-10 | 10-21-10 | 11-8-10 | 11-9-10 | 1-5-11 | 3-18-11

SHEET 9 OF 29

FILE => 04-4a0701-rw03-a-sp06.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 16:18 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	374	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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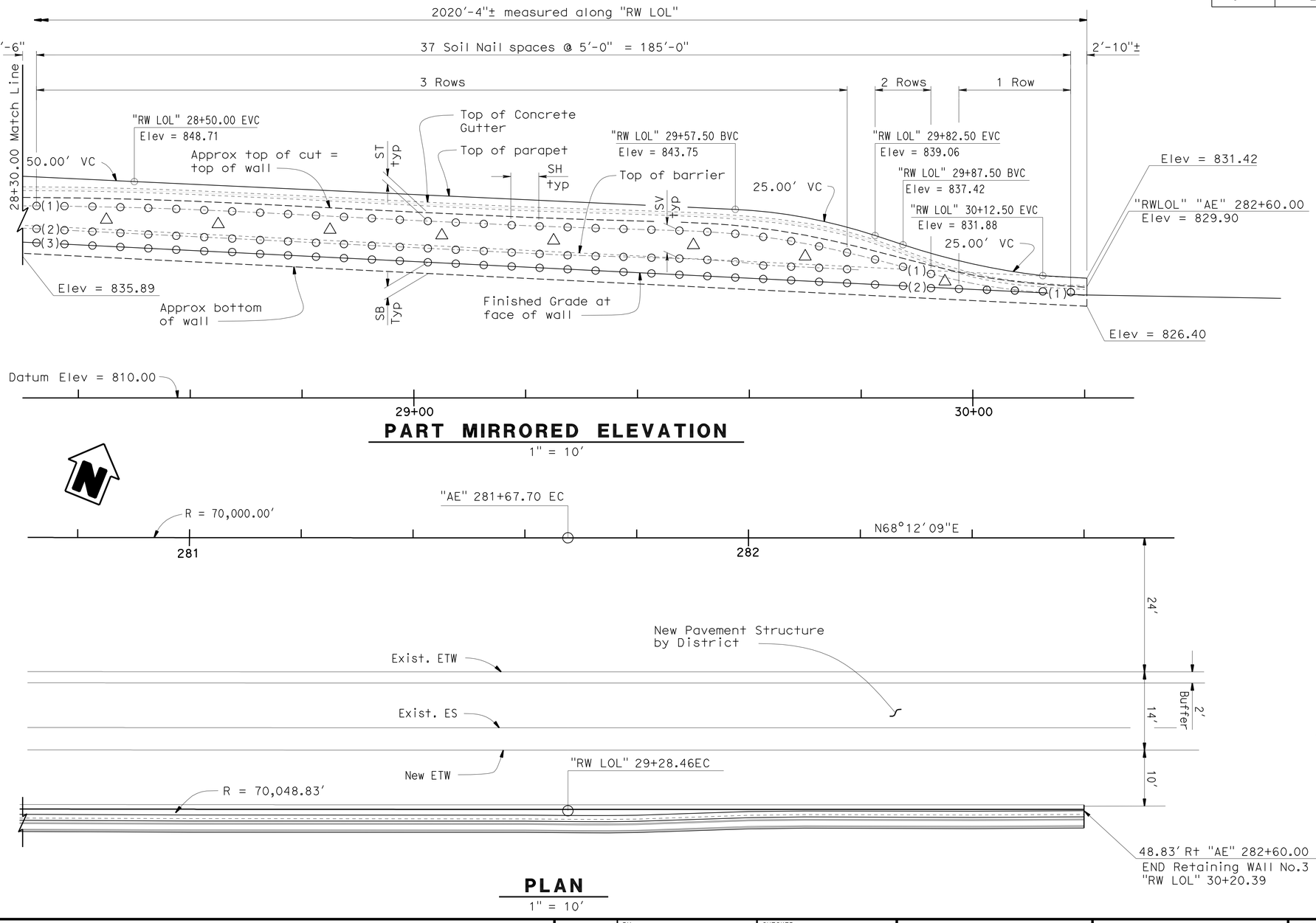
Length of Nails at each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20



PART MIRRORED ELEVATION
1" = 10'

PLAN
1" = 10'

Notes

- o Indicates location of production nail assembly.
- △ Indicates location of proof test nail.
1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST = 1'-6"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1'-6"
SB (max) = 3'-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2'-0"
SV (max) = 5'-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0"
SH (max) = 5'-0"

"AE" Line	"RW LOL" Line
R = 70,000.00'	R = 70,048.83'
Δ = 0° 27'31"	Δ = 0° 27'31"
T = 280.151'	T = 280.346'
L = 559.964'	L = 560.36'

DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Jeff Thorne	CHECKED Huong Ha	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	BRIDGE NO. 33E0215 POST MILE R5.54

RETAINING WALL NO.3
STRUCTURE PLAN NO. 7

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 11-8-10 | 1-5-11

SHEET 10 OF 29

FILE => 04-4a0701-rw03-a-sp07.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 16:48 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	375	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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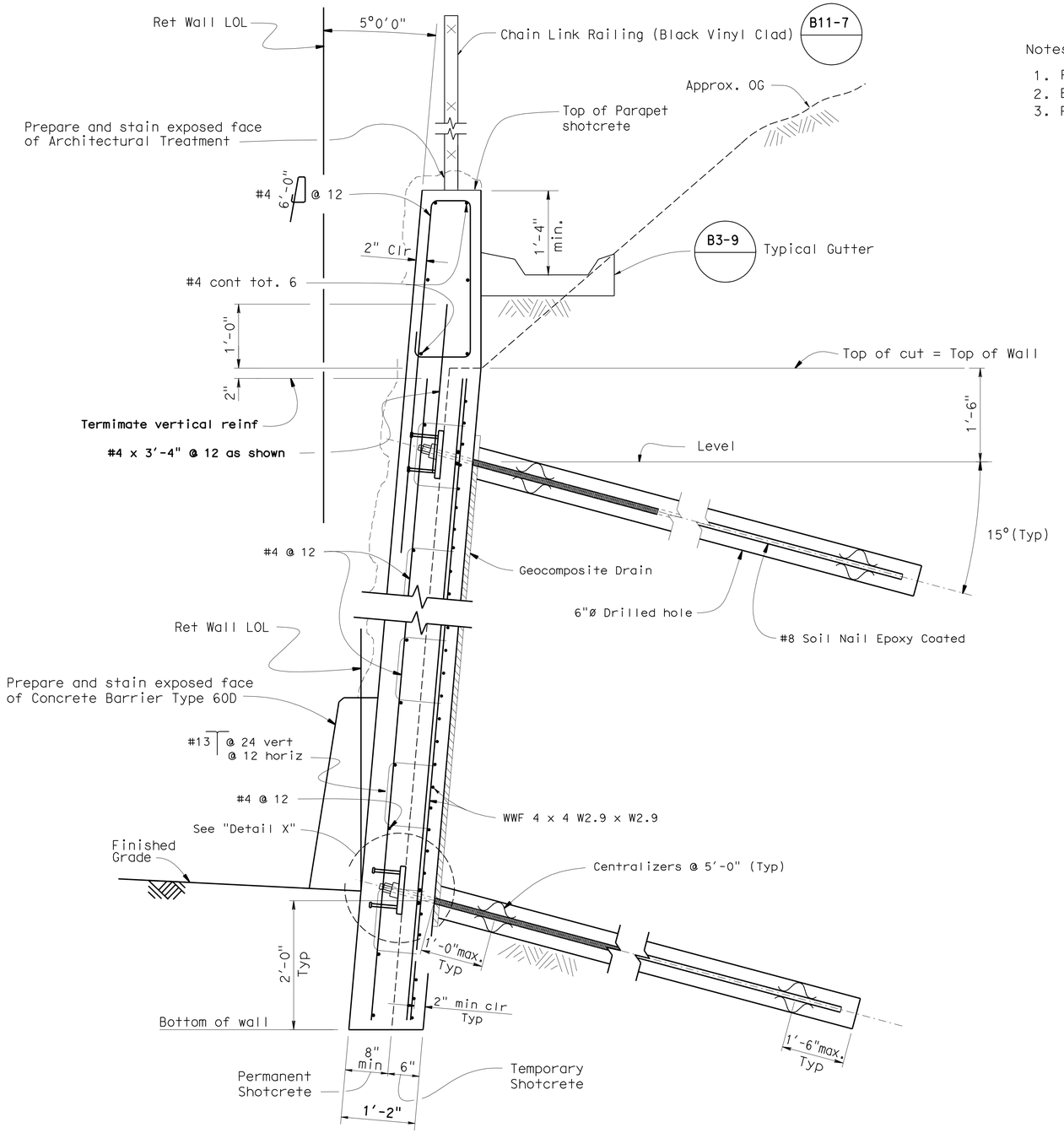
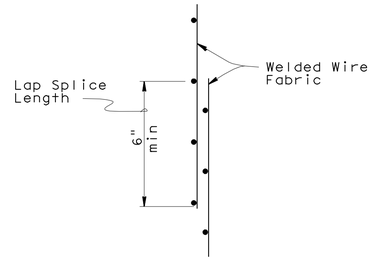
Notes:

1. For Soil Nail spacing, see "STRUCTURE PLAN" sheets.
2. Bottom of wall to be placed against undisturbed material
3. For Drainage Details, see "DRAINAGE DETAILS" sheet



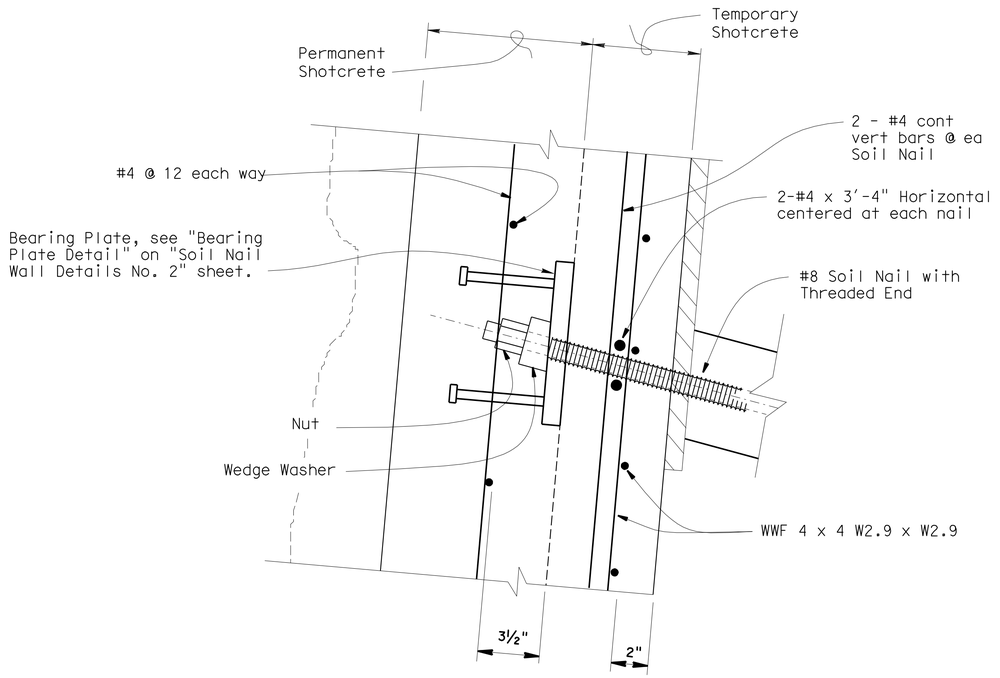
TYPICAL SECTION

1" = 1'-0"



LAP SPLICE DETAIL

NO SCALE



DETAIL X

3" = 1'-0"

DESIGN	BY Linan Wang	CHECKED Tuong Ha	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.54
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO. 3
TYPICAL SECTION

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-22-10 | 8-16-10 | 9-22-10 | 10-19-10 | 12-27-10 | 1-5-11

SHEET 11 OF 29

FILE => 04-4a0701-rw03-f-typ.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:37

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	376	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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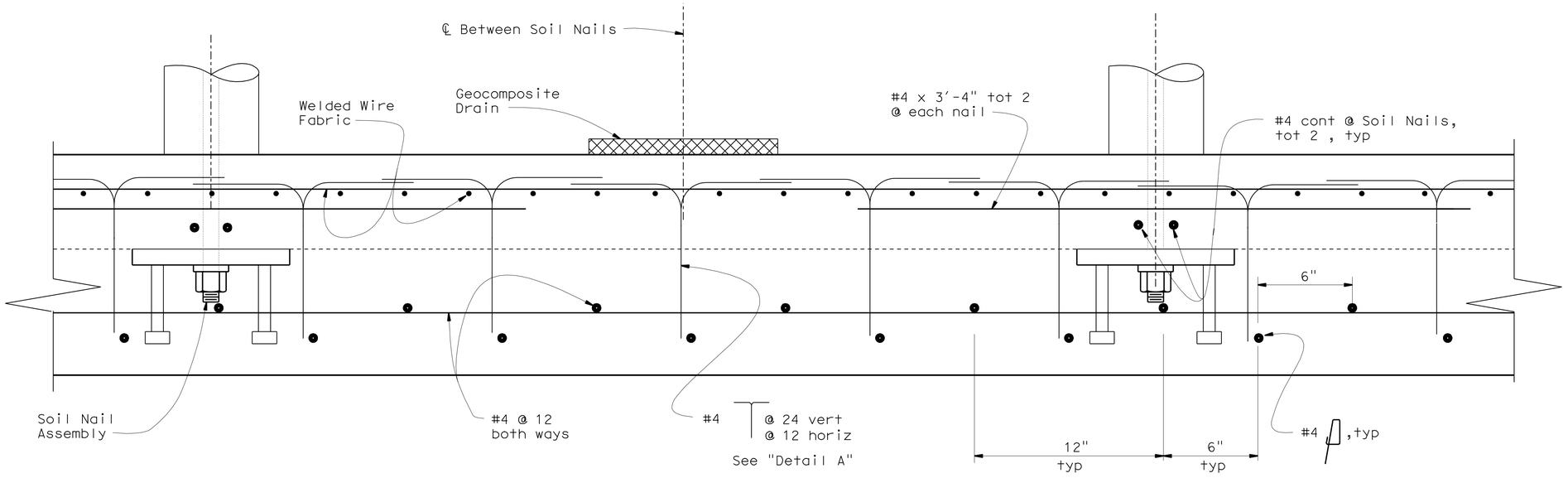
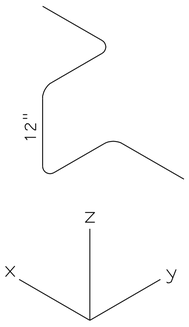


PART PLAN

1" = 1'-0"

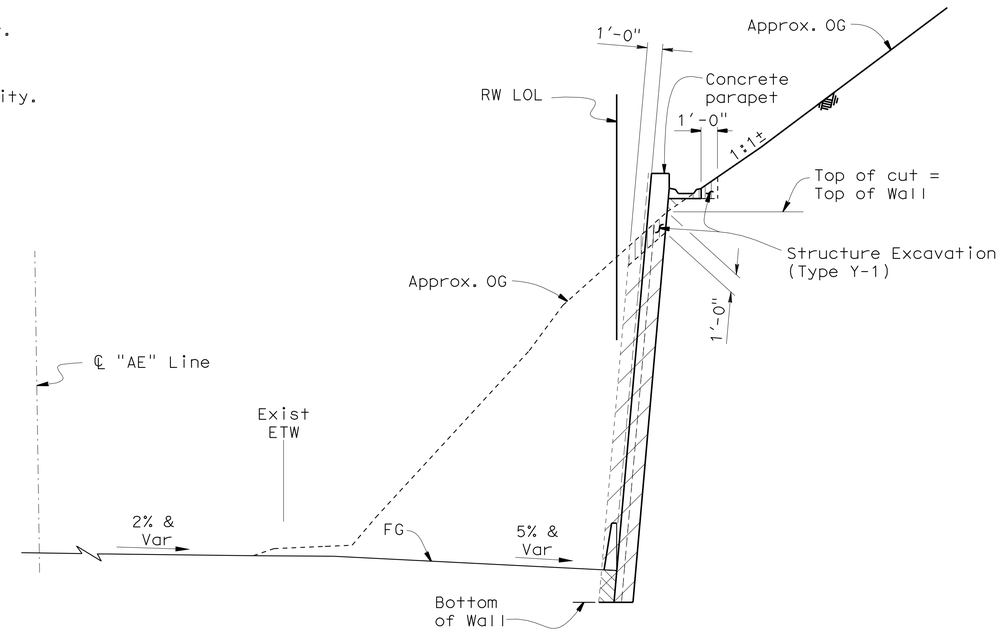


DETAIL A

NO SCALE

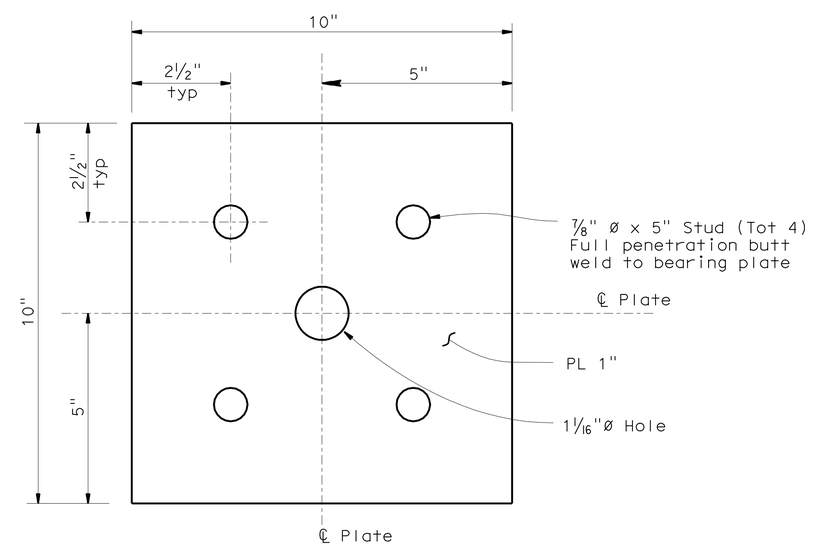
Notes:

1. For Horizontal and Vertical Soil Nail spacing, see "STRUCTURE PLAN" sheetS.
2. For details and dimensions not shown, see "Typical Section" on "TYPICAL SECTION" sheet.
3. All nails have a minimum diameter of 1"
4. Architectural treatment not shown for clarity.



LIMITS EXCAVATION AND BACKFILL

1" = 5'



BEARING PLATE DETAIL

6" = 1'-0"

LEGEND

- Indicates Structure Excavation (Retaining Wall)
- Indicates Structure Backfill (Retaining Wall)
- Indicates Structure Excavation (TYPE Y-1) Aerially Deposited Lead (ADL)

	BY	CHECKED
DESIGN	Linan Wang	Tuong Ha
DETAILS	Jeff Thorne\ Wei Zhang	Linan Wang
QUANTITIES	Tuong Ha	Linan Wang

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO. 3
SOIL NAIL DETAILS NO. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-22-10 | 9-22-10 | 10-28-10 | 1-5-11 | 3-11-11

SHEET 12 OF 29

FILE => 04-4a0701-rw03-g-sndts01.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:37

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	377	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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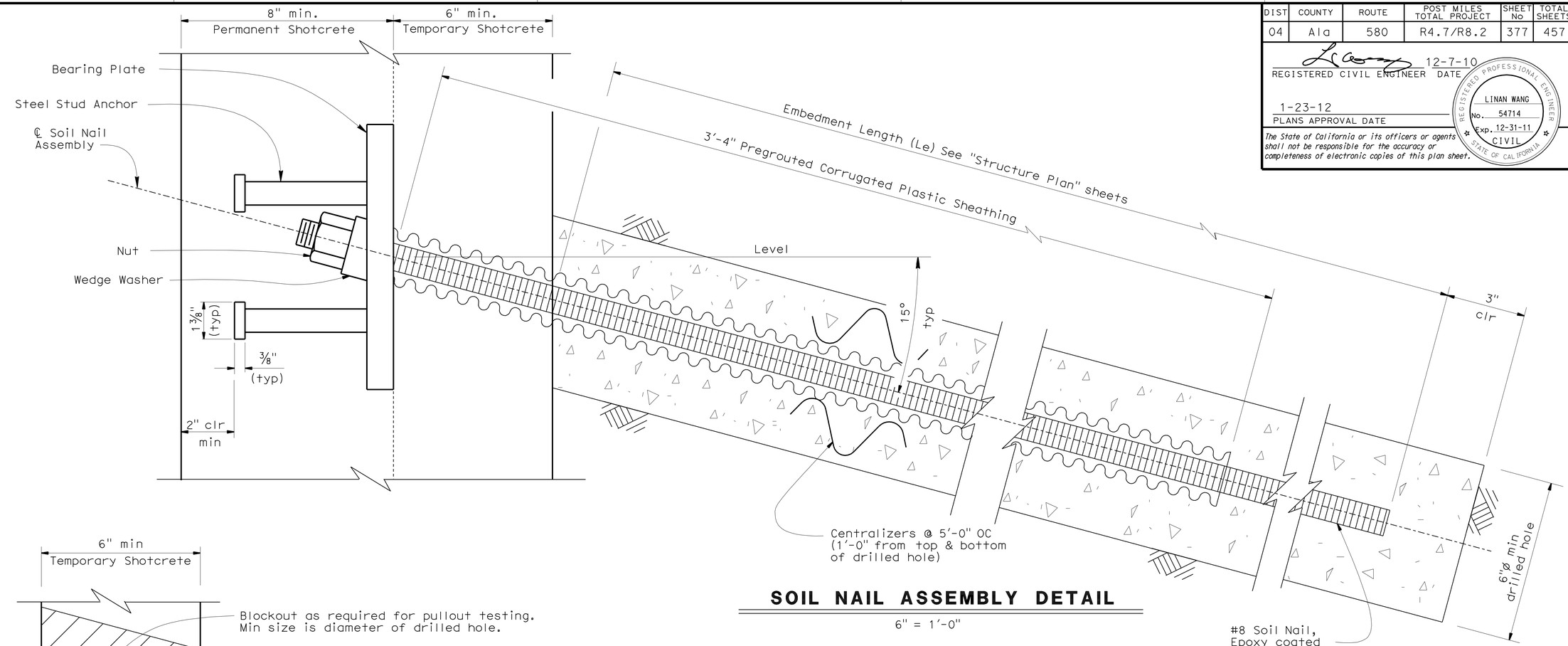
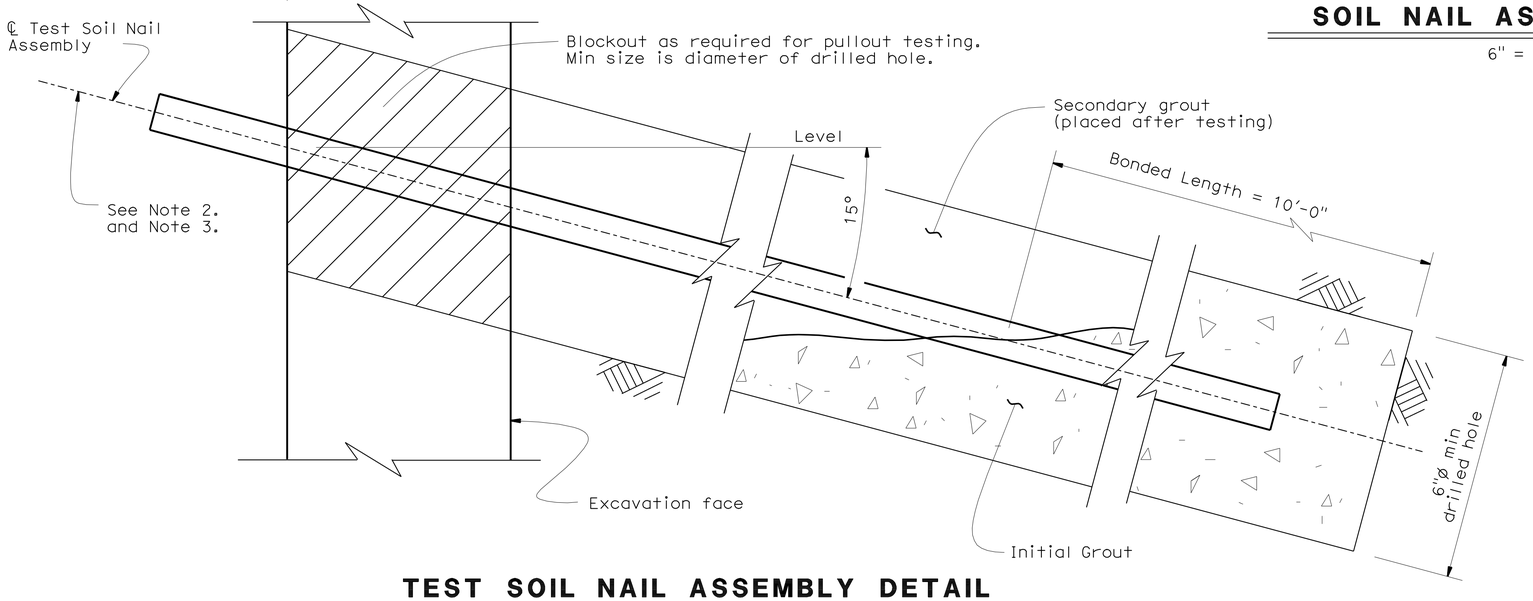


SOIL NAIL ASSEMBLY DETAIL

6" = 1'-0"



TEST SOIL NAIL ASSEMBLY DETAIL

6" = 1'-0"

Notes:

1. Embedment length of test nails equals two thirds of the embedment length of adjacent soil nail assemblies, but not less than 13'-0"
2. Total length of test soil nail equals embedment length plus the length required for jacking equipment
3. For embedment length of production nails see 'Table' on "Structure Plan" sheets
4. Reinforcement not shown
5. Architectural treatment not shown

DESIGN	BY Linan Wang	CHECKED Tuong Ha	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.54
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO.3

SOIL NAIL DETAILS NO. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-22-10 | 10-28-10 | 1-5-11 | 3-16-11

SHEET 13 OF 29

FILE => 04-4a0701-rw03-g-sndts02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:38

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	378	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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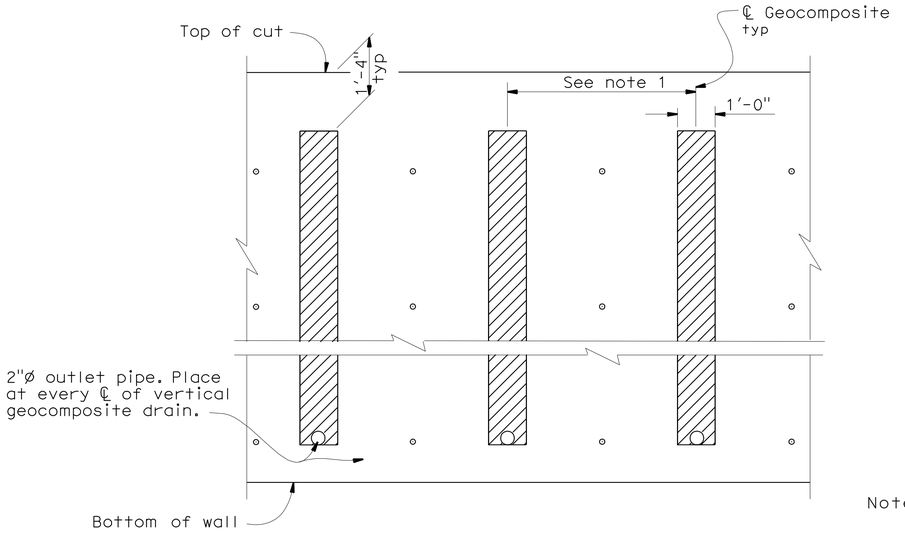
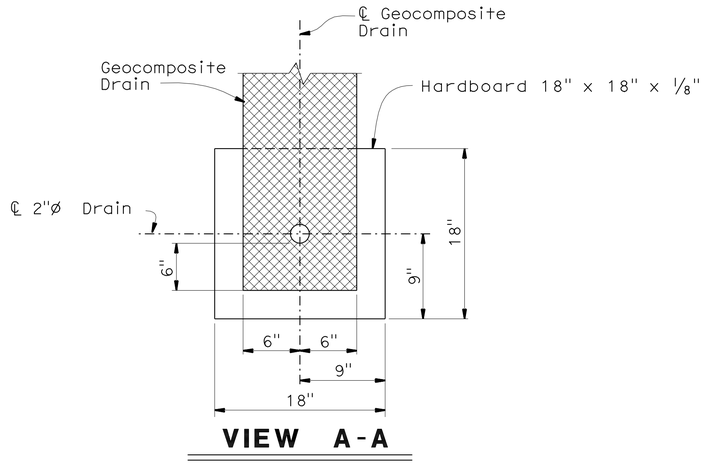


WALL PART ELEVATION

No Scale

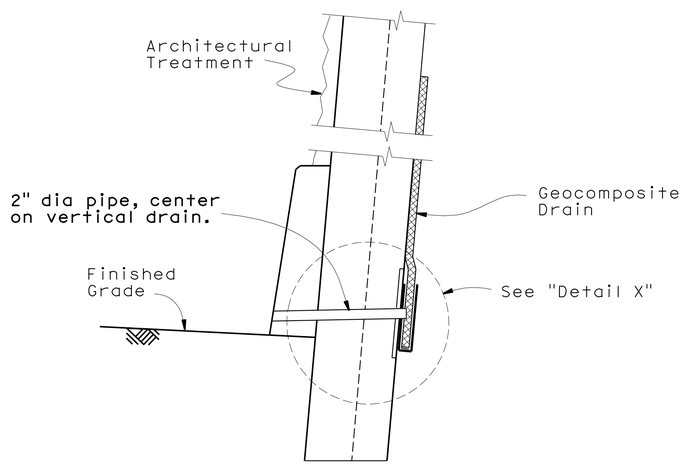


VIEW A-A

No Scale

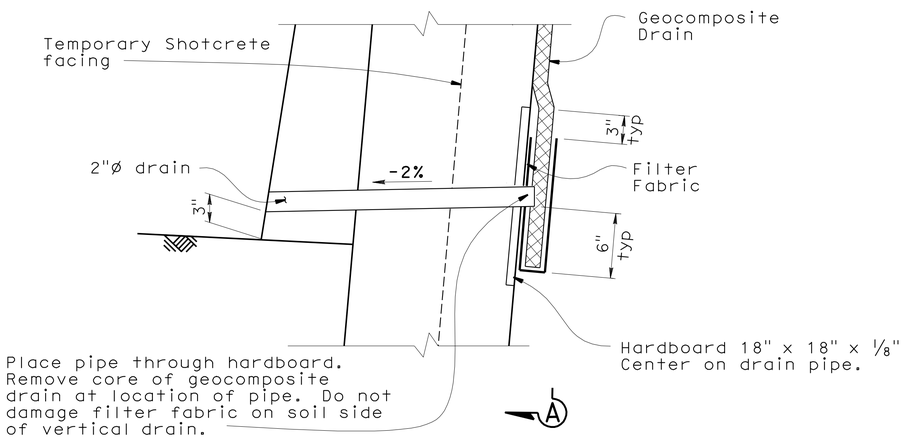
Notes:

1. Center geocomposite vertical drain between soil nails.
2. ∘ Indicates soil nail locations.
3. Geocomposite drain may be omitted when conflicting with test soil nail.
4. Geocomposite drain not required for wall height less than 6 feet.



PART TYPICAL SECTION

No Scale



DETAIL X

No Scale

DESIGN	BY Linan Wang	CHECKED Tuong Ha	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.54	DRAINAGE DETAILS
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-22-10 | 10-28-10 | 1-5-11

SHEET 14 OF 29

FILE => 04-4a0701-rw03-h-drndts.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:38

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	379	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

PLANS APPROVAL DATE 1-23-12

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — 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.

NOTES:

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3. This sheet accurate for Architectual Treatment only.
4. Architectual Surface Treatment shall be continous throughout the face of the wall.
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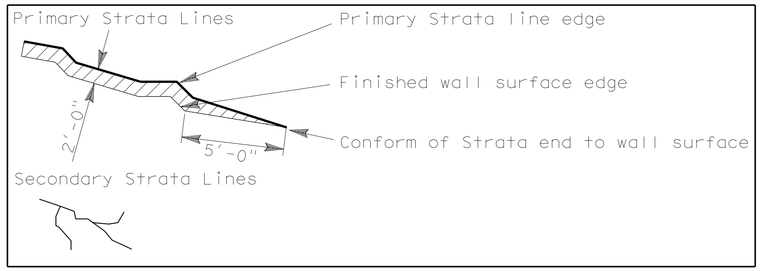
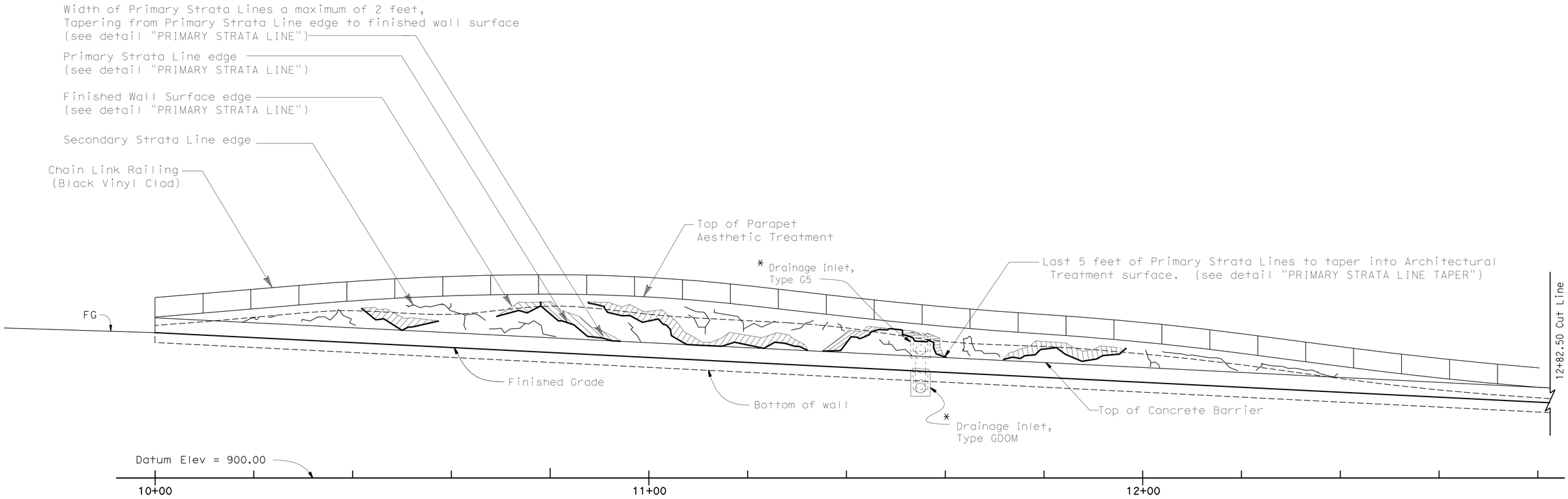
6. Additiona shotcrete needed for carving the Primary Strata lines to be reinforced as shown on Structural Detail Plans.
7. Primary Strata lines to be tapered into the top and bottom of wall.
8. Secondary Strata lines are not to exceed 2" amplitude.

LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3	
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54	ARCHITECTURAL TREATMENT LAYOUT 1	
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 10-21-10 | 11-18-10 | 12-27-10 | 1-5-11

SHEET 15 OF 29

FILE => 04-4a0701-rw03-h-eatlo01.dgn

USERNAME => s128843 DATE PLOTTED => TIME PLOTTED =>

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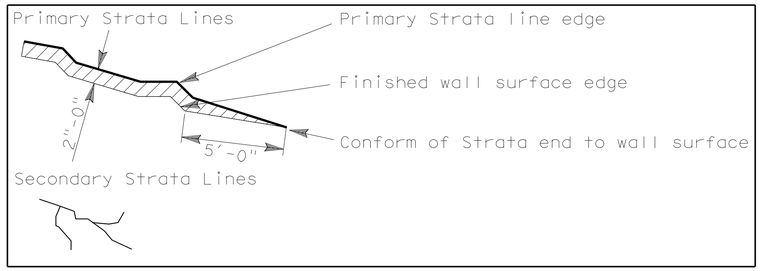
7. Primary Strata lines to be tapered into the top and bottom of wall.
8. Secondary Strata lines are not to exceed 2'-0" mamplitude.

LEGEND



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	380	457

REGISTERED CIVIL ENGINEER — DATE X

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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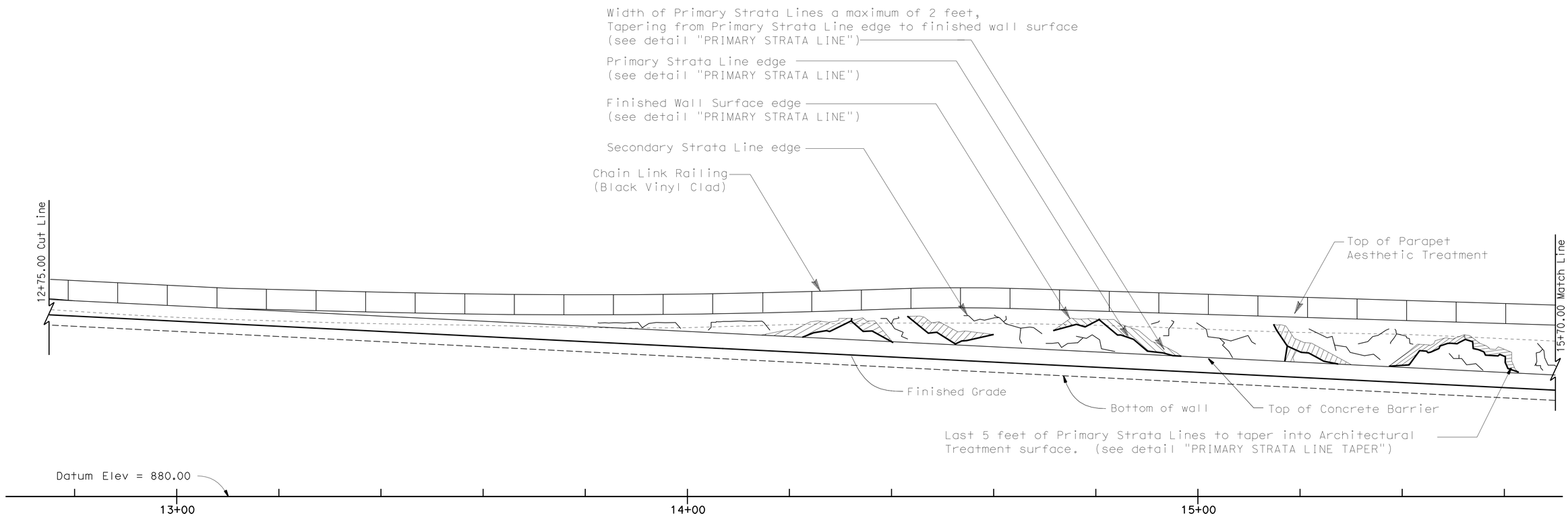

AESTHETIC WALL SURFACE TREATMENT

1' = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54	ARCHITECTURAL TREATMENT LAYOUT 2
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-18-10 | 10-18-10 | 10-21-10 | 11-18-10 | 12-27-10 | 1-5-11

SHEET 16 OF 29

FILE => 04-4a0701-rw03-h-eat1o02.dgn

TIME PLOTTED =>
DATE PLOTTED =>
USERNAME => s128643

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	381	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
STATE OF CALIFORNIA

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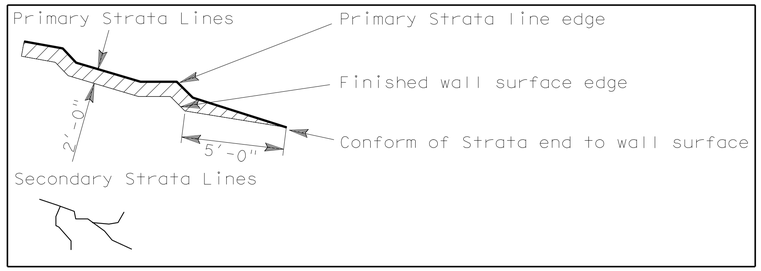
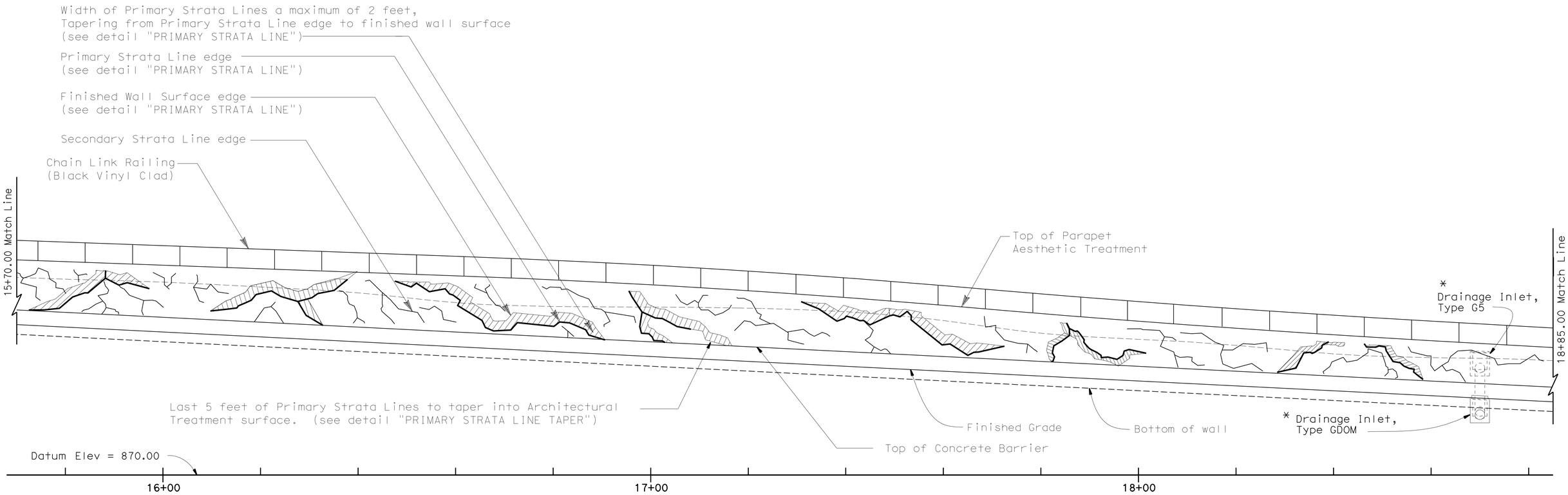
7. Primary Strata lines to be tapered into the top and bottom of wall.
8. Secondary Strata lines are not to exceed 2" amplitude.

LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO.3

ARCHITECTURAL TREATMENT LAYOUT 3

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-15-10 | 10-21-10 | 11-16-10 | 12-27-10 | 1-5-11

SHEET 17 OF 29

FILE => 04-4a0701-rw03-h-eatlo03.dgn

USERNAME => s128843 DATE PLOTTED => TIME PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	382	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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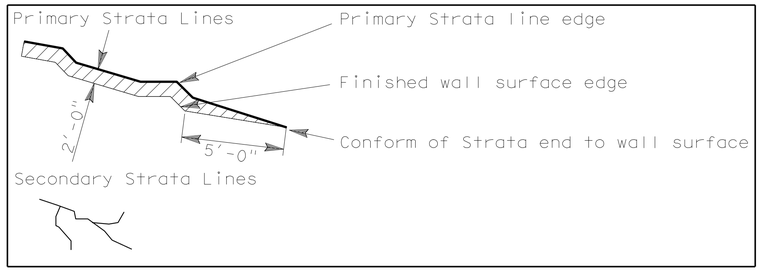
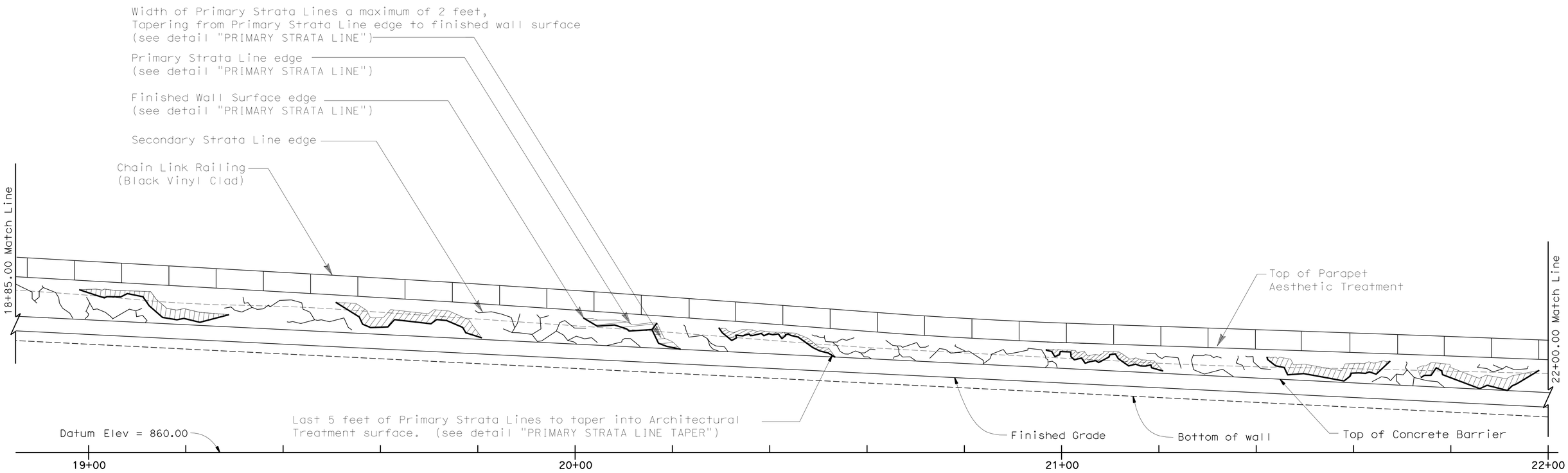
8. Secondary Strata lines are not to exceed 2" amplitude.

LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha	
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO.3
ARCHITECTURAL TREATMENT LAYOUT 4

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 10-21-10 | 11-18-10 | 12-27-10 | 1-5-11

SHEET 18 OF 29

FILE => 04-4a0701-rw03-h-eat1o04.dgn

USERNAME => s128843 DATE PLOTTED => TIME PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	383	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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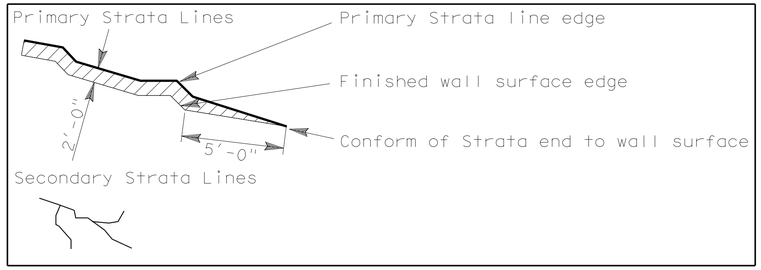
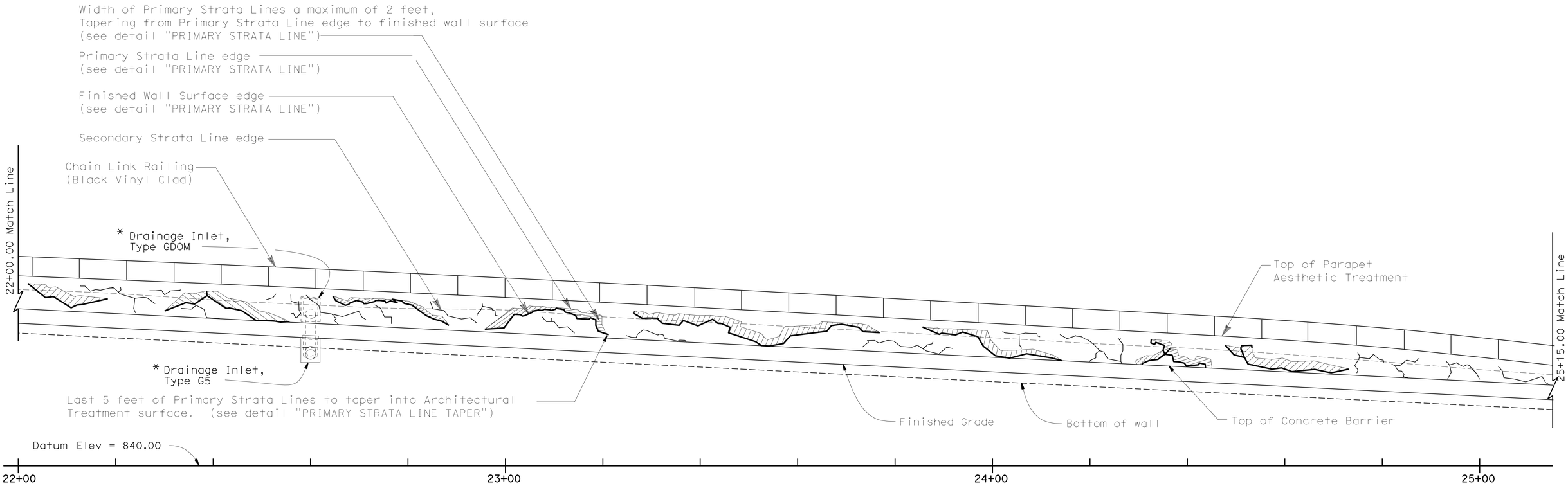
LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3	
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54	ARCHITECTURAL TREATMENT LAYOUT 5	
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 10-21-10 | 11-18-10 | 12-27-10 | 1-5-11

SHEET 19 OF 29

FILE => 04-4a0701-rw03-h-eatlo05.dgn

USERNAME => s128643 DATE PLOTTED => TIME PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	384	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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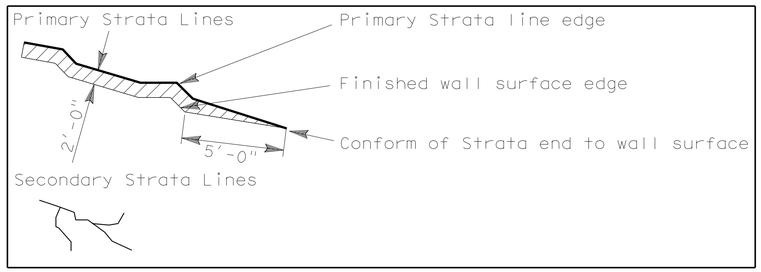
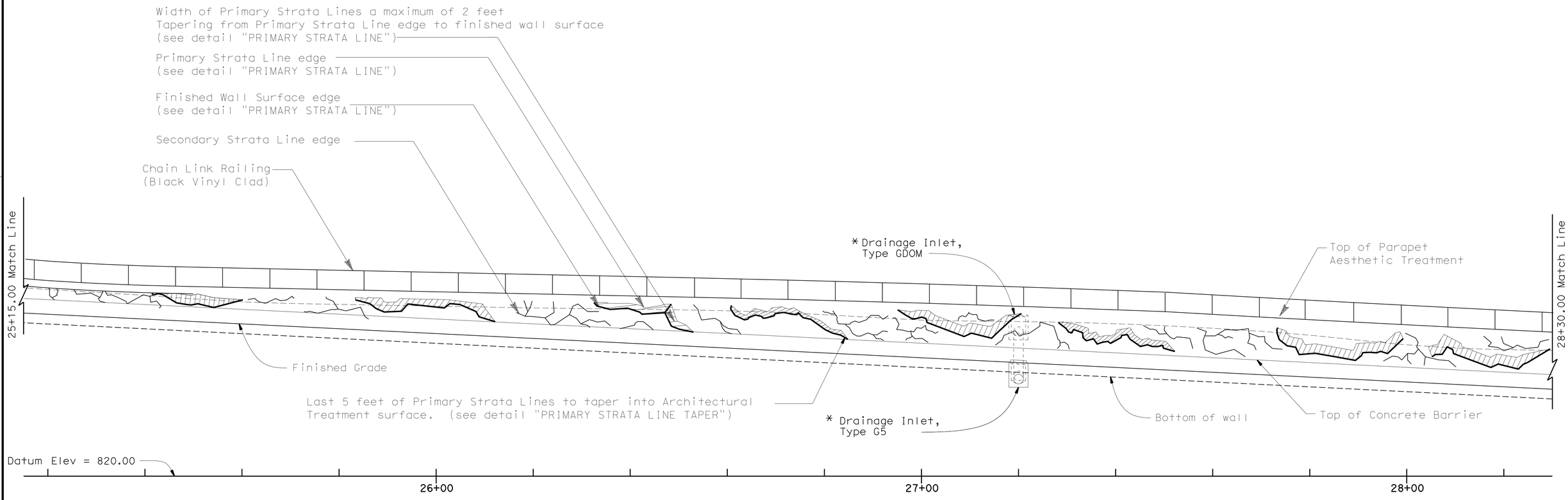
LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215	RETAINING WALL NO.3
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54	ARCHITECTURAL TREATMENT LAYOUT 6
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang		CU 04 EA 4A07U1		

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 10-21-10 | 11-18-10 | 12-21-10 | 1-5-11

SHEET 20 OF 29

FILE => 04-4a0701-rw03-h-eatlo06.dgn

USERNAME => s128843 DATE PLOTTED => TIME PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	385	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG — No. 54714 — Exp. 12-31-11 — CIVIL — STATE OF CALIFORNIA

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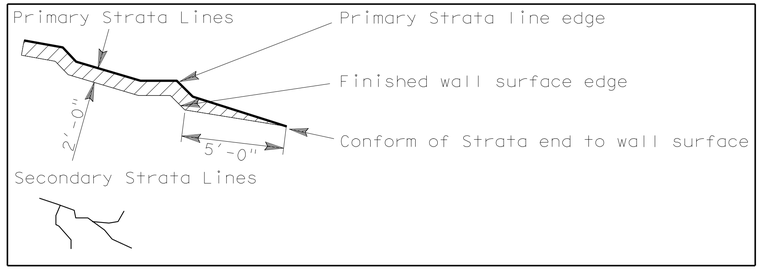
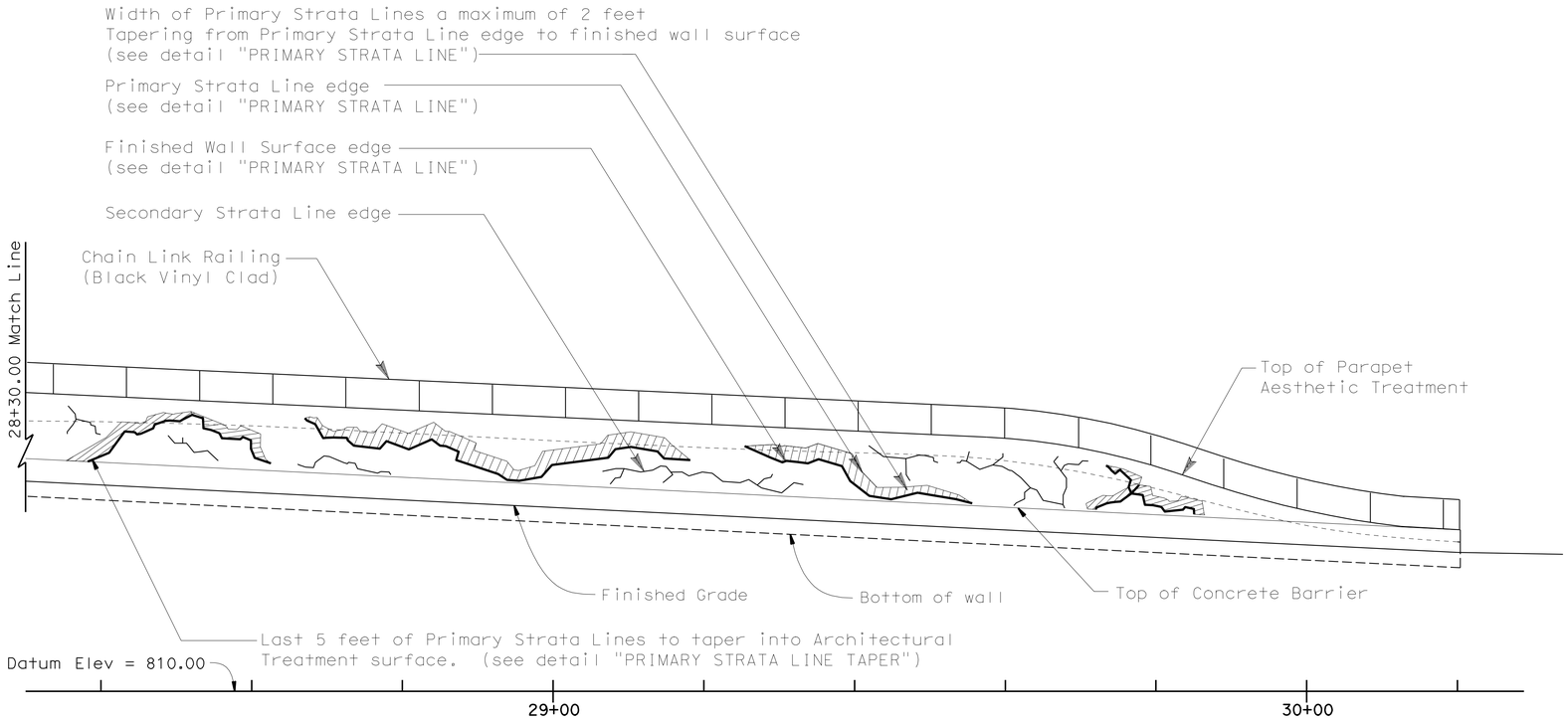
8. Secondary Strata lines are not to exceed 2" amplitude.

LEGEND





AESTHETIC WALL SURFACE TREATMENT

1" = 10'

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215
DETAILS	BY Jeff Thorne	CHECKED Tuong Ha			POST MILE R5.54
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO.3

ARCHITECTURAL TREATMENT LAYOUT 7

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-30-10 | 8-19-10 | 10-18-10 | 10-21-10 | 11-18-10 | 12-27-10 | 1-5-11

SHEET 21 OF 29

FILE => 04-4a0701-rw03-h-eat1o07.dgn

USERNAME => s128843 DATE PLOTTED =>

TIME PLOTTED =>

NOTES:

1. MAX 6" THICK REINFORCED SHOTCRETE ZONE FOR TOP OF WALL ARCHITECTURAL TREATMENT.
2. LONGITUDINAL BARS SHALL TAPER TO A POINT AND BE FLUSH WITH THE FINISHED WALL SURFACE AT THE END OF PRIMARY STRATA LINE WHERE THEY TRANSITIONS INTO THE WALL FACE.
3. ANGLE OF PRIMARY STRATA LINE ACROSS WALL APRON 15 DEGREES FOR CROSS SLOPES 0-10%, 45 DEGREES FOR CROSS SLOPES GREATER THAN10%
4. MAXIMUM 2" THICK UNREINFORCED SHOTCRETE ARCHITECTURAL TREATMENT ZONE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	386	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
STATE OF CALIFORNIA

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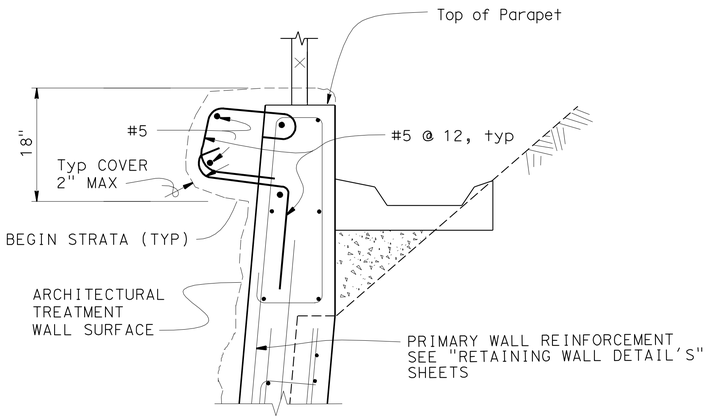
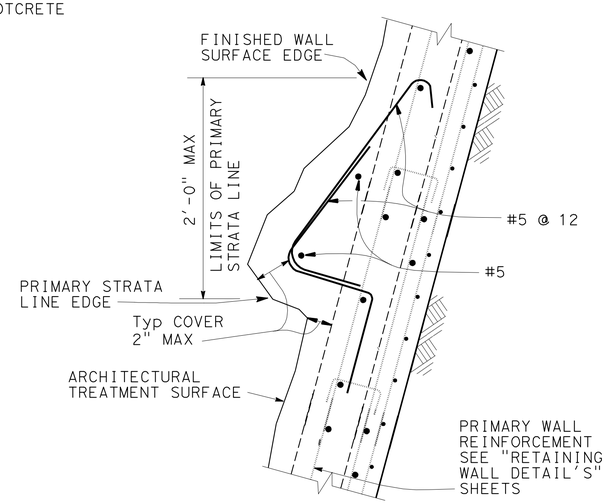
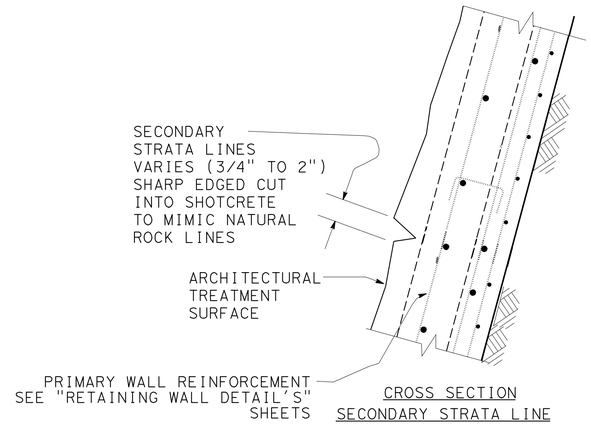


CROSS SECTION
PRIMARY STRATA LINE AT TOP OF WALL



CROSS SECTION
PRIMARY STRATA LINE

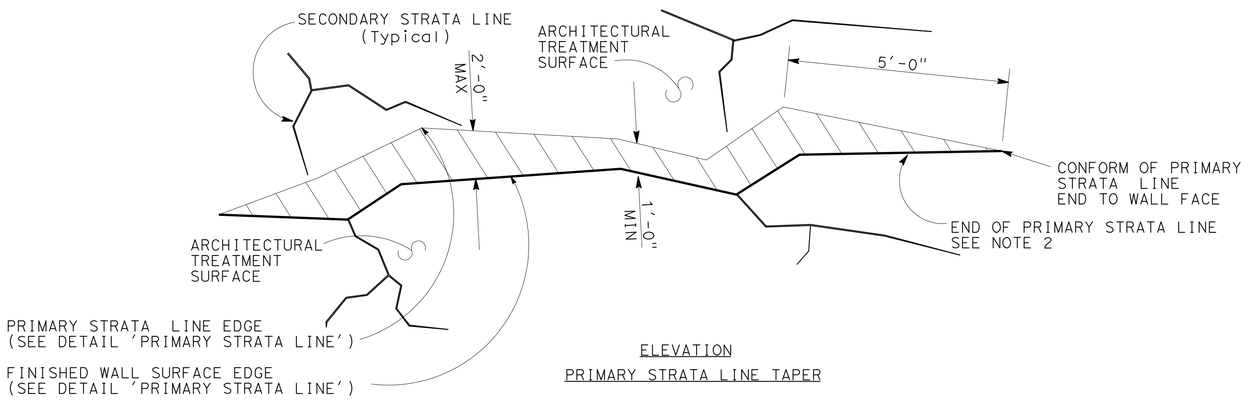


CROSS SECTION
SECONDARY STRATA LINE

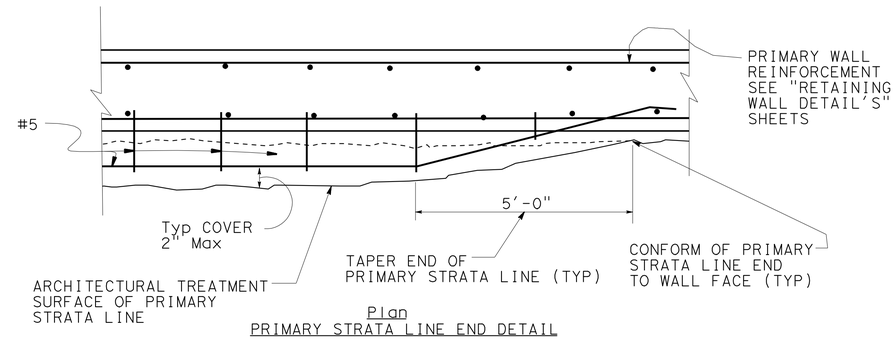
Notes:

(1) Chain Link Railing not shown.

(2) For reinforcing in wall and parapet, see"TYPICAL SECTION" in "TYPICAL SECTION" sheet.



ELEVATION
PRIMARY STRATA LINE TAPER



Plan
PRIMARY STRATA LINE END DETAIL

DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0215
DETAILS	BY Jeff Thorne/ Wei Zhang	CHECKED Tuong Ha			POST MILE R5.54
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO.3
ARCHITECTURAL TREATMENT DETAILS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 9-15-10 | 9-22-10 | 11-8-10 | 11-18-10 | 12-27-10 | 3-11-11

SHEET 22 OF 29

FILE => 04-4a0701-rw03-h-exbf01-1.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:39

BENCH MARK

CT 253 (NAVD88)

Fnd a Mag nail and shiner in the AC shoulder along eastbound SR 580.
It is about 52′ east of PM marker 5.5
N 2087123.730
E 6228028.883
Elev = 926.262′

CT 253 (NAVD88)

Fnd a Mag nail and shiner in the AC shoulder along SR 580 EB. It is about 1350′ east of PM marker 5.5
N 2087576.010
E 6229177.840
Elev = 864.436′

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	387	457

Ed Ortega 12-29-10
REGISTERED CIVIL ENGINEER

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eduardo Ortega — No. C41012 — Exp. 3-31-11 — CIVIL — STATE OF CALIFORNIA

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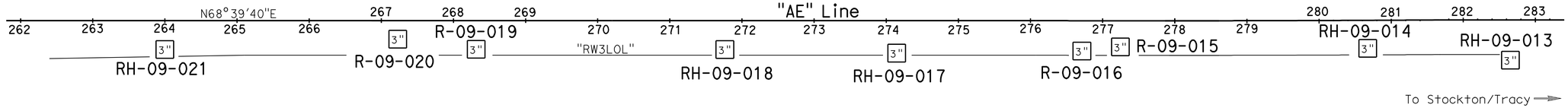
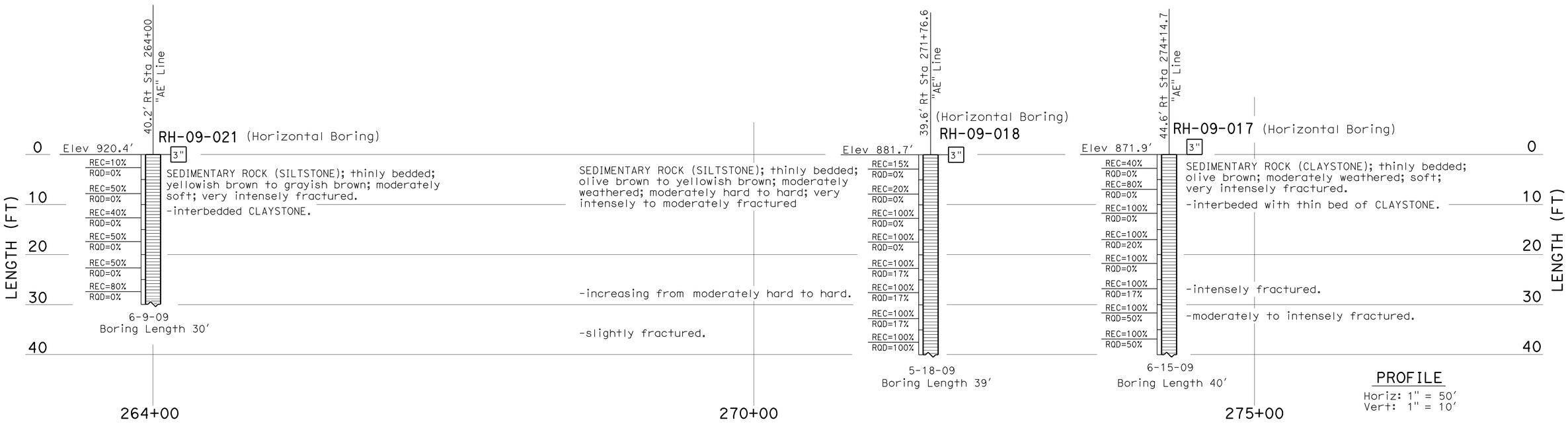
This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (June 2007).



PLAN
1" = 80′

NOTE: All horizontal borings are inclined 5° ± 3° down from horizontal.



PROFILE
Horiz: 1" = 50′
Vert: 1" = 10′

ENGINEERING SERVICES		GEOTECHNICAL SERVICES					
FUNCTIONAL SUPERVISOR	DRAWN BY: F. Nguyen 8/10, I.G-Remmen 12/10	FIELD INVESTIGATION BY:	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0215	RETAINING WALL NO. 3	
NAME: M. Momenzadeh	CHECKED BY: R. Nashed	R. Karpowicz		DESIGN BRANCH	POST MILES R5.54	LOG OF TEST BORINGS 1 OF 7	
OGS CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3		CU 04 EA 4A07U1	DISREGARD PRINTS BEARING EARLIER REVISION DATES →	REVISION DATES 11-08-10 12-28-10	SHEET 23	OF 29

FILE => 04-4a0701-rw03-k-lotb 1of7.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:39

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	388	457

REGISTERED CIVIL ENGINEER 12-29-10

1-23-12
PLANS APPROVAL DATE

Eduardo Ortega
No. C41012
Exp. 3-31-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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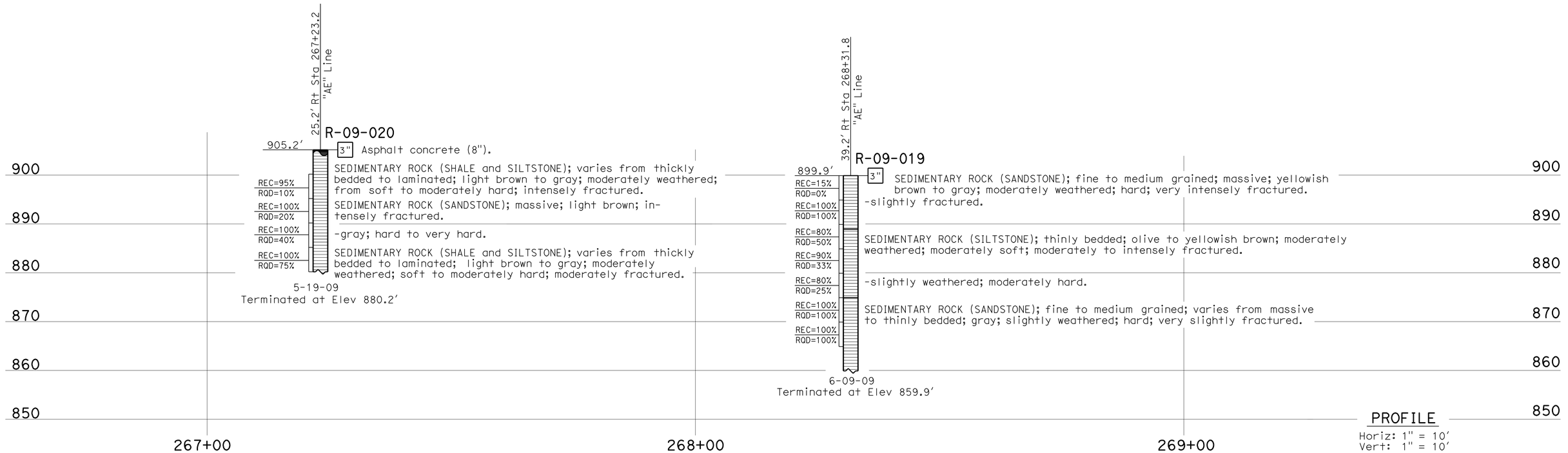
FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS 1 OF 7"



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

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0215	RETAINING WALL NO. 3
FUNCTIONAL SUPERVISOR	DRAWN BY: F. Nguyen 8/10	FIELD INVESTIGATION BY:			DESIGN BRANCH	POST MILES R5.54	LOG OF TEST BORINGS 2 OF 7
NAME: M. Momenzadeh	CHECKED BY: R. Nashed	R. Karpowicz					
OGS CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3			CU 04 EA 4A0701	DISREGARD PRINTS BEARING EARLIER REVISION DATES →	REVISION DATES 11-05-10 12-27-10	SHEET 24 OF 29

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:39
FILE => 04-4a0701-rw03-k-lotb 2of7.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	389	457

REGISTERED CIVIL ENGINEER — 12-29-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eduardo Ortega — No. C41012 — Exp. 3-31-11 — CIVIL — STATE OF CALIFORNIA

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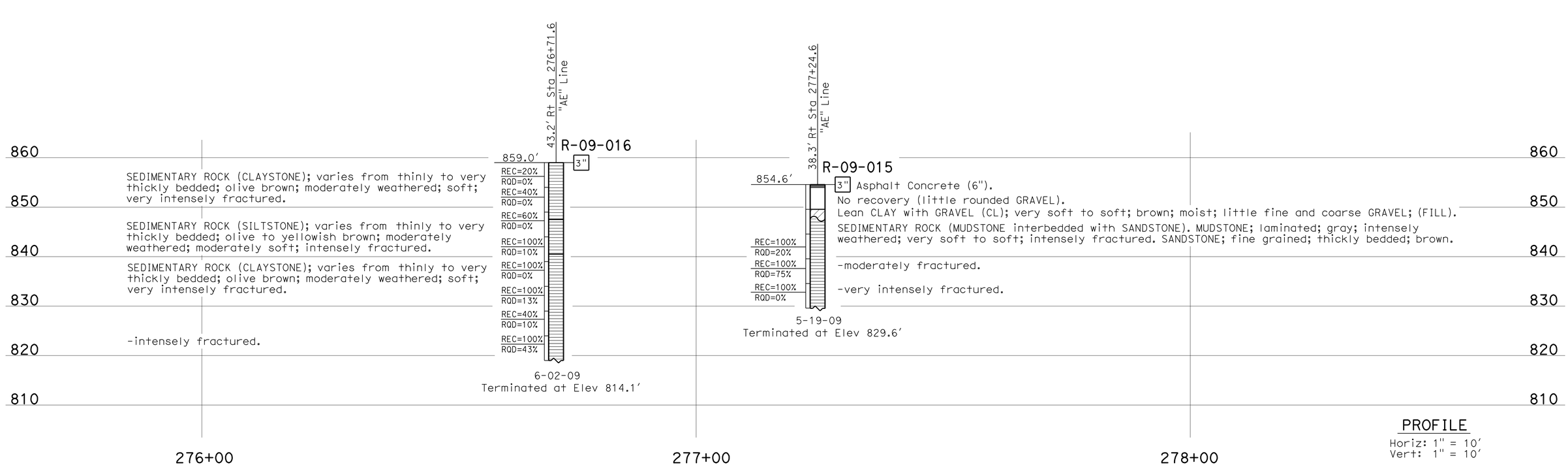
FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS 1 OF 7"



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

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0215	RETAINING WALL NO. 3
FUNCTIONAL SUPERVISOR	DRAWN BY: F. Nguyen 8/10, I.G-Remmen 12/10		DESIGN BRANCH	POST MILES R5.54	LOG OF TEST BORINGS 3 OF 7
NAME: M. Momenzadeh	CHECKED BY: R. Nashed	FIELD INVESTIGATION BY: C. Koepke, R. Karpowicz			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10 | 11-08-10 | 12-28-10

SHEET 25 OF 29

FILE => 04-4a0701-rw03-k-lotb 3of7.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:39

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	390	457

Eduardo Ortega 12-29-10
REGISTERED CIVIL ENGINEER

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eduardo Ortega — No. C41012 — Exp. 3-31-11 — CIVIL — STATE OF CALIFORNIA

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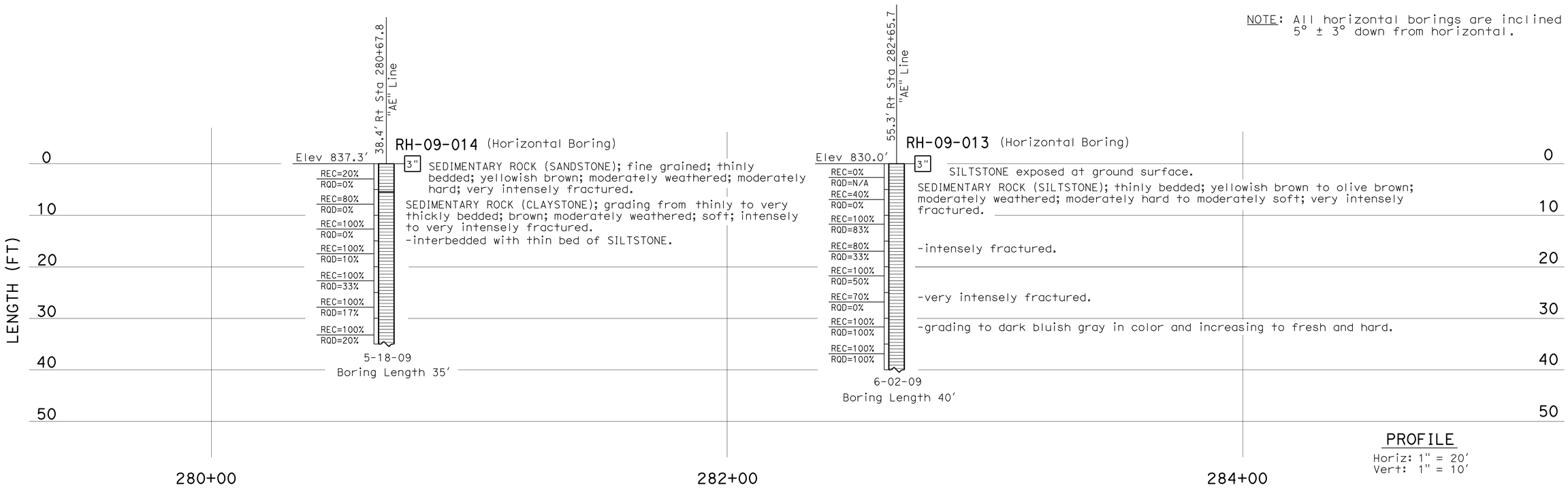
FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS 1 OF 7"



NOTE: All horizontal borings are inclined 5° ± 3° down from horizontal.

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

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0215	RETAINING WALL NO. 3
FUNCTIONAL SUPERVISOR	DRAWN BY: F. Nguyen 8/10		DESIGN BRANCH	POST MILES R5.54	LOG OF TEST BORINGS 4 OF 7
NAME: M. Momenzadeh	CHECKED BY: R. Nashed	FIELD INVESTIGATION BY: C. Koepke, R. Karpowicz			

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10 | 11-08-10 | 12-28-10

SHEET 26 OF 29

FILE => 04-4a0701-rw03-k-lotb 4of7.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:39

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	391	457

12-29-10
REGISTERED CIVIL ENGINEER

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Eduardo Ortega
No. C41012
Exp. 3-31-11
CIVIL
STATE OF CALIFORNIA

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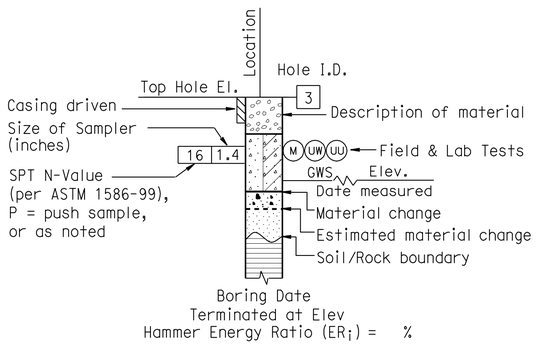
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

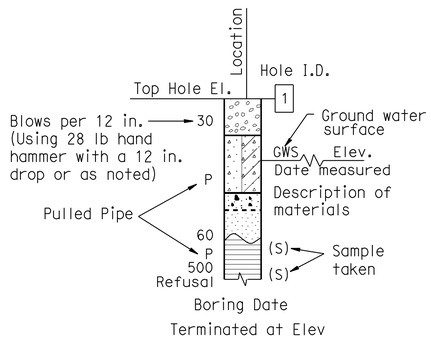
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)

Note: Size in inches.

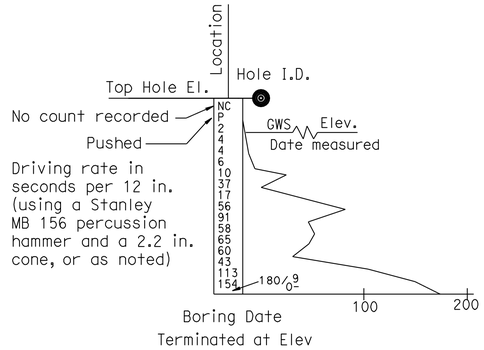
CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



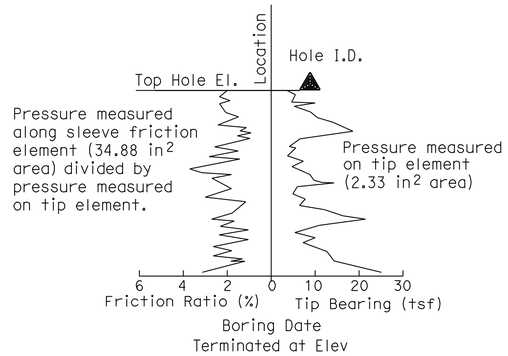
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0215	RETAINING WALL NO. 3
	PREPARED BY: F. Nguyen		DESIGN BRANCH	POST MILE R5.54	LOG OF TEST BORINGS 5 OF 7

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10 | 11-08-10 | 12-28-10

SHEET 27 OF 29

FILE => 04-4a0701-rw03-k-lotb 5of7.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:39

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	392	457

E.J. Ortega Jr. 12-29-10
REGISTERED CIVIL ENGINEER

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eduardo Ortega — No. C41012 — Exp. 3-31-11 — CIVIL — STATE OF CALIFORNIA

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APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

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

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO. 33E0215	RETAINING WALL NO. 3
	PREPARED BY: F. Nguyen		DESIGN BRANCH	POST MILE R5.54	LOG OF TEST BORINGS 6 OF 7

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04 EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10 | 11-08-10 | 12-28-10

SHEET 28 OF 29

FILE => 04-4a0701-rw03-k-lotb 6of7.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:40

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	393	457

REGISTERED CIVIL ENGINEER 12-29-10

1-23-12
PLANS APPROVAL DATE

Eduardo Ortega, No. C41012, Exp. 3-31-11, CIVIL, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA

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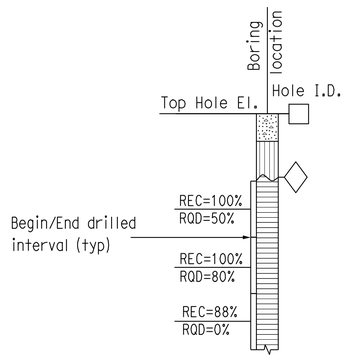
PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

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

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

RQD* Indicates soundness criteria not met.



BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft - 10 ft
Thickly Bedded	1 ft - 3 ft
Moderately Bedded	4 in. - 1 ft
Thinly Bedded	1 in. - 4 in.
Very Thinly Bedded	1/4 in. - 1 in.
Laminated	Less than 1/4 in.

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

WEATHERING DESCRIPTORS FOR INTACT ROCK

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

ENGINEERING SERVICES

GEOTECHNICAL SERVICES

PREPARED BY: F. Nguyen

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH

BRIDGE NO. 33E0215
POST MILE R5.54

RETAINING WALL NO. 3

LOG OF TEST BORINGS 7 OF 7

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A0701

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10-04-10, 11-05-10, 12-28-10

SHEET 29 OF 29

FILE => 04-4a0701-rw03-k-lotb 7of7.dgn

USERNAME => s128643 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:40

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	394	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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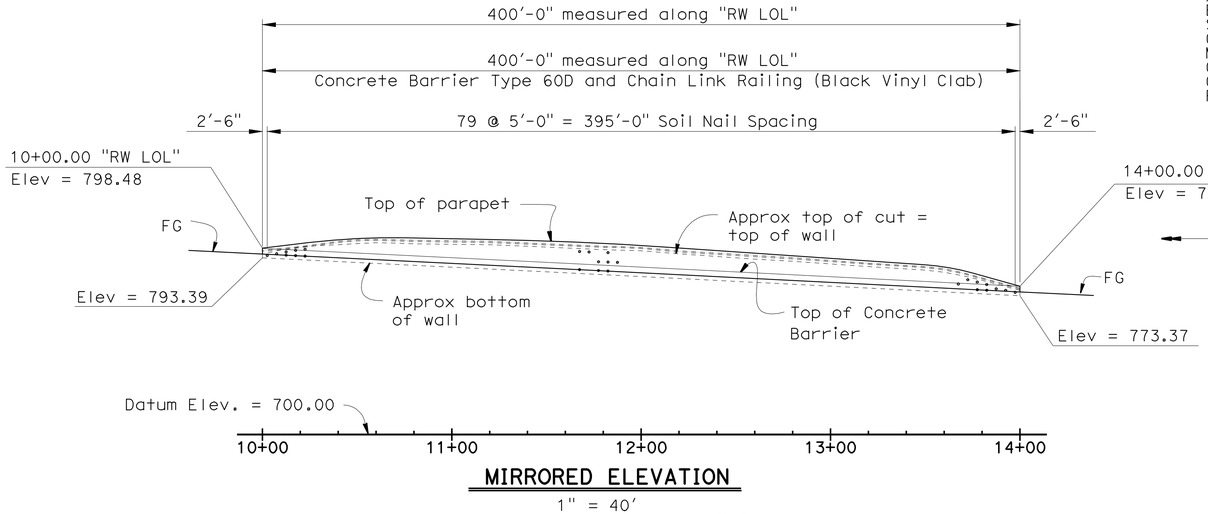
QUANTITIES

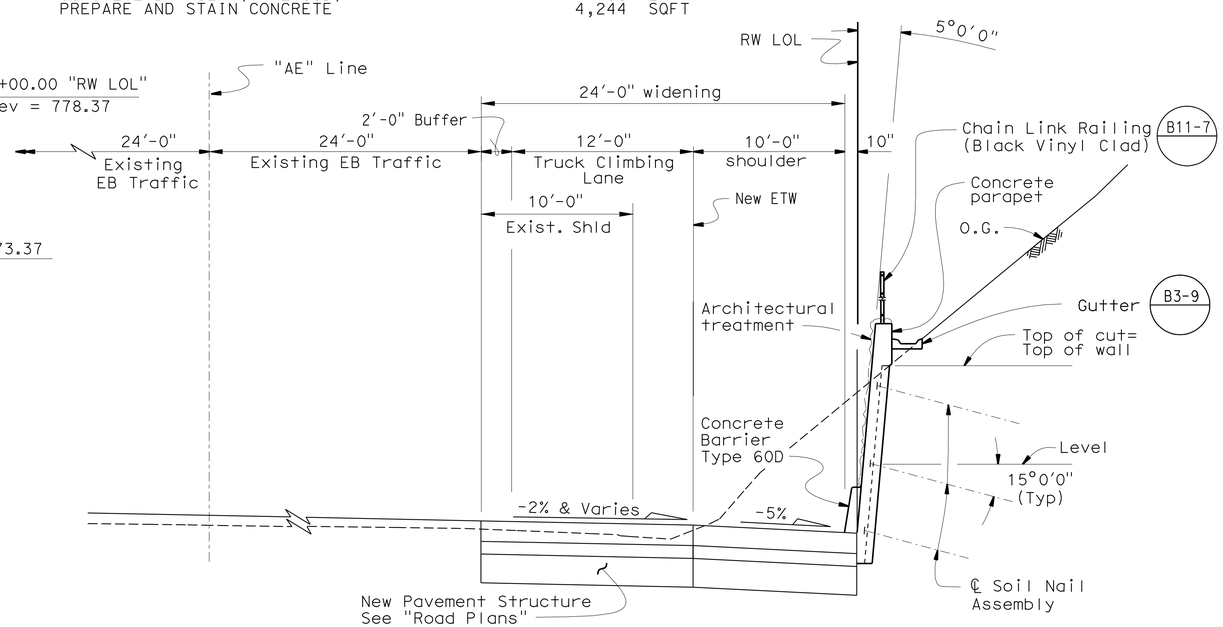
STRUCTURE EXCAVATION (SOIL NAIL WALL)	260	CY
STRUCTURE EXCAVATION (TYPE Y-1) (SOIL NAIL WALL)	50	CY
STRUCTURE BACKFILL (SOIL NAIL WALL)	60	CY
SOIL NAIL ASSEMBLY	4,884	LF
ARCHITECTURAL TREATMENT	2,960	SQFT
BAR REINFORCING STEEL (RETAINING WALL)	20,200	LB
SHOTCRETE	218	CY
GEOCOMPOSITE DRAIN	600	SQFT
MINOR CONCRETE (GUTTER)	400	LF
CHAIN LINK RAILING	400	LF
CONCRETE BARRIER (TYPE 60D)	400	LF
PREPARE AND STAIN CONCRETE	4,244	SQFT



MIRRORED ELEVATION

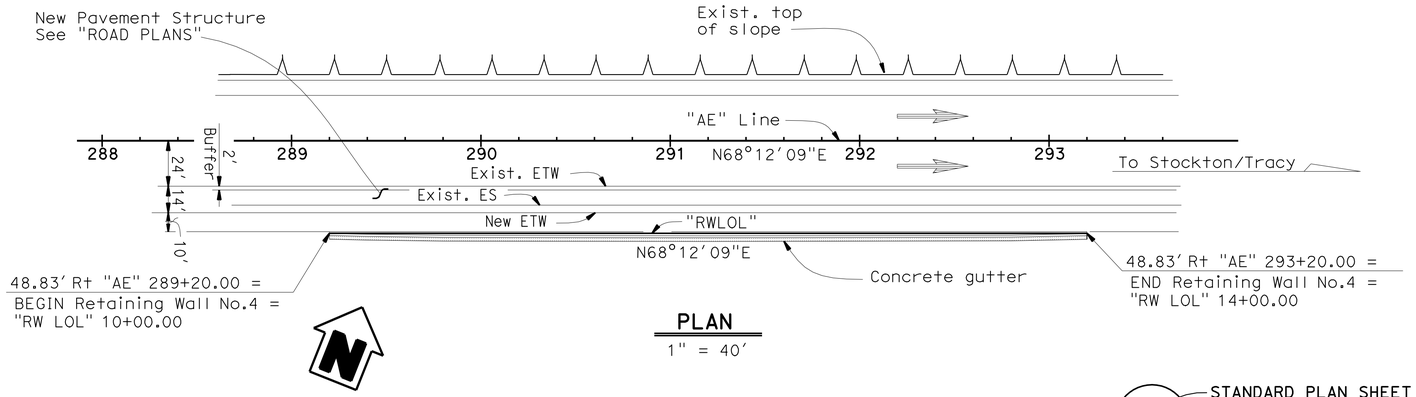
1" = 40'

Notes:
1. Not all soil nail shown.
2. Chain Link Railing not shown.



TYPICAL SECTION

1" = 5'



PLAN

1" = 40'

STANDARD PLAN SHEET NO.

DETAIL NO.

INDEX TO PLANS

STANDARD PLANS DATED MAY 2006

A10A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
A10B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
A10C	SYMBOLS (SHEET 1 OF 2)
A10D	SYMBOLS (SHEET 2 OF 2)
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL
A76A	CONCRETE BARRIER TYPE 60
B3-9	RETAINING WALL DETAILS NO. 2
B11-7	CHAIN LINK RAILING

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

For 'GENERAL NOTES' see 'STRUCTURE PLAN NO. 2' sheet.

Minh Ha
DESIGN ENGINEER

DESIGN	BY Tuong Ha	CHECKED Linan Wang	LOAD & RESISTANCE FACTOR DESIGN				
DETAILS	BY Wei Zhang / Jeff Thorne	CHECKED Linan Wang	LAYOUT	BY Linan Wang	CHECKED X		
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X		

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0214
POST MILE R5.03

RETAINING WALL NO. 4
GENERAL PLAN

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 4-13-10 | 7-6-10 | 8-19-10 | 9-22-10 | 10-21-10 | 10-28-10 | 11-15-10 | 1-4-11 | 3-4-11 | 3-16-11

SHEET 1 OF 13

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.07-24-06)

FILE => 04-4a0701-rw04-a-gp01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:40

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	395	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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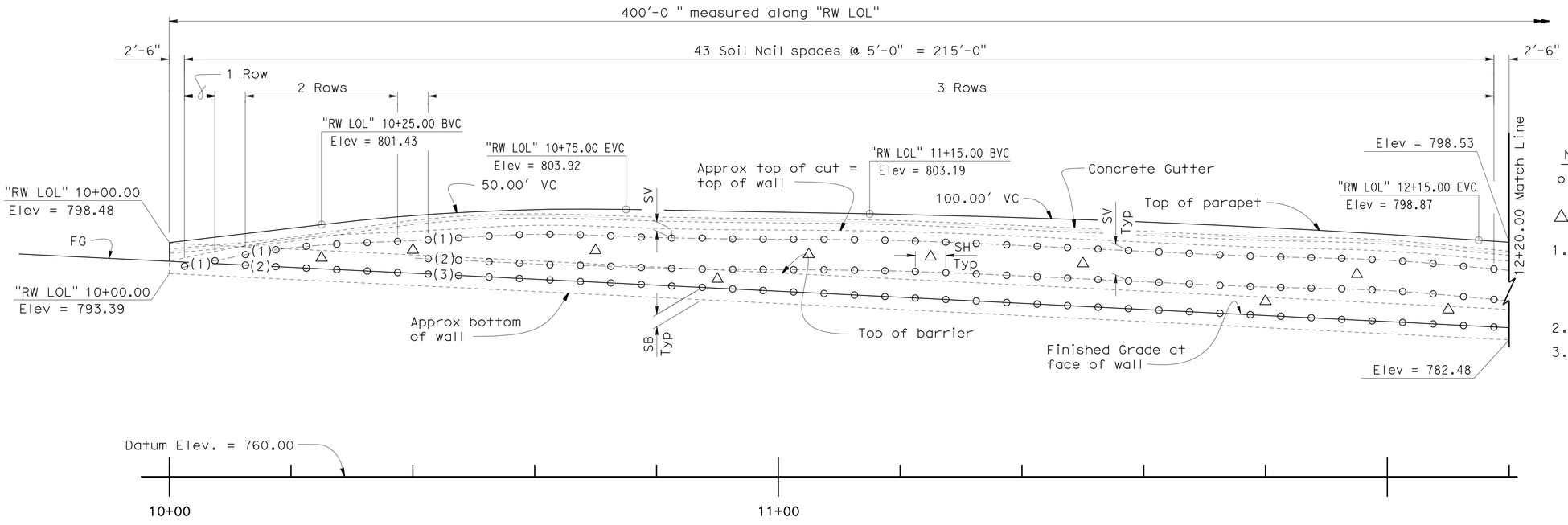
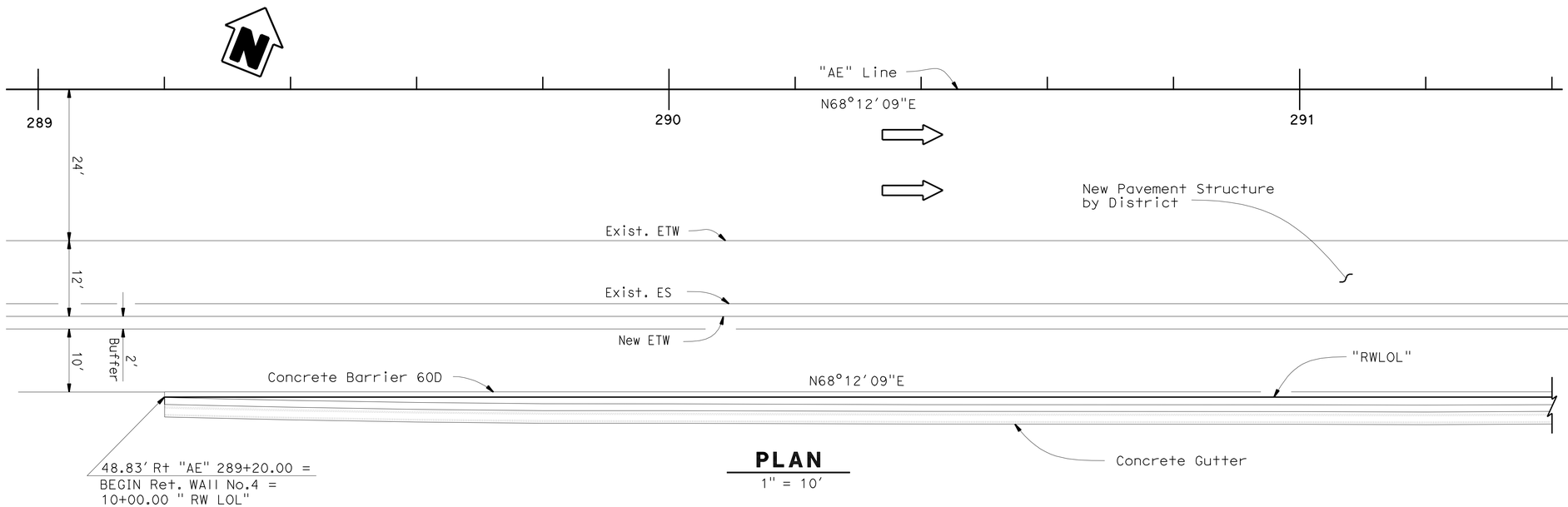


PART MIRRORED ELEVATION

1" = 10'



PLAN

1" = 10'

Notes

- o Indicates location of production nail assembly.
- △ Indicates location of proof test nail.

1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST (min) = 1'-6" ST (max) = 4'-10"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1'-6" SB (max) = 3'-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2'-0" SV (max) = 5'-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0" SH (max) = 5'-0"

SS - Horizontal distance between the beginning/end of wall and first/last Soil Nail column, SS (min) = 1'-6" SS (max) = 2'-0"

Length of Nails at Each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20

DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0214	RETAINING WALL NO. 4
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.03	STRUCTURE PLAN NO. 1
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 8-02-10 | 10-25-10 | 11-15-10 | 1-11-11 | 3-4-11 | 3-18-11

SHEET 2 OF 13

FILE => 04-4a0701-rw04-a-sp01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 16:48 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	396	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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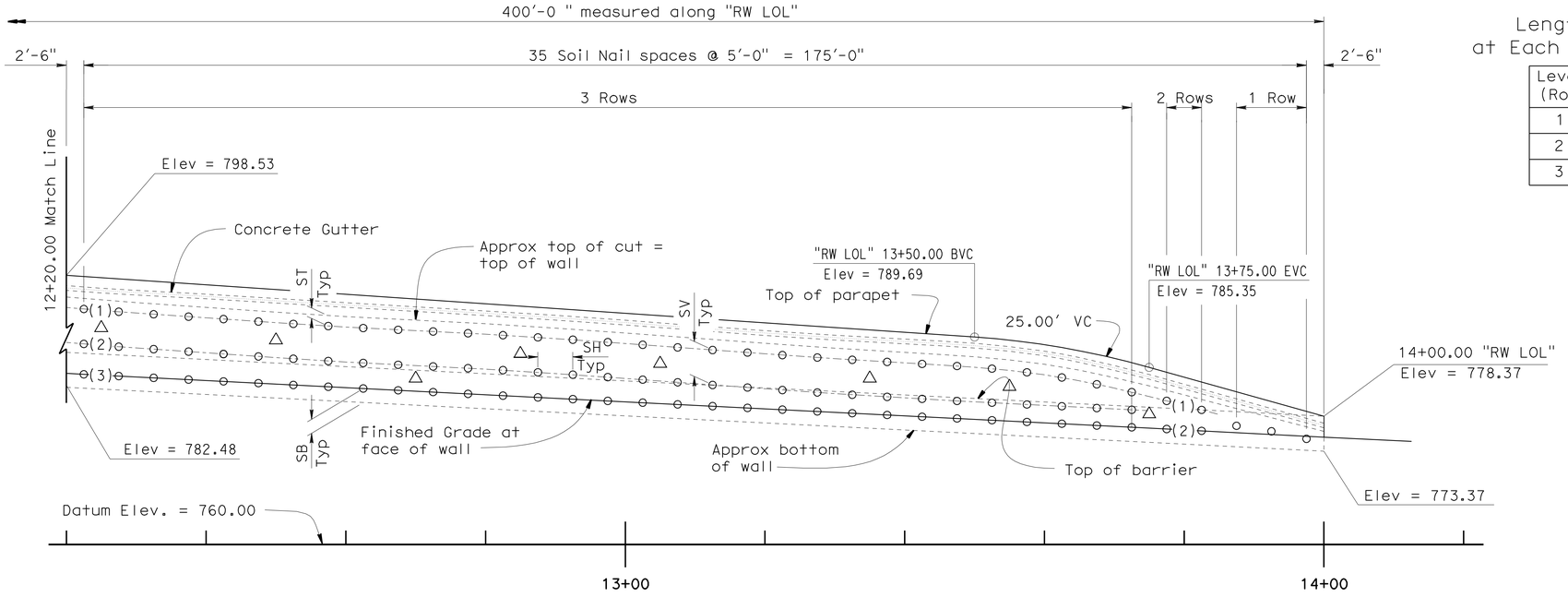
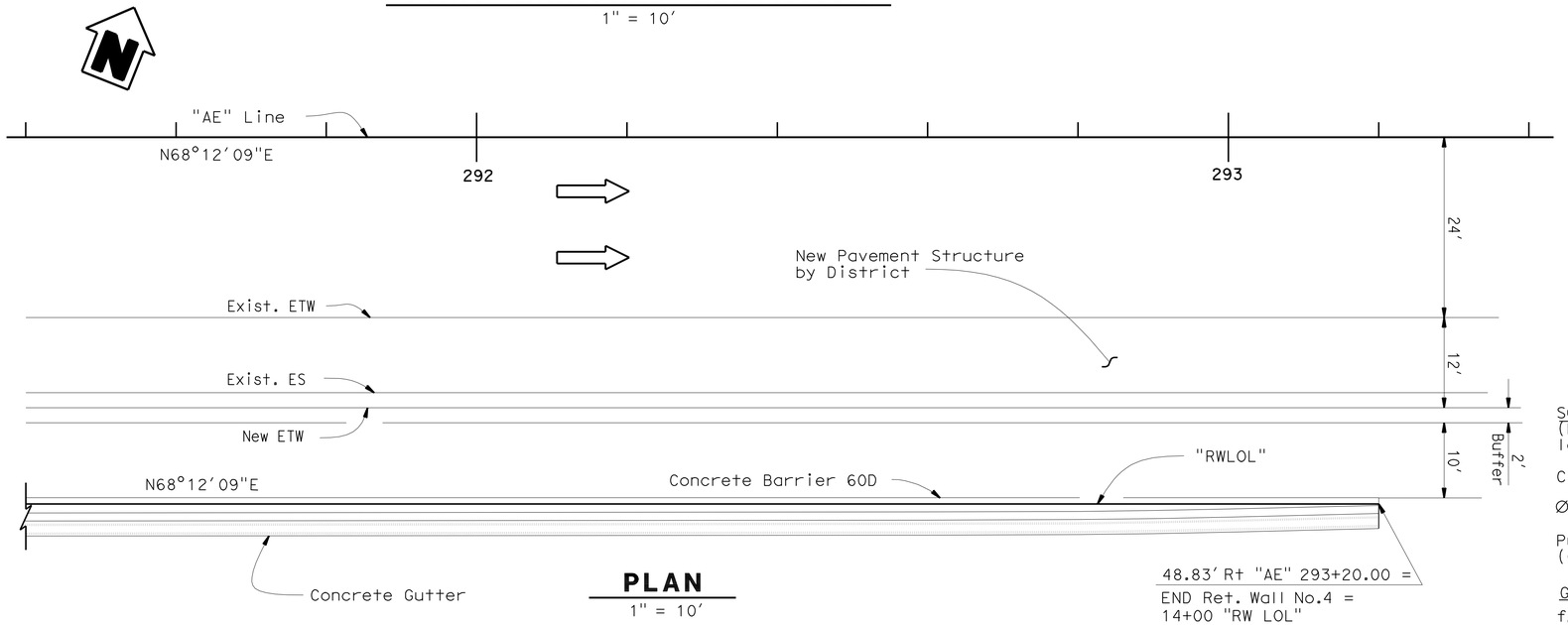


PART MIRRORED ELEVATION

1" = 10'



PLAN

1" = 10'

Length of Nails at Each Nail Level (Le)

Level (Row)	Length (ft)
1	20
2	20
3	20

Notes

- o Indicates location of production nail assembly.
- △ Indicates location of proof test nail.
1. Proof test nail shall be placed midway between production nails. The exact location of proof test nails to be determined in the field by the Engineer.
2. (n) Indicates nail row number.
3. Chain Link Railing not shown for clarity.

ST - Vertical distance from top of cut of face of wall Elevation to first row of Soil Nail, ST (min) = 1'-6" ST (max) = 4'-10"

SB - Vertical distance from bottom of wall to last row of Soil Nail, SB (min) = 1'-6" SB (max) = 3'-0"

SV - Vertical spacing of Soil Nail Assembly, SV (min) = 2'-0" SV (max) = 5'-0"

SH - Horizontal spacing of Soil Nail Assembly, SH (min) = 2'-0" SH (max) = 5'-0"

SS - Horizontal distance between the beginning/end of wall and first/last Soil Nail column, SS (min) = 1'-6" SS (max) = 2'-0"

GENERAL NOTES

DESIGN: BRIDGE DESIGN SPECIFICATIONS - 2000 (1996 AASHTO with Interims and Revisions by CALTRANS).

Manual for Design and Construction Monitoring of Soil Nail Walls - AASHTO 1998

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

C = 400 psf

Ø = 36° ; ϒ = 130 pcf

Pull out resistance = 140 lb/ft (Grout-soil)

GROUT

f'_c = 3.0 ksi at 28 days

REINFORCED CONCRETE & SHOTCRETE

f'_c = 4.0 ksi at 28 days
f_y = 60 ksi

SOIL NAILS

ASTM Designation: A615 / A615 M
fy = 60 ksi

STRUCTURE STEEL

ASTM Designation: A709 / A709 M
fy = 36 ksi

	BY	CHECKED
DESIGN	Tuong Ha	Linan Wang
DETAILS	Jeff Thorne	Linan Wang
QUANTITIES	Tuong Ha	Linan Wang

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 4

BRIDGE NO. 33E0214
POST MILE R5.03

RETAINING WALL NO. 4
STRUCTURE PLAN NO. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 8-02-10 | 10-25-10 | 11-15-10 | 1-11-11 | 3-4-11 | 3-18-11

SHEET 3 OF 13

FILE => 04-4a0701-rw04-a-sp02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 16:48 PLOTTED =>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	397	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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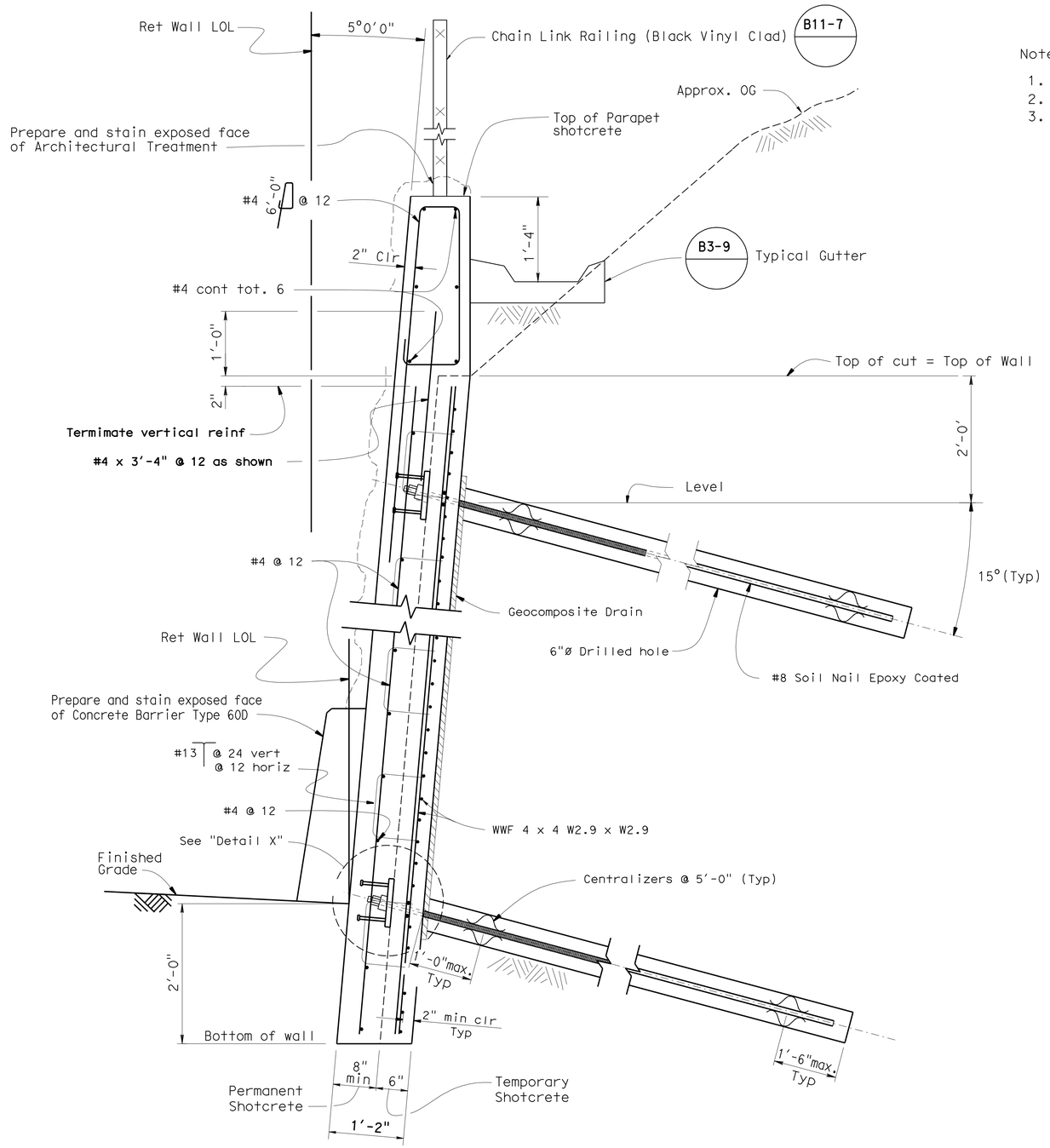
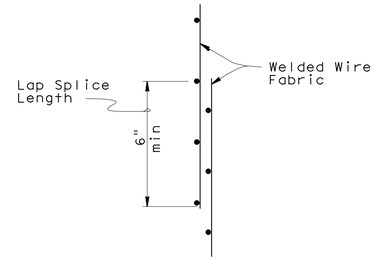
Notes:

1. For Soil Nail spacing, see "STRUCTURE PLAN" sheets.
2. Bottom of wall to be placed against undisturbed material
3. For Drainage Details, see "DRAINAGE DETAILS" sheet



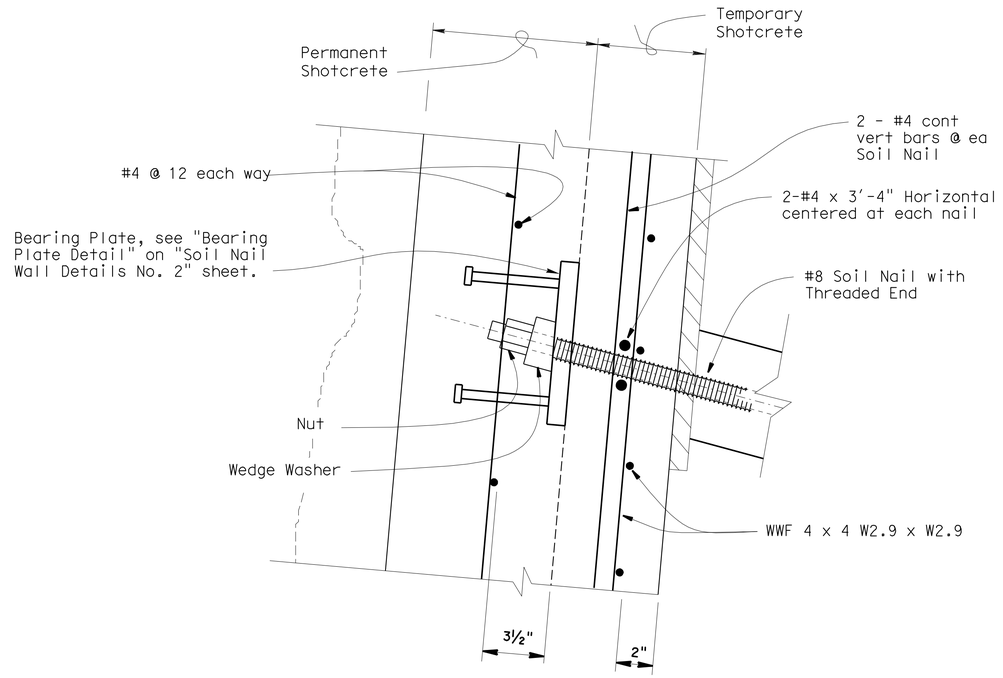
TYPICAL SECTION

1" = 1'-0"



LAP SPLICE DETAIL

NO SCALE



DETAIL X

3" = 1'-0"

DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0214
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.03
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO. 4
TYPICAL SECTION

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 8-02-10 | 8-19-10 | 9-22-10 | 10-20-10 | 11-15-10 | 1-4-11 | 3-4-11

SHEET 4 OF 13

FILE => 04-4a0701-rw04-f-typ.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:41

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	398	457

12-7-10
REGISTERED CIVIL ENGINEER DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
STATE OF CALIFORNIA

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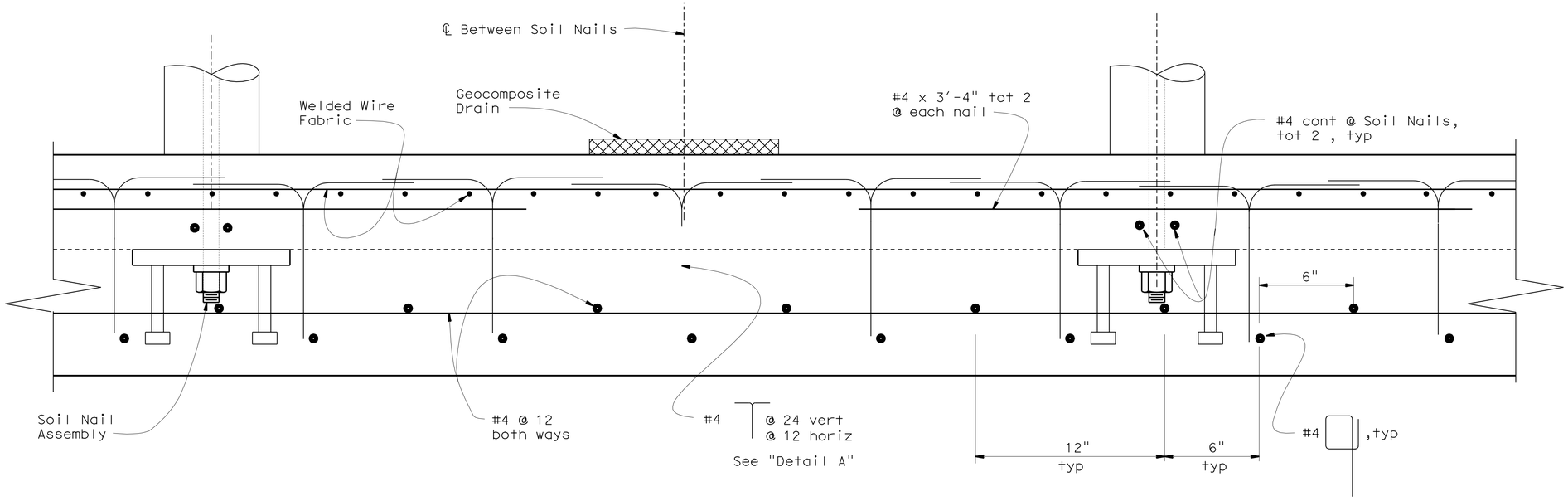
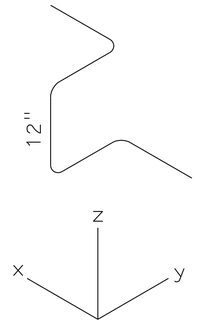


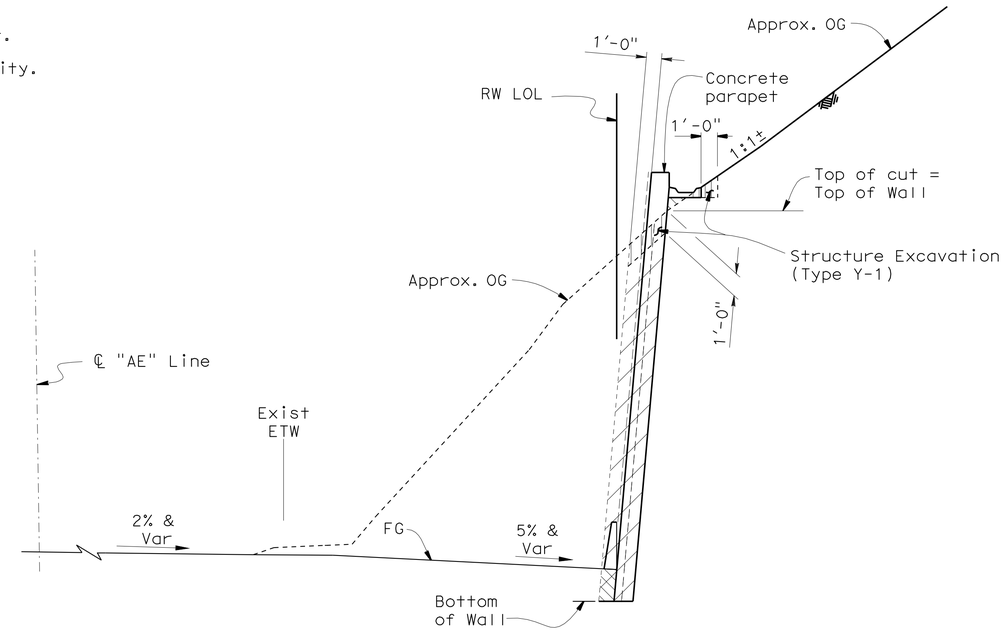
PART PLAN
1" = 1'-0"



DETAIL A
NO SCALE

Notes:

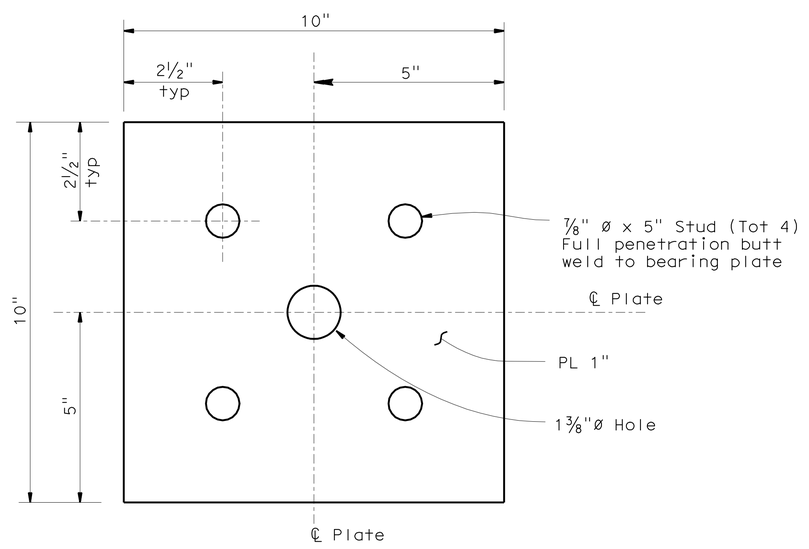
1. For Horizontal and Vertical Soil Nail spacing, see "STRUCTURE PLAN" sheetS.
2. For details and dimensions not shown, see "Typical Section" on "TYPICAL SECTION" sheet.
3. Architectural treatment not shown for clarity.



LEGEND

- Structure Excavation (Soil Nail Wall)
- Structure Backfill (Soil Nail Wall)
- Structure Excavation (Type Y - 1) Aerially Deposited Lead (ADL)

LIMITS EXCAVATION AND BACKFILL
1" = 5'



BEARING PLATE DETAIL
6" = 1'-0"

DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0214
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.03
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO. 4

SOIL NAIL DETAILS NO. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 8-02-10 | 8-18-10 | 9-22-10 | 10-20-10 | 11-15-10 | 1-14-11 | 3-4-11 | 3-9-11 | 3-11-11

SHEET 5 OF 13

FILE => 04-4a0701-rw04-g-sndts01.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:41

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	399	457

REGISTERED CIVIL ENGINEER — 12-7-10 DATE

1-23-12
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LINAN WANG No. 54714 Exp. 12-31-11 CIVIL — STATE OF CALIFORNIA

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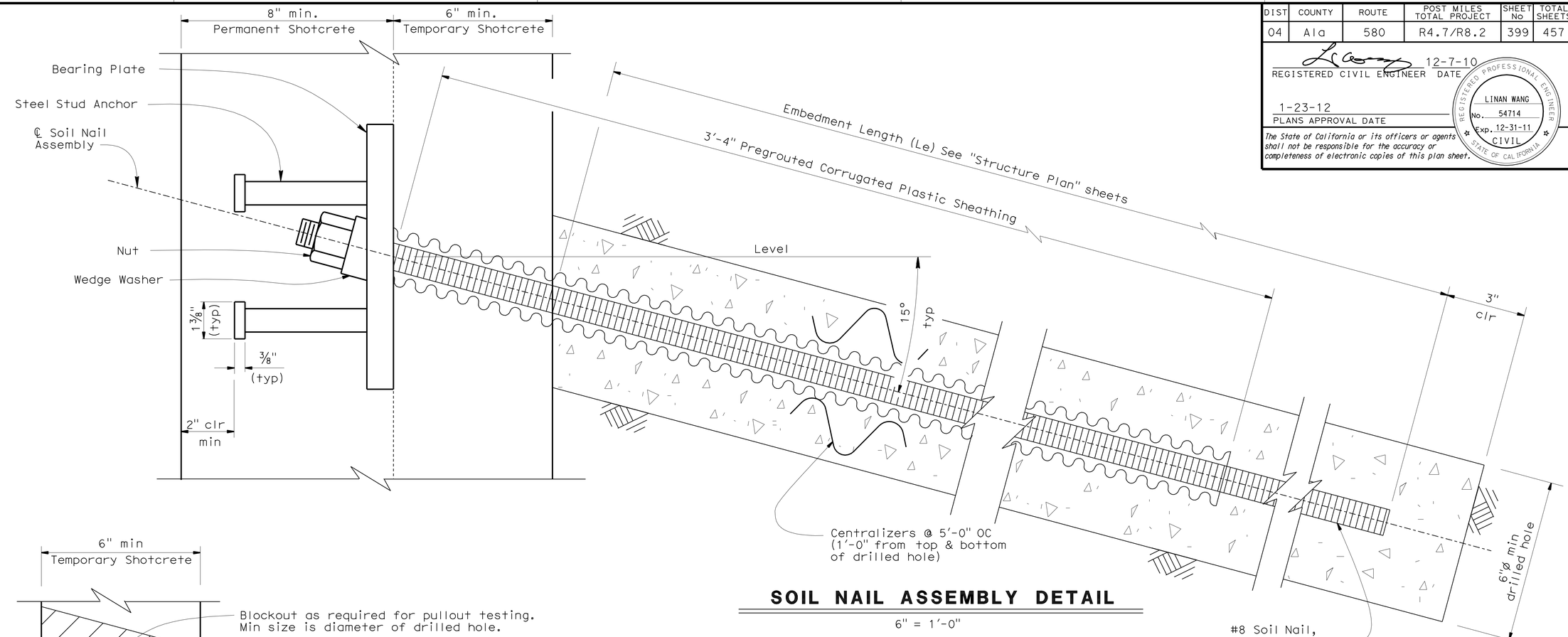
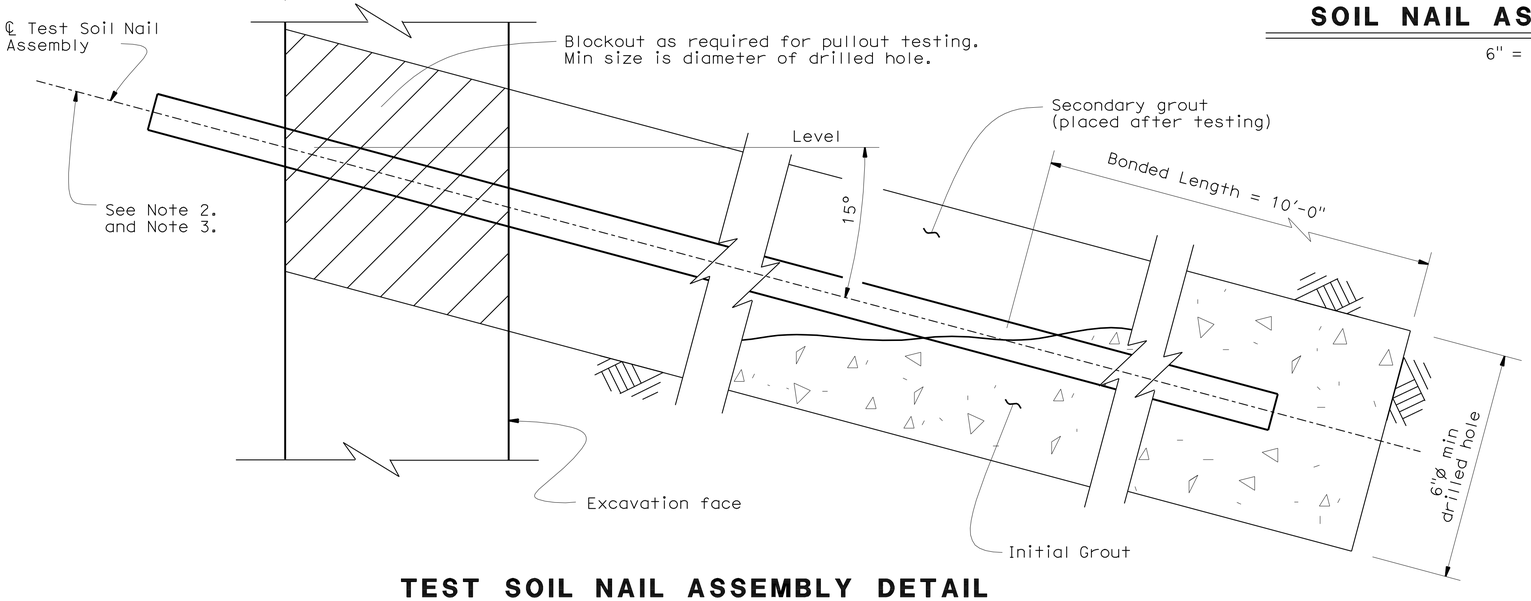


SOIL NAIL ASSEMBLY DETAIL

6" = 1'-0"



TEST SOIL NAIL ASSEMBLY DETAIL

6" = 1'-0"

Notes:

1. Embedment length of test nails equals two thirds of the embedment length of adjacent soil nail assemblies, but not less than 13'-0"
2. Total length of test soil nail equals embedment length plus the length required for jacking equipment
3. For embedment length of production nails see 'Table' on "Structure Plan" sheets
4. Reinforcement not shown
5. Architectural treatment not shown

DESIGN	BY Tuong Ha	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0214
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.03
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO.4

SOIL NAIL DETAILS NO. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 8-02-10 | 10-28-10 | 11-18-10 | 3-4-11

SHEET 6 OF 13

FILE => 04-4a0701-rw04-g-sndts02.dgn

USERNAME => s128843 DATE PLOTTED => 25-JAN-2012 TIME PLOTTED => 16:41

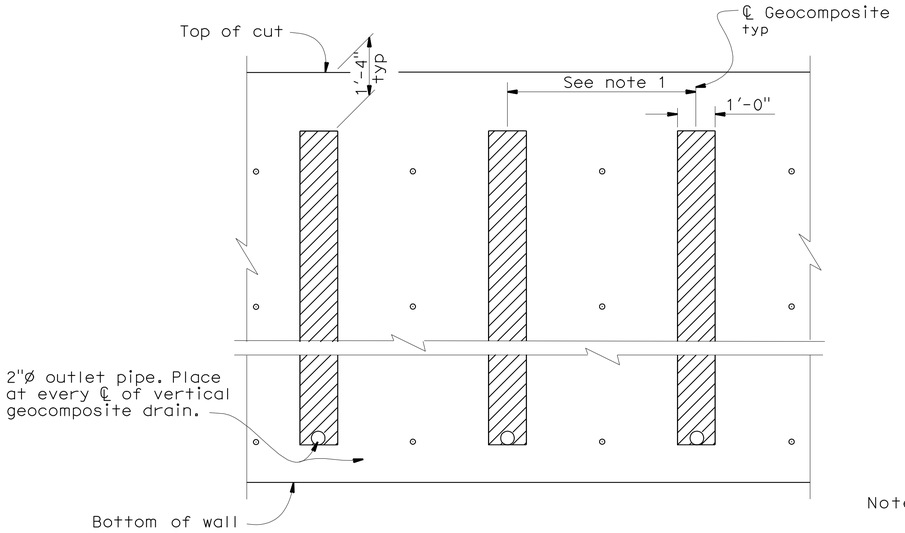
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Ala	580	R4.7/R8.2	400	457

REGISTERED CIVIL ENGINEER — DATE 12-7-10

1-23-12
PLANS APPROVAL DATE

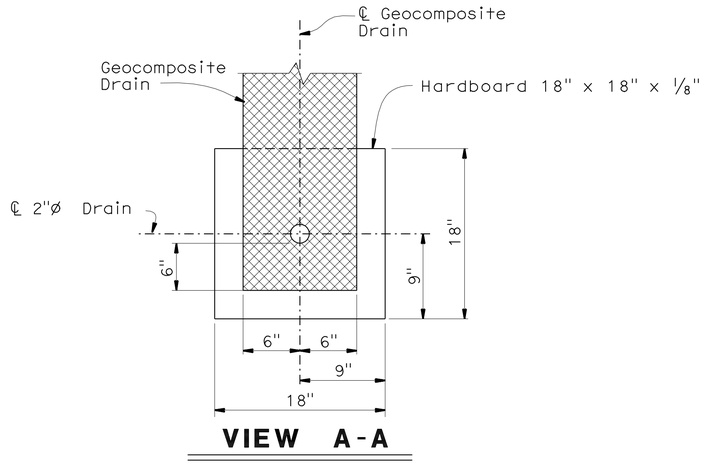
LINAN WANG
No. 54714
Exp. 12-31-11
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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.



WALL PART ELEVATION

No Scale

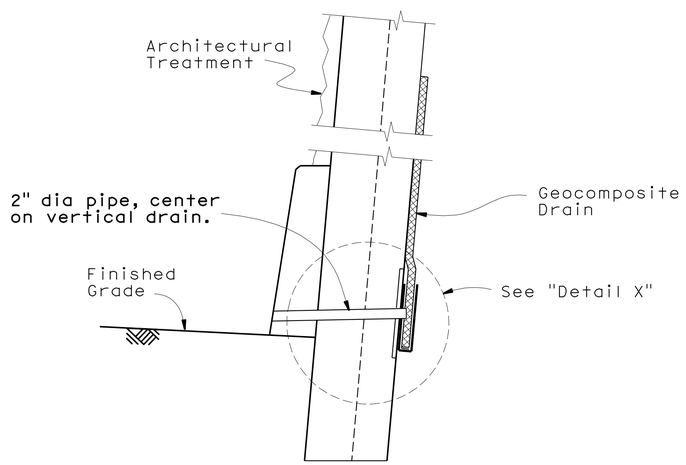


VIEW A-A

No Scale

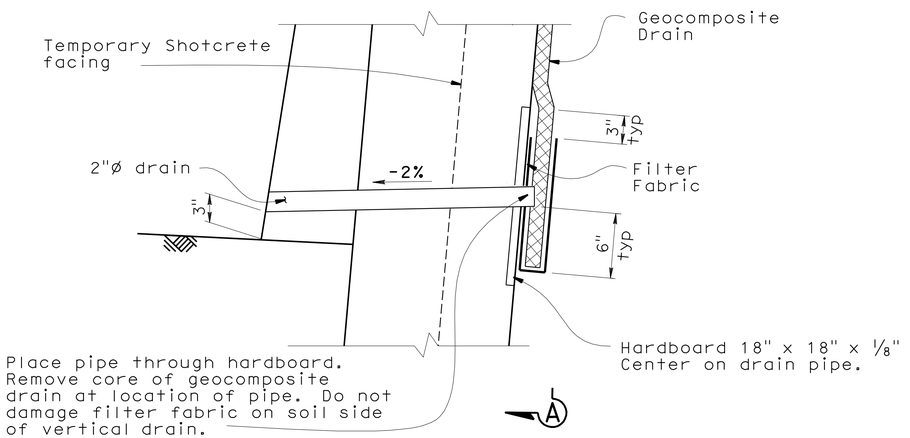
Notes:

1. Center geocomposite vertical drain between soil nails.
2. ∘ Indicates soil nail locations.
3. Geocomposite drain may be omitted when conflicting with test soil nail.
4. Geocomposite drain not required for wall height less than 6 feet.



PART TYPICAL SECTION

No Scale



DETAIL X

No Scale

DESIGN	BY David Fowkes	CHECKED Linan Wang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 4	BRIDGE NO. 33E0214
DETAILS	BY Jeff Thorne	CHECKED Linan Wang			POST MILE R5.03
QUANTITIES	BY Tuong Ha	CHECKED Linan Wang			

RETAINING WALL NO.4
DRAINAGE DETAILS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 4A07U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: ~~8-02-10~~ 10-20-10 11-15-10

SHEET 7 OF 13

FILE => 04-4a0701-rw04-h-drndts.dgn

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