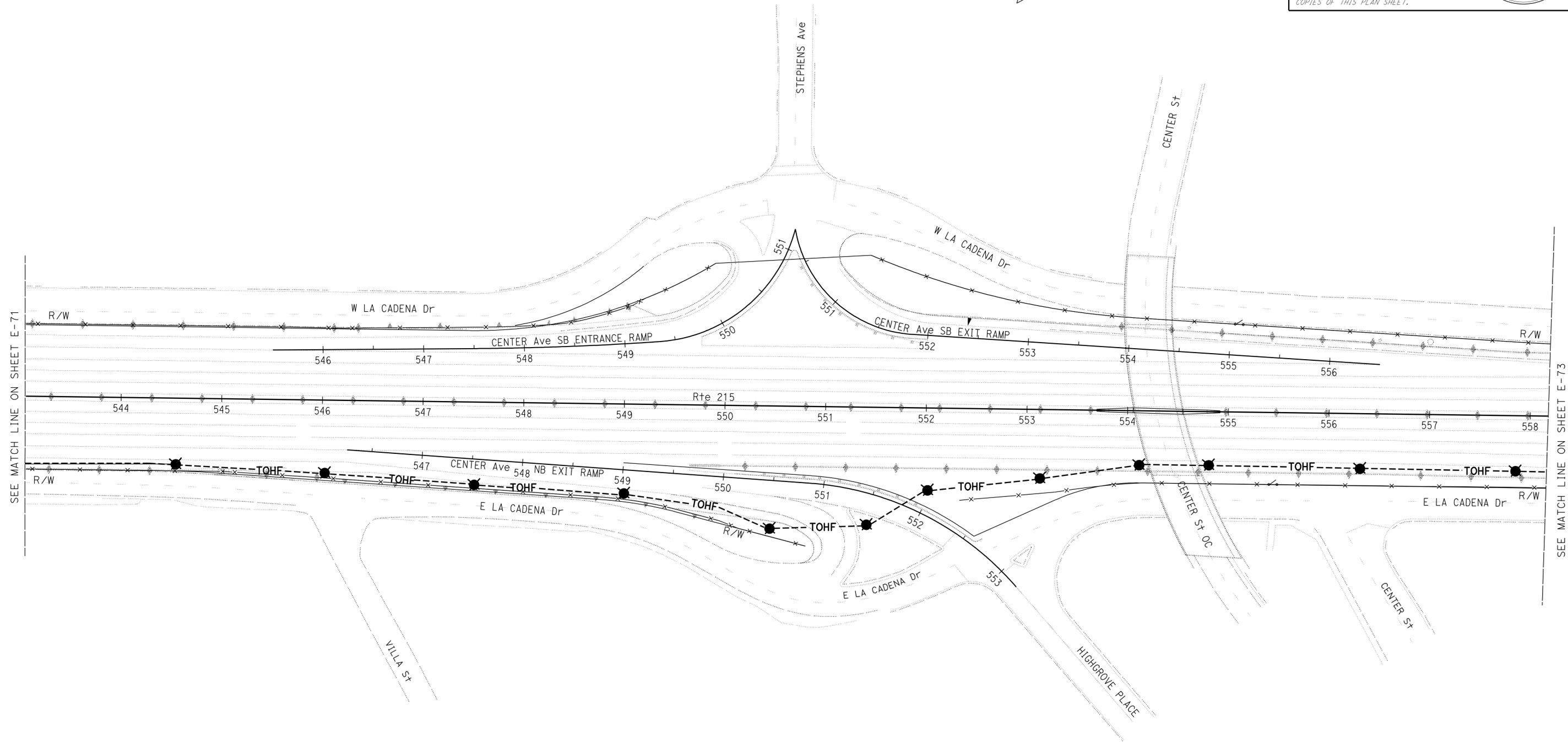
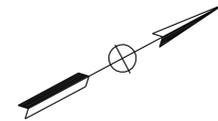


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1001	1743
<i>Katherine Dinh</i> REGISTERED ELECTRICAL ENGINEER			4-10-12	DATE	
4-16-12 PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
REGISTERED PROFESSIONAL ENGINEER KATHERINE DINH No. E 17157 Exp. 9-30-13 ELECTRICAL STATE OF CALIFORNIA					

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-72

APPROVED FOR ELECTRICAL WORK ONLY

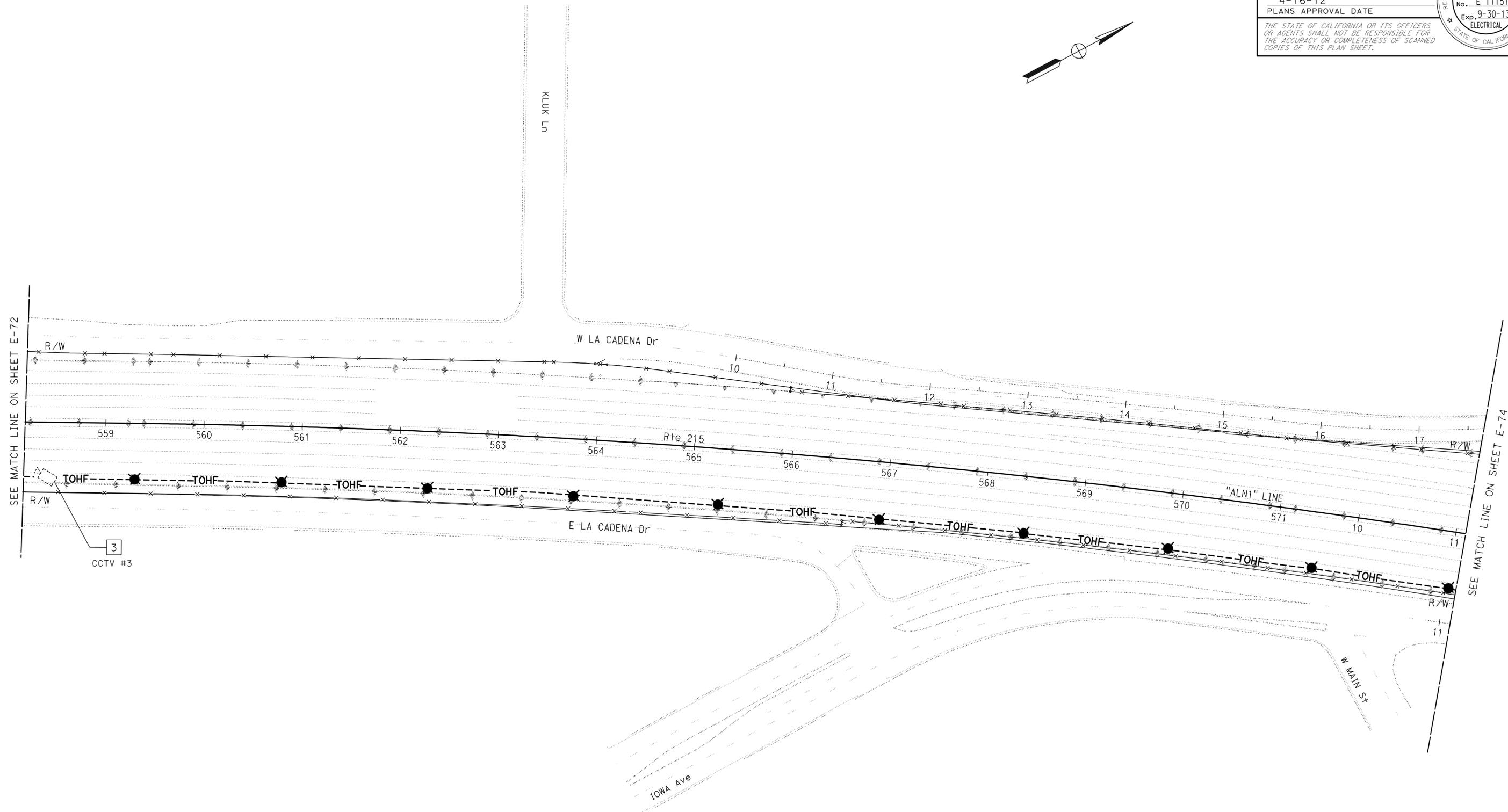
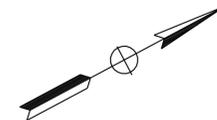
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	KATHERINE DINH	
FUNCTIONAL SUPERVISOR	CHECKED BY	DATE
FERDINAND DE LA CRUZ	FERDINAND DE LA CRUZ	
	DESIGNED BY	DATE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1002	1743
		Katherine Dinh REGISTERED ELECTRICAL ENGINEER		4-10-12 DATE	
		4-16-12 PLANS APPROVAL DATE			
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	FERDINAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE REVISOR

MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

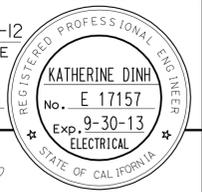
APPROVED FOR ELECTRICAL WORK ONLY

SCALE: 1" = 50'

E-73

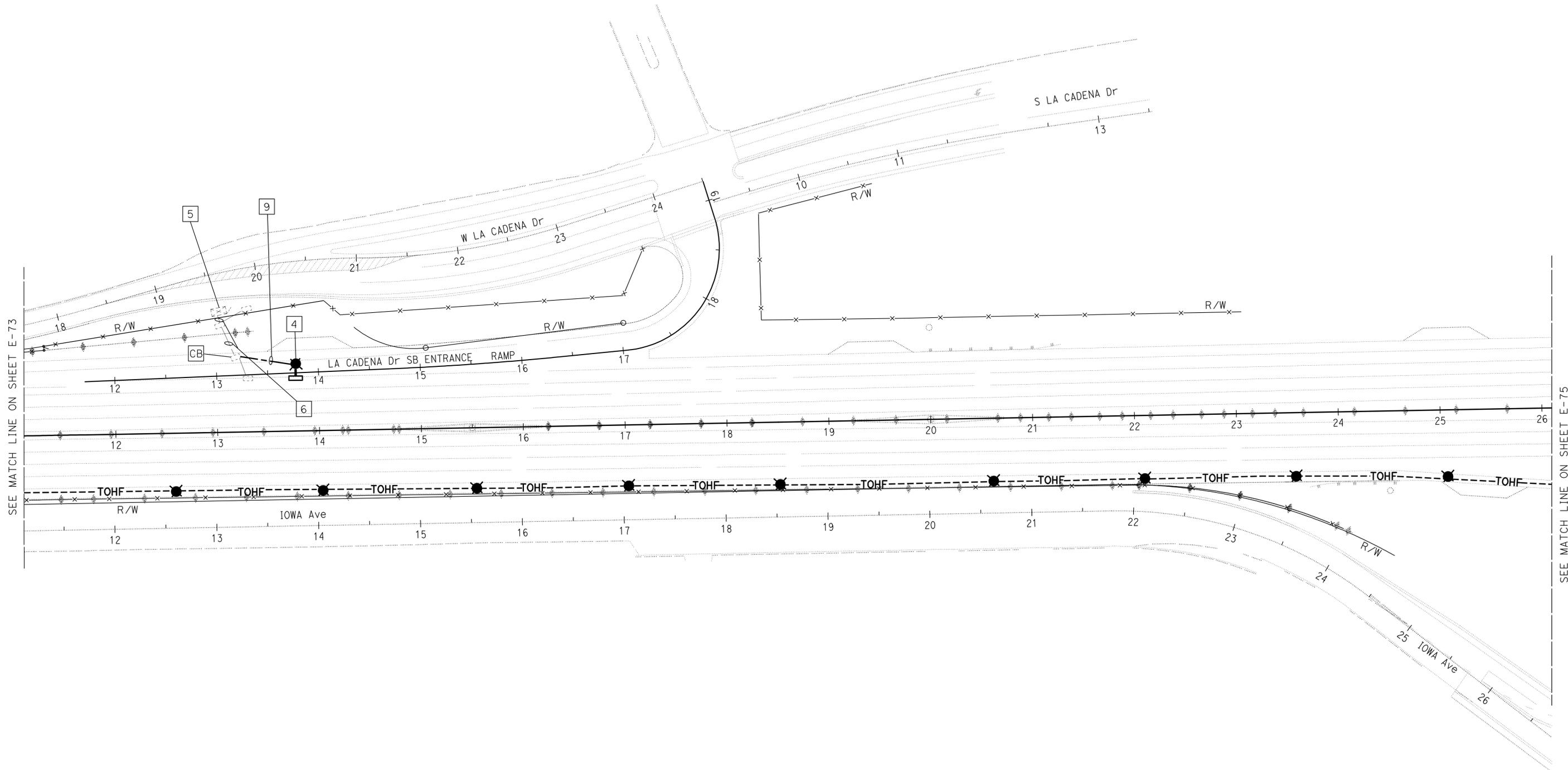
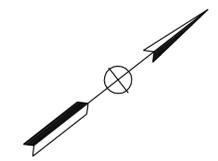
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04-10-12 TIME PLOTTED => 19:23

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1003	1743
		Katherine Dinh		4-10-12	
		REGISTERED ELECTRICAL ENGINEER		DATE	
		4-16-12		PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



NOTE:

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- THE CONTRACTOR SHALL NOT REMOVE EXISTING RM CABINET UNTIL THE NEW RM CABINET IS INSTALLED AND MVDS IS RECONNECTED TO THE NEW RM CABINET.



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-74

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	KATHERINE DINH	
FUNCTIONAL SUPERVISOR	CHECKED BY	DATE
FERDINAND DE LA CRUZ	FERDINAND DE LA CRUZ	
CALCULATED/DESIGNED BY	REVISOR	DATE

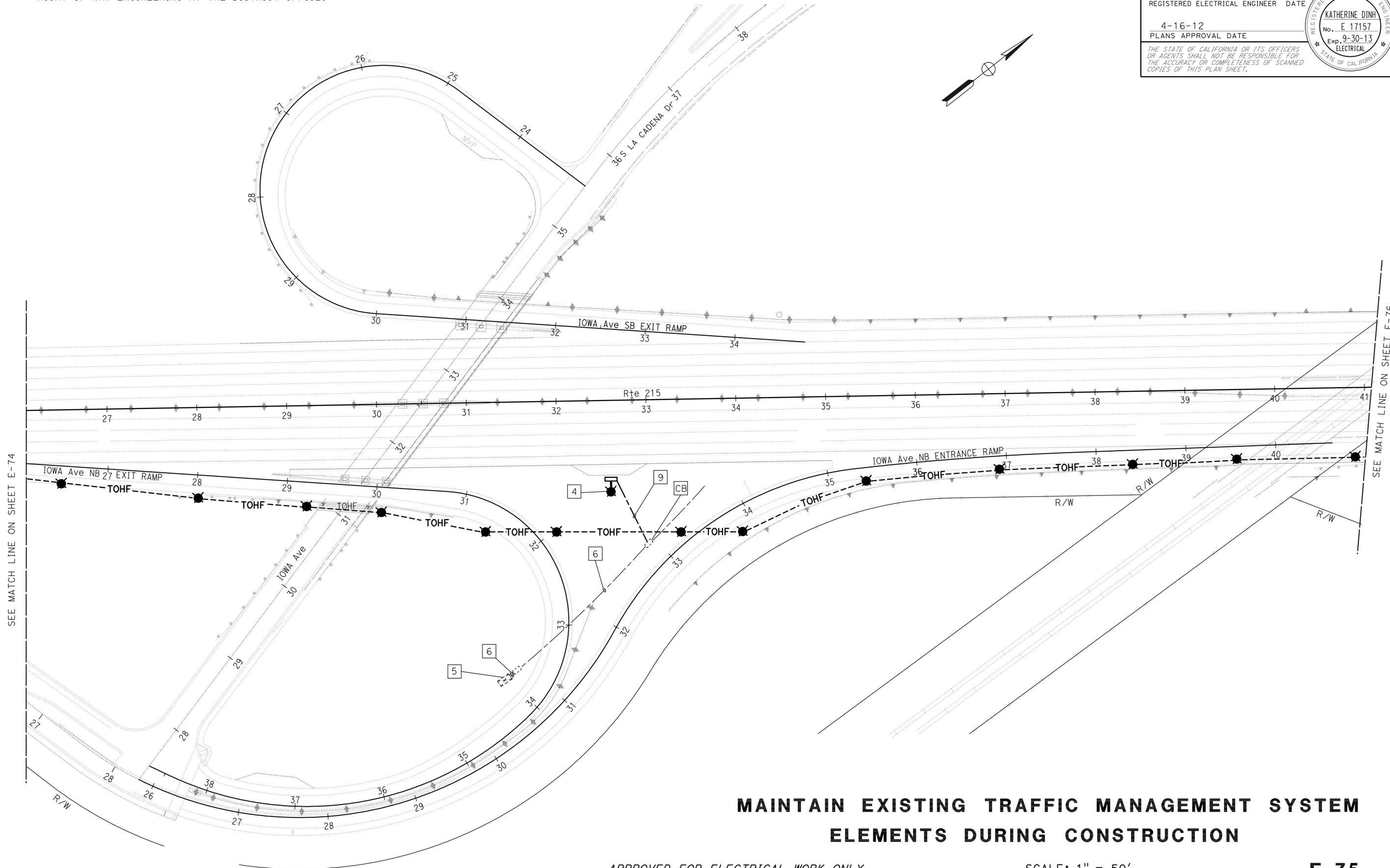
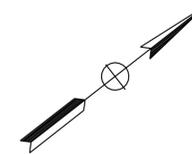
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1004	1743

<i>Katherine Dinh</i>	4-10-12
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER	
KATHERINE DINH	
No. E 17157	
Exp. 9-30-13	
ELECTRICAL	
STATE OF CALIFORNIA	

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

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



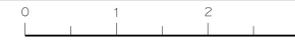
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	Ferdinand de la Cruz	Ferdinand de la Cruz	Katherine Dinh
		Checked by	Revised by
			Ferdinand de la Cruz

MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

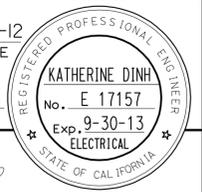
APPROVED FOR ELECTRICAL WORK ONLY

SCALE: 1" = 50'

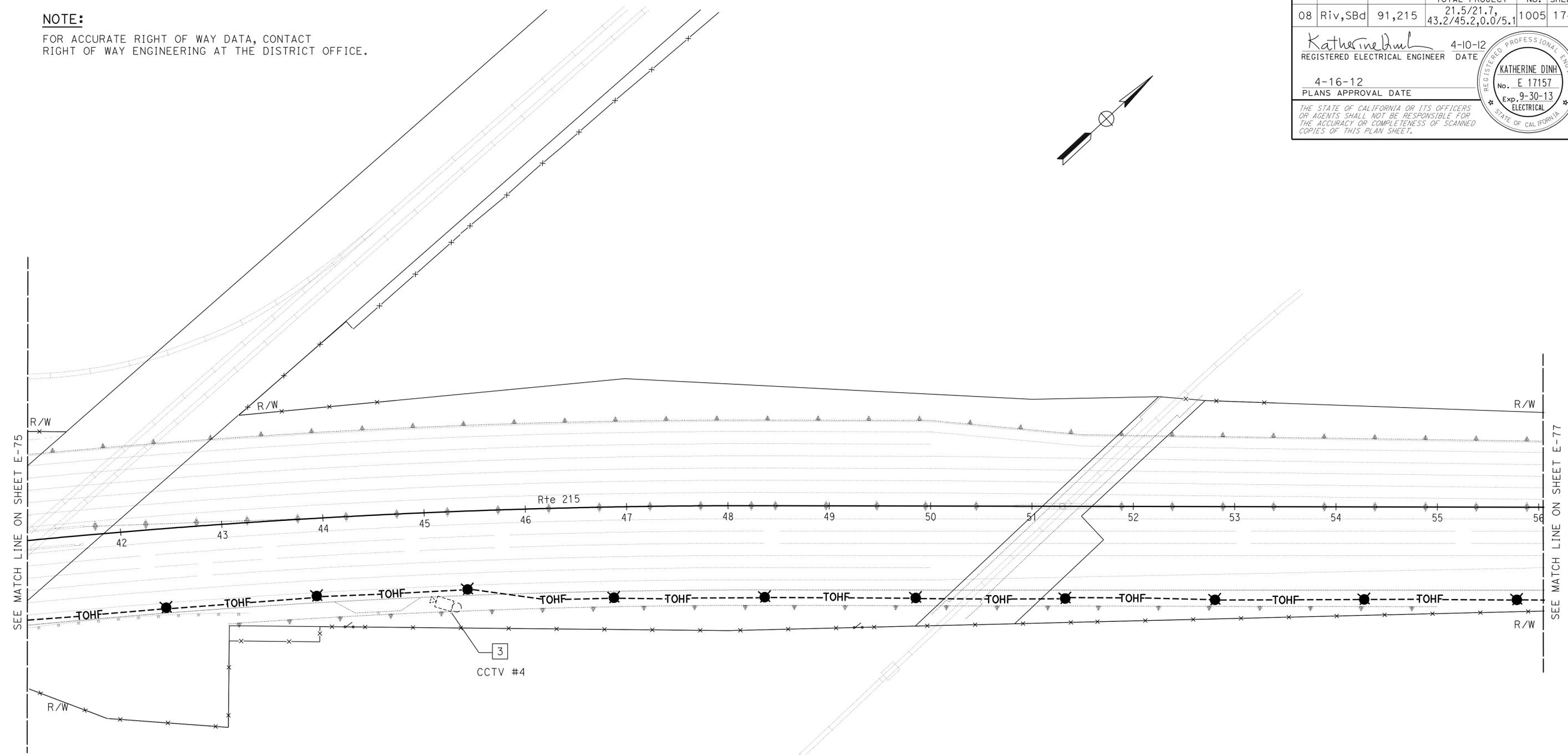
E-75



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1005	1743
<i>Katherine Dinh</i> REGISTERED ELECTRICAL ENGINEER			4-10-12 DATE		
4-16-12 PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



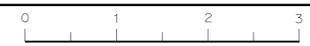
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED - DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	CHECKED BY	KATHERINE DINH
			FERDINAND DE LA CRUZ
			DATE
			REVISOR
			DATE

MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-76

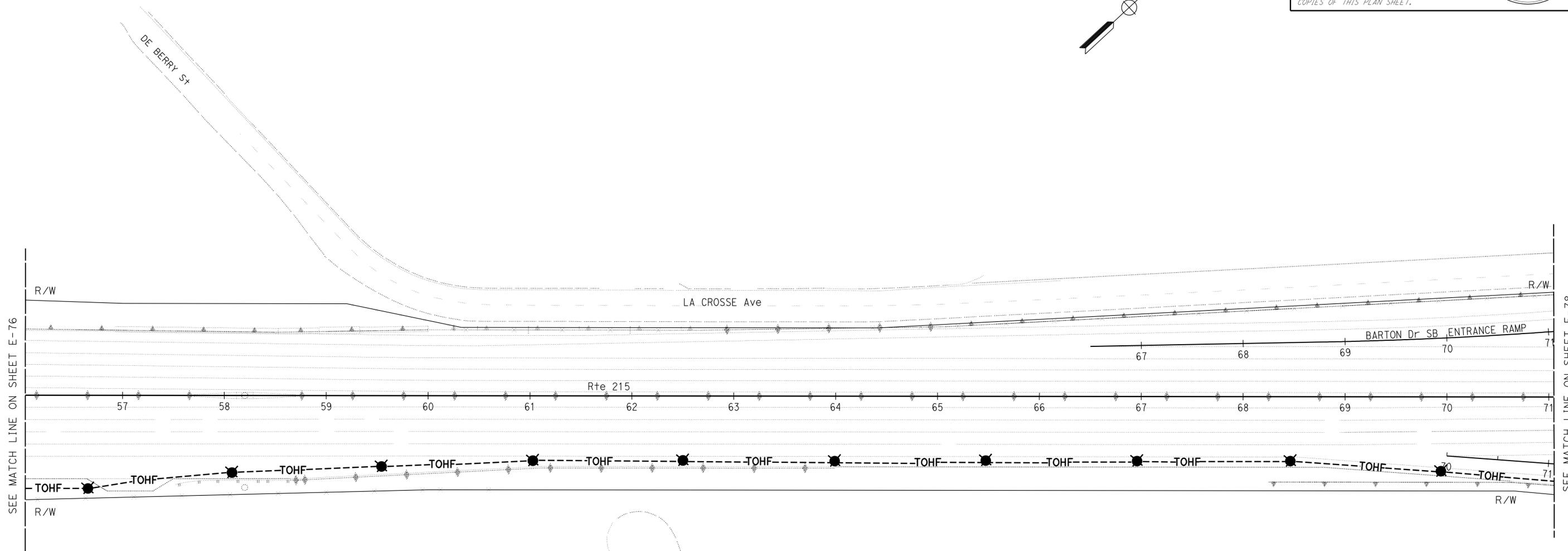
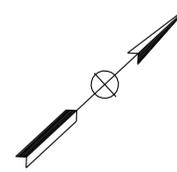
APPROVED FOR ELECTRICAL WORK ONLY



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1006	1743
		Katherine Dinh		4-10-12	
		REGISTERED ELECTRICAL ENGINEER		DATE	
		4-16-12		PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SEE MATCH LINE ON SHEET E-76

SEE MATCH LINE ON SHEET E-78

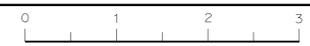
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	FERDINAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE REVISED

MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-77

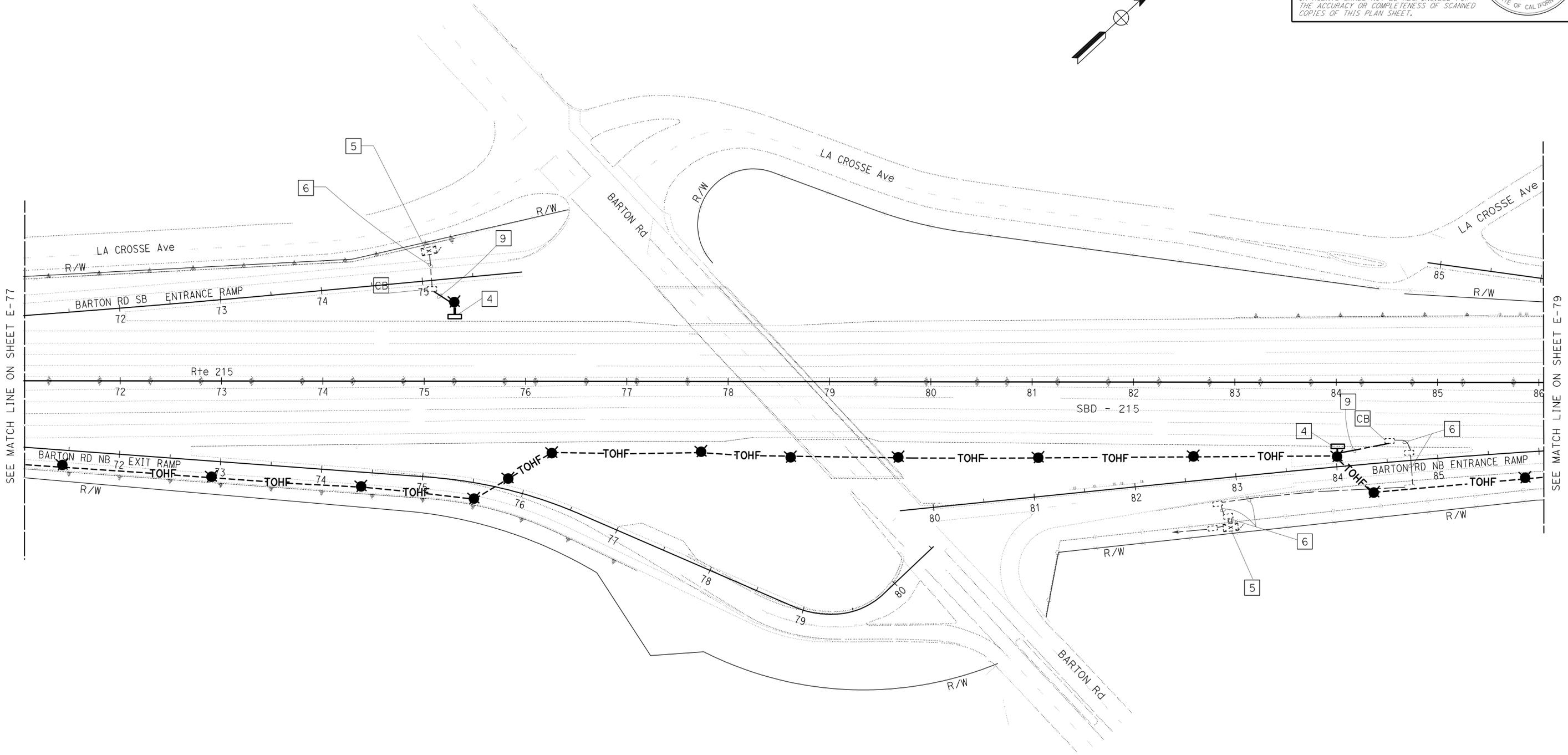
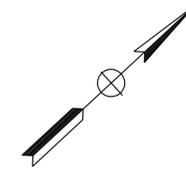
APPROVED FOR ELECTRICAL WORK ONLY



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1007	1743
		Katherine Dinh		4-10-12	
		REGISTERED ELECTRICAL ENGINEER		DATE	
		4-16-12		PLANS APPROVAL DATE	
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
REGISTERED PROFESSIONAL ENGINEER KATHERINE DINH No. E 17157 Exp. 9-30-13 ELECTRICAL STATE OF CALIFORNIA					

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

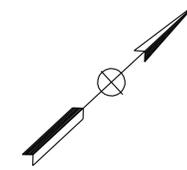
SCALE: 1" = 50'

E-78

APPROVED FOR ELECTRICAL WORK ONLY

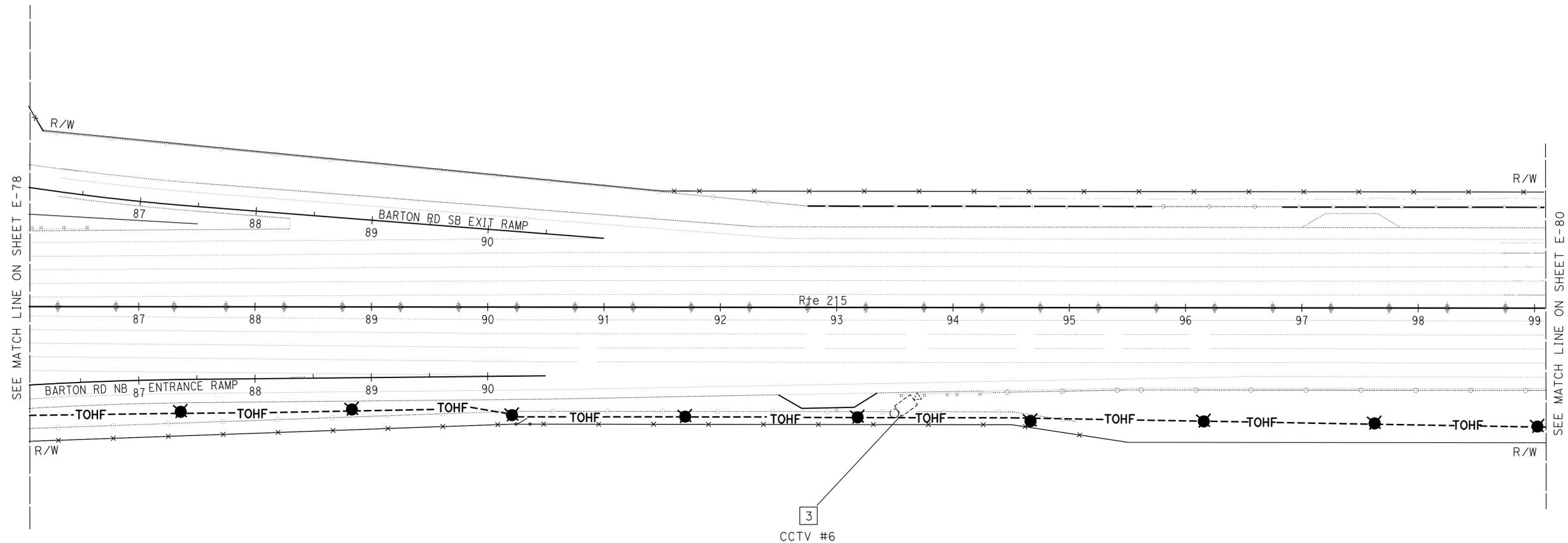
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	FERDINAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE REVISOR

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1008	1743
Katherine Dinh			4-10-12		
REGISTERED ELECTRICAL ENGINEER			DATE		
4-16-12			PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-79

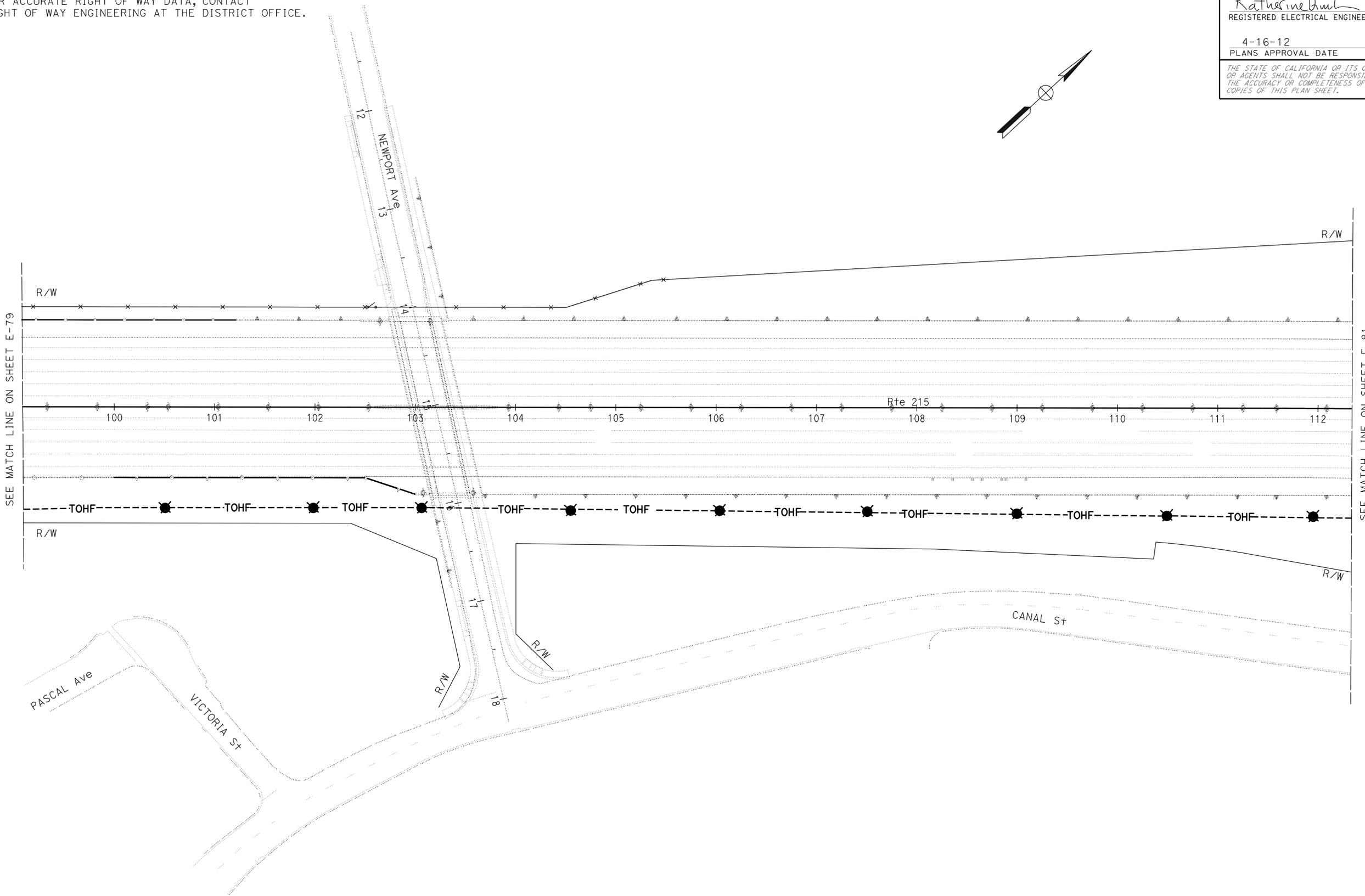
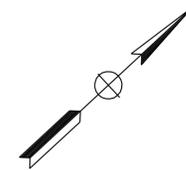
APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE
		FERNAND DE LA CRUZ	



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1009	1743
		Katherine Dinh		4-10-12	
		REGISTERED ELECTRICAL ENGINEER		DATE	
		4-16-12		PLANS APPROVAL DATE	
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
REGISTERED PROFESSIONAL ENGINEER KATHERINE DINH No. E 17157 Exp. 9-30-13 ELECTRICAL STATE OF CALIFORNIA					

NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	Ferdinand de la Cruz	Ferdinand de la Cruz	Katherine Dinh
		CHECKED BY	DATE REVISED

**MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM
 ELEMENTS DURING CONSTRUCTION**

SCALE: 1" = 50'

E-80

APPROVED FOR ELECTRICAL WORK ONLY

LAST REVISION DATE PLOTTED => 19-APR-2012
 04-10-12 TIME PLOTTED => 19:23

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1010	1743

<i>Katherine Dinh</i>	4-10-12
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

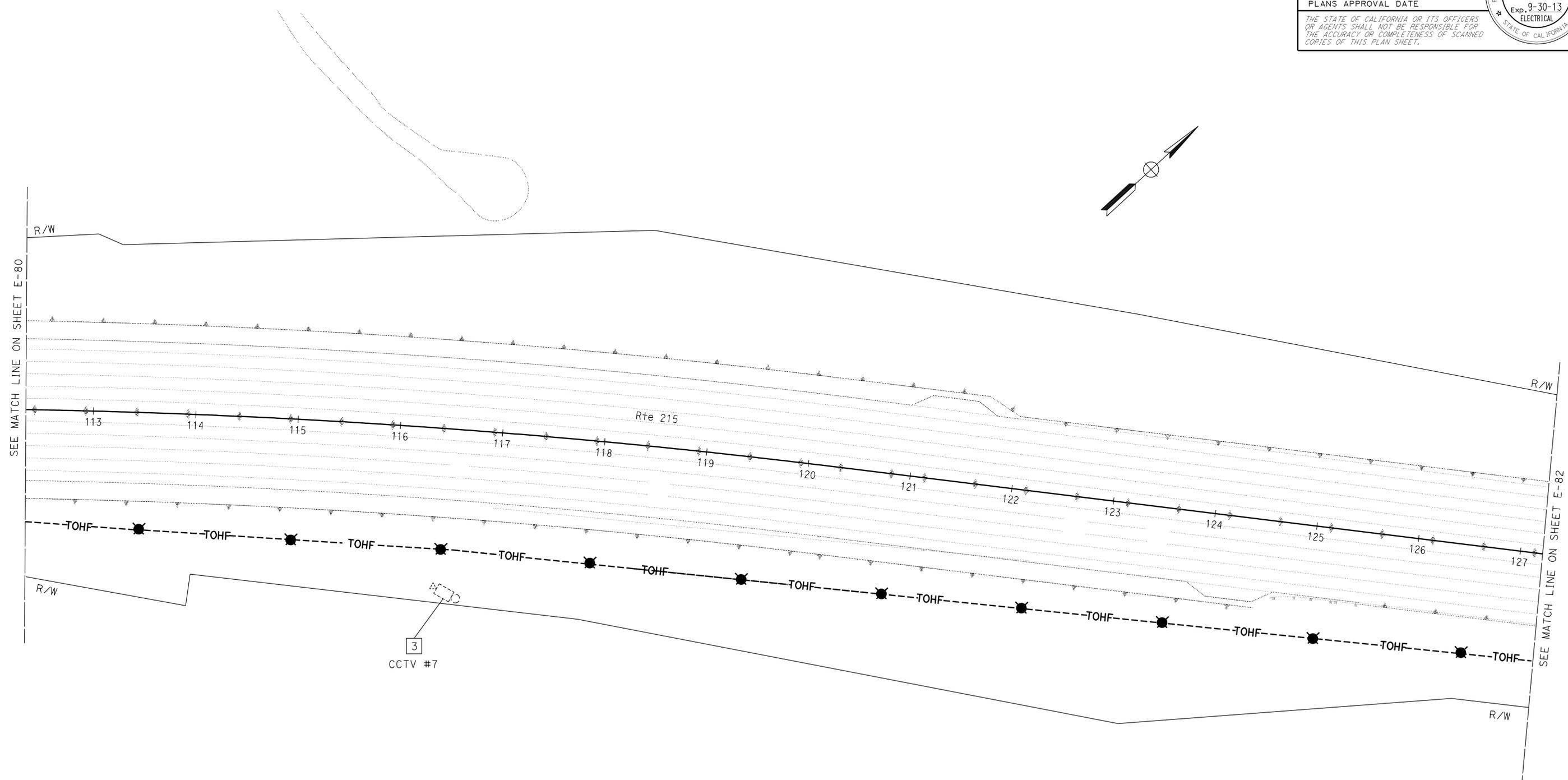
REGISTERED PROFESSIONAL ENGINEER	
KATHERINE DINH	
No. E 17157	
Exp. 9-30-13	
ELECTRICAL	
STATE OF CALIFORNIA	

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

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	FERDINAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE REVISOR



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-81

APPROVED FOR ELECTRICAL WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1011	1743

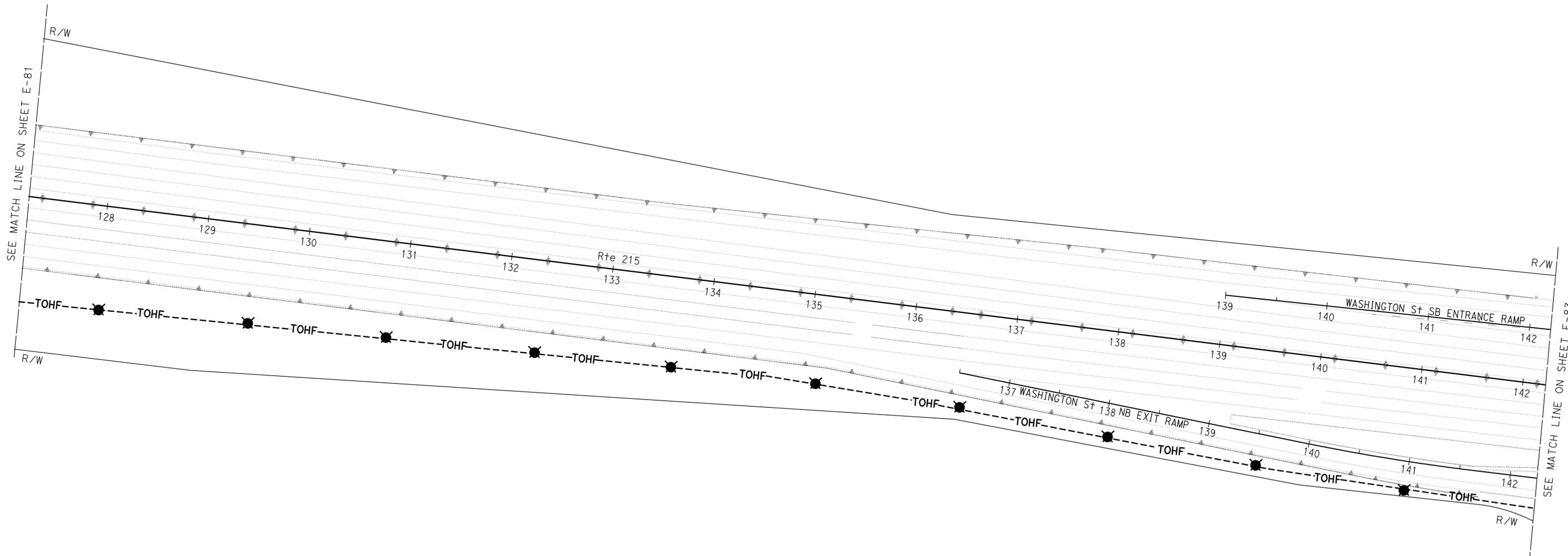
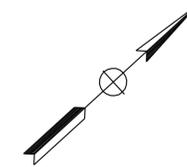
<i>Katherine Dinh</i>	4-10-12
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
KATHERINE DINH
No. E 17157
Exp. 9-30-13
ELECTRICAL
STATE OF CALIFORNIA

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

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-82

APPROVED FOR ELECTRICAL WORK ONLY

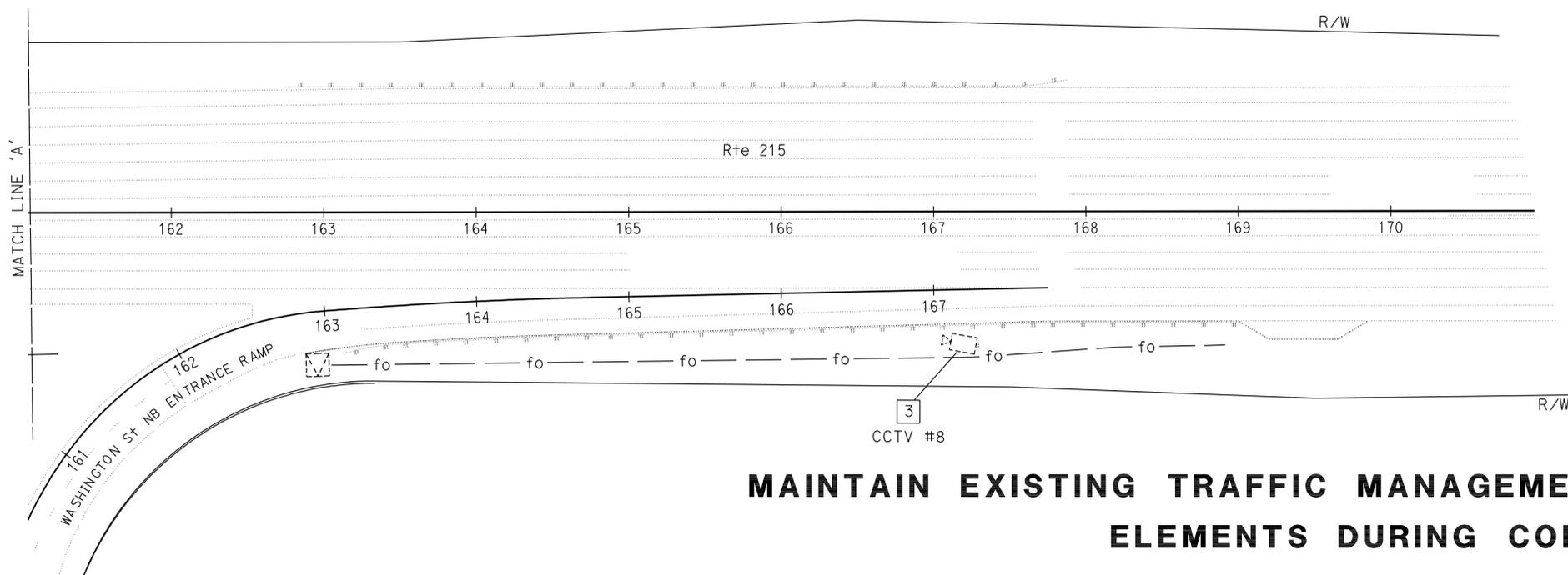
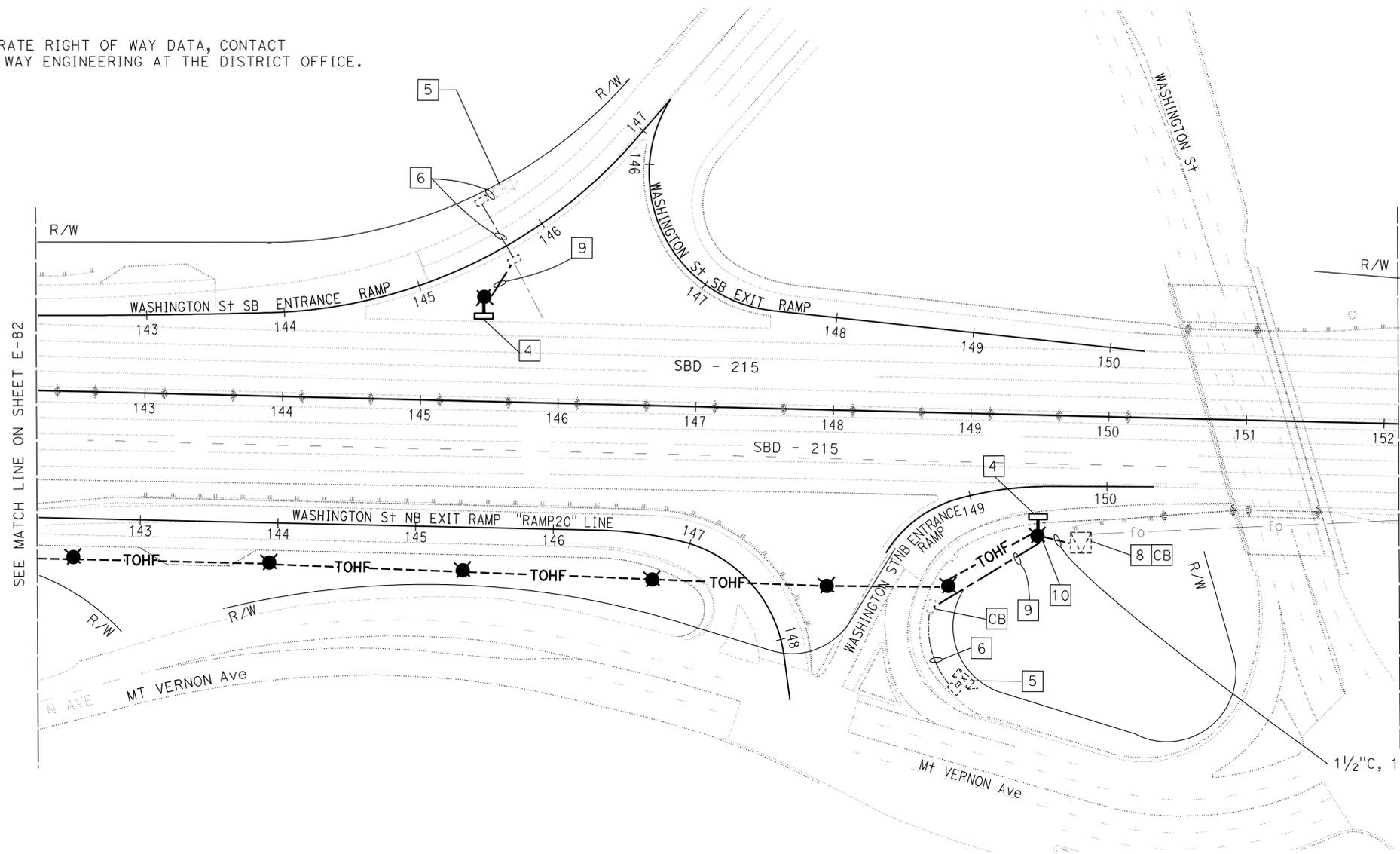
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	CHECKED BY	DATE
		KATHERINE DINH	
		FERDINAND DE LA CRUZ	



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1012	1743
Katherine Dinh			4-10-12		
REGISTERED ELECTRICAL ENGINEER			DATE		
4-16-12					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

SCALE: 1" = 50'

E-83

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE REVISOR

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1013	1743

Katherine Dinh
 REGISTERED ELECTRICAL ENGINEER DATE 4-10-12
 4-16-12
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

NOTES-SHEETS E-84 TO E-85

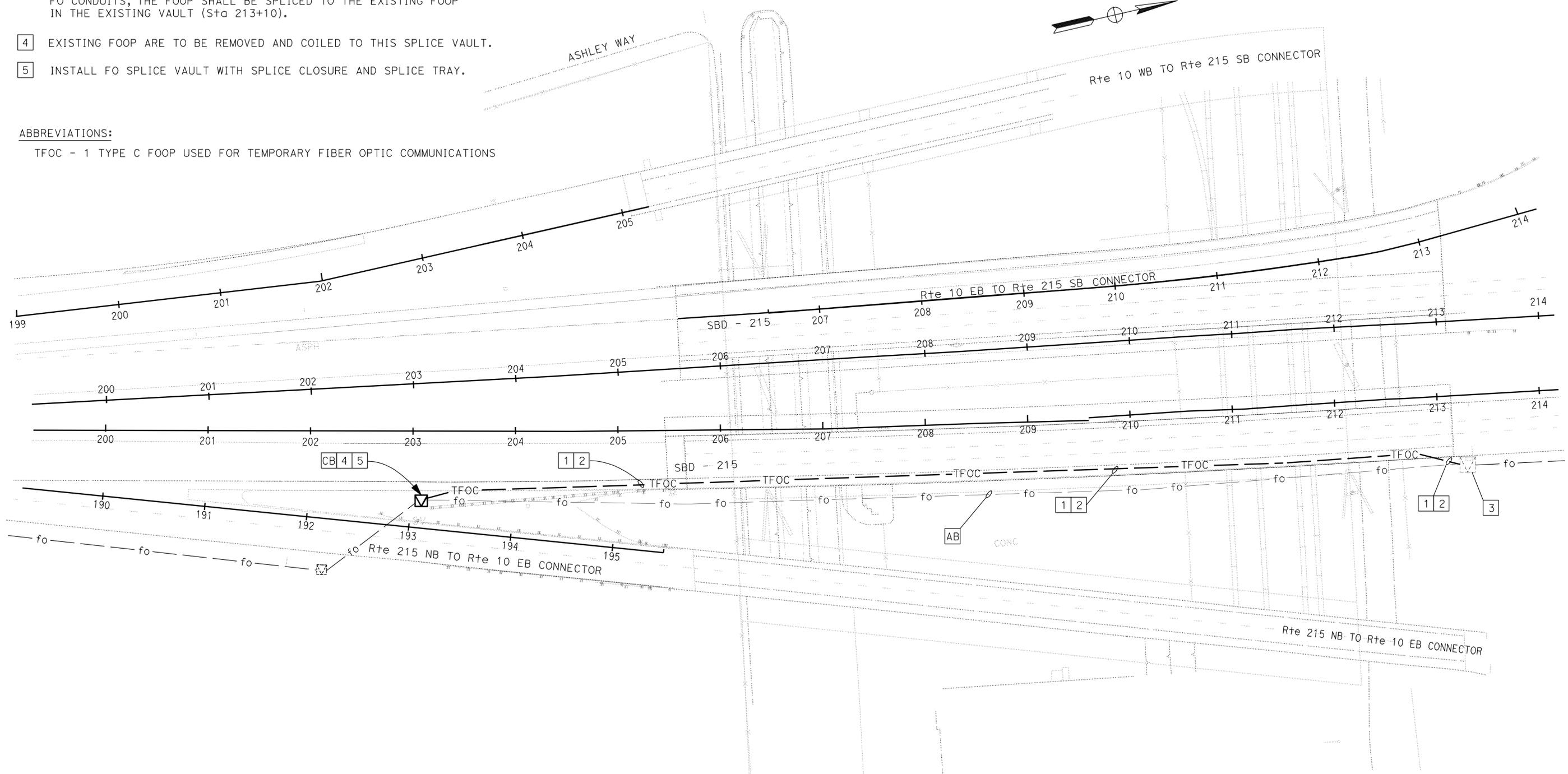
- 1 2" C WITH 1 TYPE C FOOP
- 2 STRAP CONDUIT TO THE TEMPORARY RAILING (TYPE K)
- 3 CUT ALL EXISTING FOOP (TYPE A, B AND (C) AND PULL FOOP TO THE VAULT (Sta 203+00). AFTER THE FOOP HAVE BEEN INSTALLED IN THE NEW BRIDGE FO CONDUITS, THE FOOP SHALL BE SPLICED TO THE EXISTING FOOP IN THE EXISTING VAULT (Sta 213+10).
- 4 EXISTING FOOP ARE TO BE REMOVED AND COILED TO THIS SPLICE VAULT.
- 5 INSTALL FO SPLICE VAULT WITH SPLICE CLOSURE AND SPLICE TRAY.

GENERAL NOTES-SHEETS E-84 TO E-85

1. THESE PLANS ARE ACCURATE FOR MAINTAINING THE EXISTING FO COMMUNICATIONS SYSTEM (4" CONDUIT) DURING THE CONSTRUCTION PHASE (BRIDGE RAIL REPLACEMENT) USING TFOC.

ABBREVIATIONS:

TFOC - 1 TYPE C FOOP USED FOR TEMPORARY FIBER OPTIC COMMUNICATIONS



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

SCALE: 1" = 50'

E-84

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B

FUNCTIONAL SUPERVISOR
 FERDINAND DE LA CRUZ

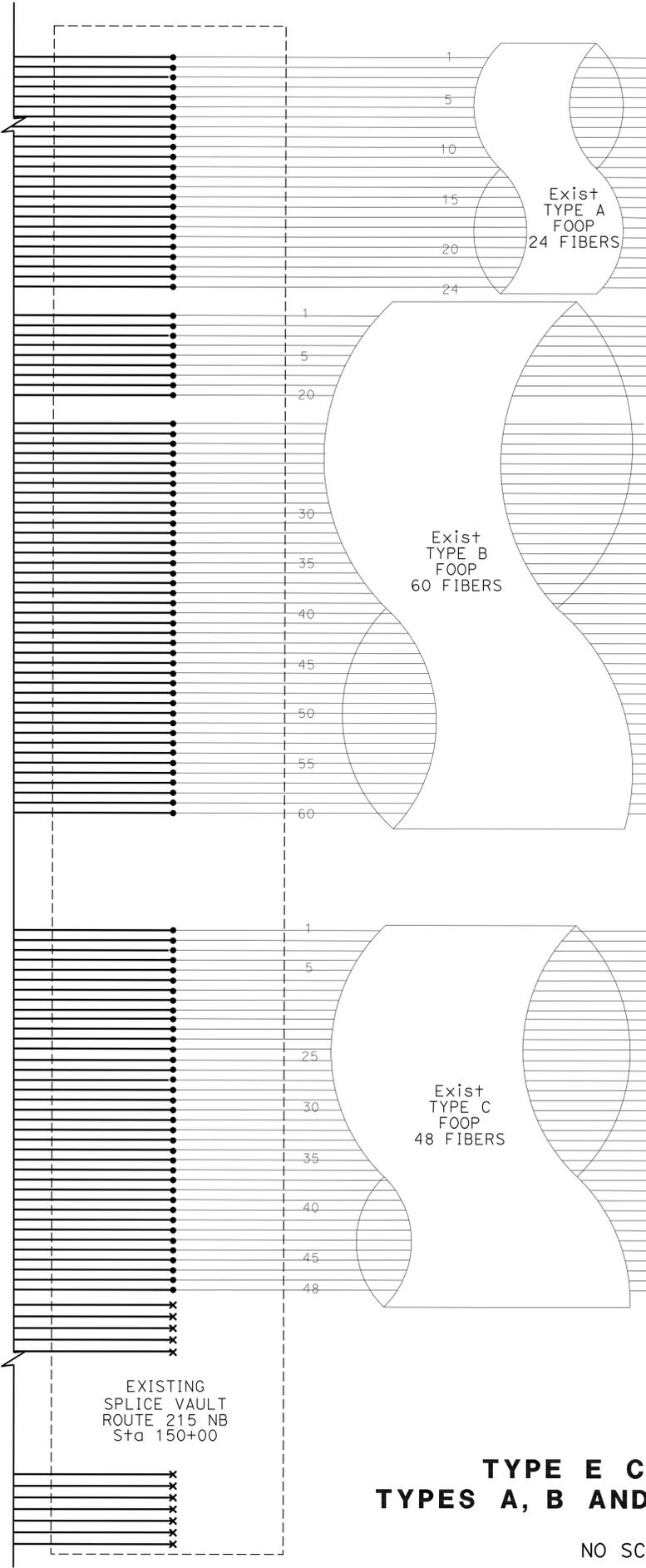
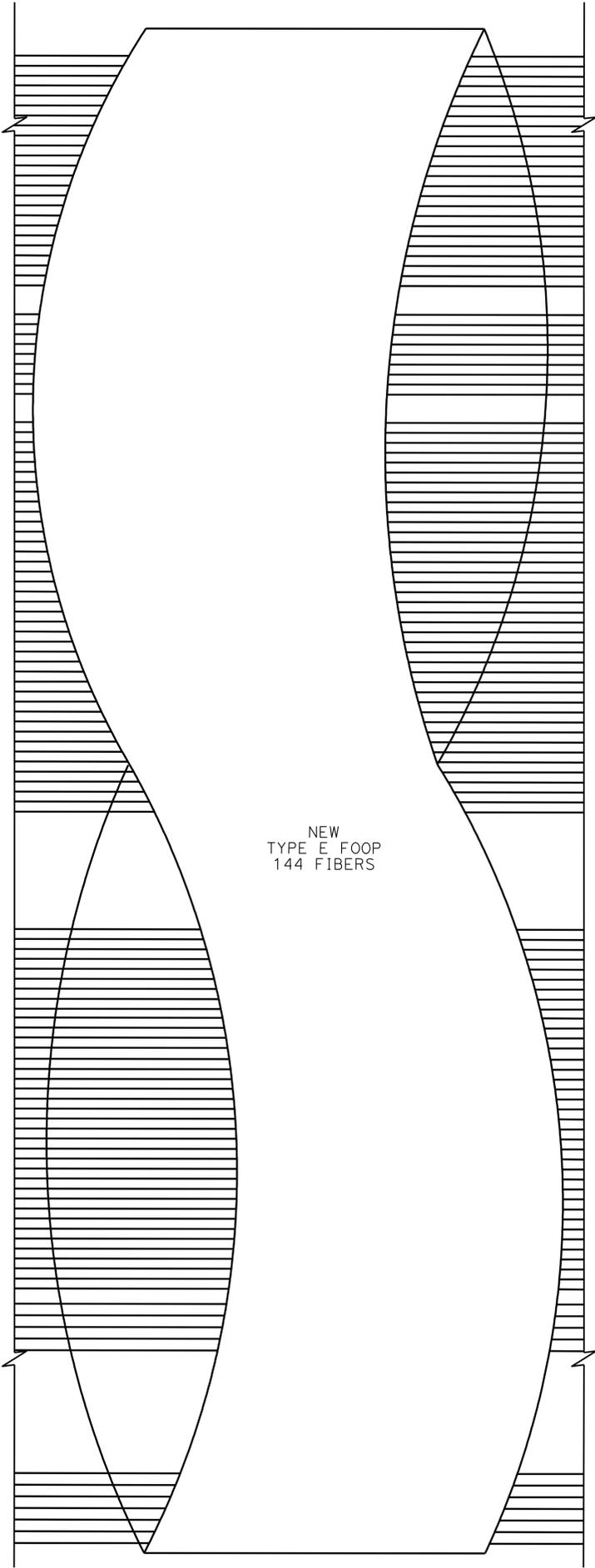
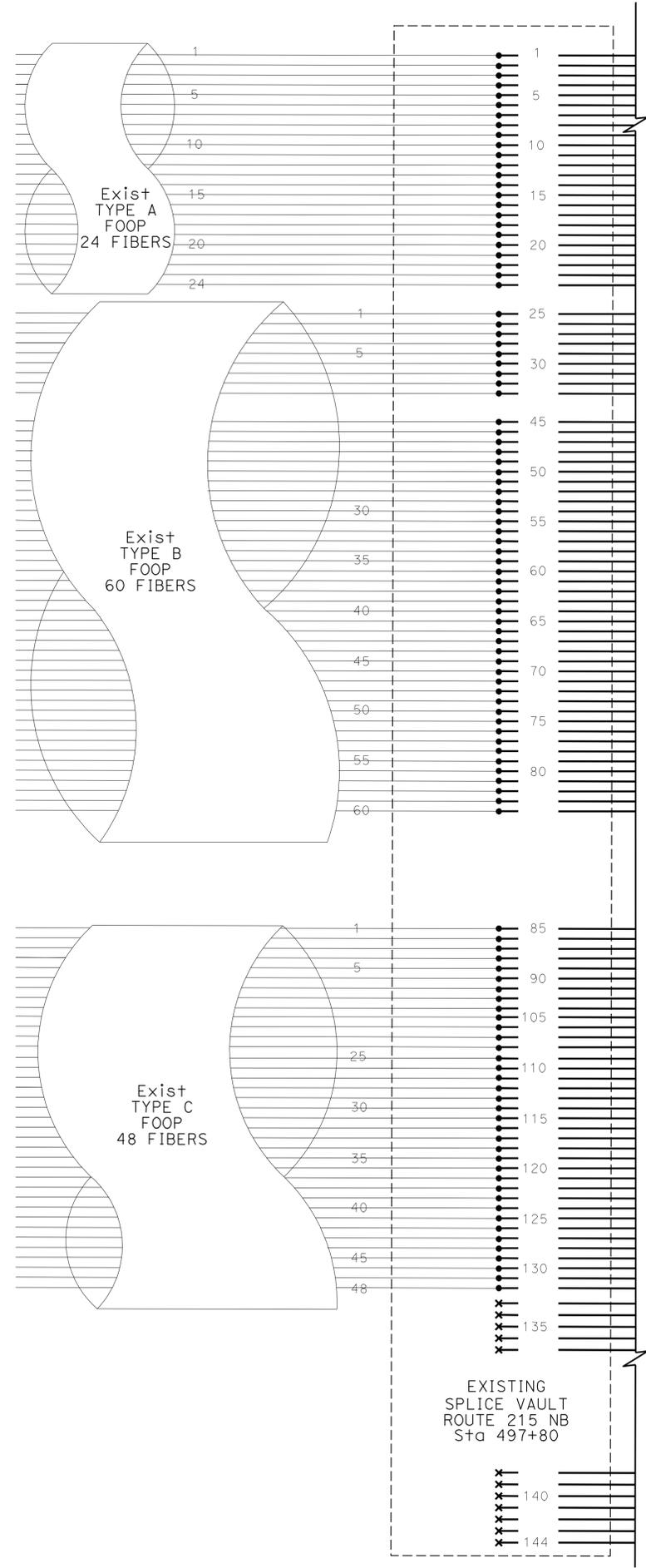
CALCULATED/DESIGNED BY
 CHECKED BY

KATHERINE DINH
 FERDINAND DE LA CRUZ

REVISED BY
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1015	1743
Katherine Dinh REGISTERED ELECTRICAL ENGINEER			4-10-12 DATE		
4-16-12 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTE: (THIS SHEET ONLY)
 1. FOR CLARITY, NOT ALL FIBERS SHOWN



**TYPE E CABLE TO EXISTING
 TYPES A, B AND C FIBER OPTIC CABLES**

NO SCALE

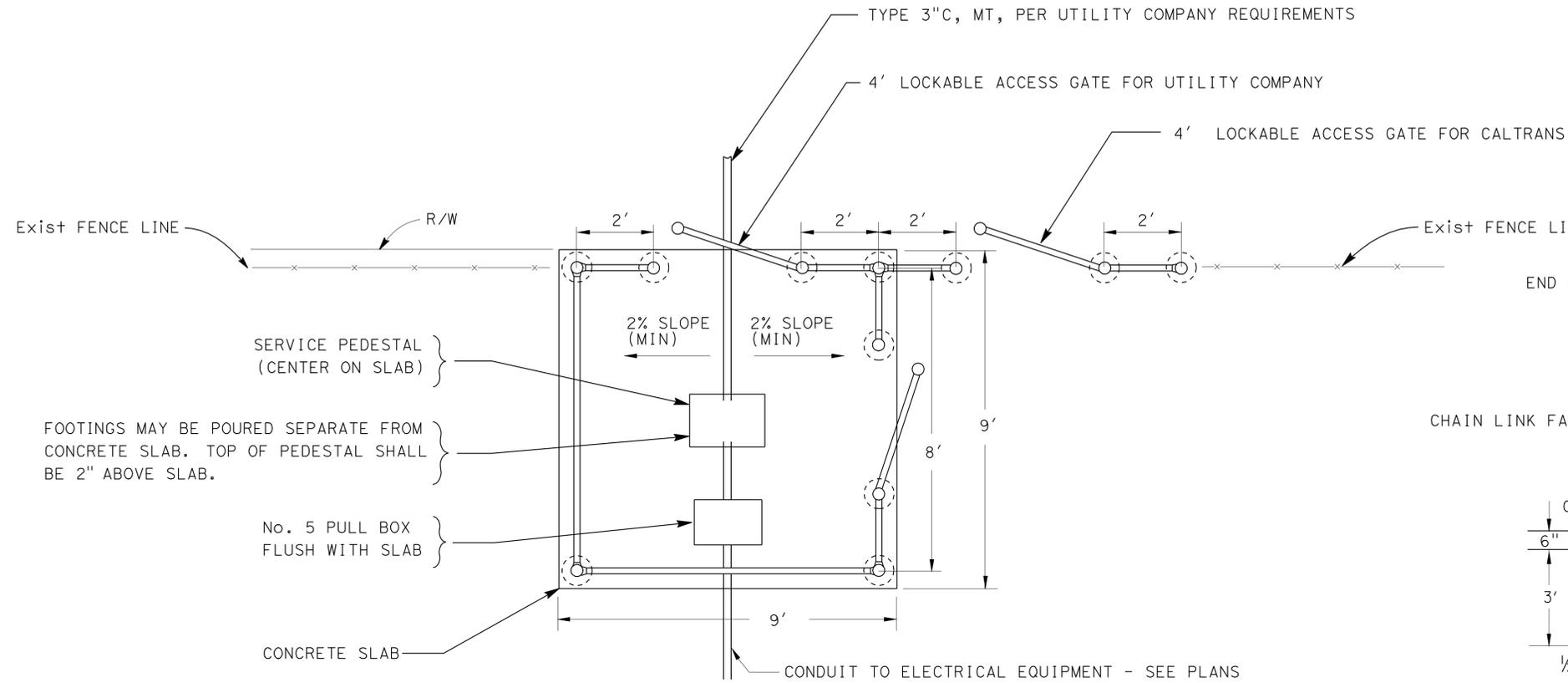
E-86

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1016	1743

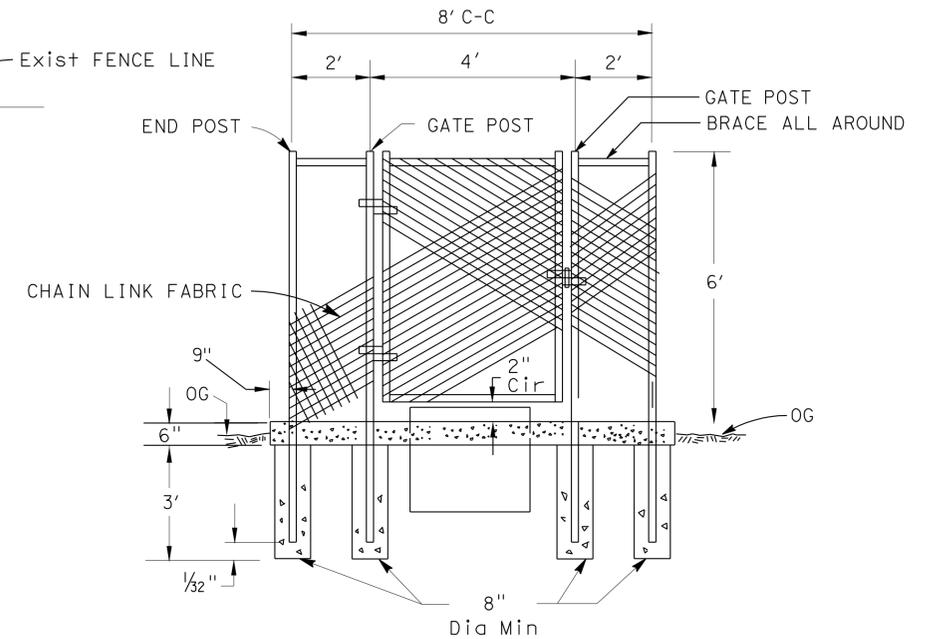
Katherine Dinh 4-17-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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SERVICE FENCE LAYOUT



ELEVATION

NOTES-THIS SHEET ONLY:

- REFER TO STANDARD PLANS ES-2F, ES-8 AND RSP A85 FOR ADDITIONAL FENCE DETAILS.

MODIFY LIGHTING AND SIGN ILLUMINATION (SERVICE FENCE DETAIL)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Katherine Dinh
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 ELECTRICAL DESIGN B

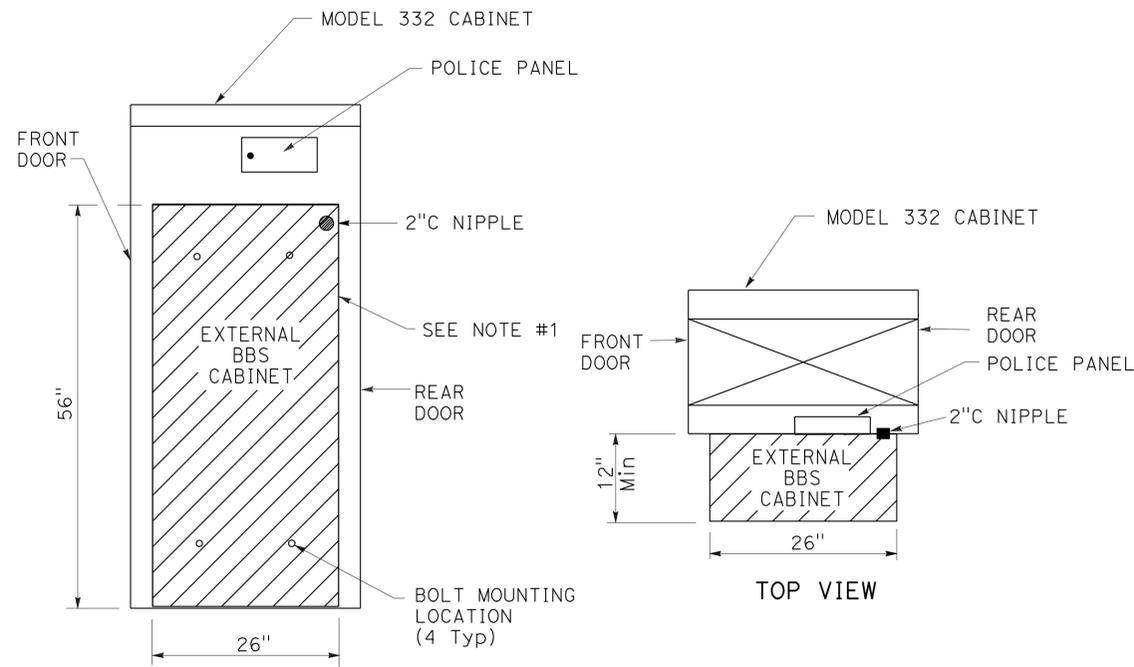
LAST REVISION DATE PLOTTED => 18-APR-2012
 04-17-12 TIME PLOTTED => 16:28

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1017	1743

Katherine Dinh 2-27-12	
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

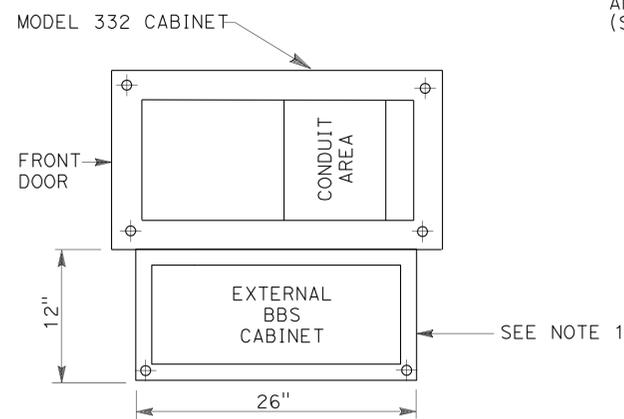
REGISTERED PROFESSIONAL ENGINEER
KATHERINE DINH
No. E 17157
Exp. 9-30-13
ELECTRICAL
STATE OF CALIFORNIA

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SIDE VIEW

EXTERNAL BBS CABINET MOUNTED TO THE MODEL 332 CABINET

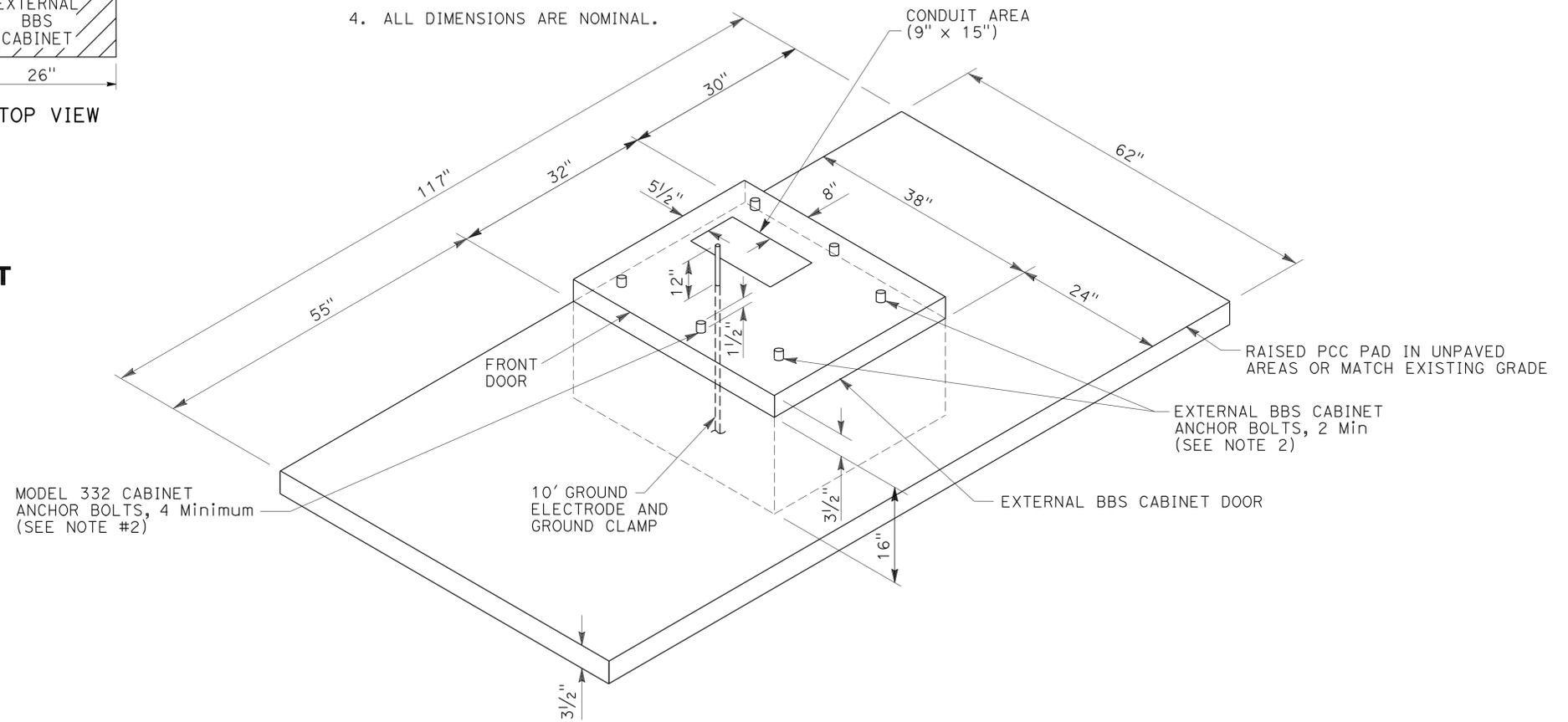


BASE PLAN FOR BBS MOUNTED TO THE MODEL 332 CABINET

(FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE SHEET A6-1 TO A6-4, CABINET HOUSING DETAILS OF THE TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATION (TEES))

NOTES-THIS SHEET ONLY

1. THE EXTERNAL BBS CABINET SHALL BE MOUNTED TO THE MODEL 332 CABINET WITH FOUR 18-8 STAINLESS STEEL HEX HEAD, FULLY-THREADED, 3/8"-16 X 1" BOLTS; TWO WASHERS PER BOLT, DESIGNED FOR 3/8" BOLTS AND ARE 18-8 STAINLESS STEEL, 1" OUTSIDE DIAMETER, ROUND, AND FLAT; AND ONE K-LOCK NUT PER BOLT THAT IS 18-8 STAINLESS STEEL AND A HEX-NUT. THE ENGINEER WILL APPROVE THE BOLT MOUNTING LOCATION PRIOR TO INSTALLATION.
2. THE ANCHOR BOLTS SHALL BE 3/4" Dia X 15" WITH A 2"-90° BEND. THE CABINET MANUFACTURER'S SPECIFICATION SHALL DETERMINE THE LOCATION OF THE ANCHOR BOLTS IN THE FOUNDATION. THE ENGINEER WILL APPROVE THE ANCHOR BOLTS AND ITS LOCATION IN THE FOUNDATION PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF THE BBS CABINET PRIOR TO CONSTRUCTING THE FOUNDATION OF THE MODIFIED PORTION OF THE STD MODEL 332 AND 334 CABINET FOUNDATION. THE ENGINEER WILL APPROVE ANY NECESSARY DEVIATIONS PRIOR TO CONSTRUCTION.
4. ALL DIMENSIONS ARE NOMINAL.



MODEL 332 CABINET MODIFIED FOUNDATION DETAIL FOR BATTERY BACKUP SYSTEM

SEE STD PLAN ES-3C FOR FURTHER DETAILS

**SIGNAL AND LIGHTING
(BBS FOUNDATION DETAILS)**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1018	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

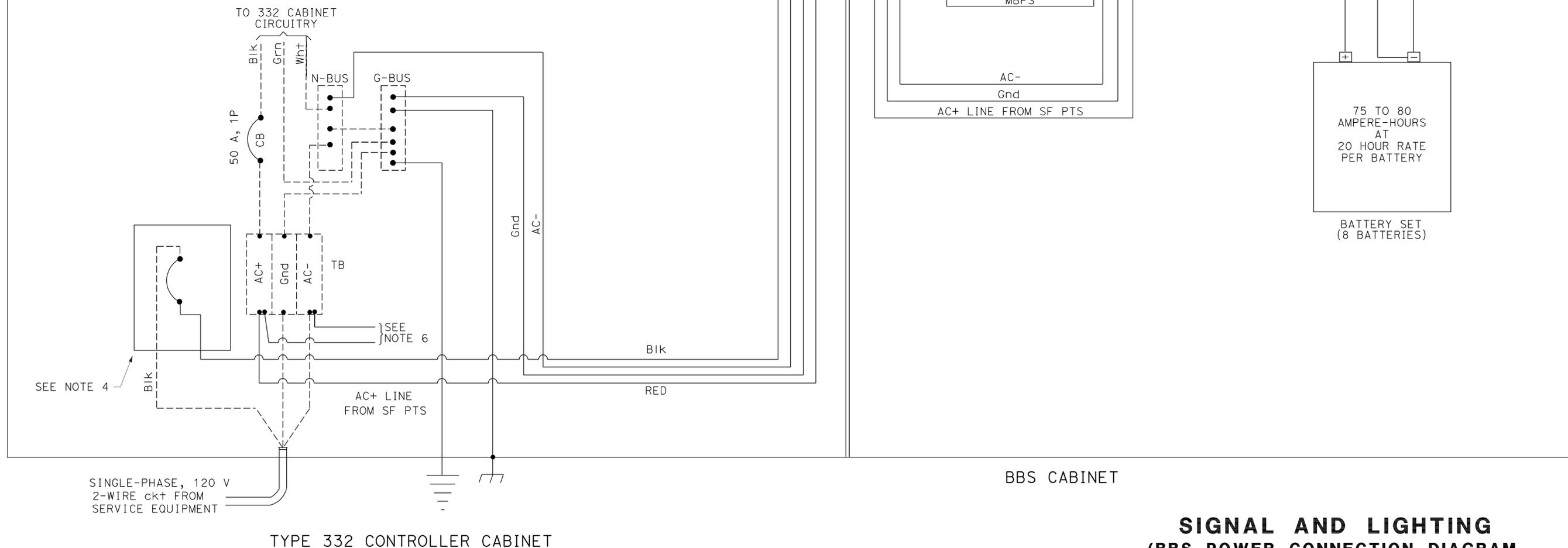
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LEGEND: (THIS SHEET ONLY)

- PTS = POWER TRANSFER SWITCH
- UPS = UNINTERRUPTIBLE POWER SUPPLY
- UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
- UPSM = UPS MODE
- BP = BYPASS
- MBPS = MANUAL BYPASS SWITCH
- AC+ = UNGROUNDED CONDUCTOR
- AC- = GROUNDED CONDUCTOR
- C = COMMON
- Grn = GREEN
- Blk = BLACK
- Wht = WHITE
- SF = STATE-FURNISHED
- Batt = BATTERY
- Temp = TEMPERATURE
- TB = TERMINAL BOARD
- Cntl = CONTROL
- Gnd = GROUND

NOTES: (THIS SHEET ONLY)

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2" C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.



**SIGNAL AND LIGHTING
(BBS POWER CONNECTION DIAGRAM,
TYPE B, CASE-1)**

NO SCALE

E-89

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ

LAST REVISION DATE PLOTTED => 18-APR-2012
 02-27-12 TIME PLOTTED => 16:28

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1019	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

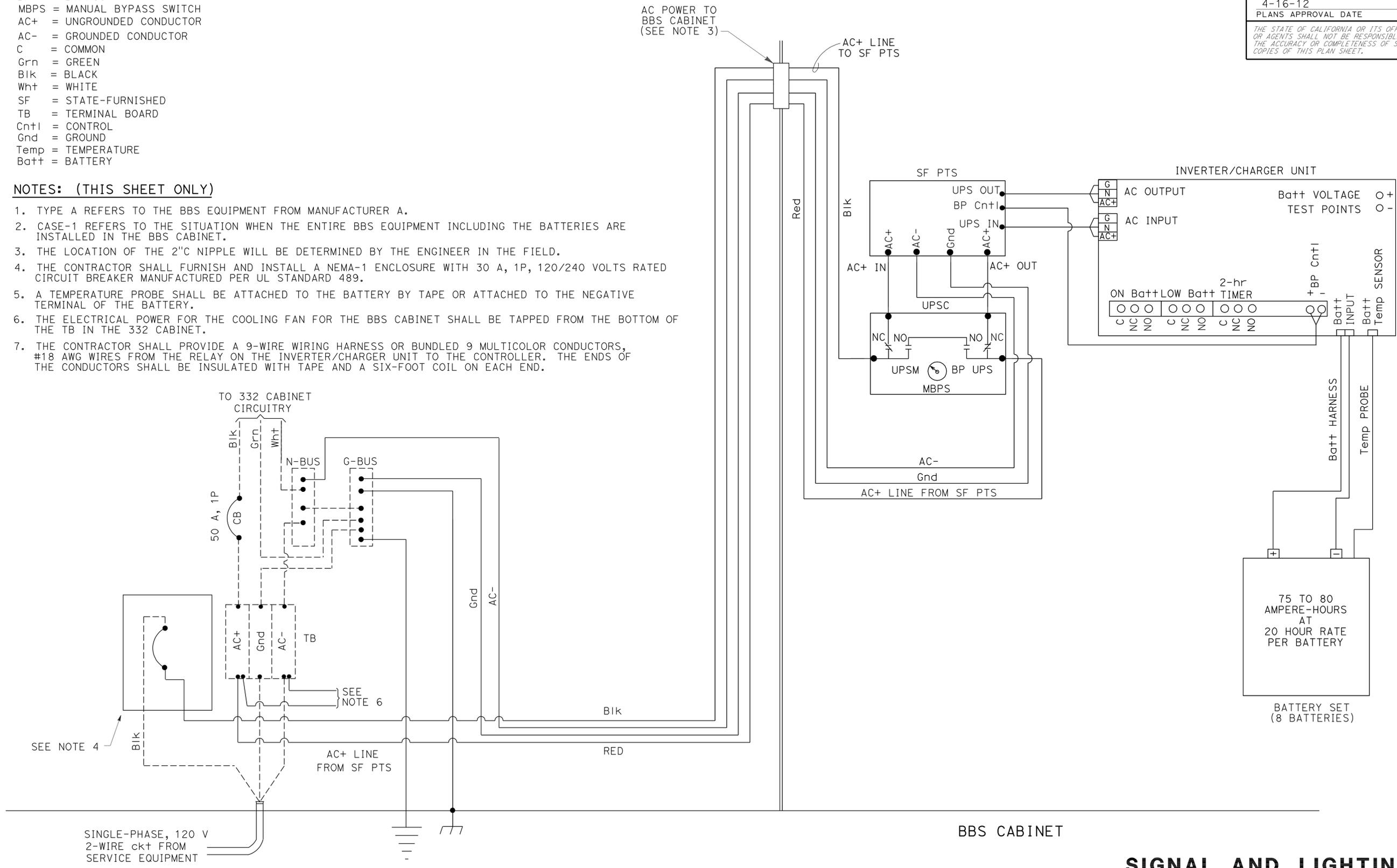
THE STATE OF CALIFORNIA OR ITS OFFICERS
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- UPS = UNINTERRUPTIBLE POWER SUPPLY
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- BP = BYPASS
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- AC+ = UNGROUNDED CONDUCTOR
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- Grn = GREEN
- Blk = BLACK
- Wht = WHITE
- SF = STATE-FURNISHED
- TB = TERMINAL BOARD
- Cntl = CONTROL
- Gnd = GROUND
- Temp = TEMPERATURE
- Batt+ = BATTERY

NOTES: (THIS SHEET ONLY)

1. TYPE A REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER A.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2" C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
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**SIGNAL AND LIGHTING
(BBS POWER CONNECTION DIAGRAM,
TYPE A, CASE-1)**

E-90

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 ELECTRICAL DESIGN B
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ

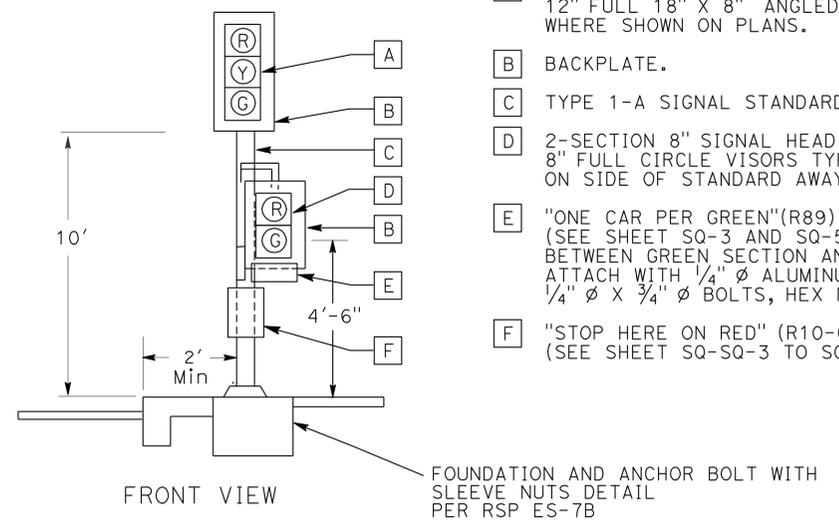
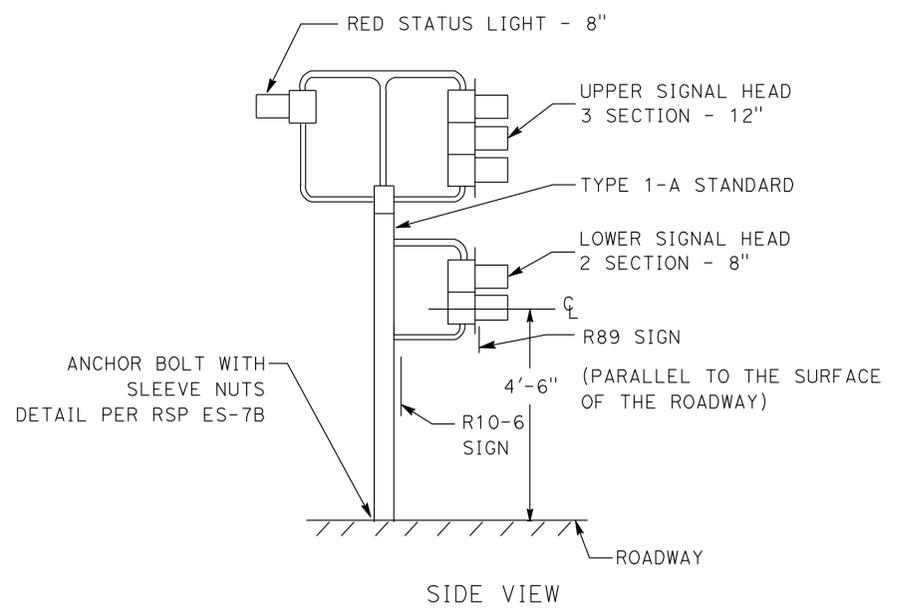
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1020	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

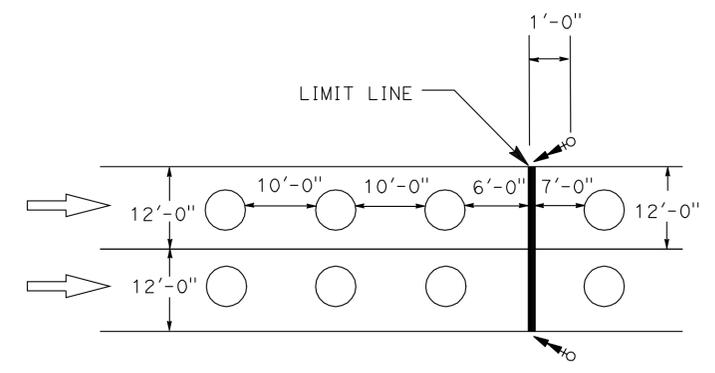
KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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

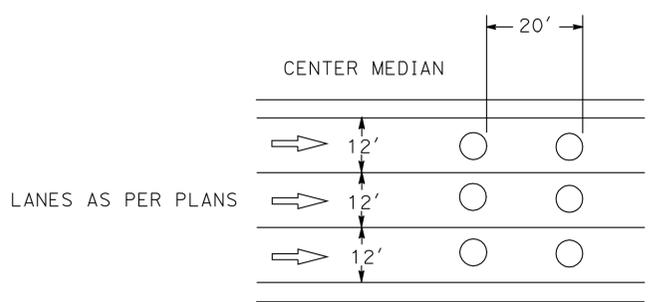


- LEGEND**
- A 3-SECTION 12" SIGNAL HEAD (RED, YELLOW, GREEN), 12" FULL 18" X 8" ANGLED VISORS ARE REQUIRED WHERE SHOWN ON PLANS.
 - B BACKPLATE.
 - C TYPE 1-A SIGNAL STANDARD.
 - D 2-SECTION 8" SIGNAL HEAD (RED, GREEN), 8" FULL CIRCLE VISORS TYPE SV-1-T BRACKET MOUNTING ON SIDE OF STANDARD AWAY FROM THE RAMP TRAFFIC.
 - E "ONE CAR PER GREEN"(R89) CONTRACTOR-FURNISHED SIGN (SEE SHEET SQ-3 AND SQ-5) MOUNTED ON BACKPLATE AND CENTERED BETWEEN GREEN SECTION AND BOTTOM OF BACKPLATES AND SIDES. ATTACH WITH 1/4" Ø ALUMINUM BLIND RIVETS OR GALVANIZED 1/4" Ø X 3/4" Ø BOLTS, HEX NUTS PLAIN AND LOCK WASHERS.
 - F "STOP HERE ON RED" (R10-6) CONTRACTOR-FURNISHED SIGN. (SEE SHEET SQ-SQ-3 TO SQ-7).

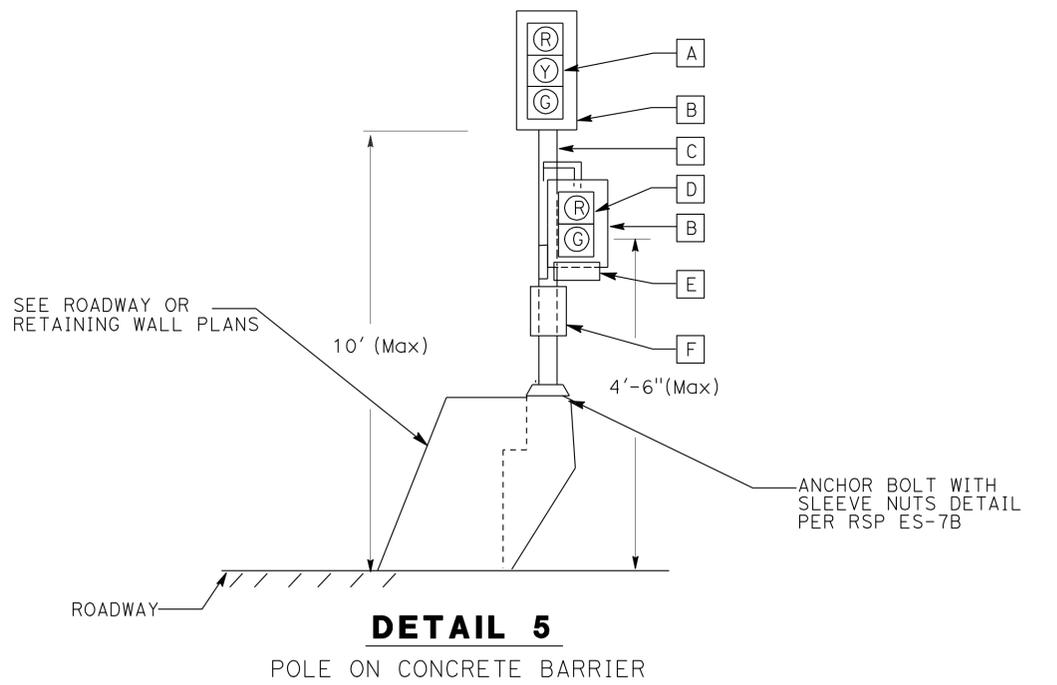
DETAIL 1
RAMP METER SIGNAL



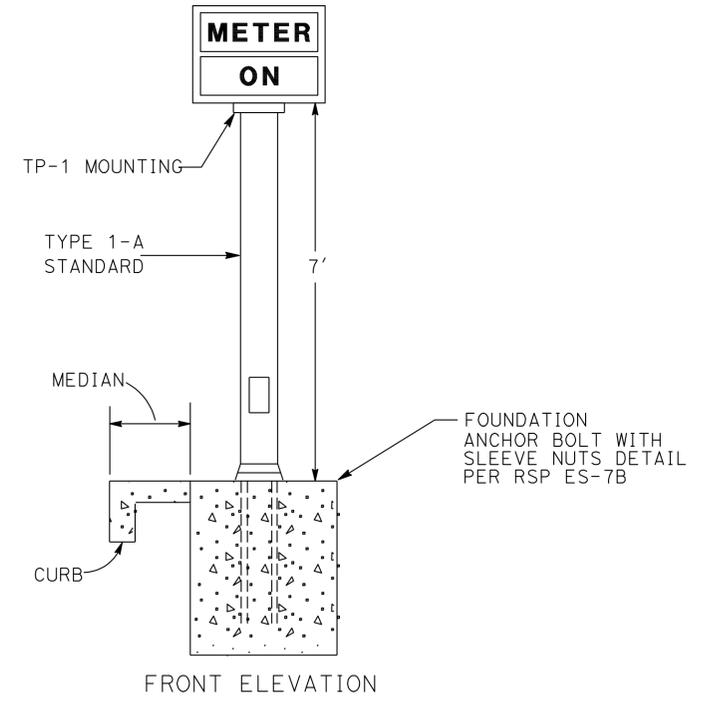
DETAIL 2
2-LANE ON-RAMP LOOP INSTALLATION



DETAIL 3
MAINLINE LOOP INSTALLATION



DETAIL 5
POLE ON CONCRETE BARRIER



DETAIL 4
"METER ON" SIGN

MODIFY RAMP METER SYSTEM
MODIFY VEHICLE DETECTION STATION
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 ELECTRICAL DESIGN B

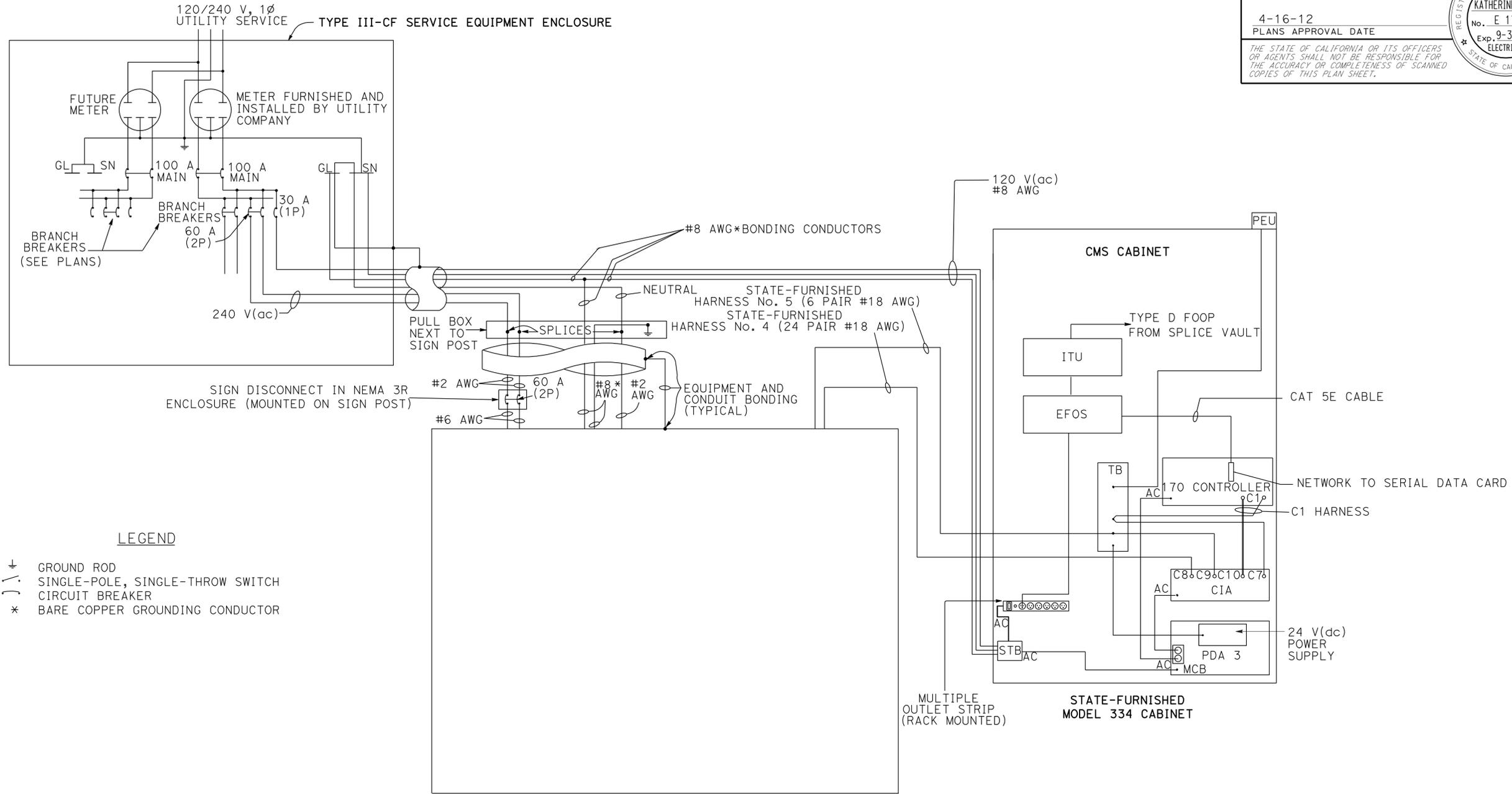
LAST REVISION DATE PLOTTED => 18-APR-2012
 02-27-12 TIME PLOTTED => 11:08

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1021	1743

KATHERINE DINH 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL

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LEGEND

- ⊕ GROUND ROD
- ⌋ SINGLE-POLE, SINGLE-THROW SWITCH
- ⌋ CIRCUIT BREAKER
- * BARE COPPER GROUNDING CONDUCTOR

ABBREVIATIONS

- AWG AMERICAN WIRE GAGE
- CIA CONTROLLER ISOLATION ASSEMBLY
- PDA POWER DISTRIBUTION ASSEMBLY
- STB STANDARD TERMINAL BLOCK
- TB TERMINAL BLOCK

STATE-FURNISHED MODEL 500
CHANGEABLE MESSAGE SIGN PANEL

**MODIFY CHANGEABLE MESSAGE SIGN SYSTEM
(WIRING DETAILS)**

NO SCALE

E-92

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - ELECTRICAL DESIGN B
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B

REVISOR
 KATHERINE DINH
 FERDINAND DE LA CRUZ

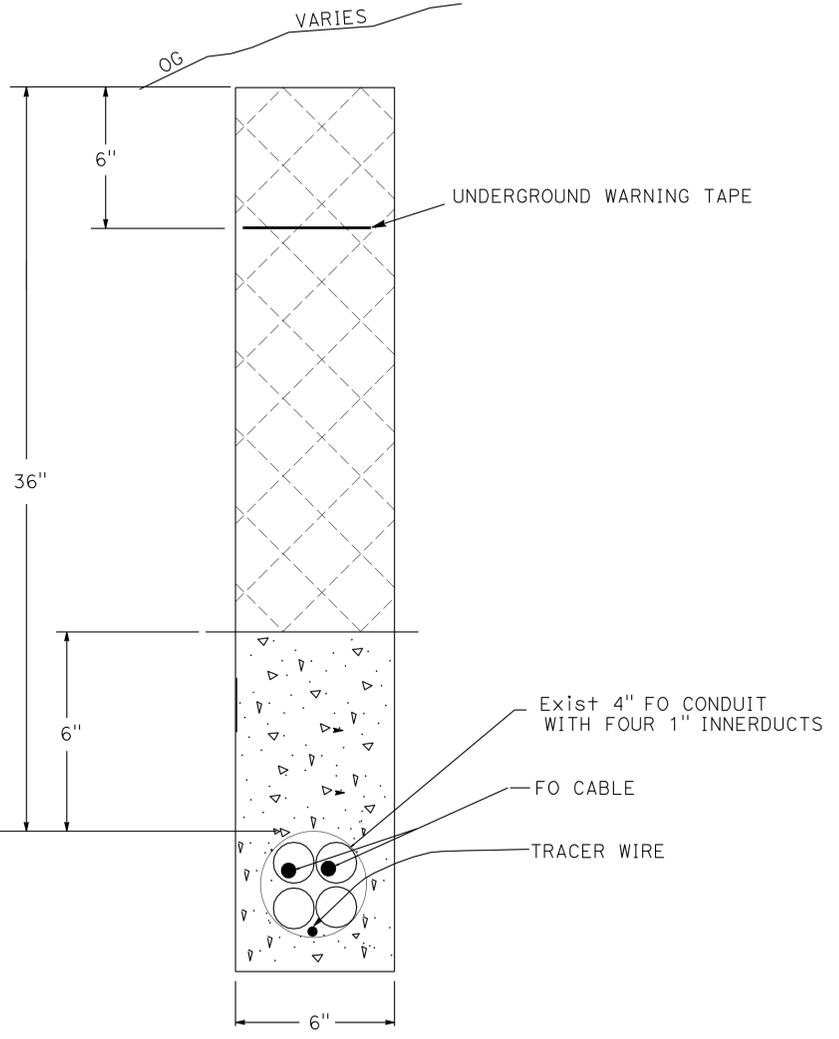
DESIGNER
 FERDINAND DE LA CRUZ

FUNCTIONAL SUPERVISOR
 FERDINAND DE LA CRUZ

CHECKED BY
 FERDINAND DE LA CRUZ

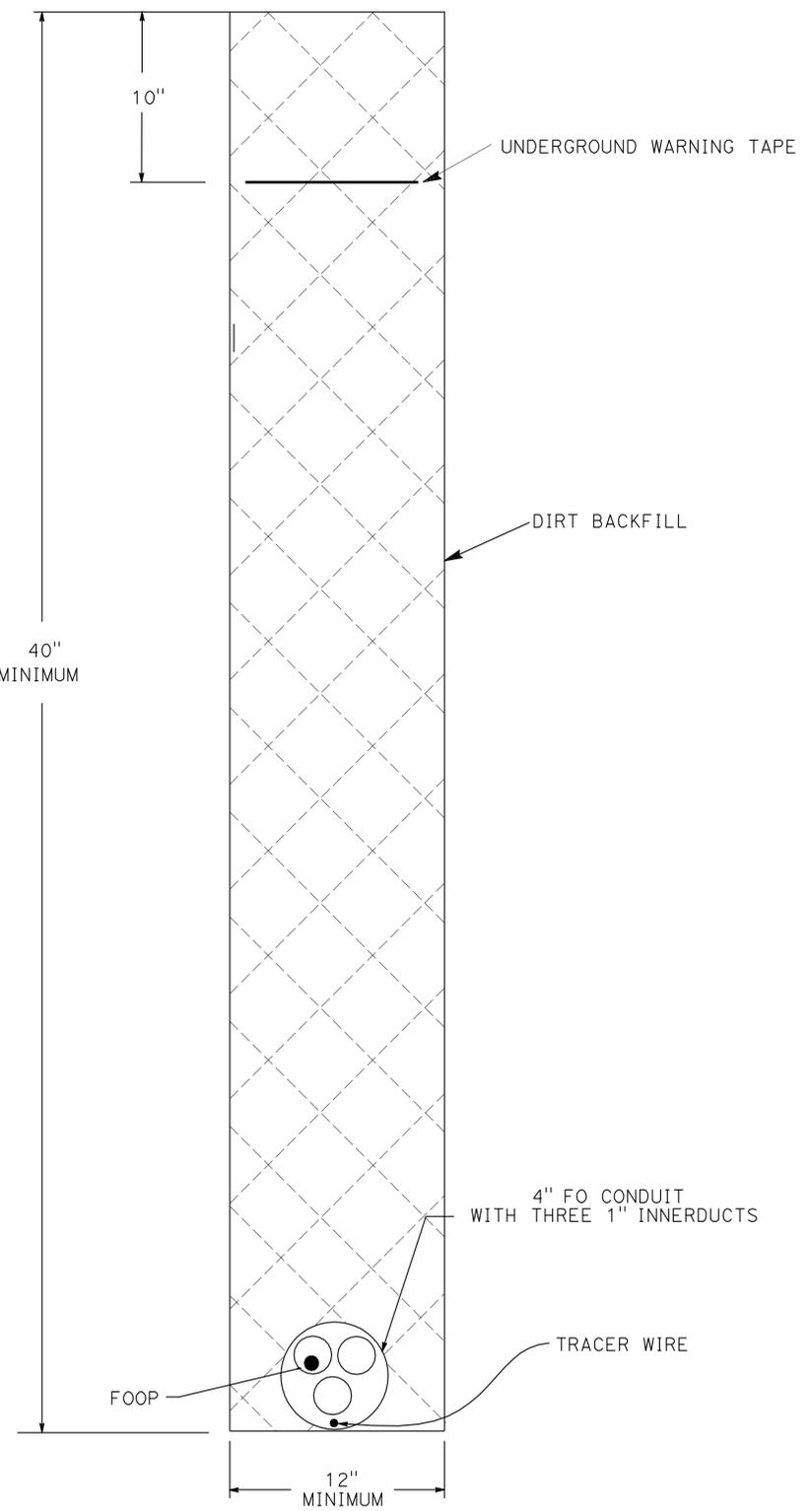
NOTES-THIS SHEET ONLY:

- FIBER OPTIC CONDUIT SHALL BE INSTALLED A MINIMUM OF 6 FEET FROM ANY EXISTING OR PROPOSED MBGR.

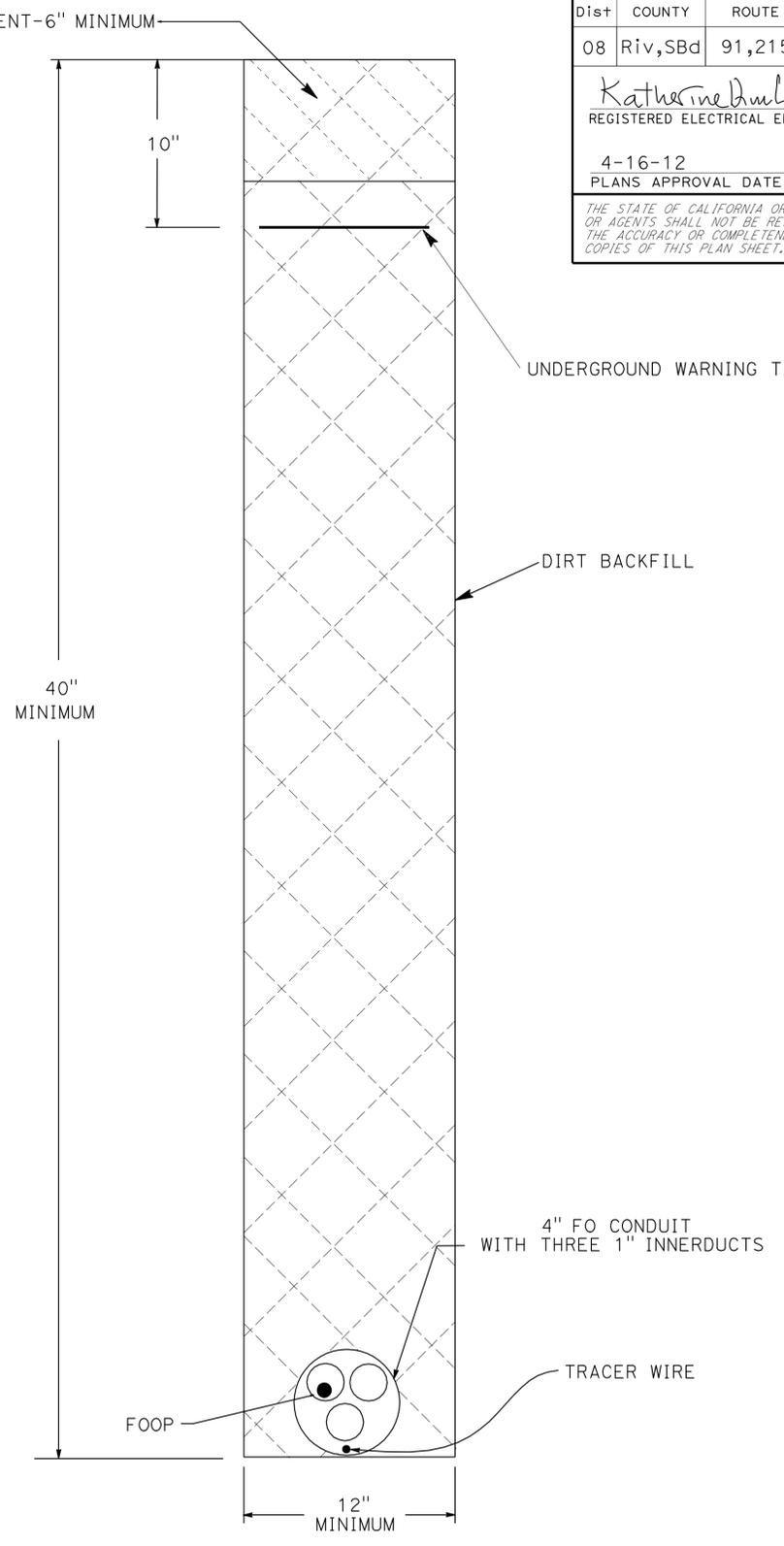


EXISTING FO CONDUIT-(TRENCHED)

ALL DIMENSIONS ARE APPROXIMATE
 (SEE PLANS FOR LOCATIONS)



TRENCH IN DIRT DETAIL



TRENCH IN SHOULDER DETAIL

(CENTERED WITHIN THE SHOULDER OR AS
 DIRECTED BY THE ENGINEER)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1022	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE

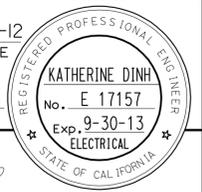
4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL

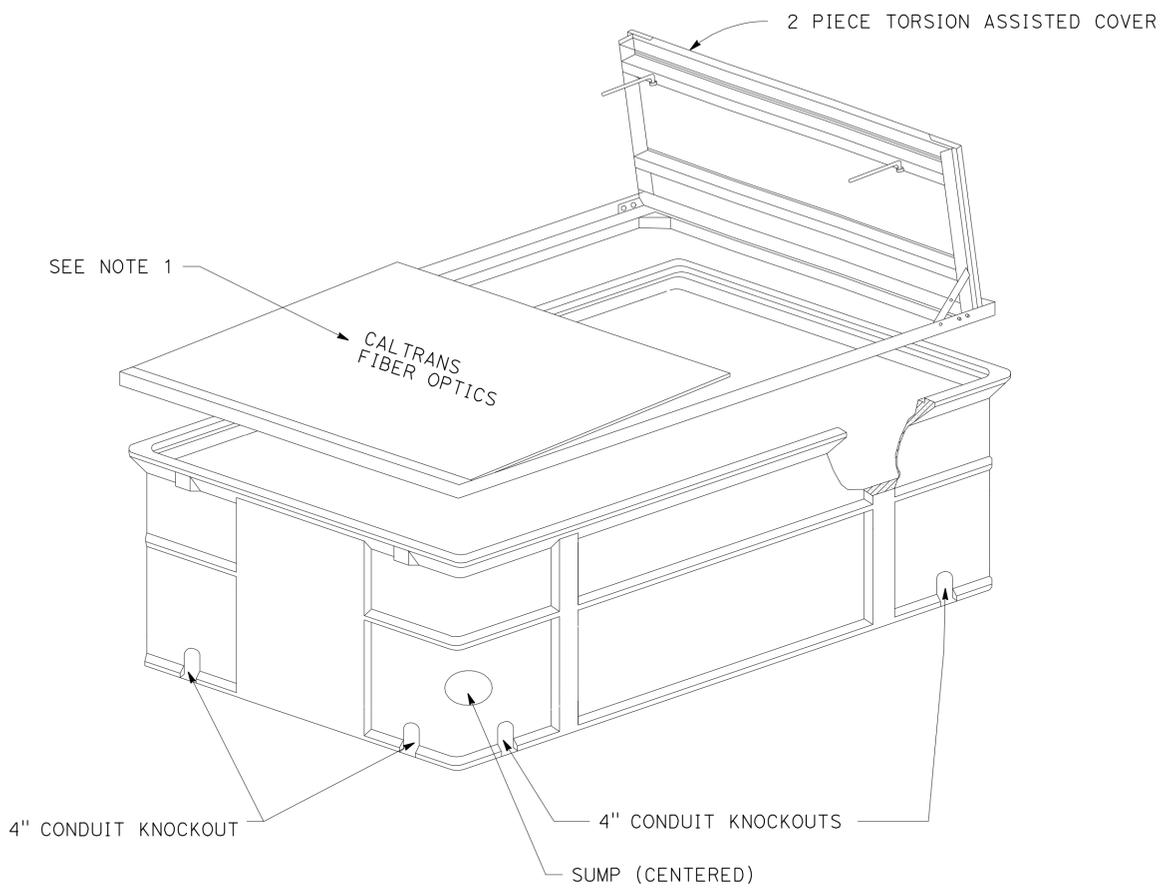
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**MODIFY COMMUNICATION SYSTEM
 (FIBER OPTIC CONDUIT PLACEMENT DETAILS)
 E-93**

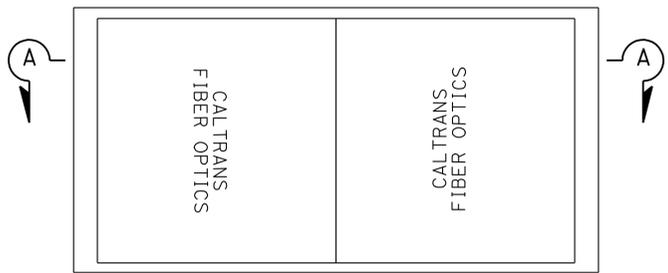
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1024	1743
Katherine Dinh		4-10-12			
REGISTERED ELECTRICAL ENGINEER		DATE			
4-16-12		PLANS APPROVAL DATE			
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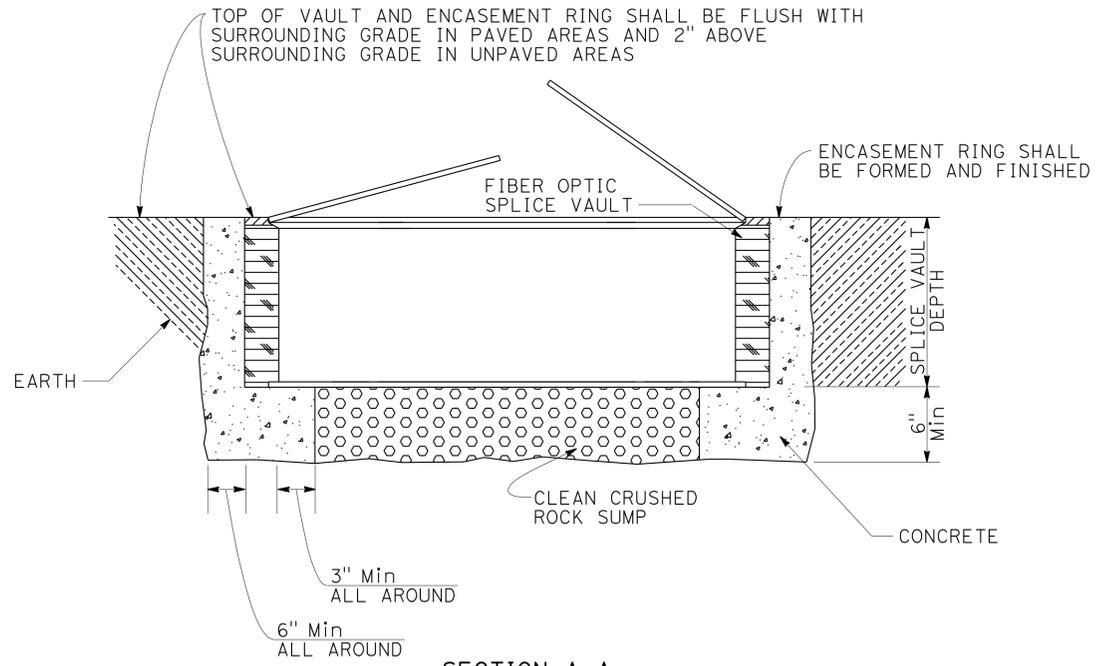
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	Ferdinand de la Cruz	Ferdinand de la Cruz	Katherine Dinh	
	Ferdinand de la Cruz	Ferdinand de la Cruz	Ferdinand de la Cruz	



ISOMETRIC VIEW



TOP VIEW



ENCASEMENT RING DETAILS

NOTES: (THIS SHEET ONLY)

- "CALTRANS FIBER OPTICS" SHALL BE MARKED ON THE PULL BOX COVER IN 3 INCH TALL LETTERS
- CABLE HANGERS SHALL BE INSTALLED IN THE SPLICE VAULT.

**MODIFY COMMUNICATION SYSTEM
(RECTANGULAR SPLICE VAULT DETAILS)**

NO SCALE

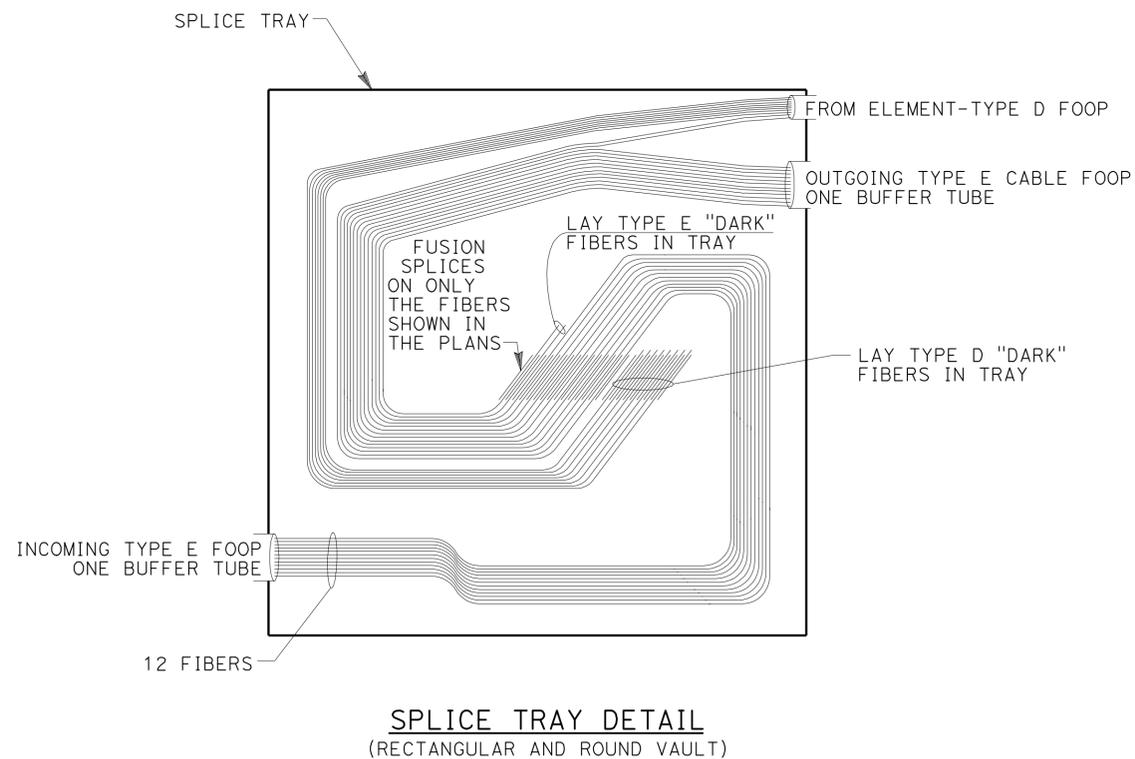
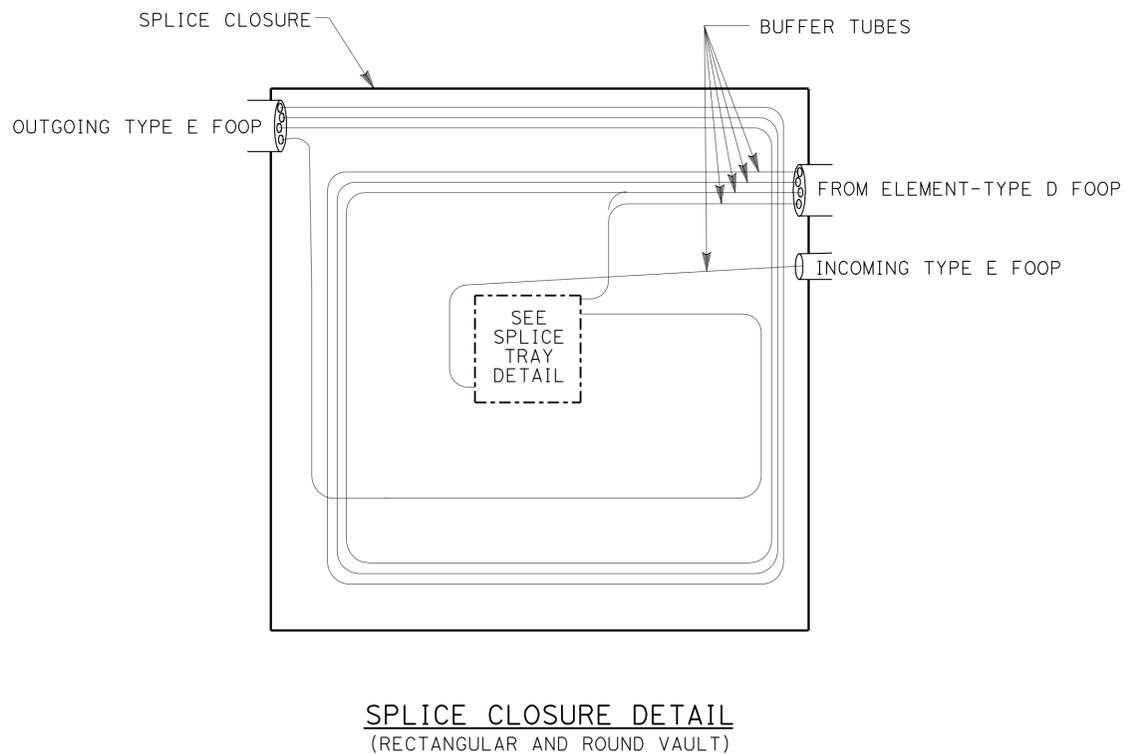
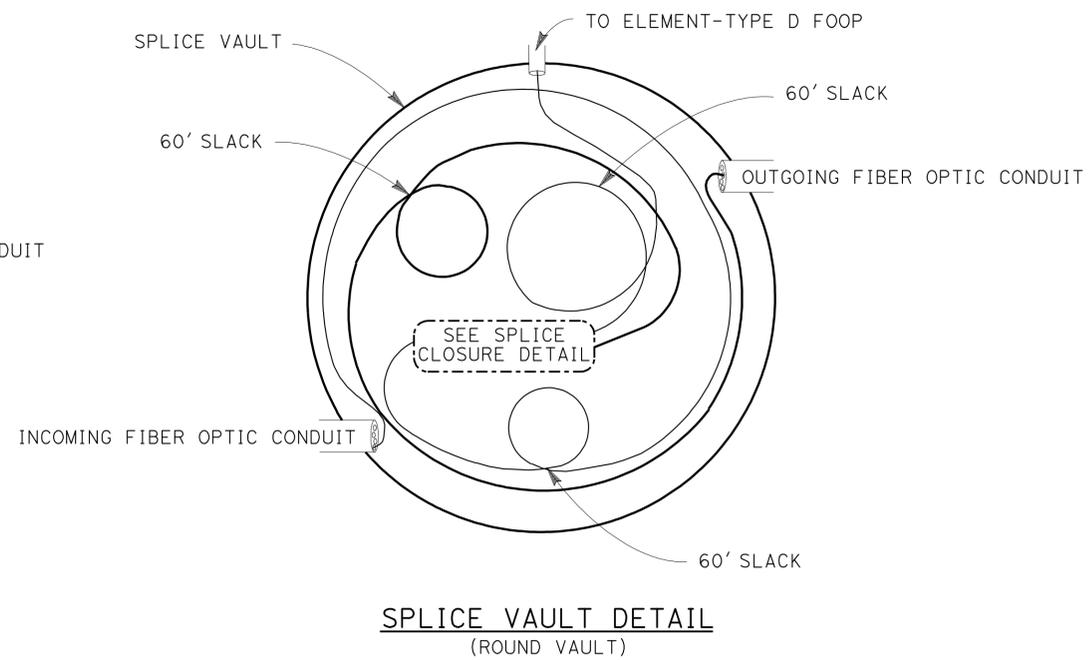
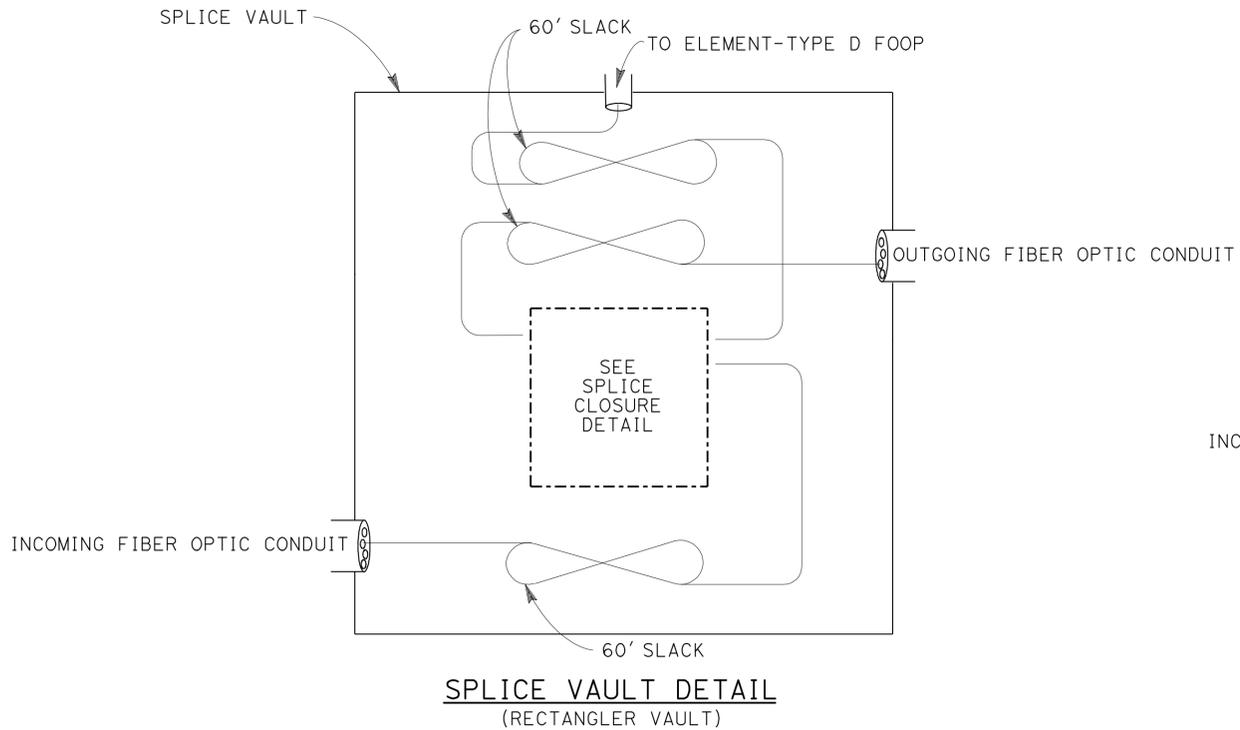
E-95

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1025	1743

<i>Katherine Dinh</i>	4-10-12
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
KATHERINE DINH
No. E 17157
Exp. 9-30-13
ELECTRICAL
STATE OF CALIFORNIA

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NOTE: (THIS SHEET ONLY)

IN ROUND VAULTS, THE FOOP SLACK SHALL BE STRAPPED TO THE INSIDE OF THE VAULT WALL.

MODIFY COMMUNICATION SYSTEM (SPLICE VAULT DETAILS)

NO SCALE

E-96

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B

REVISOR BY
KATHERINE DINH
DATE
FERDINAND DE LA CRUZ

DESIGNED BY
KATHERINE DINH
CHECKED BY
FERDINAND DE LA CRUZ

SUPERVISOR
FERDINAND DE LA CRUZ

DESIGNED BY
KATHERINE DINH
CHECKED BY
FERDINAND DE LA CRUZ

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B

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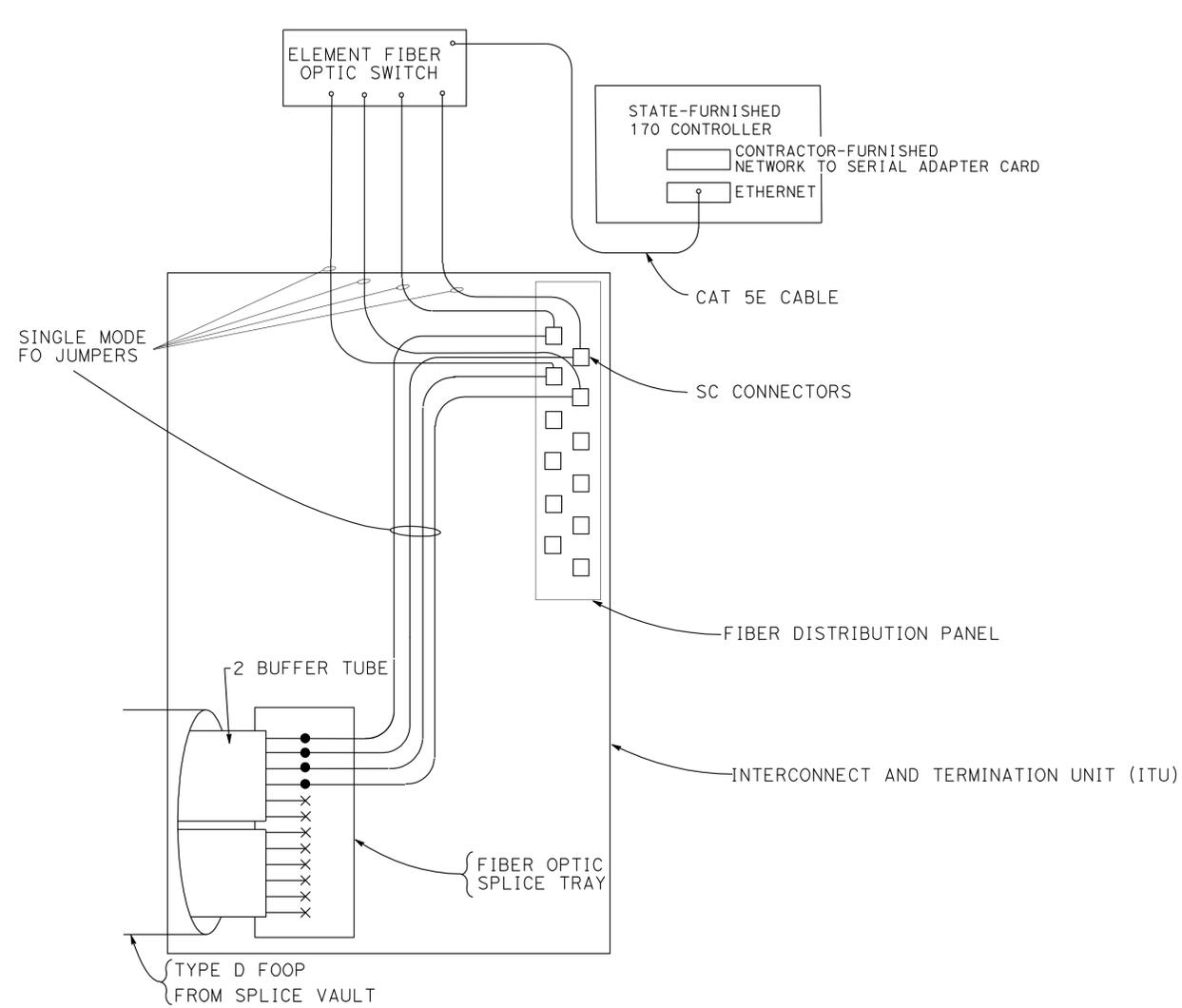
Katherine Dinh 2-27-12	
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KATHERINE DINH	
No. E 17157	Exp. 9-30-13
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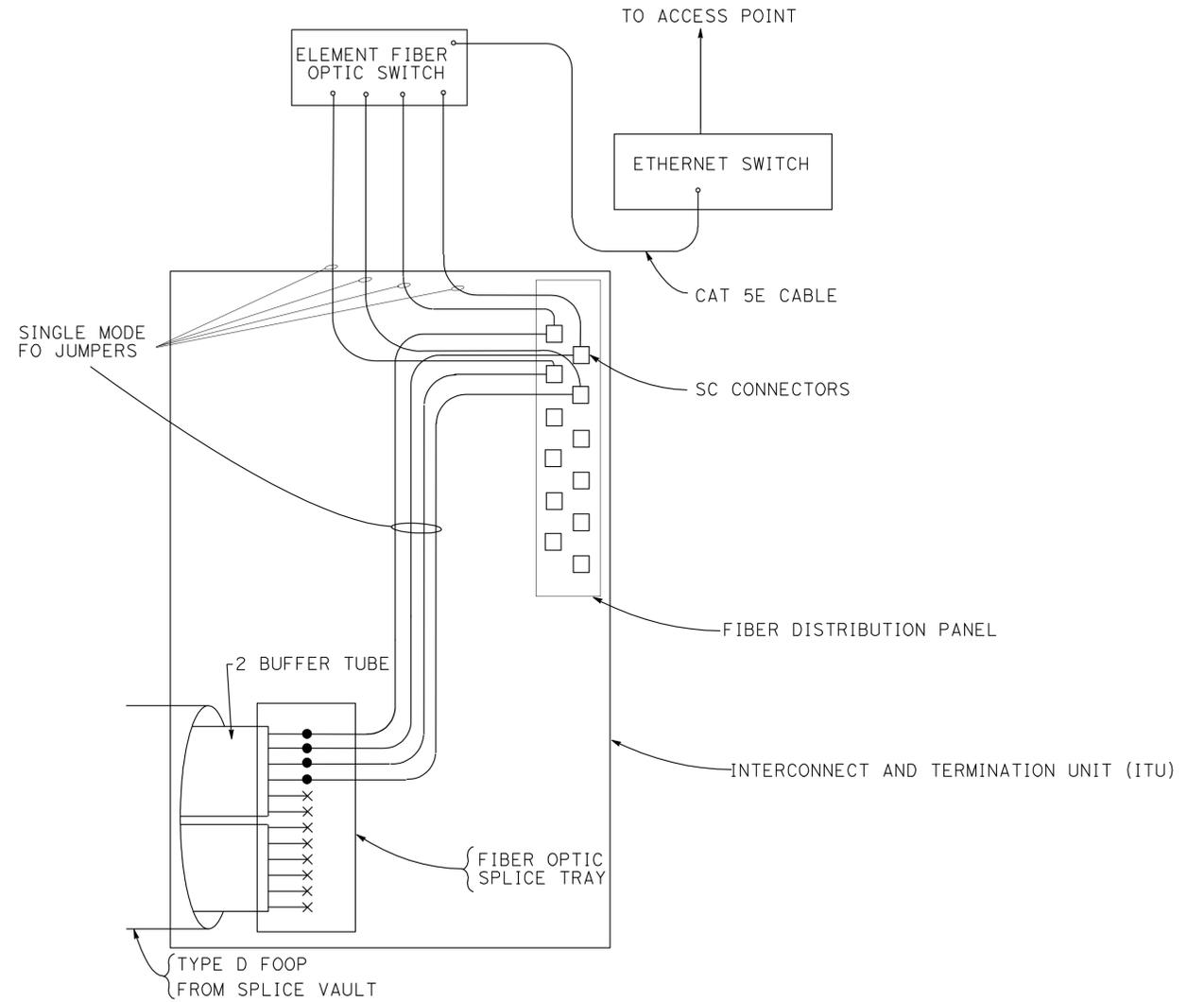
LEGEND:

- SC CONNECTORS
- SPLICE PIGTAIL TO TYPE D CABLE
- × DARK FIBER



MODEL 170 CONTROLLER INTERFACE

RMS AND TMS



MODEL 170 CONTROLLER INTERFACE

WVDS

**MODIFY COMMUNICATION SYSTEM
(INTERFACE DETAILS)**

NO SCALE

E-97

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	CHECKED BY	KATHERINE DINH	
	FERDINAND DE LA CRUZ		FERDINAND DE LA CRUZ	

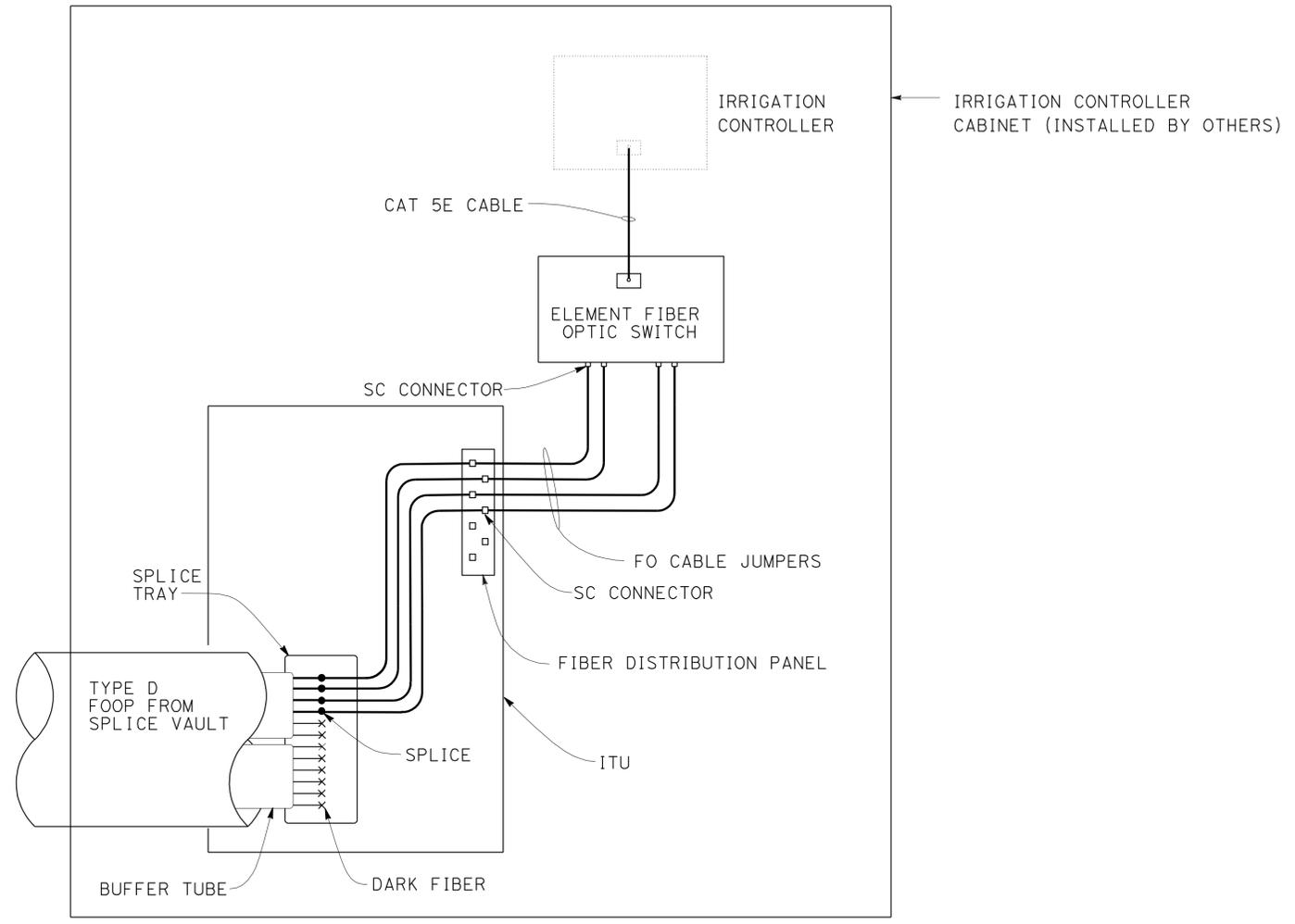
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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<i>Katherine Dinh</i>	2-27-12
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
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REGISTERED PROFESSIONAL ENGINEER
KATHERINE DINH
No. E 17157
Exp. 9-30-13
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STATE OF CALIFORNIA

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Caltrans ELECTRICAL DESIGN B
FUNCTIONAL SUPERVISOR FERDINAND DE LA CRUZ
CALCULATED/DESIGNED BY CHECKED BY
KATHERINE DINH FERDINAND DE LA CRUZ
REVISED BY DATE REVISED



ICC COMMUNICATION INTERFACE

**MODIFY COMMUNICATION SYSTEM
(IRRIGATION COMMUNICATION)**

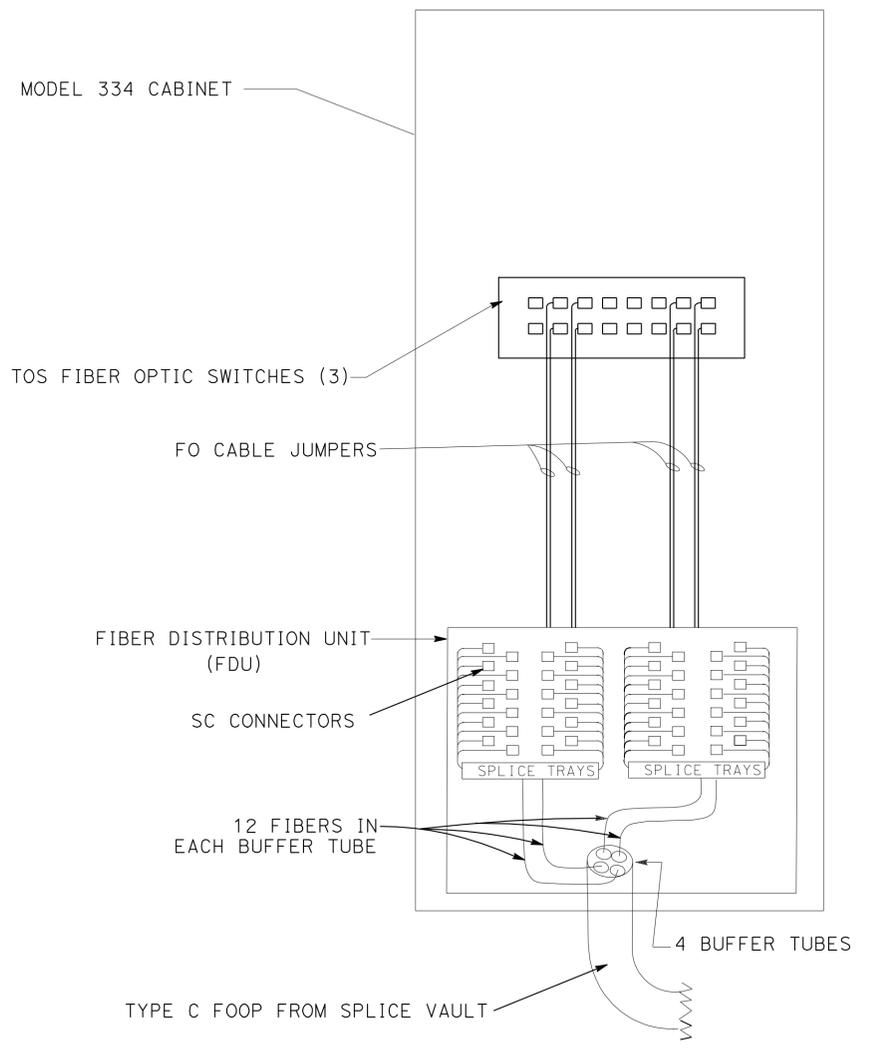
NO SCALE

E-98

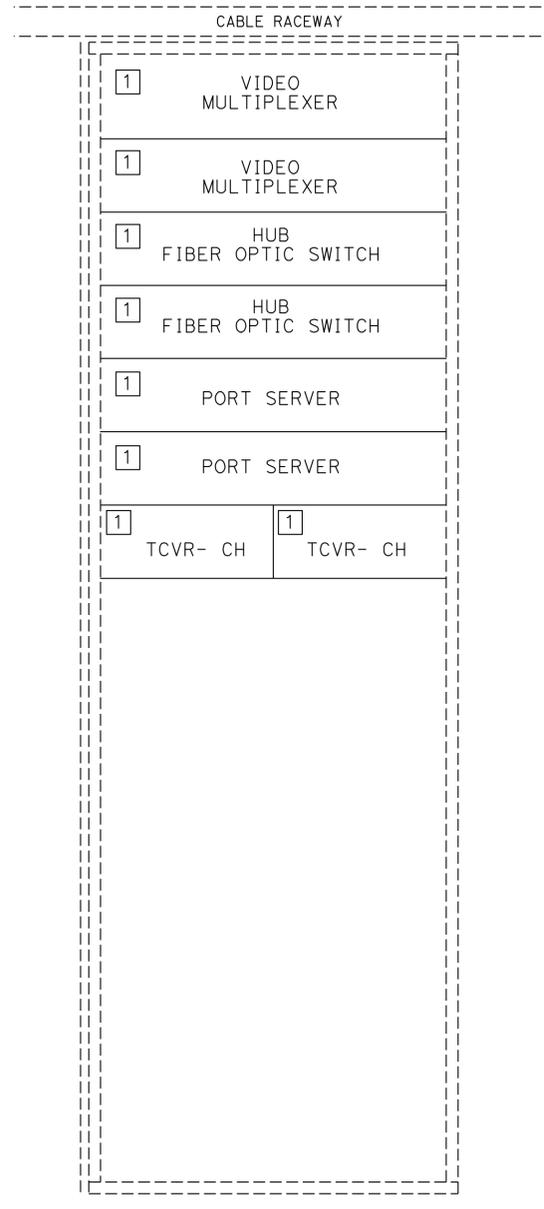
NOTES: (THIS SHEET ONLY)

- 1 INSTALL EQUIPMENT IN EXISTING RACKS

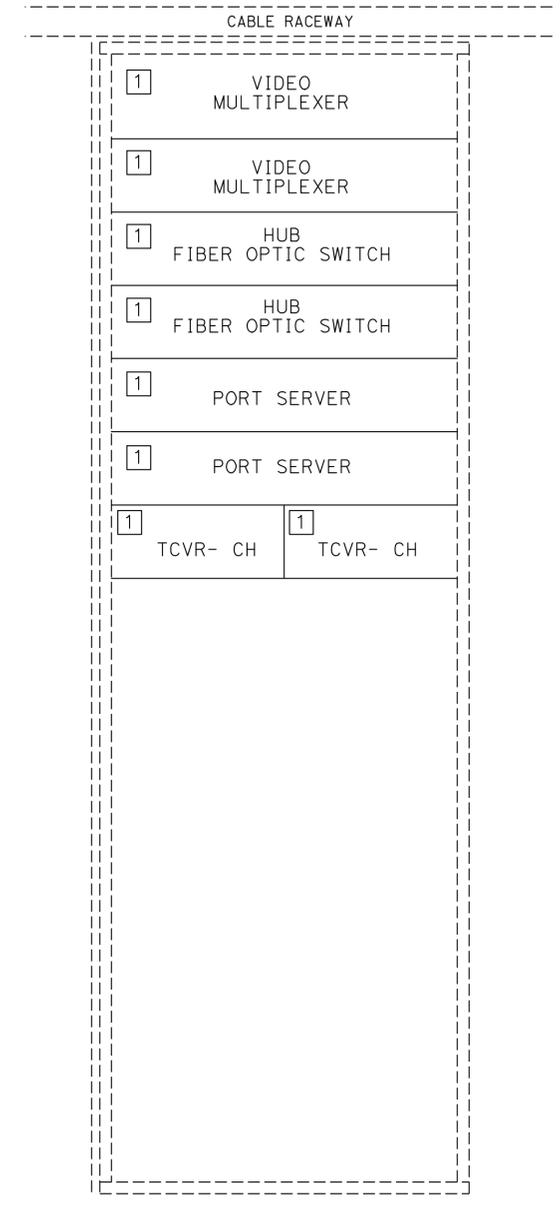
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ



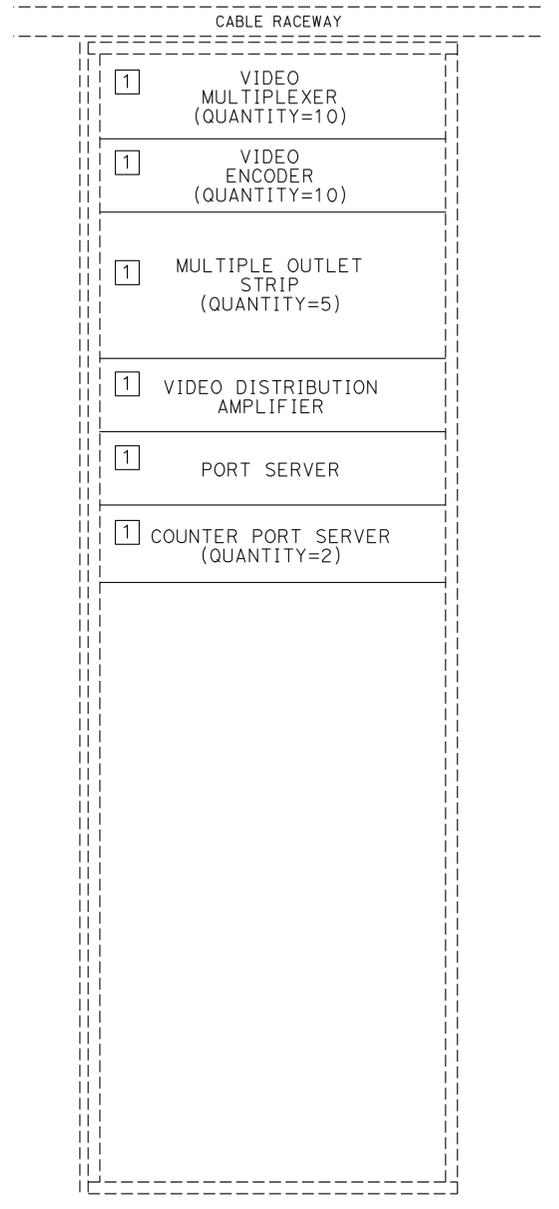
TOS CABINET ASSEMBLY



EXISTING RACK IN HUB B



EXISTING RACK IN HUB C



EXISTING RACK IN TMC

MODIFY COMMUNICATION SYSTEM
(TRANSPORTATION MANAGEMENT CENTER, TRAFFIC OPERATIONS CABINET AND HUB EQUIPMENT DETAILS)

NO SCALE

E-99

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1029	1743

Katherine Dinh
 REGISTERED ELECTRICAL ENGINEER DATE 4-10-12
 4-16-12
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

LEGEND-SHEETS E-80 TO E-87

- EXISTING ELEMENT, VAULT OR 170 INTERFACE
- SPLICE FIBER TO FIBER
- x CUT END OF FIBER
- SC CONNECTOR

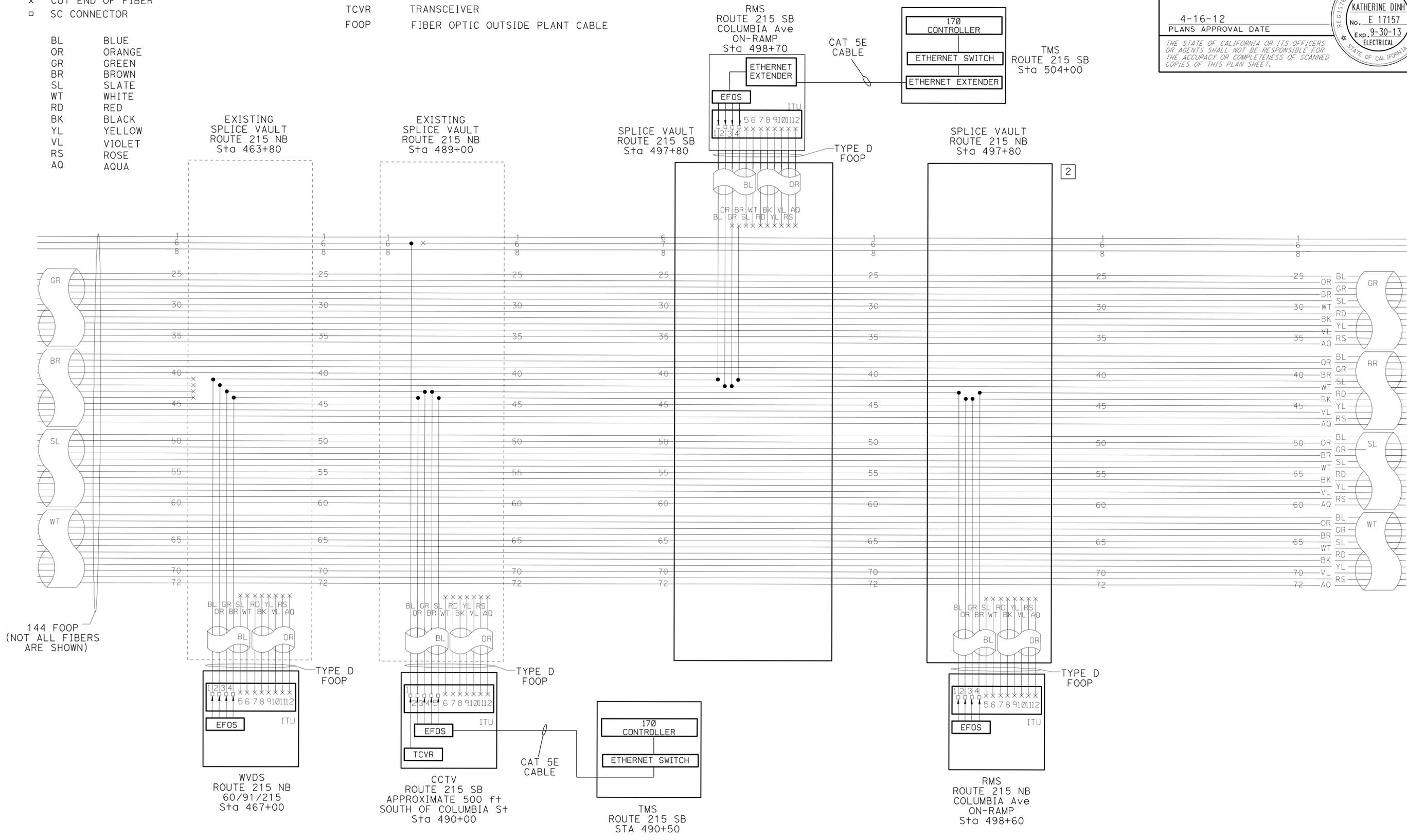
- BL BLUE
- OR ORANGE
- GR GREEN
- BR BROWN
- SL SLATE
- WT WHITE
- RD RED
- BK BLACK
- YL YELLOW
- VL VIOLET
- RS ROSE
- AQ AQUA

ABBREVIATIONS

- EFOS ELEMENT FIBER OPTIC SWITCH
- ITU INTERCONNECT AND TERMINATION UNIT
- TCVR TRANSCEIVER
- FOOP FIBER OPTIC OUTSIDE PLANT CABLE

NOTES-SHEETS E-100 TO E-107

1. SEE SHEETS E-108 TO E-114 FOR EQUIPMENT INSIDE EACH CABINET.
2. SEE SHEET E-86 FOR SPLICING OF THE EXISTING TYPE 'A', 'B' AND 'C' FOOP TO THE NEW TYPE 'E' FOOP



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
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 CALCULATED/DESIGNED BY FERDINAND DE LA CRUZ
 CHECKED BY
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISOR BY
 DATE REVISOR

MODIFY COMMUNICATION SYSTEM
(TYPE E CABLE BREAKOUT)
 NO SCALE **E-100**

LAST REVISION DATE PLOTTED => 18-APR-2012
 04-10-12 TIME PLOTTED => 11:09

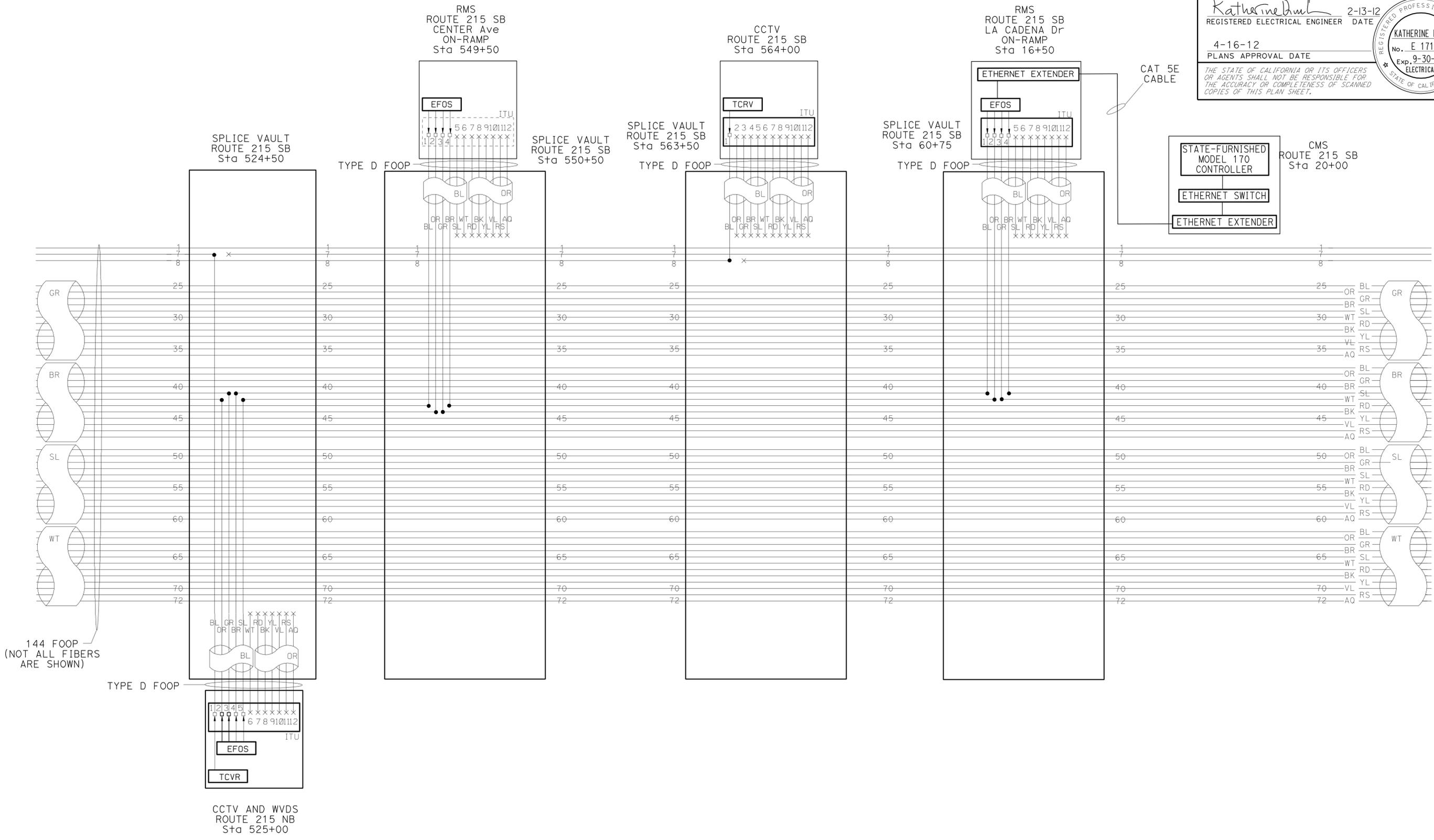
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1030	1743

Katherine Dinh 2-13-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
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 STATE OF CALIFORNIA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
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 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISED:
 X
 X
 X
 X
 X



MODIFY COMMUNICATION SYSTEM
(TYPE E CABLE BREAKOUT)
 NO SCALE
E-101

LAST REVISION | DATE PLOTTED => 18-APR-2012
 02-13-12 | TIME PLOTTED => 11:09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1031	1743

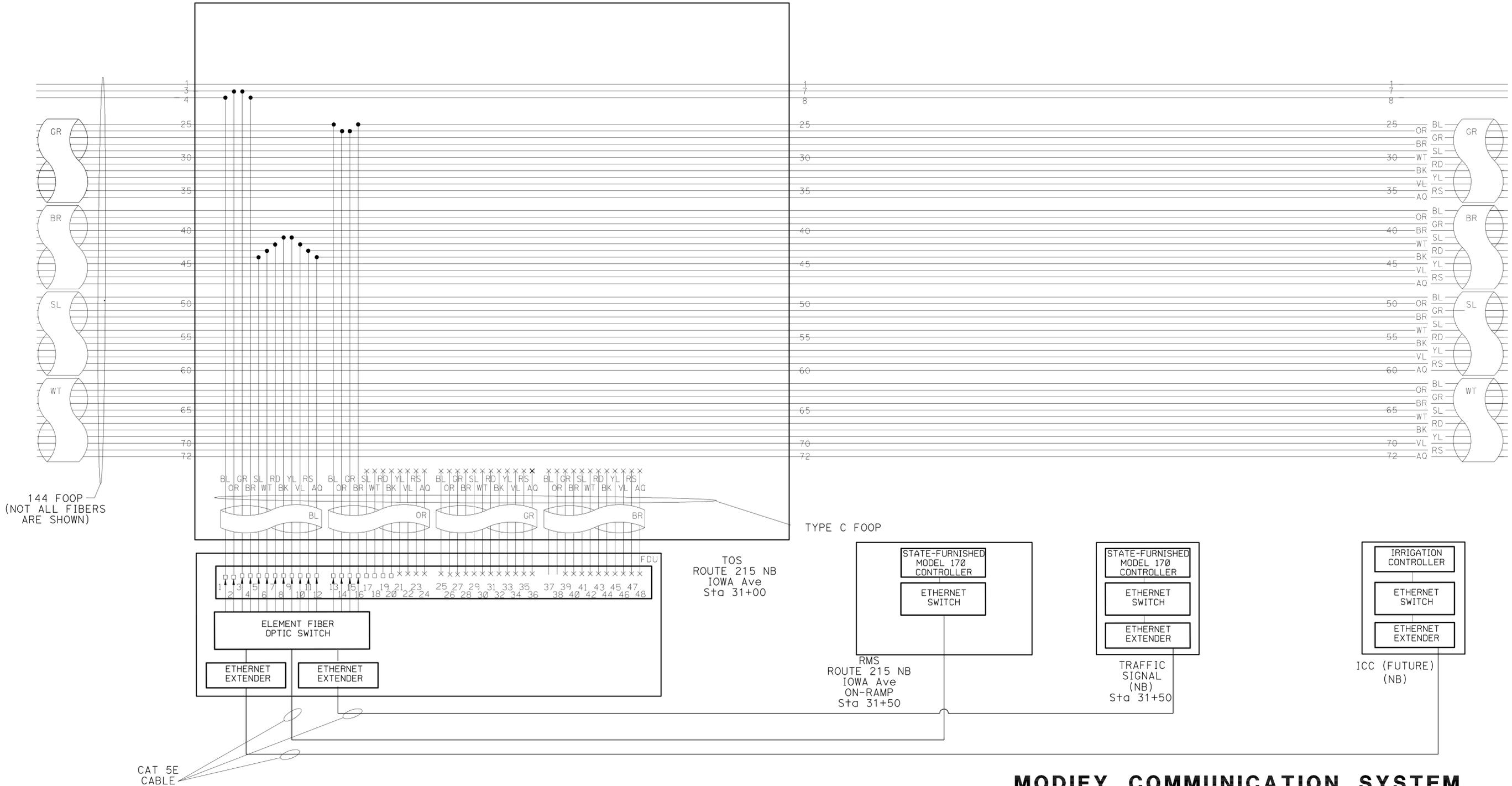
Katherine Dinh 2-13-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL

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 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISIONS:
 REVISIONS:

SPLICE VAULT
 ROUTE 215 NB
 Sta 32+50



**MODIFY COMMUNICATION SYSTEM
 (TYPE E CABLE BREAKOUT)**

NO SCALE

E-102

LAST REVISION: DATE PLOTTED => 23-APR-2012
 02-13-12 TIME PLOTTED => 09:03

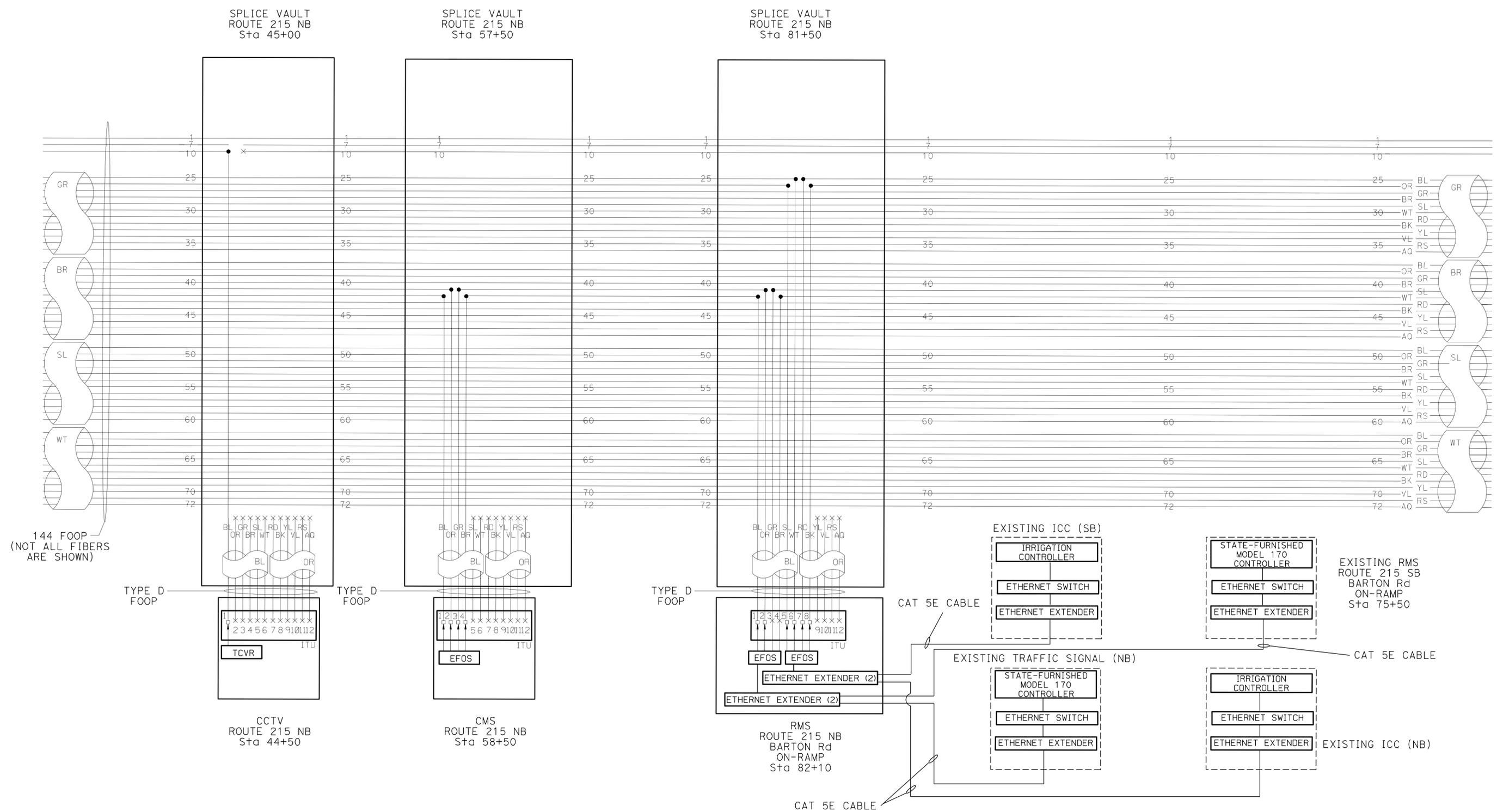
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1032	1743

Katherine Dinh
 REGISTERED ELECTRICAL ENGINEER
 DATE 2-13-12
 4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISIONS:
 REVISIONS:



MODIFY COMMUNICATION SYSTEM (TYPE E CABLE BREAKOUT)

NO SCALE

E-103

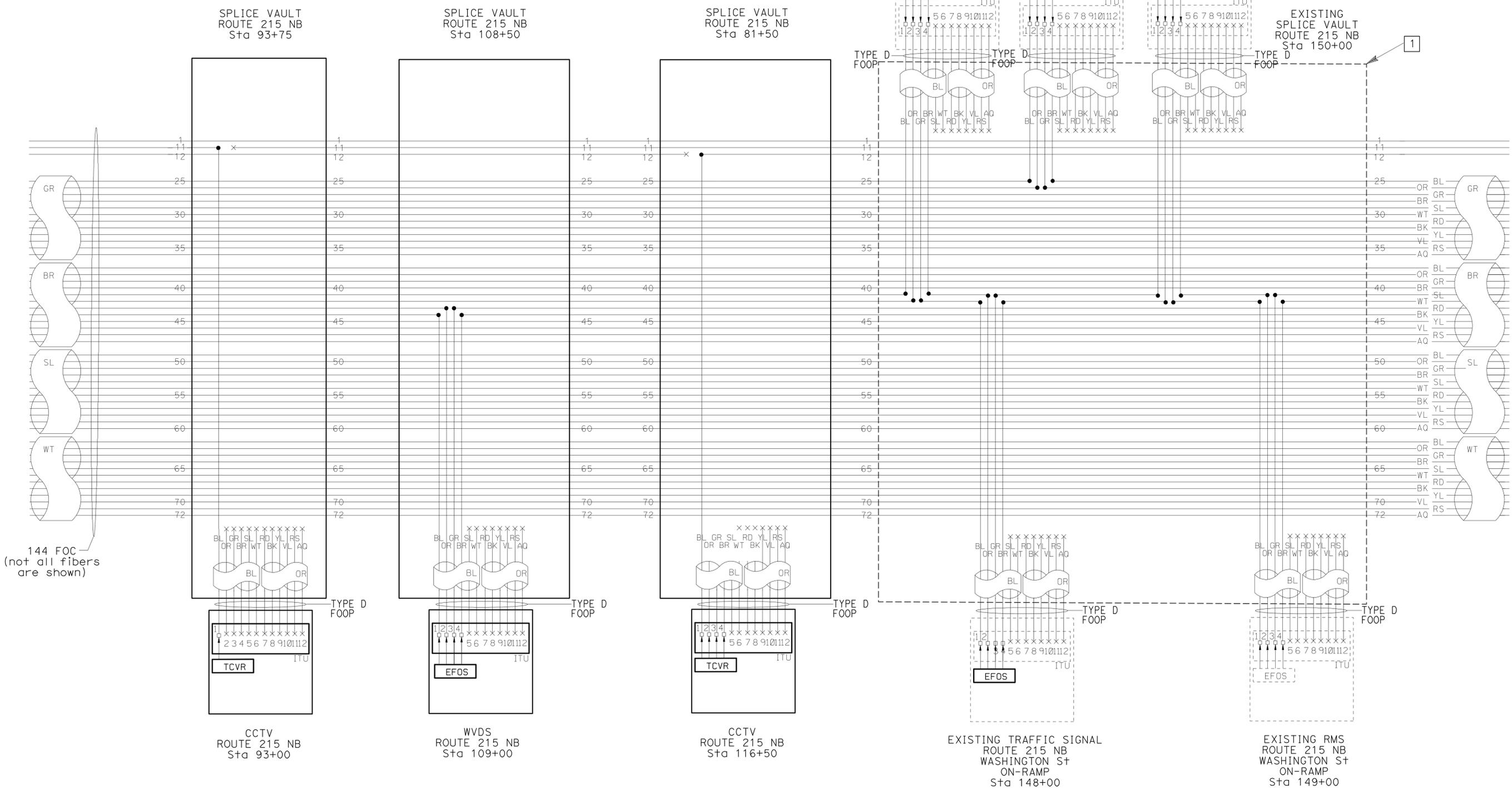
LAST REVISION: DATE PLOTTED => 18-APR-2012
 02-13-12 TIME PLOTTED => 16:35

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SbD	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1033	1743
Katherine Dinh REGISTERED ELECTRICAL ENGINEER No. E 17157 Exp. 9-30-13 ELECTRICAL			2-13-12	DATE	
4-16-12			PLANS APPROVAL DATE		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					

NOTE (THIS SHEET ONLY)

1 SEE SHEET E-86 FOR SPLICING OF THE EXISTING TYPE A, B, AND C FOOP TO THE NEW TYPE E FOOP.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISIONS:
 x
 x
 x
 x
 x



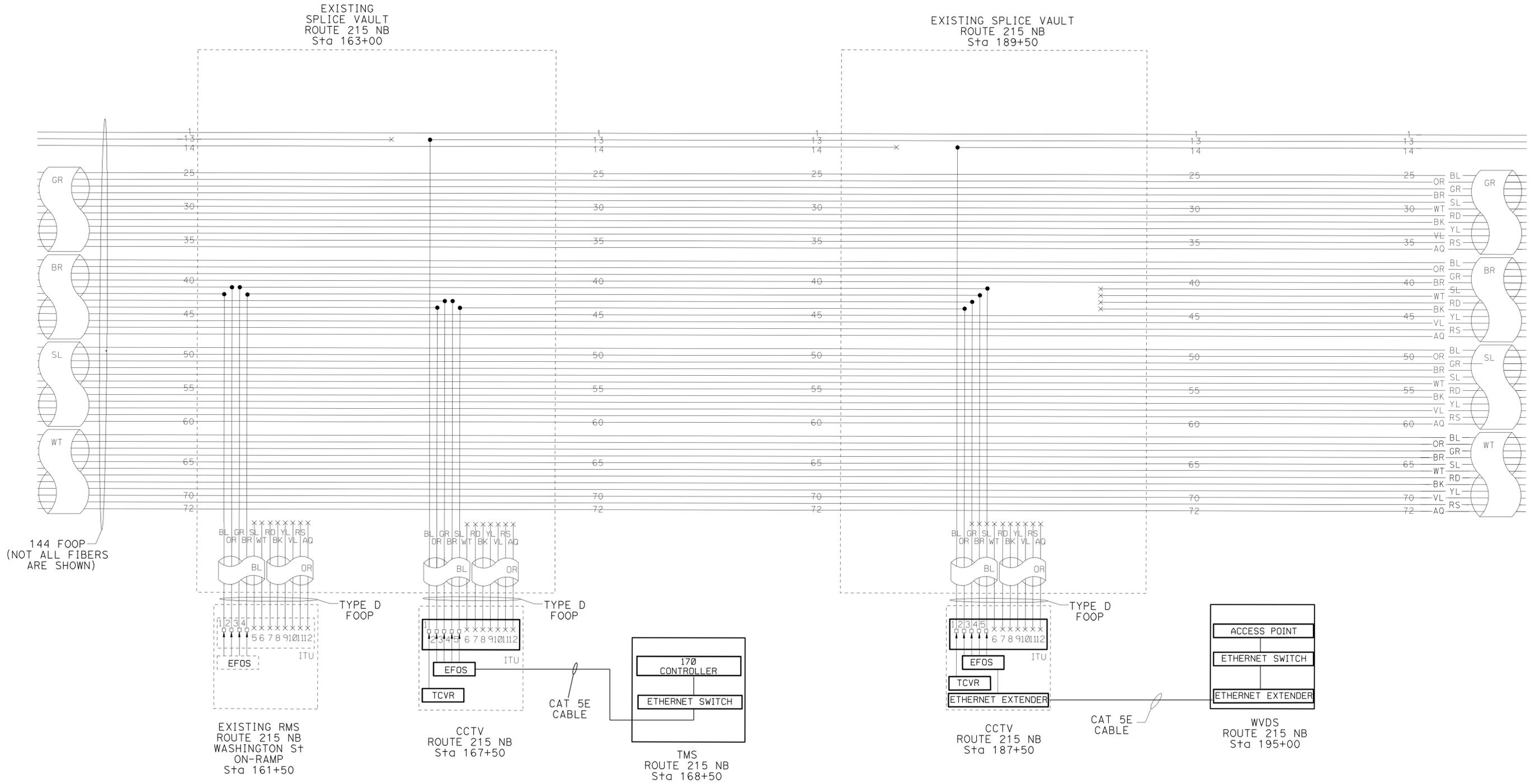
MODIFY COMMUNICATION SYSTEM (TYPE E CABLE BREAKOUT)

NO SCALE

E-104

LAST REVISION: DATE PLOTTED => 19-APR-2012
 TIME PLOTTED => 19:24

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE
 REVISIONS:



MODIFY COMMUNICATION SYSTEM
(TYPE E CABLE BREAKOUT)
 NO SCALE

E-105

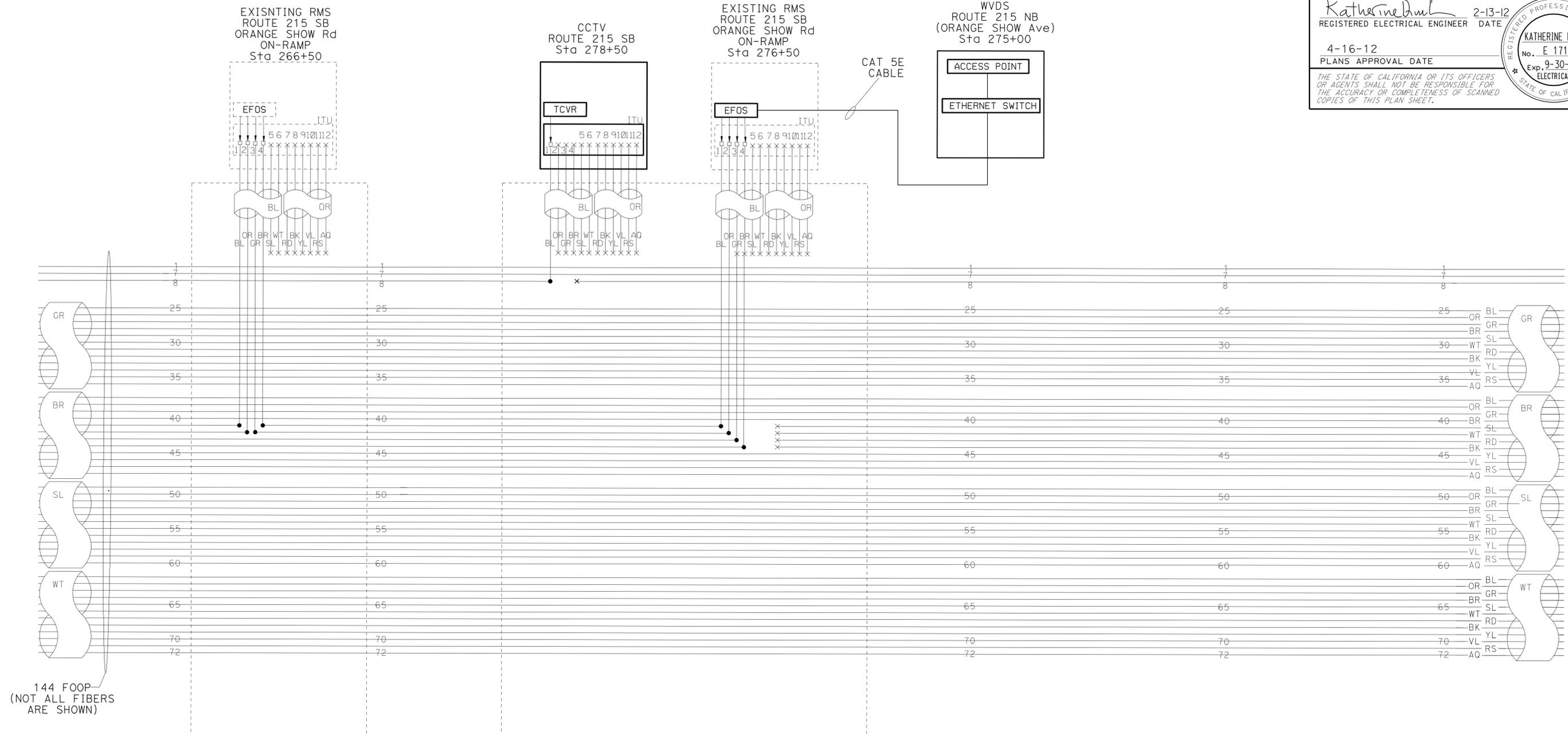
LAST REVISION: DATE PLOTTED => 18-APR-2012
 04-10-12 TIME PLOTTED => 16:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1036	1743

KATHERINE DINH
 REGISTERED ELECTRICAL ENGINEER
 DATE 2-13-12
 4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISION
 REVISIONS:

MODIFY COMMUNICATION SYSTEM (TYPE E CABLE BREAKOUT)

NO SCALE

E-107

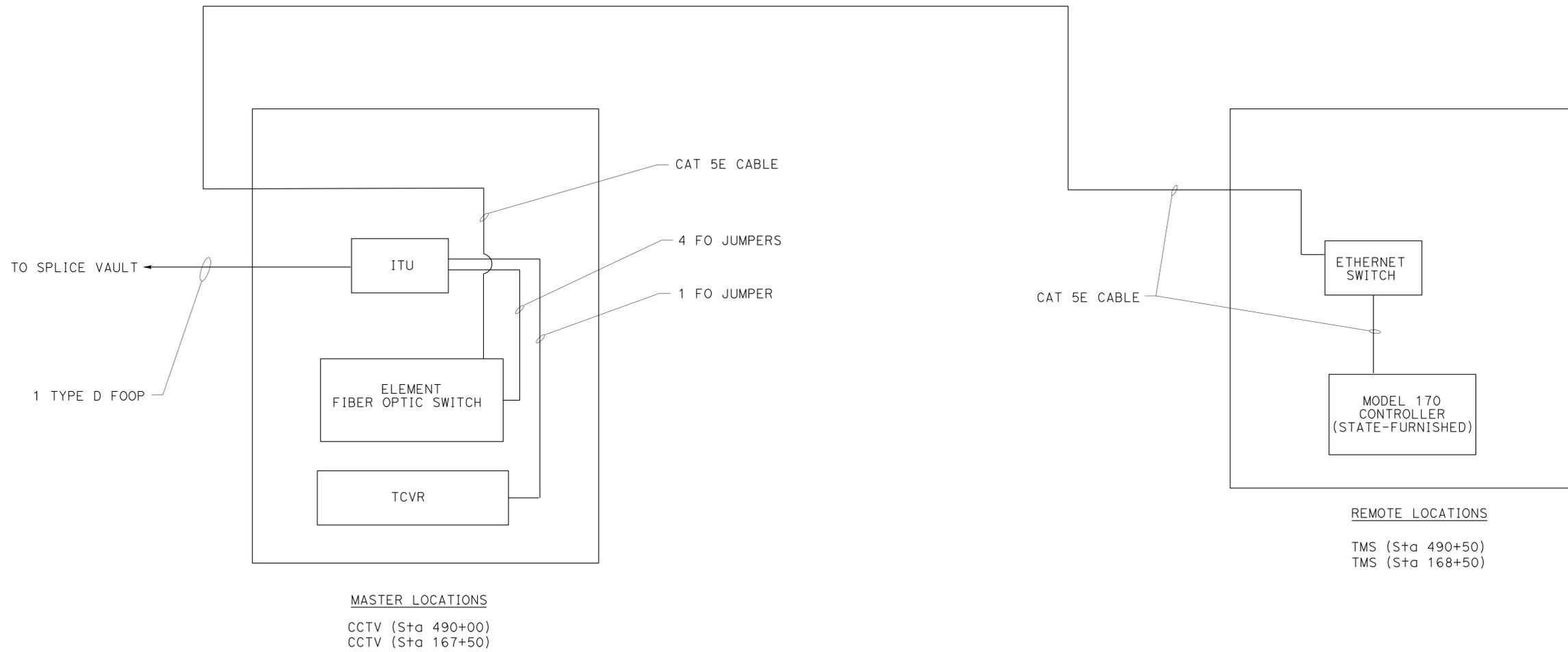
LAST REVISION DATE PLOTTED => 18-APR-2012
 02-13-12 TIME PLOTTED => 16:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1037	1743

Katherine Dinh 4-10-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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NOTES: (SHEETS E-108 TO E-114):

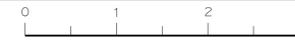
1. SEE DETAILS ON SHEETS E-100 TO E-107 FOR TYPE D FOOP CONNECTIONS TO THE TYPE E FOOP.

MODIFY COMMUNICATION SYSTEM (EQUIPMENT DETAILS)

NO SCALE

E-108

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE
 REVISED BY: DATE



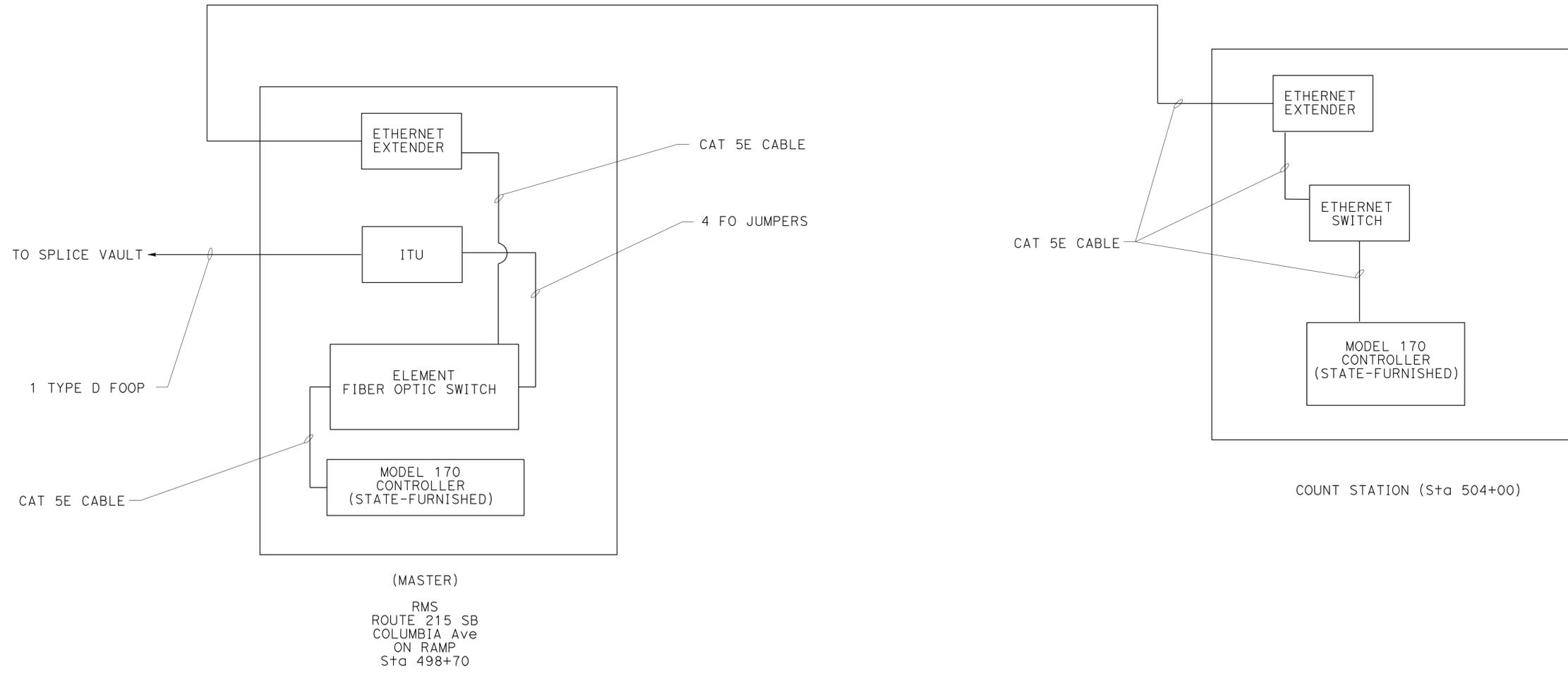
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv/SBd	91, 215	21.5/21.7 43.2/45.2,0.0/5.1	1038	1743

Katherine Dinh 4-17-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	Ferdinand de la Cruz	Katherine Dinh	Ferdinand de la Cruz
	CHECKED BY	DATE	REVISION



**MODIFY COMMUNICATION SYSTEM
(EQUIPMENT DETAILS)**

NO SCALE

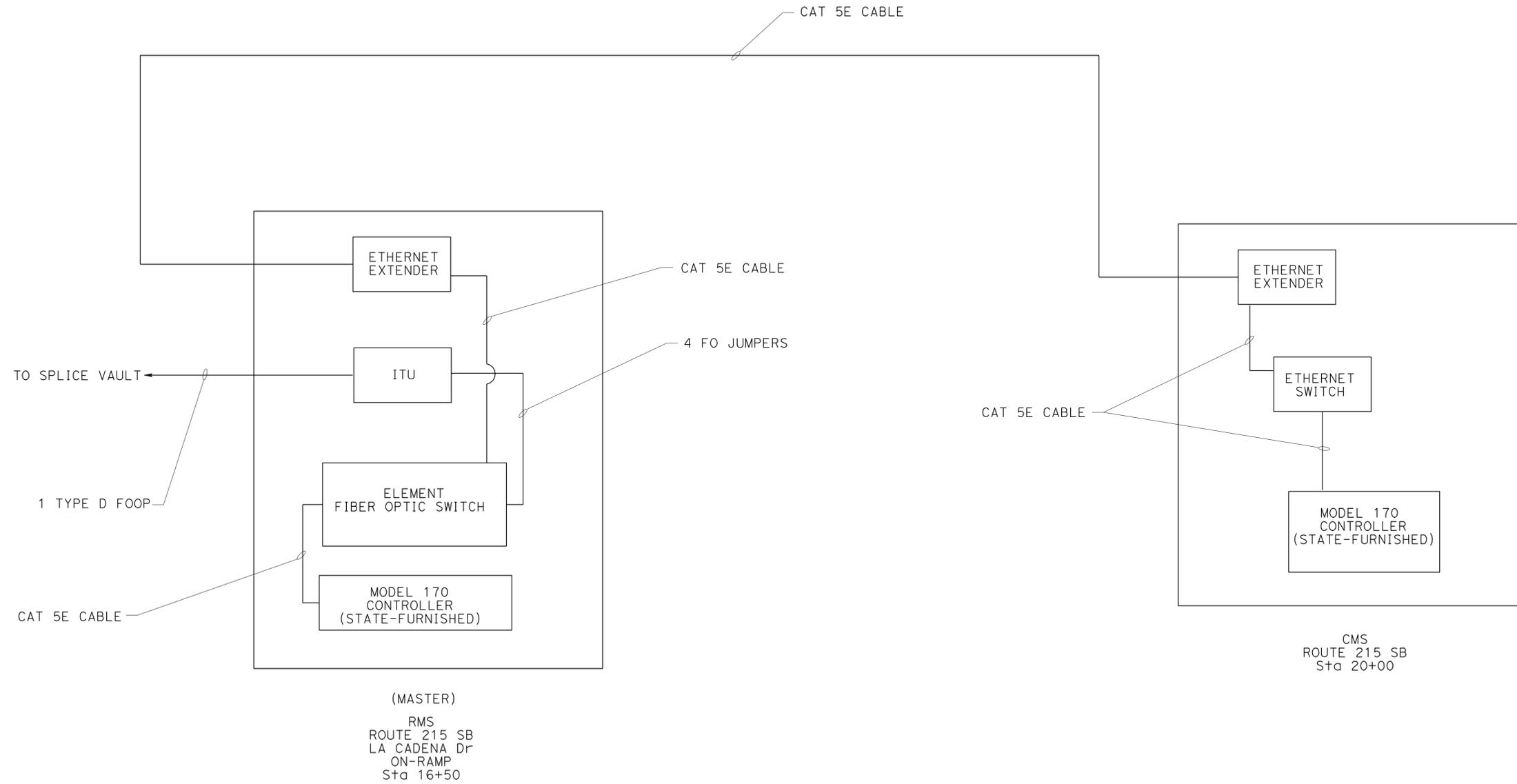
E-109

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1039	1743

<i>Katherine Dinh</i>	2-13-12
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
KATHERINE DINH
No. E 17157
Exp. 9-30-13
ELECTRICAL
STATE OF CALIFORNIA

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 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY: FERDINAND DE LA CRUZ
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: FERDINAND DE LA CRUZ
 DATE REVISED:

MODIFY COMMUNICATION SYSTEM (EQUIPMENT DETAILS)

NO SCALE

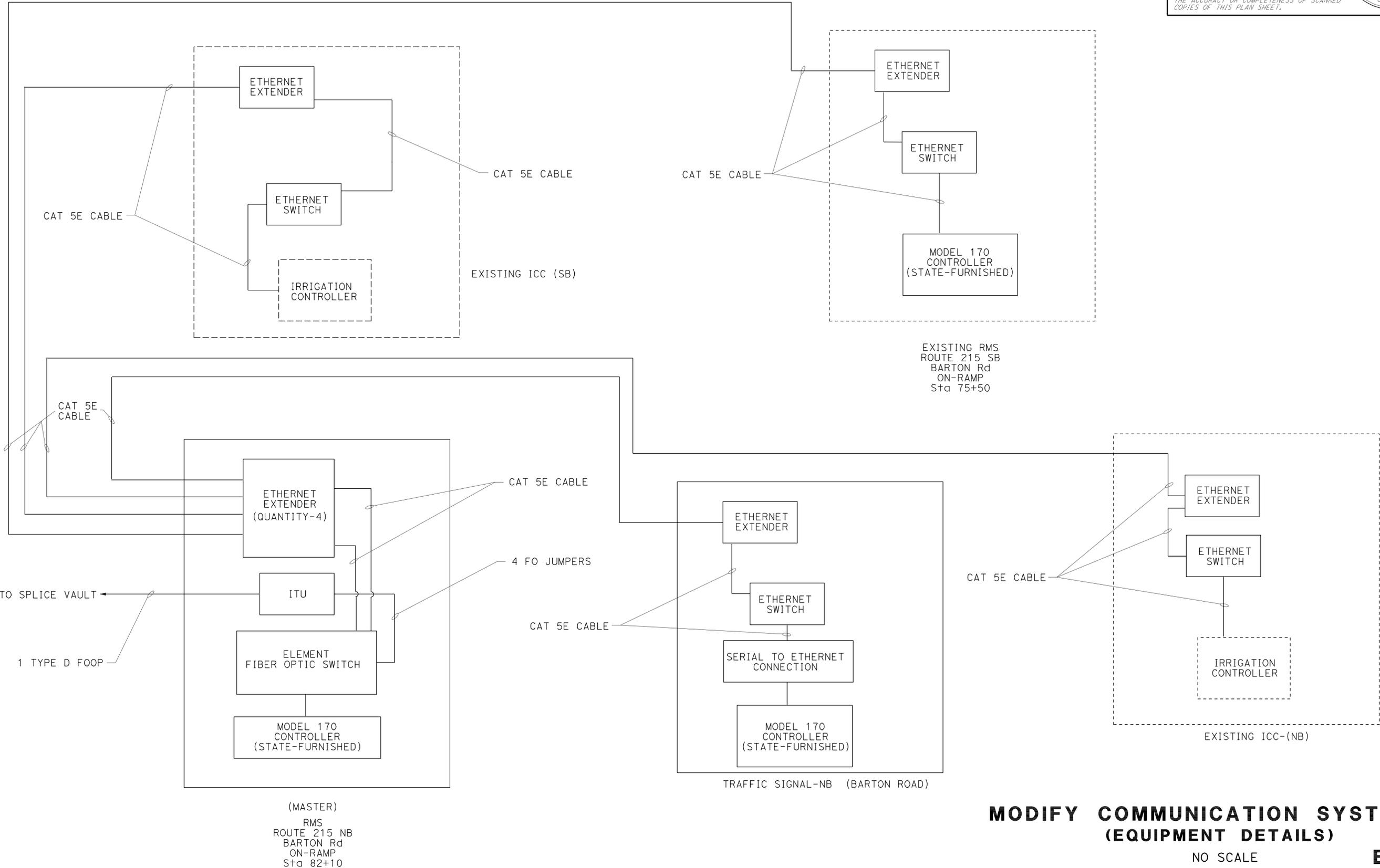
E-110

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1041	1743

Katherine Dinh 2-13-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
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 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISIONS:
 REVISIONS:

**MODIFY COMMUNICATION SYSTEM
 (EQUIPMENT DETAILS)**
 NO SCALE **E-112**

LAST REVISION: DATE PLOTTED => 18-APR-2012
 02-13-12 TIME PLOTTED => 14:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1042	1743

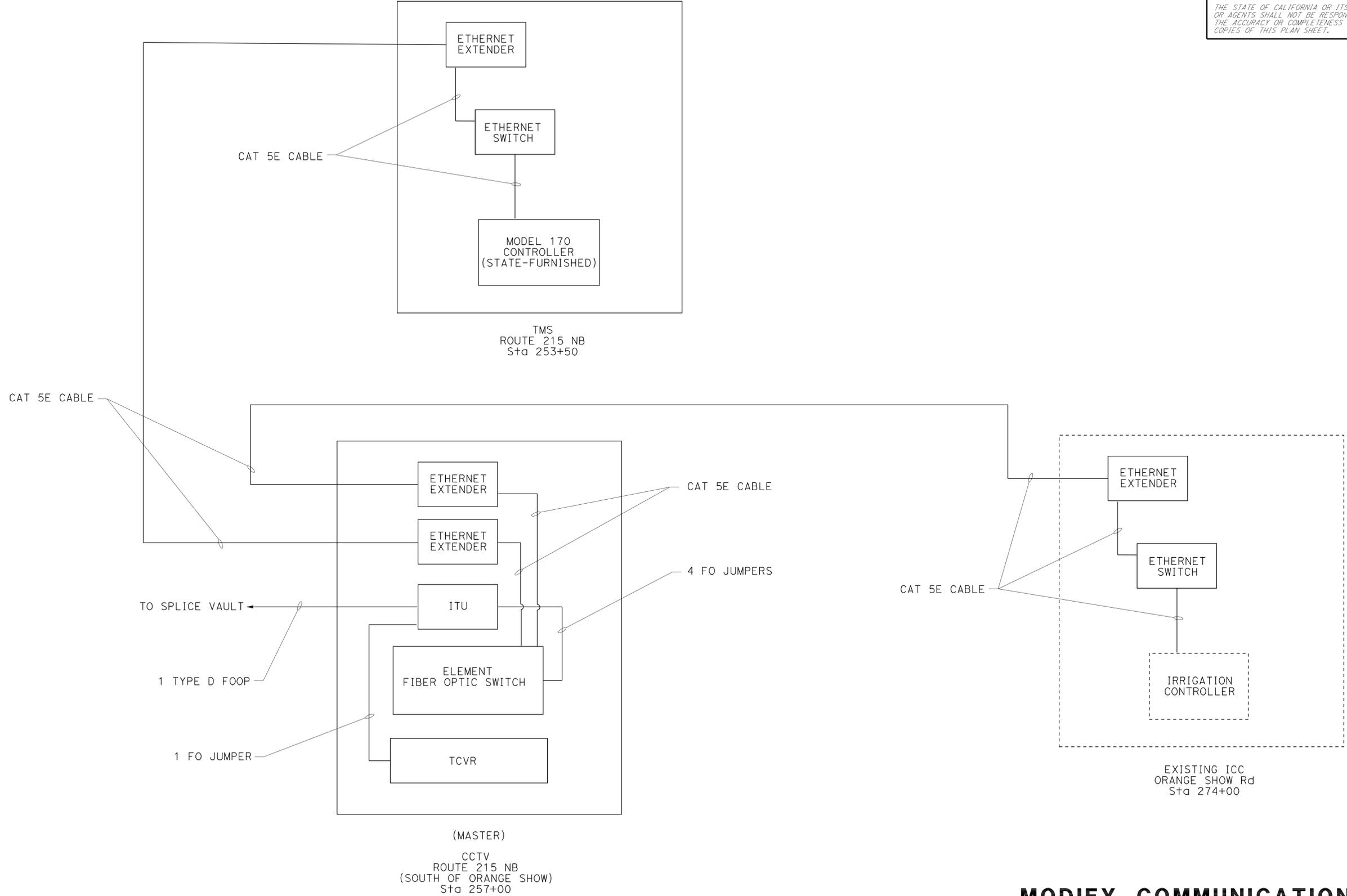
Katherine Dinh 3-23-12
 REGISTERED ELECTRICAL ENGINEER DATE

4-16-12
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
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 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISIONS
 REVISIONS:



MODIFY COMMUNICATION SYSTEM
(EQUIPMENT DETAILS)
 NO SCALE **E-113**

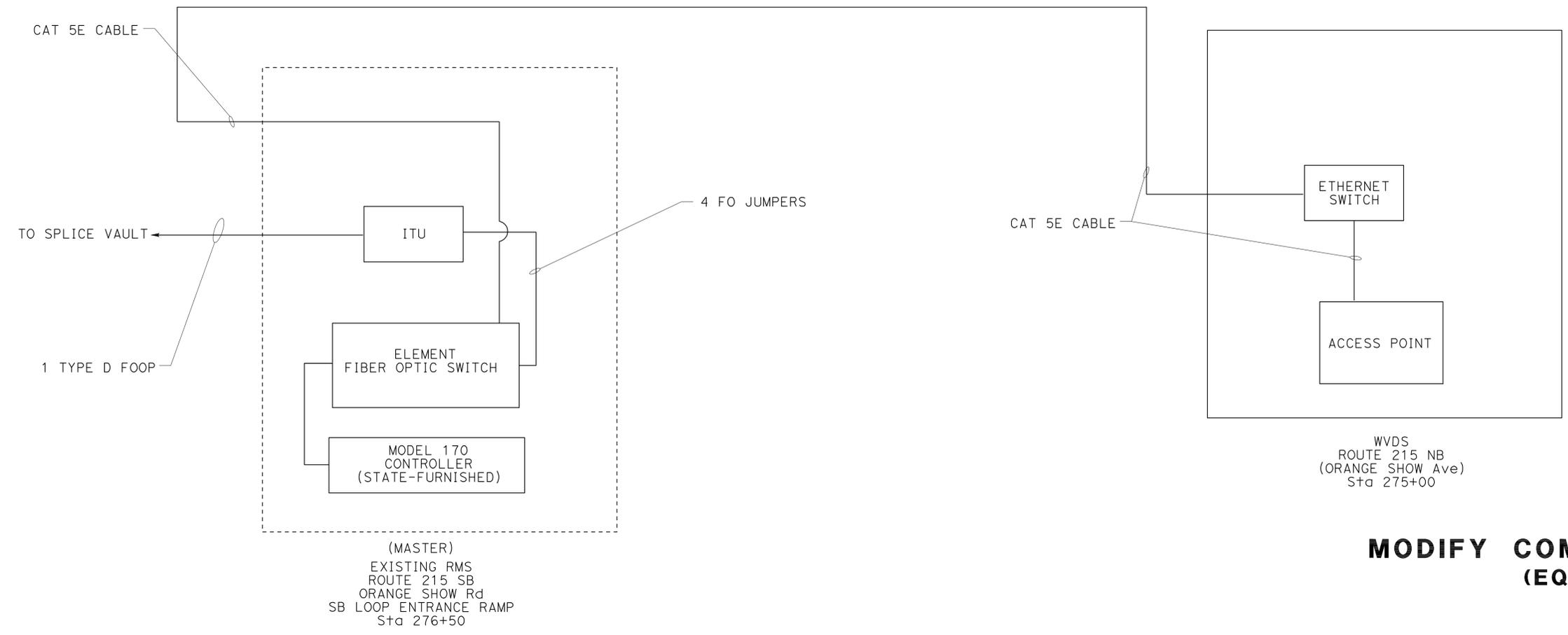
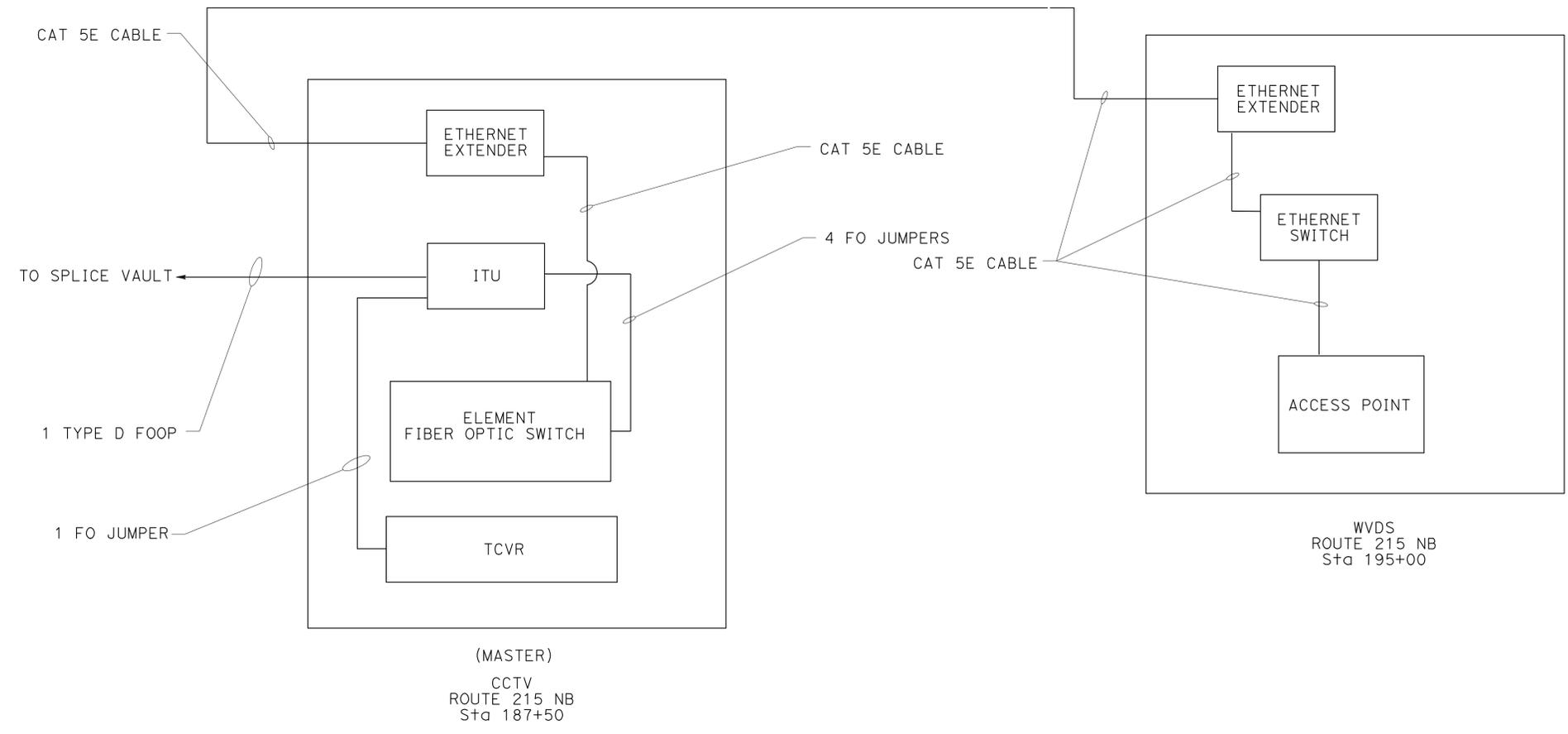
LAST REVISION DATE PLOTTED => 18-APR-2012 03-23-12 TIME PLOTTED => 14:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1043	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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**MODIFY COMMUNICATION SYSTEM
 (EQUIPMENT DETAILS)**
 NO SCALE **E-114**

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Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISIONS: (None shown)
 REVISION BY: (None shown) DATE: (None shown)

LAST REVISION DATE PLOTTED => 18-APR-2012 02-27-12 TIME PLOTTED => 14:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1044	1743

<i>Katherine Dinh</i> 2-27-12	
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

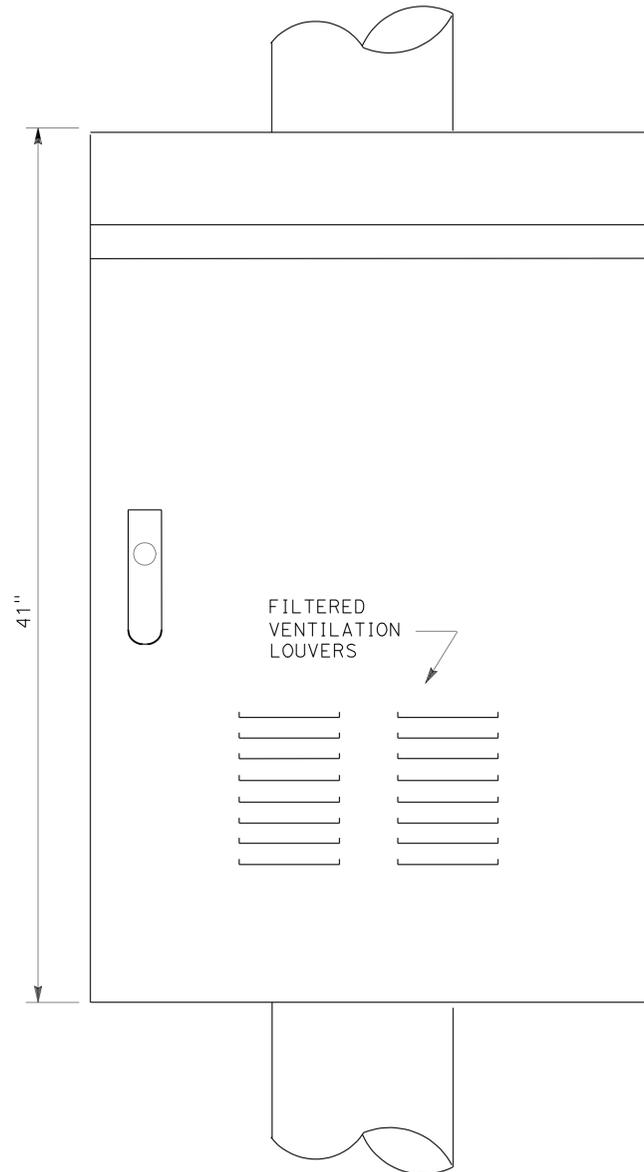
KATHERINE DINH	
No. E 17157	
Exp. 9-30-13	
ELECTRICAL	

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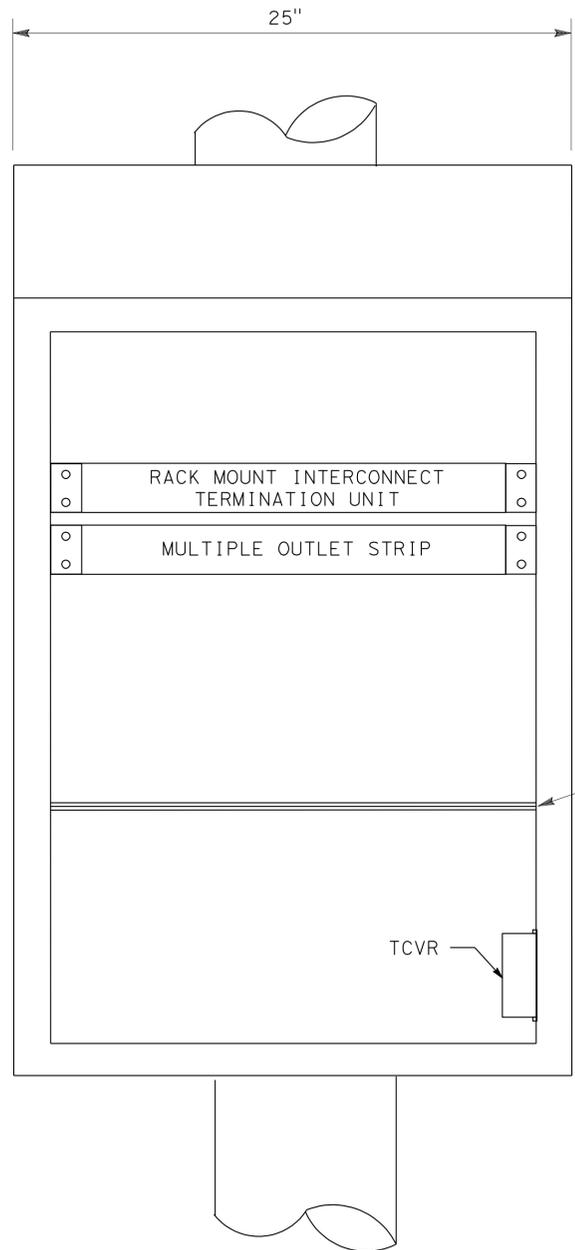
NOTES-THIS SHEET ONLY

1. THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING MATERIAL.
2. SEE DETAIL J, SHEET E-116 FOR MOUNTING DETAILS.

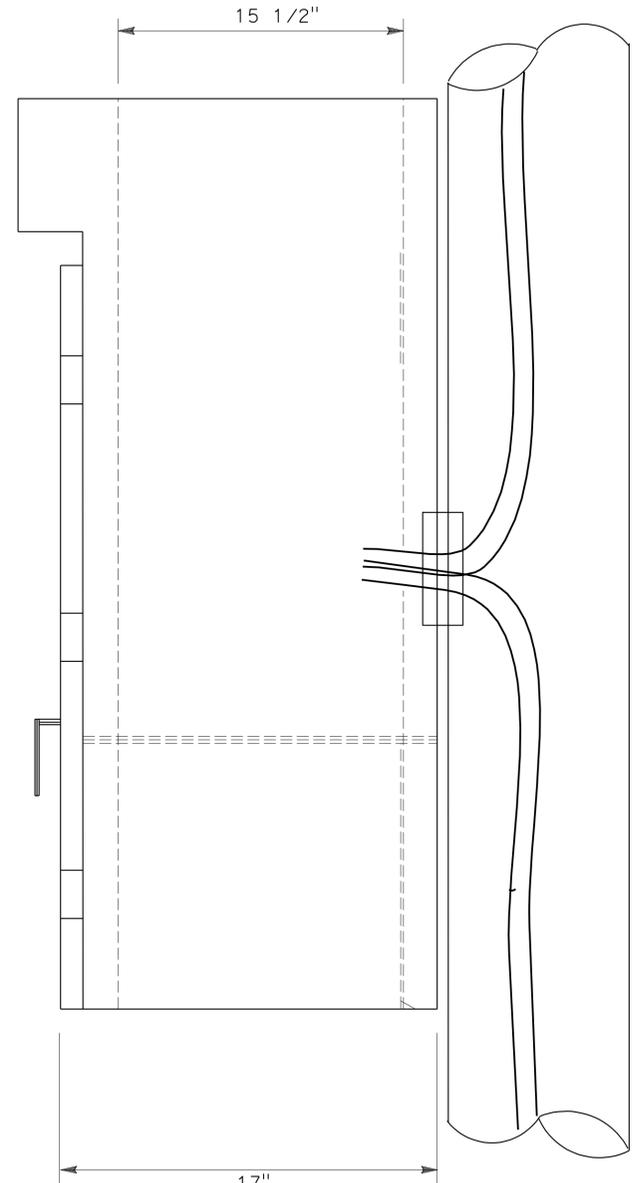
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISION
 x
x
x
x
x
x
x
x
x
x
x



FRONT
DETAIL M



FRONT (INTERIOR)
DETAIL N



SIDE
DETAIL P

MODIFY CLOSED CIRCUIT TELEVISION SYSTEM (ENCLOSURE DETAILS)
NO SCALE **E-115**

LAST REVISION | DATE PLOTTED => 18-APR-2012
 02-27-12 | TIME PLOTTED => 14:36

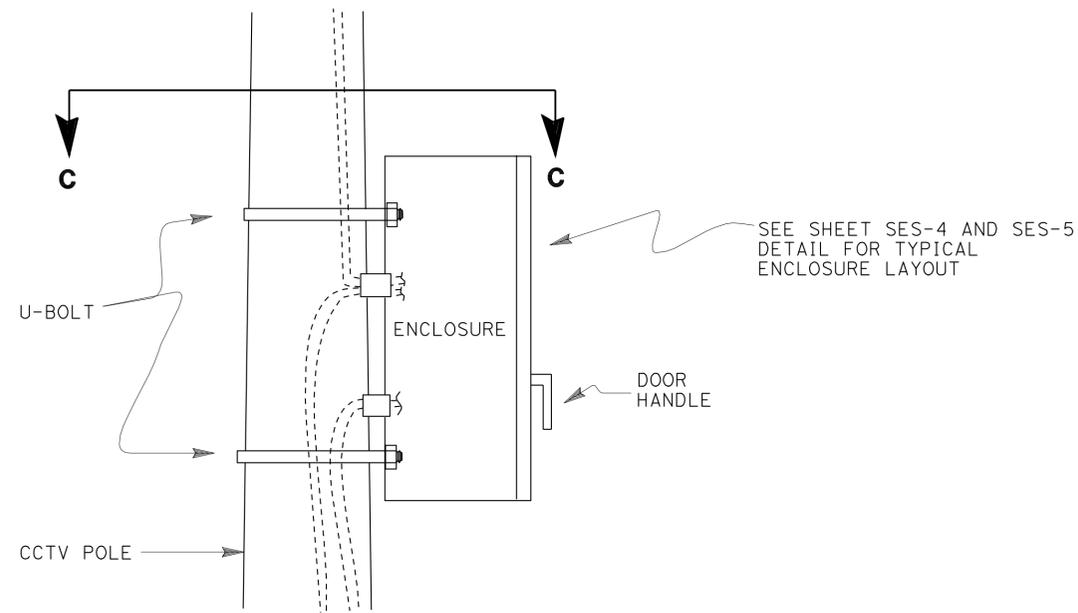
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1045	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

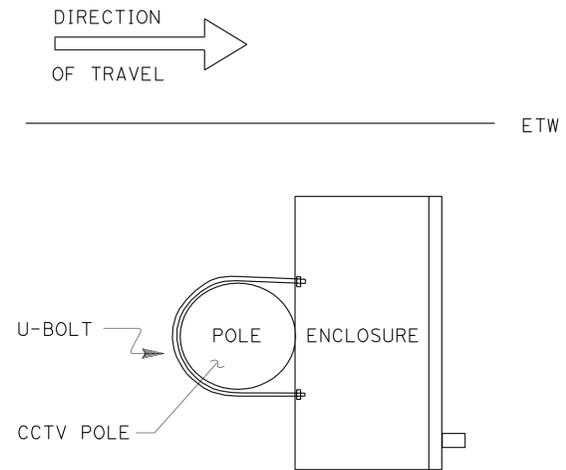
REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ	KATHERINE DINH	
			FERDINAND DE LA CRUZ	



DETAIL J
ENCLOSURE MOUNTING DETAIL

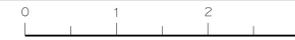


SECTION C-C

**MODIFY CLOSED CIRCUIT TELEVISION SYSTEM
(MOUNTING DETAILS)**

E-116

NO SCALE

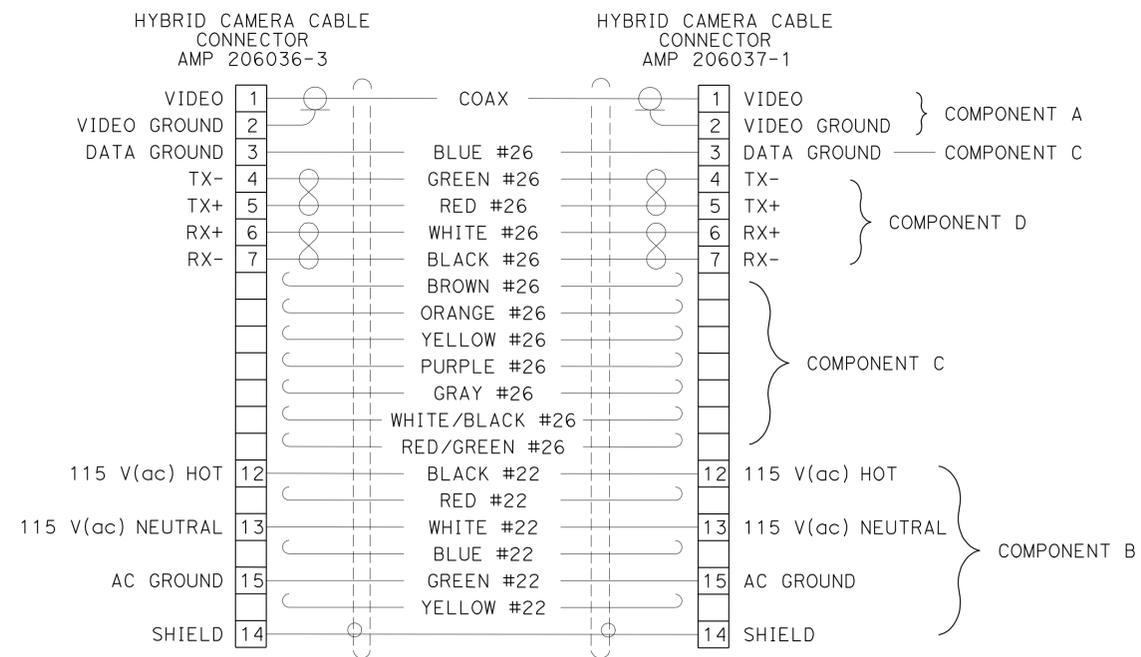


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1046	1743

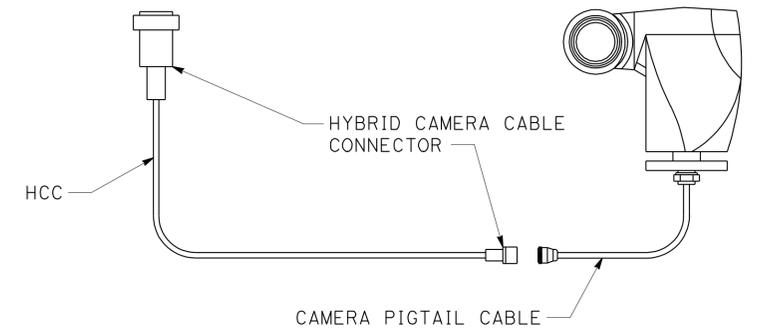
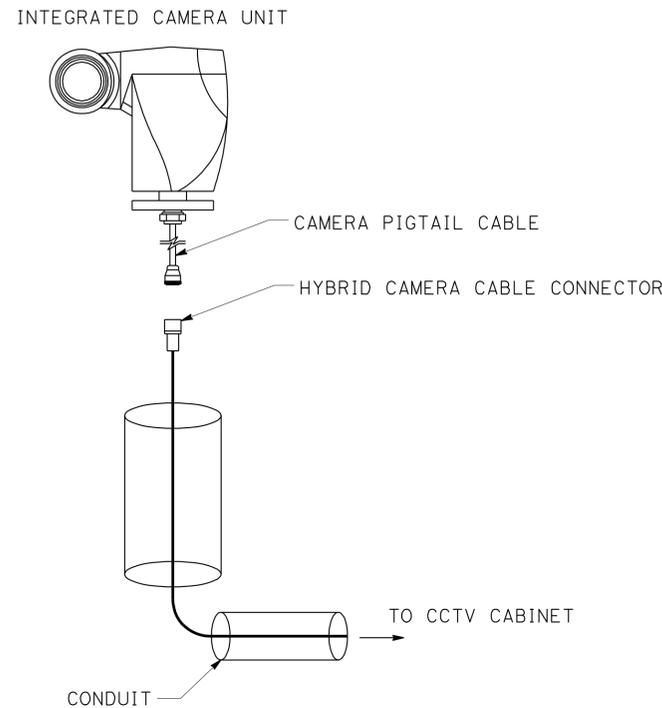
Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

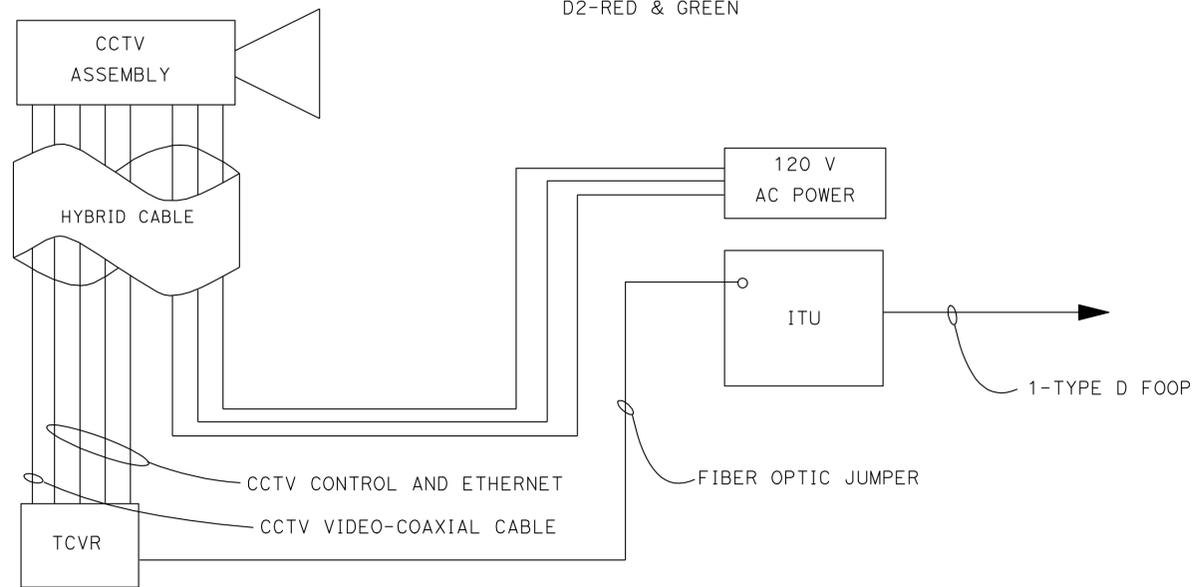
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



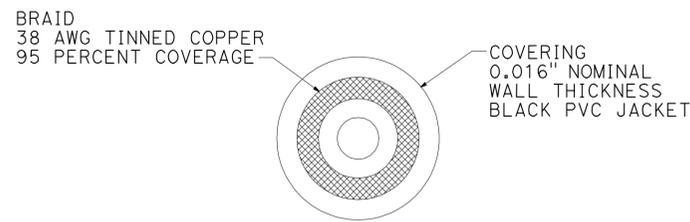
COMPONENT	CONDUCTOR	DESCRIPTION
A	COAX	75 OHM, RG-59/U TYPE, STANDARD ANALOG VIDEO CABLE, 0.242" NOMINAL DIAMETER
B	6 CONDUCTOR	22 AWG, COPPER INSULATED CONDUCTOR, 0.048" NOMINAL DIAMETER, COLOR CODED: B1-BLACK, B2-RED, B3-GREEN, B4-WHITE, B5-BLUE, B6-YELLOW
C	8 CONDUCTOR	26 AWG, COPPER INSULATED CONDUCTOR, 0.037" NOMINAL DIAMETER, COLOR CODED: C1-BROWN, C2-BLUE, C3-ORANGE, C4-YELLOW, C5-PURPLE, C6-GRAY, C7-WHITE/BLACK, C8-RED/GREEN
D	4 CONDUCTOR	26 AWG, COPPER INSULATED CONDUCTOR, 0.037" NOMINAL DIAMETER, COLOR CODED: D1-BLACK & WHITE, D2-RED & GREEN



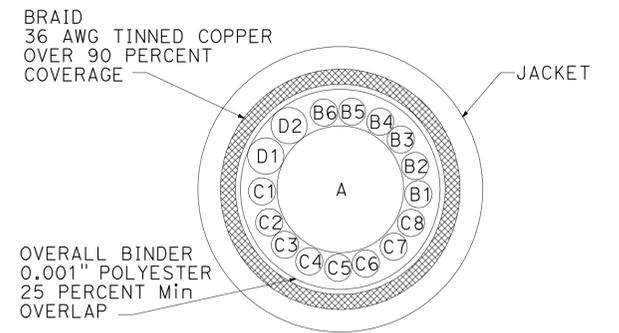
CCTV SYSTEM LAYOUT



CCTV ASSEMBLY WIRING DIAGRAM



COMPONENT A



HYBRID CAMERA CABLE CROSS SECTION

MODIFY CLOSED CIRCUIT TELEVISION SYSTEM
NO SCALE **E-117**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1047	1743

Katherine Dinh 2-27-12	
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

KATHERINE DINH	
No. E 17157	
Exp. 9-30-13	
ELECTRICAL	

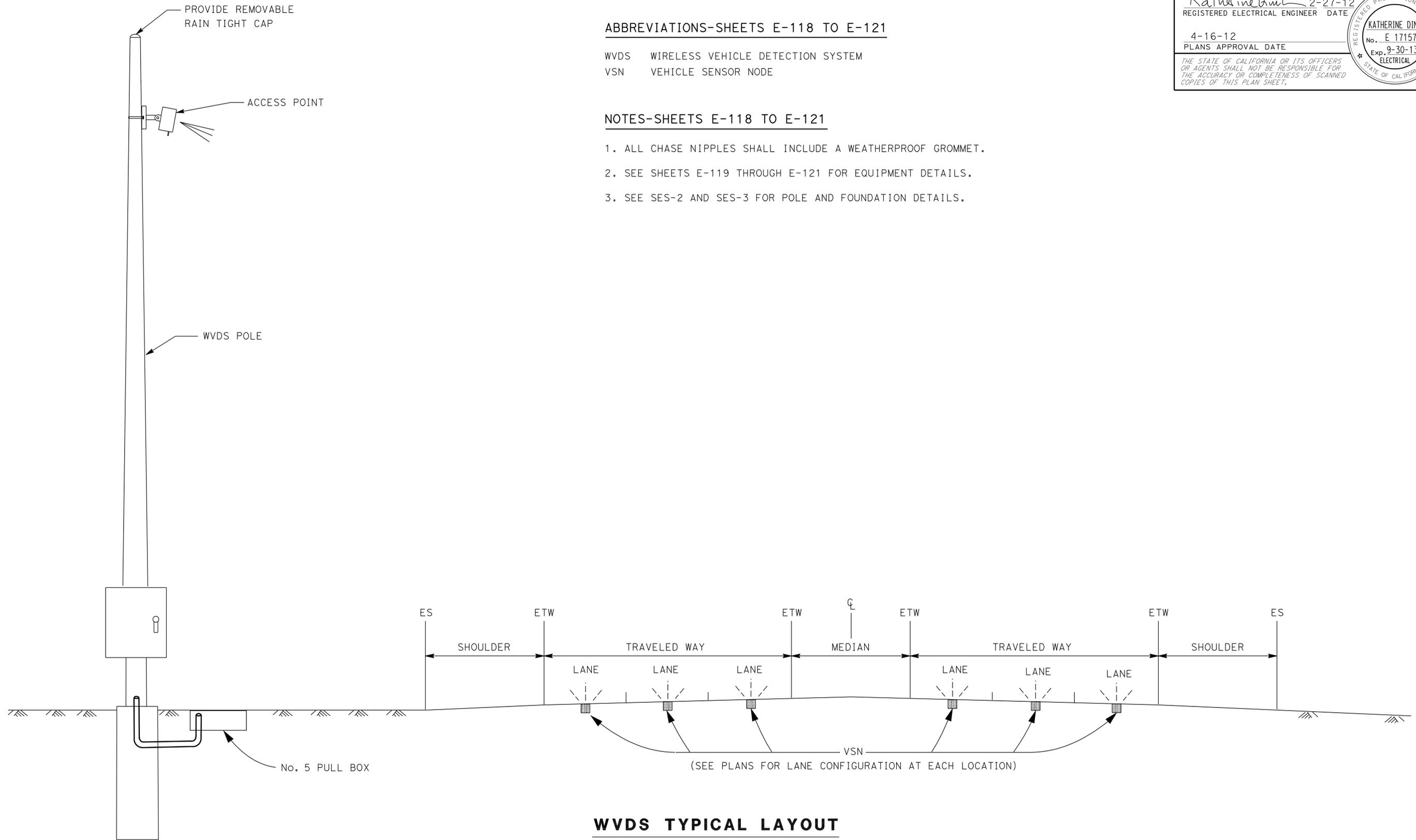
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

ABBREVIATIONS-SHEETS E-118 TO E-121

WVDS WIRELESS VEHICLE DETECTION SYSTEM
VSN VEHICLE SENSOR NODE

NOTES-SHEETS E-118 TO E-121

1. ALL CHASE NIPPLES SHALL INCLUDE A WEATHERPROOF GROMMET.
2. SEE SHEETS E-119 THROUGH E-121 FOR EQUIPMENT DETAILS.
3. SEE SES-2 AND SES-3 FOR POLE AND FOUNDATION DETAILS.



WVDS TYPICAL LAYOUT

WIRELESS VEHICLE DETECTION SYSTEM

NO SCALE

E-118

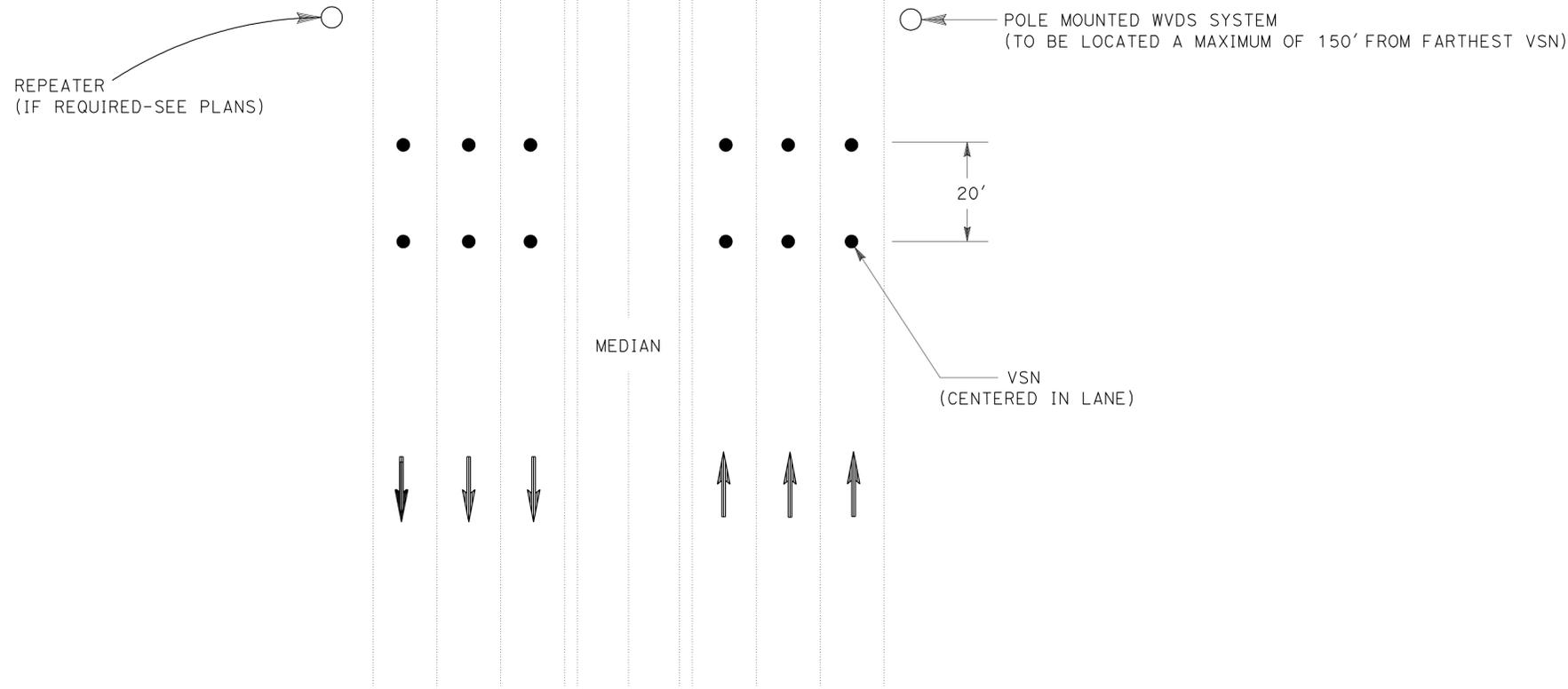
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	Ferdinand de la Cruz	Katherine Dinh	Ferdinand de la Cruz
	CHECKED BY	DATE	REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1048	1743

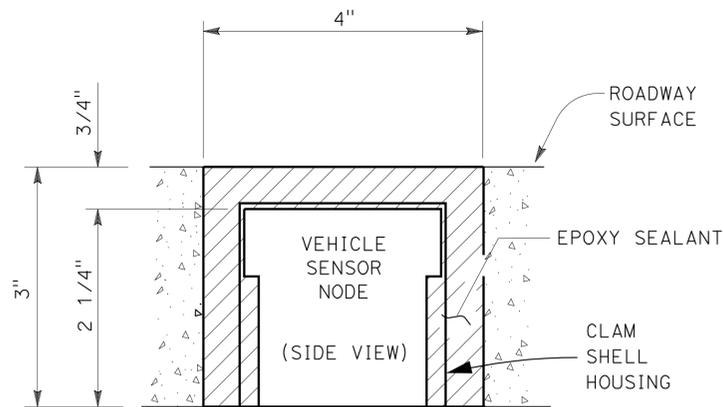
Katherine Dinh 2-27-12	
REGISTERED ELECTRICAL ENGINEER	DATE
4-16-12	
PLANS APPROVAL DATE	

KATHERINE DINH	
No. E 17157	Exp. 9-30-13
ELECTRICAL	

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VSN PLACEMENT DETAIL
(SEE PLANS FOR MAINLINE LANE CONFIGURATION AT EACH LOCATION)



VSN INSTALLATION DETAIL

NOTES-THIS SHEET ONLY

1. PRIOR TO INSTALLATION, IDENTIFY VSN'S IDENTIFICATION NUMBER, LANE NUMBE, AND LOCATION IN LANE.
2. RECORD THE DISTANCES BETWEEN EACH SENSOR PAIR.
3. VSN TO BE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS.
4. THE CONTRACTOR SHALL SUBMIT VSN LOCATION DETAIL, THREE DAYS PRIOR TO INSTALLATION, TO THE ENGINEER FOR APPROVAL.

**WIRELESS VEHICLE DETECTION SYSTEM
(SENSOR INSTALLATION DETAILS)**

NO SCALE

E-119

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	KATHERINE DINH	
		FERNAND DE LA CRUZ	

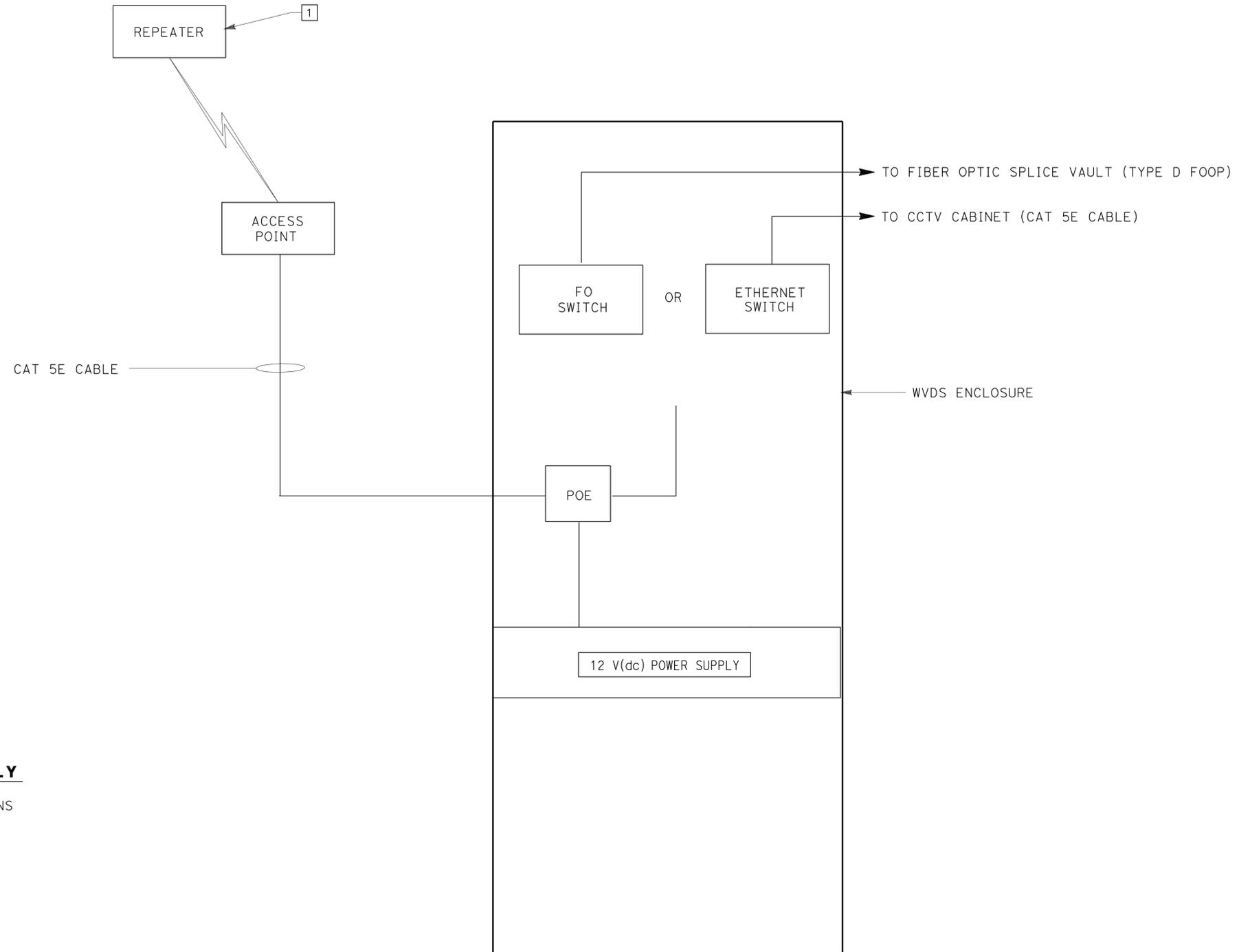
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1049	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE

4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL

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NOTES-THIS SHEET ONLY

1 IF NECESSARY - SEE PLANS

WVDS ENCLOSURE LAYOUT

**WIRELESS VEHICLE DETECTION SYSTEM
(WIRING DETAILS)**

NO SCALE

E-120

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	KATHERINE DINH	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	CHECKED BY	FERDINAND DE LA CRUZ	DATE	REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1050	1743

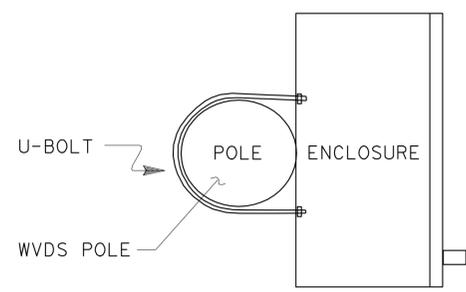
Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

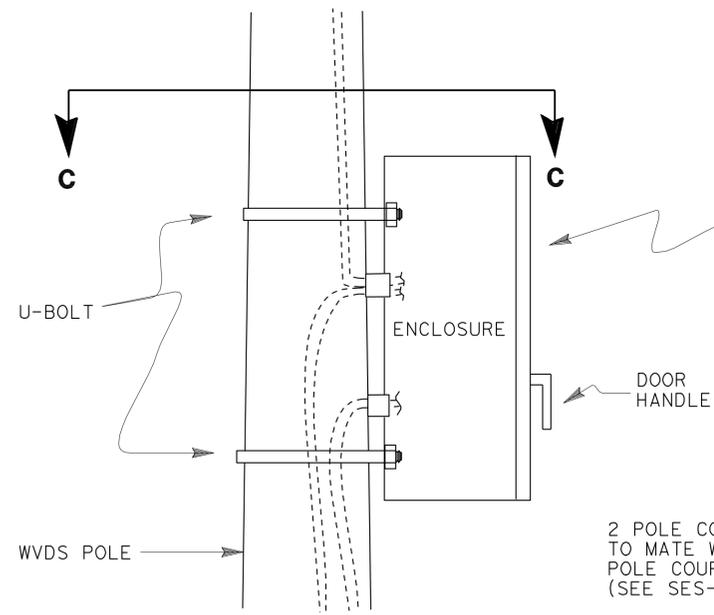
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ETW



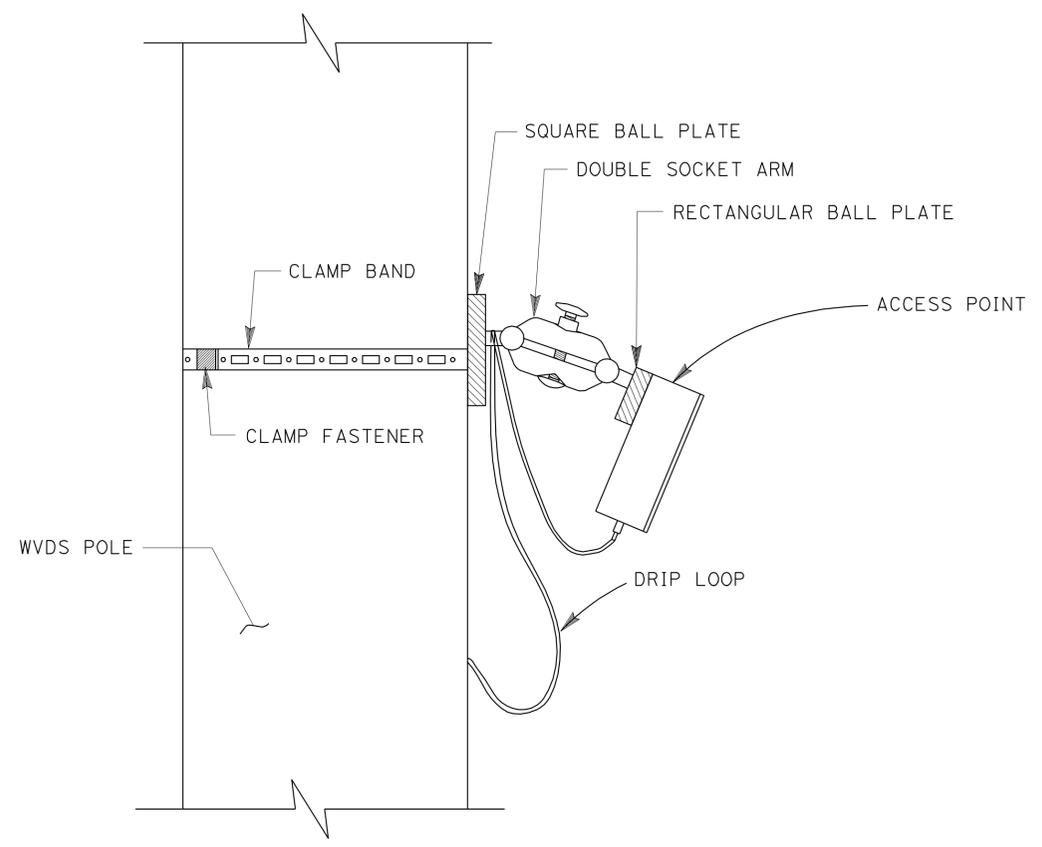
SECTION C-C



DETAIL J
ENCLOSURE MOUNTING DETAIL

SEE SHEET E-120
DETAIL D FOR
TYPICAL WVDS ENCLOSURE
LAYOUT

2 POLE COUPLING
TO MATE WITH
POLE COUPLING
(SEE SES-3)



DETAIL I
ACCESS POINT MOUNTING DETAIL

**WIRELESS VEHICLE DETECTION SYSTEM
(MOUNTING DETAILS)**

NO SCALE

E-121

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISION
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 KATHERINE DINH
 FERDINAND DE LA CRUZ

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1051	1743

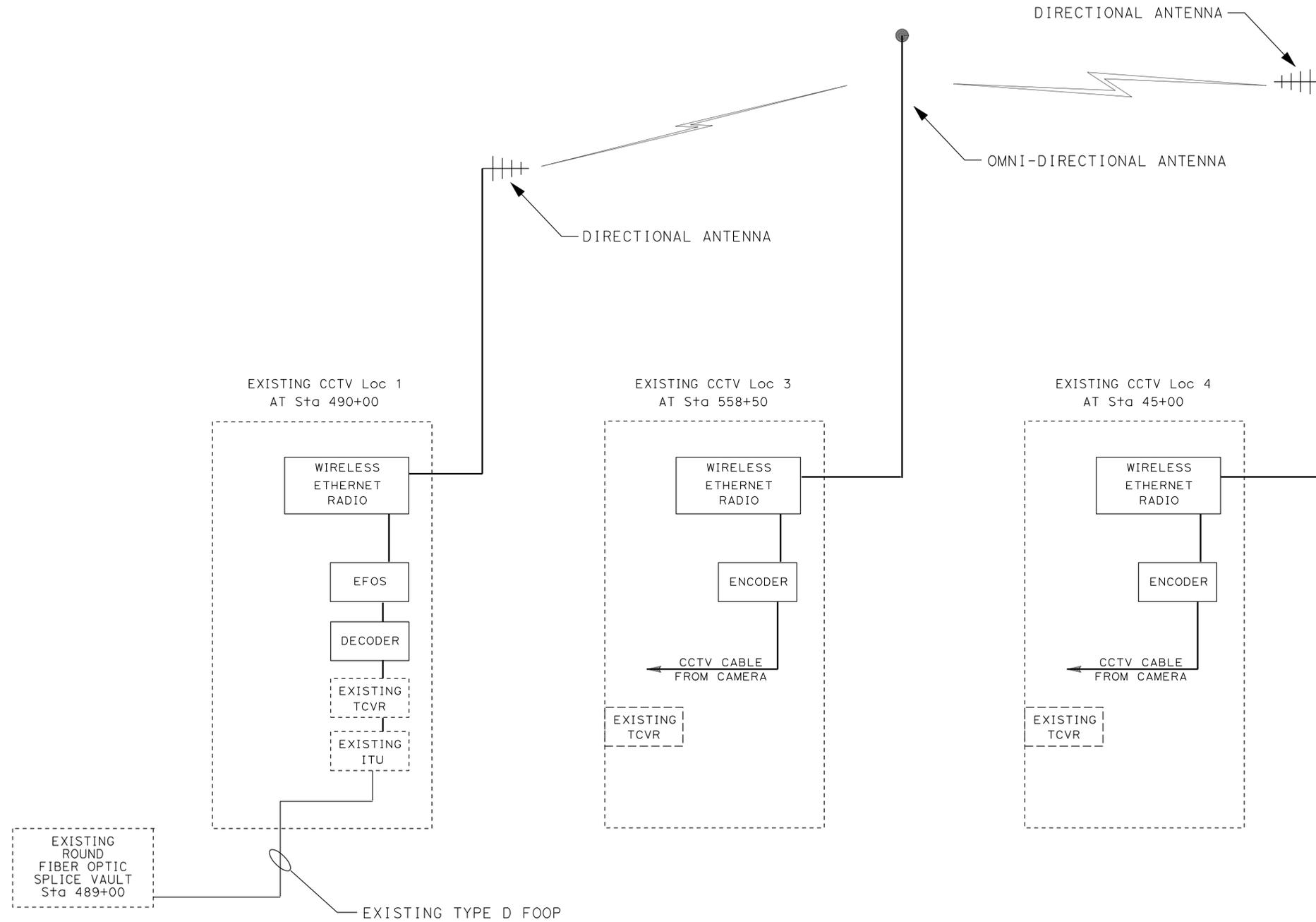
Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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ABBREVIATIONS - SHEETS E-122 TO E-125

WER WIRELESS ETHERNET RADIO
 TCVR TRANSCEIVER
 EFOS ETHERNET FIBER OPTIC SWITCH

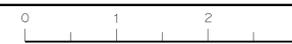


MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM DURING CONSTRUCTION (TEMPORARY CCTV COMMUNICATIONS)

NO SCALE

E-122

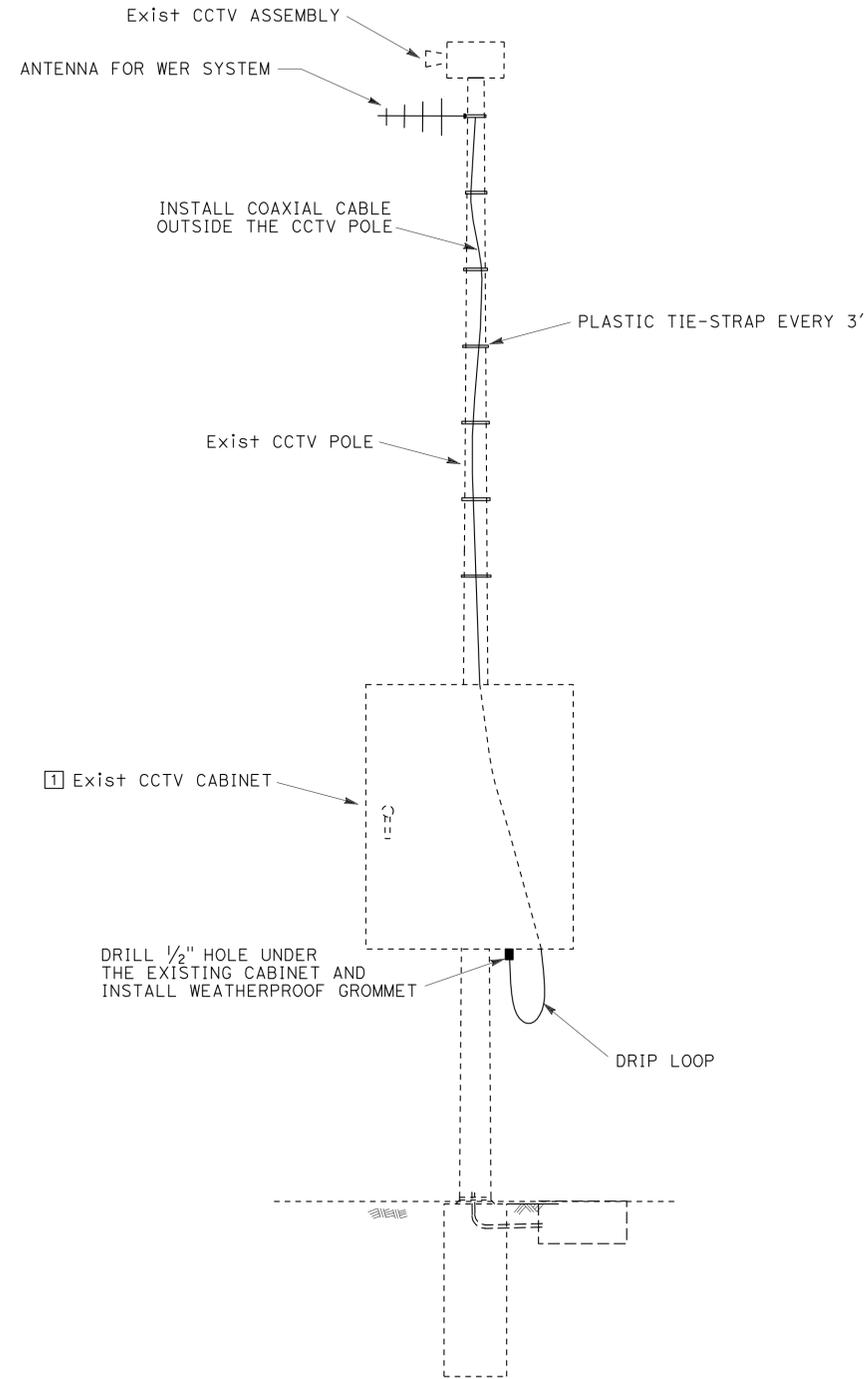
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 KATHERINE DINH
 FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY: FERDINAND DE LA CRUZ
 REVISED BY: FERDINAND DE LA CRUZ
 DATE REVISED:



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1053	1743
<i>Katherine Dinh</i> 2-27-12 REGISTERED ELECTRICAL ENGINEER DATE					
4-16-12				PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTES-THIS SHEET ONLY

1. INSTALL WER RADIO SYSTEM, ETHERNET SWITCH, ENCODER, DECODER AND EFOS. SEE SHEETS E-122 AND E-123 FOR DETAILS.
2. THE WER SYSTEM SHALL BE **RS** AFTER THE NEW FO COMMUNICATION HAS BEEN INSTALLED.



WER INSTALLED ON Exist CCTV STANDARD

MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM DURING CONSTRUCTION (TEMPORARY TMS DETECTION)

NO SCALE

E-124

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR	DATE
Caltrans ELECTRICAL DESIGN B	FERDINAND DE LA CRUZ	FERDINAND DE LA CRUZ	KATHERINE DINH	
		CHECKED BY	DATE	

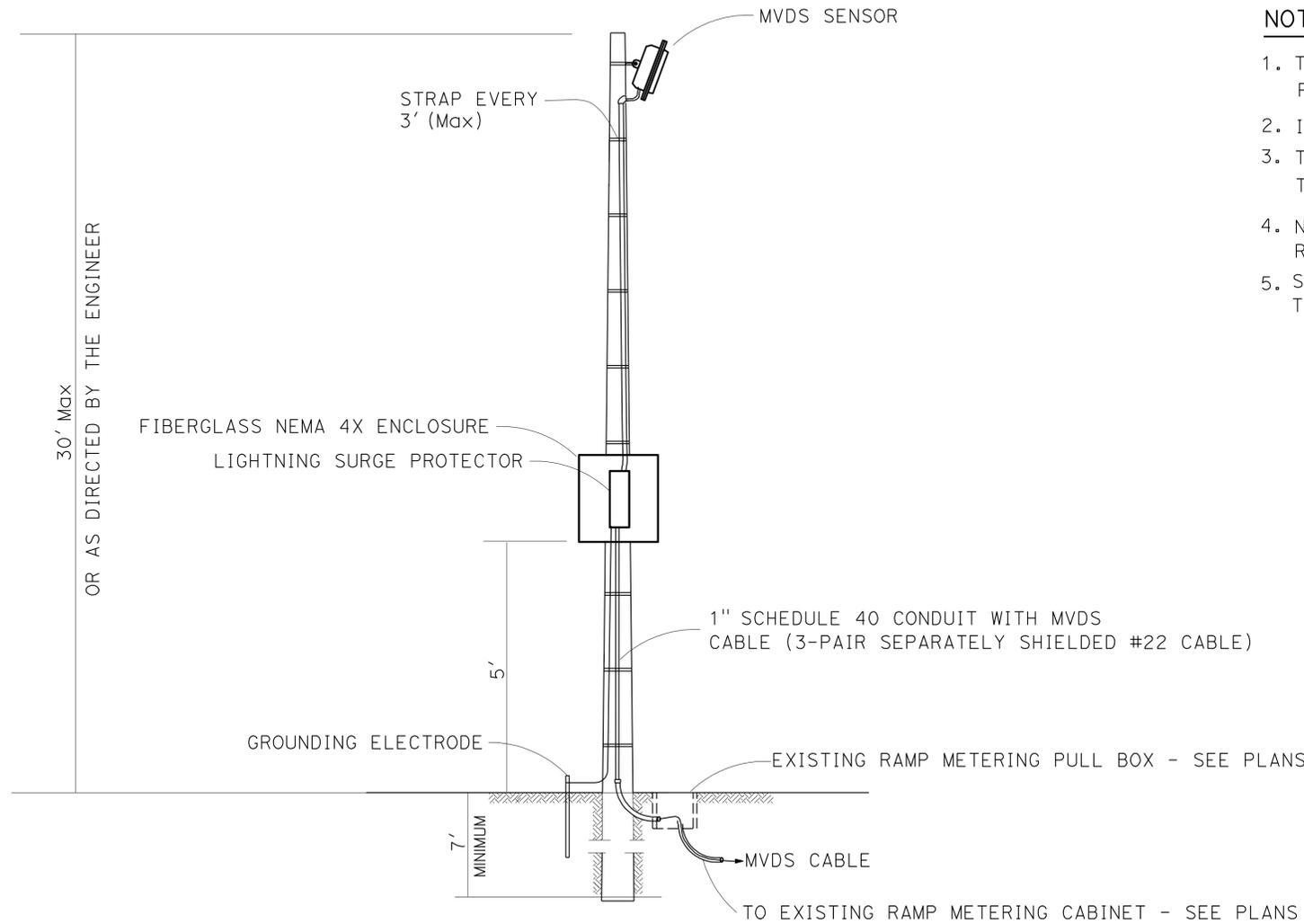
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1054	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	CHECKED BY	DATE
	FERNAND DE LA CRUZ		



MVDS ON WOOD POLE DETAIL

NOTES-THIS SHEET ONLY

1. THIS DETAIL SHALL BE USED FOR VEHICLE DETECTION OF ALL MAINLINE FREEWAY LANES DURING STAGE CONSTRUCTION ONLY.
2. INSTALL WOOD POLE A MINIMUM OF 30 FEET FROM ETW OR AS DIRECTED BY THE ENGINEER.
3. THE MVDS SYSTEM SHALL BE **RS** AFTER THE NEW RAMP METERING SYSTEM HAS BEEN INSTALLED.
4. NO SPLICES OF THE MVDS CABLE SHALL BE ALLOWED BETWEEN THE EXISTING RAMP METERING CABINET AND THE POLE MOUNTED MVDS ENCLOSURE.
5. SEE C-96 TO C-100 FOR OTHER POLE CONFIGURATION WITH TEMPORARY FIBER OPTIC CABLE.

MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENT DURING CONSTRUCTION (TEMPORARY MVDS SENSOR)

NO SCALE

E-125

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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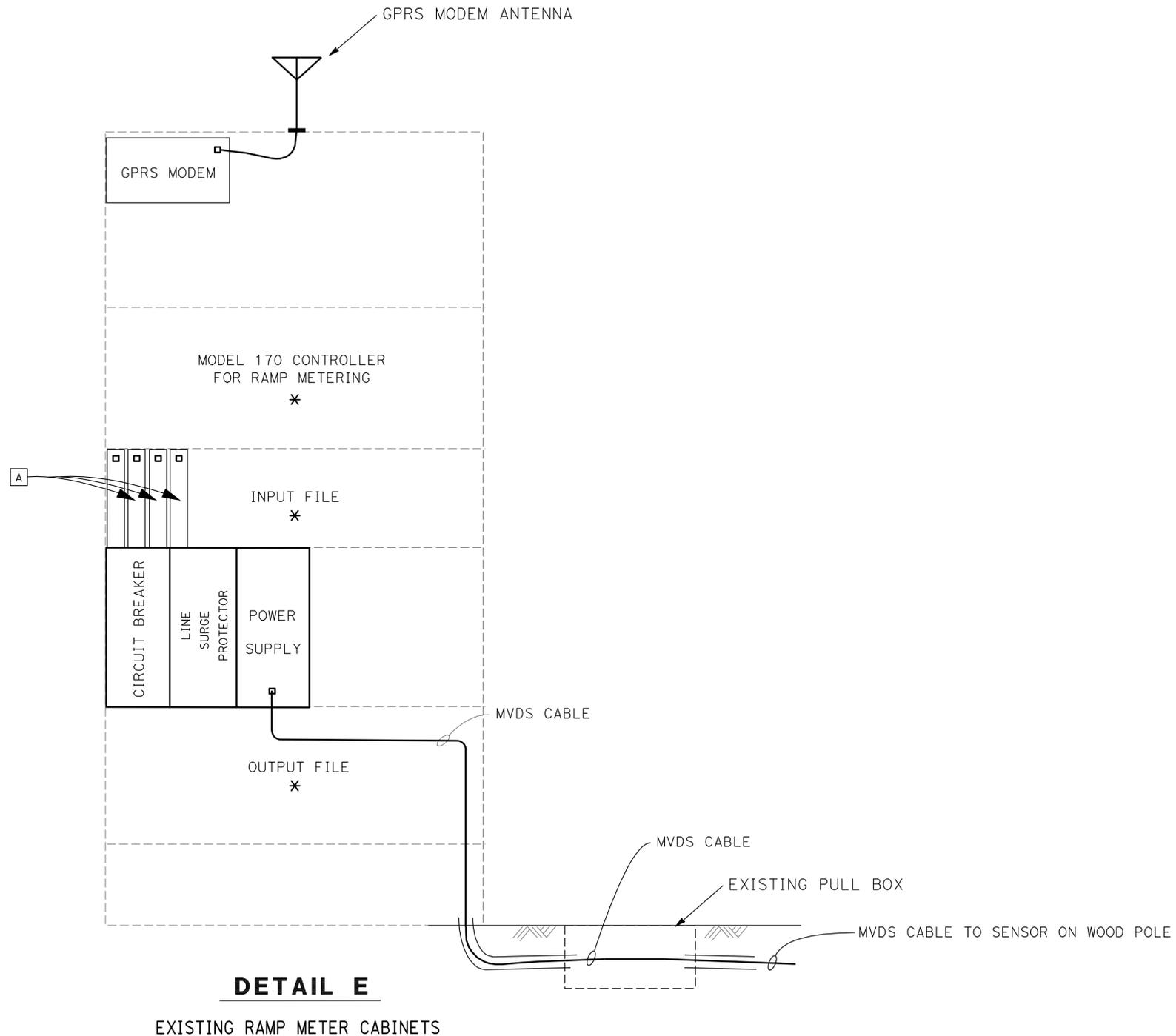
Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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NOTES-THIS SHEET ONLY

- [A] CONTACT CLOSURE CARDS FOR MVDS SYSTEM. (10 PER CABINET)
- * EXISTING EQUIPMENT.



MAINTAIN EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION (MICROWAVE VEHICLE DETECTION SYSTEM DETAILS)

NO SCALE

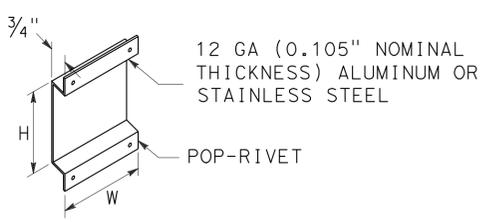
E-126

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE
			REVISED BY
			DATE

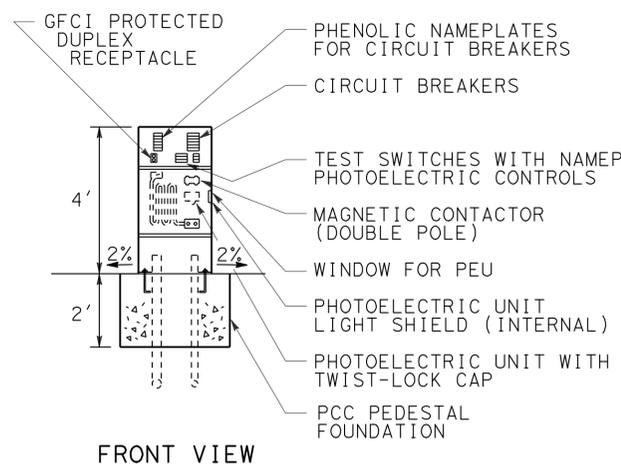


PEU LIGHT SHIELD NOTES

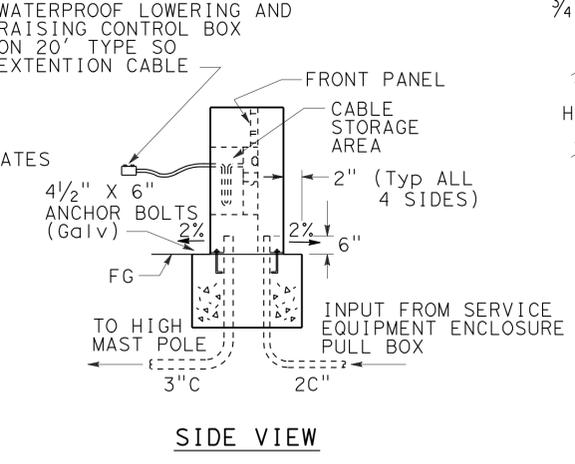
- DIMENSIONS SHALL BE AS REQUIRED FOR SHIELD TO COVER WINDOW FOR PHOTOELECTRIC UNIT BY 1" IN ALL DIRECTIONS.
- DEVICE SHIELDS DIRECT LIGHT (HEADLIGHTS) FROM AFFECTING PHOTOELECTRIC UNIT.
- LUMINAIRES TO BE PROTECTED FROM LIGHTNING STRIKES AND POWER SURGES.



PHOTOELECTRIC UNIT LIGHT SHIELD

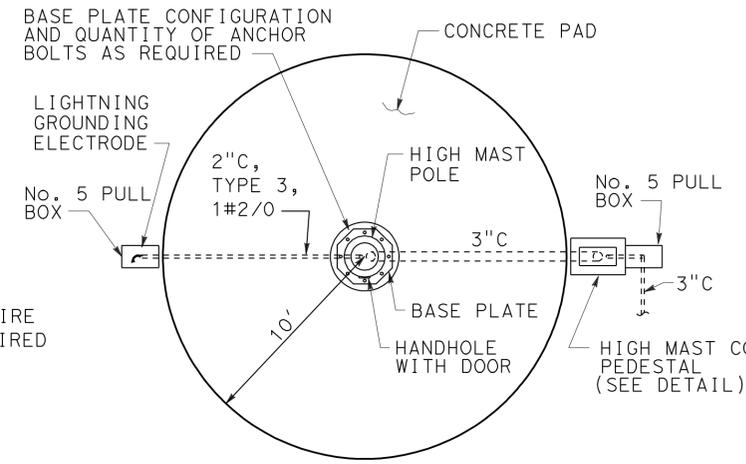


FRONT VIEW

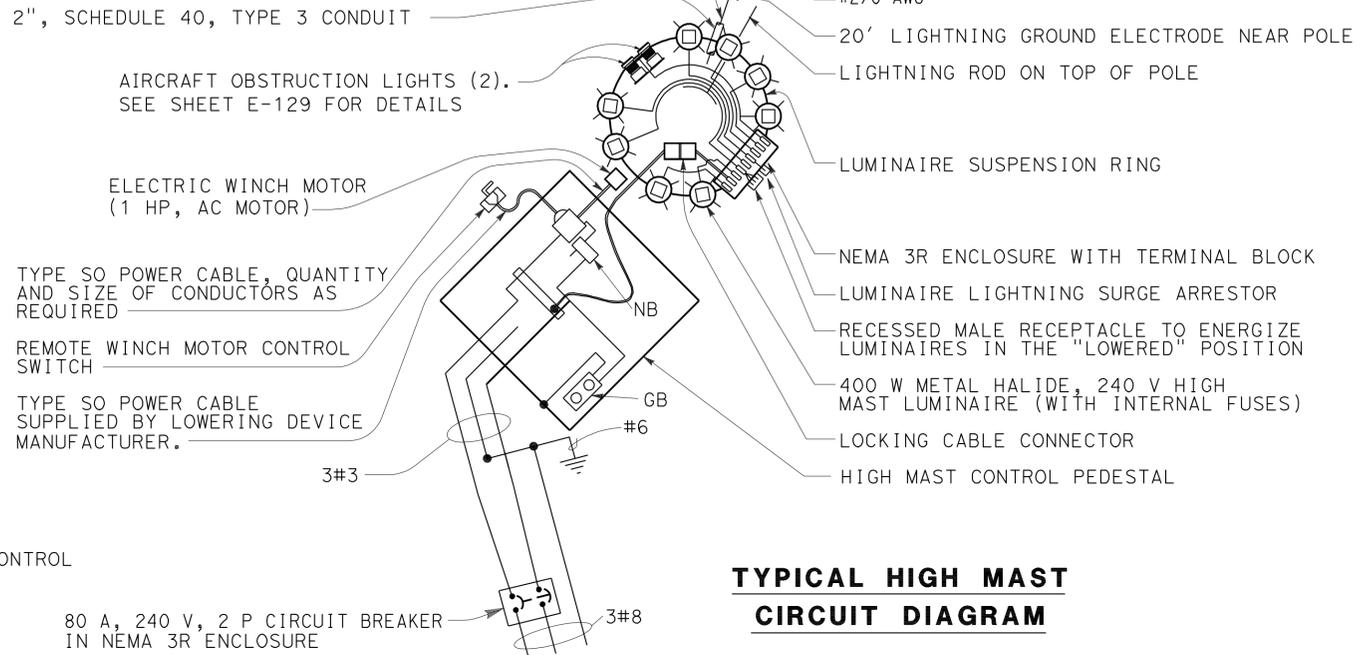


SIDE VIEW

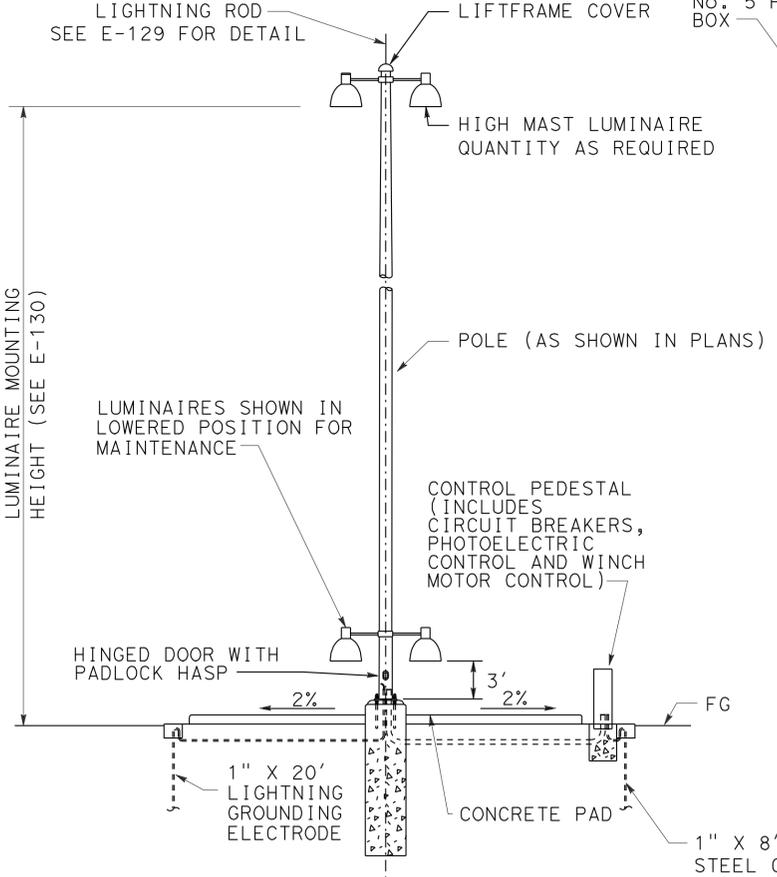
HM CONTROL PEDESTAL DETAIL



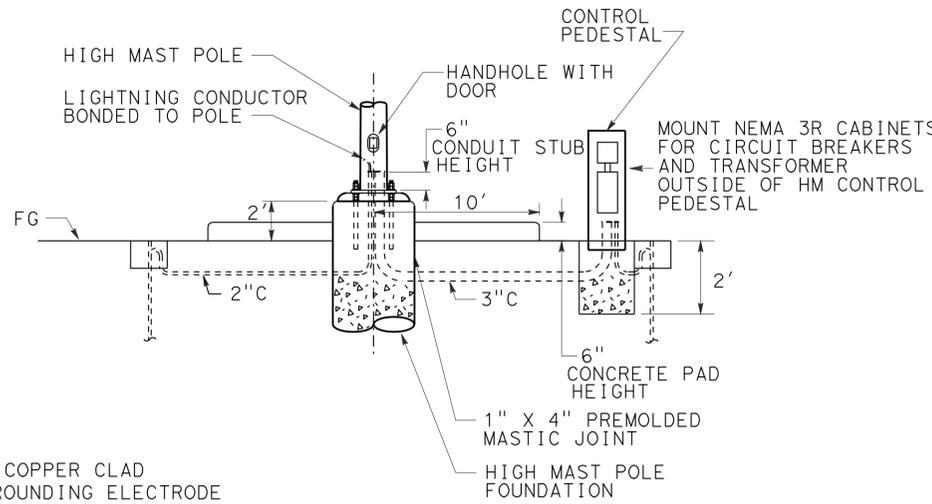
TOP VIEW



TYPICAL HIGH MAST CIRCUIT DIAGRAM



HIGH MAST LIGHTING SYSTEM



PAD AND CONTROL PEDESTAL DETAIL

ABBREVIATIONS:

- HM HIGH MAST
- MH METAL HALIDE

**ENGRAVED PEC CONTROL PHENOLIC NAMEPLATE TABLE
PEC CONTROL 120 V**

LOCATION	EQUIPMENT TO BE NAMEPLATED	NAMEPLATE
HM CONTROL PEDESTAL	MAIN BREAKER	MAIN BREAKER 240 VOLTS
	WINCH MOTOR AND CONTROL CIRCUIT BREAKER	WINCH MOTOR & CONTROL 120 VOLTS
	HIGH MAST LIGHTING CIRCUIT BREAKER	HIGH MAST LIGHTING 240 VOLTS
	PEC CONTROL	PEC CONTROL 120 V
	GROUND FAULT PROTECTED DUPLEX RECEPTACLE	GFCI RECEPTACLE 120 VOLTS
	HIGH MAST LIGHTING PHOTOELECTRIC CONTROL TEST SWITCH	AUTOMATIC TEST HIGH MAST LTG PEC

PHENOLIC NAMEPLATE NOTES

- NAMEPLATES SHALL BE ATTACHED USING STAINLESS STEEL OR ALLUMINUM SCREWS, BOLTS OR RIVETS.
- WHEN NAMEPLATES ARE GROUPED TOGETHER, THEY SHALL BE OF THE SAME LENGTH AND WIDTH.
- NAMEPLATES SHALL BE 1/4" (Min) WHITE LETTERS ON BLACK BACKGROUND.
- THE "AUTOMATIC", "TEST" PORTION OF THE NAMEPLATE FOR THE PHOTOELECTRIC CONTROL TEST SWITCH SHALL CORRESPOND TO THE MOVEMENT OF THE SWITCH TOGGLE LEVER.

MODIFY LIGHTING AND SIGN ILLUMINATION (HIGH MAST LIGHTING DETAILS)

NO SCALE

E-127

NOTE:
1. SEE S+D PLAN ES-6J FOR HIGH MAST POLE AND FOUNDATION DETAILS.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B

FUNCTIONAL SUPERVISOR
 FERDINAND DE LA CRUZ

CALCULATED/DESIGNED BY
 CHECKED BY

KATHERINE DINH
 FERDINAND DE LA CRUZ

REVISED BY
 DATE REVISED

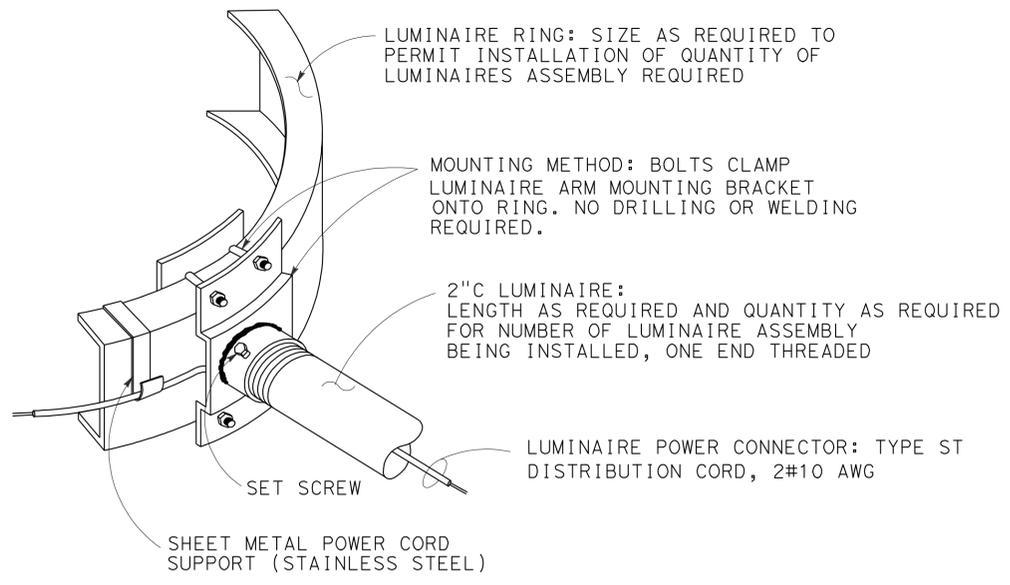
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1057	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE

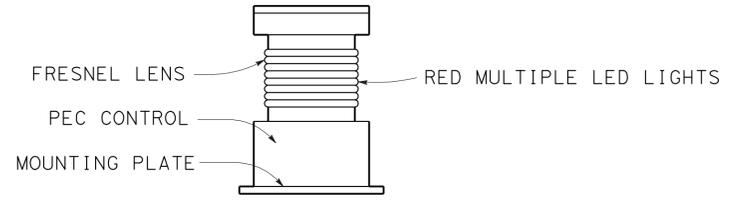
4-16-12
 PLANS APPROVAL DATE

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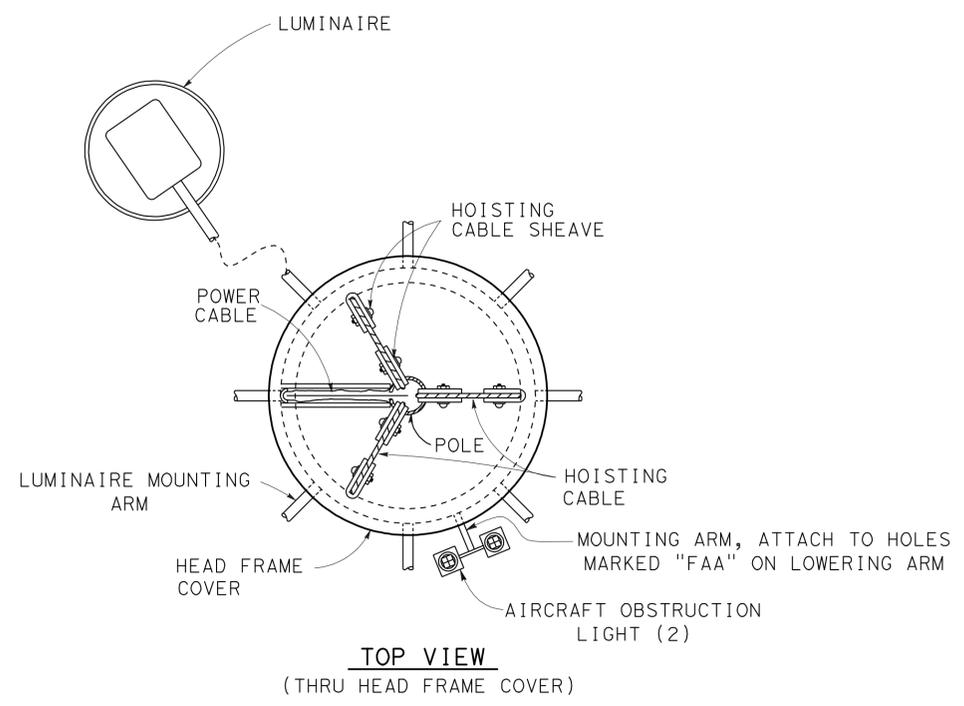
REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA



TYPICAL LUMINAIRE MOUNTING ARM ATTACHMENT TO LUMINAIRE RING

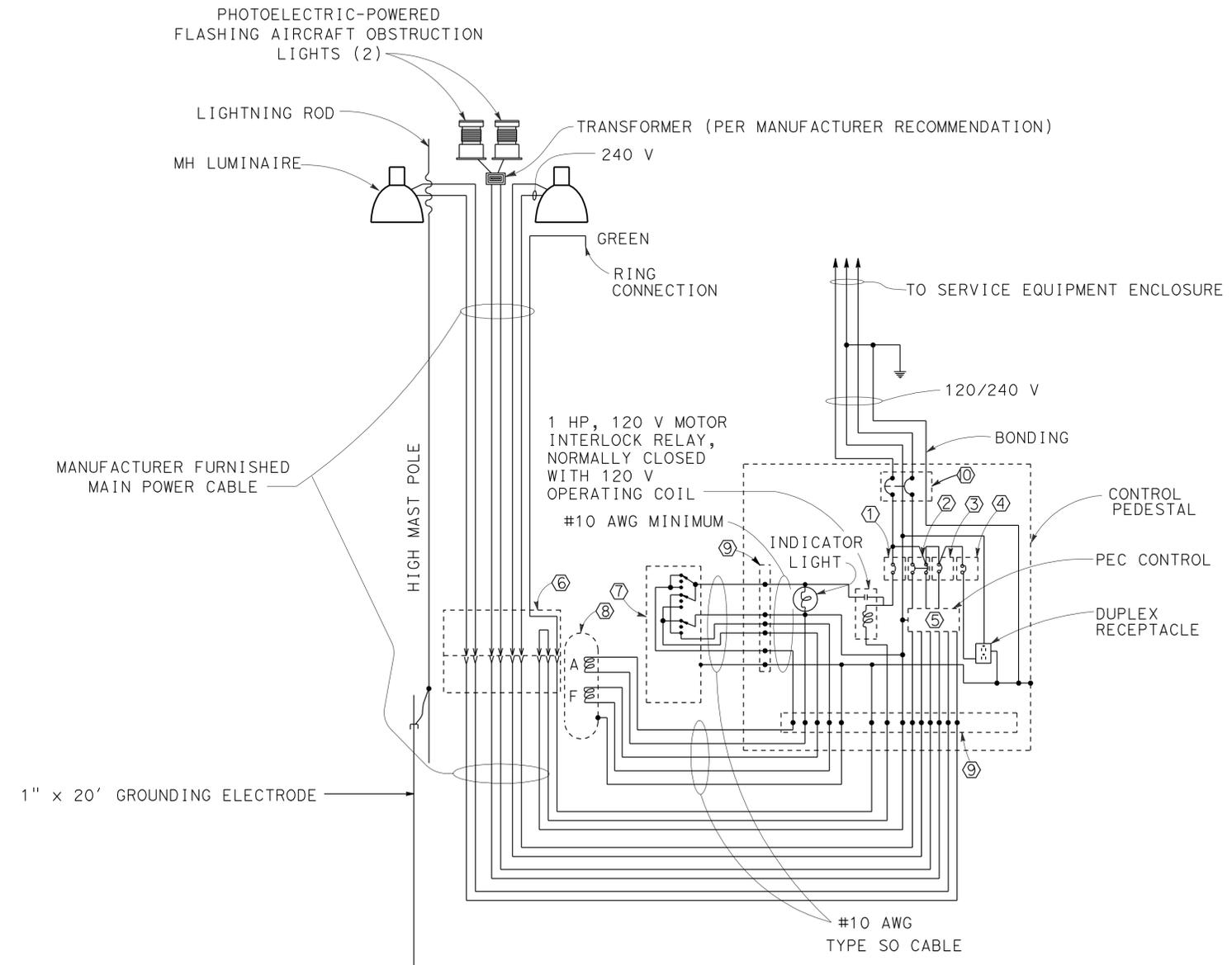


AIRCRAFT OBSTRUCTION LIGHT



LEGEND (THIS SHEET ONLY):

- ① 30 A, 120 V CIRCUIT BREAKER, SINGLE POLE GFI TYPE FOR MOTOR
- ② 40 A, 240 V CIRCUIT BREAKER, DOUBLE POLE FOR LIGHTING AND AIRCRAFT OBSTRUCTION LIGHTING
- ③ 15 A, 120 V CIRCUIT BREAKER, SINGLE POLE FOR PEC
- ④ 15 A, 120 V CIRCUIT BREAKER, SINGLE POLE FOR DUPLEX RECEPTACLE
- ⑤ TYPE V PHOTOELECTRIC CONTROL
- ⑥ LOCKING CONNECTOR (MALE AND FEMALE)
- ⑦ MOTOR POWER AND DIRECTIONAL CONTROL SWITCH RAISE, OFF, LOWER
- ⑧ INTERNAL WINCH MOTOR (1 HP)
- ⑨ TERMINAL BLOCK
- ⑩ 40 A, 240 V MAIN CIRCUIT BREAKER, DOUBLE POLE



WIRING DETAILS

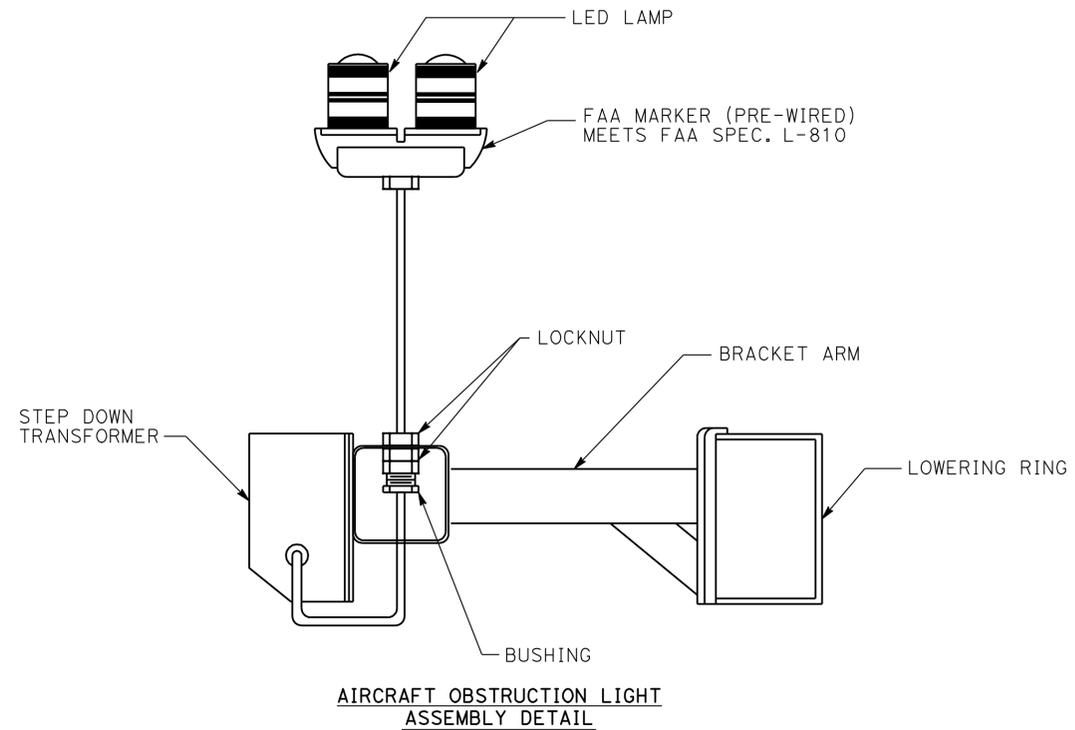
MODIFY LIGHTING AND SIGN ILLUMINATION (HIGH MAST LIGHTING DETAILS)

NO SCALE

E-128

PEC NOTES:

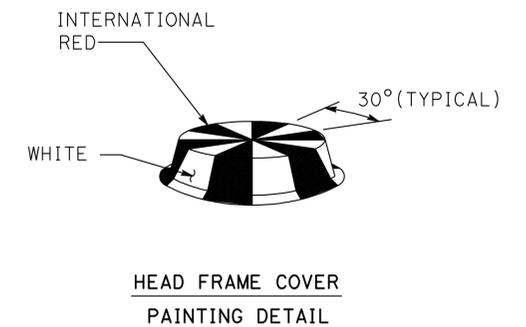
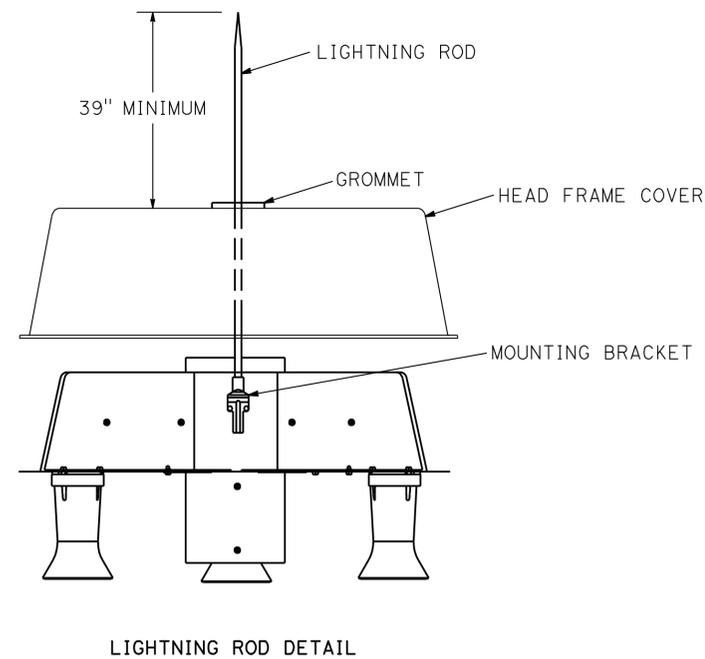
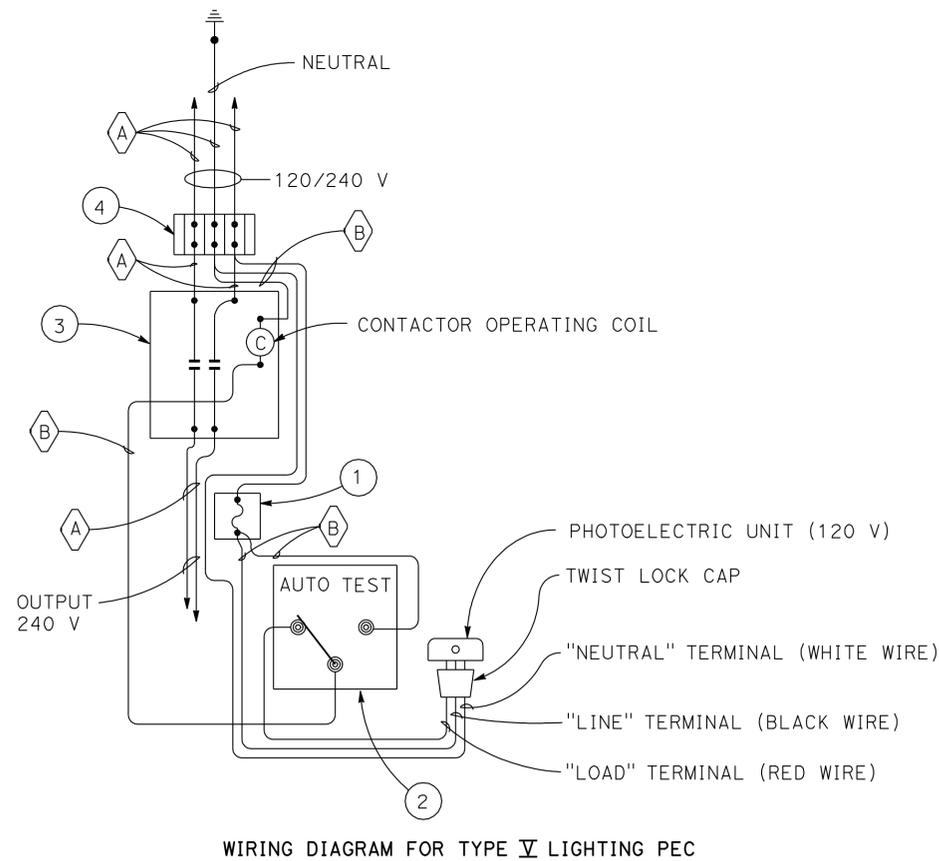
- ① CARTRIDGE TYPE FUSE - (300 V, 1 A)
13/32" DIAMETER X 1 1/2" AND 300 V,
5 A FUSE HOLDER
- ② TEST SWITCH ("AUTOMATIC" - "TEST")
120 V, 5 A
- ③ AC MAGNETIC CONTACTOR - 2 POLE - 240 V,
40 A CONTINUOUS CURRENT CARRYING
CAPACITY 120 V, 60 HZ OPERATING
COIL
- ④ TERMINAL BOARD - 6 TERMINALS - 240 V,
40 A
- Ⓐ LOAD CONDUCTOR - SIZE AS NOTED ON THE
PLANS
- Ⓑ #14 AWG CONDUCTOR



ISOLUX CURVE VALUES	
CURVE	LAMP 400 WATTS METAL HALIDE 40,000 LUMENS
A	0.16 fc
B	0.08 fc
C	0.04 fc
D	0.016 fc
E	0.008 fc

FLOODLIGHT NOTE:

1. THE INDIVIDUAL ILLUMINATION PATTERNS, INCLUDING LIGHT SPREAD AND AIMING, SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
2. CIRCULAR LIGHT SHIELDS SHALL BE MOUNTED ON EACH LUMINAIRE TO LIMIT OFF AXIS, STRAY LIGHT.



**MODIFY LIGHTING AND SIGN ILLUMINATION
(HIGH MAST LIGHTING DETAILS)**

NO SCALE

E-129

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY: FERDINAND DE LA CRUZ
 REVISED BY: KATHERINE DINH
 DATE REVISED: FERDINAND DE LA CRUZ

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1059	1743

4-13-12
 REGISTERED CIVIL ENGINEER DATE

4-16-12
 PLANS APPROVAL DATE

JUSTINE NIU
 No. C. 62897
 Exp. 6-30-12
 CIVIL

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

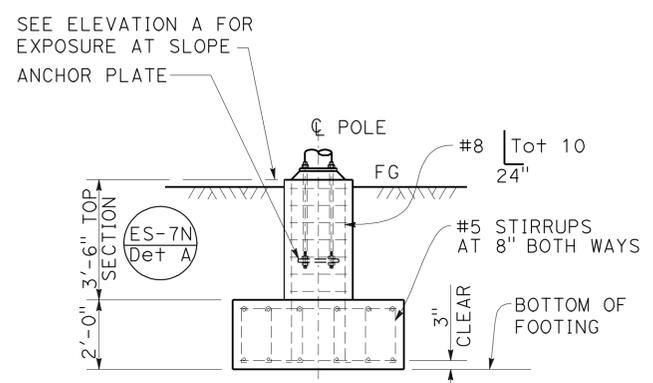
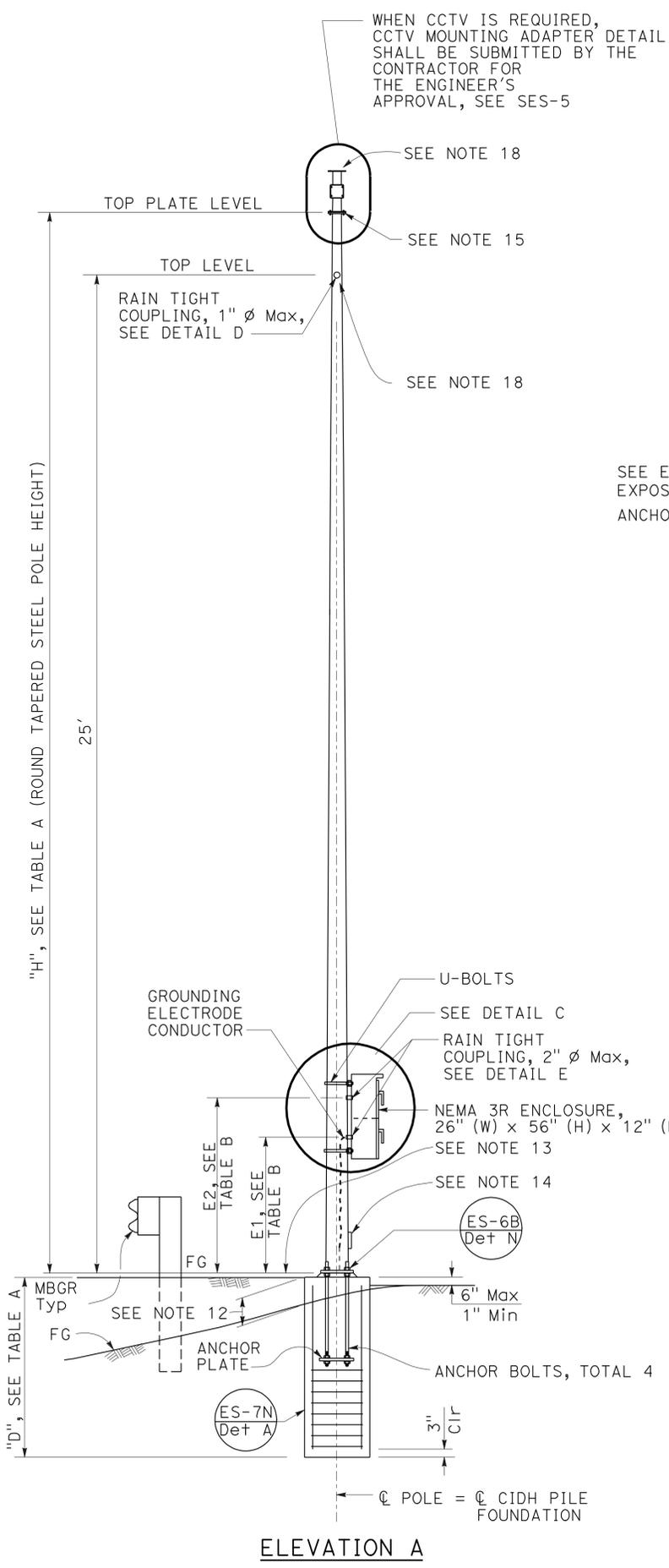
POLE TYPE	POLE DATA			BASE PLATE DATA				"D" 2'-6" ϕ CIDH Pile	
	HEIGHT "H"	Min OD	THICKNESS	"C"	THICKNESS	ANCHOR BOLTS SIZE	BC = BOLT CIRCLE	LEVEL GROUND	UP TO 2:1
VDS 30	30'	8" BASE 3 7/8" TOP	0.1793"	1'-1 1/2"	1 1/2"	1/2" ϕ x 3'-0"	1'-1 1/2"	11'-0"	

POLE TYPE	COUPLING	
	E1(Max)	E2(Max)
VDS 30	3'-6"	4'-9"

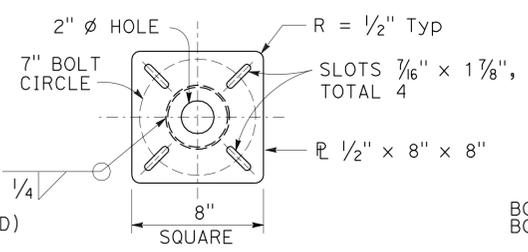
SPREAD FOOTING		
GROUND	FOOTING SIZE (LENGTH x WIDTH x DEPTH)	REINFORCEMENT TOP & BOTTOM
LEVEL	8'-6" x 8'-6" x 2'-0"	12 - #5 EW
UP TO 2:1	10'-0" x 10'-0" x 2'-0"	15 - #5 EW

LOCATION	MAXIMUM TOTAL EPA PER LEVEL (SQUARE FEET)	MAXIMUM TOTAL WEIGHT (lb)
TOP LEVEL	2.5	50
ON TOP PLATE LEVEL **		

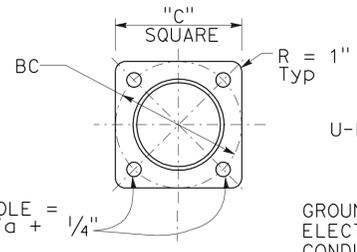
* MAXIMUM HORIZONTAL EXTENT BEYOND POLE FACE IS 4 FEET.
 ** MAXIMUM EXTENT ABOVE TOP PLATE IS 3 FEET.



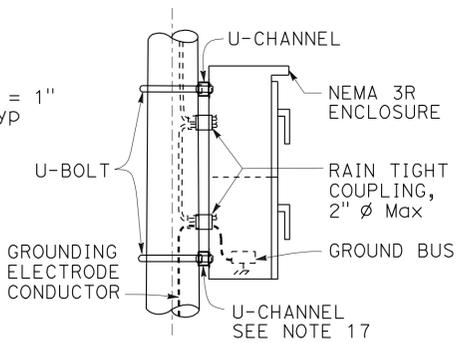
ALTERNATIVE FOOTING
 ELEVATION B



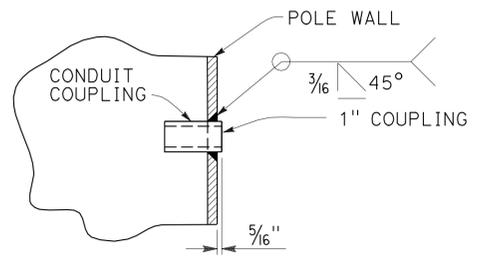
TOP PLATE
 DETAIL A



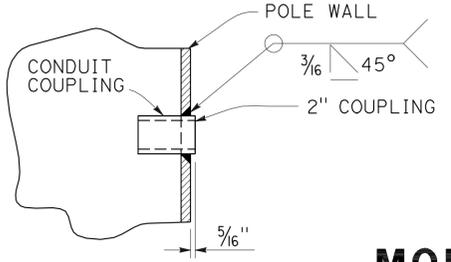
BASE PLATE
 DETAIL B



DETAIL C



1" COUPLING
 DETAIL D



2" COUPLING
 DETAIL E

NOTES:

- All steel shall be galvanized after fabrication.
- During pole installation the post shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
- The foundation shall be treated as level ground condition if the slope inclination is flatter than 4 : 1 (Horizontal : Vertical)
- For devices mounted and mounting heights, see TABLE B.
- Design Specification: AASHTO Standard Specification for structural support for highway signs, luminaires and traffic signal dated 2001.
- Wind Loadings: 100 mph (3-second gust)
- Unit Stresses (Structural Steel):
 - fy = 55,000 psi (tapered steel tube)
 - fy = 50,000 psi (unless otherwise noted)
- Anchor bolts: fy = 55,000 psi
- Unit Stresses (Reinforced Concrete):
 - f'c = 3,600 psi
 - fy = 60,000 psi
- The Contractor shall verify all controlling field dimensions before ordering of fabricating any material.
- When no barriers are used, the NEMA 3R enclosure shall be located on the downstream side and perpendicular to the roadway.
- 1'-3" (Max) for sloped finished grade.
- Bottom of base plate.
- Handhole. ES-7M
- Install a blank flange on the top plate when closed circuit television is not used.
- Not used.
- U-channel with bracket.
- Use the manufacturer's Effective Projected Area (EPA) for attachments. Assign attachments to nearest level and sum each level, see Table D for limitations.

**MODIFY CLOSED CIRCUIT TELEVISION SYSTEM
 MODIFY TRAFFIC MONITORING STATION**

NO SCALE

E-130

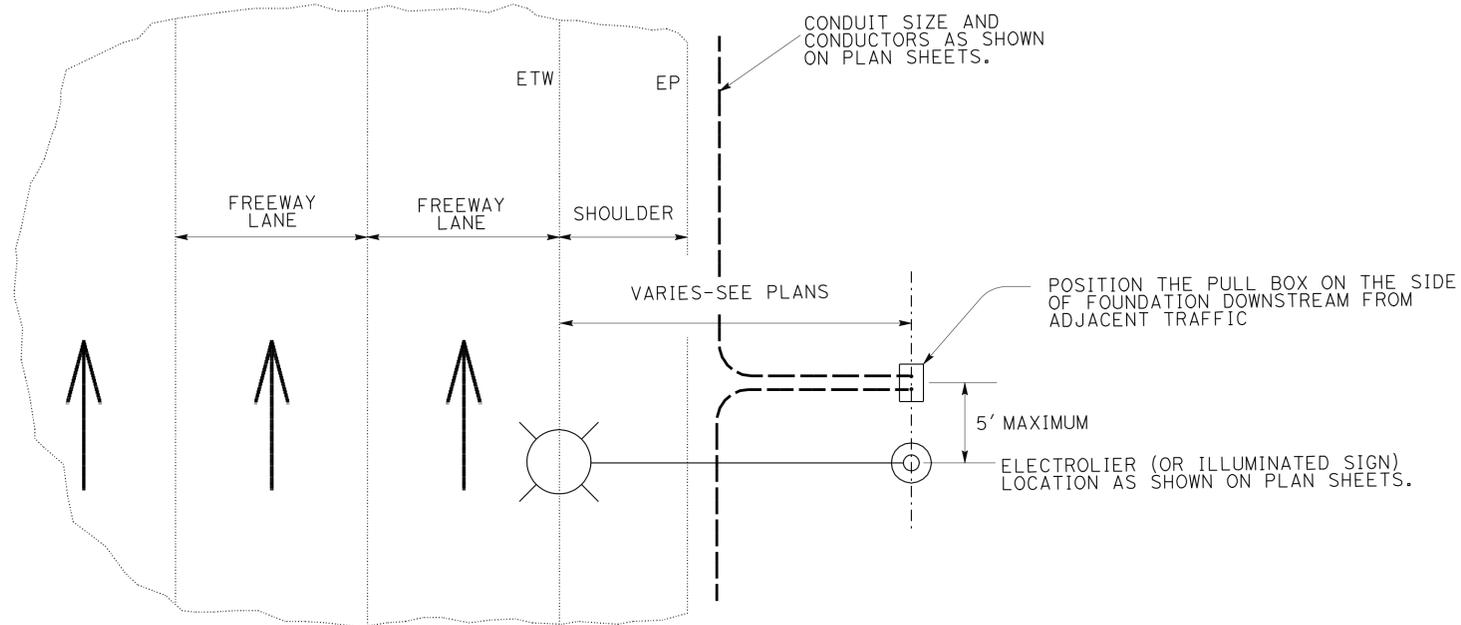
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1060	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ	KATHERINE DINH
		CHECKED BY	DATE REVISED



PROTECTED PULL BOX DETAIL

**MODIFY LIGHTING AND SIGN ILLUMINATION
(PULL BOX LOCATION DETAILS)**

NO SCALE

E-131

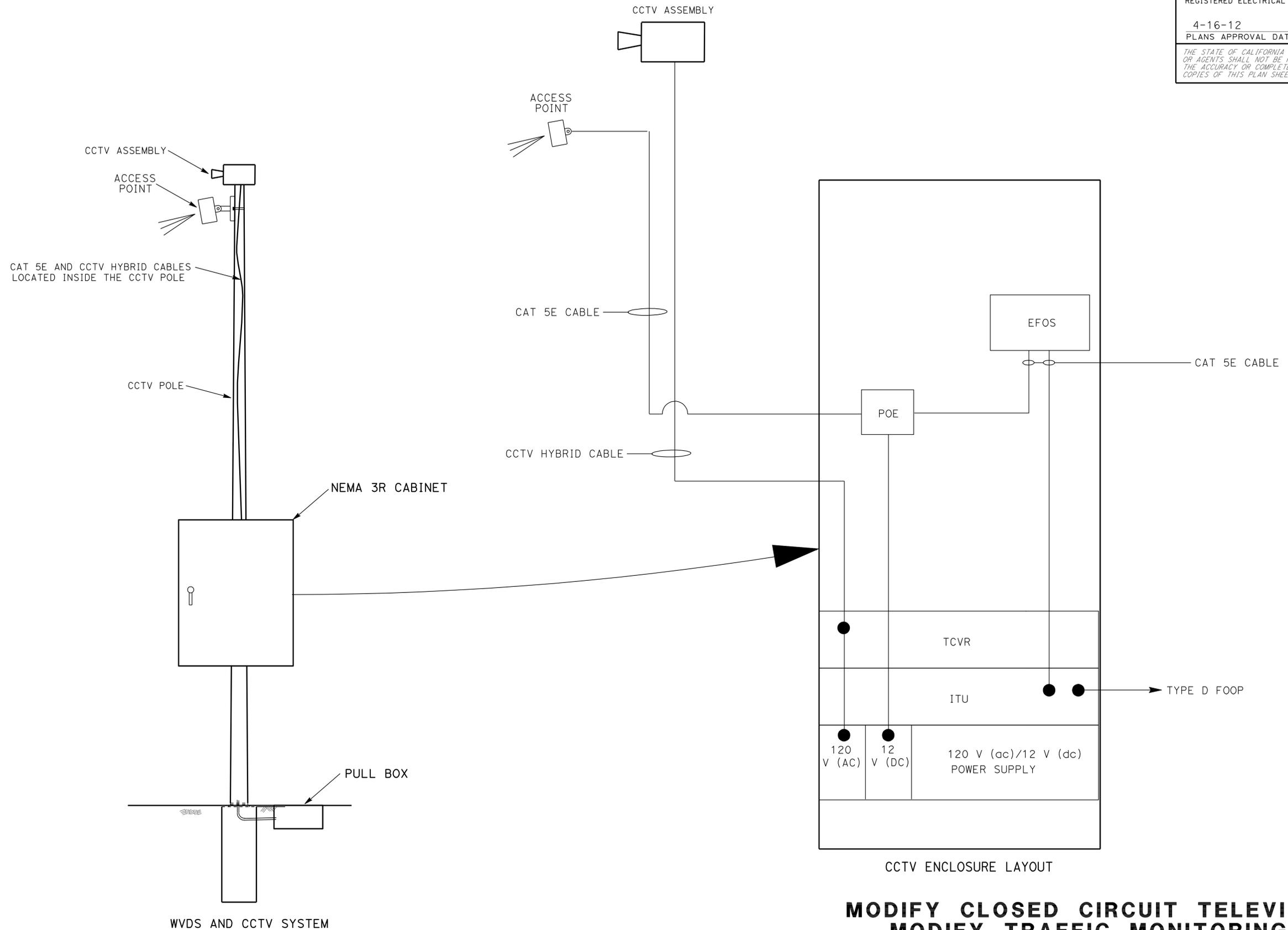
LAST REVISION
 DATE PLOTTED => 18-APR-2012
 TIME PLOTTED => 16:06

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1061	1743

Katherine Dinh 2-27-12
 REGISTERED ELECTRICAL ENGINEER DATE
 4-16-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 KATHERINE DINH
 No. E 17157
 Exp. 9-30-13
 ELECTRICAL
 STATE OF CALIFORNIA

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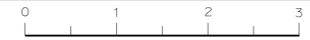


MODIFY CLOSED CIRCUIT TELEVISION SYSTEM
MODIFY TRAFFIC MONITORING STATION
(CCTV AND WVDS LAYOUT)

NO SCALE

E-132

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv,SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1062	1743
			4-16-12	REGISTERED ELECTRICAL ENGINEER DATE	
			4-16-12	PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**CITY OF COLTON ELECTRIC UTILITY
CONSTRUCTION NOTES AND REQUIREMENTS**

GENERAL NOTES:

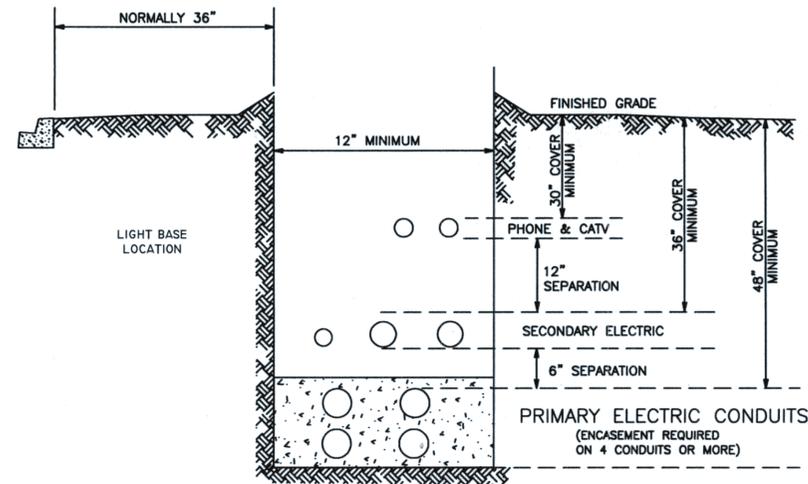
- A. THE CITY OF COLTON ELECTRIC DEPARTMENT TO INSTALL, FOR A CHARGE, TRANSFORMERS, PRIMARY SWITCHES, PRIMARY CONDUCTORS, AND SECONDARY SERVICE CONDUCTORS FOR PANELS RATED AT 200 AMPS AND SMALLER. THE UTILITY CAN ALSO INSTALL, FOR A CHARGE, STREETLIGHT STANDARDS, ARMS AND FIXTURES FOR PROJECTS THAT REQUIRE LESS THAN 10 LIGHTS.
- B. CONTRACTOR TO INSTALL AT DEVELOPER'S EXPENSE ALL UNDERGROUND FIXTURES - INCLUDING VAULTS, PULLBOXES, BARRIER POSTS, RETAINING WALLS, CONDUITS, CONDUIT ENCASEMENT, PULL TAPE, STREET LIGHT FOUNDATIONS, LIGHT STANDARDS, ARMS AND FIXTURES. CONTRACTOR SHALL ALSO INSTALL COMMERCIAL, MULTI-TENANT AND RESIDENTIAL SERVICE CONDUCTORS FOR PANELS RATED LARGER THAN 200 AMPS.
- B. DEVELOPER TO OBTAIN THE ELECTRIC DEPARTMENT'S APPROVAL PRIOR TO MAKING ANY FIELD CHANGES. INSURE THAT ALL CONFLICTS WITH THIS DESIGN ARE BROUGHT TO THE ELECTRIC DEPARTMENT'S ATTENTION PRIOR TO CONSTRUCTION. INSURE ALL NECESSARY EASEMENTS FOR ELECTRIC LINES ARE PROVIDED AS PER ELECTRIC UTILITY INSTRUCTIONS. PROVIDE AN ACCURATE "AS-BUILT" PRINT UPON COMPLETION OF THE PROJECT.

CONSTRUCTION REQUIREMENTS:

1. ALL ELECTRIC SUBSTRUCTURES AND CONDUIT SHALL BE INSPECTED PRIOR TO BACKFILL.
2. FOREIGN SYSTEMS SHALL NOT BE CLOSER THAN 12 INCHES TO ELECTRIC SYSTEM WITHOUT PRIOR APPROVAL BY THE ELECTRIC DEPARTMENT.
3. COMPACTION OF BACKFILL SHALL BE AT 90% MINIMUM UNLESS OTHERWISE SPECIFIED BY THE CITY OF COLTON ENGINEERING DEPARTMENT. COMPACTION TESTS SHALL BE TAKEN BY A LICENSED ENGINEER OR TESTING LABORATORY AT RANDOM TRENCH LOCATIONS AND AT ALL PRIMARY VAULT AND BOX LOCATIONS.
4. LANDSCAPED AREA SURROUNDING BOXES TO BE SLOPED AWAY TO PREVENT DRAINAGE INTO BOX. BOXES INSTALLED NEAR A HILL BANK SHALL BE PROTECTED BY RETAINING WALLS. BOXES SHALL HAVE 5 FT. MINIMUM CLEARANCE FROM ALL STRUCTURES. BARRIER POSTS ARE REQUIRED AROUND ALL TRANSFORMER PADS AND RISER POLES THAT ARE NEAR TRAFFIC AREAS.
5. BOXES TO BE INSTALLED FLUSH IN SIDEWALKS AND 3 INCHES ABOVE FINISH GRADE IN PARKWAYS. TRANSFORMER PADS TO BE 6" ABOVE FINISH GRADE. TOP OF PADS AND THE BOTTOM OF BOXES TO BE LEVEL. ALL BOX COVERS TO BE MARKED "COLTON ELECTRIC". TRAFFIC COVERS REQUIRED IN ALL TRAFFIC AREAS. PENTA HEAD BOLTS REQUIRED ON ALL COVERS. 6" OF CLEAN 3/4" ROCK REQUIRED UNDER ALL BOXES. GROUND RODS REQUIRED. MASTIC JOINT SEALING REQUIRED BETWEEN ALL SECTIONS. ALL BOXES TO BE CLEAN AND GROUTED INSIDE AND OUT.
6. ALL ELECTRIC CONDUITS SHALL BE SCHEDULE 40 PVC. SECONDARY VOLTAGE CONDUIT TO HAVE A MINIMUM OF 36" OF COVER. PRIMARY VOLTAGE CONDUIT TO HAVE A MINIMUM OF 48" OF COVER. THE SWEEP AND FIRST 10 FEET OF A RISER SHALL BE SCHEDULE 80 PVC CONDUIT. ALL CONDUIT SHALL BE INSTALLED STRAIGHT AND LEVEL UNLESS FIELD SITUATION DICTATES OTHERWISE. ALL CONDUIT STUB-OUTS SHALL BE CAPPED AND MARKED FOR FUTURE LOCATING ACCORDING TO THE ELECTRIC DEPARTMENT'S INSTRUCTIONS. ALL ELECTRIC CONDUITS IN TRENCH SHALL HAVE A MINIMUM SEPARATION FROM EACH OTHER OF 4" HORIZONTALLY AND 6" VERTICALLY (BOTH CAN BE REDUCED WITHIN ENCASEMENT PER PER ELECTRIC UTILITY INSTRUCTION).
7. ALL PRIMARY CONDUITS WITHIN A STREET SHALL BE FULLY ENCASED WITH 4 INCHES OF CONCRETE (5 SACK, PEA-GRAVEL). ALL DUCT BANKS OF 4 CONDUITS OR MORE SHALL BE FULLY ENCASED WITH 2 INCHES OF CONCRETE (2 SACK, PEA-GRAVEL). CONDUIT SEPARATION SPACERS AND TIE-DOWNS REQUIRED.
8. ONLY PHONE AND CABLE TV UTILITY LINES ARE ALLOWED TO BE INSTALLED JOINTLY IN THE ELECTRIC TRENCH AT 12" SEPARATION.
9. A POLYESTER FLAT PULLING TAPE (NEPTCO MULETAPE OR EQUAL), WHITE WITH SEQUENTIAL FOOTAGE MARKINGS, 2,500 MINIMUM TENSILE STRENGTH, SHALL BE INSTALLED IN ALL CONDUITS AND ATTACHED TO AN END CAP. THE ELECTRIC DEPARTMENT INSPECTOR MUST WITNESS THE MANDRILLING OF ALL CONDUITS WITH THE APPROPRIATE MANDRILL.
10. THE EXACT LOCATION OF LIGHT BASE FOUNDATIONS TO BE MARKED IN THE FIELD BY THE ELECTRIC DEPARTMENT. LIGHT BASE FOUNDATIONS SHALL BE INSPECTED PRIOR TO POURING CONCRETE (5 SACK, PEA-GRAVEL). SONG TUBES (30" DIA.) ARE REQUIRED TO FORM LIGHT BASE FOUNDATIONS. THE UTILITY TO SUPPLY FOUNDATION BOLTS FOR LIGHT STANDARDS INSTALLED BY THE UTILITY. ONCE LIGHT STANDARD IS SET, CONTRACTOR IS REQUIRED TO FINISH SIDEWALK OR POUR A 6" CAP AROUND STANDARD IN PARKWAYS. SIDEWALKS SHALL BE ADJUSTED TO PROVIDE WHEELCHAIR CLEARANCE ACCORDING TO THE CITY OF COLTON PUBLIC WORKS SPECIFICATIONS. IF LIGHT LOCATION IS NOT WITHIN 10' OF SECONDARY HANDHOLE BOX, A SPARE 2" CONDUIT SHALL BE STUBBED OUT FROM LIGHT BASE TO BACK OF SIDEWALK.
11. CONTRACTOR SHALL COMPLY WITH ALL STATE DEPARTMENT OF INDUSTRIAL SAFETY REGULATIONS.
12. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT LEAST TWO WORKING DAYS PRIOR TO DIGGING. CONTRACTOR MUST LOCATE ALL EXISTING SUBSTRUCTURES ACCORDING TO UNDERGROUND SERVICE ALERT RULES PRIOR TO DIGGING.
13. CONTRACTOR TO REQUEST AN ELECTRIC DEPARTMENT STANDBY CREW PRIOR TO ENTRY INTO AN EXISTING ELECTRIC BOX OR WHEN WORKING NEAR EXISTING ELECTRIC FACILITIES.
14. ALL COMMERCIAL PROJECTS SHALL HAVE TIME OF USE (TOU) METERING CAPABILITY. INSTALL A 2 INCH CONDUIT FROM ELECTRIC PANEL METERING SECTION TO TELEPHONE MAIN POINT OF ENTRY. IF TELEPHONE NOT PRESENT CONTACT ELECTRIC DEPARTMENT FOR LOCATION OF NEAREST POINT OF CONNECTION.
15. THIS PLAN IS DIAGRAMMATIC. ALL PLAN CHANGES AND FIELD ADJUSTMENTS SHALL BE APPROVED IN ADVANCE BY THE ELECTRIC DEPARTMENT. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND DETAILS OF THE CITY OF COLTON ELECTRIC DEPARTMENT.
16. FOR DETAILED CONSTRUCTION SPECIFICATIONS AND INSPECTION CALL THE CITY OF COLTON ELECTRIC DEPARTMENT AT 909-370-5104.

	APPROVED: M. GRIGG	DRAWN BY: F. MEJIA	DATE: APRIL 2, 2009	ELECTRICAL STANDARDS
	CONSTRUCTION REQUIREMENTS		SD 400.01	

**CITY OF COLTON ELECTRIC UTILITY
CONSTRUCTION REQUIREMENTS**



CONDUIT AND TRENCH REQUIREMENTS

1. ALL CONDUITS MUST BE INSPECTED PRIOR TO BACKFILL.
2. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT LEAST TWO WORKING DAYS PRIOR TO DIGGING.
3. CONTRACTOR SHALL COMPLY WITH ALL STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL SAFETY REGULATIONS.
4. ALL CONDUITS SHALL BE INSTALLED STRAIGHT AND LEVEL UNLESS FIELD SITUATION DICTATES OTHERWISE.
5. ONLY PHONE AND CATV UTILITY LINES ARE ALLOWED TO BE INSTALLED JOINTLY IN ELECTRICAL TRENCH.
6. FOREIGN SYSTEMS SHALL NOT BE CLOSER THAN 12" TO ELECTRIC CONDUIT WITHOUT PRIOR APPROVAL OF THE ELECTRIC DEPARTMENT.
7. CONDUIT STUBOUTS SHALL BE CAPPED AND MARKED FOR FUTURE LOCATING ACCORDING TO ELECTRIC DEPARTMENT INSTRUCTION.
8. ALL ELECTRIC CONDUITS IN TRENCH SHALL HAVE A MINIMUM SEPARATION OF FROM EACH OTHER OF 4 INCH HORIZONTALLY AND 6 INCH VERTICALLY (BOTH CAN BE REDUCED WITHIN ENCASEMENT PER UTILITY INSTRUCTIONS).
9. ALL PRIMARY CONDUITS CROSSING A STREET SHALL BE FULLY ENCASED WITH 4 INCHES OF CONCRETE (5 SACK, PEA-GRAVEL MIX). ALL PRIMARY DUCT BANKS OF 4 CONDUITS OR MORE SHALL BE FULLY ENCASED WITH 2 INCHES OF CONCRETE (2 SACK, PEA-GRAVEL). CONDUIT SEPARATION SPACERS AND TIE-DOWNS REQUIRED.
10. A POLYESTER FLAT PULLING TAPE (NEPTCO MULETAPE OR EQUAL) WHITE WITH SEQUENTIAL FOOTAGE MARKING, 2,500 MINIMUM TENSILE STRENGTH, SHALL BE INSTALLED IN ALL CONDUITS AND ATTACHED TO AN END CAP. THE ELECTRIC DEPARTMENT INSPECTOR MUST WITNESS THE MANDRILLING OF ALL CONDUITS WITH THE APPROPRIATE MANDRILL.
11. COMPACTION OF BACKFILL SHALL BE AT 90% MINIMUM UNLESS OTHERWISE SPECIFIED BY THE ENGINEERING DIVISION. COMPACTION TESTS SHALL BE TAKEN BY A LICENSED ENGINEER OR TESTING LABORATORY AS PER PUBLIC WORKS DEPARTMENT INSTRUCTIONS.

PRIMARY 6 INCH CONDUIT - SCH.40 PVC, 25 FT. RADIUS SWEEPS (6 FT. AT RISERS)
 PRIMARY 5 INCH CONDUIT - SCH.40 PVC, 25 FT. RADIUS SWEEPS (6 FT. AT RISERS)
 SECONDARY 4 INCH CONDUIT - SCH.40 PVC, 12.5 FT. RADIUS SWEEPS (4 FT. AT RISERS)
 SECONDARY 3 INCH CONDUIT - SCH.40 PVC, 36 INCH RADIUS SWEEPS (30 INCH AT HANDHOLES)
 SECONDARY 2 INCH CONDUIT - SCH.40 PVC, 36 INCH RADIUS SWEEPS (30 INCH AT HANDHOLES)

	APPROVED: M. GRIGG	DRAWN BY: F. MEJIA	DATE: APRIL 2, 2009	ELECTRICAL STANDARDS
	COMMERCIAL TRENCH AND CONDUIT		SD 401.01	

**CITY OF COLTON
ELECTRIC UTILITY DETAILS
E-133**

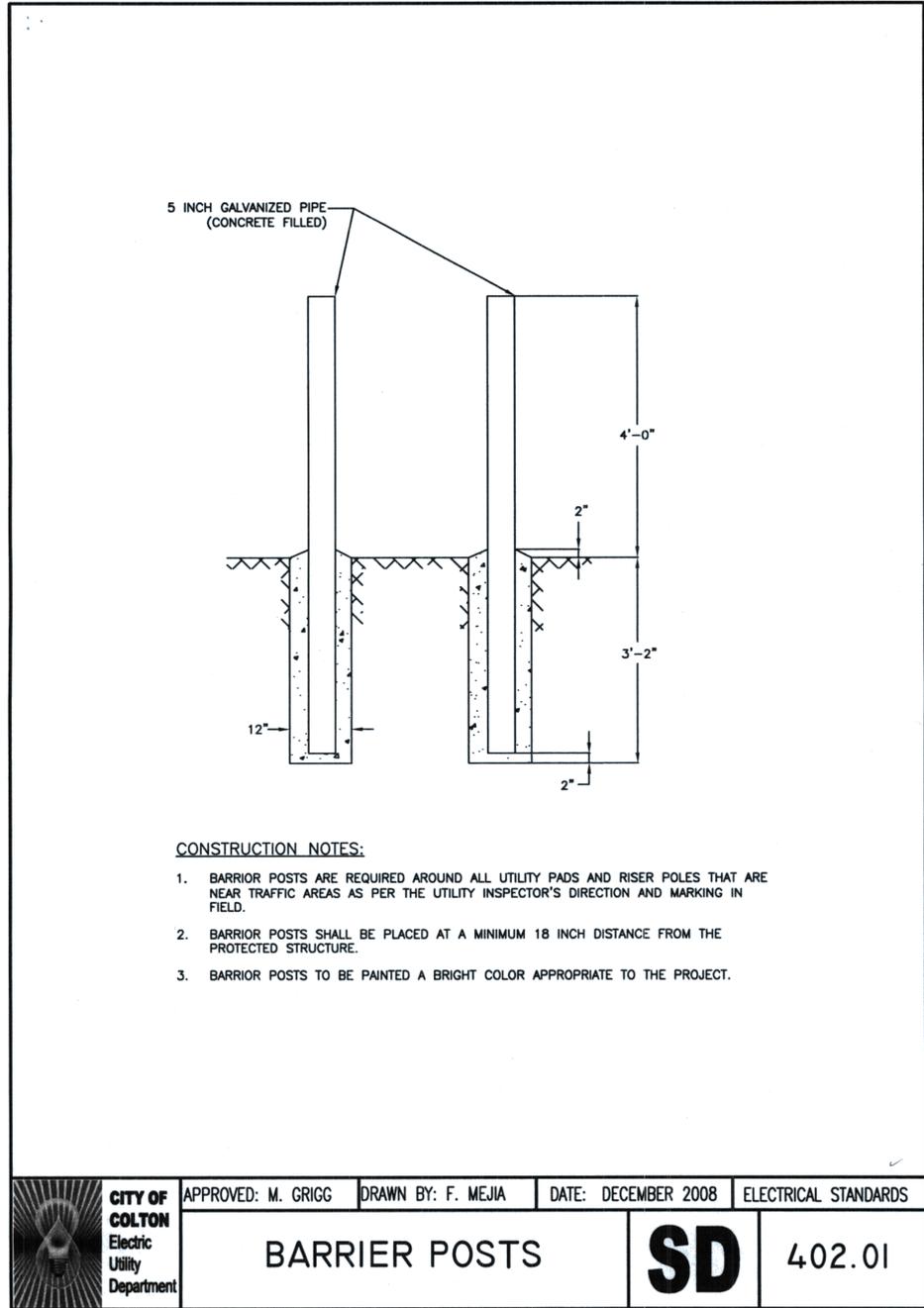
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 LUIS PENALOZA
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ
 FERDINAND DE LA CRUZ

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, Sbd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1063	1743

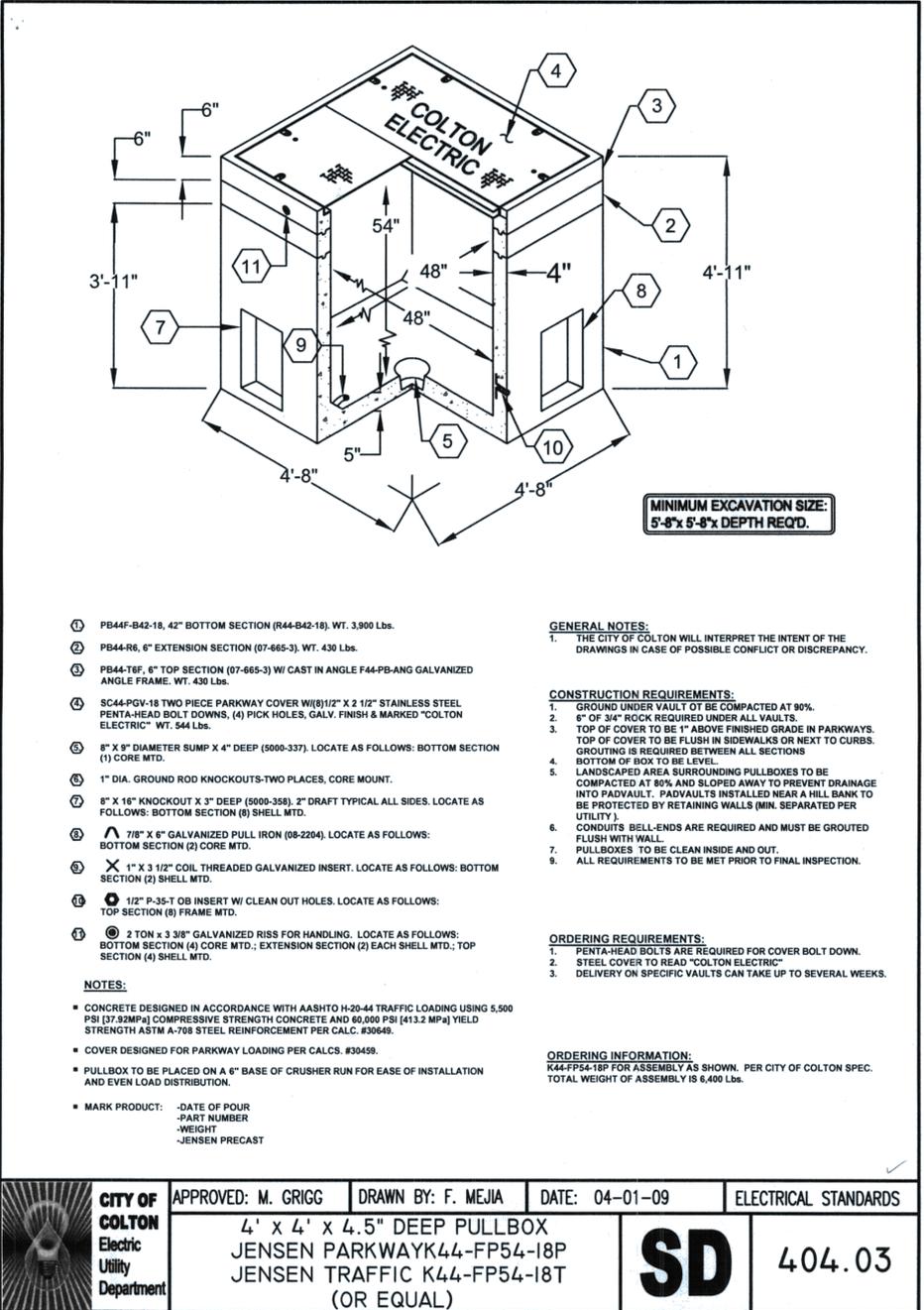
REGISTERED ELECTRICAL ENGINEER DATE 4-16-12
 No. E 17215
 Exp. 6-30-12
 ELECTRICAL
 STATE OF CALIFORNIA

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN B
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ
 CHECKED BY:
 REVISIONS: LUIS PENALOZA, FERDINAND DE LA CRUZ
 REVISED BY: DATE REVISIONS:



	APPROVED: M. GRIGG	DRAWN BY: F. MEJIA	DATE: DECEMBER 2008	ELECTRICAL STANDARDS
	BARRIER POSTS		SD	402.01

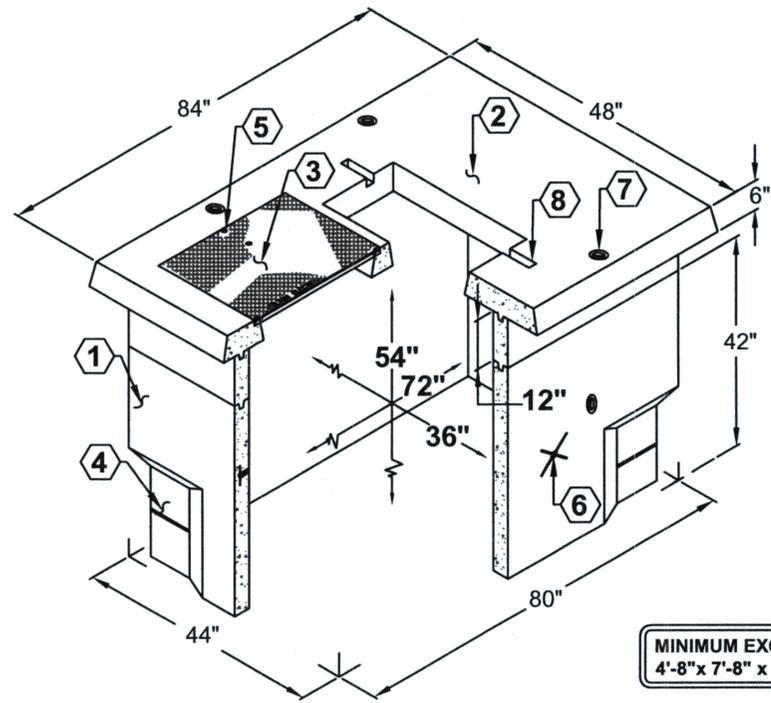


	APPROVED: M. GRIGG	DRAWN BY: F. MEJIA	DATE: 04-01-09	ELECTRICAL STANDARDS
	4' x 4' x 4.5' DEEP PULLBOX JENSEN PARKWAYK44-FP54-18P JENSEN TRAFFIC K44-FP54-18T (OR EQUAL)		SD	404.03

**CITY OF COLTON
 ELECTRIC UTILITY DETAILS
 E-134**

LAST REVISION: DATE PLOTTED => 18-APR-2012
 04-16-12 TIME PLOTTED => 15:29

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2,0.0/5.1	1064	1743
			4-16-12	REGISTERED ELECTRICAL ENGINEER DATE	
			4-16-12	PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



MINIMUM EXCAVATION SIZE:
4'-8" x 7'-8" x DEPTH REQ'D

1. SB3672-L42-21, 42" LOWER SECTION (R-SB3672-L42-21). 3,070WT. Lbs.
- 1A. PB3672-R12, 12" EXTENSION SECTION (R3672-R12). WT. 970 Lbs.
2. PD4884-T6-18, 6" TRANSFORMER PAD (R-PD4884-T6-21). WITH ANGLE FRAME CAST-IN (F2436-PB-ANG). WT. 1,430 LBS.
3. 2436. RPM COVER (12-20-18) w/(4) 1/2" x 1 1/2" S.S. PENTA-HEAD BOLTS W/ CAPTIVE WASHERS MARK "COLTON ELECTRIC".
4. 16" x 16" CORNER KNOCKOUT x 2" DEEP. DRAFT AS FOLLOWS: T=2", S1=2", S2=2", B=0. LOCATE AS FOLLOWS: LOWER SECTION (4) SHELL MTD.
5. 1/2" P-35-T INSERT W/CLEAN-OUTS LOCATE AS FOLLOWS: TRANSFORMER PAD (4) FRAME MTD.
6. 1" COIL THR'D. INSERT. LOCATE AS FOLLOWS: LOWER SECTION, (6) CORE MTD.
7. 2 TON x 3 3/8" RISS HANDLING ANCHORS. LOCATE AS FOLLOWS: TRANSFORMER PAD (4) TABLE MTD.; LOWER SECTION, (4) CORE MTD., (4) SHELL MTD. EXT SECTION (4) CORE MTD. (4) SHELL MTD.
8. 1 5/8" x 1 5/8" GALV. UNISTRUT x 6" LONG 8. 2 REQ'D TABLE MTD. TRANS. PAD.

GENERAL NOTES:

1. THE CITY OF COLTON WILL INTERPRET THE INTENT OF THE DRAWINGS IN CASE OF POSSIBLE CONFLICT OR DISCREPANCY.

CONSTRUCTION REQUIREMENTS:

1. GROUND UNDER VAULT TO BE COMPACTED AT 90%.
2. 6" OF 3/4" ROCK REQUIRED UNDER ALL VAULTS.
3. TOP OF PADVAULT TO BE 6" ABOVE FINISHED GRADE & LEVEL.
4. PADVAULTS TO BE LOCATED ADJACENT TO BACK OF SIDEWALK IN HOUSING TRACTS.
5. LANDSCAPED AREA SURROUNDING PADVAULTS TO BE COMPACTED AT 80% AND SLOPED AWAY TO PREVENT DRAINAGE INTO PADVAULT. PADVAULTS INSTALLED NEAR A HILL BANK TO BE PROTECTED BY RETAINING WALLS (MIN. 1FT. FROM PAD). ALL PADVAULTS SHALL BE PROTECTED BY BARRIER POSTS OR WALLS WHEN LOCATED IN OR ADJACENT TO TRAFFIC OR PARKING AREAS.
6. CONDUITS TO ENTER VAULT AT MINIMUM OF 2" FROM BOTTOM. BELL-ENDS ARE REQUIRED AND MUST BE GROUTED FLUSH WITH WALL. CONDUITS ENTERING CONER FROM DIFFERENT DIRECTIONS ARE NOT TO BE AT SAME LEVEL.
7. SERVICE CONDUCTORS SHALL BE INSTALLED 15FT. MINIMUM LENGTH FROM CONDUIT ENTERING VAULT WALL TO END OF CONDUCTORS.
8. VAULT TO BE CLEAN INSIDE AND OUT.
9. ALL REQUIREMENTS TO BE MET PRIOR TO FINAL INSPECTION.

ORDERING REQUIREMENTS:

1. A MASTIC JOINT SEALING COMPOUND IS REQUIRED BETWEEN ALL SECTIONS.
2. PENTA-HEAD BOLTS ARE REQUIRED FOR COVER BOLT DOWN.
3. STEEL COVER TO READ "COLTON ELECTRIC"
4. DELIVERY ON SPECIFIC VAULTS CAN TAKE UP TO SEVERAL WEEKS.

ORDERING INFORMATION:

K3672-SB54-18 FOR ASSEMBLY AS SHOWN.
APPROVED FOR CITY OF COLTON SPEC.
TOTAL WT. OF ASSEMBLY 5,551 Lbs.

NOTES:

- VAULT DESIGNED IN ACCORDANCE WITH AASHTO H-20-44 TRAFFIC BRIDGE LOADING USING 5,500 PSI [37.92MPa] COMPRESSIVE STRENGTH CONCRETE AT 28 DAYS AND 60,000 PSI [413.2MPa] YIELD STRENGTH ASTM A-706 STEEL REINFORCEMENT PER CALCS 30615.
- VAULT TO BE PLACED ON A MIN. 6" BASE OF CRUSHER RUN FOR EASE OF INSTALLATION AND EVEN LOAD DISTRIBUTION.
- MARK PRODUCT:
 - POUR DATE
 - WEIGHT
 - PART #
 - JENSEN PRECAST

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans ELECTRICAL DESIGN B	FERNAND DE LA CRUZ	FERNAND DE LA CRUZ	LUIS PENALOZA
		CHECKED BY	DATE REVISED

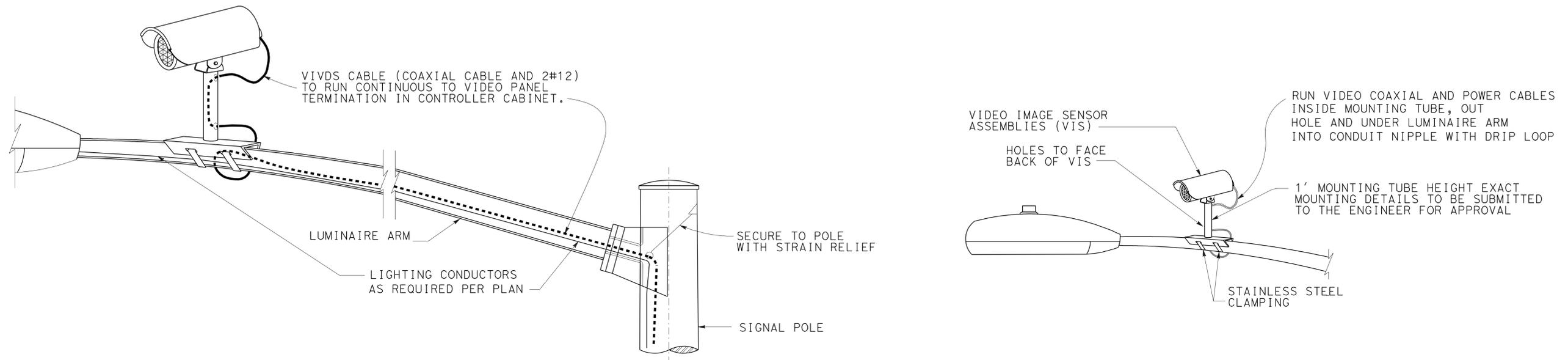
	APPROVED: M. GRIGG	DRAWN BY: F. MEJIA	DATE: DECEMBER 2008	ELECTRICAL STANDARDS
	4' x 7' TRANSFORMER PAD WITH 3'x6' VAULT JENSEN K3672-SB54-18 (OR EQUAL)			405.01

**CITY OF COLTON
ELECTRIC UTILITY DETAILS
E-135**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1065	1743
<i>Eliseo Lopez</i> REGISTERED CIVIL ENGINEER DATE 3-7-12			No. C72910 Exp. 12/31/12 CIVIL STATE OF CALIFORNIA		
4-16-12			PLANS APPROVAL DATE		
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.</small>					

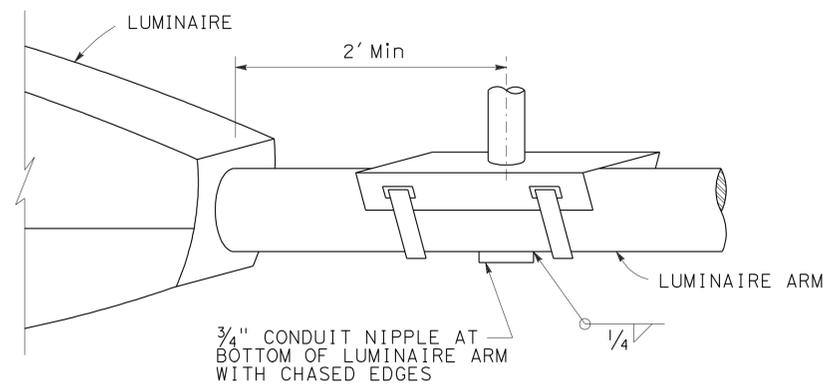
NOTES:

- All metallic conduits, bolts, straps and misc hardware shall be galvanized.
- Elements (Total VIVDS assembly) shall have a maximum weight of 10 lbs and a maximum effective pressure area of 1 square foot.
- Maximum of 2 VIVDS elements added per traffic signal structure. Maximum of 1 element per arm (luminaire arm or traffic signal arm). This detail shown applies only to newly installed poles designed according to Standard Plans.



CAMERA MOUNTING DETAILS

NO SCALE



DETAIL A

NO SCALE

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

BRANCH CHIEF JEFF WOODY	DESIGN	BY E LOPEZ	CHECKED K.C. LIU	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH	BRIDGE NO.	N/A	CAMERA MOUNTING DETAILS SIGNAL AND LIGHTING SYSTEM	SES-1
	DETAILS	BY D W JUSTICE Jr	CHECKED K.C. LIU			POST MILE			
	QUANTITIES	BY	CHECKED						

USERNAME => s135318 DATE PLOTTED => 18-APR-2012 TIME PLOTTED => 12:44

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1066	1743

Eliseo Lopez 3-7-12
REGISTERED CIVIL ENGINEER DATE

4-16-12
PLANS APPROVAL DATE

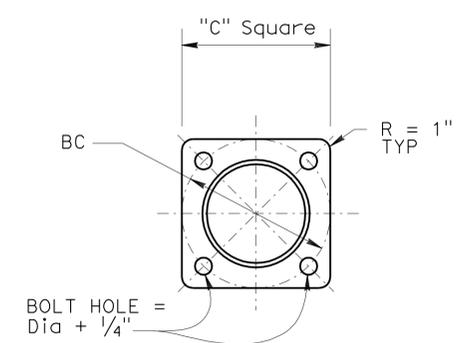
REGISTERED PROFESSIONAL ENGINEER
ELISEO LOPEZ
No. C72910
Exp. 12/31/12
CIVIL
STATE OF CALIFORNIA

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

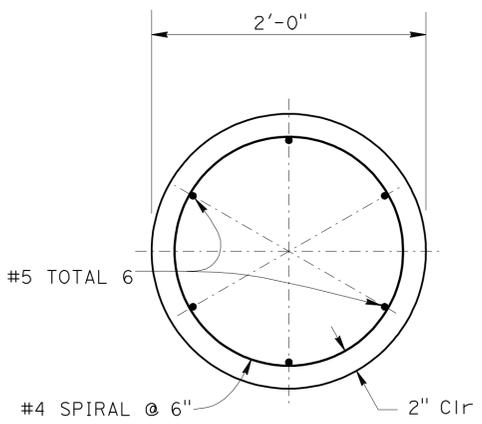
Pole Type	Pole Data				Base Plate Data				"d" 2'-0" Ø CIDH Pile		Structural Steel LBS plus 3.5% Galvanizing
	Height "h"	Min OD		Thickness	"c"	Thickness	Anchor Bolts		LEVEL GROUND	SLOPING GROUND	
		BASE	TOP				SIZE	BC = BOLT CIRCLE			
VDS 35	35'	8 5/8"	3 7/8"	0.1793"	1'-1"	1"	1 1/4" x 3'-0" x 4"	1'-1"	9'-0"	11'-0"	550

Attachment	Mounting Height	Weight Limits (lbs)
Enclosure	3'-6" Max. bottom Clr.	140 Max
Access Point	30' Max	2 Max
Antenna	33' Max	4 Max

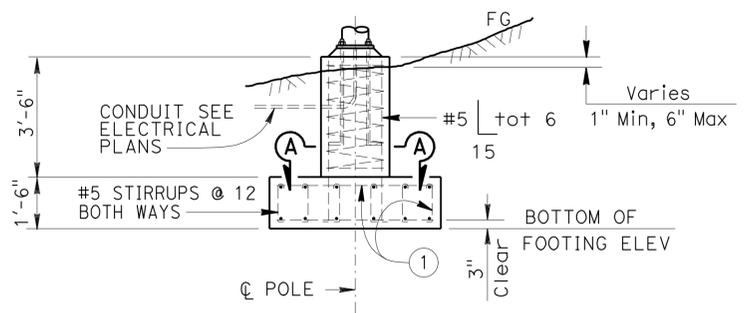
Ground	Footing Size Length x Width x Depth	Reinforcement Top & Bottom
Level	7'-0" x 7'-0" x 1'-6"	7 - #5
Sloping	8'-0" x 8'-0" x 1'-6"	8 - #5



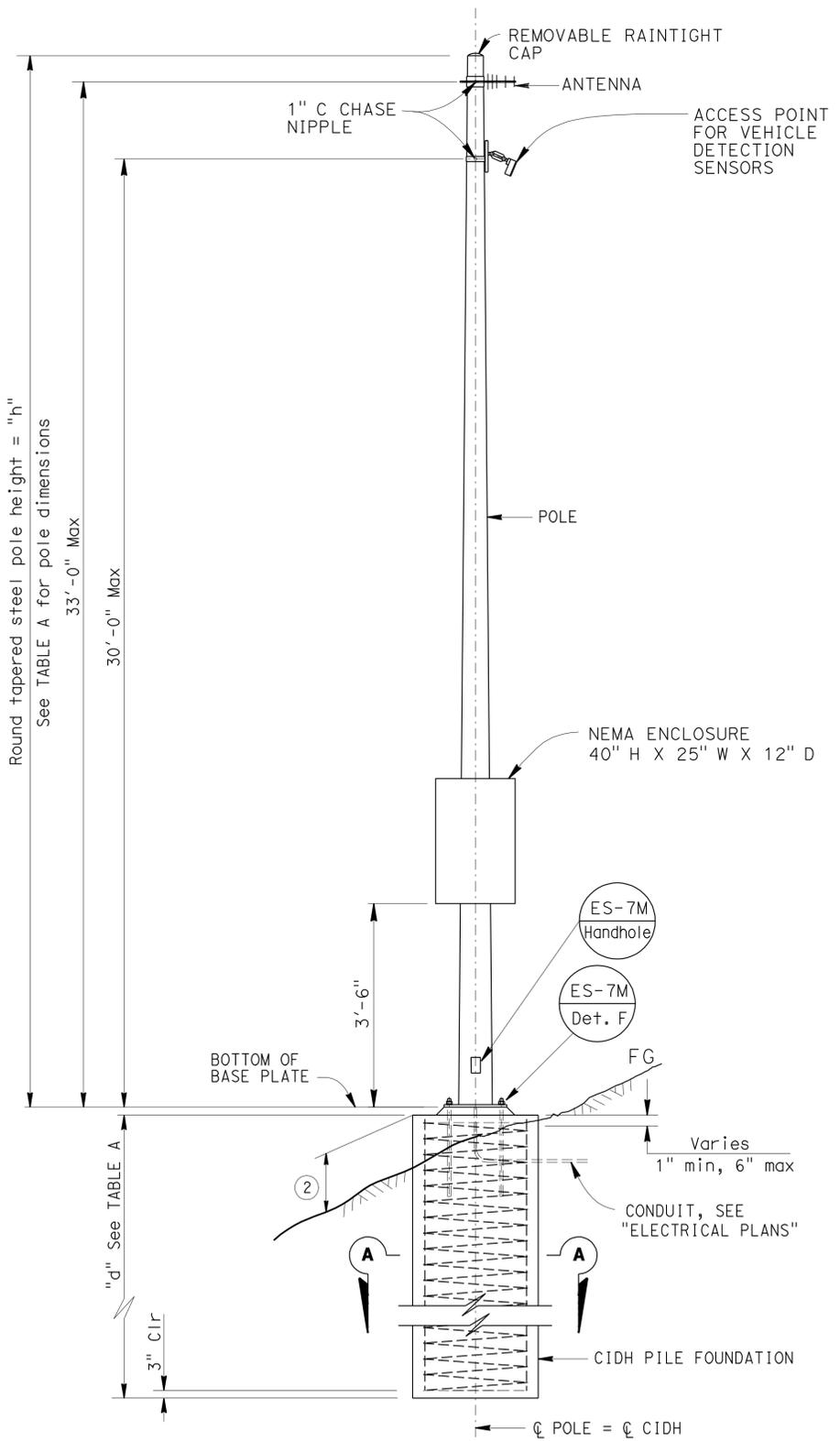
BASE PLATE



SECTION A-A



ALTERNATIVE FOOTING ELEVATION



ELEVATION

- ① #5 bars and #5 stirrups (top & bottom) to run both longitudinal and transverse direction.
- ② 1'-3" Max for sloped finished grade.

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

ABBREVIATIONS:
WVDS - Wireless Vehicle Detection System

GENERAL NOTES:

SPECIFICATIONS
Design: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals dated 2001.

LOADING
Wind Loadings: 100 MPH

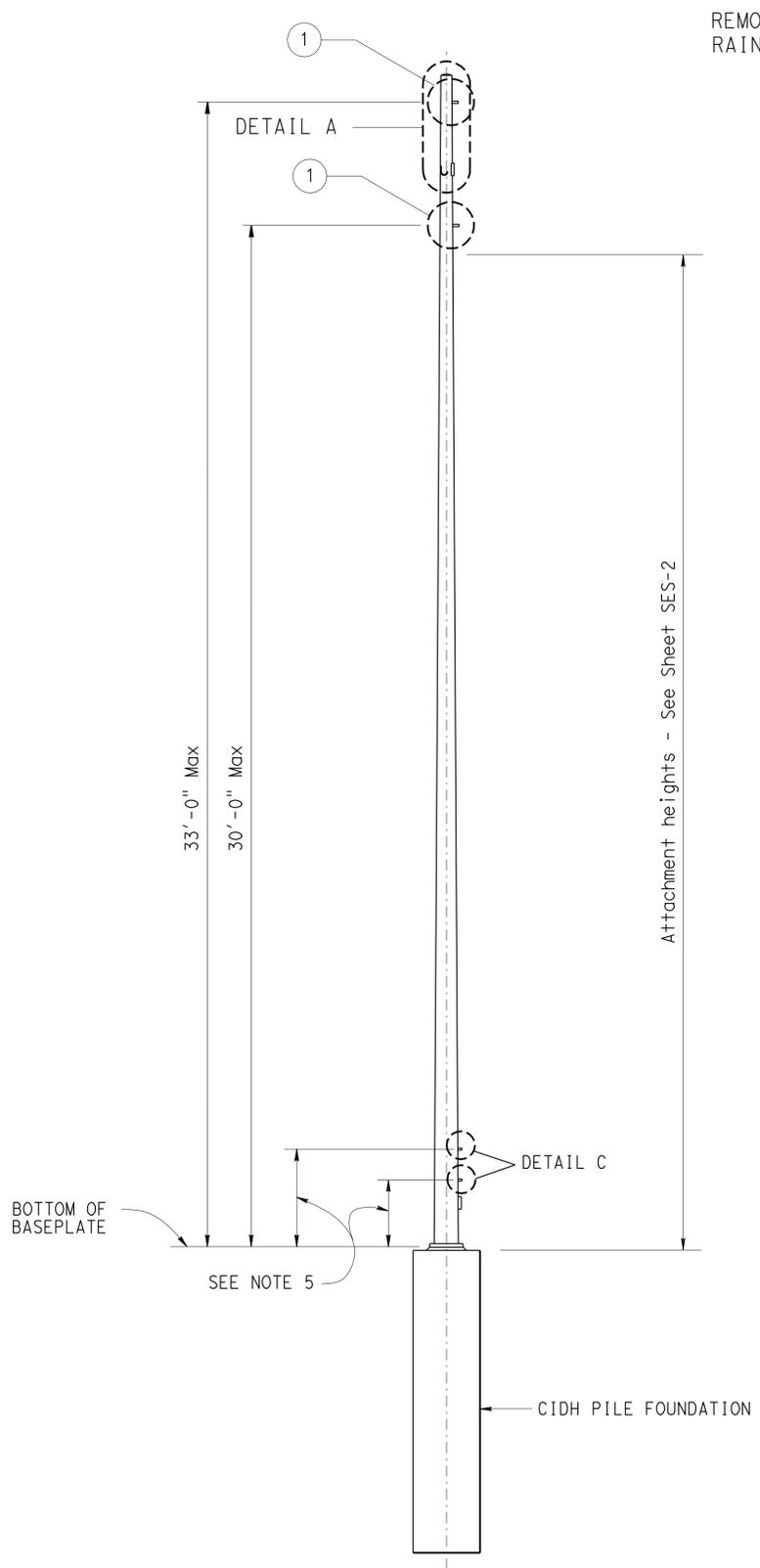
UNIT STRESSES
Structural Steel: $f_y = 48,000$ psi tapered steel tube
 $f_y = 36,000$ psi unless otherwise noted.
Anchor bolts = A307
Reinforced Concrete: $f'_c = 3,600$ psi
 $f_y = 60,000$ psi

NOTES:

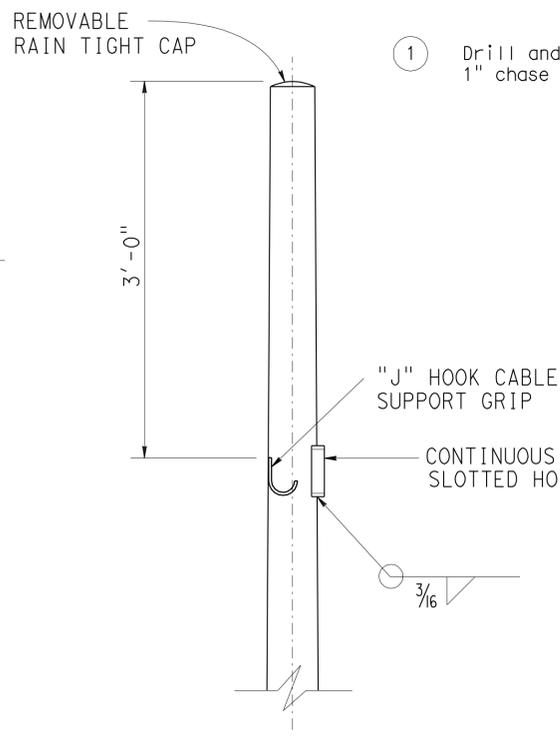
- For pole locations, see "ELECTRICAL PLANS".
- All steel shall be galvanized after fabrication.
- During pole erection the post shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
- The foundation shall be treated as level ground condition if the slope inclination is flatter than 4H:1V.
- Foundation design is based on AASHTO 2001 article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of internal friction used is 30 degrees and unit weight of soil used is 120 lbs/ft³.
- For details not shown, see "2006 STANDARD PLANS" and "2006 REVISED STANDARD PLANS".

BRANCH CHIEF JEFF WOODY	DESIGN	BY E LOPEZ	CHECKED J DATILES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH A	BRIDGE NO.	N/A	ELECTRICAL SYSTEMS WIRELESS VEHICLE DETECTION SYSTEM POLE DETAILS	SES-2
	DETAILS	BY D W JUSTICE Jr	CHECKED J DATILES			POST MILE			
	QUANTITIES	BY	CHECKED						

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1067	1743
<i>Eliseo Lopez</i> REGISTERED CIVIL ENGINEER DATE 3-7-12			No. C72910 Exp. 12/31/12 CIVIL STATE OF CALIFORNIA		
PLANS APPROVAL DATE 4-16-12 <small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.</small>					

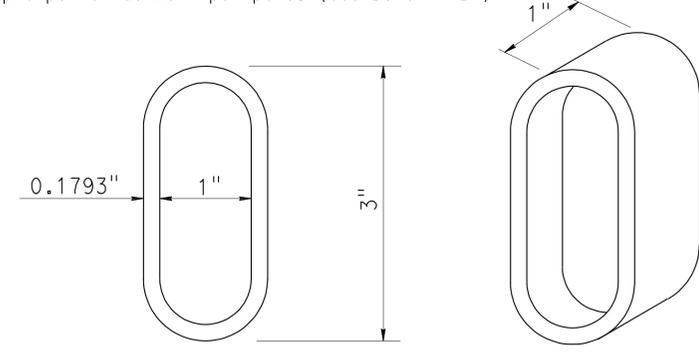


ELEVATION

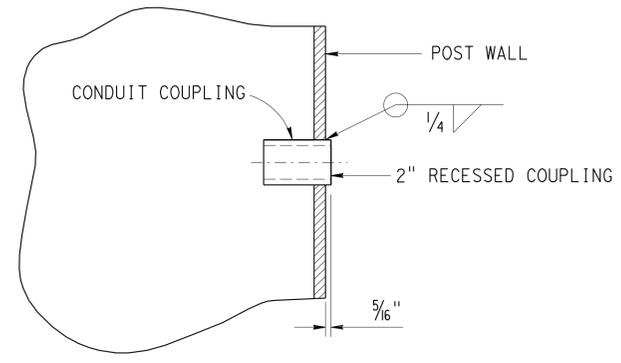


DETAIL A

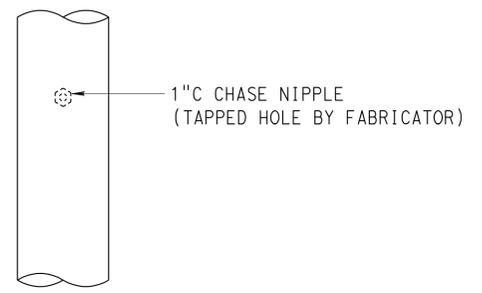
1 Drill and tap for 1" Chase nipple and plug with raintight plugs. 1" chase nipple per attachment per pole. (See Detail "B")



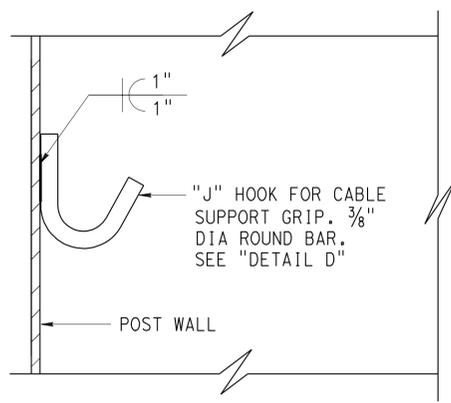
SLOTTED HOLE



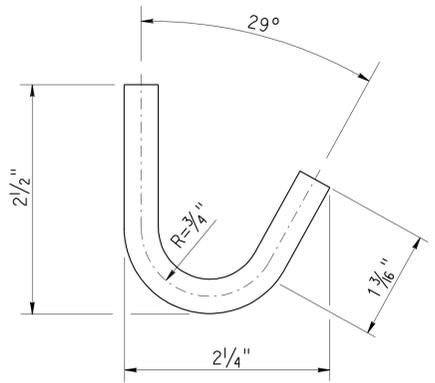
**2" RECESSED COUPLING
DETAIL C (TYPICAL)**



**DETAIL B
TYPICAL ELECTRICAL
ACCESS DETAIL**



J HOOK DETAIL



DETAIL D

NOTES:

- Place all couplings on the same side of pole.
- Chase nipples and slotted hole shall have a rain tight plug. Plug should only be removed if chase nipple or slotted hole is used.
- The chase nipples shall be 1'-0" min vertical clearance from the slotted hole and not on the same side as the slotted hole.
- For attachment details, see sheet SES-2.
- Coupling location above ground and spacing shall be verified to match choice of enclosure, prior to fabrication.
- All attachments, unless otherwise noted, shall be mounted to pole with stainless steel straps or other method without drilling holes in pole. Enclosure may require drilling through post for mounting. Method of mounting enclosure will require Engineer approval.

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

BRANCH CHIEF	JEFF WOODY
--------------	-------------------

DESIGN	BY E LOPEZ	CHECKED J DATILES
DETAILS	BY D W JUSTICE Jr	CHECKED J DATILES
QUANTITIES	BY	CHECKED

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGNS BRANCH **A**

BRIDGE NO.	N/A
POST MILE	

**ELECTRICAL SYSTEMS
WIRELESS VEHICLE DETECTION SYSTEM
POLE DETAILS**

SES-3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1068	1743

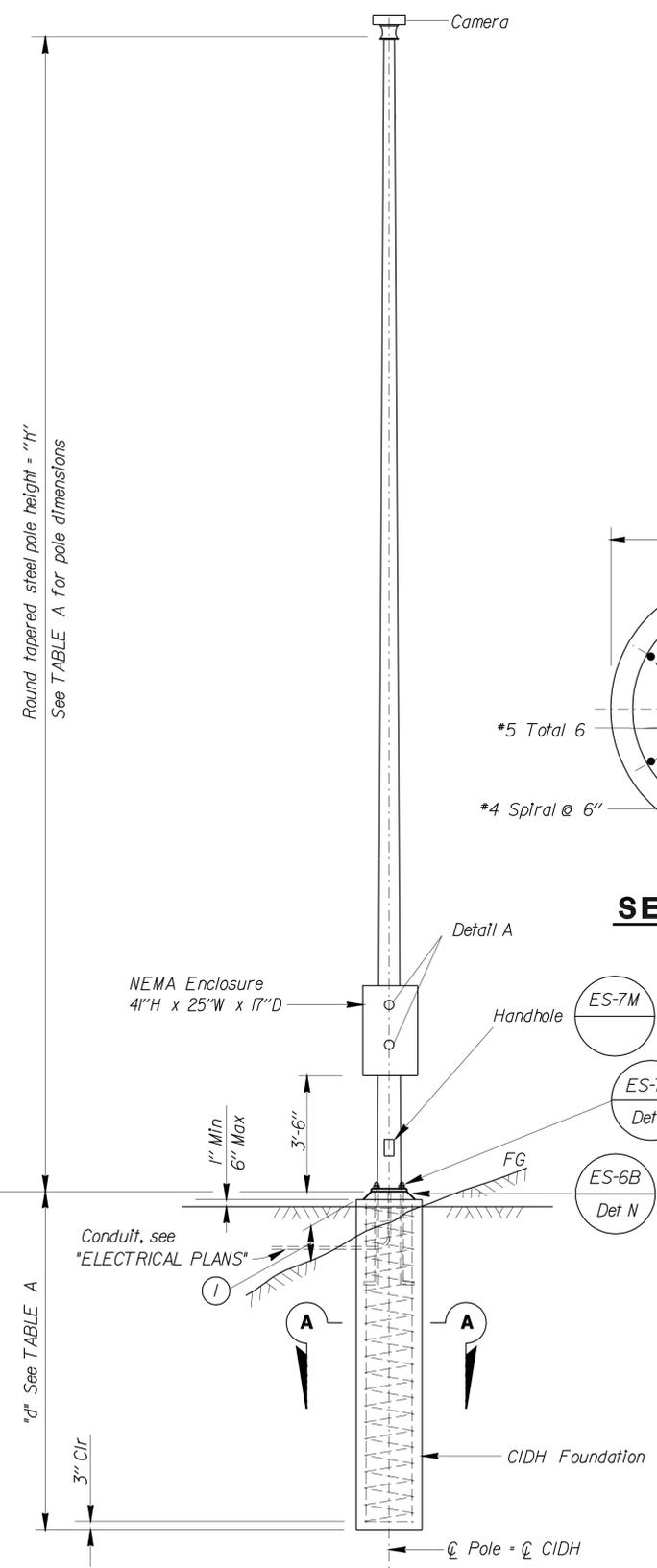
Eliseo Lopez
 REGISTERED CIVIL ENGINEER DATE 3-7-12
 PLANS APPROVAL DATE 4-16-12
 No. C72910
 Exp. 12/31/12
 CIVIL
 STATE OF CALIFORNIA

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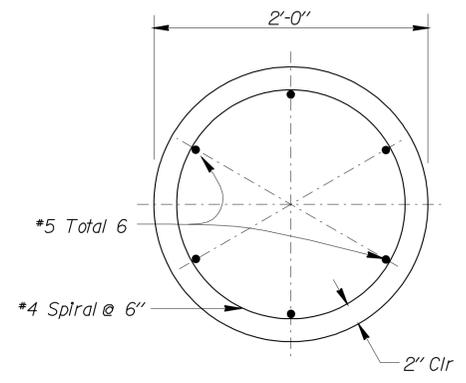
POLE TYPE	POLE DATA				BASE PLATE DATA				"d" 2'-0" Ø CIDH Pile		STRUCTURAL STEEL LBS PLUS 3.5% GALVANIZING
	HEIGHT "H"	Min OD		THICKNESS	"C" THICKNESS	ANCHOR BOLTS		LEVEL GROUND	SLOPING GROUND		
		BASE	TOP			SIZE	BC = BOLT CIRCLE				
CCTV 35	35'	8 5/8"	3 7/8"	0.1793"	1'-1"	1"	1 1/4" x 3'-0" x 4"	1'-1"	9'-0"	11'-0"	550
CCTV 40	40'	9 3/8"	3 7/8"	0.1793"	1'-1"	1"	1 1/4" x 3'-0" x 4"	1'-1"	9'-0"	11'-0"	650

ATTACHMENT	MOUNTING HEIGHT	WEIGHT LIMITS (Max)
Enclosure	3'-6" Max bottom Clr	120 lbs
Camera	Top of pole	20 lbs

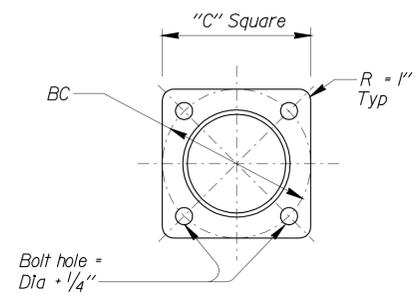
SPREAD FOOTING		
GROUND	FOOTING SIZE LENGTH x WIDTH x DEPTH	REINFORCEMENT TOP & BOTTOM
Level	7'-0" x 7'-0" x 1'-6"	7 - #5
Sloping	8'-0" x 8'-0" x 1'-6"	8 - #5



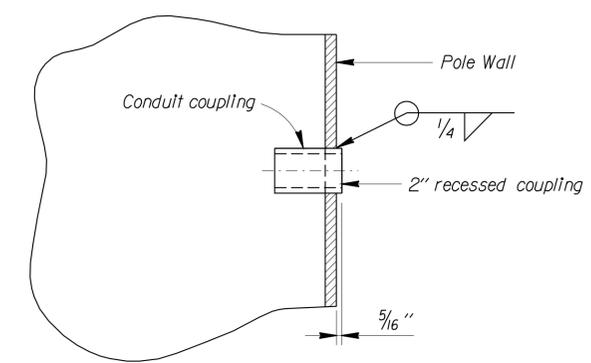
ELEVATION
CCTV 35 and CCTV 40



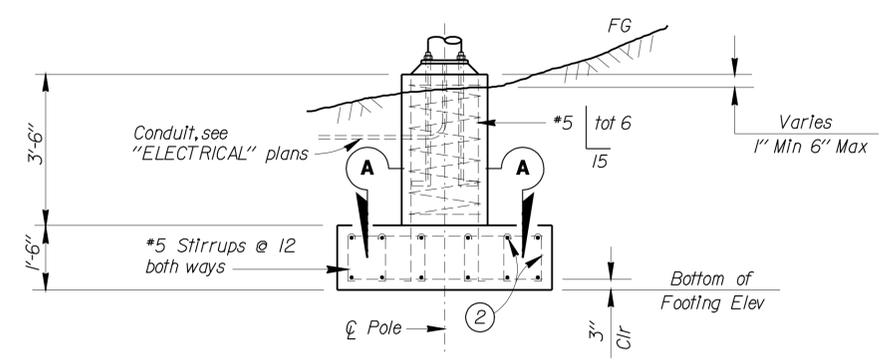
SECTION A-A



BASE PLATE



**2" RECESSED COUPLING
DETAIL A (TYPICAL)**



**ALTERNATIVE FOOTING
ELEVATION**

DESIGN NOTES:

SPECIFICATIONS

Design : AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals dated 2001.

LOADING

Wind Loadings: 100 mph

UNIT STRESSES

Structural steel: $f_y = 48,000$ psi tapered steel pole
 $f_y = 36,000$ psi unless otherwise noted.

Anchor bolts = A307

Reinforced concrete: $f'_c = 3,600$ psi
 $f_y = 60,000$ psi

NOTES:

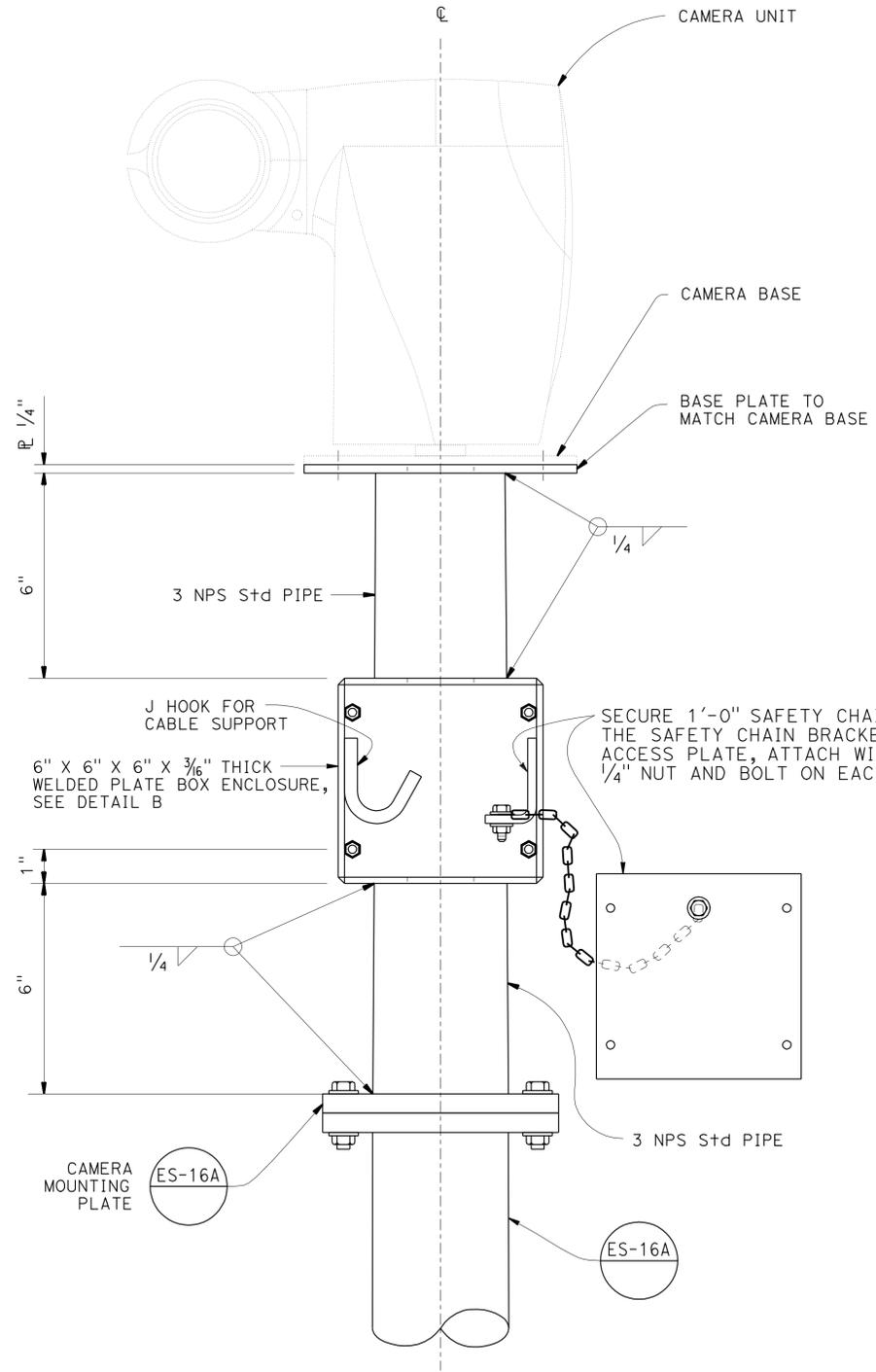
- All steel shall be galvanized after fabrication.
- During pole erection the pole shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
- The foundation shall be treated as level ground condition if the slope inclination is flatter than 4H:1V.
- For mounting heights and weights of equipment mounted, see "ELECTRICAL PLANS".
- Foundation design is based on AASHTO 2001 article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of internal friction used is 30 degrees and unit weight of soil used is 120 lbs/ft³.
- For details not shown, see 2006 "STANDARD PLANS" and 2006 "REVISED STANDARD PLANS".
- Place all couplings on the same side of pole.
- Chase nipples and slotted hole have a rain/tight plug. Plug should only be removed if chase nipple or slotted hole is used.
- The chase nipples shall be 1'-0" min vertical clearance from the slotted hole and not on the same side as the slotted hole.
- All attachments, unless otherwise noted, shall be mounted to pole with stainless steel straps or other method without drilling holes in pole. Enclosure may require drilling through post for mounting. Method of mounting enclosure will require Engineer's approval.

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

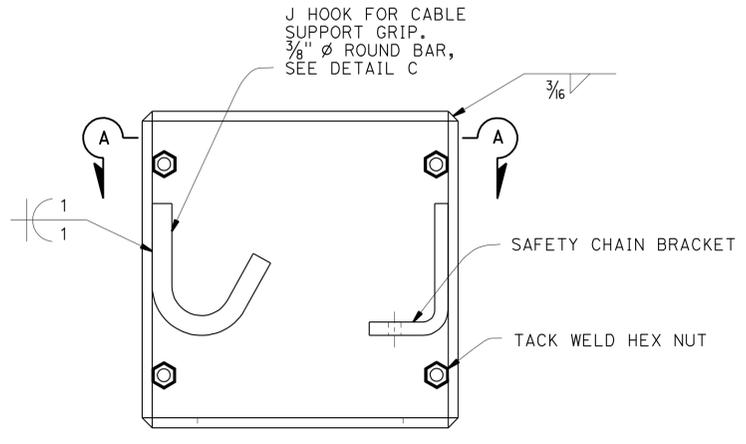
BRANCH CHIEF JEFF WOODY	DESIGN	BY E LOPEZ	CHECKED J DATILES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH	BRIDGE NO.	ELECTRICAL SYSTEMS
	DETAILS	BY D W JUSTICE Jr	CHECKED J DATILES			N/A	
	QUANTITIES	BY	CHECKED			POST MILE	

NO SCALE
 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3
 UNIT: 3619
 PROJECT NUMBER & PHASE: 0800000506-1
 CONTRACT NO.: 08-0M94u1
 DISREGARD PRINTS BEARING EARLIER REVISION DATES
 REVISION DATES: 2-28-12, 3-9-12, 4-5-12
 SHEET OF: SES-4

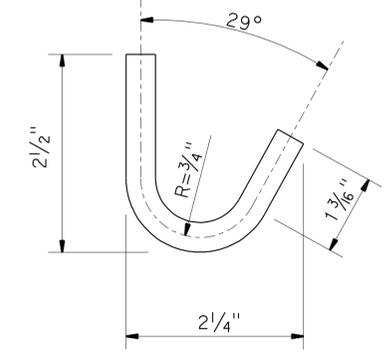
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	Riv, SBd	91,215	21.5/21.7, 43.2/45.2, 0.0/5.1	1069	1743
Jeffrey B. Woody 4-5-12 REGISTERED CIVIL ENGINEER DATE					
4-16-12			PLANS APPROVAL DATE		
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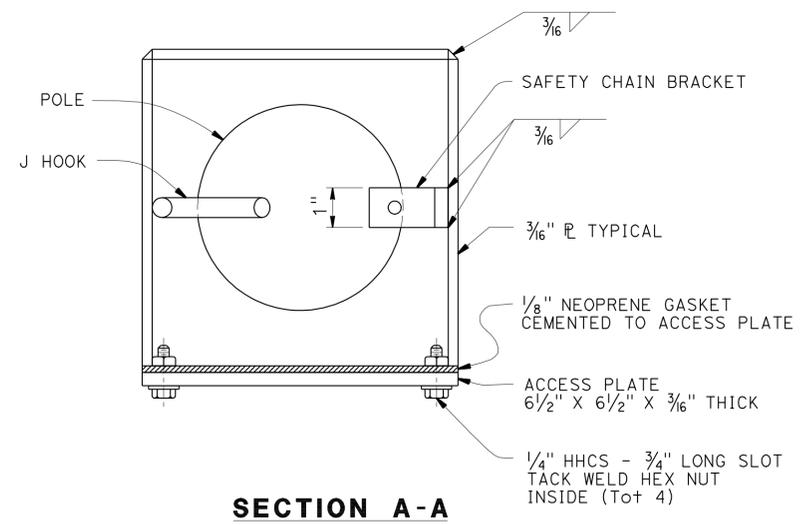
**DETAIL A
CCTV POLE
CAMERA MOUNTING DETAILS**



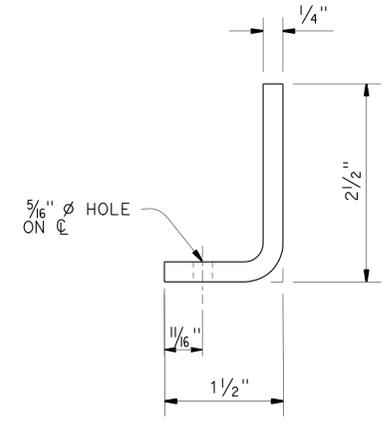
**DETAIL B
BOX ENCLOSURE**



**DETAIL C
J HOOK**



SECTION A-A



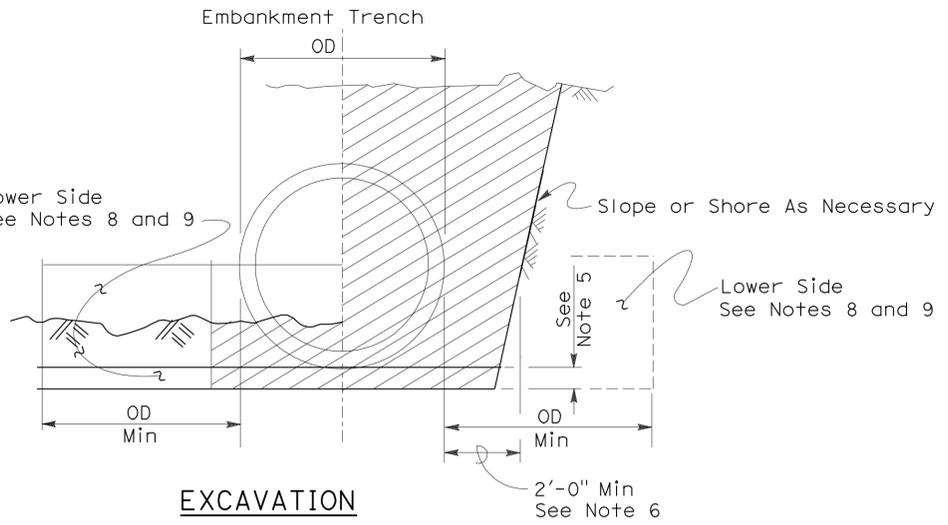
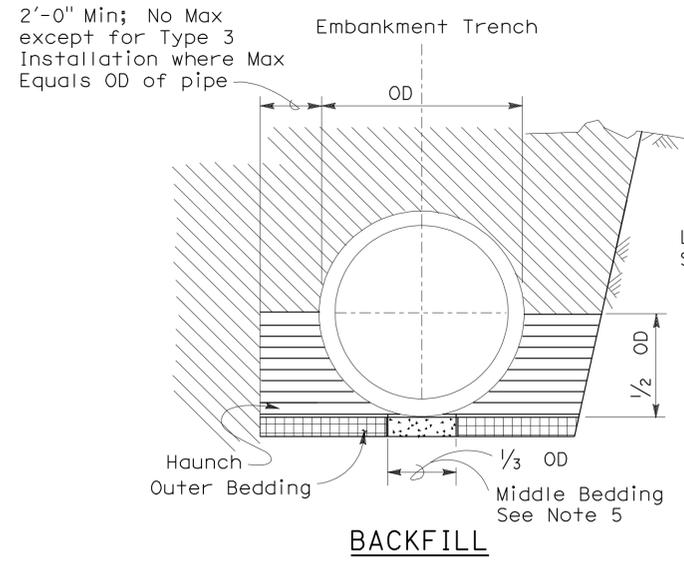
**DETAIL D
SAFETY CHAIN BRACKET**

NOTES:
 1. For details not shown, See "2006 Standard Plans ES-16A" and "2006 Revised Standard Plans".

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

BRANCH CHIEF JEFF WOODY	DESIGN	BY E LOPEZ	CHECKED J DATILES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH	BRIDGE NO.	ELECTRICAL SYSTEM CCTV MOUNTING DETAILS	SES-5
	DETAILS	BY D W JUSTICE Jr	CHECKED J DATILES			N/A		
	QUANTITIES	BY	CHECKED			POST MILE		
(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: 3619 PROJECT NUMBER & PHASE: 0800000506-1 CONTRACT NO.: 08-0M94u1		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES
				0 1 2 3		4-3-12 4-10-12		SHEET OF

To accompany plans dated 4-16-12



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

TYPE 1 INSTALLATION:

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

TYPE 2 INSTALLATION:

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

TYPE 3 INSTALLATION:

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

NOTES:

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

INSTALLATION TYPE 1

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

INSTALLATION TYPE 2

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

INSTALLATION TYPE 3

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**EXCAVATION AND BACKFILL
CONCRETE PIPE CULVERTS**

NO SCALE

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

2006 REVISED STANDARD PLAN RSP A62DA

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1071	1743

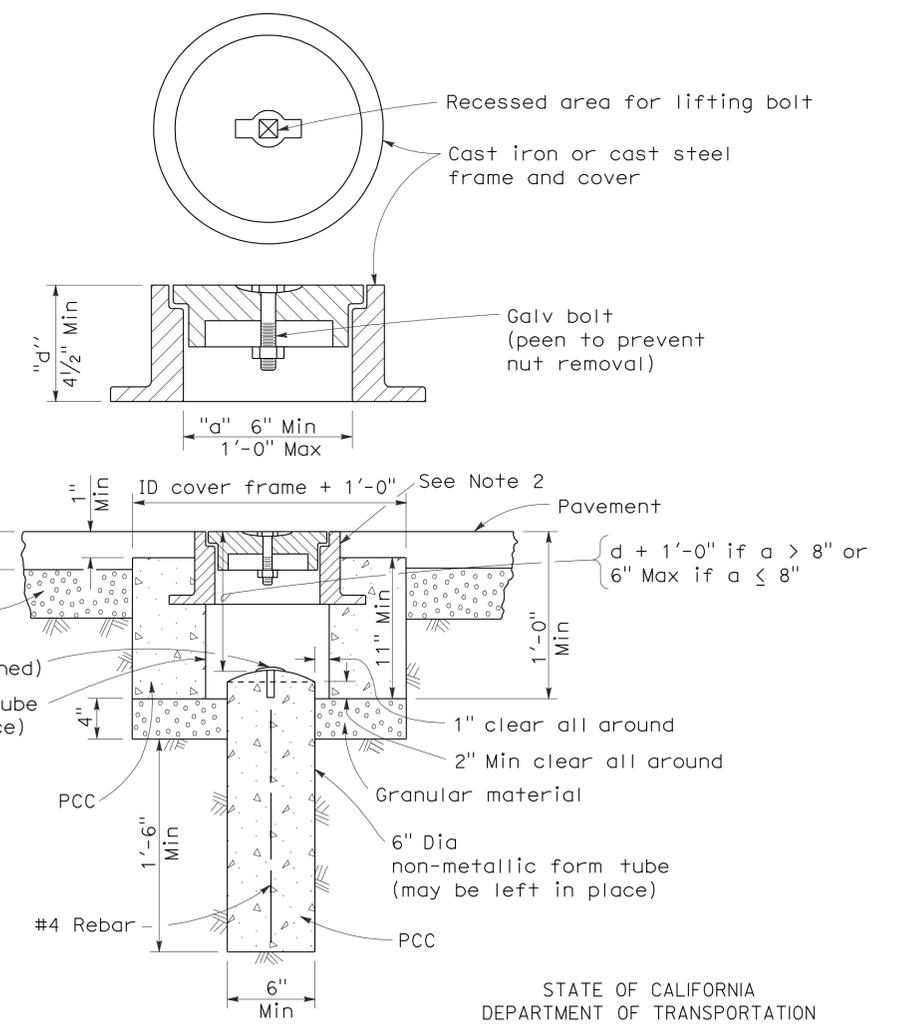
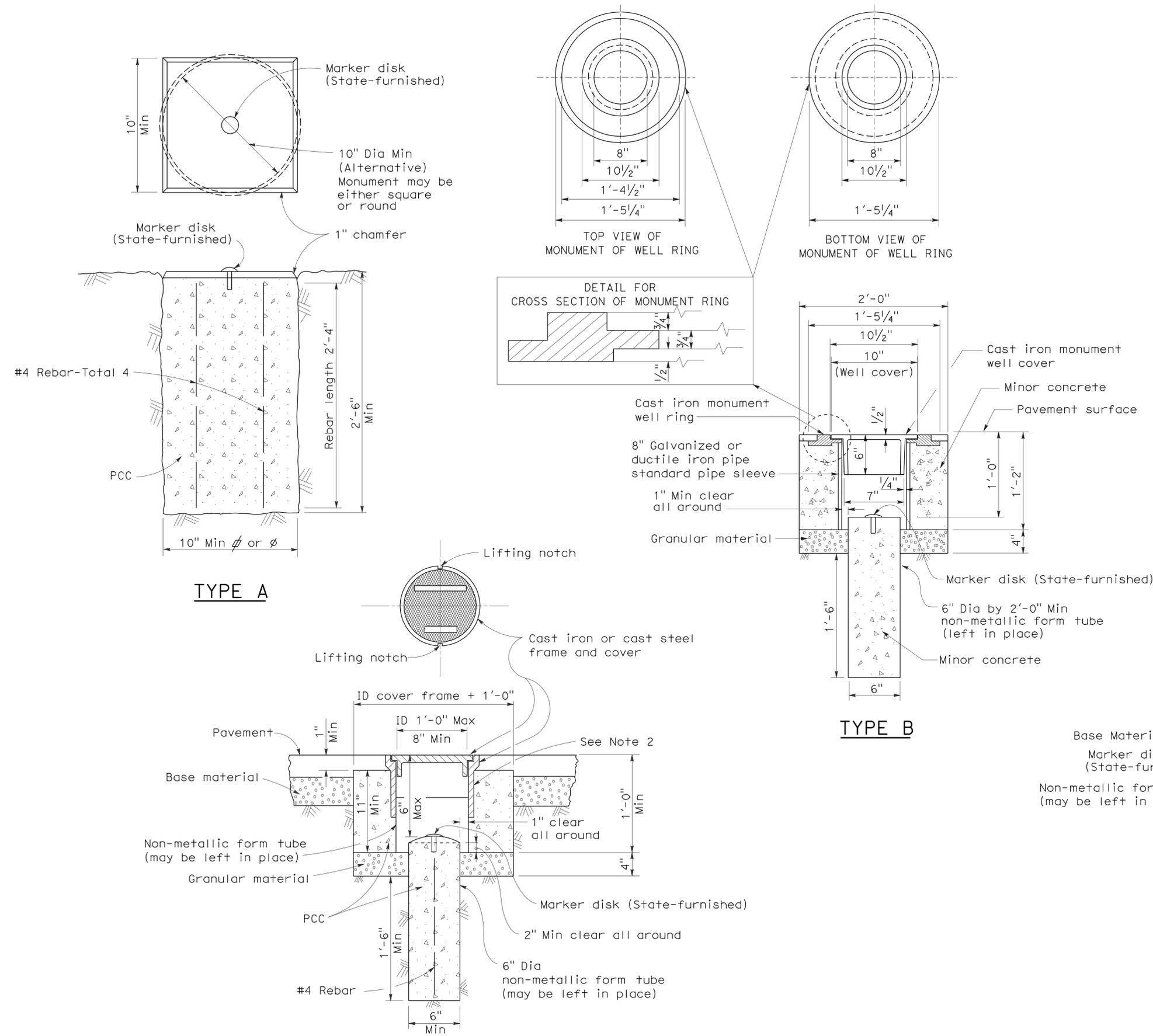
Mark S. Turner
 PROFESSIONAL LAND SURVEYOR
 June 30, 2006
 PLANS APPROVAL DATE
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LICENSED LAND SURVEYOR
 Mark S. Turner
 No. 6228
 Exp. 3-31-08
 STATE OF CALIFORNIA

To accompany plans dated 4-16-12

NOTES:

1. The configuration of the cast iron or cast steel frame and cover may vary from that shown.
2. Frame shall be embedded in the concrete a minimum of 3".
3. Type D monument shall be either Alternative No. 1 or Alternative No. 2 at the contractor's option.
4. All portland cement concrete shall be Class 2 or minor concrete with 1" maximum aggregate.



TYPE D SURVEY MONUMENTS
 Alternative No. 2
 NO SCALE

RSP A74 DATED JUNE 30, 2006 SUPERSEDES STANDARD PLAN DATED MAY 1, 2006 - PAGE 28 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A74

2006 REVISED STANDARD PLAN RSP A74

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1072	1743

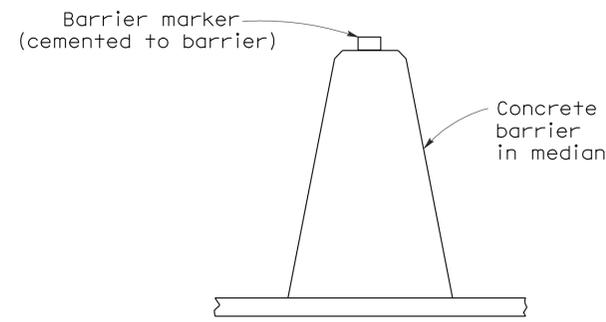
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

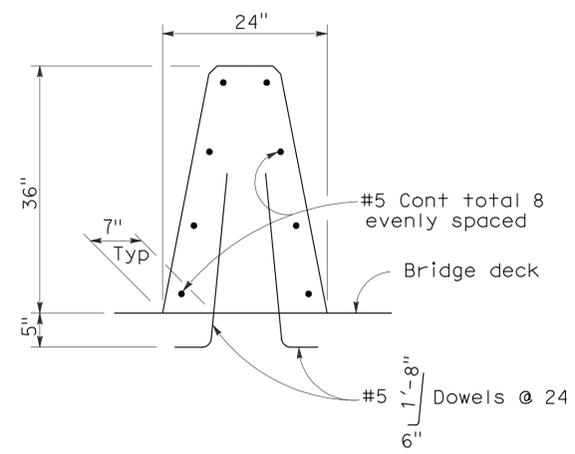
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To accompany plans dated 4-16-12

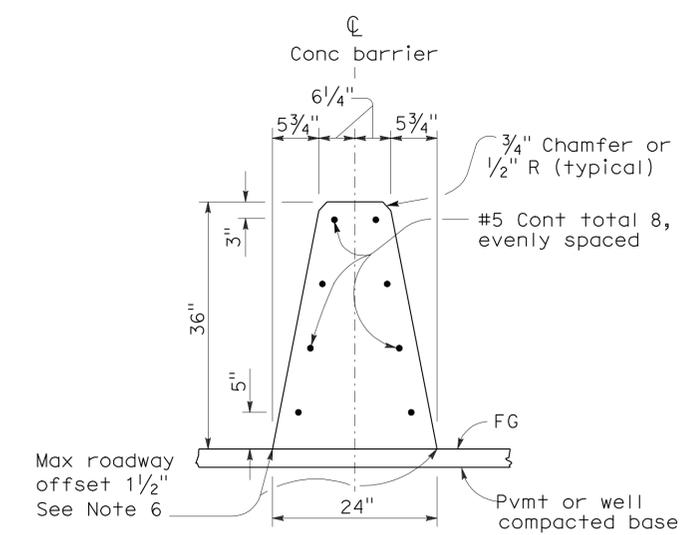
2006 REVISED STANDARD PLAN RSP A76A



CONCRETE BARRIER TYPE 60 DELINEATION
See Notes 7 and 8



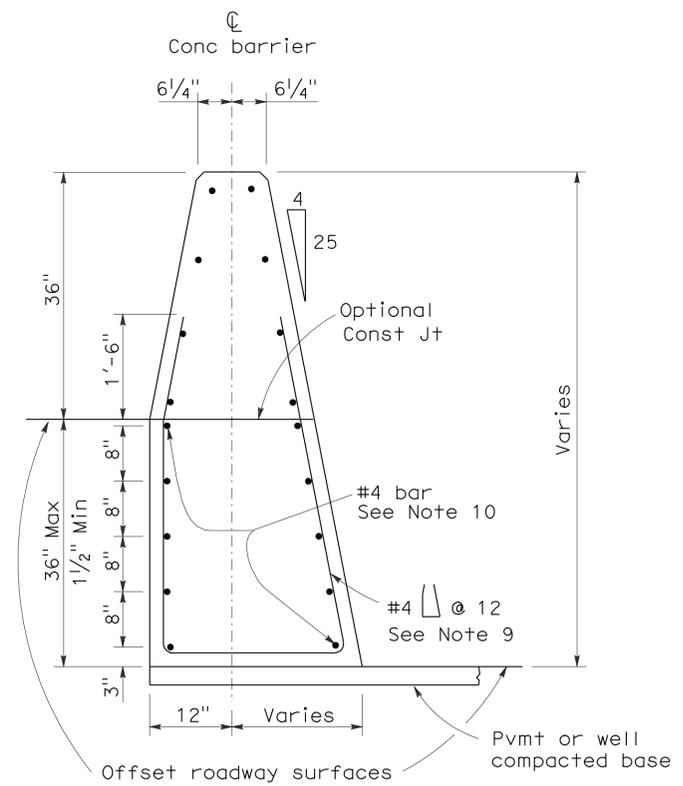
CONCRETE BARRIER TYPE 60A
Details similar to Type 60 except as noted.



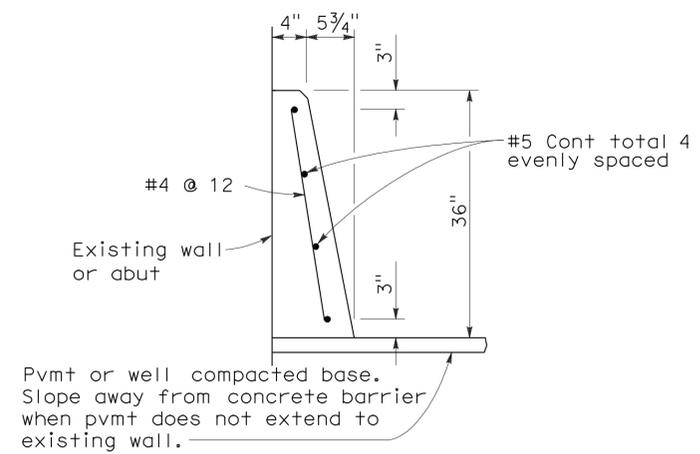
CONCRETE BARRIER TYPE 60

NOTES:

- See Standard Plan A76B for details of Concrete Barrier Type 60 end anchors, connection to structures and transitions to Concrete Barrier Type 50 and Concrete Barrier Type 60S.
- See Standard Plan A76C for Concrete Barrier Type 60 transitions at bridge column and sign pedestals.
- Where glare screen is required on Concrete Barrier Type 60, use Concrete Barrier Type 60G.
- Where the concrete barrier is added to the face of existing concrete structure, match existing weep holes.
- Expansion joints in concrete barrier shall be located at all deck, pavement and principal wall joints. Expansion joint filler material shall be the same size as joint or 1/2" minimum.
- Where roadway offset is greater than 1 1/2", see Concrete Barrier Type 60C.
- Barrier delineation to be used when required by the Special Provisions.
- Spacing of barrier markers to match spacing of raised pavement markers on the adjacent median edgeline pavement delineation.
- Reinforcing stirrup not required for roadway offsets less than 1'-0".
- For roadway surfaces offset greater than 1 1/2" to 3", no rebars required. For roadway surfaces offset greater than 3" to 8" use two #4 rebars at 3" above the lower roadway surface. For roadway surfaces offset greater than 8" to 12", use two #4 rebars at 3" above the lower roadway surface and two #4 rebars at 8" above the lower roadway surface. For roadway surfaces offset greater than 12" to 36", use two #4 rebars at 3" above the lower roadway surface and two #4 rebars at every 8" increment vertical spacing above the first two #4 rebars.



CONCRETE BARRIER TYPE 60C
Details similar to Type 60 except as noted. Concrete barrier end anchor when necessary. 36" roadway surfaces offset shown.



CONCRETE BARRIER TYPE 60D

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CONCRETE BARRIER TYPE 60
NO SCALE

RSP A76A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A76A
DATED MAY 1, 2006 - PAGE 29 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A76A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1073	1743

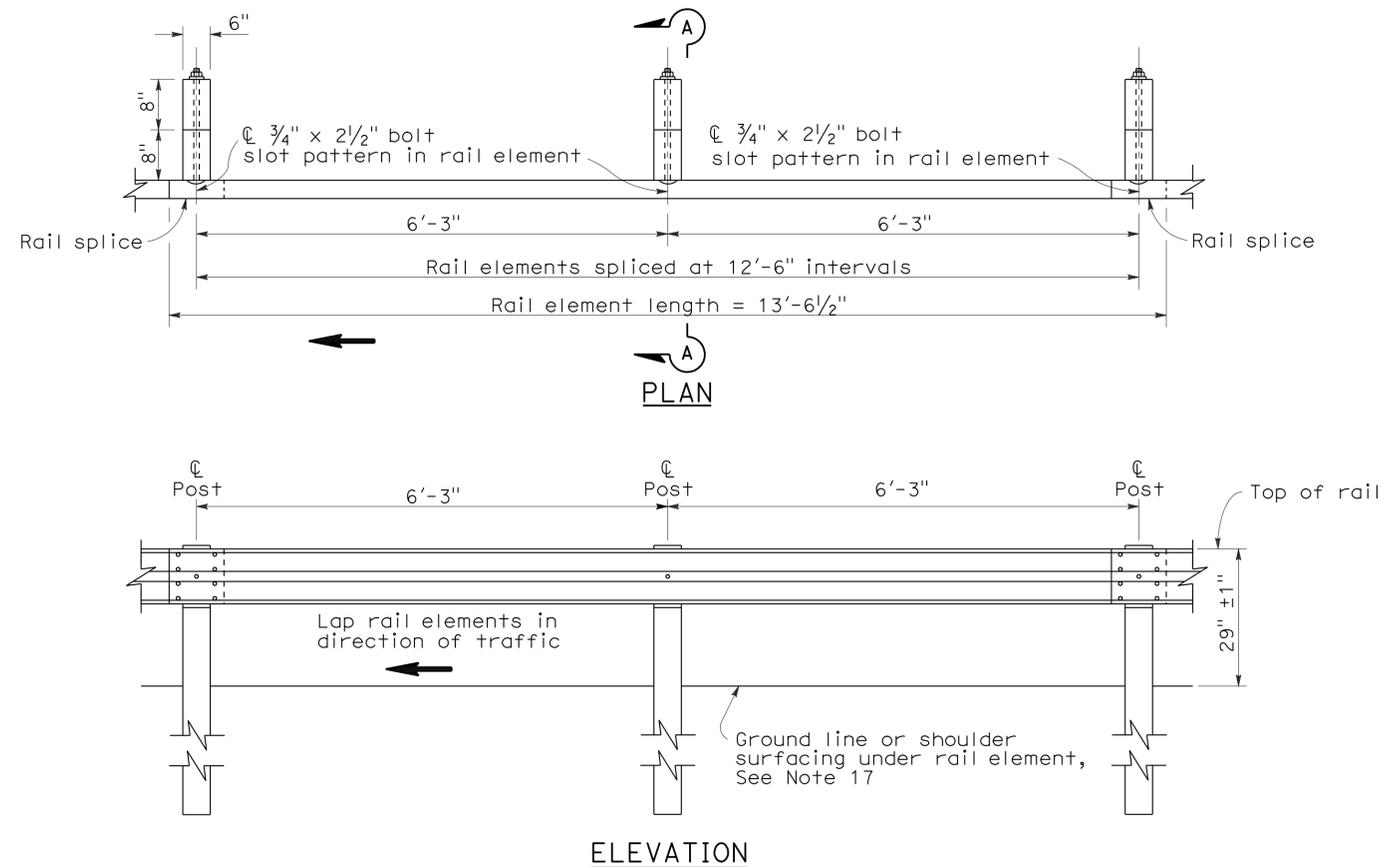
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

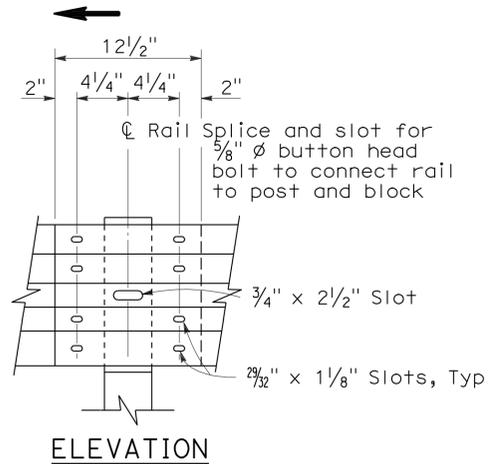
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To accompany plans dated 4-16-12

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

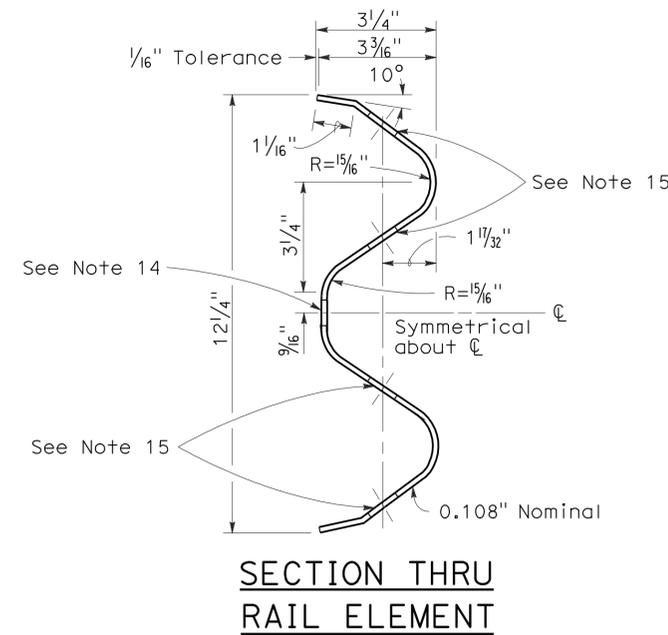


METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS

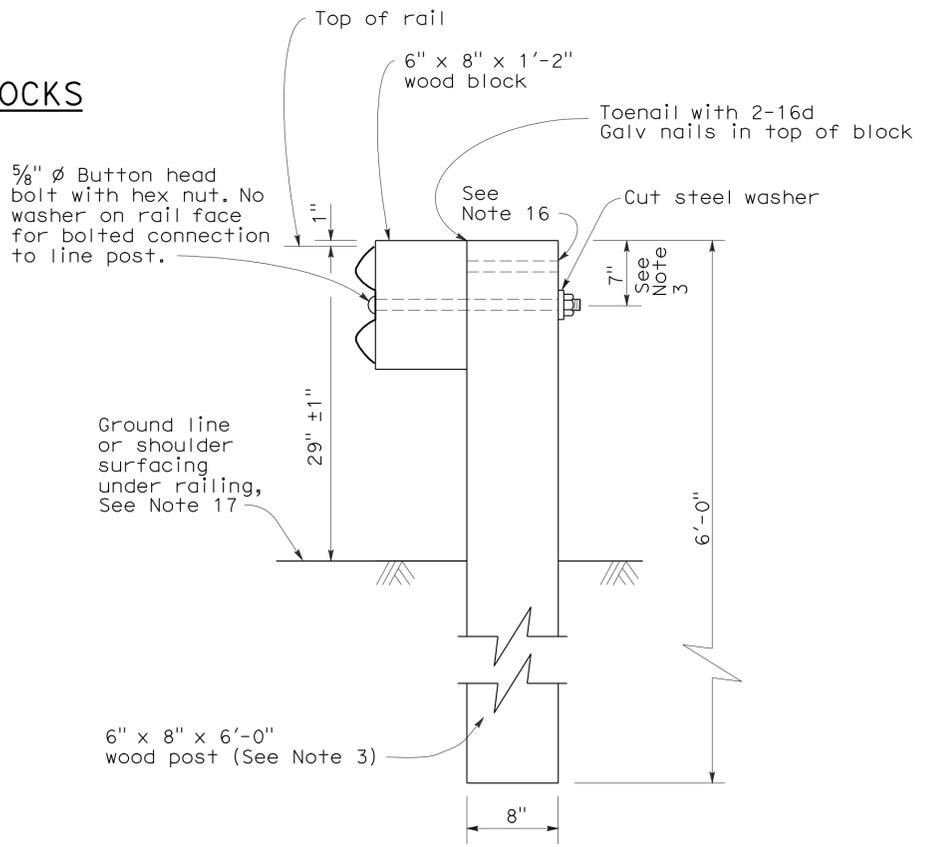


RAIL ELEMENT SPLICE DETAIL

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



SECTION THRU RAIL ELEMENT



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

See Note 4

NOTES:

- For details of steel post installations, see Standard Plan A77A2.
- For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
- For details of wood posts and wood blocks used to construct guard railing, see Standard Plan A77C1.
- For additional installation details, see Standard Plan A77C3.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
- For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
- For details of guard railing transition to bridge railing, see Standard Plan A77J4.
- For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
- For guard railing connection details to abutments and walls, see Standard Plan A77J3.
- Direction of adjacent traffic indicated by \rightarrow .
- For typical guard railing delineation and dike positioning details, see Standard Plan A77C4.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77C1.
- Install posts in soil.

**METAL BEAM GUARD RAILING
STANDARD RAILING SECTION
(WOOD POST WITH
WOOD BLOCK)**

NO SCALE

RSP A77A1 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A1
DATED MAY 1, 2006 - PAGE 41 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77A1

2006 REVISED STANDARD PLAN RSP A77A1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1074	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

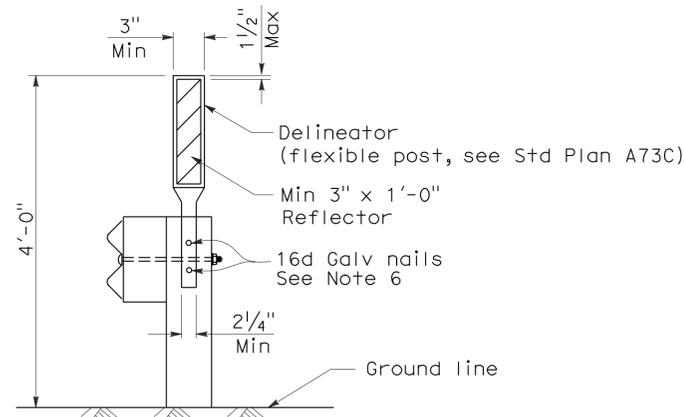
May 20, 2011
PLANS APPROVAL DATE

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To accompany plans dated 4-16-12

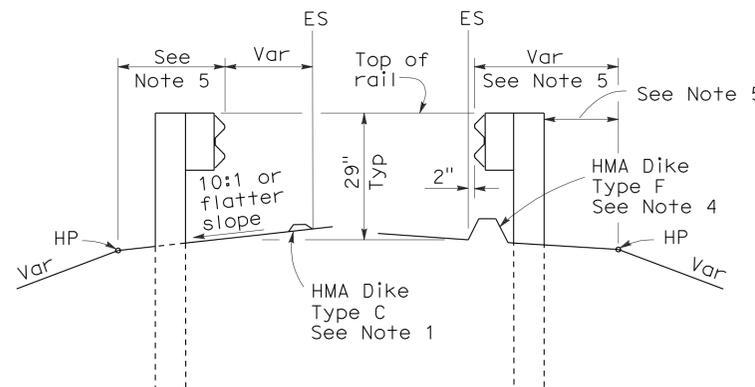
NOTES:

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



GUARD RAILING DELINEATION

See Note 3



DIKE POSITIONING

See Note 1

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77C4

2006 REVISED STANDARD PLAN RSP A77C4

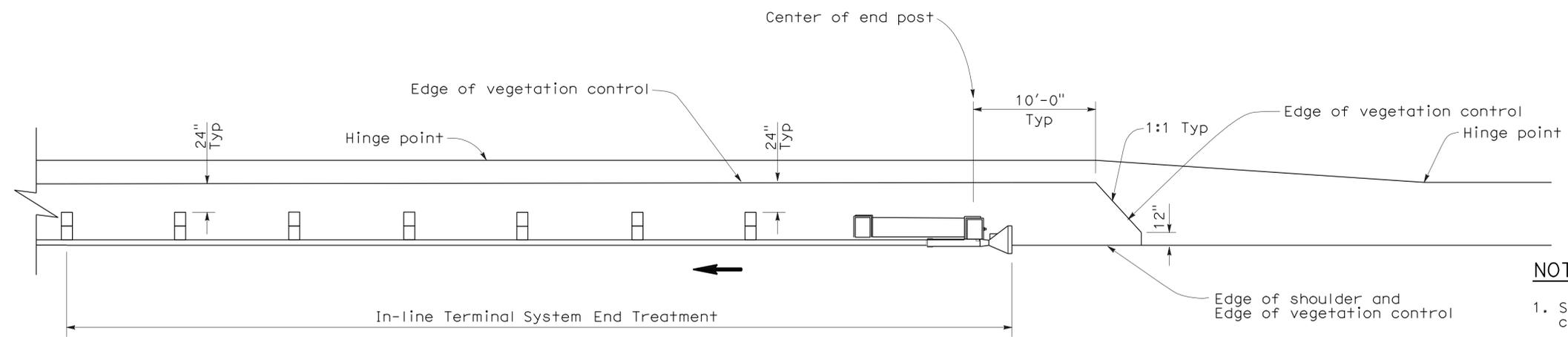
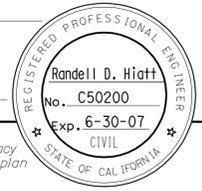
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1076	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
PLANS APPROVAL DATE

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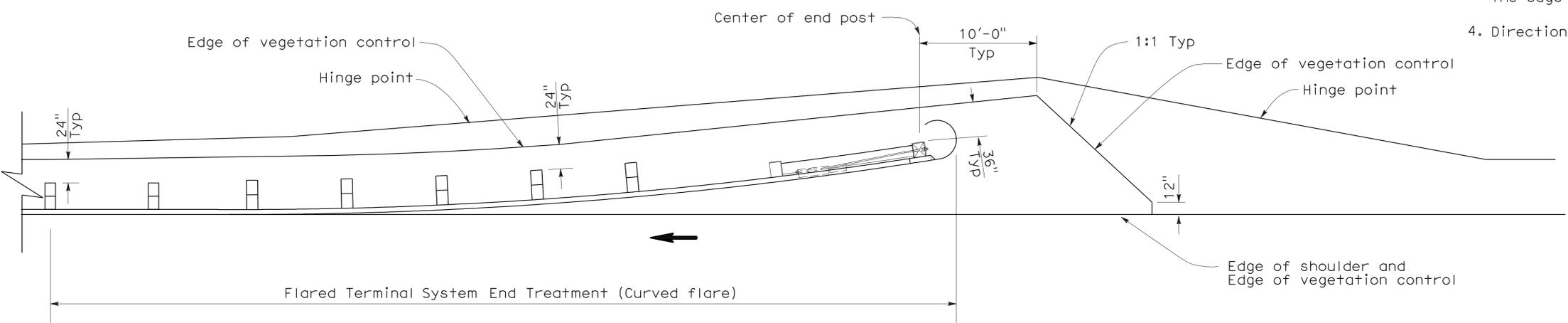
To accompany plans dated 4-16-12



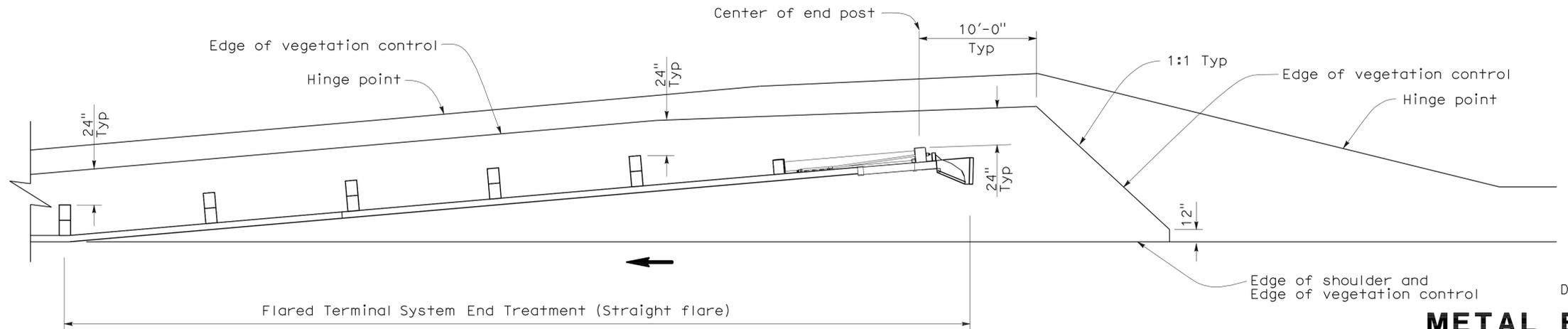
PLAN

NOTES:

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



PLAN



PLAN

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

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

NEW STANDARD PLAN NSP A77C6

2006 NEW STANDARD PLAN NSP A77C6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1077	1743

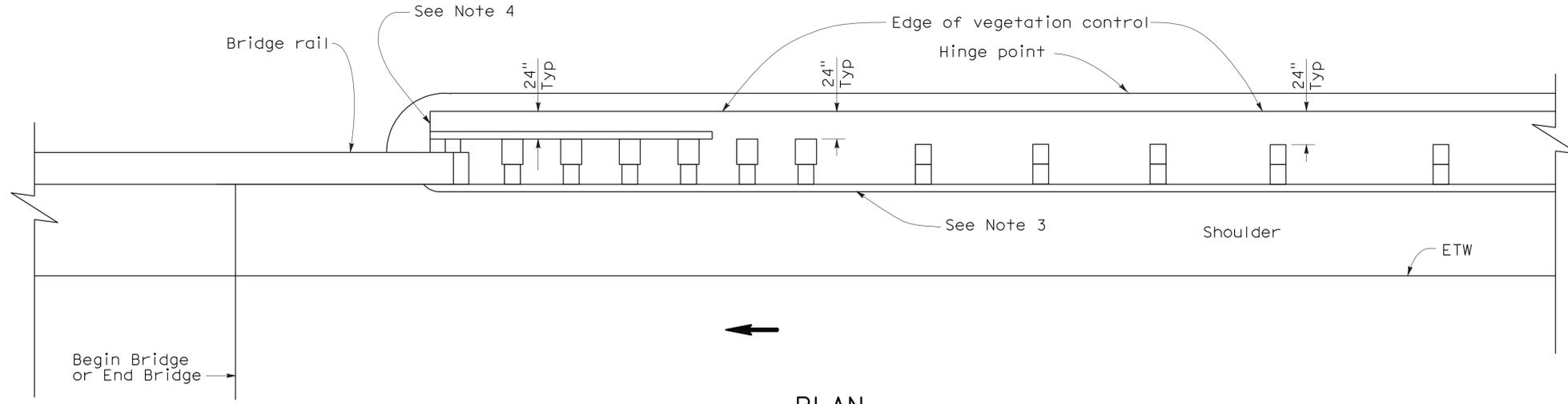
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
PLANS APPROVAL DATE

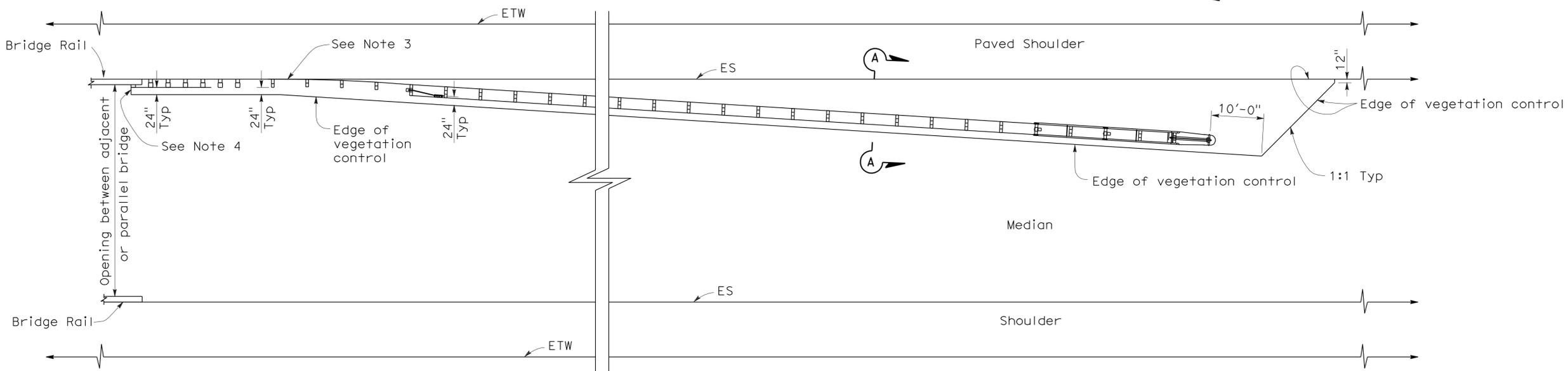
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To accompany plans dated 4-16-12

2006 NEW STANDARD PLAN NSP A77C7



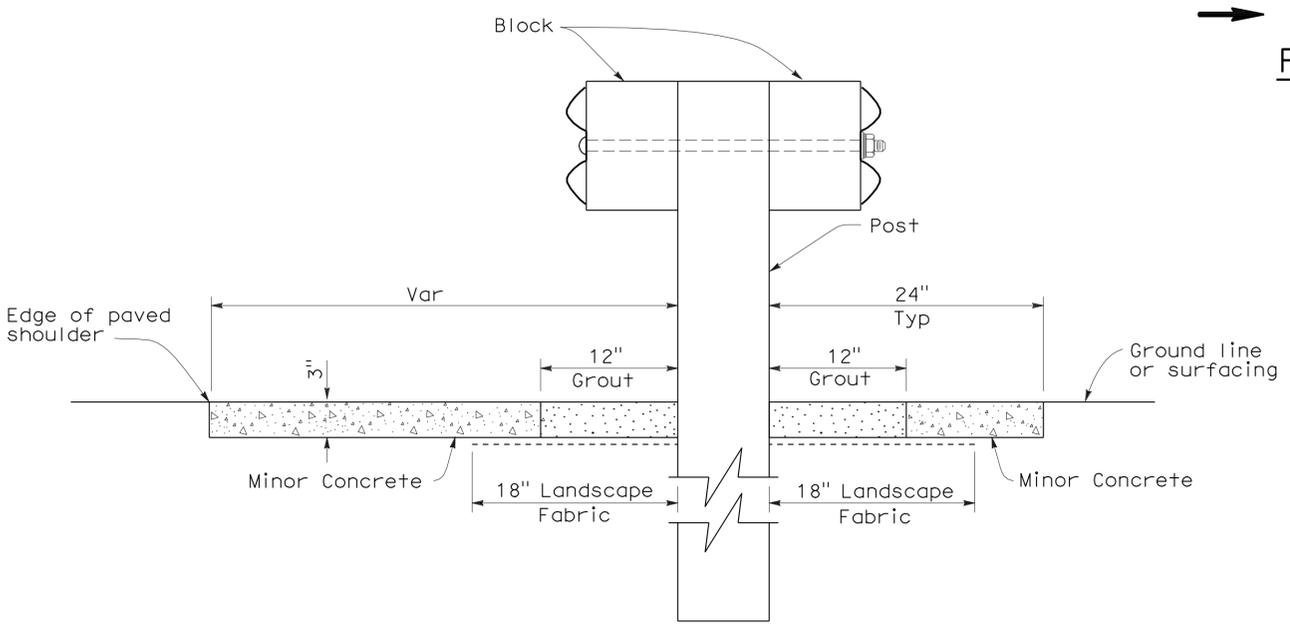
PLAN



PLAN

NOTES:

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



SECTION A-A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL VEGETATION CONTROL
AT STRUCTURE APPROACH
AND DEPARTURE**

NO SCALE
NSP A77C7 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD
PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP A77C7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1078	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

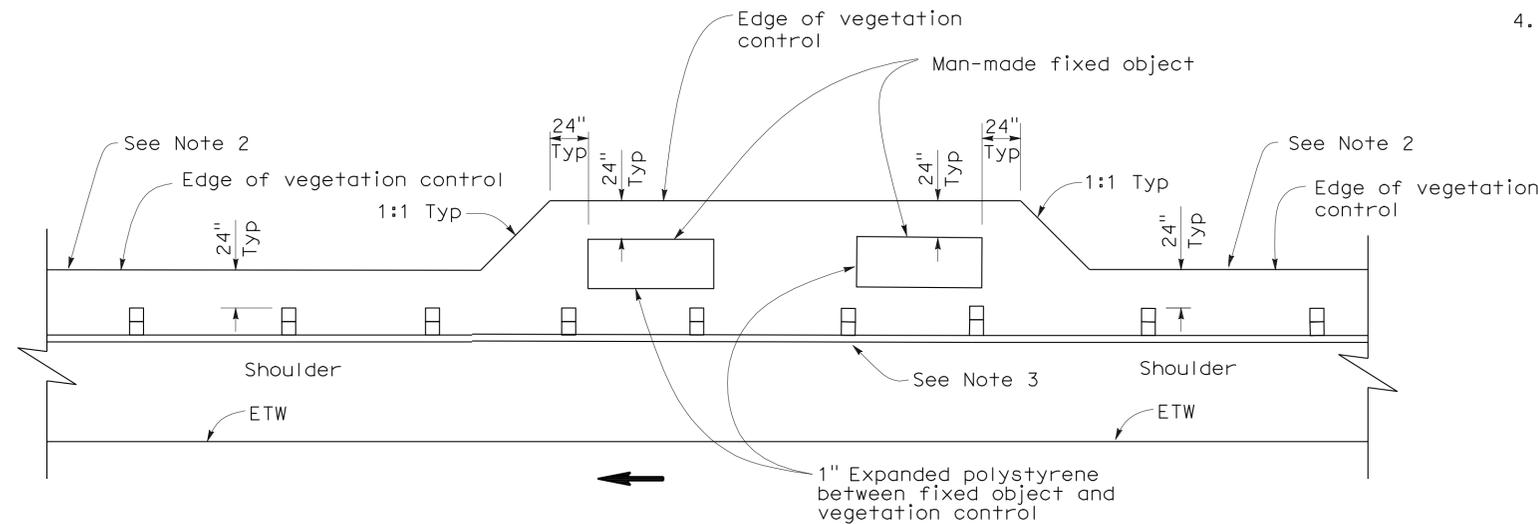
October 20, 2006
PLANS APPROVAL DATE

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To accompany plans dated 4-16-12

NOTES:

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



PLAN
FIXED OBJECT(S) ON SHOULDER

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL VEGETATION CONTROL
AT FIXED OBJECT**

NO SCALE
NSP A77C8 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD
PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP A77C8

2006 NEW STANDARD PLAN NSP A77C8

NOTES:

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
3. Direction of adjacent traffic indicated by ←.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1079	1743

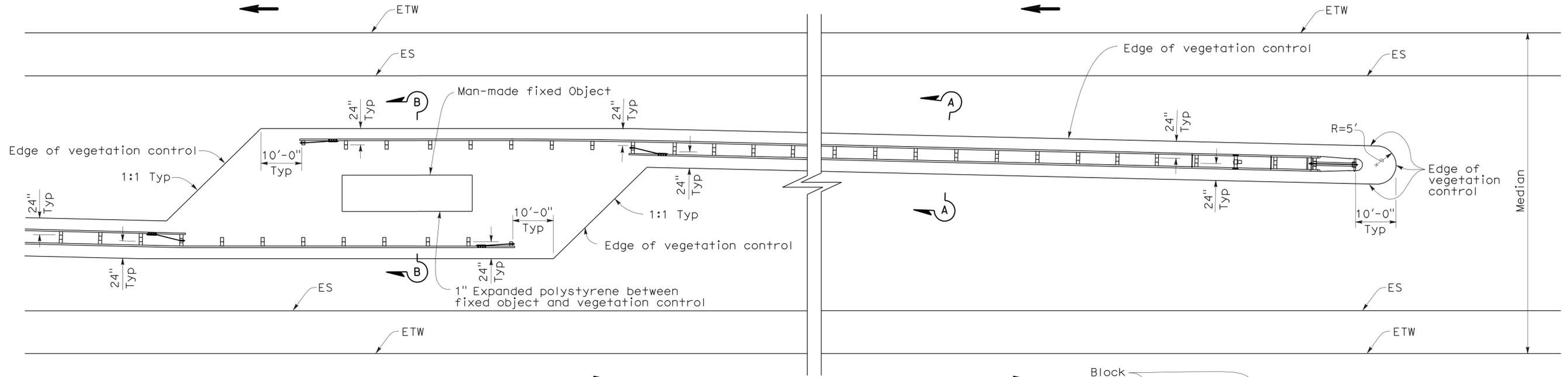
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
PLANS APPROVAL DATE

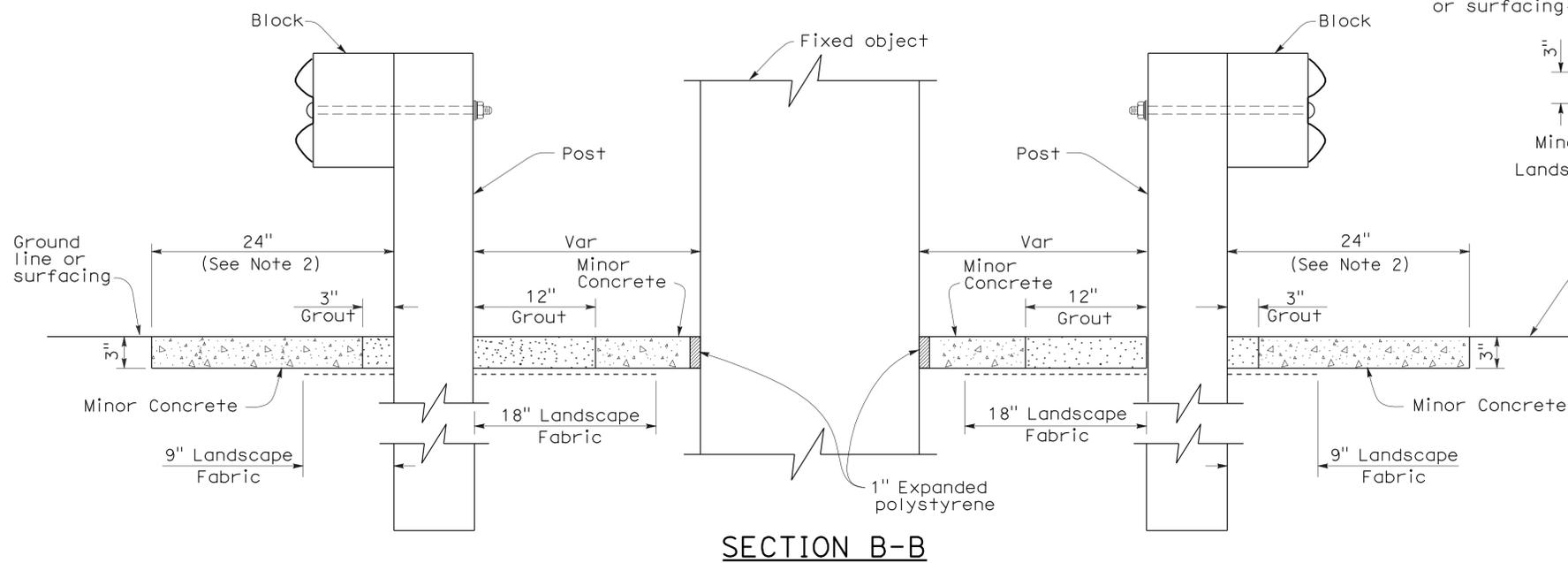
Randell D. Hiatt
No. C50200
Exp. 6-30-07
CIVIL
STATE OF CALIFORNIA

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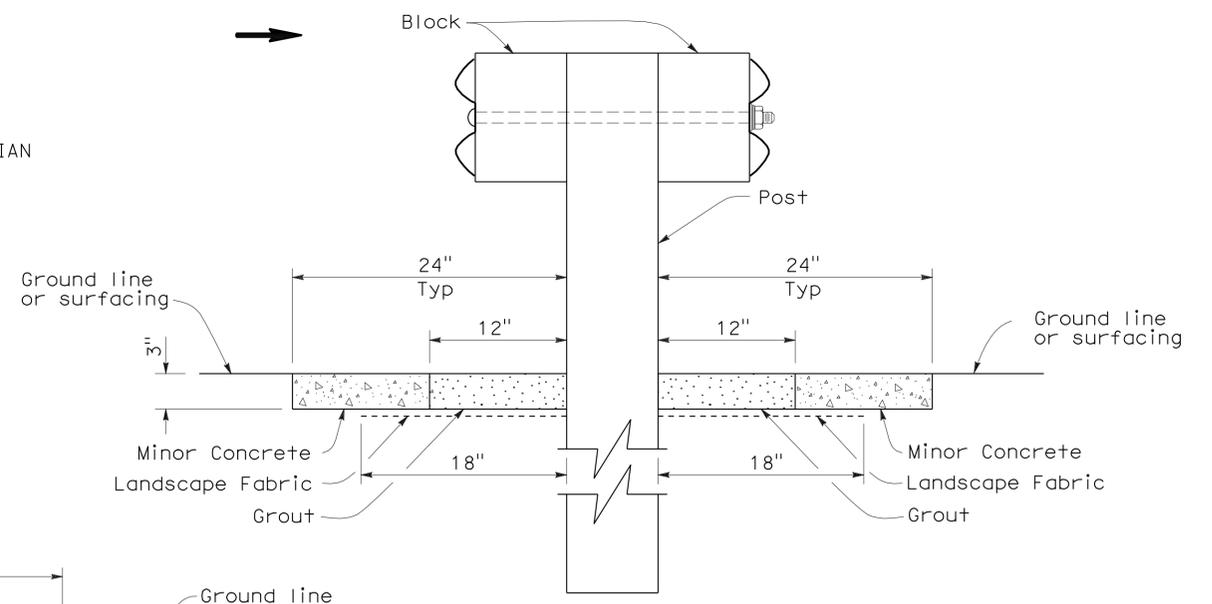
To accompany plans dated 4-16-12



PLAN
FIXED OBJECT(S) IN MEDIAN



SECTION B-B



SECTION A-A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**METAL BEAM GUARD RAILING
TYPICAL VEGETATION CONTROL
AT FIXED OBJECT**

NO SCALE
NSP A77C9 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD
PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1081	1743

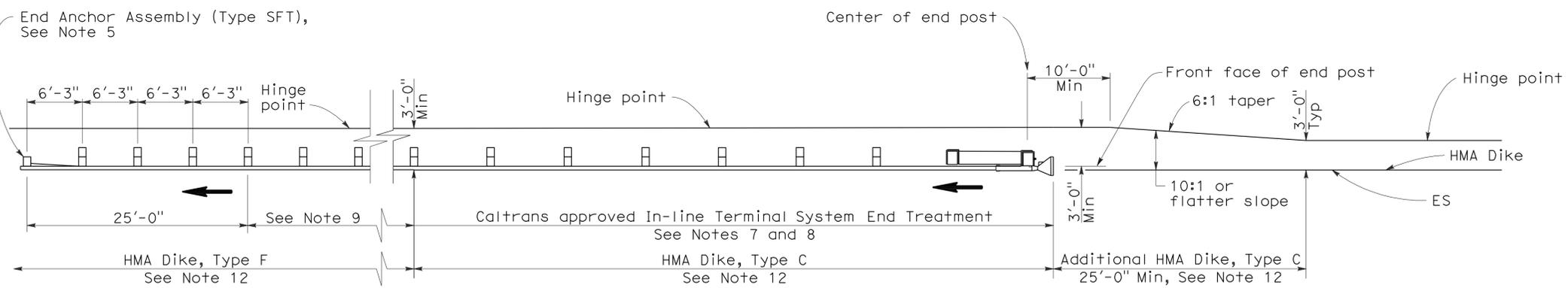
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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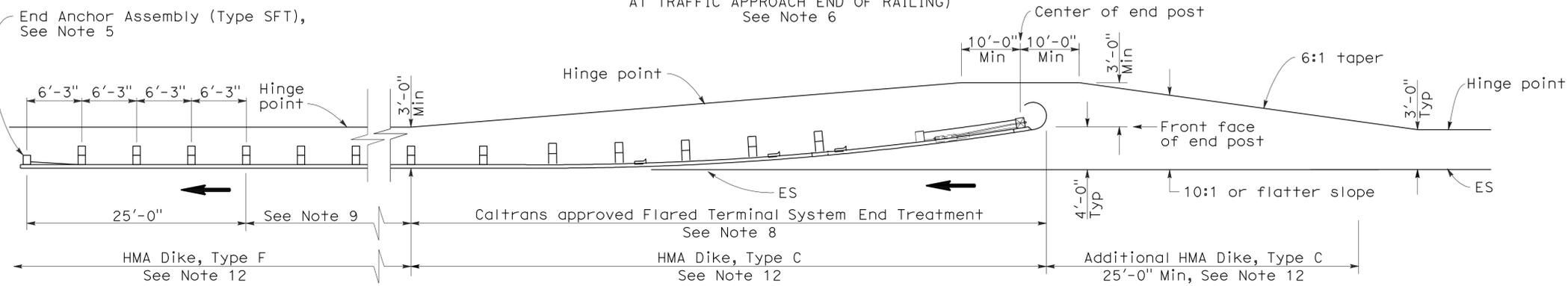
To accompany plans dated 4-16-12

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



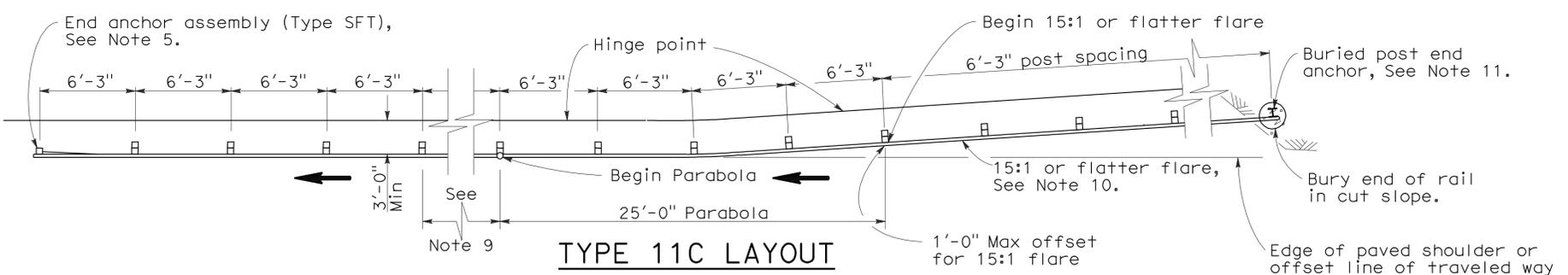
TYPE 11A LAYOUT

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



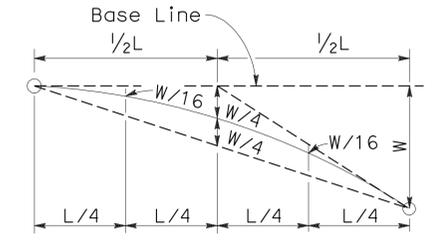
TYPE 11B LAYOUT

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

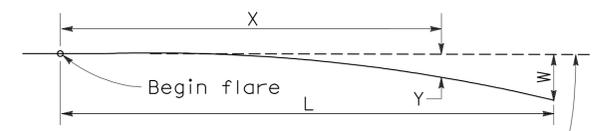


TYPE 11C LAYOUT

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



TYPICAL PARABOLIC LAYOUT

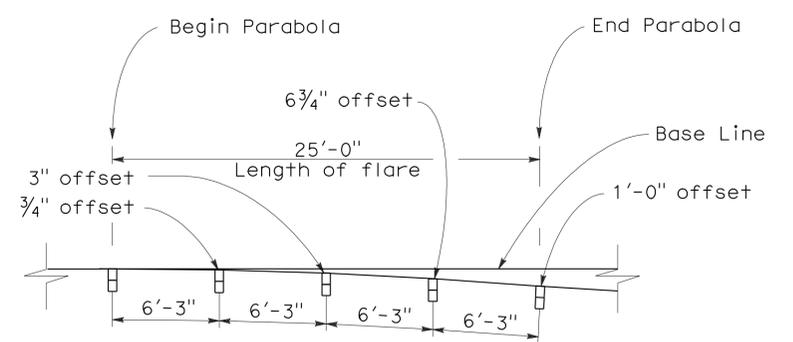


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

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

PARABOLIC FLARE OFFSETS



TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77E1

2006 REVISED STANDARD PLAN RSP A77E1

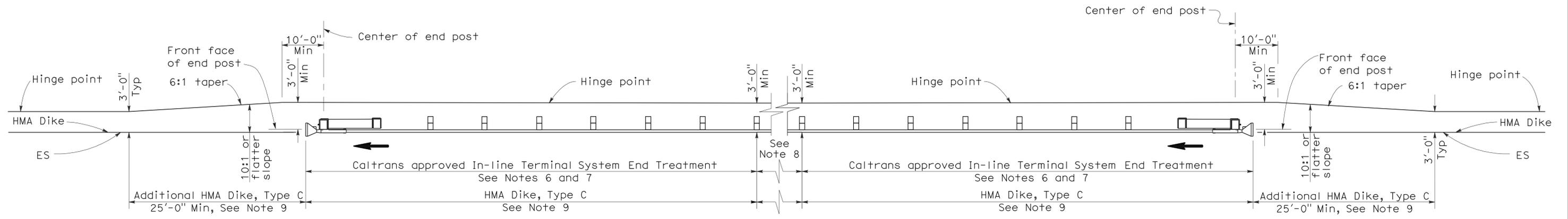
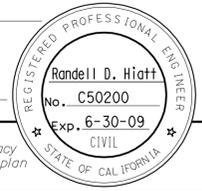
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1082	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

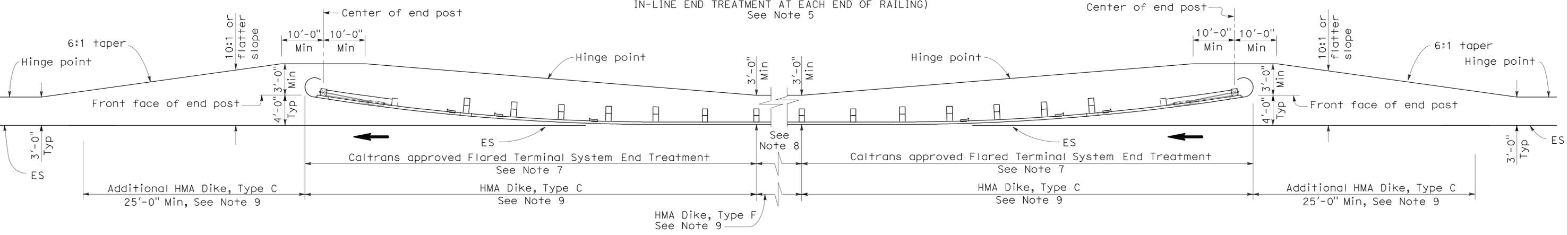
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To accompany plans dated 4-16-12



TYPE 11D LAYOUT

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



TYPE 11E LAYOUT

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

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

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

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

2006 REVISED STANDARD PLAN RSP A77E2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1083	1743

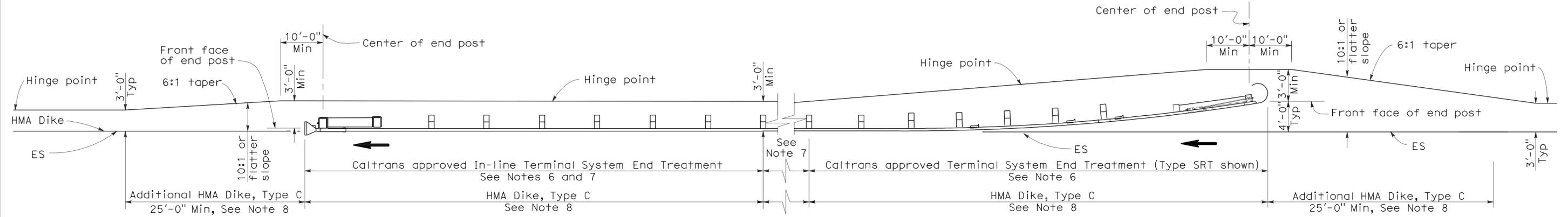
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

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 4-16-12



TYPE 11H LAYOUT

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

NOTES:

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

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

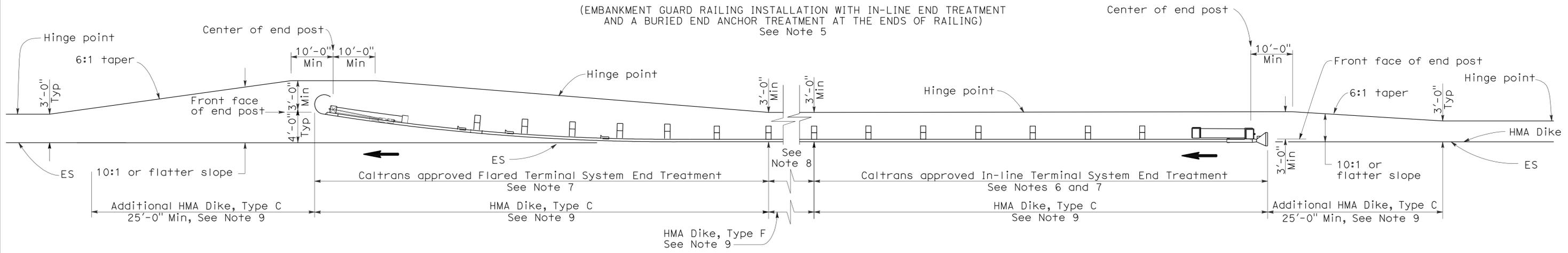
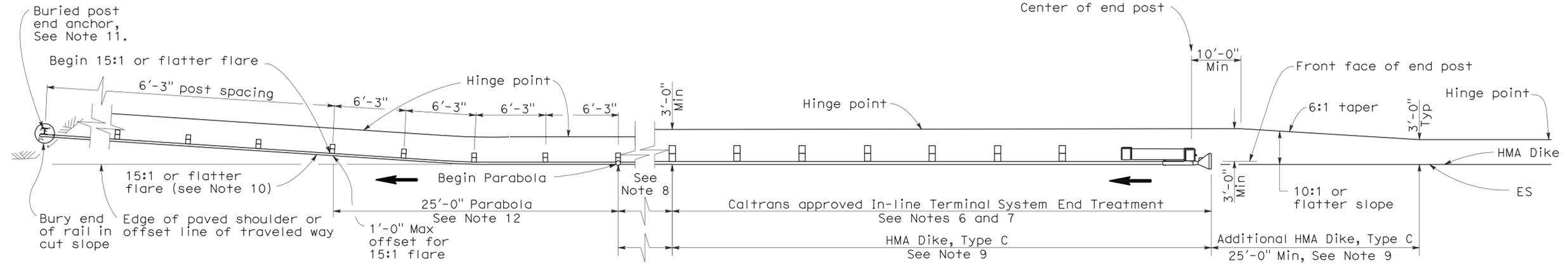
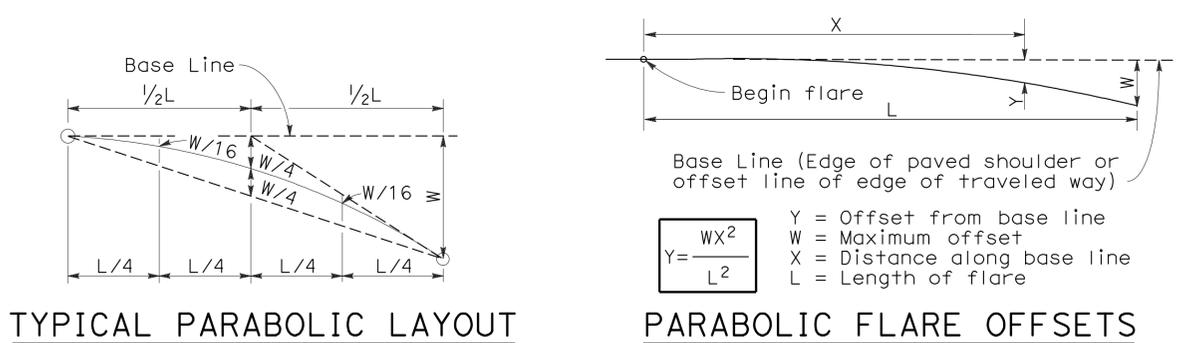
NO SCALE

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

2006 REVISED STANDARD PLAN RSP A77E4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1084	1743

RANDALL D. HIATT
 REGISTERED CIVIL ENGINEER
 June 6, 2008
 PLANS APPROVAL DATE
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NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by \rightarrow .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11I Layout, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
EMBANKMENTS
 NO SCALE
 RSP A77E5 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E5
 DATED MAY 1, 2006 - PAGE 52 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77E5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1085	1743

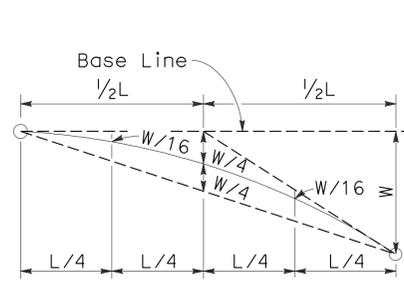
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

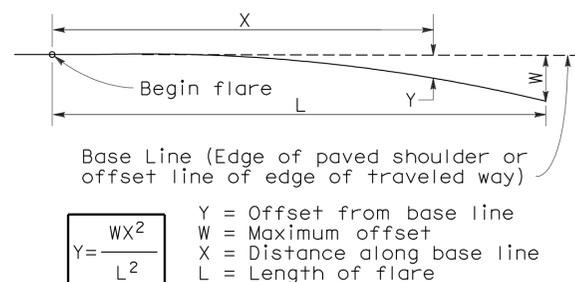
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To accompany plans dated 4-16-12

2006 REVISED STANDARD PLAN RSP A77E6



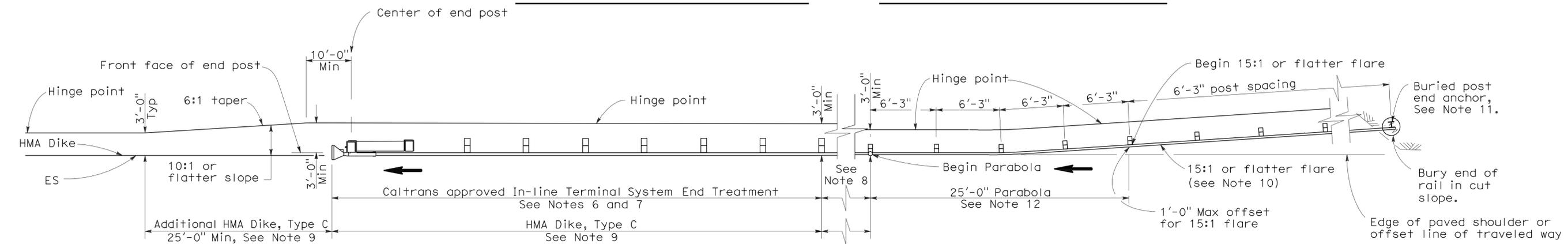
TYPICAL PARABOLIC LAYOUT



PARABOLIC FLARE OFFSETS

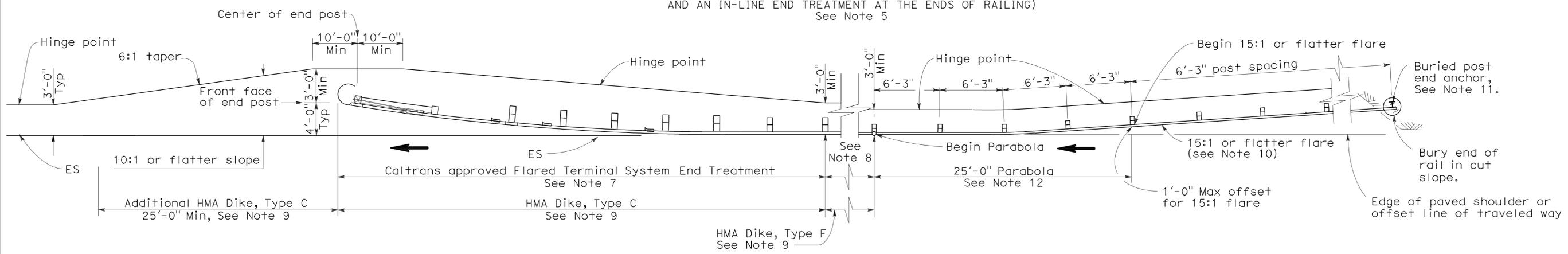
$$Y = \frac{WX^2}{L^2}$$

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



TYPE 11K LAYOUT

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



TYPE 11L LAYOUT

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

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by \rightarrow .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11K and 11L Layouts, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77E6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E6
DATED MAY 1, 2006 - PAGE 53 OF THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1086	1743

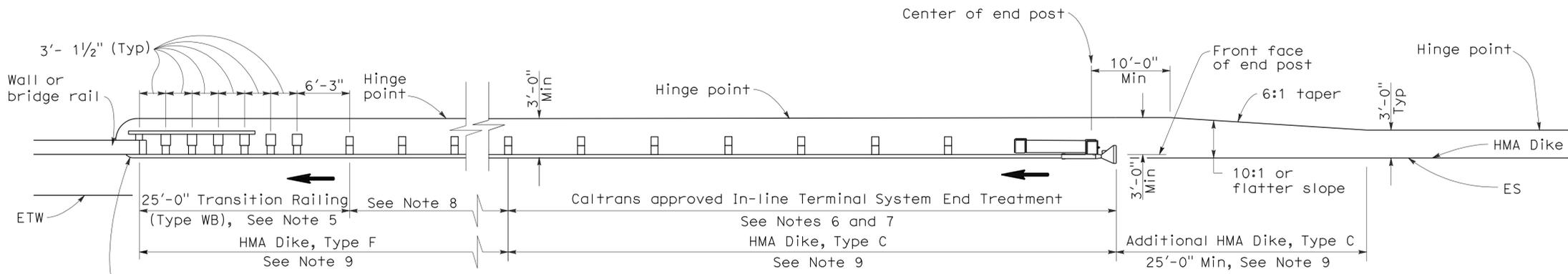
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

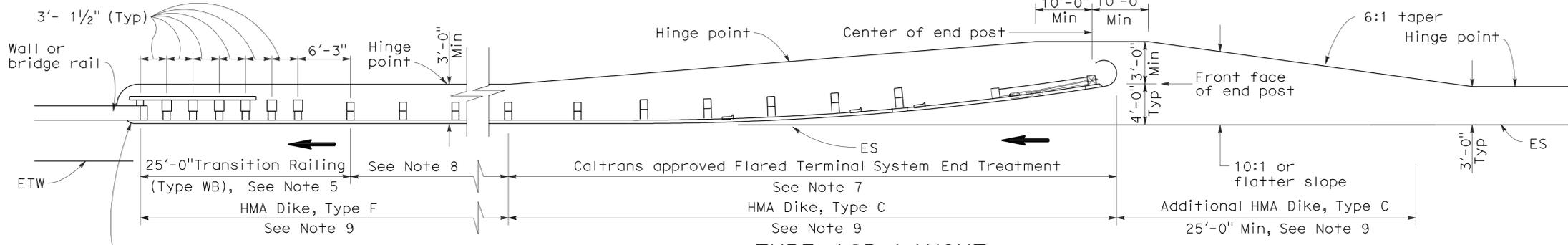
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To accompany plans dated 4-16-12



TYPE 12A LAYOUT

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



TYPE 12B LAYOUT

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

NOTES:

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

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

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77F1

2006 REVISED STANDARD PLAN RSP A77F1

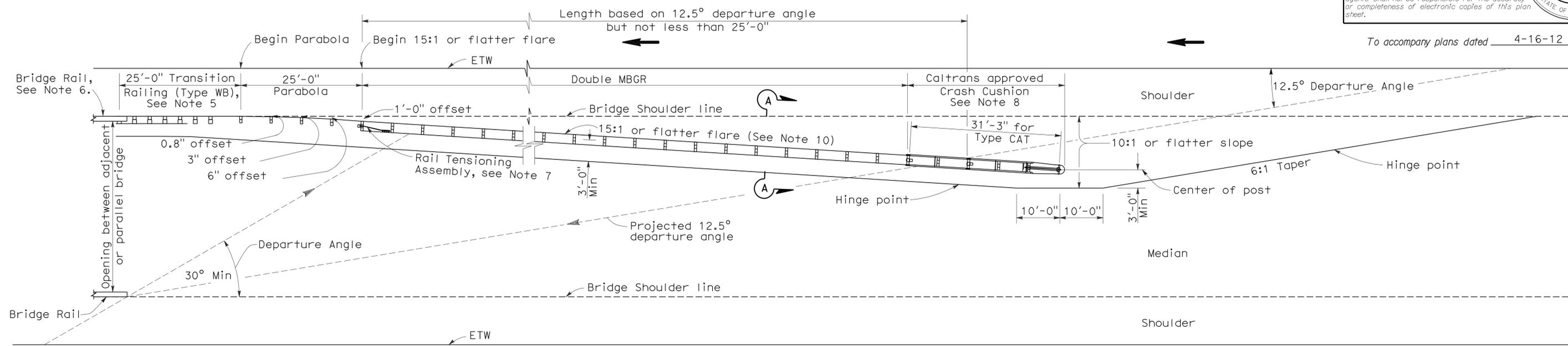
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1087	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

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STATE OF CALIFORNIA

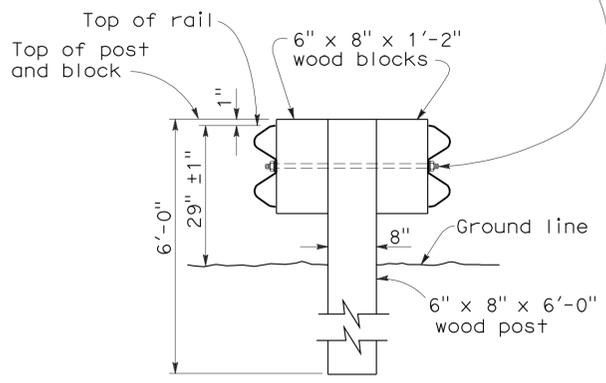


To accompany plans dated 4-16-12

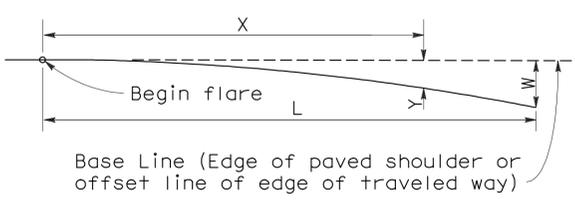
TYPE 12E LAYOUT

See Note 10

5/8" Ø Button head bolt with hex nut or 5/8" Ø Rod, threaded both ends, with hex nuts. 1/2" Max exposed threads after hex nut(s) tightened. No washer on rail faces for bolted connection to line post.



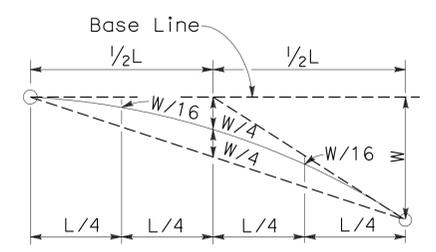
SECTION A-A
TYPICAL DOUBLE METAL BEAM GUARD RAILING



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

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

PARABOLIC FLARE OFFSETS



TYPICAL PARABOLIC LAYOUT

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by →.
- For Transition Railing (Type WB) details, see Standard Plan A77J4.
- For additional details of a typical connection to bridge rail, see Connection Detail AA on Revised Standard Plan RSP A77J1.
- For Rail Tensioning Assembly details, see Standard Plan A77H2.
- The type of Crash Cushion to be used will be shown on the Project Plans.
- Type 12E Layout is typically used left of approaching traffic at the end of each structure on multilane freeways or expressways where a median type barrier is not constructed between separated roadbeds.
- The 15:1 or flatter flare is measured off of the edge of traveled way.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
STRUCTURE APPROACH

NO SCALE

RSP A77F3 DATED MAY 20, 2011 SUPERSEDES RSP A77F3 DATED JUNE 6, 2008 AND STANDARD PLAN A77F3 DATED MAY 1, 2006 - PAGE 56 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77F3

2006 REVISED STANDARD PLAN RSP A77F3

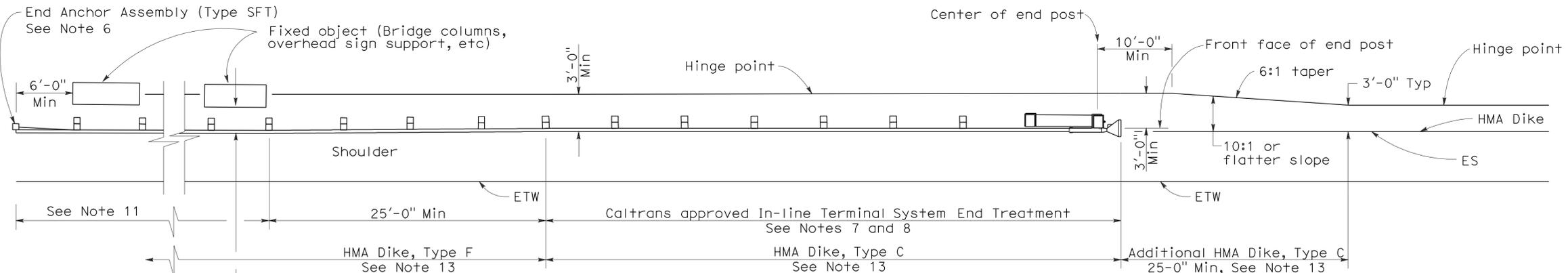
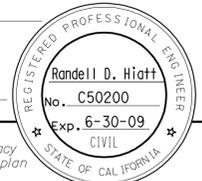
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1088	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

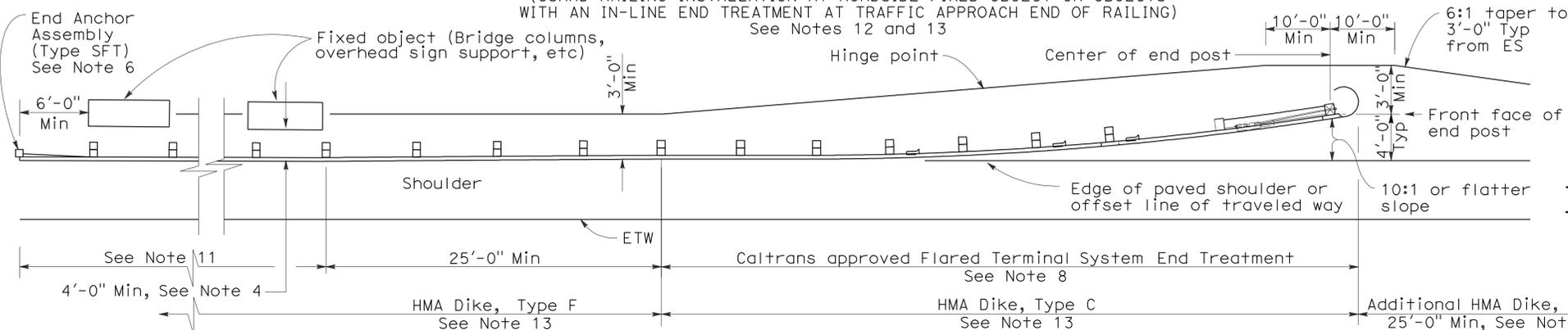
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To accompany plans dated 4-16-12



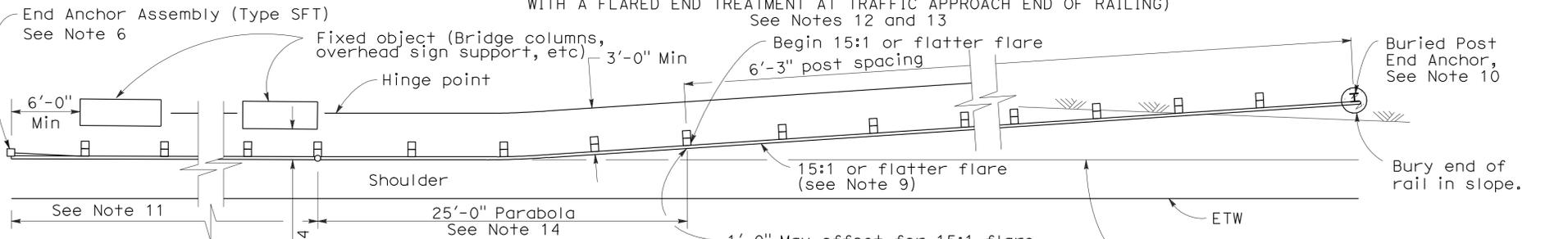
TYPE 16A LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Notes 7 and 8



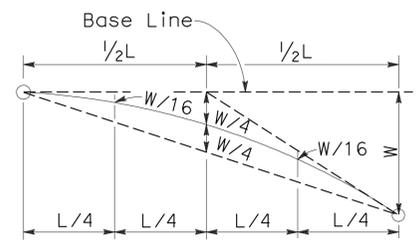
TYPE 16B LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Notes 12 and 13

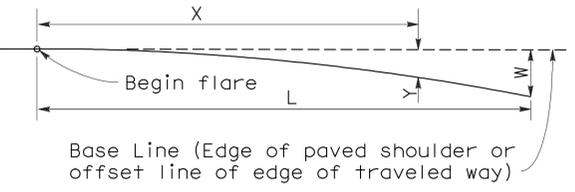


TYPE 16C LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Notes 12 and 13



TYPICAL PARABOLIC LAYOUT



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

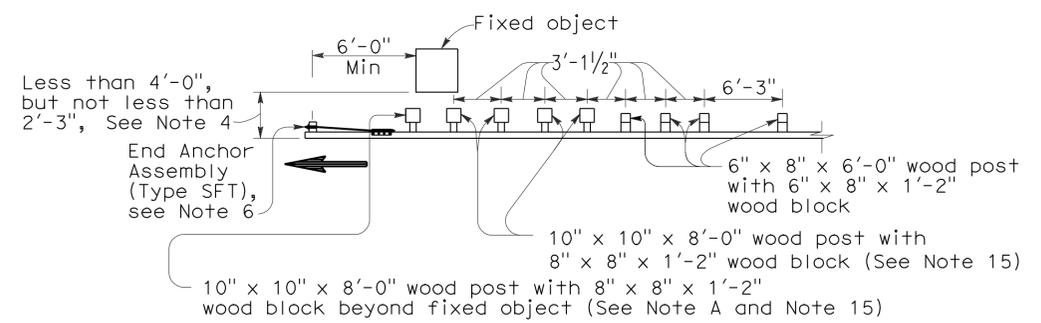
$Y = \frac{WX^2}{L^2}$

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

PARABOLIC FLARE OFFSETS

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing of 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by \rightarrow .
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- The 15:1 or flatter flare used with Type 16C Layout is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the Buried Post End Anchor used with Type 16C Layout, see Standard Plan A77I2.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3" except as specified in Note 4.
- Layout Types 16A, 16B or 16C are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for only one direction of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".



NOTE A:

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

STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

Use strengthened railing sections with Types 16A, 16B or 16C Layouts where minimum clearance between the face of the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE
RSP A77G3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G3
DATED MAY 1, 2006 - PAGE 61 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77G3

2006 REVISED STANDARD PLAN RSP A77G3

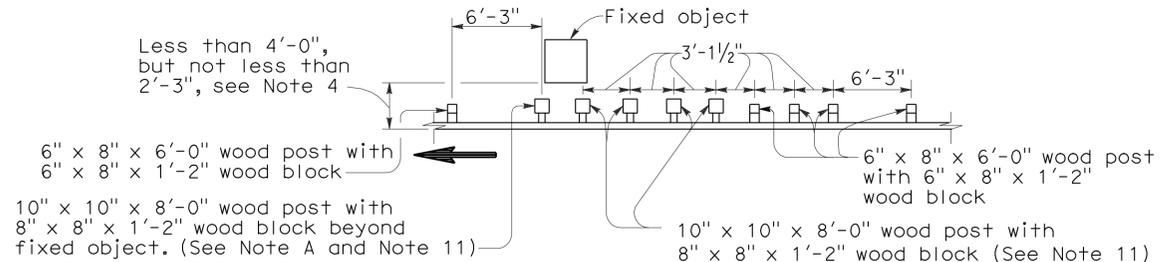
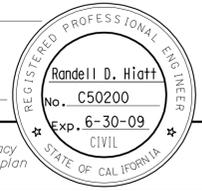
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1089	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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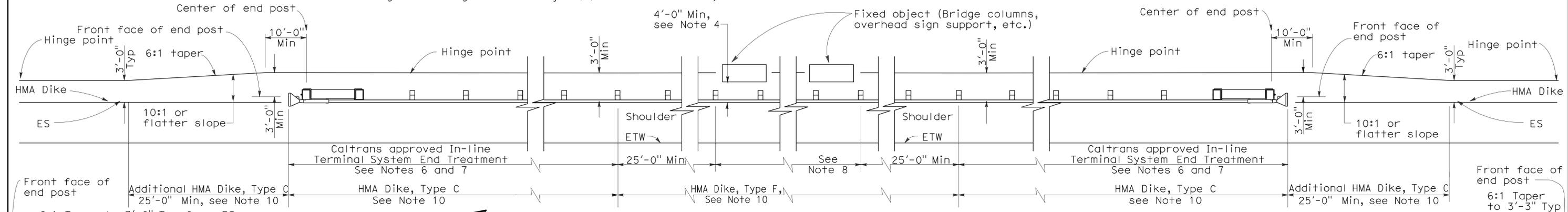
To accompany plans dated 4-16-12



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

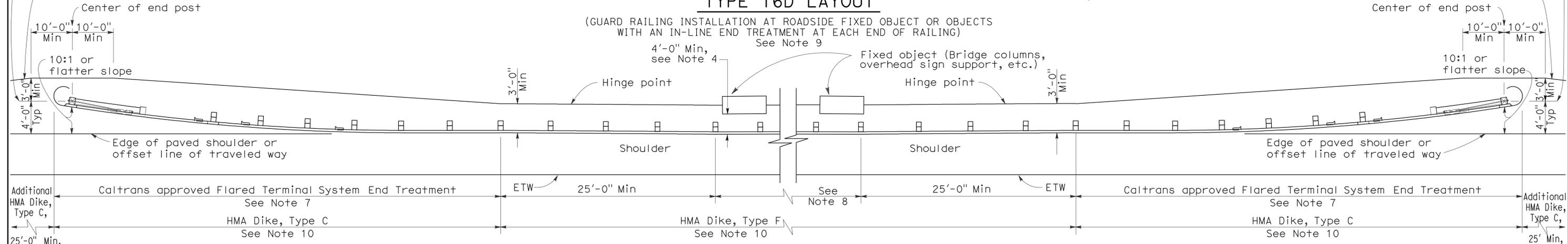
STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

Use strengthened railing sections with Layout Types 16D or 16E where minimum clearance between the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4.



TYPE 16D LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AT EACH END OF RAILING) See Note 9



TYPE 16E LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AT EACH END OF RAILING) See Note 9

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3", except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by →.

- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.

- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail."

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
ROADSIDE FIXED OBJECTS**
NO SCALE

RSP A77G4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G4
DATED MAY 1, 2006 - PAGE 62 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77G4

2006 REVISED STANDARD PLAN RSP A77G4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1090	1743

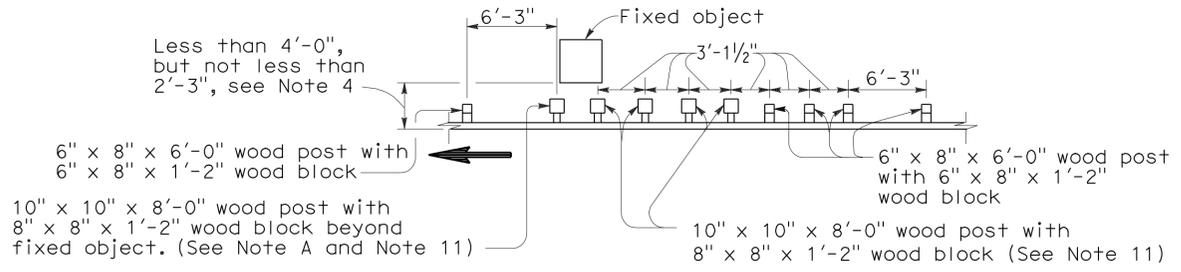
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

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

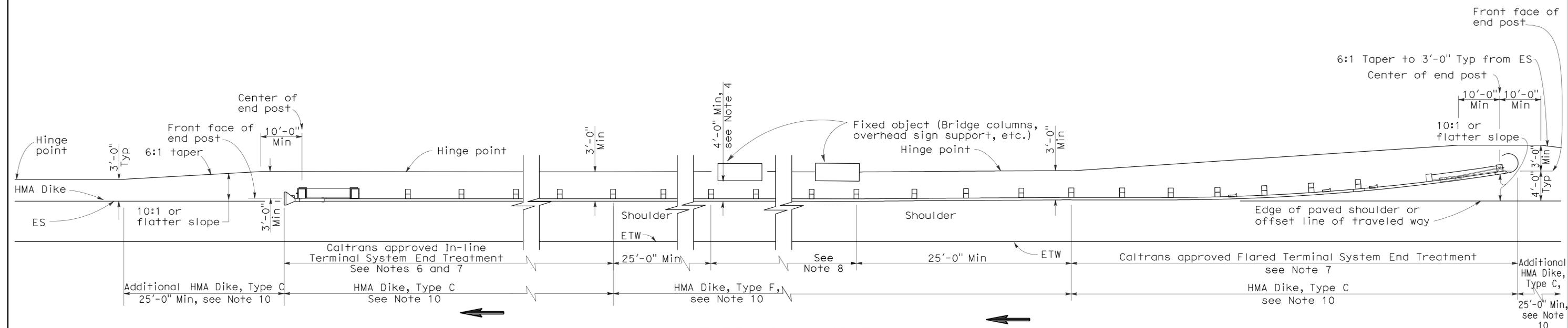
To accompany plans dated 4-16-12



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

STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

Use strengthened railing sections with Layout Type 16H where minimum clearance between the face of the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4.



TYPE 16H LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AND AN IN-LINE TREATMENT AT THE ENDS OF RAILING) See Note 9

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object, located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by \rightarrow .

- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE
RSP A77G6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G6
DATED MAY 1, 2006 - PAGE 64 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77G6

2006 REVISED STANDARD PLAN RSP A77G6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1091	1743

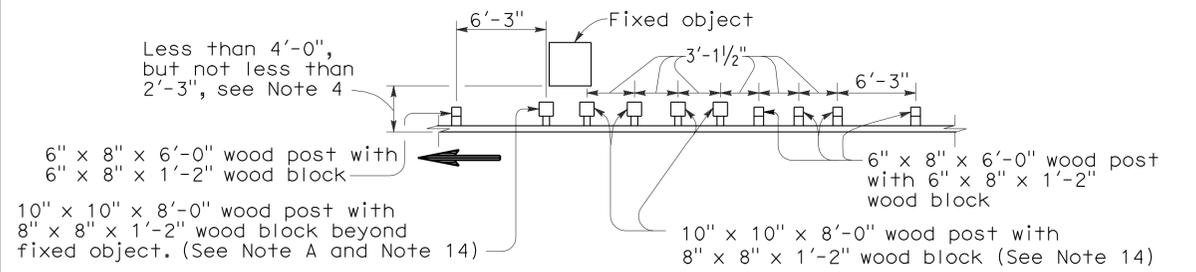
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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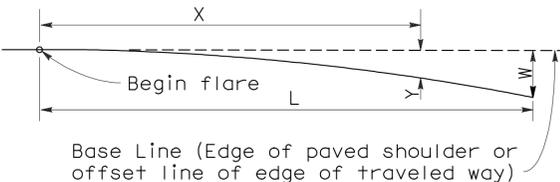
To accompany plans dated 4-16-12

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



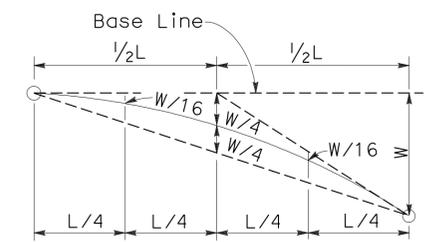
Note A. For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT



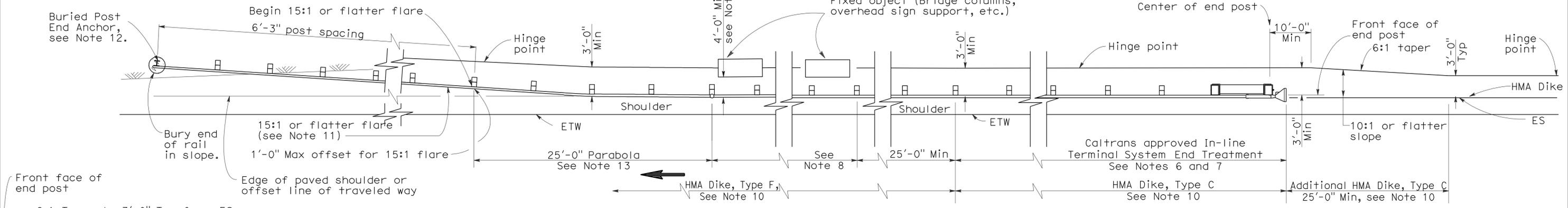
Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS



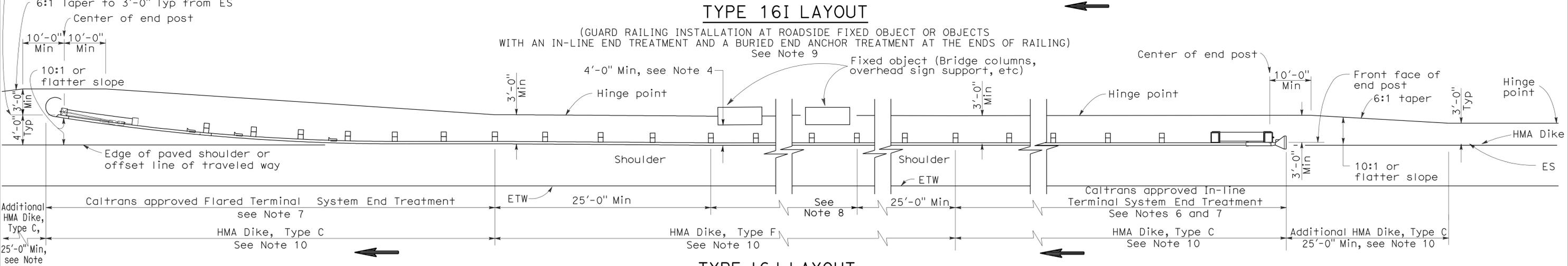
TYPICAL PARABOLIC LAYOUT

Use strengthened railing sections with Layout Types 16I or 16J Layouts where minimum clearance between the face of the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4.



TYPE 16I LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AND A BURIED END ANCHOR TREATMENT AT THE ENDS OF RAILING) See Note 9



TYPE 16J LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING) See Note 9

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by →.

- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare for the buried post anchor is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".

- For details of Buried Post End Anchor details, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard RSP Plan A77E1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
ROADSIDE FIXED OBJECTS
NO SCALE

RSP A77G7 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G7
DATED MAY 1, 2006 - PAGE 65 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77G7

2006 REVISED STANDARD PLAN RSP A77G7

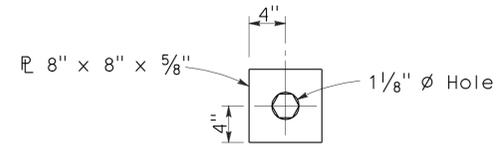
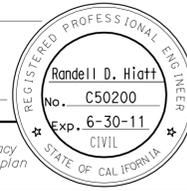
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1092	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

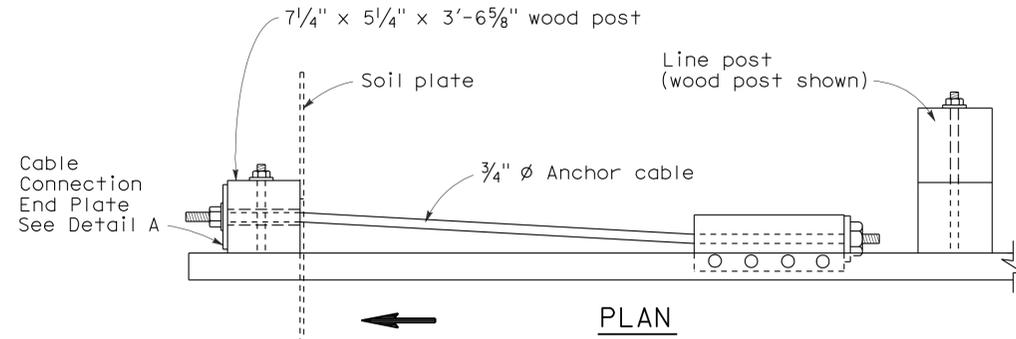
May 20, 2011
PLANS APPROVAL DATE

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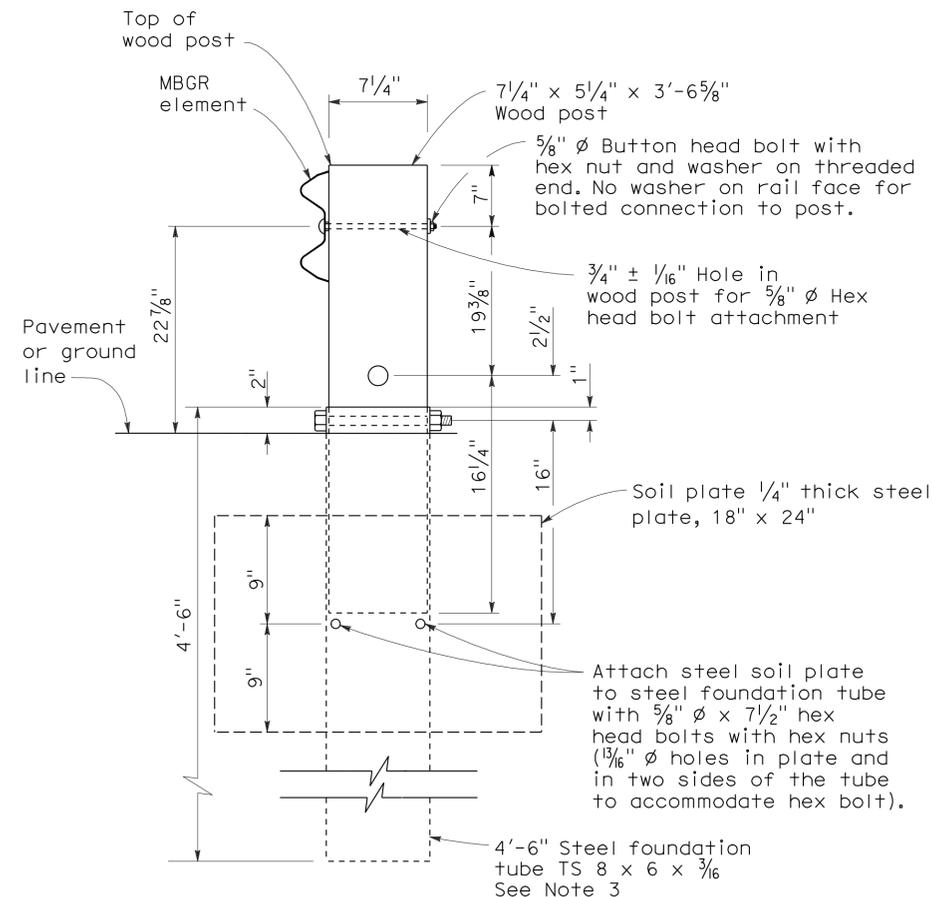
To accompany plans dated 4-16-12



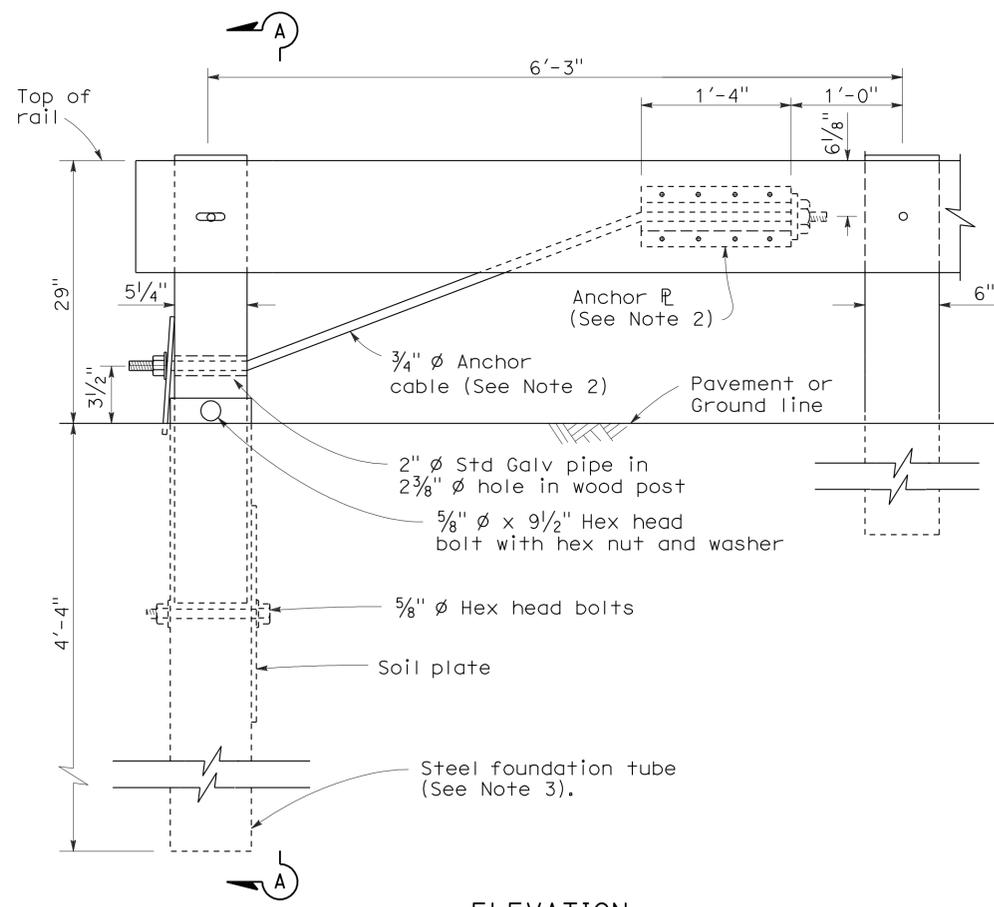
DETAIL A
CABLE CONNECTION
END PLATE



PLAN



SECTION A-A



ELEVATION
END ANCHOR
ASSEMBLY (TYPE SFT)
See Note 1

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
METAL RAILING
END ANCHOR ASSEMBLY
(TYPE SFT)

NO SCALE

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

REVISED STANDARD PLAN RSP A77H1

2006 REVISED STANDARD PLAN RSP A77H1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1093	1743

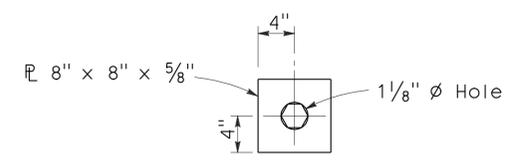
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

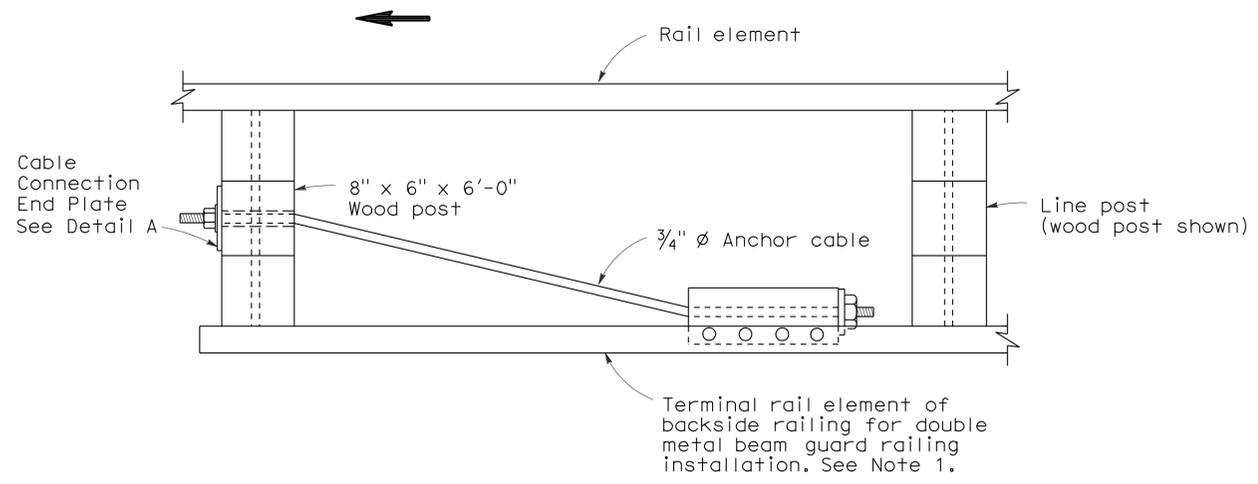
Randell D. Hiatt
REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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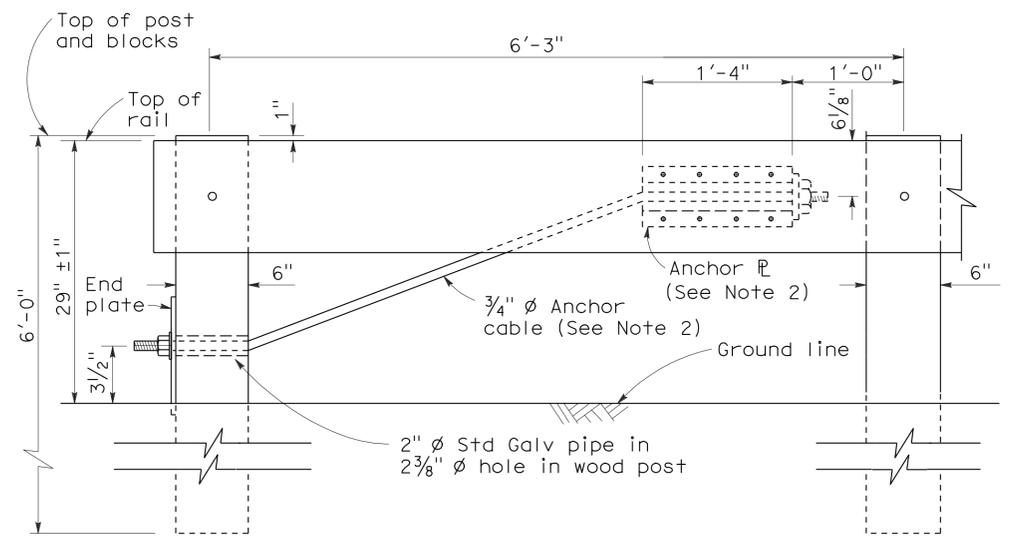
To accompany plans dated 4-16-12



DETAIL A
CABLE CONNECTION
END PLATE



PLAN



ELEVATION
RAIL TENSIONING
ASSEMBLY
See Note 1

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
METAL RAILING
RAIL TENSIONING ASSEMBLY

NO SCALE

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

REVISED STANDARD PLAN RSP A77H2

2006 REVISED STANDARD PLAN RSP A77H2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1094	1743

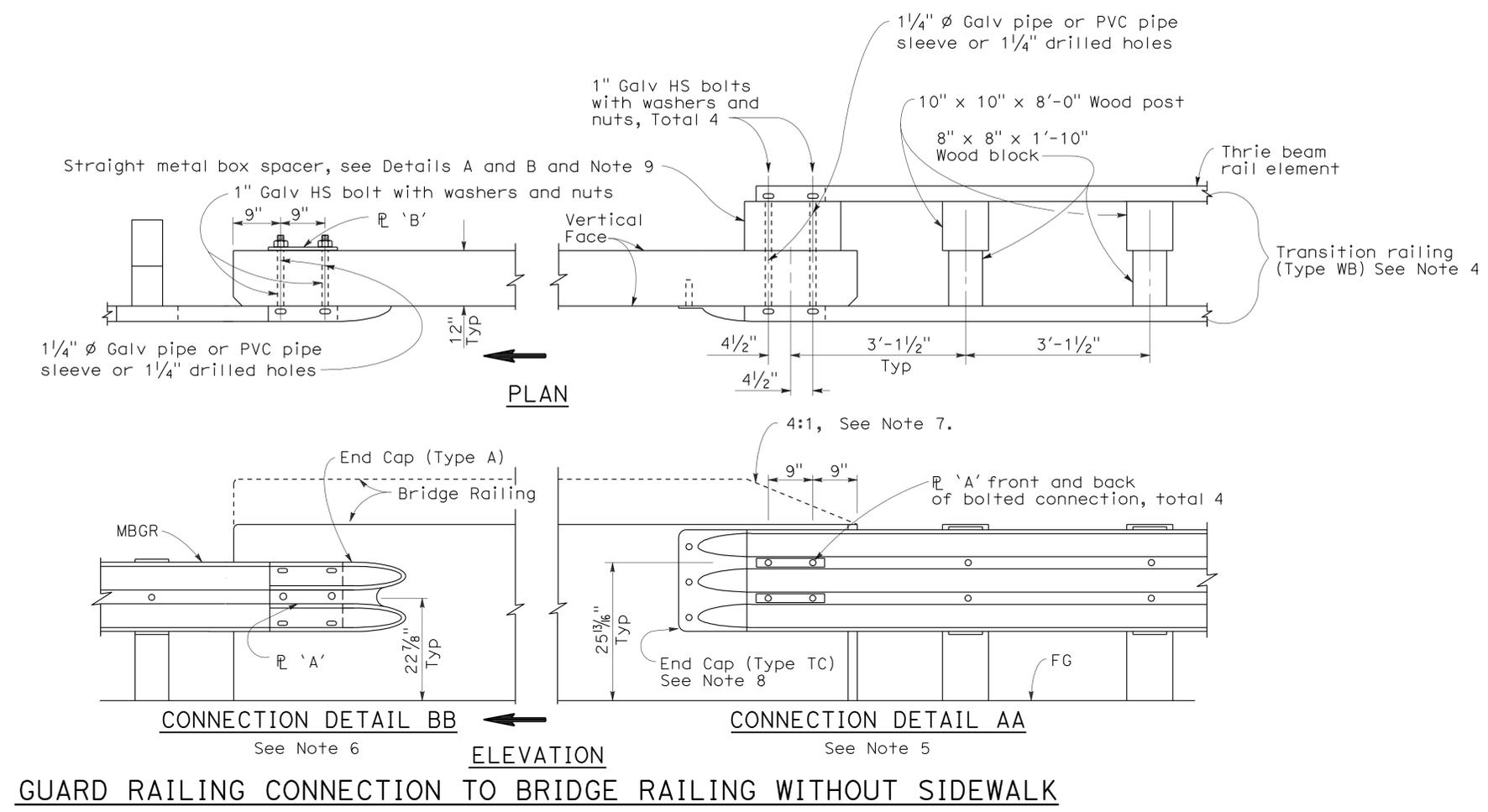
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

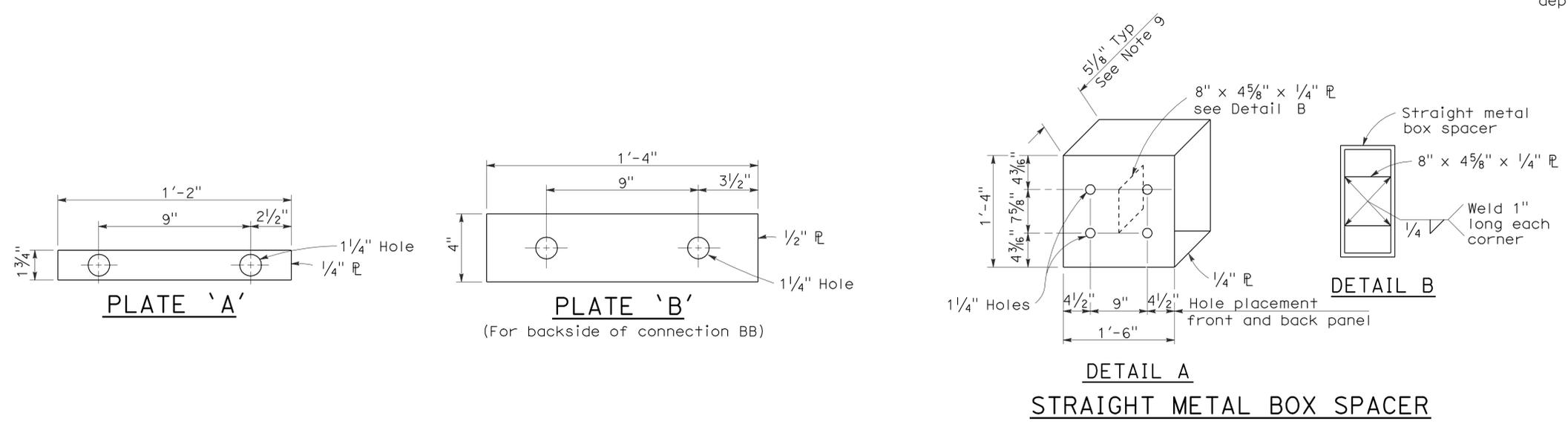
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Exp. 6-30-11
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To accompany plans dated 4-16-12



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



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE
RSP A77J1 DATED MAY 20, 2011 SUPERSEDES RSP A77J1 DATED JUNE 6, 2008 AND STANDARD PLAN A77J1 DATED MAY 1, 2006 - PAGE 72 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77J1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1095	1743

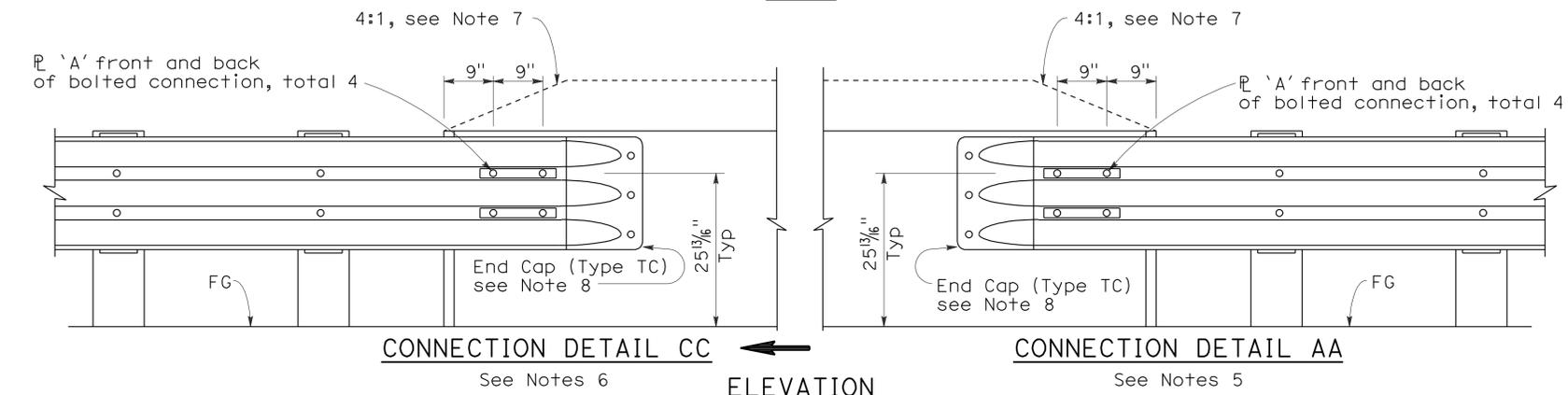
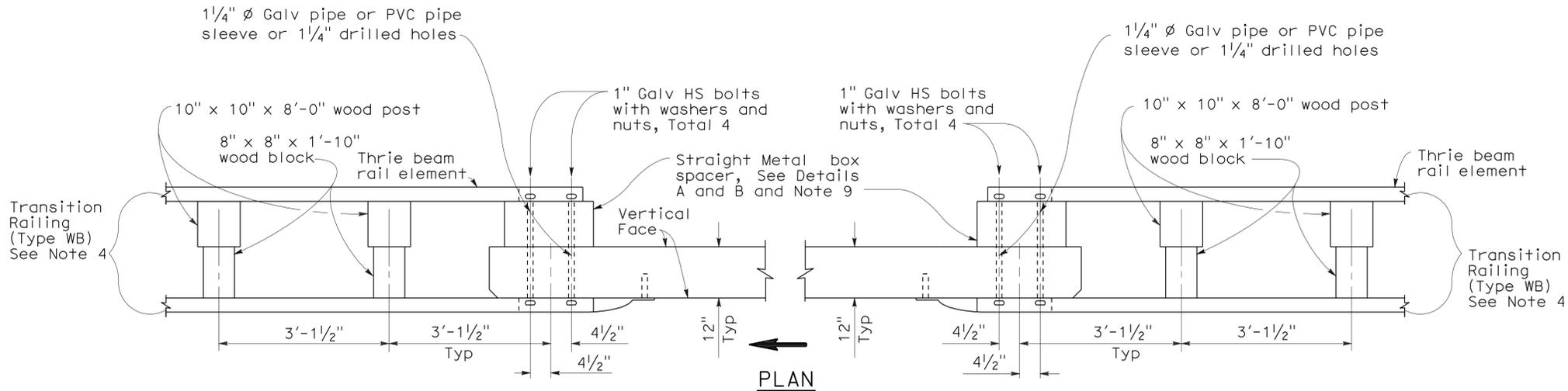
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

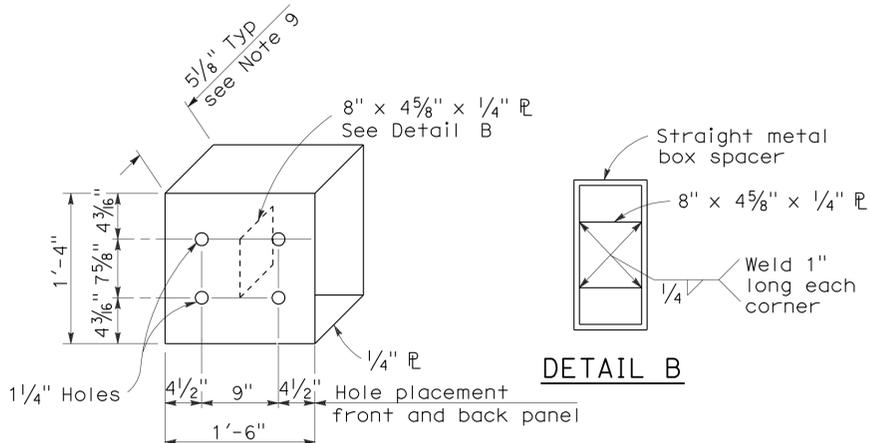
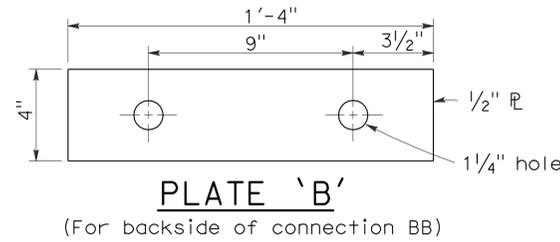
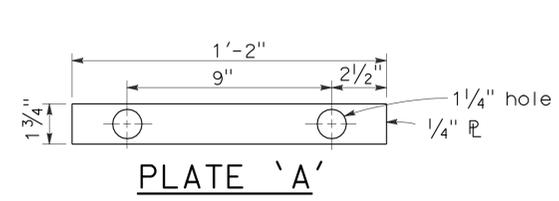
To accompany plans dated 4-16-12



GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK

NOTES:

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



**DETAIL A
STRAIGHT METAL BOX SPACER**

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

REVISED STANDARD PLAN RSP A77J2

2006 REVISED STANDARD PLAN RSP A77J2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1096	1743

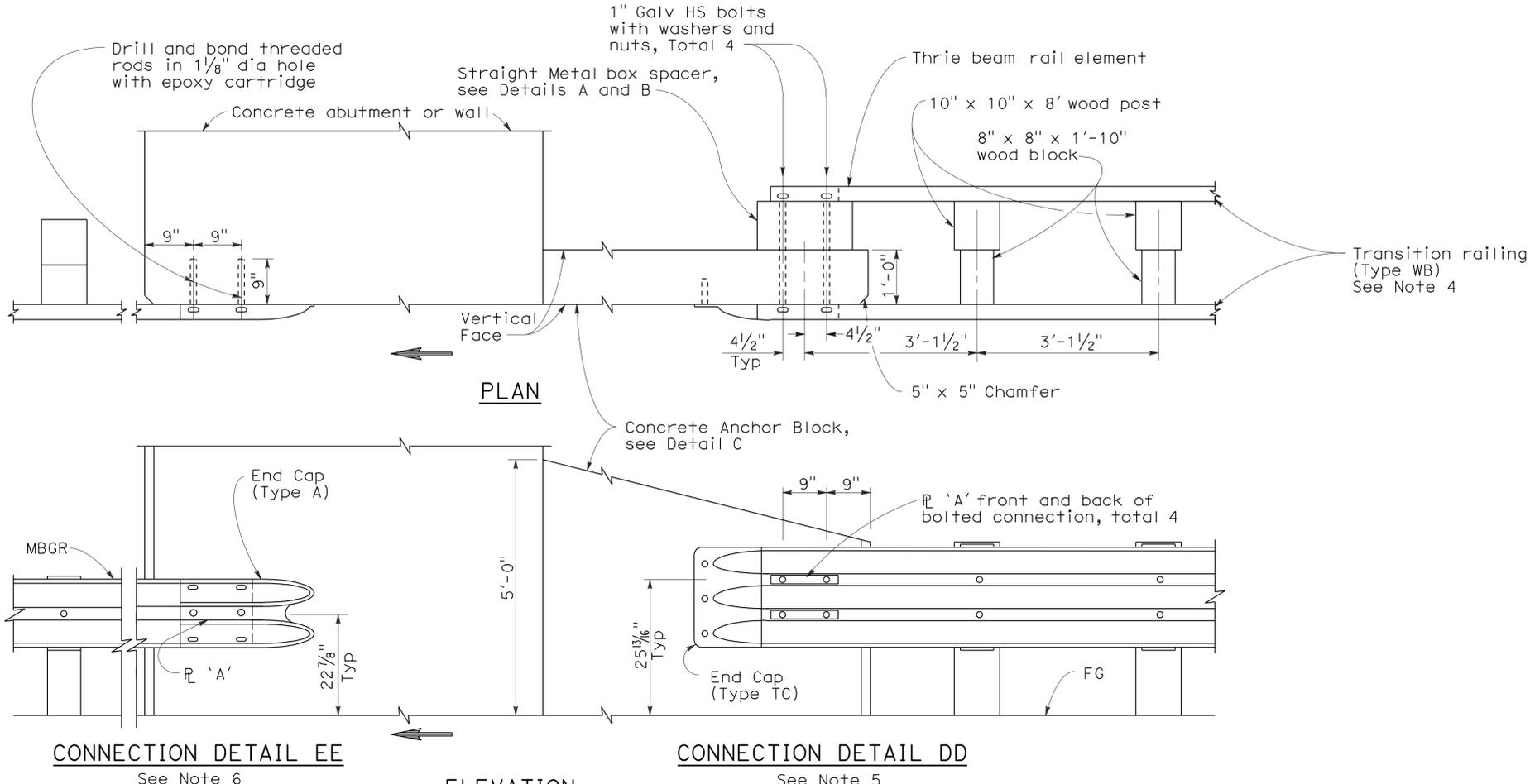
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

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

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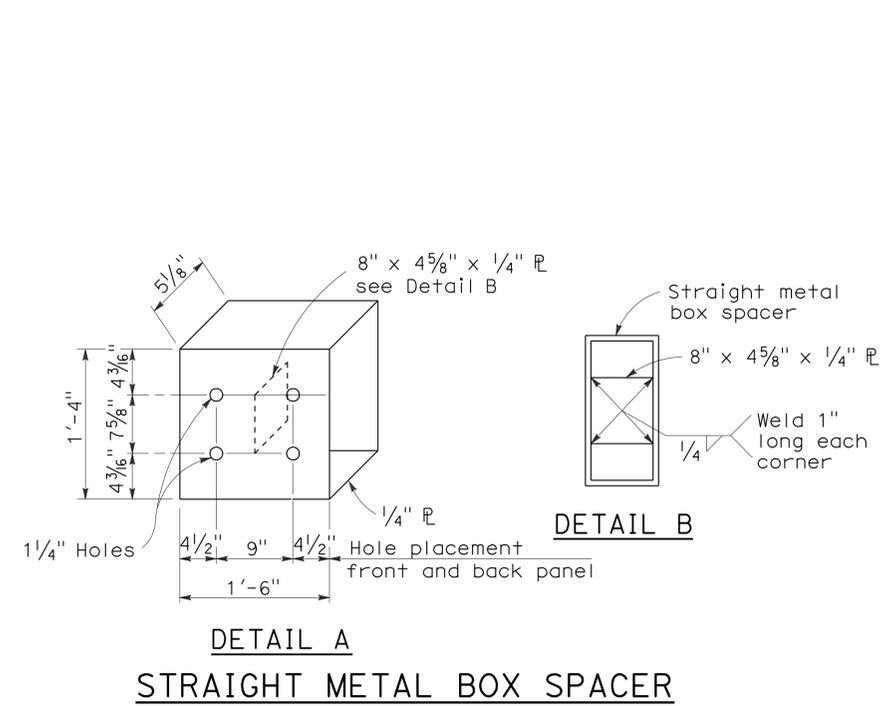
To accompany plans dated 4-16-12



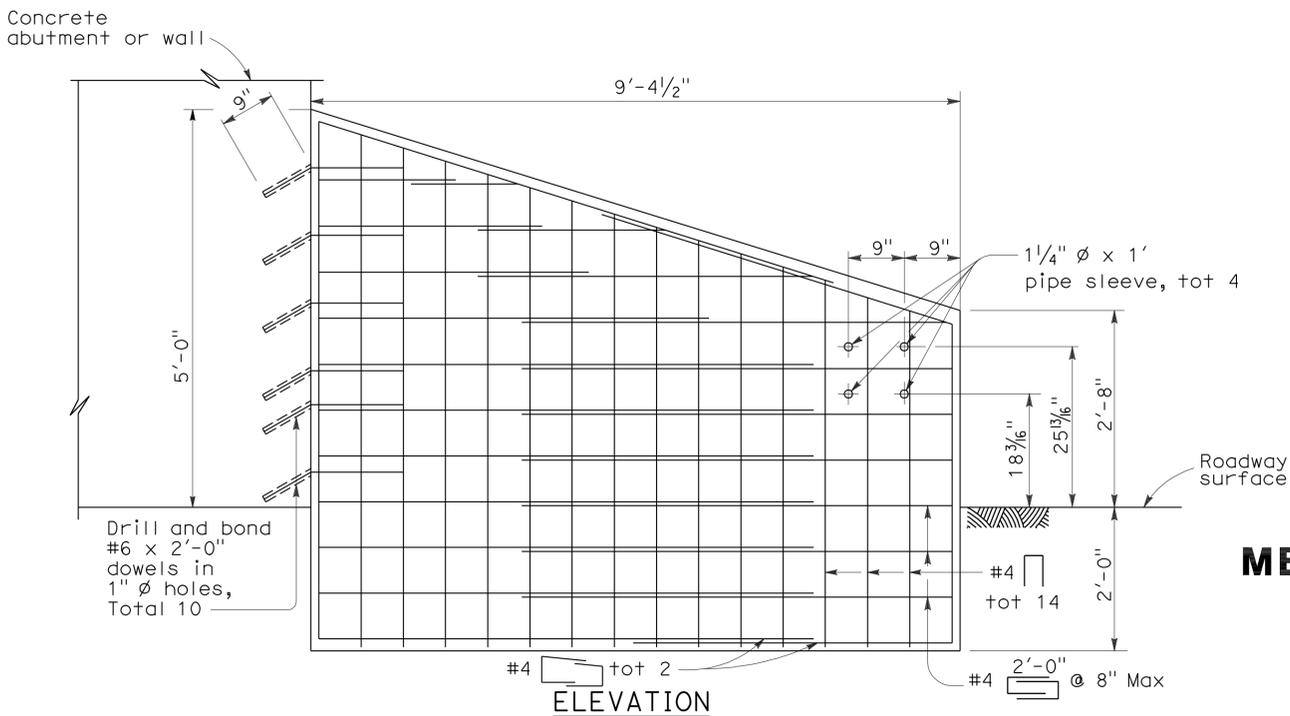
NOTES:

1. These connection details apply to abutments and walls.
2. Additional details of posts, blocks and hardware are shown on Standard Plans A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by →.
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4 Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete anchor block.
5. For typical use of Connection Details DD, See Layout Types 12A and 12B on Standard Plan A77F1 and Layout Types 12C and 12D on Standard Plan A77F2.
6. For typical use of Connection Detail EE, see Layout Type 12D on Standard Plan A77F2 and Layout Type 12DD on Standard Plan A77F5.

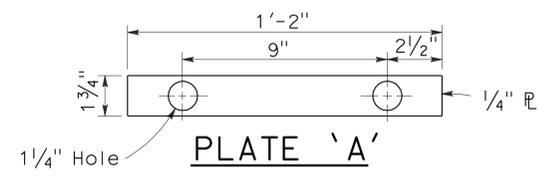
GUARD RAILING CONNECTION TO ABUTMENT OR WALL



STRAIGHT METAL BOX SPACER



ANCHOR BLOCK FOR TRANSITION RAILING CONNECTION



DETAIL C

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING CONNECTIONS TO ABUTMENTS AND WALLS

NO SCALE

RSP A77J3 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77J3 DATED MAY 1, 2006 - PAGE 74 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77J3

2006 REVISED STANDARD PLAN RSP A77J3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1098	1743

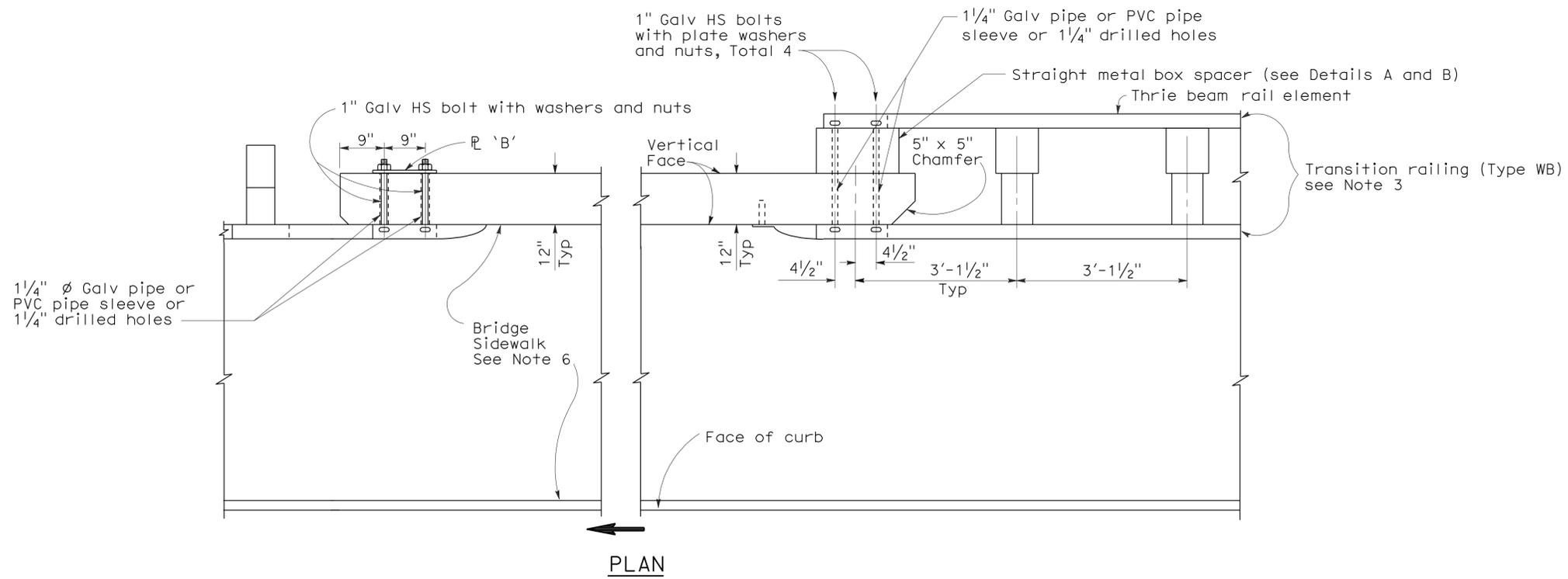
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

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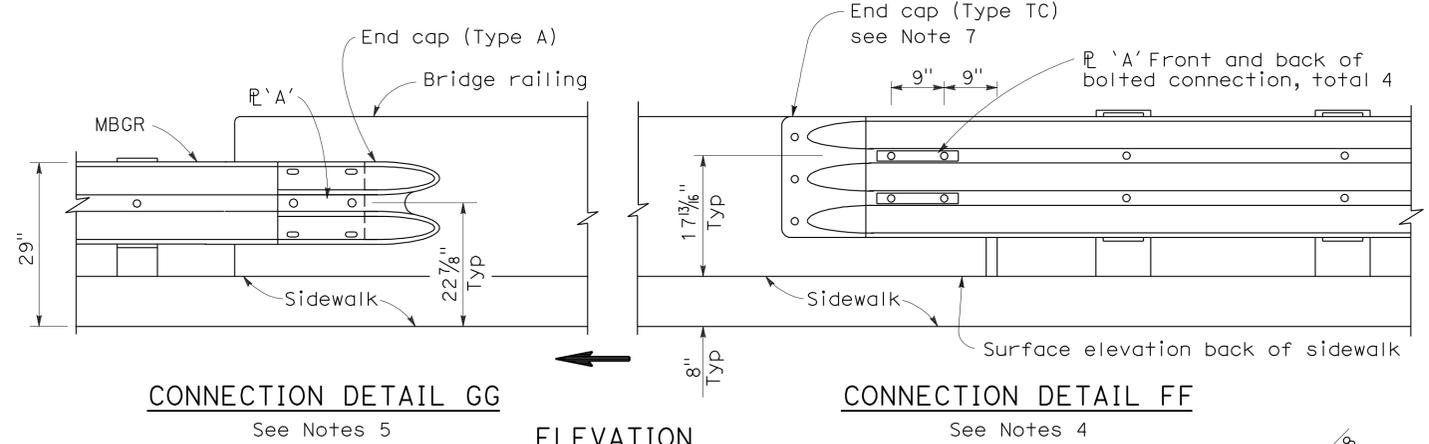
To accompany plans dated 4-16-12

2006 REVISED STANDARD PLAN RSP A77K1

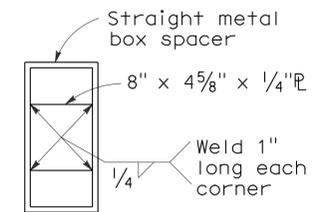
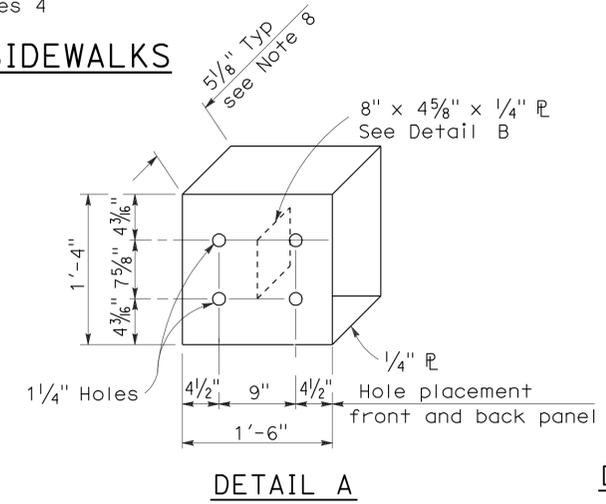
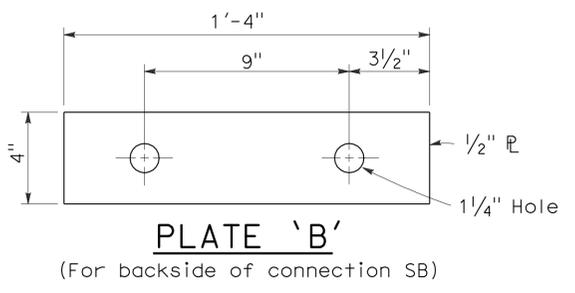
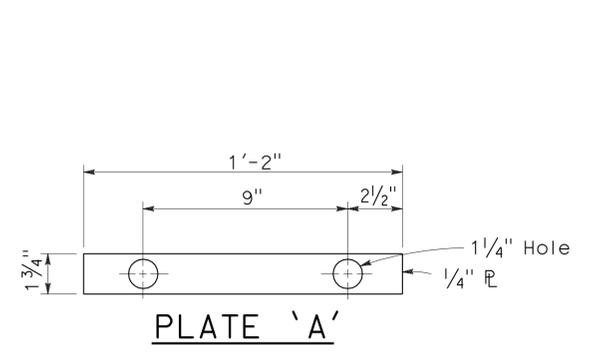


NOTES:

- See Standard Plan A77K2 for additional connection details to bridges with sidewalks.
- Direction of adjacent traffic indicated by .
- For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested three beam railing which is connected to the concrete bridge railing.
- For typical use of Connection Detail FF, see Layout Types 12A and 12B on Standard Plan A77F1.
- For typical use of Connection Detail GG, see Layout Type 12D on Standard Plan A77F2 and Layout Type 12DD on Standard Plan A77F5.
- Where the bridge sidewalk is not continued beyond the end of the bridge railing, the portion of the sidewalk beyond each end of the bridge railing shall be transitioned down from the top elevation of the sidewalk, for its entire width, to the finished grade of the adjacent roadbed. The longitudinal slope of each sidewalk elevation transition shall not exceed 8.33 percent.
- For details of End Cap (Type TC), see Standard Plan A77J4.
- See Standard Plan A77J4 for additional details regarding depth dimension for straight metal box spacer.



GUARD RAILING CONNECTION TO BRIDGE RAILING WITH SIDEWALKS



METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS WITH SIDEWALKS DETAILS No.1

NO SCALE

RSP A77K1 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77K1 DATED MAY 1, 2006 - PAGE 76 OF THE STANDARD PLANS BOOK DATED MAY 2006.

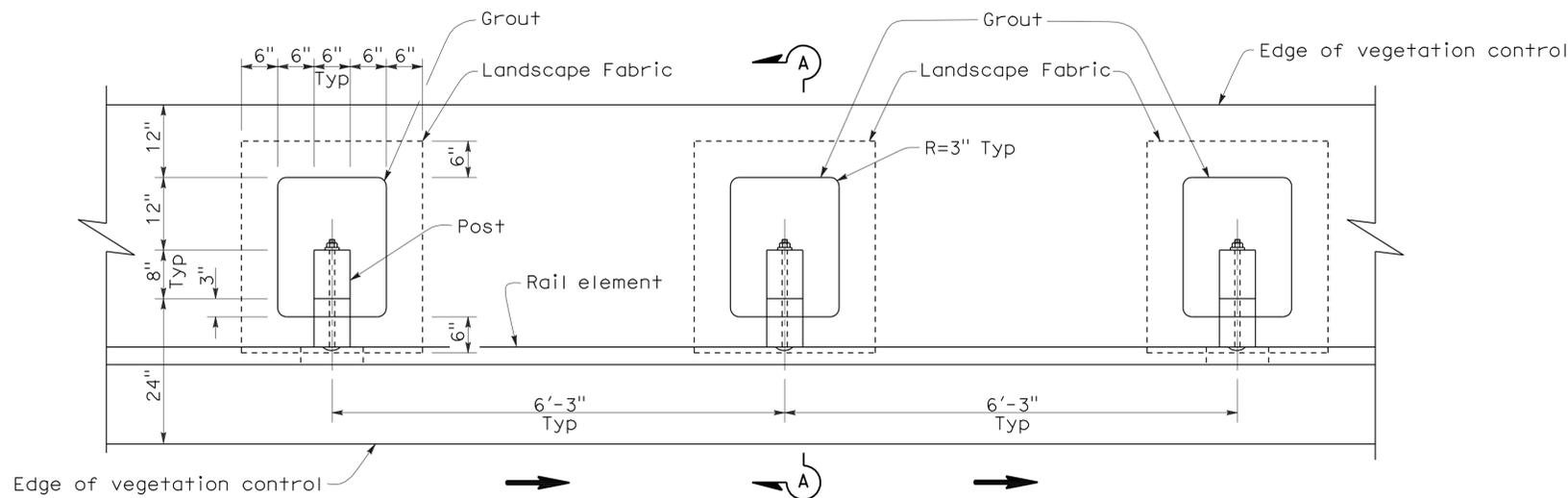
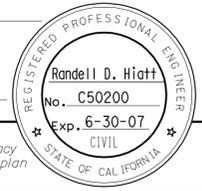
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv, SBd	91, 215	21.5/21.7, 43.2/45.2, 0.0/5.1	1099	1743

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

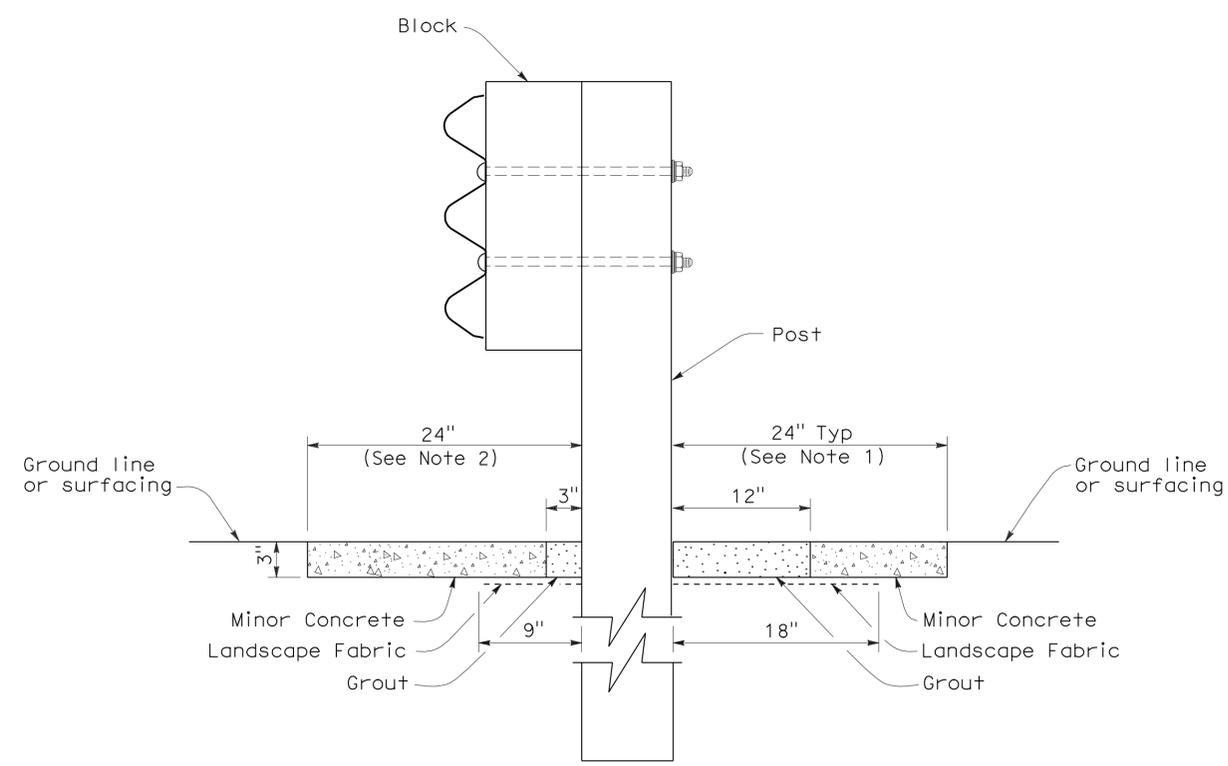
October 20, 2006
PLANS APPROVAL DATE

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To accompany plans dated 4-16-12



PLAN



SECTION A-A

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

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

2006 NEW STANDARD PLAN NSP A78C3

