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43-49	SOUTH WILLITS OVERHEAD, Br No. 10-0001
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THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

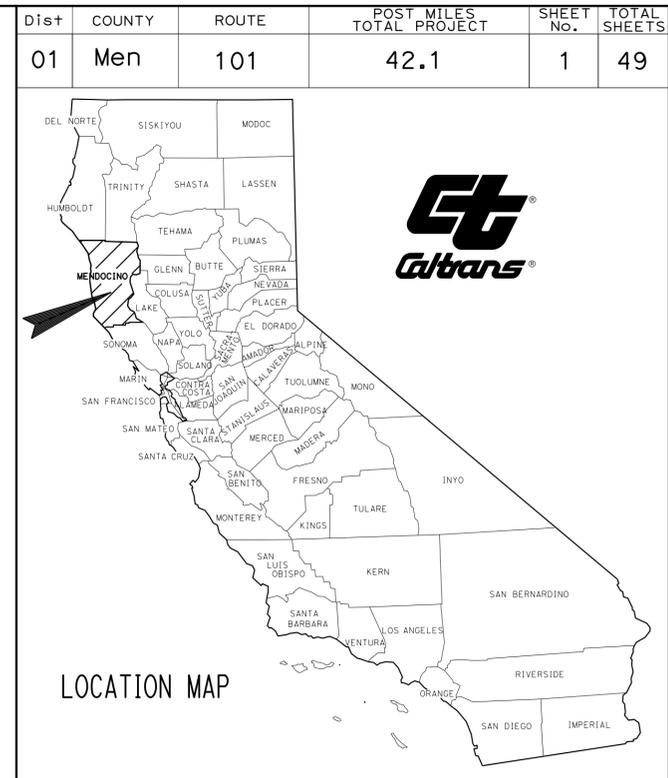
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

ACSTP-Q101(295)E

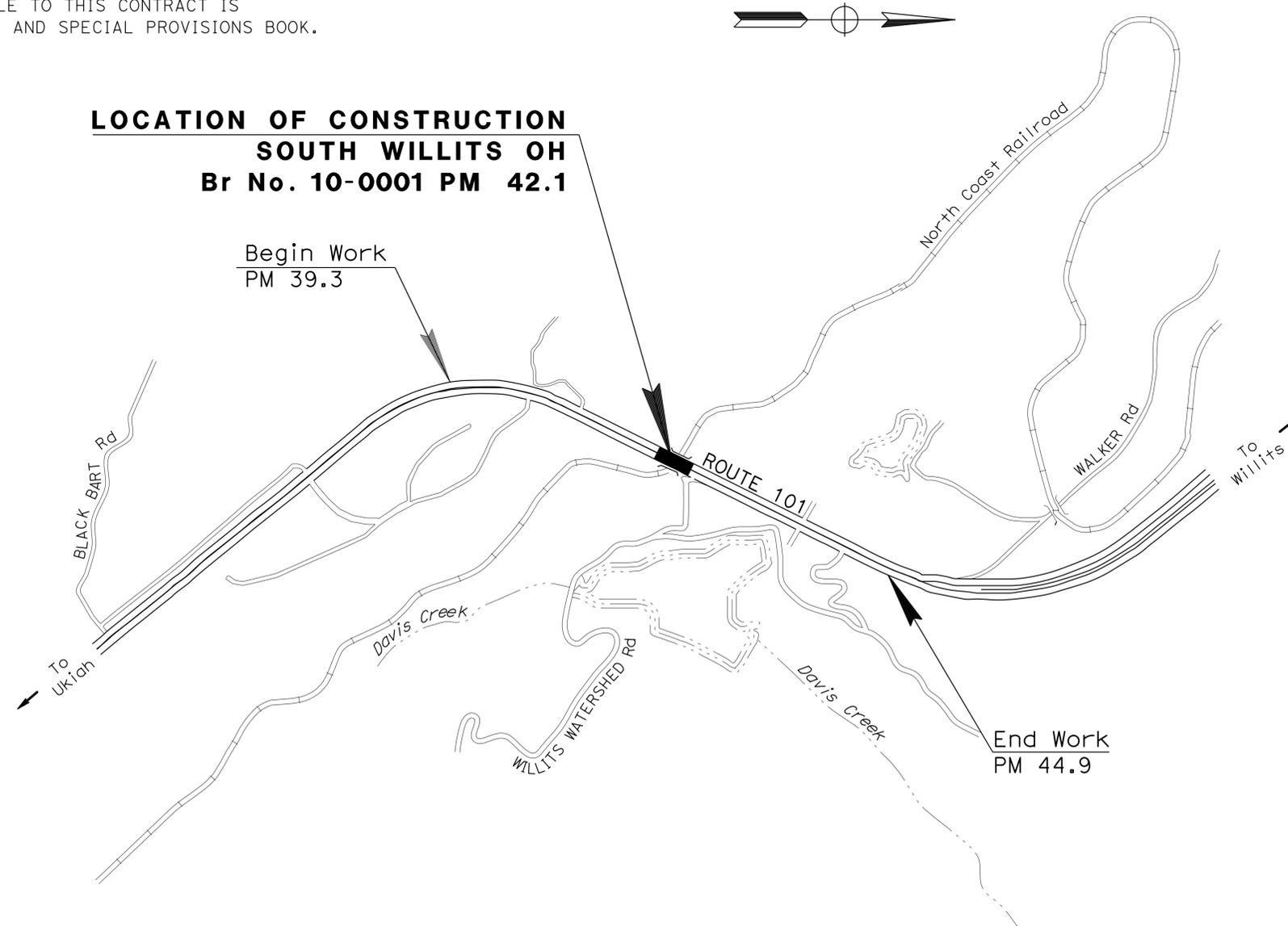
PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY

IN MENDOCINO COUNTY  
ABOUT 4.0 MILES SOUTH OF WILLITS  
AT THE SOUTH WILLITS OVERHEAD

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010



LOCATION OF CONSTRUCTION  
SOUTH WILLITS OH  
Br No. 10-0001 PM 42.1



*Thien H. Slocum* 1-25-16  
PROJECT ENGINEER DATE  
REGISTERED CIVIL ENGINEER



January 25, 2016  
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.

CONTRACT No.	01-293024
PROJECT ID	0100020336

NO SCALE

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

PROJECT MANAGER  
STEVEN BLAIR  
DESIGN ENGINEER  
JALWAT AHMAD

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	2	49

<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
THIEN H. SLOCUM
No. C. 77253
Exp. 06-30-17
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.

**NOTES:**

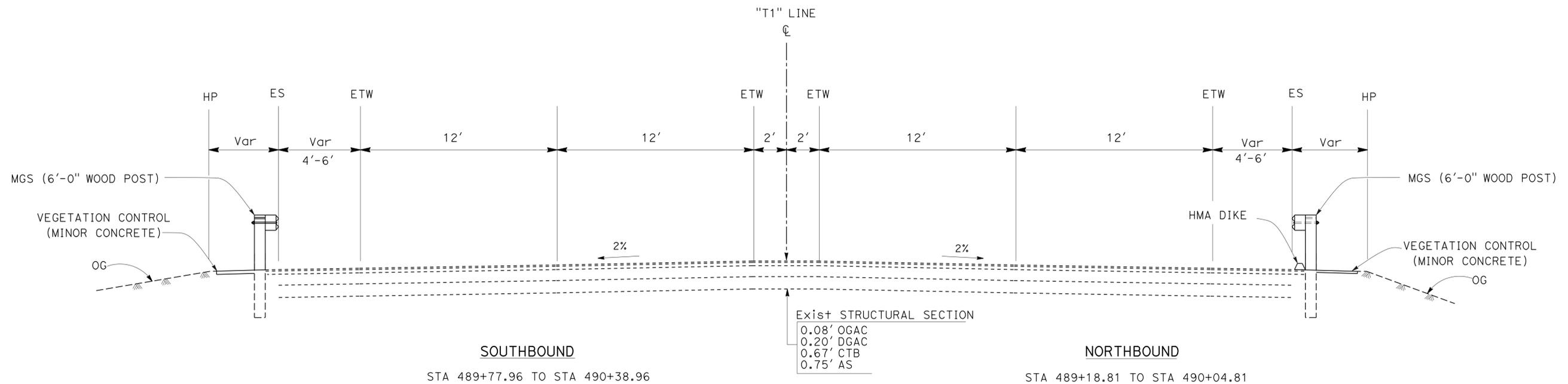
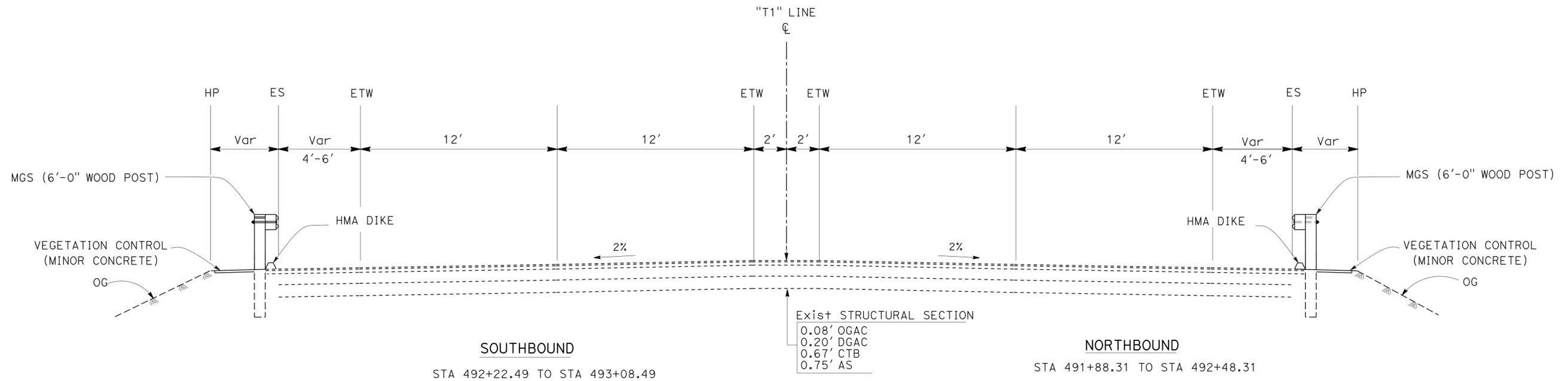
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR LOCATIONS AND DETAILS OF MGS, DIKE, AND VEGETATION CONTROL SEE CONSTRUCTION DETAILS AND SUMMARY OF QUANTITIES SHEETS.

**DESIGN DESIGNATION**

2009 ADT = 18,200  
 2029 ADT = 29,400  
 DHV (2009) = 1,770  
 D = 60%, T = 6%  
 V = 65 mph, TI<sub>20</sub> = 11.0

**PAVEMENT CLIMATE REGION**

LOW MOUNTAIN

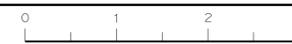


**TYPICAL CROSS SECTIONS**  
NO SCALE

**ROUTE 101**

**X-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
 THIEN H. SLOCUM  
 MAI T. NGUYEN  
 REVISOR: THIEN H. SLOCUM  
 MAI T. NGUYEN  
 DATE: 1-25-16



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	3	49

<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER	THIEN H. SLOCUM
No. C. 77253	
Exp. 06-30-17	
CIVIL	

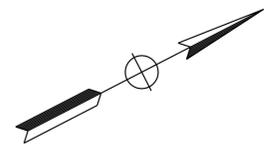
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**NOTES:**

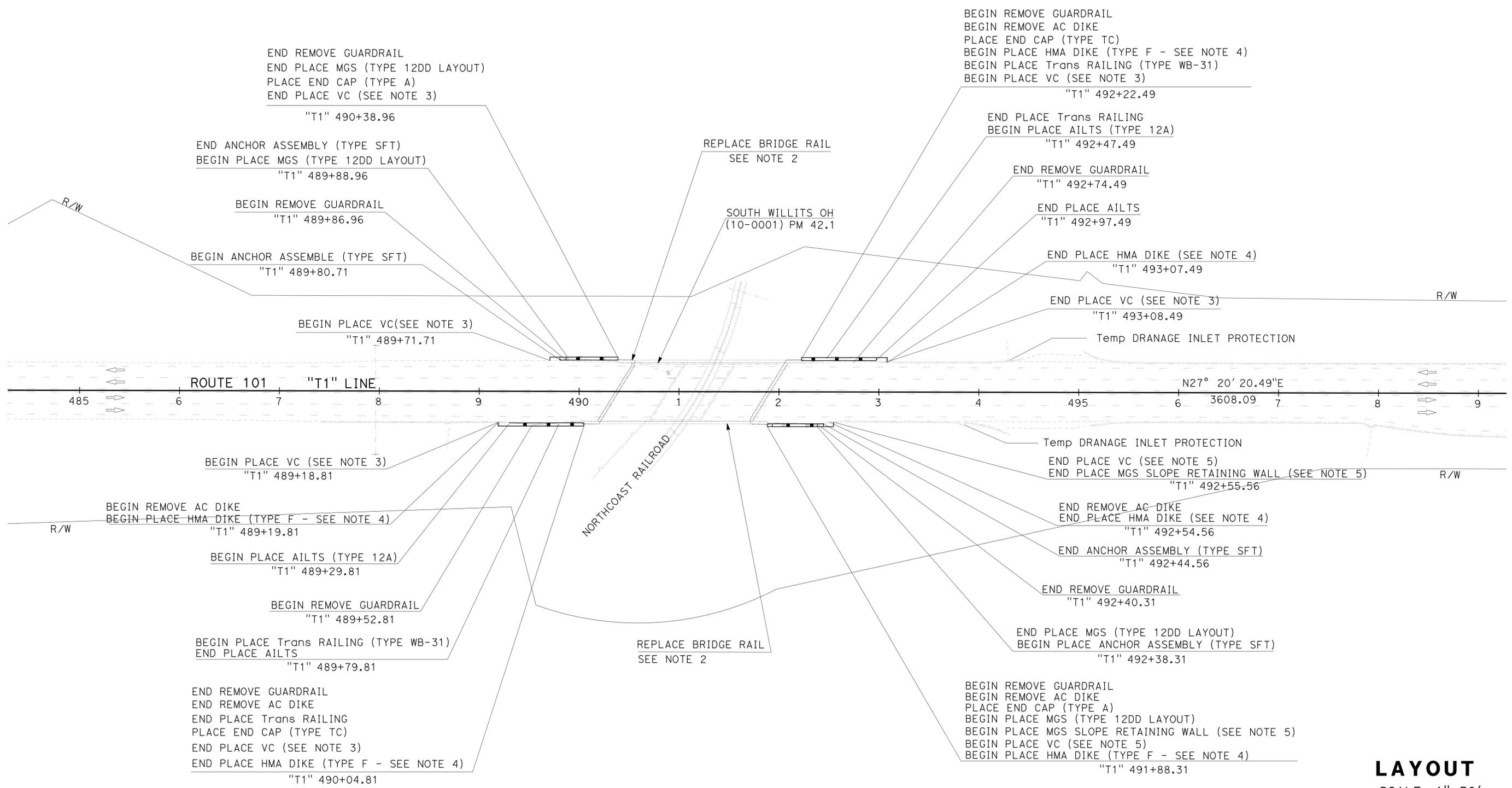
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR REMOVE AND REPLACE BRIDGE RAILING DETAILS, SEE STRUCTURE PLANS.
- SEE CONSTRUCTION DETAILS SHEETS C-1 AND C-2 FOR VEGETATION CONTROL DETAILS.
- SEE CONSTRUCTION DETAILS SHEETS C-2 FOR DIKE POSITIONING DETAILS.
- SEE CONSTRUCTION DETAILS SHEETS C-3 FOR VEGETATION CONTROL AND MGS SLOPE RETAINING WALL DETAILS.
- SEE STANDARD PLANS FOR MGS DETAILS.

**ABBREVIATIONS:**

- AILTS ALTERNATIVE IN-LINE TERMINAL SYSTEM  
MGS MIDWEST GUARDRAIL SYSTEM  
MBGR METAL BEAM GUARD RAIL  
VC VEGETATION CONTROL (MINOR CONCRETE)



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
03-DESIGN  
FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
CALCULATED/DESIGNED BY: THIEN H. SLOCUM  
CHECKED BY: MAI T. NGUYEN  
REVISOR BY: THIEN H. SLOCUM  
DATE REVISOR: MAI T. NGUYEN



**LAYOUT**  
SCALE: 1"=50'

L-1

LAST REVISION DATE PLOTTED => 30-MAR-2016 11-23-15 TIME PLOTTED => 13:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	4	49

<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

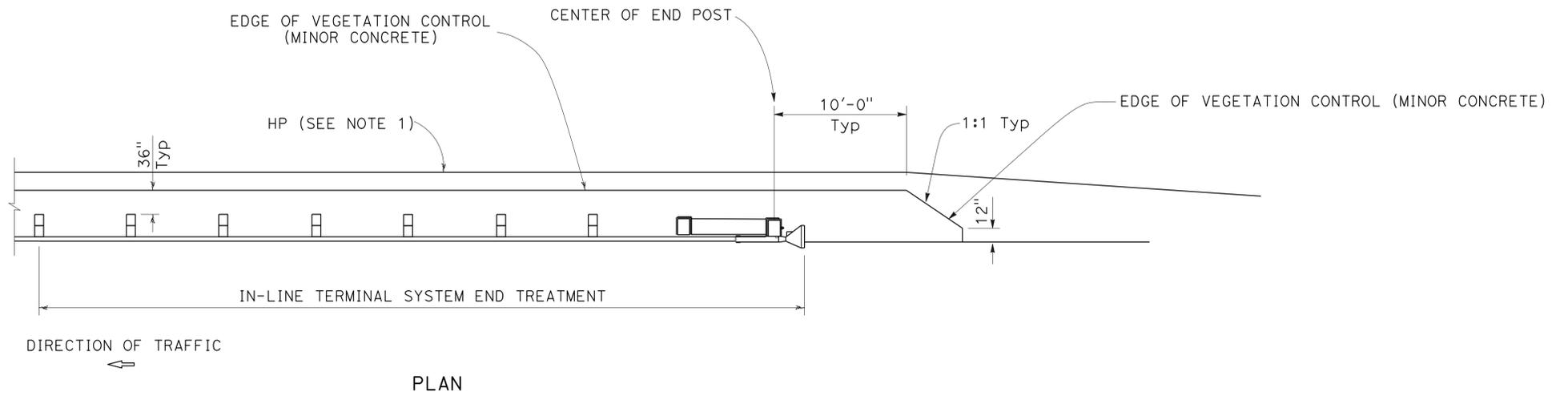
  

REGISTERED PROFESSIONAL ENGINEER
THIEN H. SLOCUM
No. C 77253
Exp. 06-30-17
CIVIL

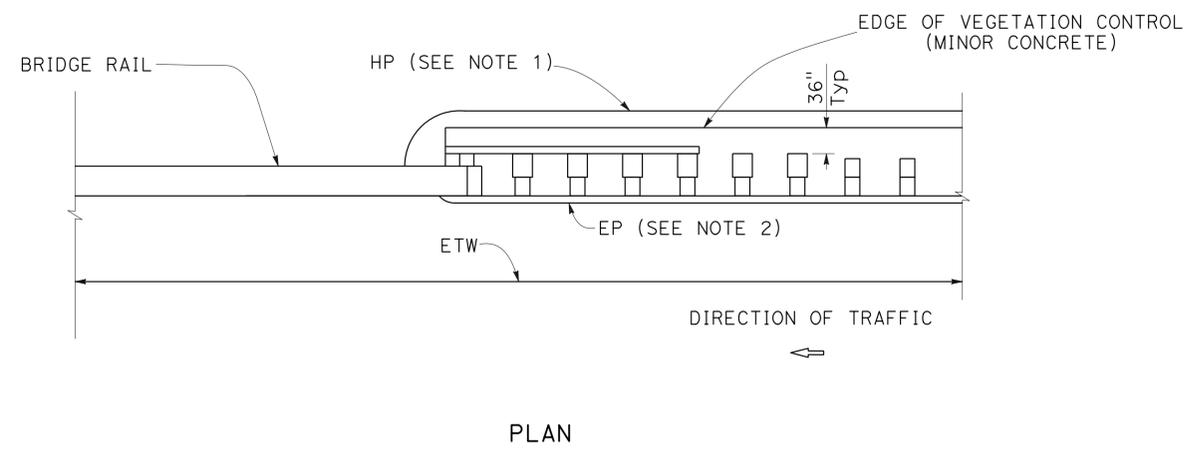
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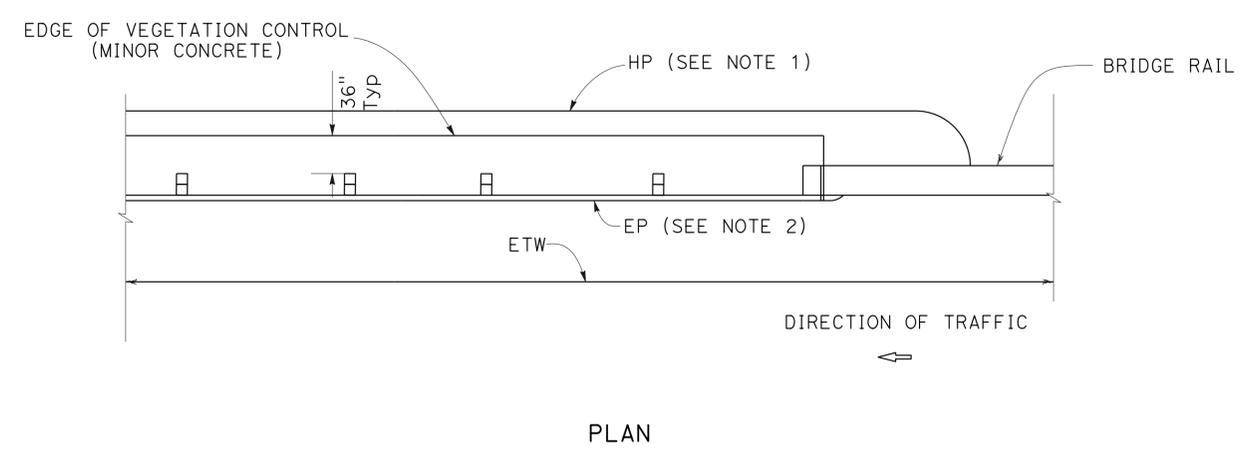
1. THE DISTANCE BETWEEN EDGE OF VEGETATION CONTROL AND HINGE POINT IS 6" MINIMUM.
2. VEGETATION CONTROL SHALL EXTEND FROM THE FACE OF MGS ELEMENT TO THE LESSOR OF 36" OR TO THE EDGE OF PAVED SHOULDER.
3. FOR DETAILS NOT SHOWN, SEE STANDARD PLANS RSP A77N6.



AT IN-LINE TERMINAL SYSTEMS END TREATMENT



AT STRUCTURE APPROACH



AT STRUCTURE DEPARTURE

**VEGETATION CONTROL (MINOR CONCRETE)**

**CONSTRUCTION DETAILS**

NO SCALE

**C-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
 CALCULATED/DESIGNED BY: THIEN H. SLOCUM  
 CHECKED BY: MAI T. NGUYEN  
 REVISED BY: [ ]  
 DATE REVISED: [ ]

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	5	49

<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

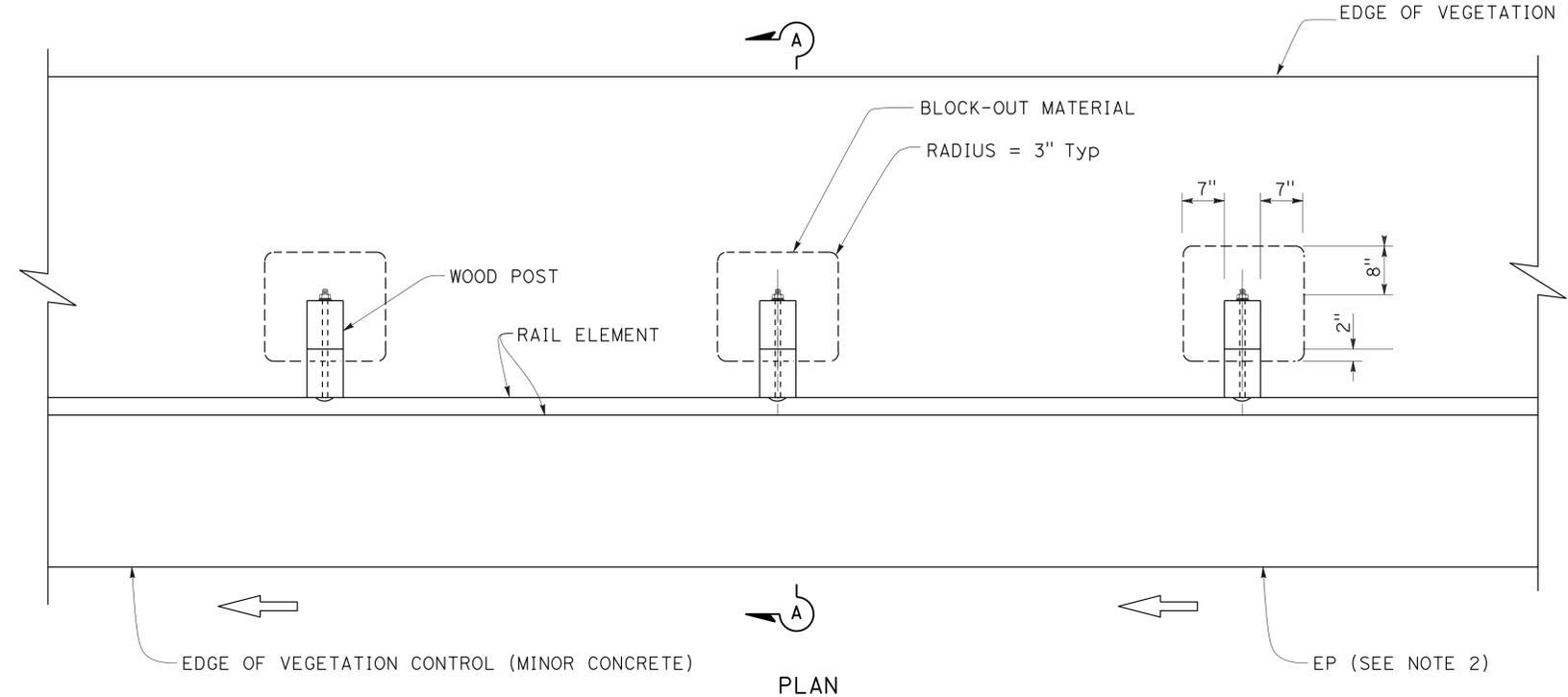
  

REGISTERED PROFESSIONAL ENGINEER	THIEN H. SLOCUM
No. C. 77253	
Exp. 06-30-17	
CIVIL	

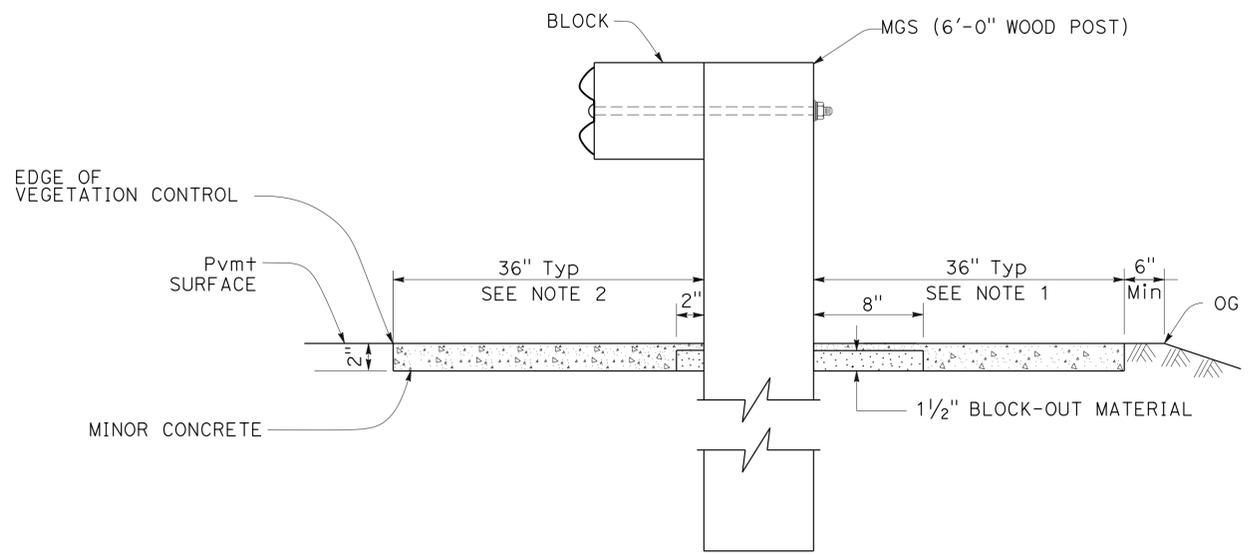
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**NOTES:**

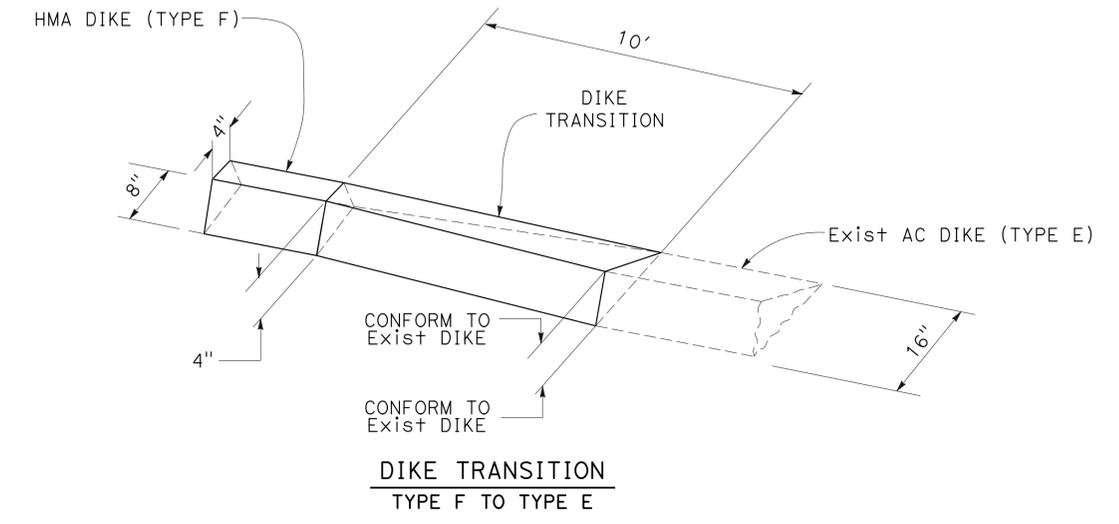
- WHERE THE DISTANCE BETWEEN BACK OF POST AND HINGE POINT IS LESS THAN 42", CONSTRUCT VEGETATION CONTROL TO 6" FROM HINGE POINT
- VEGETATION CONTROL SHALL EXTEND FROM THE FACE OF MGS ELEMENT TO THE LESSOR OF 36" OR TO THE EDGE OF PAVED SHOULDER.
- WHERE DIKE IS CONSTRUCTED UNDER RAILING, CONSTRUCT VEGETATION CONTROL TO BACK EDGE OF DIKE.
- FOR DETAILS NOT SHOWN, SEE STANDARD PLANS RSP A87B, RSP A77N4 AND RSP A77N5.



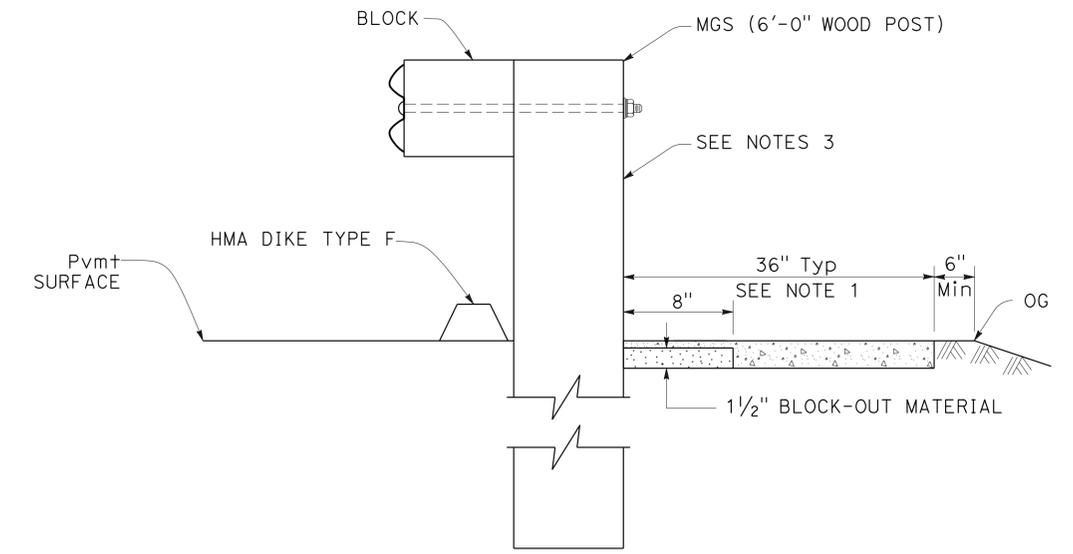
**ALONG MIDWEST GUARDRAIL SYSTEM**



ROUTE 101 "T1" LINE  
FROM STA 489+71.71 TO STA 490+38.96 (SB)



**DIKE TRANSITION**  
TYPE F TO TYPE E



ROUTE 101 "T1" LINE  
FROM STA 489+18.81 TO STA 490+04.81 (NB)  
FROM STA 492+22.49 TO STA 493+08.49 (SB)

**CONSTRUCTION DETAILS**

NO SCALE

**VEGETATION CONTROL (MINOR CONCRETE)**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
03-DESIGN  
Caltrans

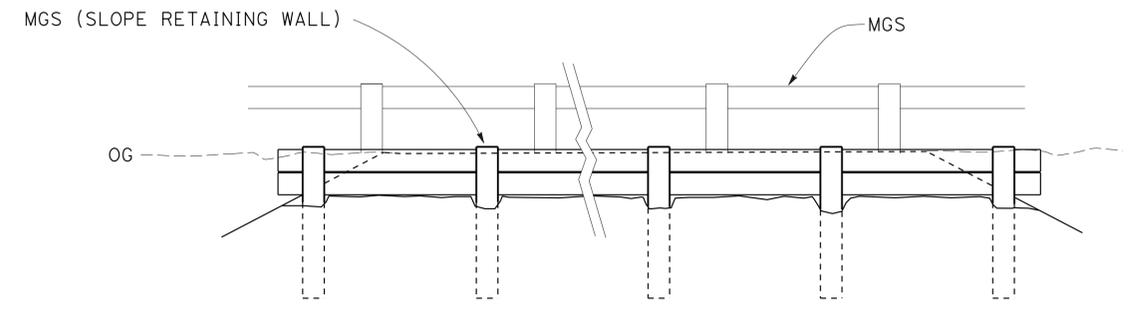
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11-23-15 TIME PLOTTED => 13:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	6	49
			1-25-16	DATE	
REGISTERED CIVIL ENGINEER			DATE		
1-25-16			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>					

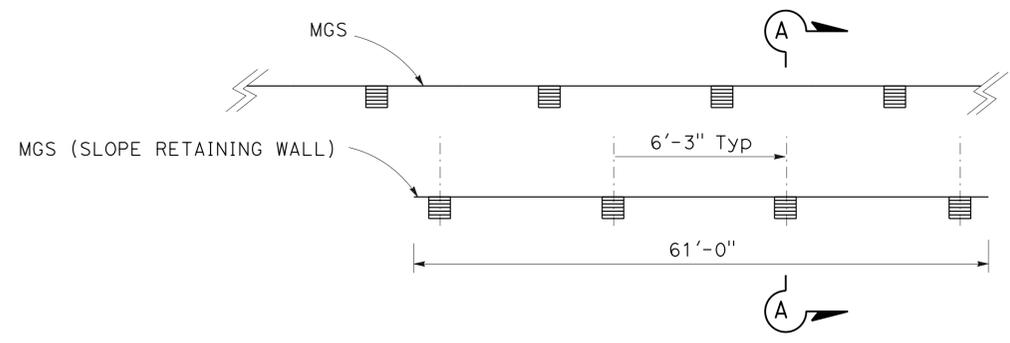


**NOTES:**

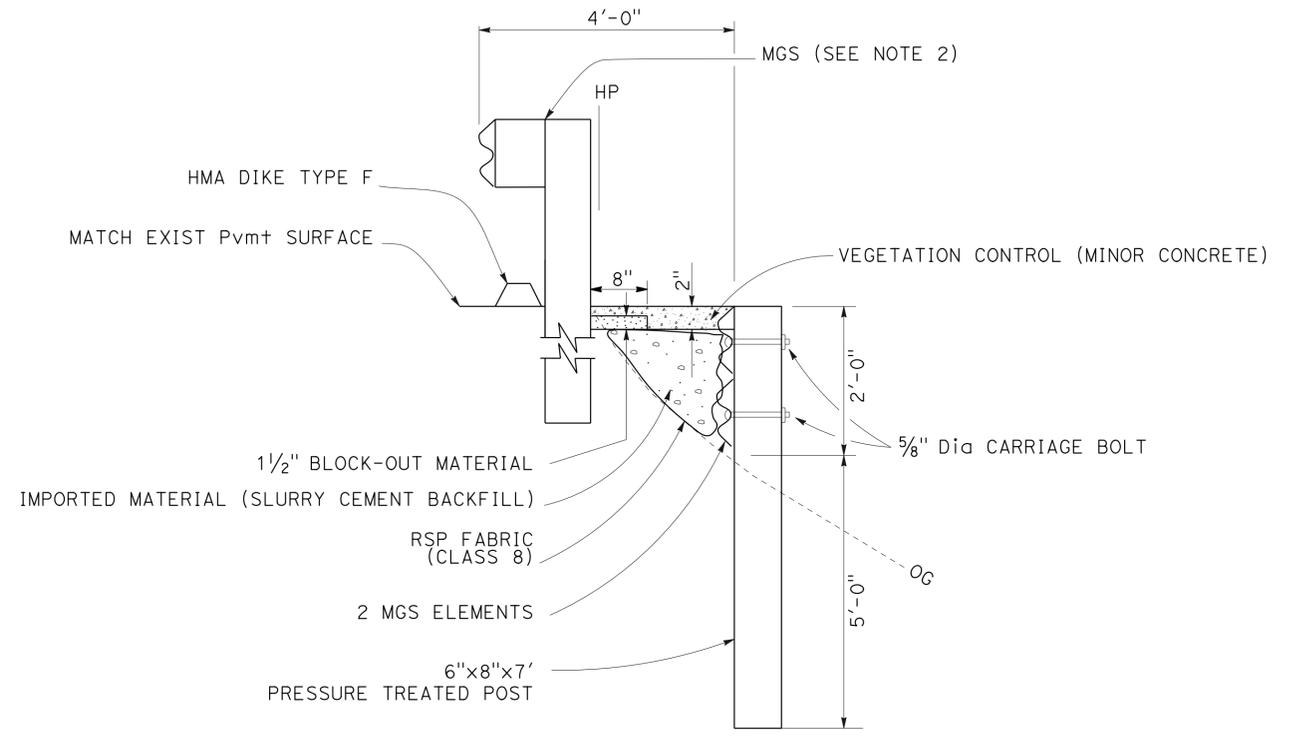
1. EXACT LOCATON OF THE MGS RETAINING WALL TO BE DETERMNED BY THE ENGINEER.
2. MGS FACE IN-LINE WITH FACE OF BRIDGE RAIL



**ELEVATION**  
**MGS (SLOPE RETAINING WALL)**



**PLAN**  
**MGS (SLOPE RETAINING WALL)**  
FROM STA 491+88.31 TO STA 492+55.56 (NB)



**SECTION A-A**

**MGS (SLOPE RETAINING WALL)**  
**VEGETATION CONTROL (MINOR CONCRETE)**

**CONSTRUCTION DETAILS**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
03-DESIGN  
FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
DESIGNED BY: THHEN H. SLOCUM  
CHECKED BY: MAI T. NGUYEN  
REVISOR: THHEN H. SLOCUM  
DATE: 1-25-16

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	7	49

<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
**THIEN H. SLOCUM**  
 No. C. 77253  
 Exp. 06-30-17  
 CIVIL  
 STATE OF CALIFORNIA

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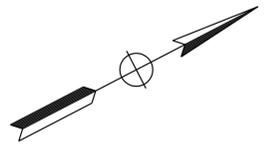
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- UTILITY OWNERSHIP:  
 ELECTRICAL - PACIFIC GAS AND ELECTRIC PG&E)  
 TELEPHONE CABLE - AMERICAN TELEPHONE & TELEGRAPH (AT&T)  
 WATER - CITY OF WILLITS

**LEGEND:**

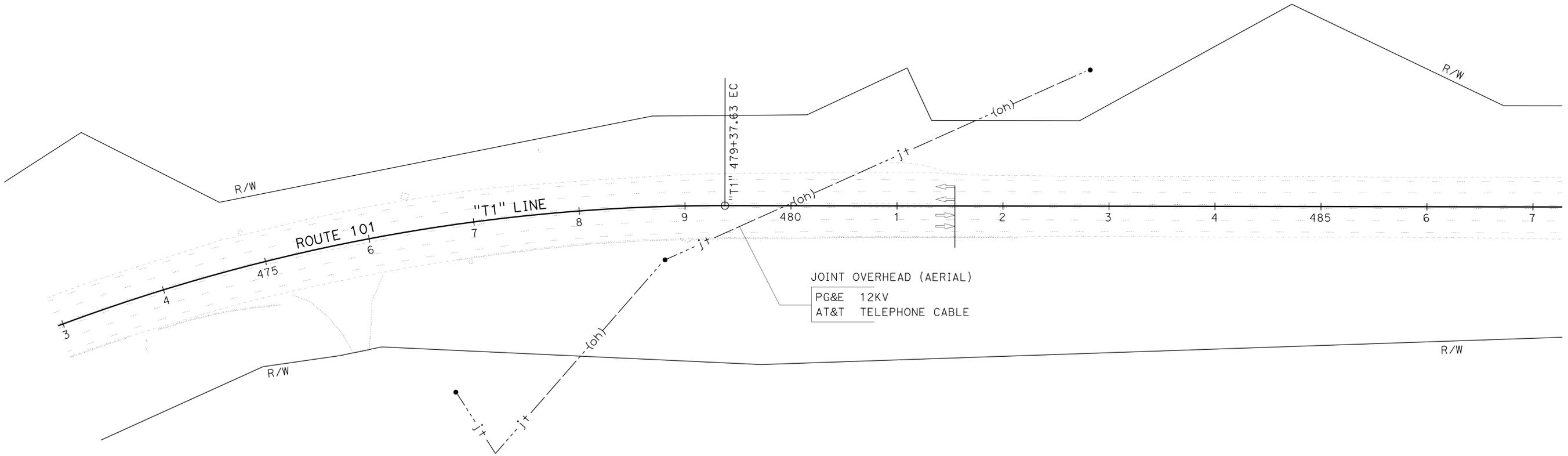
- JOINT POLE
- jt-----{oh} JOINT OVERHEAD (AERIAL) - EXISTING

**ABBREVIATION:**

KV - KILO VOLT



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b>
DESIGN
FUNCTIONAL SUPERVISOR
JALWAT AHMAD
CALCULATED/DESIGNED BY
CHECKED BY
THIEN H. SLOCUM
MAI T. NGUYEN
REVISED BY
DATE REVISED



**UTILITY PLAN**

SCALE: 1"=50'

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

**U-1**

LAST REVISION | DATE PLOTTED => 30-MAR-2016  
 11-23-15 | TIME PLOTTED => 13:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	8	49

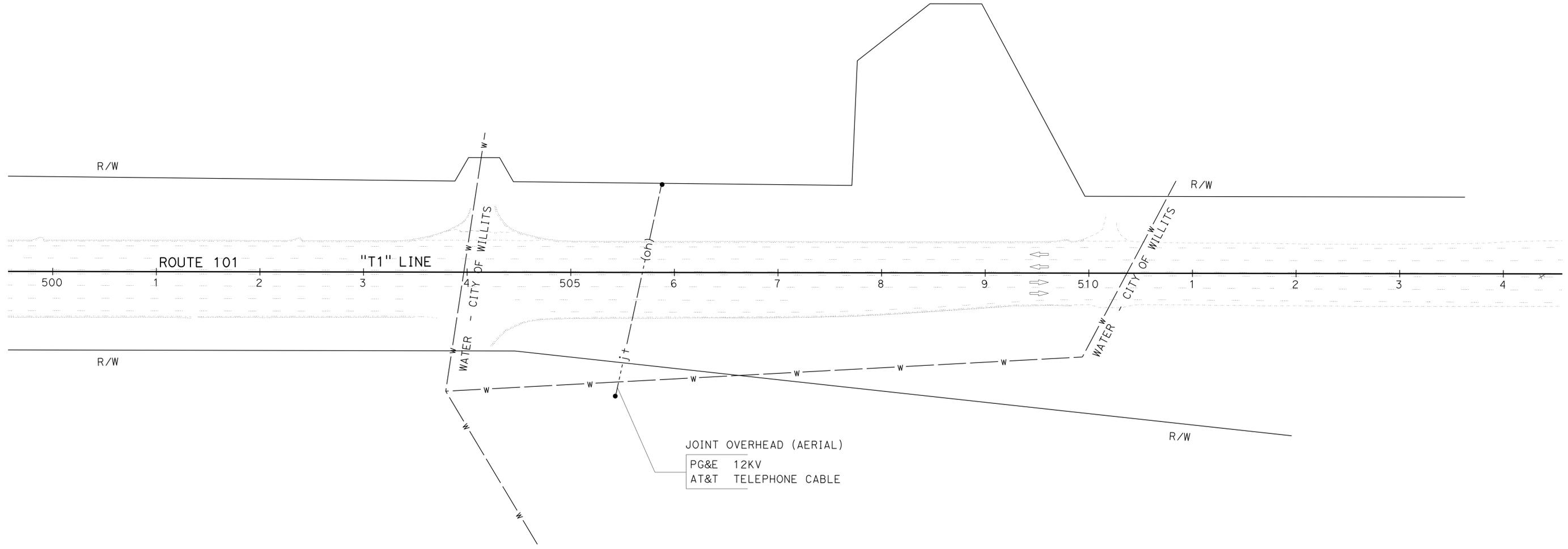
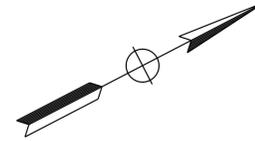
<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

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THIEN H. SLOCUM
No. C 77253
Exp. 06-30-17
CIVIL
STATE OF CALIFORNIA

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



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
 CALCULATED/DESIGNED BY: THIEN H. SLOCUM  
 CHECKED BY: MAI T. NGUYEN  
 REVISED BY: [blank]  
 DATE REVISED: [blank]

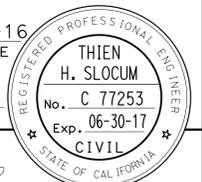
THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

**UTILITY PLAN**  
SCALE: 1"=50'

**U-2**

LAST REVISION | DATE PLOTTED => 30-MAR-2016  
11-23-15 TIME PLOTTED => 13:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	9	49
			1-25-16 REGISTERED CIVIL ENGINEER DATE		
			1-25-16 PLANS APPROVAL DATE		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



**NOTES:**

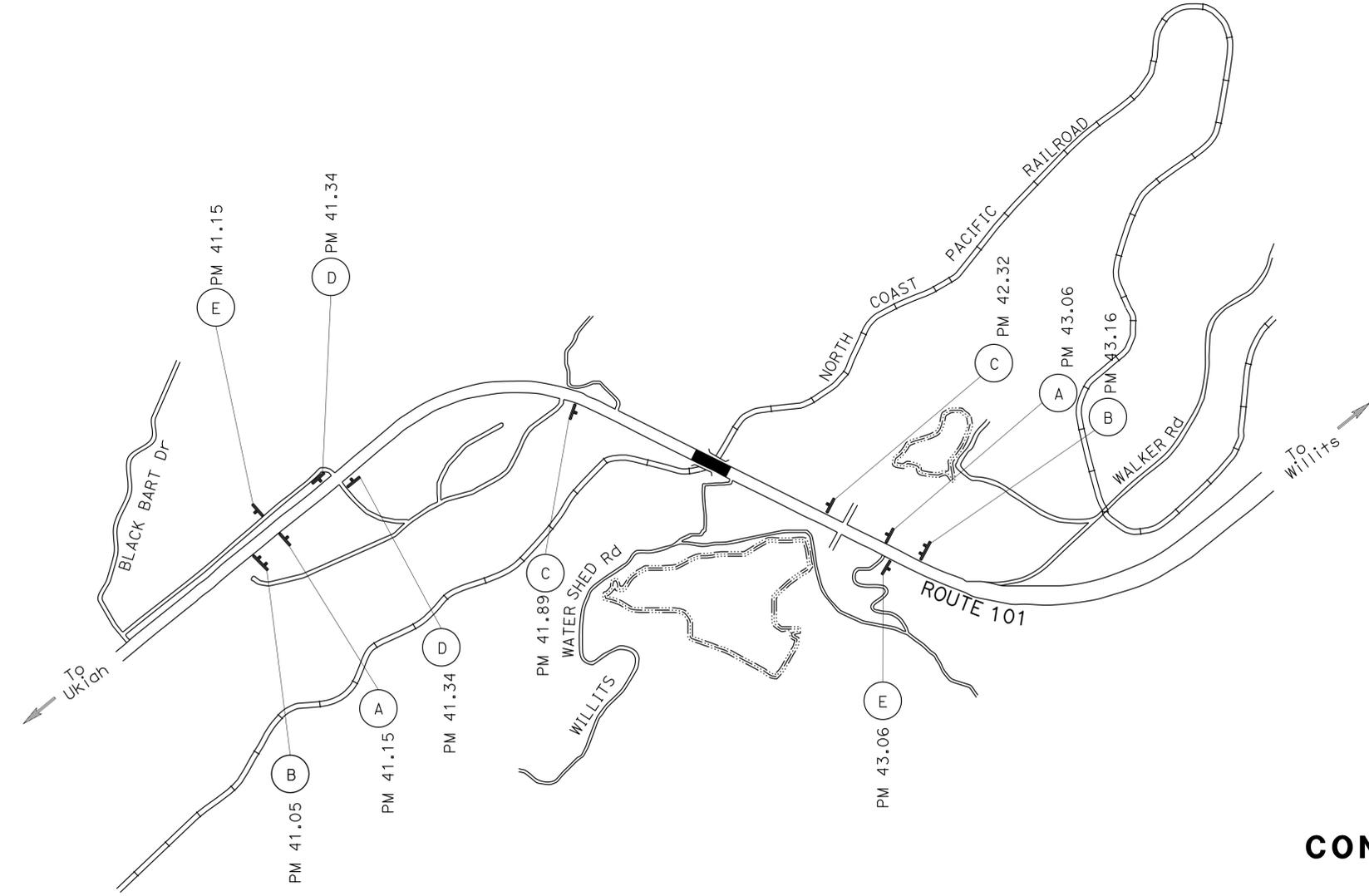
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- LOCATION OF CONSTRUCTION AREA SIGNS ARE APPROXIMATE. EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.
- FOR ADDITIONAL CONSTRUCTION AREA SIGNS, SEE TRAFFIC HANDLING PLANS.

**LEGEND:**

- (X) CONSTRUCTION AREA SIGN LETTER
- <CA> CALIFORNIA SIGN CODE
- ┆ SIGN - SINGLE POST
- ┆┆ SIGN - TWO POSTS

**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN NO.	SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	NUMBER OF SIGNS	NOTES
	FEDERAL	CALIFORNIA					
A	W20-1		48" x 48"	ROAD WORK AHEAD	1-6" x 6"	2	
B		C40 <CA>	144" x 60"	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2-6" x 8"	2	
C	W11-1		36" x 36"	BICYCLE SYMBOL	1-4" x 6"	2	
	W16-1		24" x 30"	SHARE THE ROAD			
D	W20-1		36" x 36"	ROAD WORK AHEAD	1-4" x 6"	2	
E	G20-2		48" x 24"	END ROAD WORK	1-4" x 6"	2	
F	W9-1		48" x 48"	RIGHT LANE ENDS	1-6" x 6"	2	SEE TRAFFIC HANDLING PLANS
G	W4-2		48" x 48"	LANE ENDS SYMBOL	1-6" x 6"	2	SEE TRAFFIC HANDLING PLANS



**CONSTRUCTION AREA SIGNS**

NO SCALE

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

**CS-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
 THHEN H. SLOCUM  
 SHERI M. RODRIGUEZ  
 CALCULATED/DESIGNED BY: [Blank]  
 CHECKED BY: [Blank]  
 REVISED BY: [Blank]  
 DATE REVISED: [Blank]

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	10	49

1-25-16  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
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REGISTERED PROFESSIONAL ENGINEER  
**THIEN H. SLOCUM**  
 No. C. 77253  
 Exp. 06-30-17  
 CIVIL  
 STATE OF CALIFORNIA

**NOTES:**

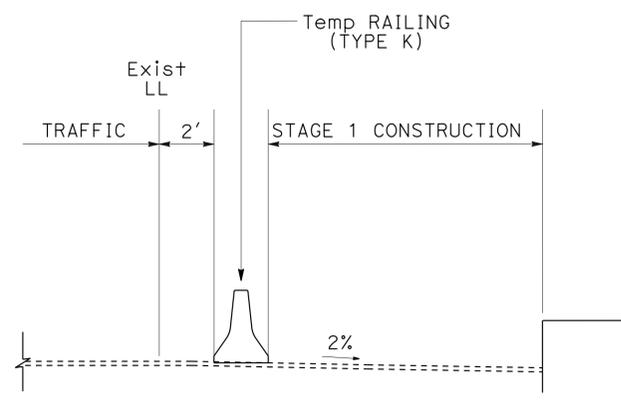
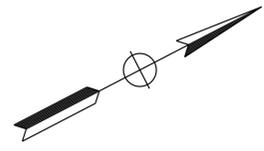
- STAGE 1
1. REMOVE EXISTING STRIPING AND PLACE TEMPORARY STRIPING (SEE STAGE 1 TRAFFIC HANDLING PLAN).
  2. PLACE Temp RAILING (TYPE K).
  3. PLACE Temp CRASH CUSHION SYSTEM.
  4. REMOVE GUARDRAIL.
  5. REMOVE AC DIKE.
  6. REMOVE BRIDGE BARRIER RAIL.
  7. PLACE BRIDGE BARRIER RAIL NB(SEE STRUCTURAL PLANS).
  8. PLACE MGS SLOPE RETAINING WALL (SEE CONSTRUCTION DETAILS SHEETS C-3).
  9. PLACE MGS (SEE STANDARD PLANS).
  10. PLACE VEGETATION CONTROL (MINOR CONCRETE, SEE CONSTRUCTION DETAILS SHEETS C1, C-2, AND C-3).
  11. PLACE HMA DIKE (SEE CONSTRUCTION DETAILS SHEETS C-2).
  12. RESTRIPE ROADWAY (SEE PAVEMENT DELINEATION SHEETS).

**LEGEND:**

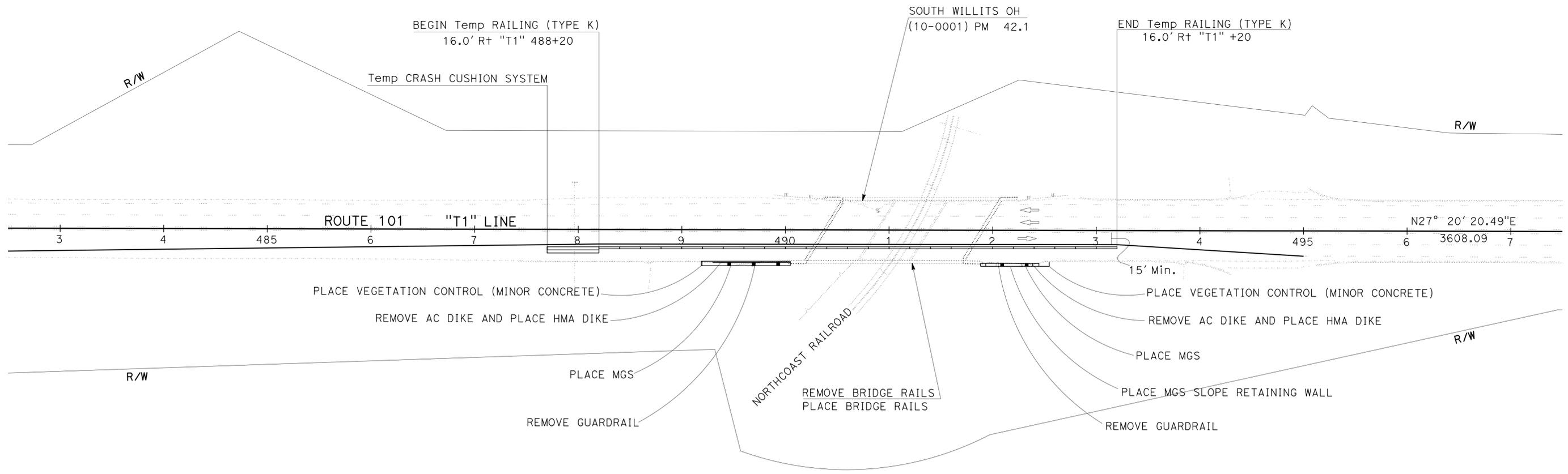
- TEMPORARY RAILING (TYPE K)
- Temp CRASH CUSHION SYSTEM
- DIRECTION OF TRAVEL

**ABBREVIATION:**

LL LANELINE



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 JALWAT AHMAD  
 FUNCTIONAL SUPERVISOR  
 MAI T. NGUYEN  
 THIE H. SLOCUM  
 REVISOR BY  
 DATE REVISOR



**STAGE CONSTRUCTION**  
**STAGE 1 (NB)**  
 SCALE: 1"=50'

**SC-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	11	49

1-25-16  
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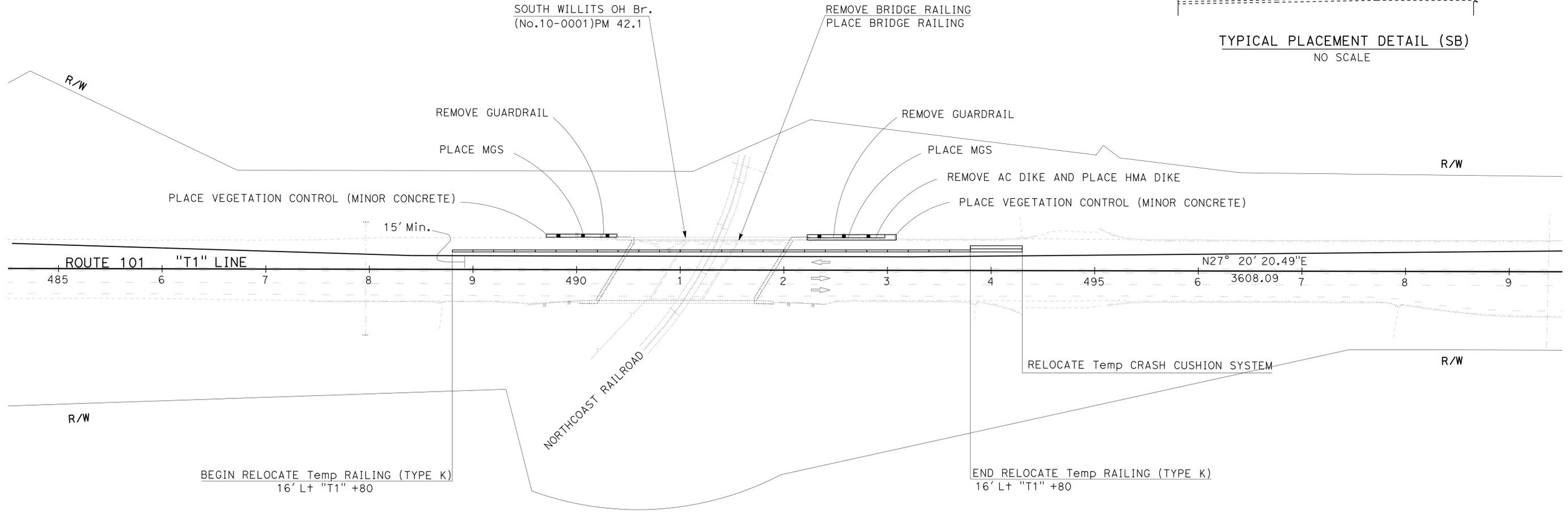
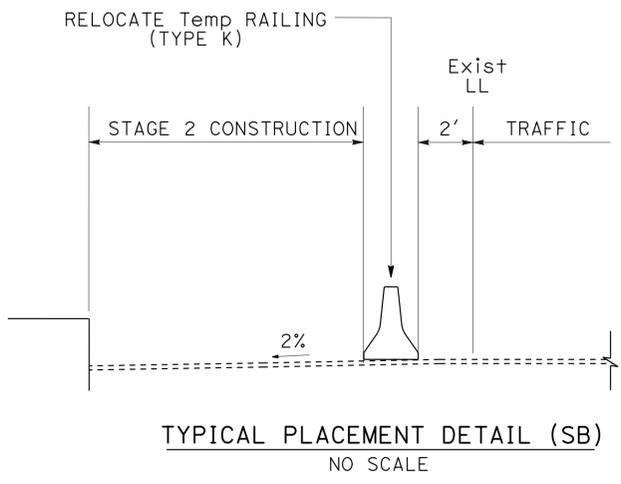
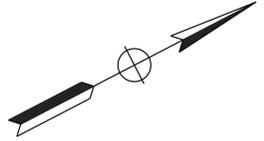
- STAGE 2
1. REMOVE EXISTING STRIPING AND PLACE TEMPORARY STRIPING (SEE STAGE 2 TRAFFIC HANDLING PLAN).
  2. RELOCATE Temp RAILING (TYPE K).
  3. RELOCATE Temp CRASH CUSHION SYSTEM.
  4. REMOVE GUARDRAIL.
  5. REMOVE AC DIKE.
  6. REMOVE BRIDGE BARRIER RAIL.
  7. PLACE BRIDGE BARRIER RAIL (SEE STRUCTURAL PLANS).
  8. PLACE MGS (SEE STANDARD PLANS).
  9. PLACE VEGETATION CONTROL (MINOR CONCRETE, SEE CONSTRUCTION DETAILS SHEETS C1, C-2, AND C-3).
  10. PLACE HMA DIKE (SEE CONSTRUCTION DETAILS SHEETS C-2).
  11. RESTRIPE ROADWAY (SEE PAVEMENT DELINEATION SHEETS).

**LEGEND:**

- TEMPORARY RAILING (TYPE K)
- Temp CRASH CUSHION SYSTEM
- DIRECTION OF TRAVEL

**ABBREVIATION:**

- LL LANELINE



**STAGE CONSTRUCTION**  
**STAGE 2 (SB)**  
 SCALE: 1"=50'

**SC-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b>	JALWAT AHMAD	THIEN H. SLOCUM	1-25-16
03-DESIGN		MAI T. NGUYEN	

LAST REVISION DATE PLOTTED => 30-MAR-2016  
 11-23-15 TIME PLOTTED => 13:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	12	49

1-25-16  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 THIEN H. SLOCUM  
 No. C. 77253  
 Exp. 06-30-17  
 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.

### TRAFFIC CONTROL DEVICES

STAGE	STATION		CHANNELIZER (SURFACE MOUNTED)	Temp RAILING (TYPE K)	RELOCATE Temp RAILING (TYPE K)	Temp CRASH CUSHION SYSTEM	RELOCATE Temp CRASH CUSHION SYSTEM	TYPE III BARRICADE
	FROM	TO	EA	LF	LF	EA	EA	EA
1	"T1" 478+50, R+	"T1" 487+50, R+	19					
	"T1" 487+70, R+					1		2
	"T1" 488+20, R+	"T1" 493+20, R+		500				
2	"T1" 488+80, L+	"T1" 493+80, L+			500			
	"T1" 494+30, L+						1	2
	"T1" 494+50, L+	"T1" 503+50, L+	19					
TOTAL			38	500	500	1	1	4

### TEMPORARY PAVEMENT DELINEATION

STAGE	STATION		DETAIL LENGTH LF	DETAIL	REMOVE THERMOPLASTIC TRAFFIC STRIPE	REMOVE MARKER	Temp TRAFFIC STRIPE (PAINT)	Temp TRAFFIC STRIPE (TAPE)	Temp PAVEMENT MARKING (PAINT)	REMOVE Temp TRAFFIC STRIPE (PAINT)	REMOVE Temp TRAFFIC STRIPE (TAPE)	REMOVE Temp PAVEMENT MARKING (PAINT)
	FROM	TO			LF	EA	LF	LF	SQFT	LF	LF	SQFT
1	"T1" 466+00, R+			TYPE VI ARROW					42			42
	"T1" 469+00, R+	"T1" 495+00, R+	2600	12	2600	57						
	"T1" 472+00, R+			TYPE VI ARROW					42			42
	"T1" 478+00, R+			TYPE VI ARROW					42			42
	"T1" 478+20, R+	"T1" 495+00, R+	1680	27B	1680							
	"T1" 478+20, R+	"T1" 490+10, R+				1190			1190			
	"T1" 490+10, R+	"T1" 492+00, R+					190			190		
2	"T1" 492+00, R+	"T1" 495+00, R+				300			300			
	"T1" 484+55, L+	"T1" 503+80, L+	1925	27B	1925							
	"T1" 484+55, L+	"T1" 490+10, L+				555			555			
	"T1" 490+10, L+	"T1" 492+00, L+					190			190		
	"T1" 492+00, L+	"T1" 503+80, L+				1180			1180			
	"T1" 484+55, L+	"T1" 512+80, L+	2825	12	2825	61						
	"T1" 504+00, L+			TYPE VI ARROW					42			42
	"T1" 510+00, L+			TYPE VI ARROW					42			42
	"T1" 516+00, L+			TYPE VI ARROW					42			42
	TOTAL					9030	118	3225	380	252	3225	380

### STAGE CONSTRUCTION & TRAFFIC HANDLING QUANTITIES

SCQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 03-DESIGN  
 JALWAT AHMAD  
 THHEN H. SLOCUM  
 SHERI M RODRIGUEZ  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 REVISOR BY  
 DATE REVISOR

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	13	49

1-25-16  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE

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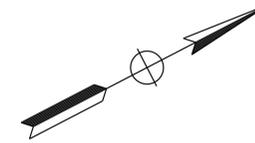
REGISTERED PROFESSIONAL ENGINEER  
 THIEN H. SLOCUM  
 No. C. 77253  
 Exp. 06-30-17  
 CIVIL  
 STATE OF CALIFORNIA

**NOTES:**

1. REMOVE EXISTING STRIPING AND PLACE TEMPORARY STRIPING.
2. PLACE Temp PAINTED PAVEMENT MARKING.
3. ALL LANES SHALL BE 12' WIDE UNLESS OTHERWISE SHOWN.
4. CHANNELIZERS (SURFACE MOUNTED) SHALL BE INSTALLED ON 50' CENTERS.
5. ALL EXISTING SIGNS NOT SHOWN FOR REMOVAL, RESETTING OR RELOCATION SHALL REMAIN IN PLACE.
6. FEDERAL SIGN CODES ARE SHOWN UNLESS DESIGNATED BY <CA> WHICH INDICATES A CALIFORNIA SIGN CODE.
7. REMOVE PAINTED PAVEMENT MARKING.
8. RESTRIPIING (SEE PAVEMENT DELINEATION SHEETS).

**LEGEND**

- ← LIMIT OF STRIPING PATTERN
- ⇨ DIRECTION OF TRAVEL
- No./X PAVEMENT DELINEATION DETAIL NUMBER / P=PAINT
- PAINT TEMPORARY TRAFFIC STRIPE (PAINT)
- TPMP TEMPORARY PAVEMENT MARKING (PAINT)
- CHANNELIZER (SURFACE MOUNTED) SPACED @ 50' C-C
- (X) CONSTRUCTION AREA SIGN LETTER
- <CA> CALIFORNIA SIGN CODE
- ↑ SIGN - SINGLE POST
- ‡ TYPE III BARRICADE



REVISOR	THIEN H. SLOCUM
DESIGNER	SHERI M. RODRIGUEZ
CHECKED BY	JALWAT AHMAD
FUNCTIONAL SUPERVISOR	JALWAT AHMAD
DEPARTMENT OF TRANSPORTATION	03-DESIGN
STATE OF CALIFORNIA	Caltrans



**TRAFFIC HANDLING PLAN**  
**STAGE 1 (NB)**  
 SCALE: 1"=50'

APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TH-1**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	14	49

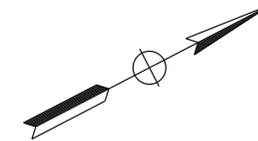
<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

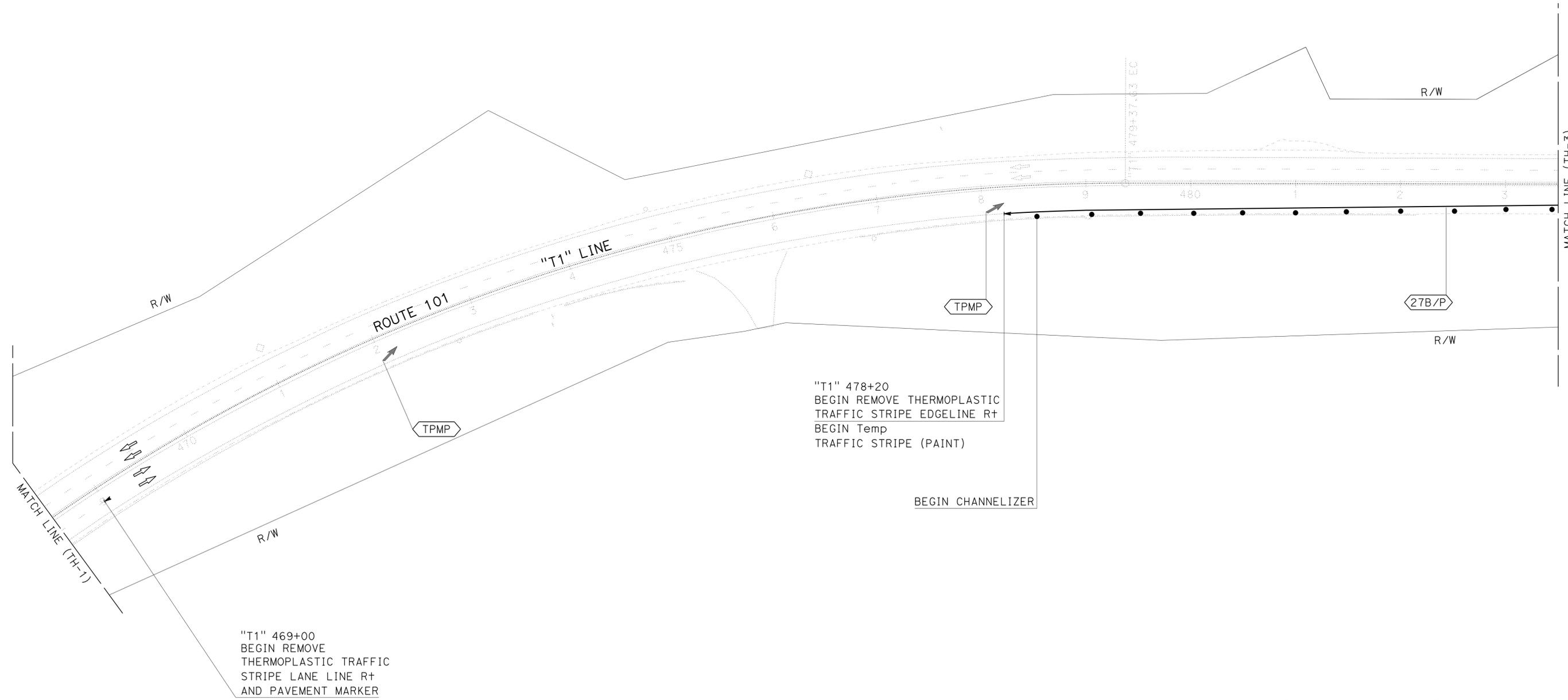
REGISTERED PROFESSIONAL ENGINEER	THIEN H. SLOCUM
No. C. 77253	
Exp. 06-30-17	
CIVIL	

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**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	THIEN H. SLOCUM	REVISOR	
<b>Caltrans</b>	JALWAT AHMAD	CHECKED BY	SHERI M. RODRIGUEZ	DATE	
<b>03-DESIGN</b>					



**TRAFFIC HANDLING PLAN**  
**STAGE 1 (NB)**  
SCALE: 1"=50'

APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TH-2**

LAST REVISION | DATE PLOTTED => 30-MAR-2016  
11-23-15 | TIME PLOTTED => 13:42

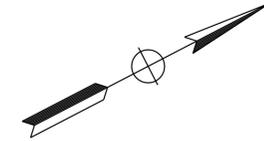
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	15	49

1-25-16  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE

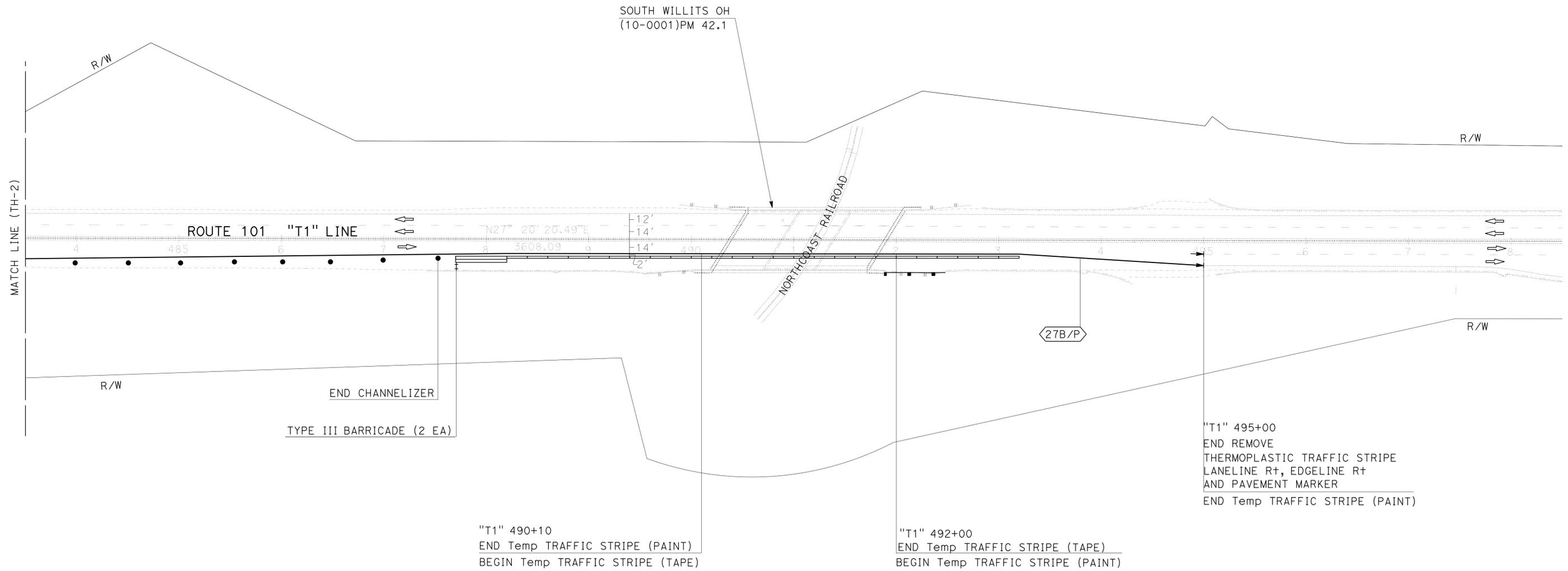
REGISTERED PROFESSIONAL ENGINEER  
 THIEN H. SLOCUM  
 No. C. 77253  
 Exp. 06-30-17  
 CIVIL  
 STATE OF CALIFORNIA

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**NOTE:**  
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 FUNCTIONAL SUPERVISOR  
 JALWAT AHMAD  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 THHEN H. SLOCUM  
 SHERI M. RODRIGUEZ  
 REVISED BY  
 DATE REVISED



**TRAFFIC HANDLING PLAN**  
**STAGE 1 (NB)**  
 SCALE: 1"=50'

APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TH-3**

LAST REVISION DATE PLOTTED => 30-MAR-2016  
 11-23-15 TIME PLOTTED => 13:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	16	49

1-25-16  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 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.

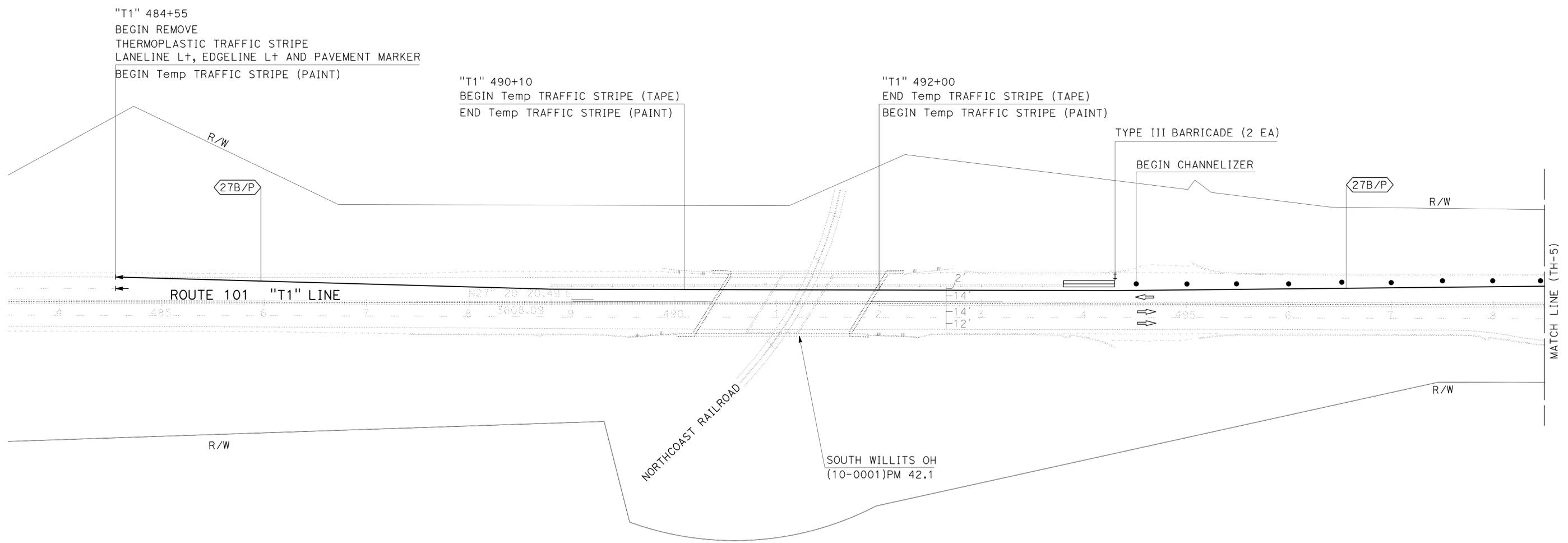
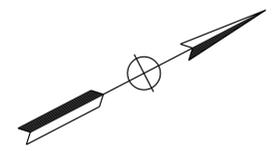
REGISTERED PROFESSIONAL ENGINEER  
**THIEN H. SLOCUM**  
 No. C. 77253  
 Exp. 06-30-17  
 CIVIL  
 STATE OF CALIFORNIA

**NOTES:**

1. REMOVE EXISTING STRIPING AND PLACE TEMPORARY STRIPING.
2. PLACE Temp PAINTED PAVEMENT MARKING.
3. ALL LANES SHALL BE 12' WIDE UNLESS OTHERWISE SHOWN.
4. CHANNELIZERS (SURFACE MOUNTED) SHALL BE INSTALLED ON 50' CENTERS.
5. ALL EXISTING SIGNS NOT SHOWN FOR REMOVAL, RESETTING OR RELOCATION SHALL REMAIN IN PLACE.
6. FEDERAL SIGN CODES ARE SHOWN UNLESS DESIGNATED BY <CA> WHICH INDICATES A CALIFORNIA SIGN CODE.
7. REMOVE PAINTED PAVEMENT MARKING.
8. RESTRIPIING (SEE PAVEMENT DELINEATION SHEETS).

**LEGEND**

- ← LIMIT OF STRIPING PATTERN
- ⇒ DIRECTION OF TRAVEL
- ⬡(No./X) PAVEMENT DELINEATION DETAIL NUMBER / P=PAINT
- PAINT TEMPORARY TRAFFIC STRIPE (PAINT)
- ⬡(TPMP) TEMPORARY PAVEMENT MARKING (PAINT)
- CHANNELIZER (SURFACE MOUNTED) SPACED @ 50' C-C
- ⊗ CONSTRUCTION AREA SIGN LETTER
- <CA> CALIFORNIA SIGN CODE
- ⌚ SIGN - SINGLE POST
- ‡ TYPE III BARRICADE



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 JALWAT AHMAD  
 FUNCTIONAL SUPERVISOR  
 CHECKED BY  
 CALCULATED/DESIGNED BY  
 SHERI M. RODRIGUEZ  
 THIEN H. SLOCUM  
 REVISOR BY  
 DATE REVISOR

**TRAFFIC HANDLING PLAN**  
**STAGE 2 (SB)**  
 SCALE: 1"=50'

APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TH-4**

LAST REVISION | DATE PLOTTED => 30-MAR-2016  
 11-23-15 | TIME PLOTTED => 13:42

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	17	49

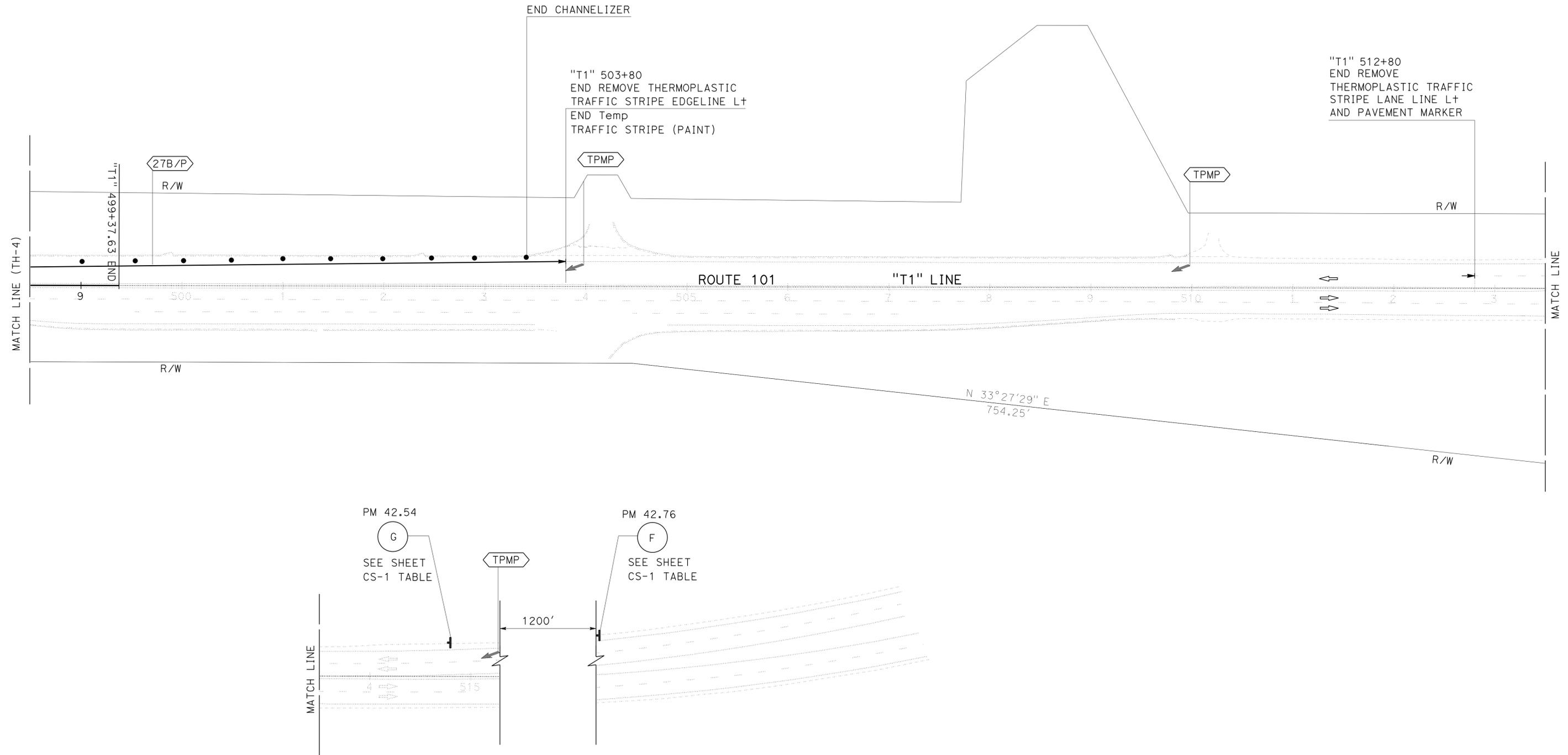
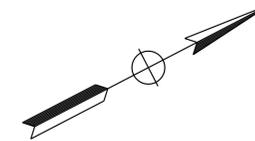
<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
THIEN H. SLOCUM
No. C. 77253
Exp. 06-30-17
CIVIL

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**NOTE:**  
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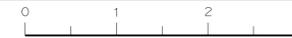


**TRAFFIC HANDLING PLAN**  
**STAGE 2 (SB)**  
SCALE: 1"=50'

APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TH-5**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	THIEN H. SLOCUM	REVISOR
<b>Caltrans</b>	SHERI M. RODRIGUEZ	DATE
03-DESIGN		
FUNCTIONAL SUPERVISOR	JALWAT AHMAD	CHECKED BY
		DESIGNED BY



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	18	49

<i>Thien H. Slocum</i>	1-25-16
REGISTERED CIVIL ENGINEER	DATE
1-25-16	
PLANS APPROVAL DATE	

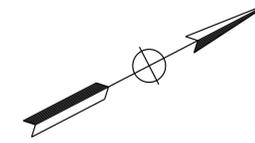
REGISTERED PROFESSIONAL ENGINEER
THIEN H. SLOCUM
No. C. 77253
Exp. 06-30-17
CIVIL

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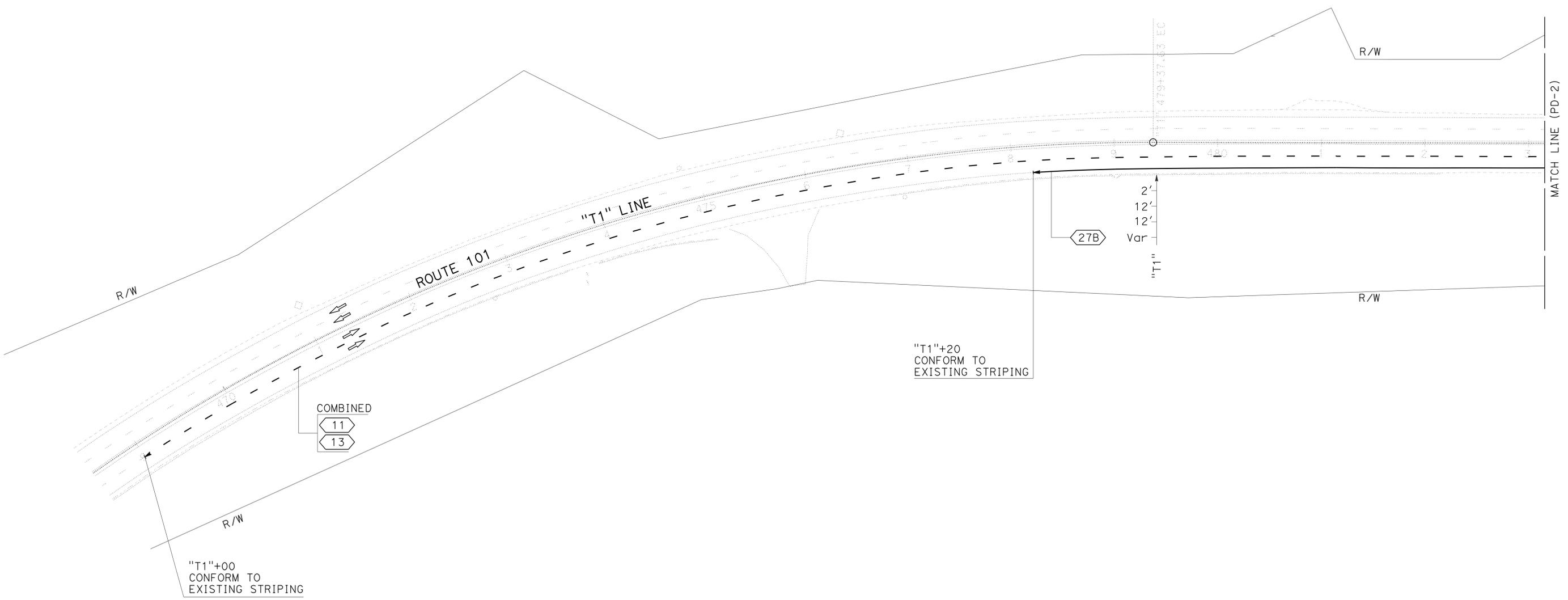
**NOTE:**  
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**LEGEND**

- ← BEGIN/END OF TRAFFIC STRIPE DETAIL
- ⬡ No. ⬡ TRAFFIC STRIPE DETAIL NUMBER
- ⇨ DIRECTION OF TRAVEL



REVISOR	THIEN H. SLOCUM	REVISION	
DESIGNER	MAI T. NGUYEN	DATE	
CHECKED BY		DATE	
FUNCTIONAL SUPERVISOR	JALWAT AHMAD		
DEPARTMENT OF TRANSPORTATION	03-DESIGN		



**PAVEMENT DELINEATION PLAN**  
SCALE: 1"=50'

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

**PD-1**

LAST REVISION | DATE PLOTTED => 30-MAR-2016  
11-23-15 | TIME PLOTTED => 14:34

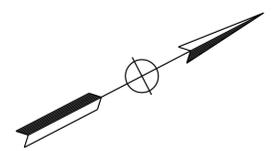
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	19	49

1-25-16  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE

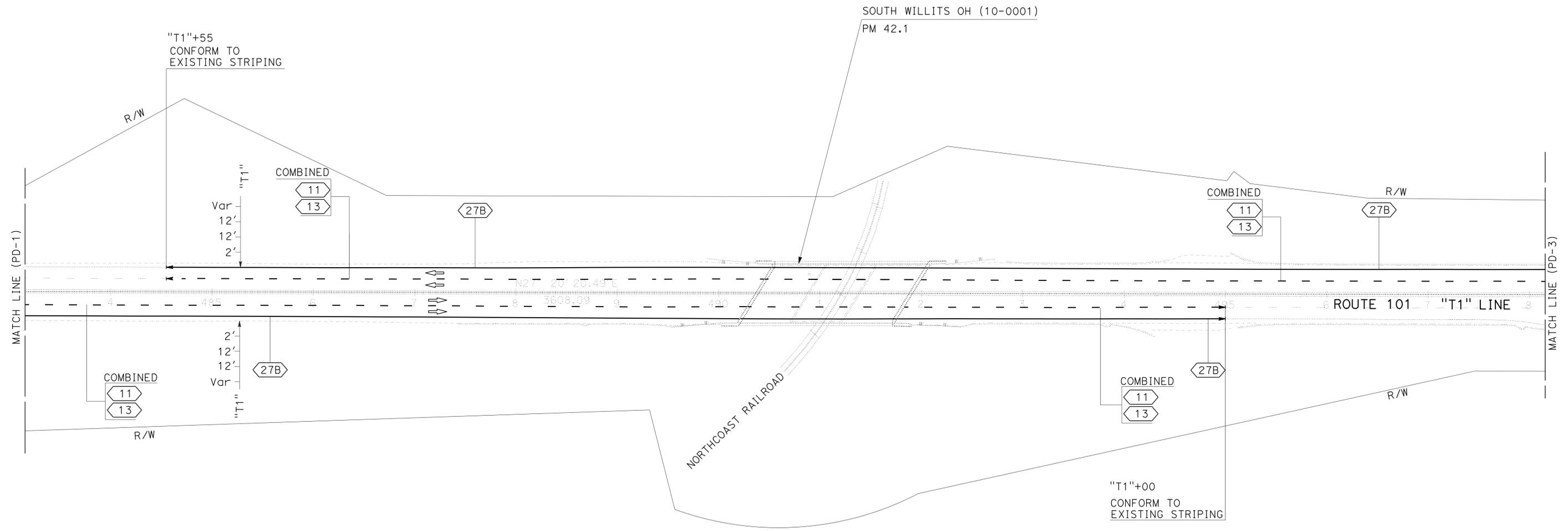
REGISTERED PROFESSIONAL ENGINEER  
 THIEN H. SLOCUM  
 No. C. 77253  
 Exp. 06-30-17  
 CIVIL  
 STATE OF CALIFORNIA

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 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
 CALCULATED/DESIGNED BY: THHEN H. SLOCUM  
 CHECKED BY: MAI T. NGUYEN  
 REVISOR BY: THHEN H. SLOCUM  
 DATE REVISOR: MAI T. NGUYEN



**PAVEMENT DELINEATION PLAN**  
 SCALE: 1"=50'

**PD-2**

APPROVED FOR PAVEMENT DELINEATION WORK ONLY



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	21	49

1-25-16  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE

THHEN H. SLOCUM  
 No. C. 77253  
 Exp. 06-30-17  
 CIVIL  
 STATE OF CALIFORNIA

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### MIDWEST GUARDRAIL SYSTEM

STATION	DIRECTION	LOCATION	REMOVE GUARDRAIL	ALTERNATIVE IN-LINE TERMINAL SYSTEM	TRANSITION RAILING (TYPE WB-31)	MGS (WOOD POST)	END ANCHOR ASSEMBLY (TYPE SFT)	END CAP (TYPE TC) (N)	END CAP (TYPE A) (N)	VEGETATION CONTROL (MINOR CONCRETE)	MGS (SLOPE RETAINING WALL)	SLURRY CEMENT BACKFILL	RSP FABRIC (CLASS 8)	MGS LAYOUT TYPE (N)	TEMPORARY DRAINAGE INLET PROTECTION	TREATED WOOD WASTE
			LF	EA	EA	LF	EA	EA	EA	EA	SQYD	LF	CY	SQYD	EA	LB
489+18.81 TO 490+04.81	NB	R+	54.0	1	1			1		48						820
491+88.31 TO 492+55.56	NB	R+	54.0			50.0	1		1	37	67	7.5	70.0	12DD		820
493+82.75	NB	R+													1	
489+71.71 TO 490+38.96	SB	L+	54.0			50.0	1		1	45				12DD		820
492+22.49 TO 493+08.49	SB	L+	54.0	1	1			1		48						820
494+29.95	SB	L+													1	
	<b>TOTAL</b>		216.0	2	2	100.0	2	2	2	178	67	7.5	70.0		2	3280

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

### HOT MIX ASPHALT DIKES

STATION	DIRECTION	LOCATION	REMOVE AC DIKE	PLACE HMA DIKE (TYPE F)	HMA (TYPE A)
			LF	LF	TON
489+19.81 TO 490+04.81	NB	R+	85	85	1.2
491+88.31 TO 492+54.56	NB	R+	67	67	0.9
492+22.49 TO 493+07.49	SB	L+	85	85	1.2
	<b>TOTAL</b>		237	237	3.3

### PAVEMENT DELINEATION QUANTITIES

DIRECTION	STATION		4" THERMOPLASTIC TRAFFIC STRIPE	4" THERMOPLASTIC TRAFFIC STRIPE (BROKEN 36-12)	PAVEMENT MARKER (RETROREFLECTIVE - RECESSED)
	FROM	TO	DETAIL 27B	COMBINED DETAILS 12 & 13	
				LF	LF
NB	"T1" 469+00, R+	"T1" 495+00, R+			57
	"T1" 478+20, R+	"T1" 495+00, R+	1680		
SB	"T1" 484+55, L+	"T1" 503+80, L+	1925		
	"T1" 484+55, L+	"T1" 512+80, L+		2825	61
	SUBTOTAL		3605	5425	118
	TOTAL		3605	5425	118

### SUMMARY OF QUANTITIES

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 03-DESIGN  
 FUNCTIONAL SUPERVISOR: JALWAT AHMAD  
 CALCULATED/DESIGNED BY: THIEN H. SLOCUM  
 CHECKED BY: MAI T. NGUYEN  
 REVISED BY: DATE REVISOR



	<b>M</b>	
Maint	MAINTENANCE	
Max	MAXIMUM	
MB	METAL BEAM	
MBB	METAL BEAM BARRIER	
MBGR	METAL BEAM GUARD RAILING	
Med	MEDIAN	
MGS	MIDWEST GUARDRAIL SYSTEM	
MH	MANHOLE	
Min	MINIMUM	
Misc	MISCELLANEOUS	
Misc I & S	MISCELLANEOUS IRON AND STEEL	
Mkr	MARKER	
Mod	MODIFIED, MODIFY	
Mon	MONUMENT	
MP	METAL PLATE	
MPGR	METAL PLATE GUARD RAILING	
MR	MOVEMENT RATING	
MSE	MECHANICALLY STABILIZED EMBANKMENT	
Mt	MOUNTAIN, MOUNT	
MtI	MATERIAL	
MVP	MAINTENANCE VEHICLE PULLOUT	
	<b>N</b>	
N	NORTH	
NB	NORTHBOUND	
No.	NUMBER (MUST HAVE PERIOD)	
Nos.	NUMBERS (MUST HAVE PERIOD)	
NPS	NOMINAL PIPE SIZE	
NS	NEAR SIDE	
NSP	NEW STANDARD PLAN	
NTS	NOT TO SCALE	
	<b>O</b>	
Obir	OBLITERATE	
OC	OVERCROSSING	
OD	OUTSIDE DIAMETER	
OF	OUTSIDE FACE	
OG	ORIGINAL GROUND	
OGAC	OPEN GRADED ASPHALT CONCRETE	
OGFC	OPEN GRADED FRICTION COURSE	
OH	OVERHEAD	
OHWM	ORDINARY HIGH WATER MARK	
O-O	OUT TO OUT	
Opp	OPPOSITE	
OSD	OVERSIDE DRAIN	
	<b>P</b>	
p	PAGE	
PAP	PERFORATED ALUMINUM PIPE	
PB	PULL BOX	
PC	POINT OF CURVATURE, PRECAST	
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE	
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN	
PCP	PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE	
PCVC	POINT OF COMPOUND VERTICAL CURVE	
PEC	PERMIT TO ENTER AND CONSTRUCT	
Ped	PEDESTRIAN	
Ped OC	PEDESTRIAN OVERCROSSING	
Ped UC	PEDESTRIAN UNDERCROSSING	
Perm MtI	PERMEABLE MATERIAL	

	<b>P continued</b>	
PG	PROFILE GRADE	
PI	POINT OF INTERSECTION	
PJP	PARTIAL JOINT PENETRATION	
Pkwy	PARKWAY	
PL, PL	PLATE	
P/L	PROPERTY LINE	
PM	POST MILE, TIME FROM NOON TO MIDNIGHT	
PN	PAVING NOTCH	
POC	POINT OF HORIZONTAL CURVE	
POT	POINT OF TANGENT	
POVC	POINT OF VERTICAL CURVE	
PP	PIPE PILE, PLASTIC PIPE, POWER POLE	
PPL	PREFORMED PERMEABLE LINER	
PPP	PERFORATED PLASTIC PIPE	
PRC	POINT OF REVERSE CURVE	
PRF	PAVEMENT REINFORCING FABRIC	
PRVC	POINT OF REVERSE VERTICAL CURVE	
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES	
PS, P/S	PRESTRESSED	
PSP	PERFORATED STEEL PIPE	
PT	POINT OF TANGENCY	
PVC	POLYVINYL CHLORIDE	
Pvmt	PAVEMENT	
	<b>Q</b>	
Qty	QUANTITY	
	<b>R</b>	
R	RADIUS	
R & D	REMOVE AND DISPOSE	
R & S	REMOVE AND SALVAGE	
R/C	RATE OF CHANGE	
RCA	REINFORCED CONCRETE ARCH	
RCB	REINFORCED CONCRETE BOX	
RCP	REINFORCED CONCRETE PIPE	
RCPA	REINFORCED CONCRETE PIPE ARCH	
Rd	ROAD	
Reinf	REINFORCED, REINFORCEMENT, REINFORCING	
Rel	RELOCATE	
Repl	REPLACEMENT	
Ret	RETAINING	
Rev	REVISED, REVISION	
Rdwy	ROADWAY	
RHMA	RUBBERIZED HOT MIX ASPHALT	
Riv	RIVER	
RM	ROAD-MIXED	
RP	RADIUS POINT, REFERENCE POINT	
RR	RAILROAD	
RSP	ROCK SLOPE PROTECTION, REVISED STANDARD PLAN	
Rt	RIGHT	
Rte	ROUTE	
RW	REDWOOD, RETAINING WALL	
R/W	RIGHT OF WAY	
Rwy	RAILWAY	

	<b>S</b>	
S	SOUTH, SUPPLEMENT	
SAE	STRUCTURE APPROACH EMBANKMENT	
Salv	SALVAGE	
SAPP	STRUCTURAL ALUMINUM PLATE PIPE	
SB	SOUTHBOUND	
SC	SAND CUSHION	
SCSP	SLOTTED CORRUGATED STEEL PIPE	
SD	STORM DRAIN	
Sec	SECOND, SECTION	
Sep	SEPARATION	
SG	SUBGRADE	
Shld	SHOULDER	
Sht	SHEET	
Sim	SIMILAR	
SL	STATION LINE	
SM	SELECTED MATERIAL	
Spec	SPECIAL, SPECIFICATIONS	
SPP	SLOTTED PLASTIC PIPE	
SS	SLOPE STAKE	
SSBM	STRAP AND SADDLE BRACKET METHOD	
SSD	STRUCTURAL SECTION DRAIN	
SSPA	STRUCTURAL STEEL PLATE ARCH	
SSPP	STRUCTURAL STEEL PLATE PIPE	
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH	
SSRP	STEEL SPIRAL RIB PIPE	
St	STREET	
Sta	STATION	
STBB	SINGLE THRIE BEAM BARRIER	
Std	STANDARD	
Str	STRUCTURE	
Surf	SURFACING	
SW	SIDEWALK, SOUND WALL	
Swr	SEWER	
Sym	SYMMETRICAL	
S4S	SURFACE 4 SIDES	
	<b>T</b>	
T	SEMI-TANGENT	
Tan	TANGENT	
TBB	THRIE BEAM BARRIER	
Tbr	TIMBER	
TC	TOP OF CURB	
TCB	TRAFFIC CONTROL BOX	
TCE	TEMPORARY CONSTRUCTION EASEMENT	
TeI	TELEPHONE	
Temp	TEMPORARY	
TG	TOP OF GRADE	
Tot	TOTAL	
TP	TELEPHONE POLE	
TPB	TREATED PERMEABLE BASE	
TPM	TREATED PERMEABLE MATERIAL	
Trans	TRANSITION	

	<b>T continued</b>	
TS	TRANSVERSE, TRAFFIC SIGNAL, TUBULAR STEEL	
Typ	TYPICAL	<b>U</b>
UC	UNDERCROSSING	
UD	UNDERDRAIN	
UG	UNDERGROUND	
UON	UNLESS OTHERWISE NOTED	
UP	UNDERPASS	<b>V</b>
V	VALVE, DESIGN SPEED	
Var	VARIABLE, VARIES	
VC	VERTICAL CURVE	
VCP	VITRIFIED CLAY PIPE	
Vert	VERTICAL	
Via	VIADUCT	
Vol	VOLUME	<b>W</b>
W	WEST, WIDTH	
WB	WESTBOUND	
WH	WEEP HOLE	
WM	WIRE MESH	
WS	WATER SURFACE	
WSP	WELDED STEEL PIPE	
Wt	WEIGHT	
WV	WATER VALVE	
WW	WINGWALL	
WWL	WINGWALL LAYOUT LINE	<b>X</b>
X Sec	CROSS SECTION	
Xing	CROSSING	<b>Y</b>
Yr	YEAR	
Yrs	YEARS	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	22	49
<i>Grace M. Tsushima</i> REGISTERED CIVIL ENGINEER					
July 19, 2013 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



TO ACCOMPANY PLANS DATED 1-25-16

**UNIT OF MEASUREMENT SYMBOLS:**

Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

TABLE A	
SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

TABLE B	
SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft <sup>3</sup> , pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
ø	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kíp	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

\* For use on a sign panel only

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ABBREVIATIONS  
(SHEET 2 OF 2)**

NO SCALE

RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B  
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

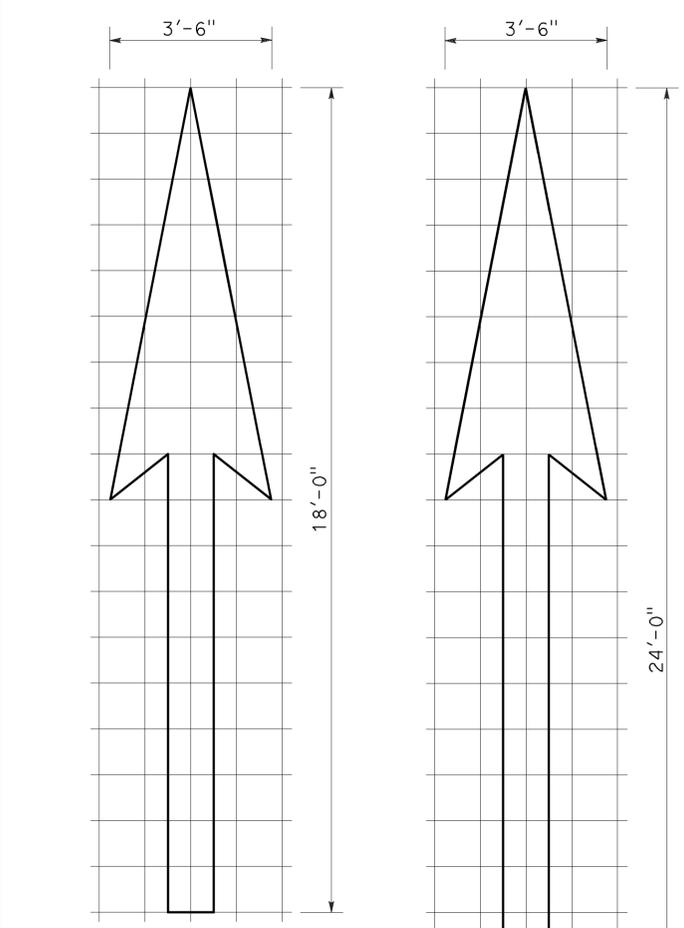
2010 REVISED STANDARD PLAN RSP A10B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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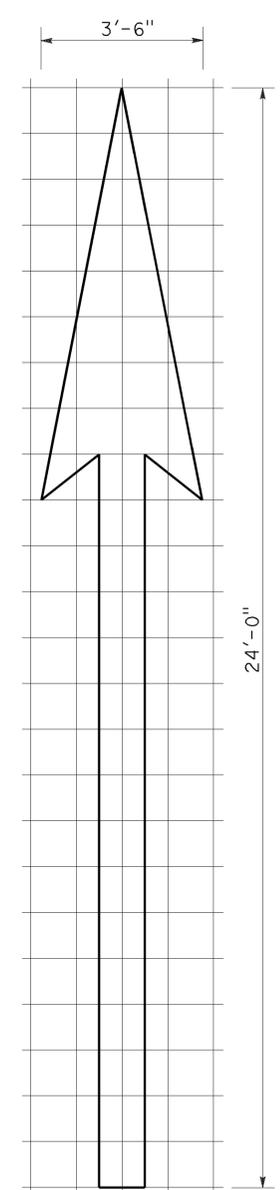
*Roberta L. McLaughlin*  
 REGISTERED CIVIL ENGINEER  
 April 20, 2012  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Roberta L. McLaughlin  
 No. C40375  
 Exp. 3-31-13  
 CIVIL  
 STATE OF CALIFORNIA

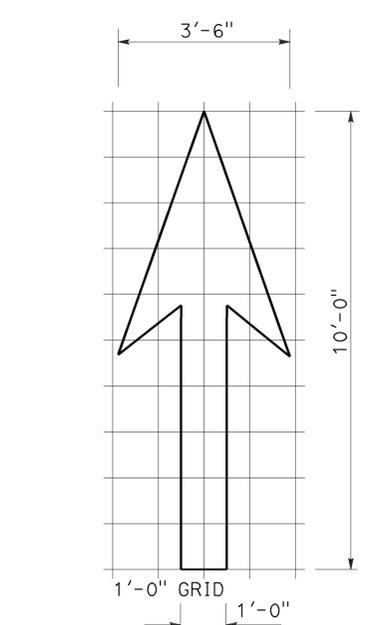
TO ACCOMPANY PLANS DATED 1-25-16



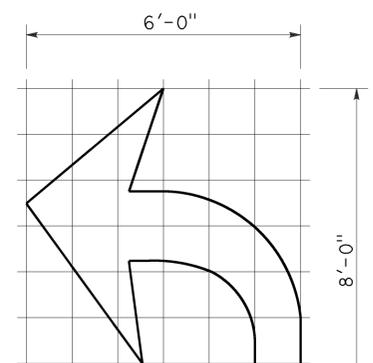
A=25 ft<sup>2</sup>  
**TYPE I 18'-0" ARROW**



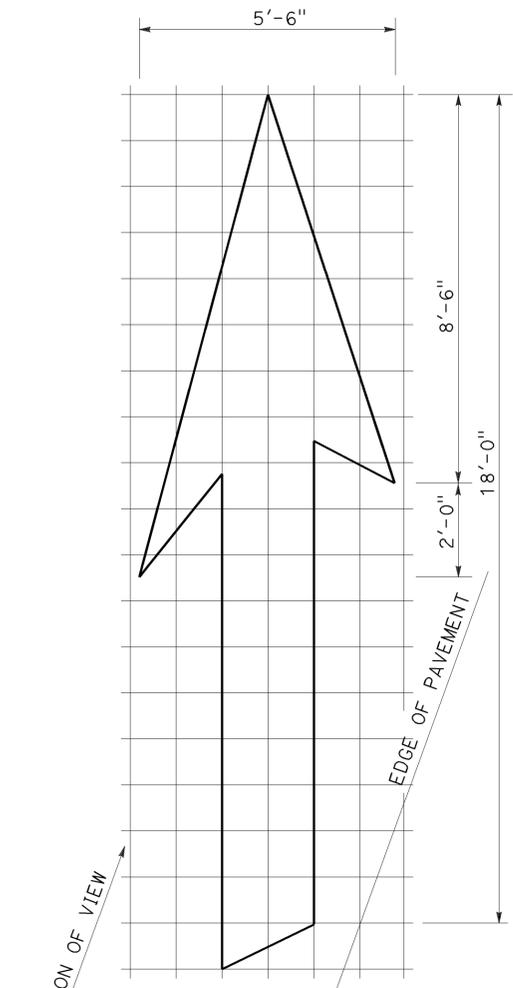
A=31 ft<sup>2</sup>  
**TYPE I 24'-0" ARROW**



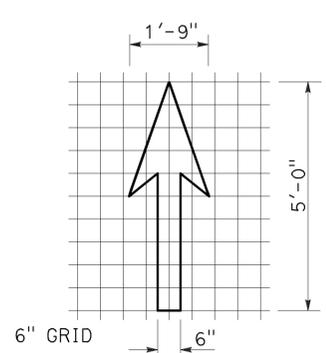
A=14 ft<sup>2</sup>  
**TYPE I 10'-0" ARROW**



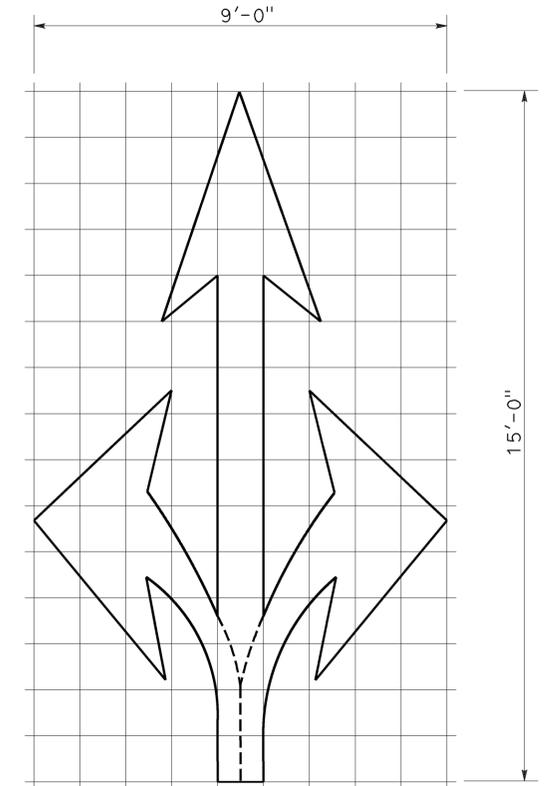
A=15 ft<sup>2</sup>  
**TYPE IV (L) ARROW**  
 (For Type IV (R) arrow, use mirror image)



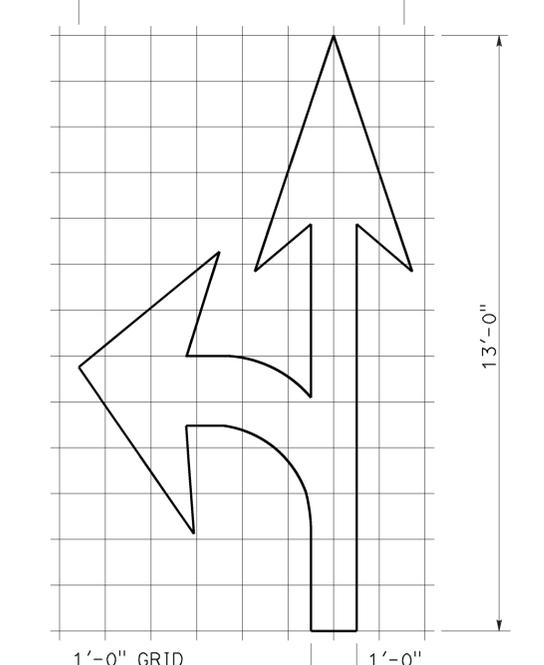
A=42 ft<sup>2</sup>  
**TYPE VI ARROW**  
 Right lane drop arrow  
 (For left lane, use mirror image)



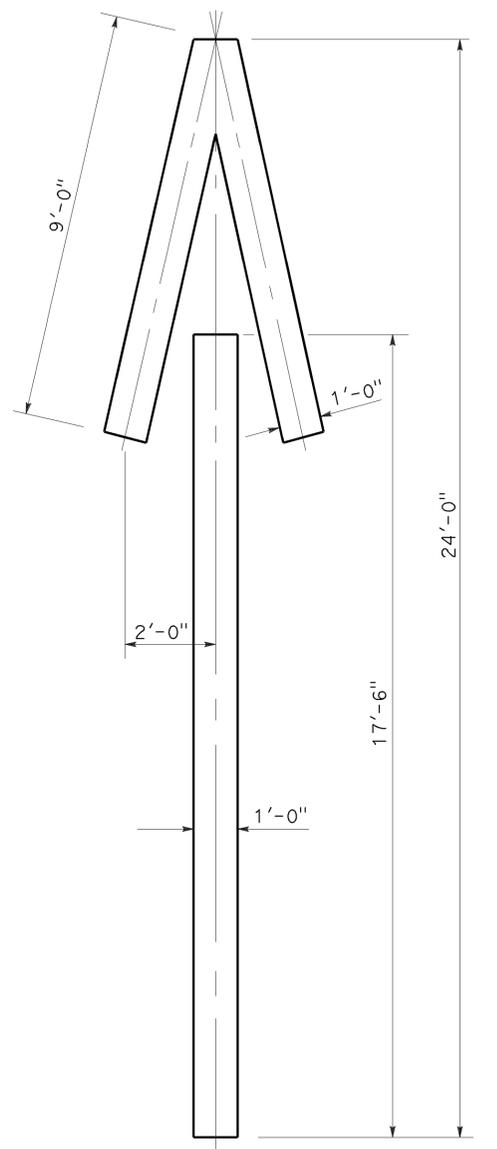
A=3.5 ft<sup>2</sup>  
**BIKE LANE ARROW**



A=36 ft<sup>2</sup>  
**TYPE VIII ARROW**



A=27 ft<sup>2</sup>  
**TYPE VII (L) ARROW**  
 (For Type VII (R) arrow, use mirror image)



A=33 ft<sup>2</sup>  
**TYPE V ARROW**

**NOTE:**  
 Minor variations in dimensions may be accepted by the Engineer.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
 ARROWS**  
 NO SCALE

RSP A24A DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN A24A DATED MAY 20, 2011 - PAGE 13 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24A**

2010 REVISED STANDARD PLAN RSP A24A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	24	49

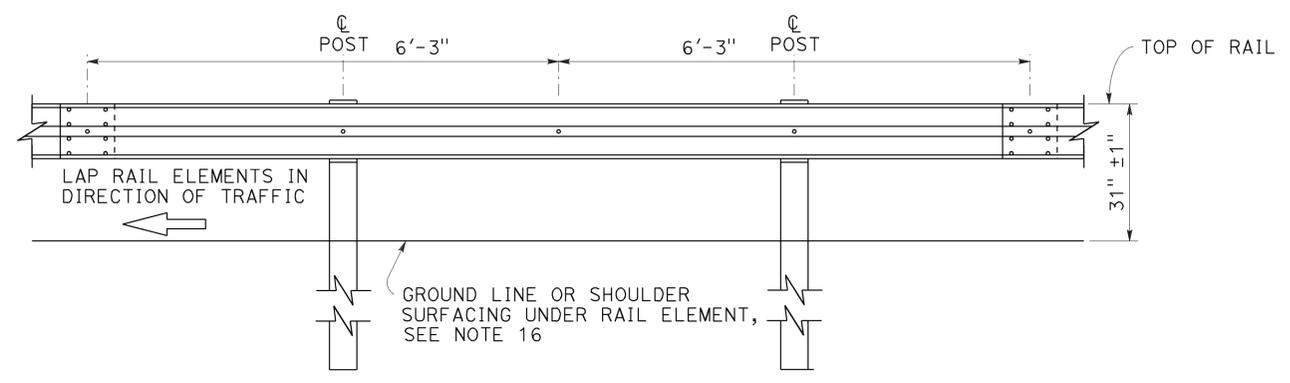
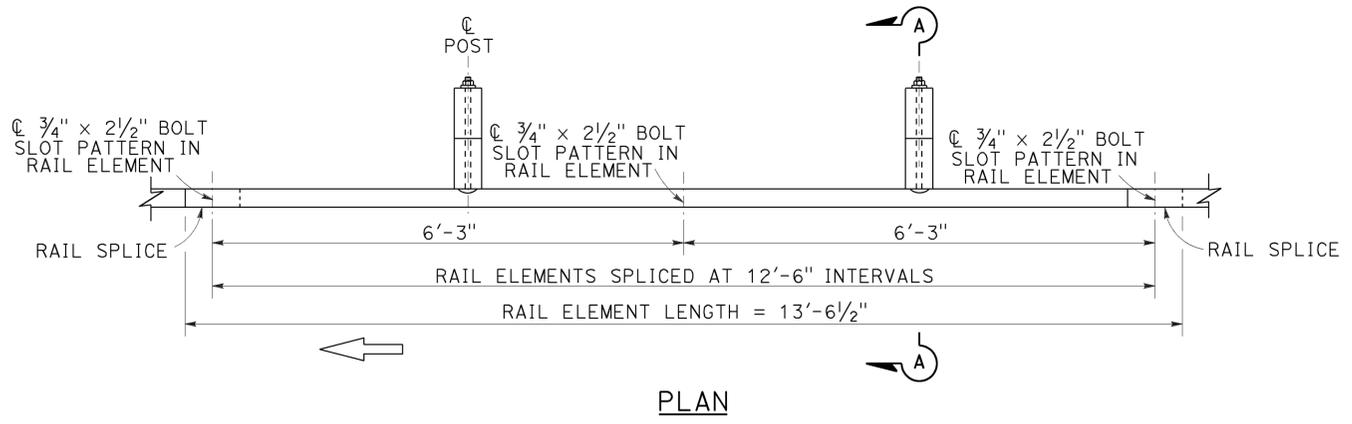
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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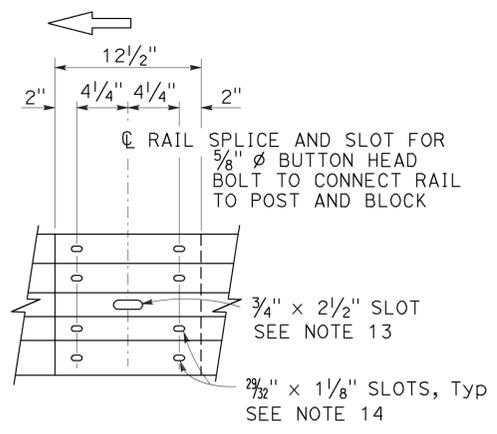
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 1-25-16



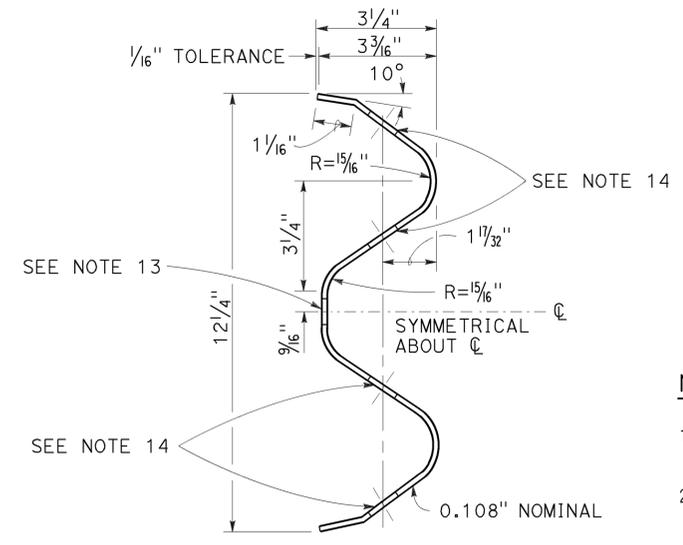
ELEVATION

MIDWEST GUARDRAIL SYSTEM WITH WOOD POST AND BLOCKS

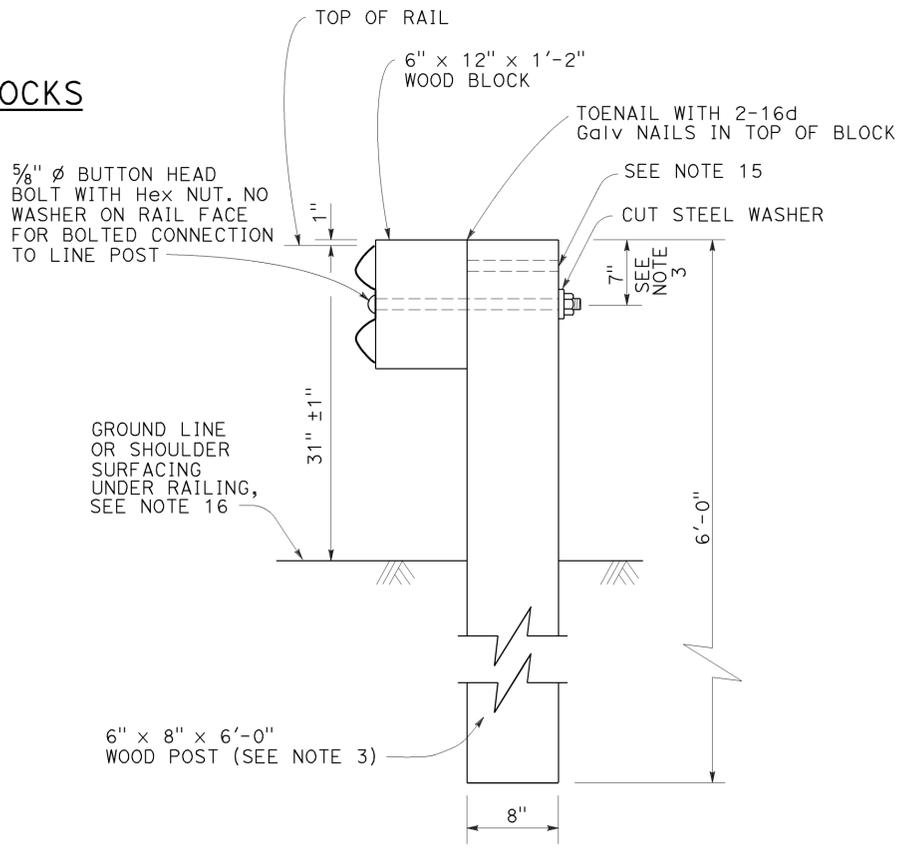


ELEVATION  
RAIL ELEMENT SPLICE DETAIL

- Connect the over lapped end of the rail elements with  $\frac{5}{8}$ "  $\phi$  x  $1\frac{3}{8}$ " button head oval shoulder splice bolts inserted into the  $\frac{7}{32}$ " x  $1\frac{1}{8}$ " slots and bolted together with  $\frac{5}{8}$ "  $\phi$  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 Revised Standard Plan RSP A77L2.
- For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
- For details of wood posts and wood blocks used to construct MGS, see Revised Standard Plan RSP A77N1.
- For additional installation details, see Revised Standard Plan RSP A77N3.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- For MGS typical layouts, see the A77P, A77Q and A77R Series of Standard Plans.
- If railing is connected to terminal system end treatment, use 31" height terminal system end treatment.
- For MGS end anchor details, see Revised Standard Plans RSP A77S1 and RSP A77T2.
- For details of MGS transition to bridge railing, see Revised Standard Plan RSP A77U4.
- For additional details of MGS connection to bridge railing, see Revised Standard Plans RSP A77U1, RSP A77U2 and RSP A77V1.
- For MGS connection details to abutments and walls, see Revised Standard Plan RSP A77U3.
- For typical MGS delineation and dike positioning details, see Revised Standard Plan RSP A77N4.
- 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 Revised Standard Plan RSP A77N1.
- Install posts in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

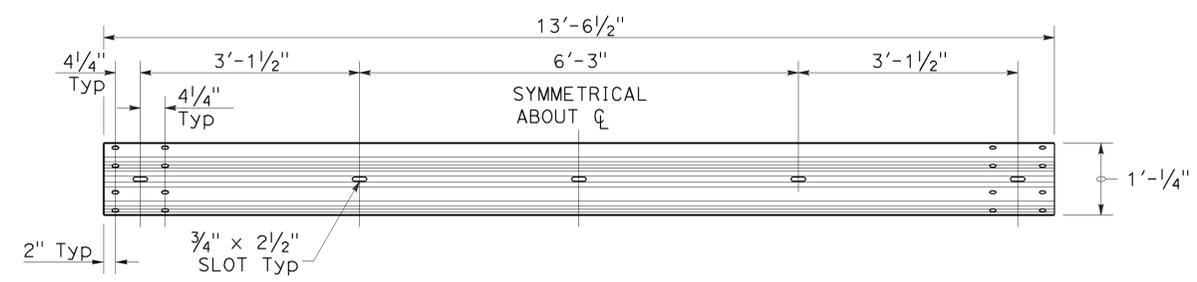
RSP A77L1 DATED JULY 19, 2013 SUPPLEMENTS STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A77L1

2010 REVISED STANDARD PLAN RSP A77L1



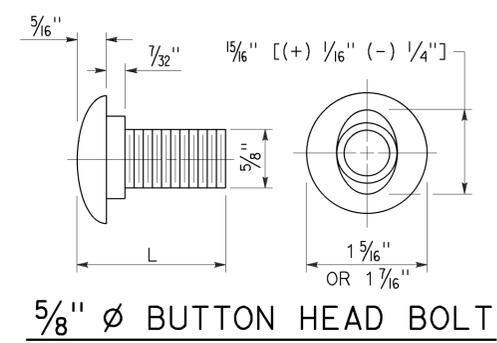
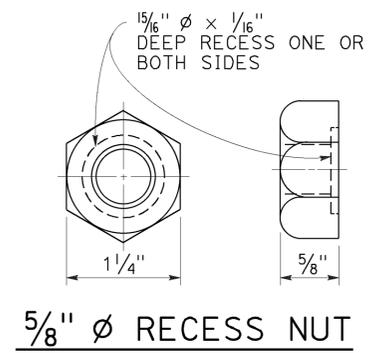
TO ACCOMPANY PLANS DATED 1-25-16



**TYPICAL RAIL ELEMENT**

**NOTE:**

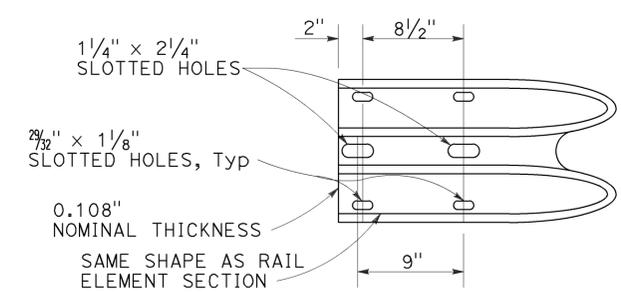
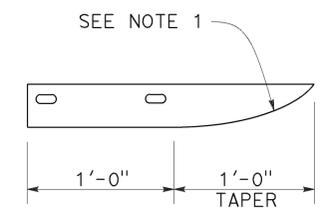
1. Slotted holes for splice bolts to overlap ends of rail element.



**BUTTON HEAD BOLT**

L	THREAD LENGTH
1 3/8"	FULL THREAD LENGTH
2"	FULL THREAD LENGTH
10"	4" Min THREAD LENGTH
18"	4" Min THREAD LENGTH
20"	4" Min THREAD LENGTH
22"	4" Min THREAD LENGTH
26"	4" Min THREAD LENGTH
36"	4" Min THREAD LENGTH
** 2 3/4"	2" Min THREAD LENGTH
** 19"	4" Min THREAD LENGTH

\*\* For nested rail applications.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
STANDARD HARDWARE**

NO SCALE

RSP A77M1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77M1**

2010 REVISED STANDARD PLAN RSP A77M1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	26	49

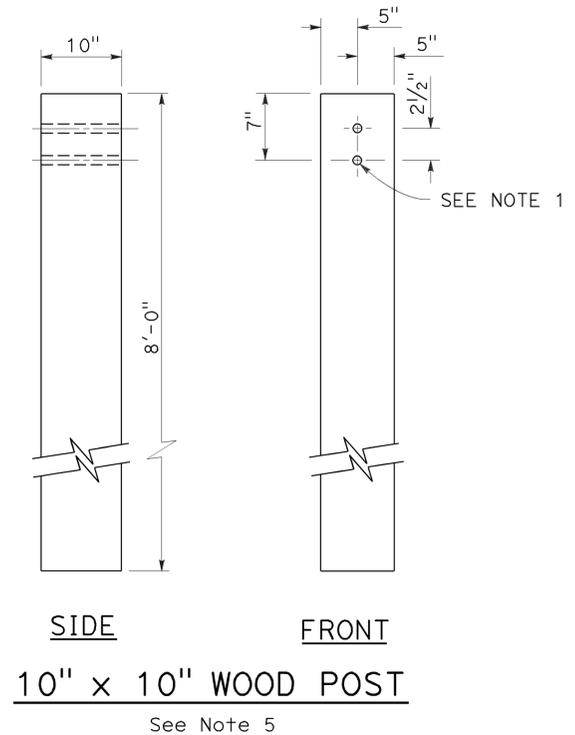
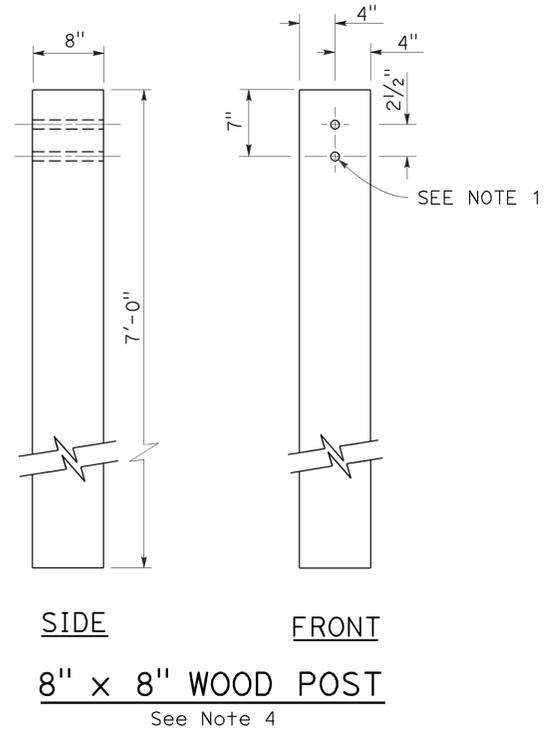
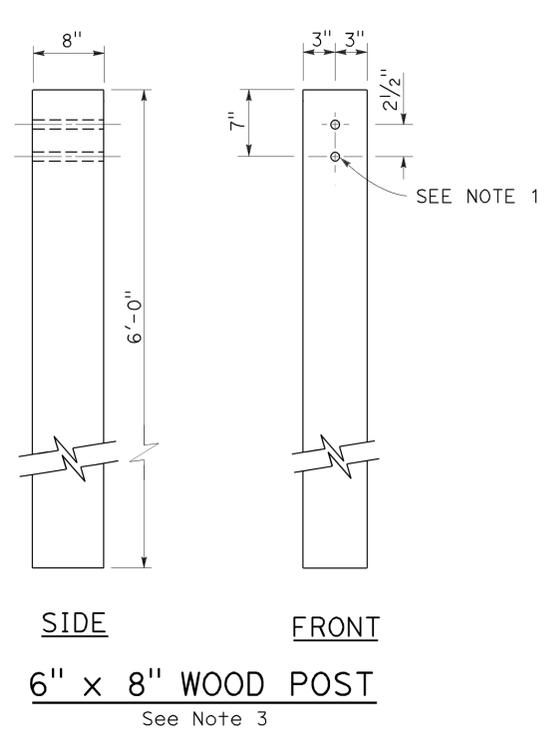
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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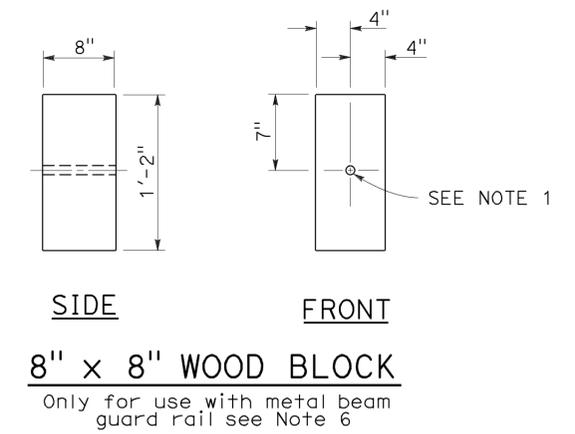
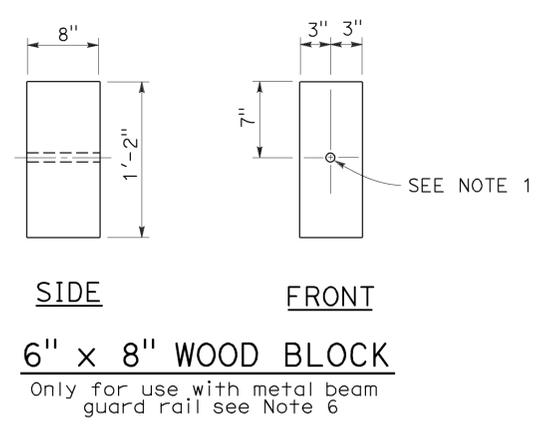
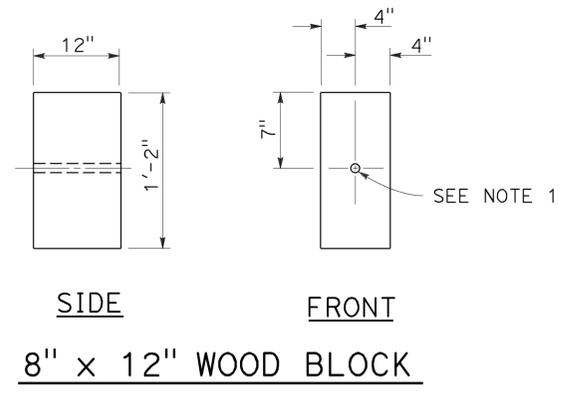
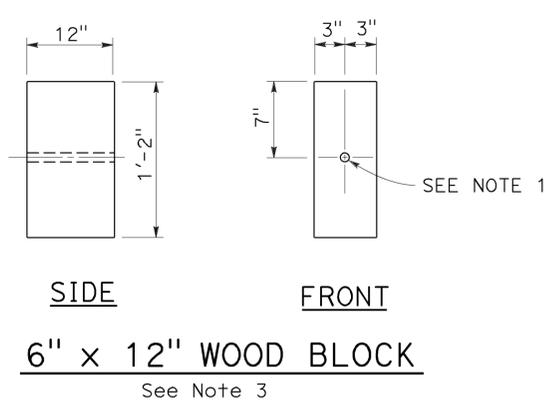
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 1-25-16



**NOTES:**

1. All holes in wood posts and blocks shall be 3/4" Dia ± 1/16".
2. Dimensions shown for wood post are nominal.
3. This post and block combination used for standard line post sections of MGS.
4. This post and 8" x 12" block combination used for line post sections of MGS on narrow roadways.
5. This post and 8" x 12" block combination is typically used where strengthened line post sections of MGS are warranted to shield fixed objects.
6. See Revised Standard Plan RSP A77L3 for use of 6" x 8" and 8" x 8" wood blocks.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77N1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N1**

2010 REVISED STANDARD PLAN RSP A77N1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	27	49

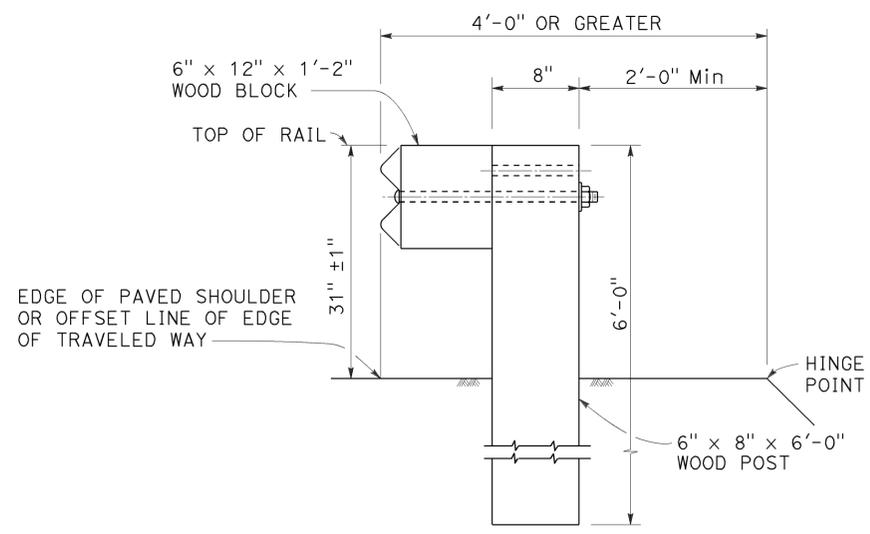
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

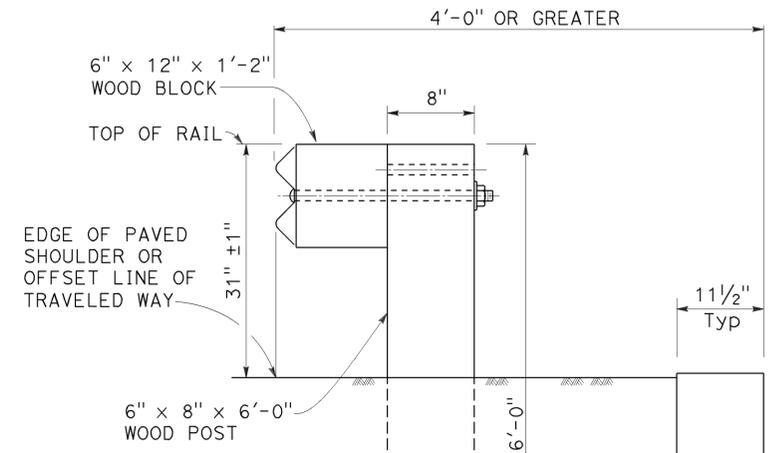
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

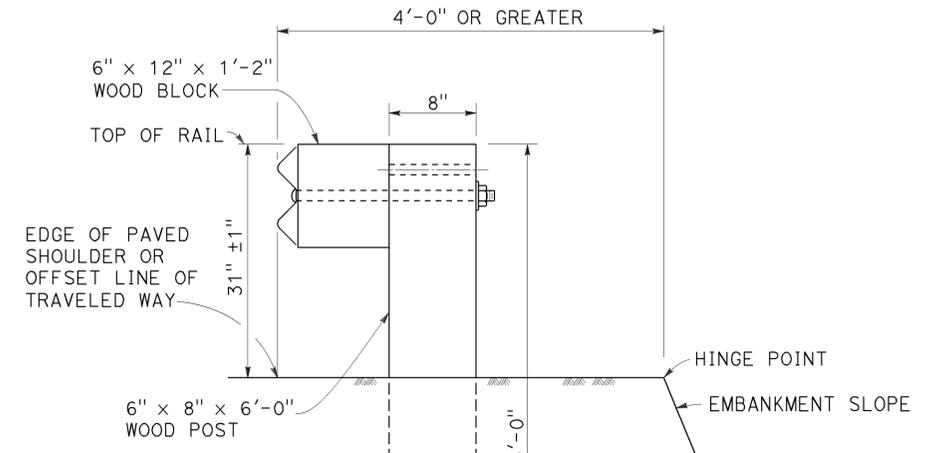
TO ACCOMPANY PLANS DATED 1-25-16



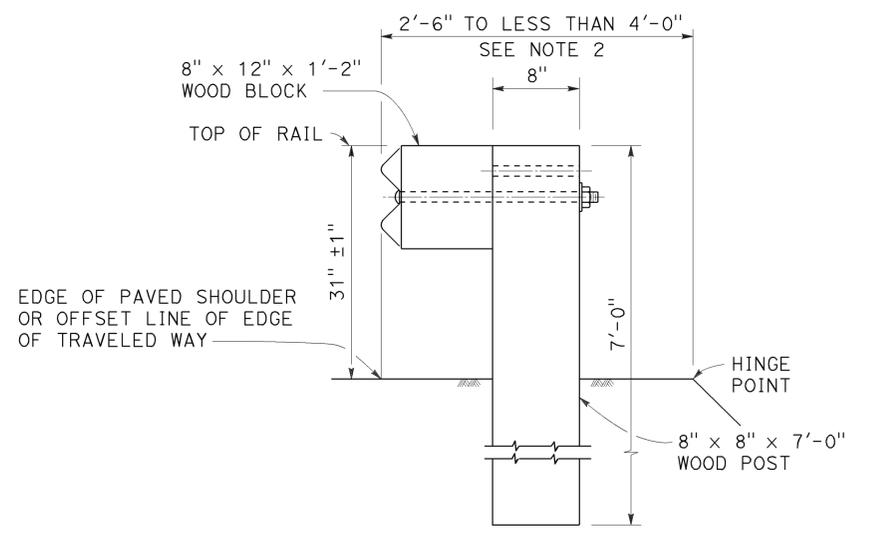
**DETAIL A**  
**TYPICAL ROADWAY**  
**INSTALLATION**  
See Note 1



**DETAIL C**



**DETAIL D**



**DETAIL B**  
**NARROW ROADWAY**  
**INSTALLATION**  
See Note 1

**POST EMBEDMENT**

**INSTALLATION AT EARTH RETAINING WALLS**

**NOTES:**

1. These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 8.5 or W6 x 9 steel post, 6'-0" in length, with 6" x 12" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 15 steel post, 8'-0" in length, with 8" x 12" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Revised Standard Plan RSP A77L1 and RSP A77L2.
2. Where the distance between the face of the rail and the hinge point is less than 2'-6", see the Project Plans for special details.
3. For dike positioning with MGS installations, see Revised Standard Plan RSP A77N4.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM**  
**TYPICAL LINE POST**  
**EMBEDMENT AND**  
**HINGE POINT OFFSET DETAILS**

NO SCALE

RSP A77N3 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77N3  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N3**

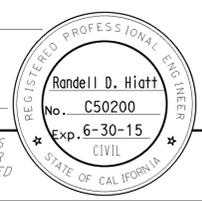
2010 REVISED STANDARD PLAN RSP A77N3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	28	49

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

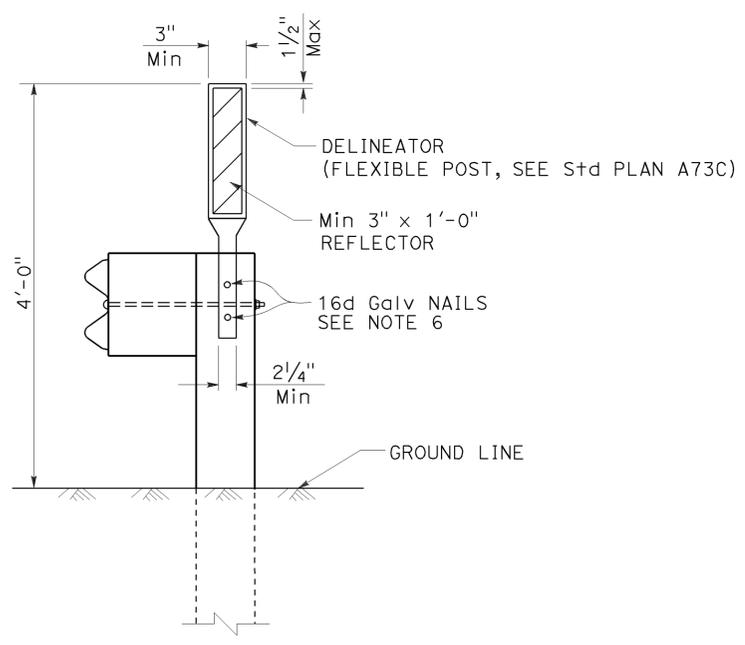
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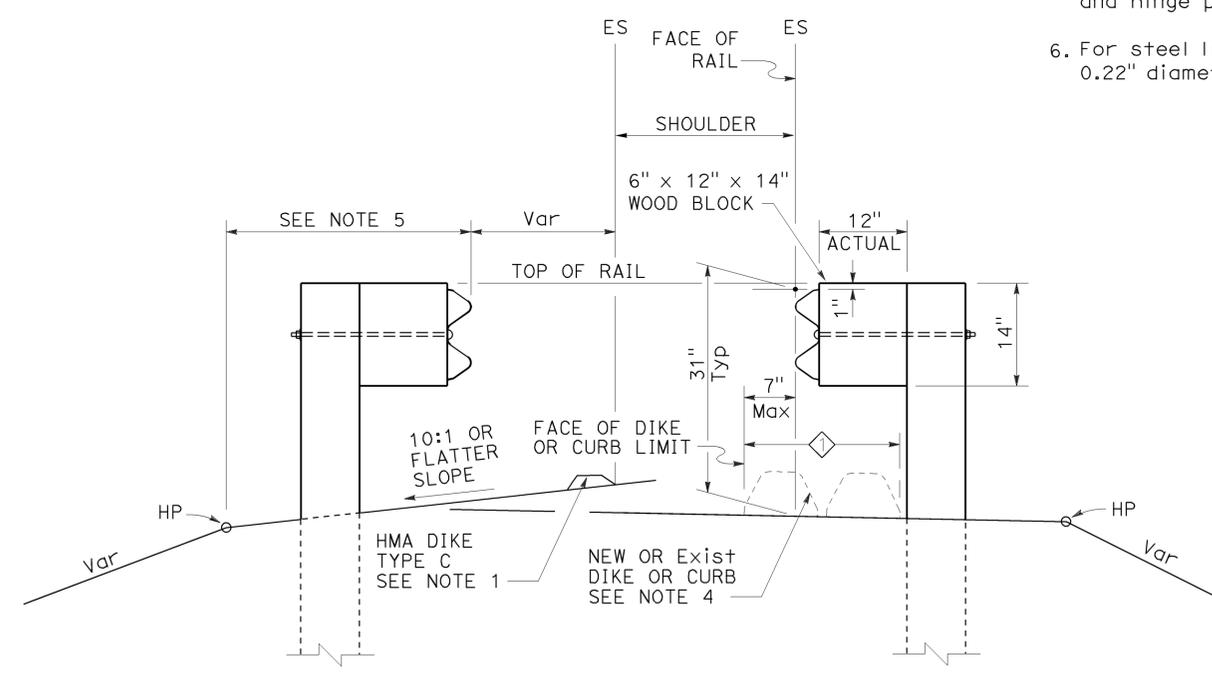
TO ACCOMPANY PLANS DATED 1-25-16

**NOTES:**

1. When necessary to place dike more than 7" in front of face of MGS, only Type C dike may be used. For dike details, see Revised Standard Plan RSP A87B.
2. For standard railing post embedment, see Revised Standard Plan RSP A77N3.
3. MGS delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under MGS, the maximum height of the dike or curb shall be 6". Mountable dike should not be used. For dike and curb details, see Revised Standard Plans RSP A87A and RSP A87B.
5. For details of typical distance between the face of rail and hinge point, see Revised Standard Plan RSP A77N3.
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.



**MGS DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

◇ PERMISSIBLE DIKE OR CURB PLACEMENT AREA

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL RAILING DELINEATION  
AND DIKE POSITIONING DETAILS**  
NO SCALE

RSP A77N4 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N4**

2010 REVISED STANDARD PLAN RSP A77N4

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	29	49

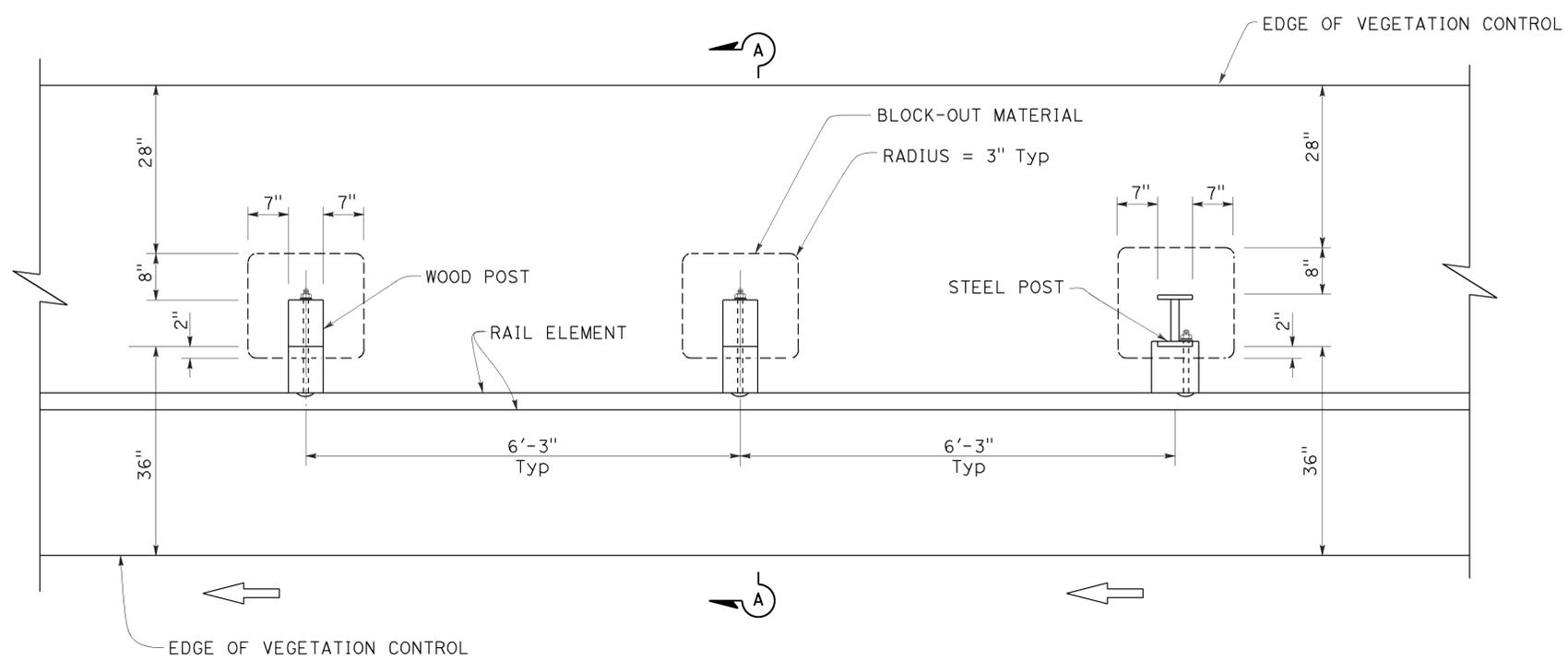
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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Exp. 6-30-15  
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STATE OF CALIFORNIA

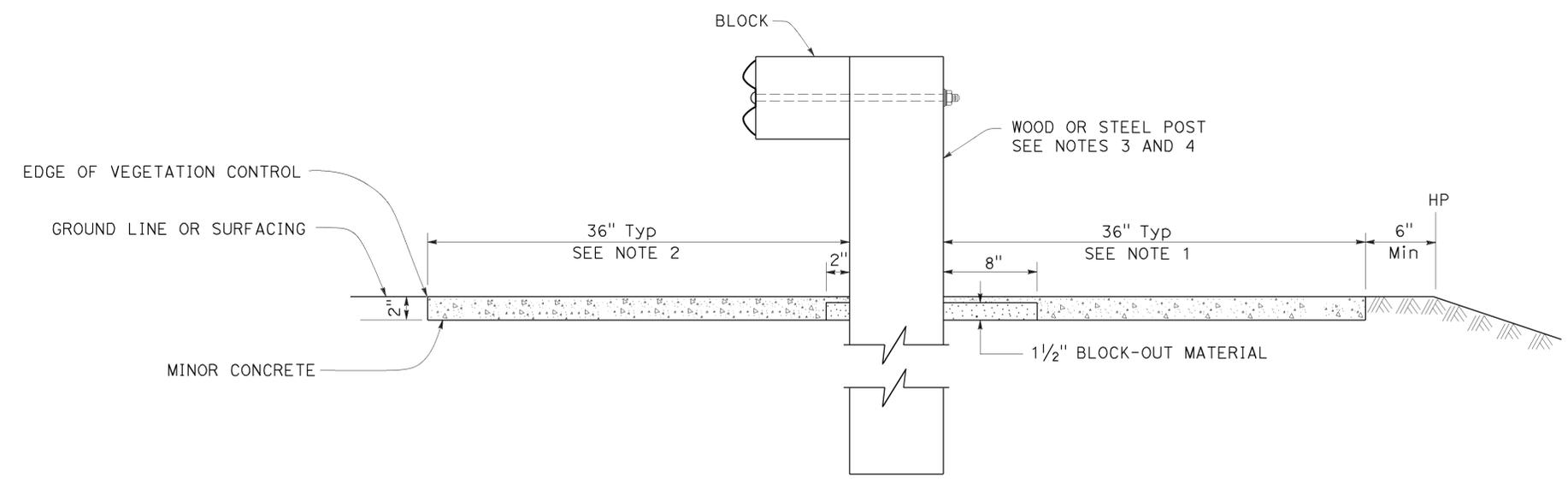
TO ACCOMPANY PLANS DATED 1-25-16



PLAN

NOTES:

1. Where the distance between back of post and hinge point is less than 42", construct vegetation control to 6" from hinge point while maintaining the 8" block-out at back of post. If the 8" block-out at back of post can not be maintained, construct vegetation control flush with the back edge of post.
2. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 36" in front of the post, construct vegetation control to the edge of paved shoulder.
3. For wood post sizes, see Revised Standard Plan RSP A77N1.
4. For steel post sizes, see Revised Standard Plan RSP A77N2.
5. For details not shown, see Revised Standard Plans RSP A77L1 and RSP A77L2.



SECTION A-A

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL VEGETATION CONTROL  
STANDARD RAILING SECTION**

NO SCALE

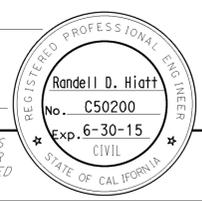
RSP A77N5 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N5**

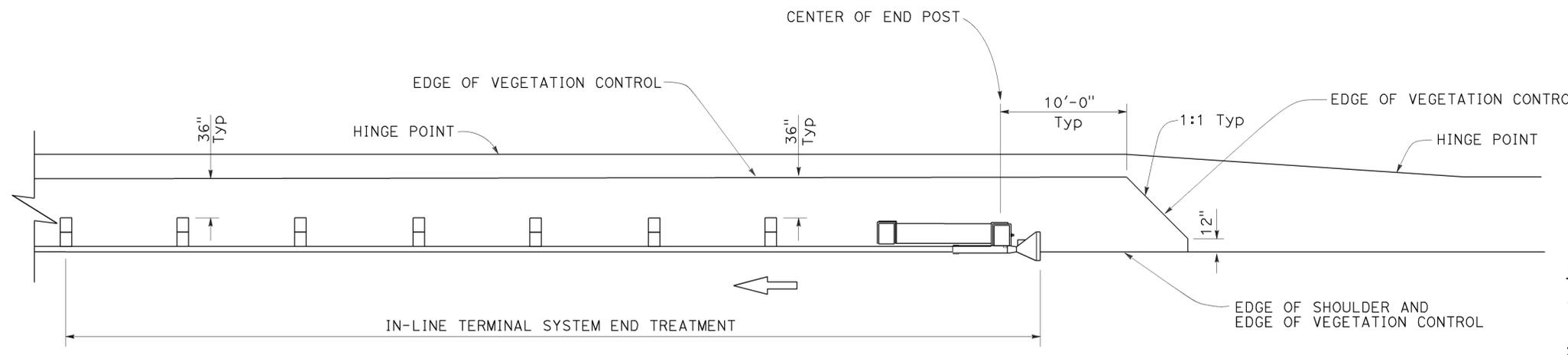
2010 REVISED STANDARD PLAN RSP A77N5

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	30	49

RANDALL D. HIATT  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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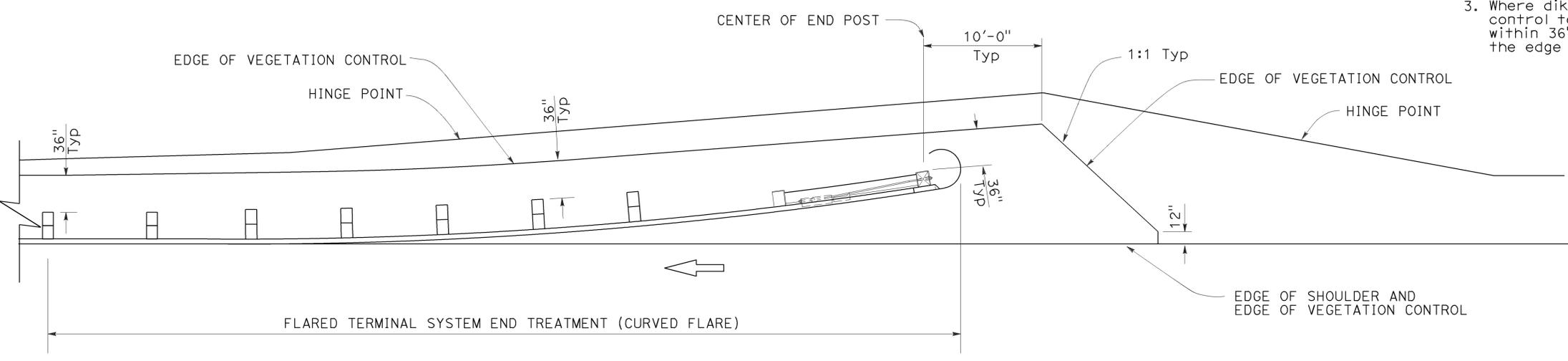
TO ACCOMPANY PLANS DATED 1-25-16



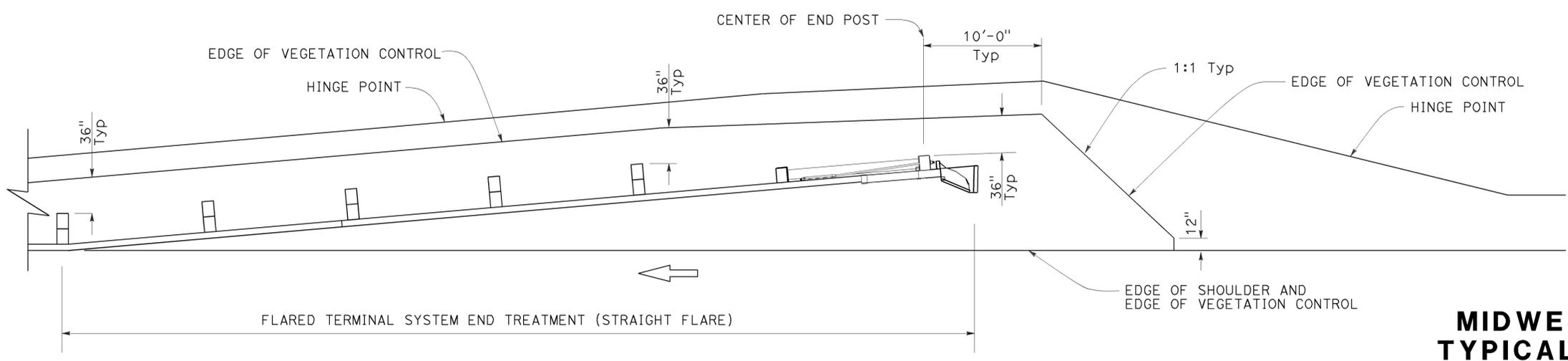
PLAN

**NOTES:**

1. See Revised Standard Plan RSP A77N5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 42", construct vegetation control to 6" from hinge point while maintaining the 8" block-out at back of post. If the 8" block-out at back of post can not be maintained, construct vegetation control flush with the back edge of post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 36" in front of the post, construct vegetation control to the edge of paved shoulder.



PLAN



PLAN

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**MIDWEST GUARDRAIL SYSTEM  
 TYPICAL VEGETATION CONTROL  
 FOR TERMINAL SYSTEM END TREATMENTS**  
 NO SCALE

RSP A77N6 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N6**

2010 REVISED STANDARD PLAN RSP A77N6

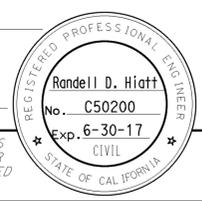
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	31	49

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

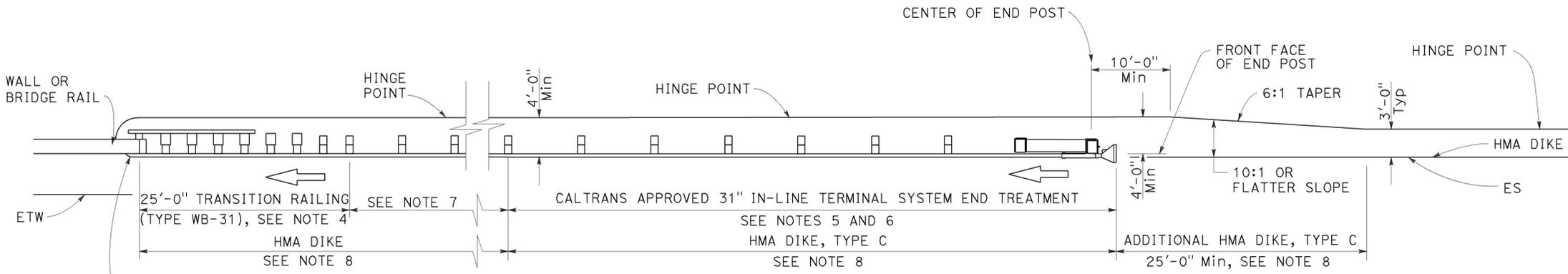
August 14, 2015  
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED 1-25-16

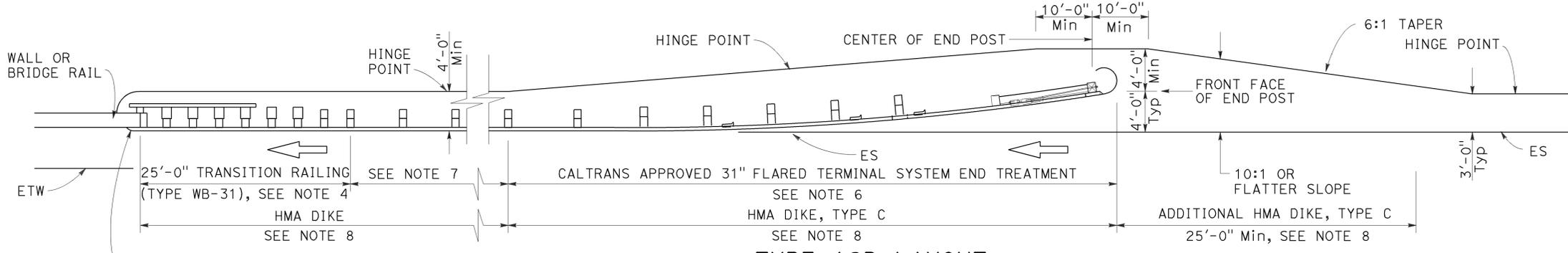


2010 REVISED STANDARD PLAN RSP A77Q1



**TYPE 12A LAYOUT**

(MGS installation at structure approach with 31" in-line end treatment at traffic approach end of railing)  
See Note 9



**TYPE 12B LAYOUT**

(MGS installation at structure approach with 31" Flared end treatment at traffic approach end of railing)  
See Note 9

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL LAYOUTS FOR  
STRUCTURE APPROACH**

NO SCALE

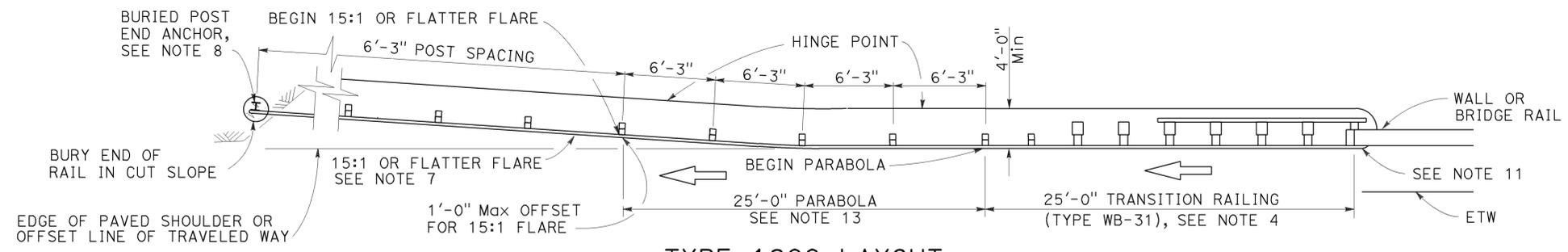
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	32	49

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

August 14, 2015  
PLANS APPROVAL DATE

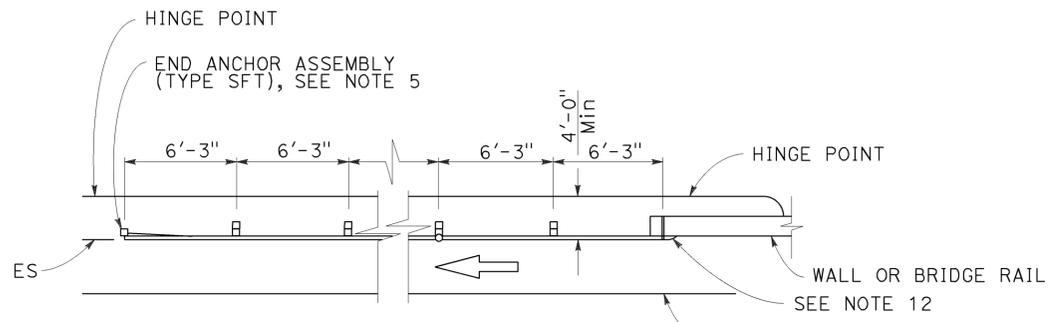
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**TYPE 12CC LAYOUT**

(MGS installation at structure departure with a Buried end anchor treatment at trailing end of railing)  
See Notes 9 and 10



**TYPE 12DD LAYOUT**

(MGS installation at structure departure With end anchor assembly at trailing end of railing)  
See Notes 6 and 9

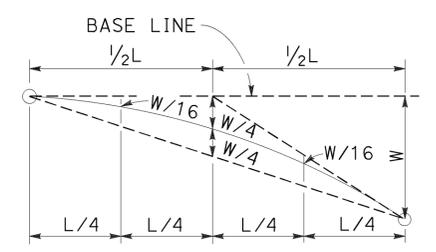


BASE LINE (EDGE OF PAVED SHOULDER OR OFFSET LINE OF EDGE OF TRAVELED WAY)

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

Y = OFFSET FROM BASE LINE  
W = MAXIMUM OFFSET  
X = DISTANCE ALONG BASE LINE  
L = LENGTH OF FLARE

**PARABOLIC FLARE OFFSETS**



**TYPICAL PARABOLIC LAYOUT**

**NOTES:**

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77M1, RSP A77N1 and RSP A77N2.
- MSG 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 12" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 12" 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 12" x 1'-2" wood blocks where applicable and when specified.
- For Transition Railing (Type WB-31) details for Type 12CC Layout, see Revised Standard Plan RSP A77U4.
- For details of End Anchor Assembly (Type SFT) used with Type 12DD Layout, see Revised Standard Plan RSP A77S1.
- Type 12DD layout is typically used to the right of traffic departing a structure on two-way conventional highways where the roadbed width across the structure is equal to or greater than 40 feet and MGS is recommended (embankment height, side slopes, other fixed objects). Length of railing to be equal to multiples of 12'-6". For MGS connection details to bridge rail, see Revised Standard Plans RSP A77U1 and RSP A77V1. For MGS connection details to wall, see Revised Standard Plan RSP A77U3.
- The 15:1 or flatter flare for Type 12CC Layout is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 12CC Layout, see Revised Standard Plan RSP A77T2.
- Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.
- Type 12CC Layout is typically used to the right of traffic departing a structure on two-way conventional highways where the roadbed width across the structure is less than 40 feet.
- For additional details of a typical connection to bridge rail for Layout Type 12CC, see Connection Detail CC on Revised Standard Plan RSP A77U2 and Connection Detail HH on Revised Standard Plan RSP A77V2.
- For additional details of a typical connection to bridge rail for Layout Type 12DD, see Connection Detail BB on Revised Standard Plan RSP A77U1 and Connection Detail GG on Revised Standard Plan RSP A77V1.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL LAYOUTS FOR  
STRUCTURE DEPARTURE**

NO SCALE

RSP A77Q5 DATED AUGUST 14, 2015 SUPERSEDES RSP A77Q5 DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77Q5**

2010 REVISED STANDARD PLAN RSP A77Q5

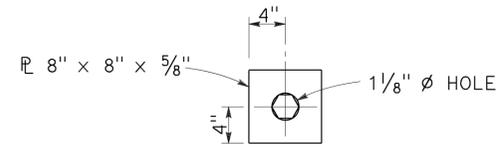
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	33	49

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

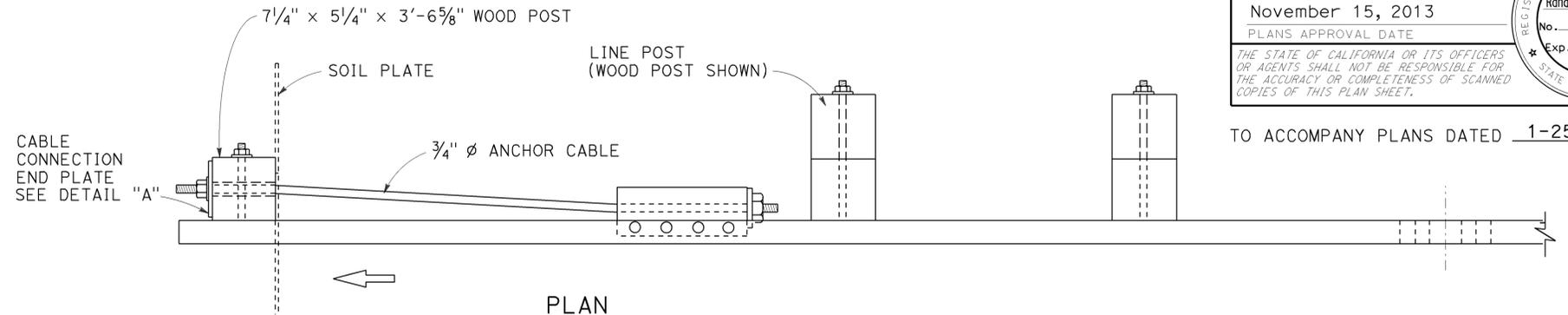
November 15, 2013  
PLANS APPROVAL DATE

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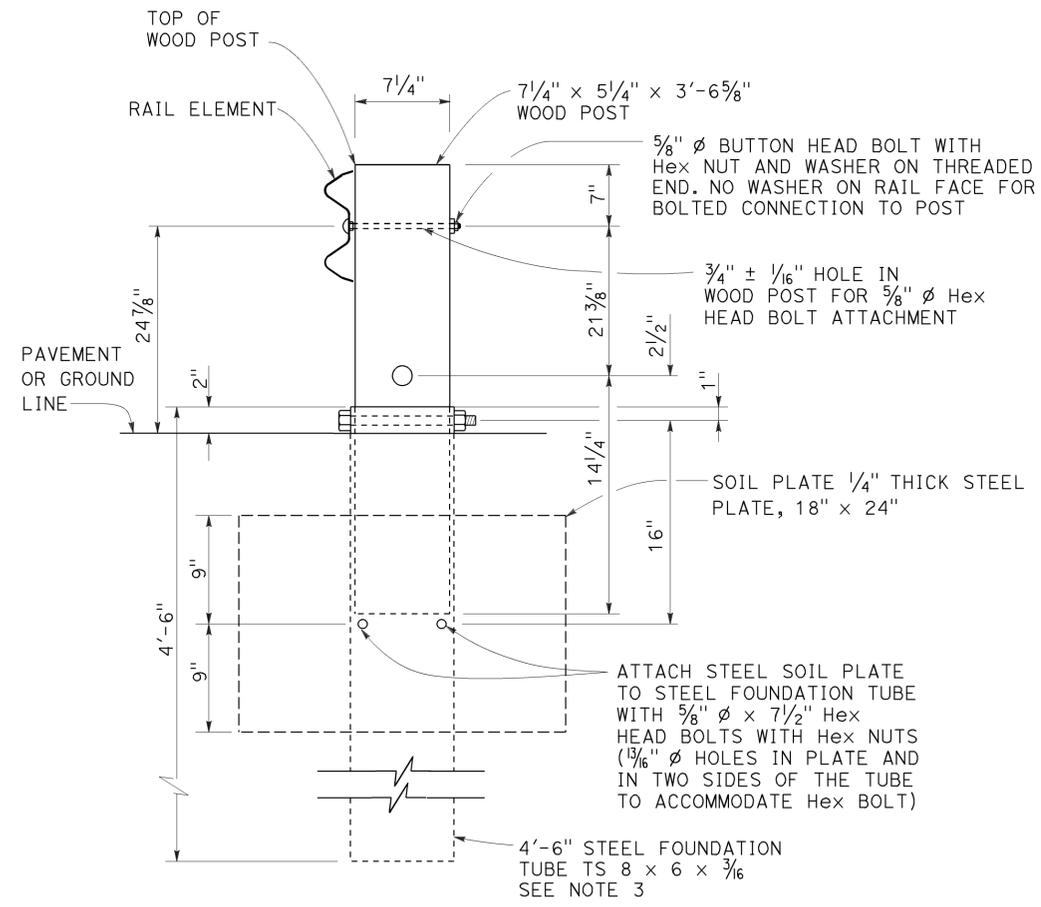
TO ACCOMPANY PLANS DATED 1-25-16



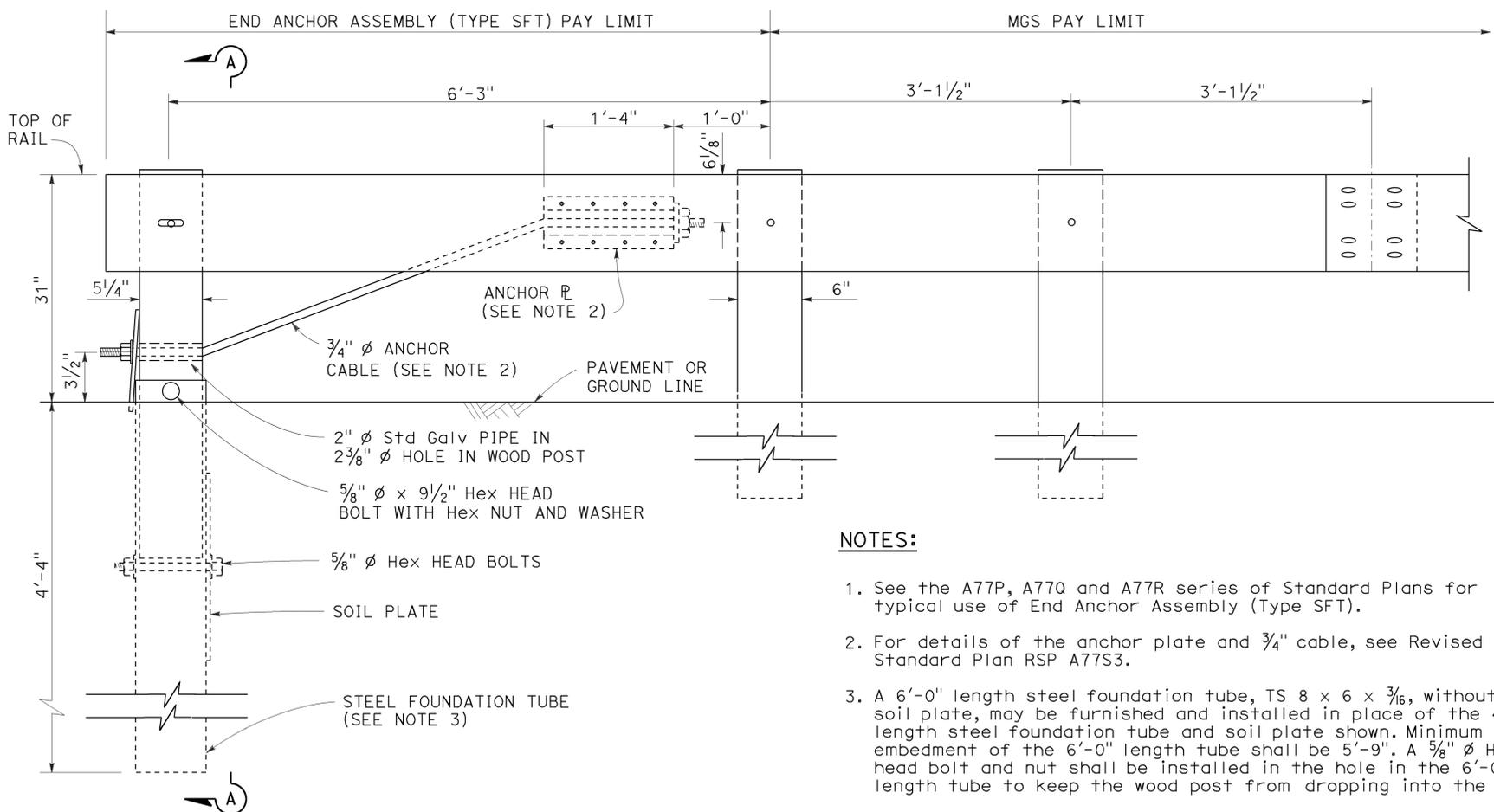
**DETAIL "A"**  
**CABLE CONNECTION**  
**END PLATE**



**PLAN**



**SECTION A-A**



**ELEVATION**

**END ANCHOR**  
**ASSEMBLY (TYPE SFT)**  
See Note 1

**NOTES:**

1. See the A77P, A77Q and A77R 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 Revised Standard Plan RSP A77S3.
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. Install line post, steel foundation tube and soil plate in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**MIDWEST GUARDRAIL SYSTEM**  
**END ANCHOR ASSEMBLY**  
**(TYPE SFT)**

NO SCALE

RSP A77S1 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77S1  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77S1**

2010 REVISED STANDARD PLAN RSP A77S1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	34	49

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

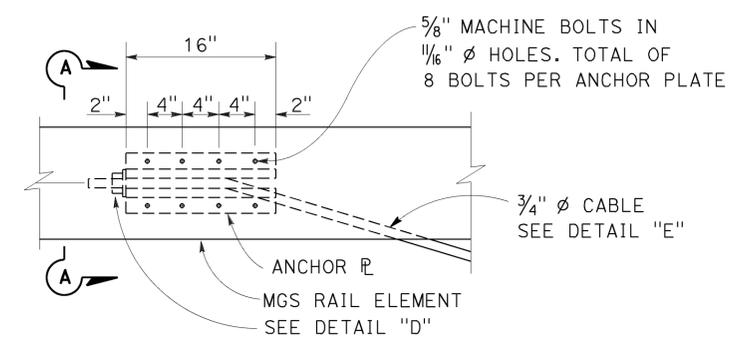
November 15, 2013  
PLANS APPROVAL DATE

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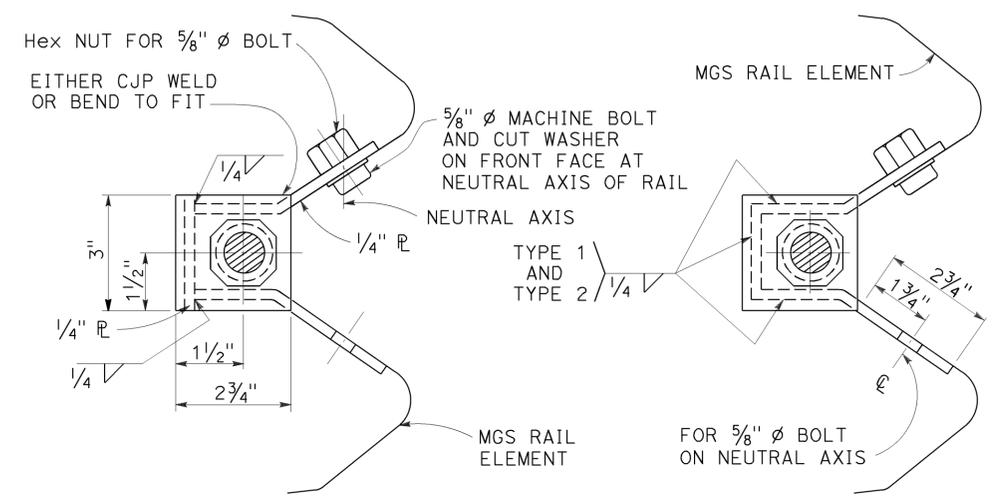
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
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STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 1-25-16

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



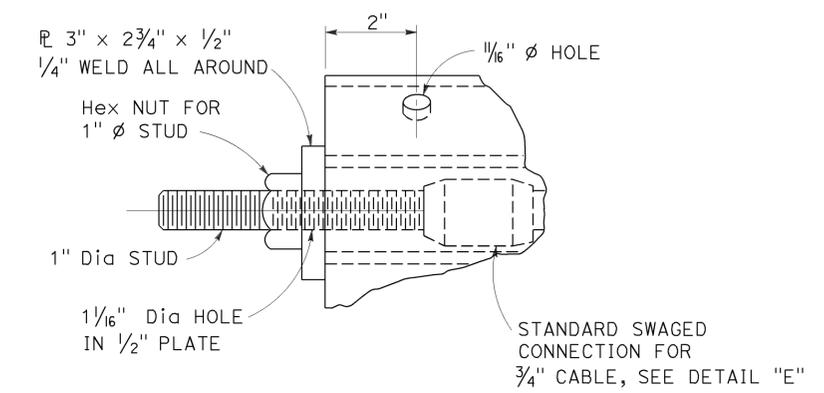
**ANCHOR PLATE DETAIL**  
(MGS shown, TBB similar)



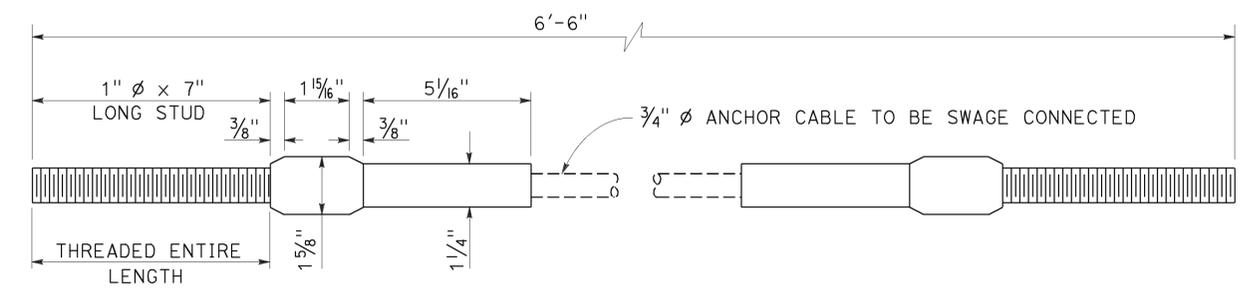
**SECTION A-A**  
(ALTERNATIVE TYPE 1)

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

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



**DETAIL "D"**



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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE  
RSP A77S3 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77S3  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A77S3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	35	49

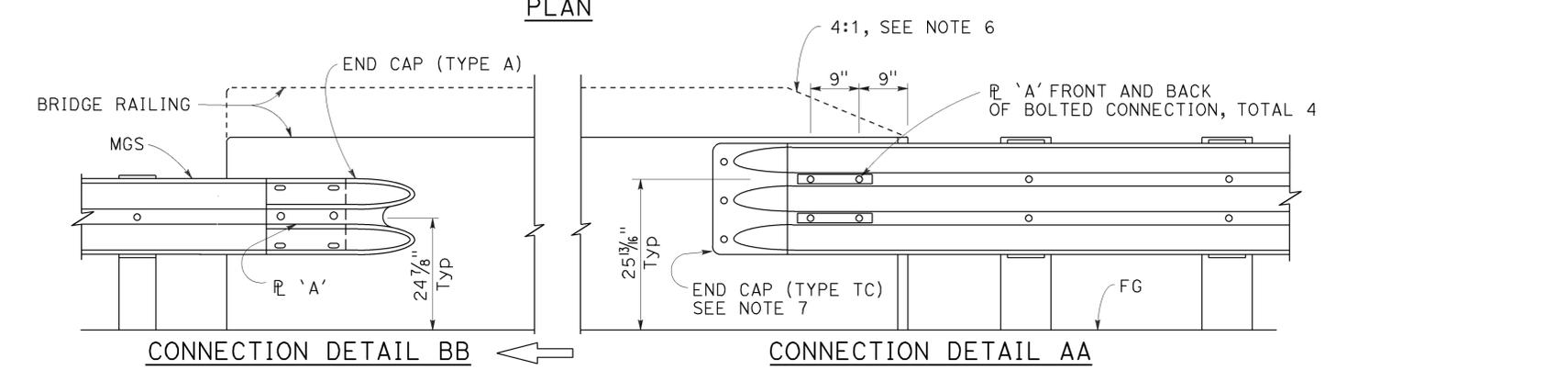
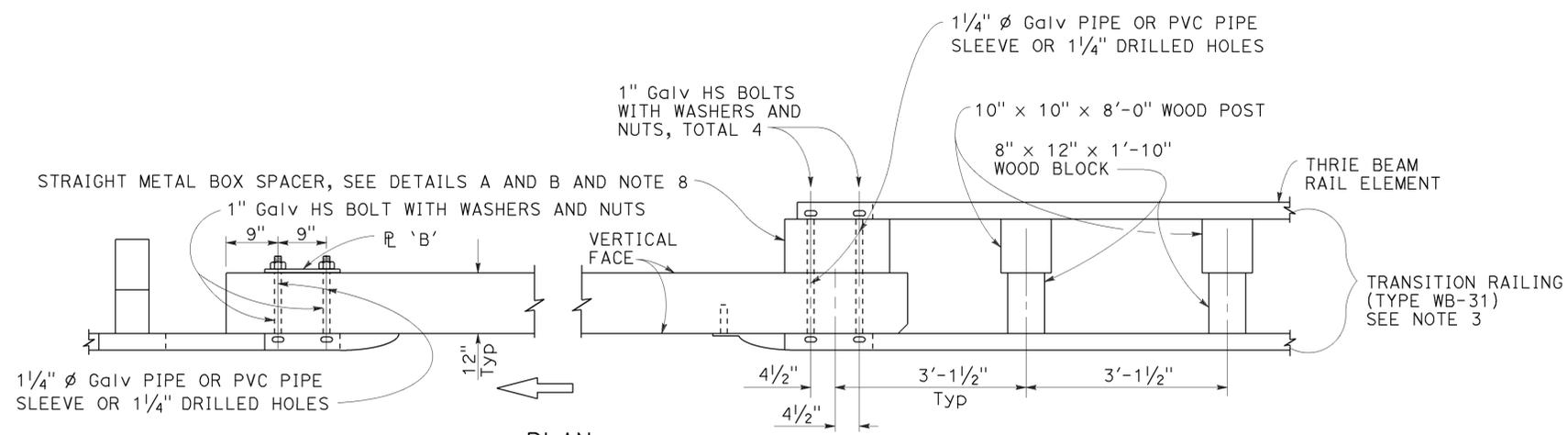
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

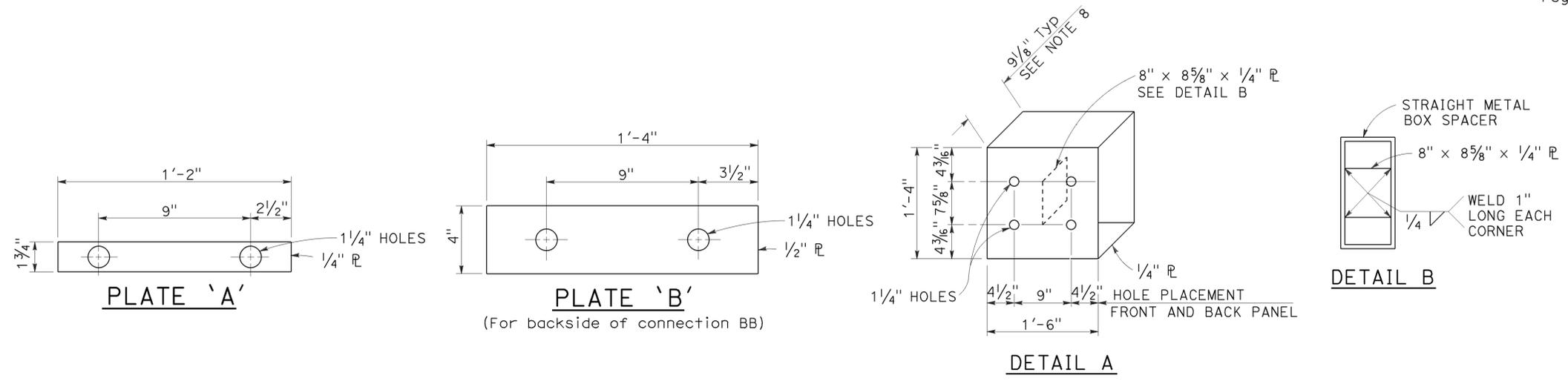
TO ACCOMPANY PLANS DATED 1-25-16



**MIDWEST GUARDRAIL SYSTEM CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK**

**NOTES:**

1. See Revised Standard Plan RSP A77U2 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Revised Standard Plans RSP A77M1, RSP A77N1 and RSP A77N2.
3. For additional details of Transition Railing (Type WB-31), see Revised Standard Plan RSP A77U4. Transition Railing (Type WB-31) transitions the 12 gauge MGS railing section to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
4. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77Q1, Layout Types 12C and 12D on Revised Standard Plan RSP A77Q2, and Layout Type 12E on Revised Standard Plan RSP A77Q3.
5. For typical use of Connection Detail BB, see Layout Type 12D (structure departure railing connection) on Revised Standard Plan RSP A77Q2 and Layout Type 12DD on Revised Standard Plan RSP A77Q5.
6. 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.
7. For details of End Cap (Type TC), see Revised Standard Plan RSP A77U4.
8. See Revised Standard Plan RSP A77U4 for additional details regarding depth dimension for straight metal box spacer.



**STRAIGHT METAL BOX SPACER**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**MIDWEST GUARDRAIL SYSTEM CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS**  
**DETAILS No. 1**

NO SCALE

RSP A77U1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77U1**

2010 REVISED STANDARD PLAN RSP A77U1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	36	49

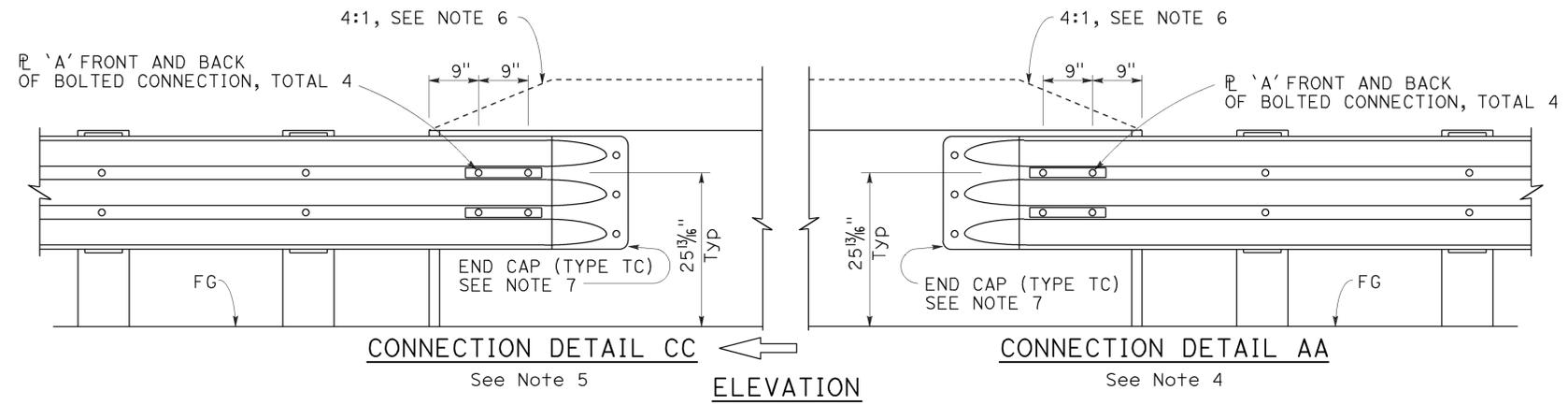
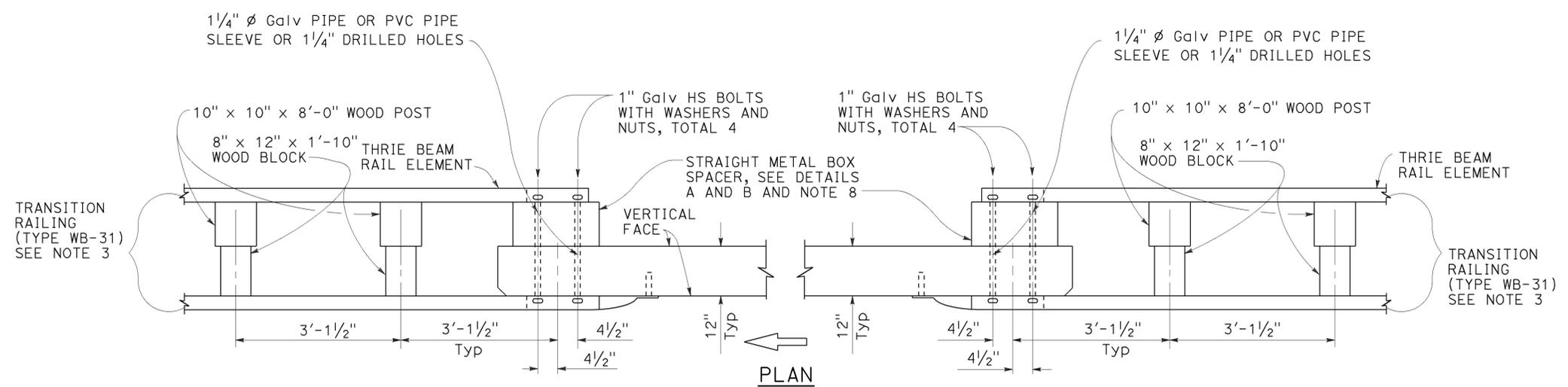
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

July 19, 2013  
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No. C50200  
Exp. 6-30-15  
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STATE OF CALIFORNIA

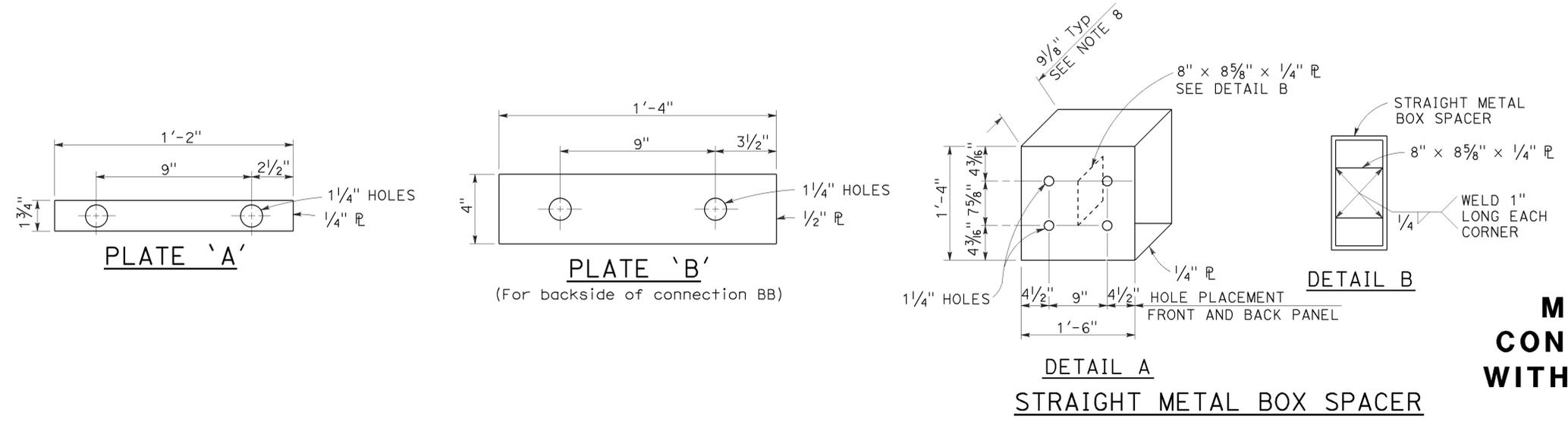
TO ACCOMPANY PLANS DATED 1-25-16



**MIDWEST GUARDRAIL SYSTEM CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK**

**NOTES:**

1. See Revised Standard Plan RSP A77U1 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Revised Standard Plans RSP A77M1, RSP A77N1 and RSP A77N2.
3. For additional details of Transition Railing (Type WB-31), see Revised Standard Plan RSP A77U4. Transition Railing (Type WB-31) transitions the 12 gauge MGS railing section to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
4. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77Q1, Layout Types 12C and 12D on Revised Standard Plan RSP A77Q2, and Layout Type 12E on Revised Standard Plan RSP A77Q3.
5. For typical use of Connection Detail CC, see Layout Types 12AA and 12BB on Revised Standard Plan RSP A77Q4 and Layout Type 12CC on Revised Standard Plan RSP A77Q5.
6. 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.
7. For details of End Cap (Type TC), see Revised Standard Plan RSP A77U4.
8. See Revised Standard Plan RSP A77U4 for additional details regarding depth dimension for straight metal box spacer.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
CONNECTIONS TO BRIDGE RAILINGS  
WITHOUT SIDEWALKS DETAILS No. 2**

NO SCALE

RSP A77U2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77U2**

2010 REVISED STANDARD PLAN RSP A77U2

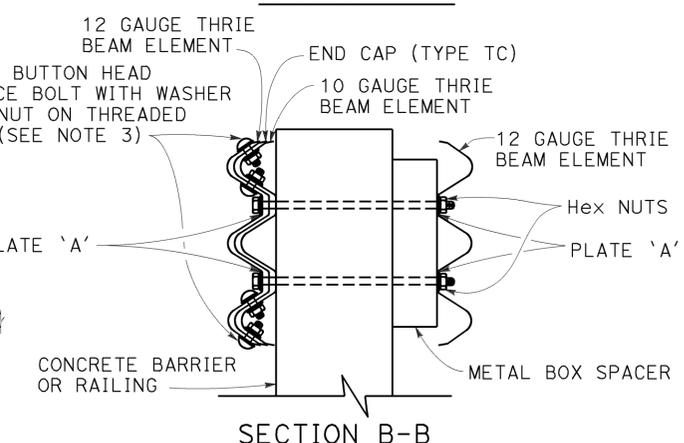
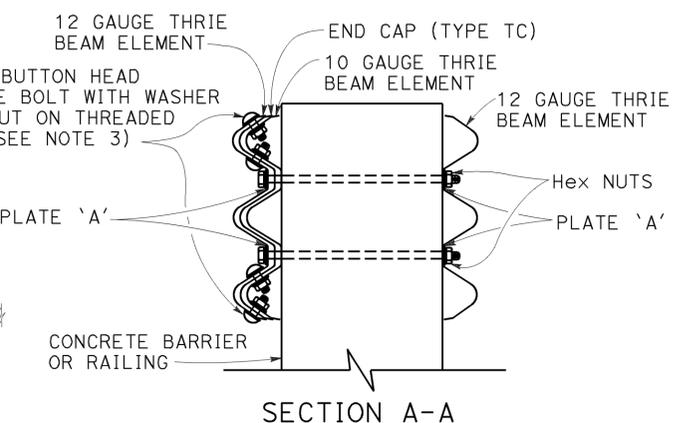
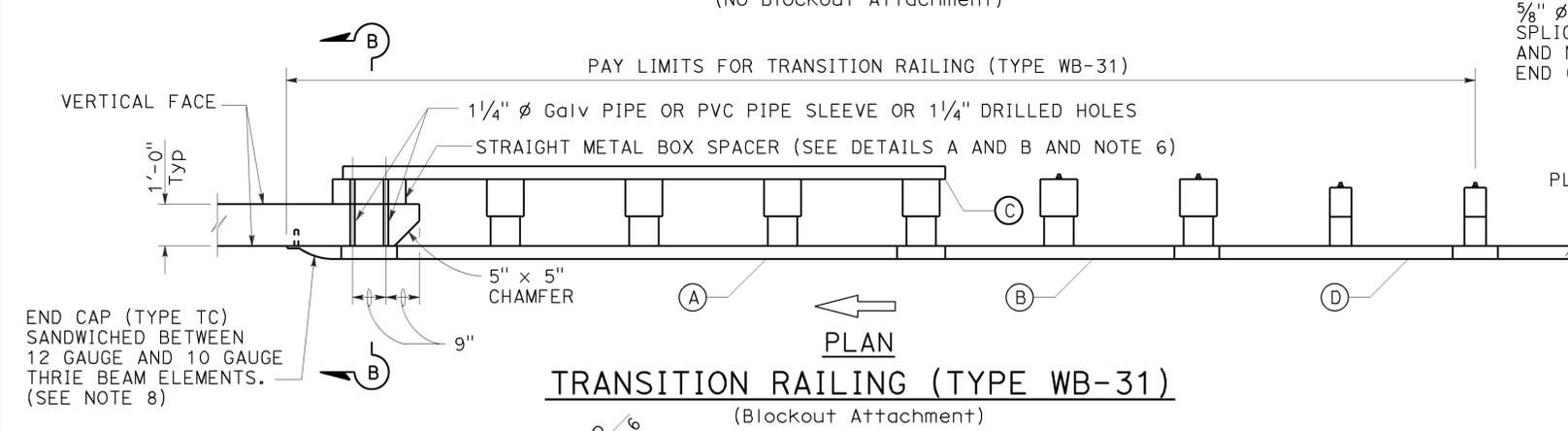
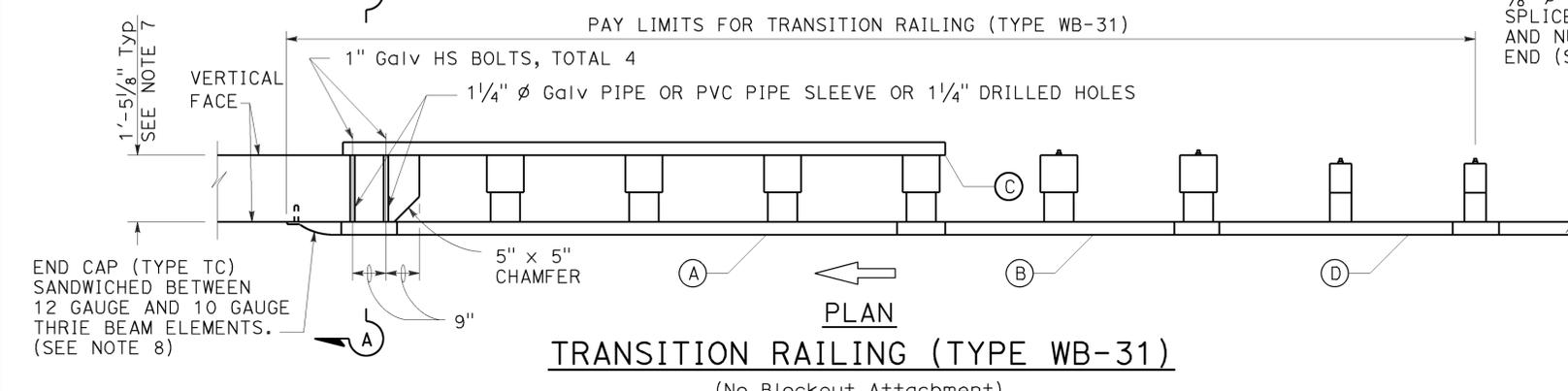
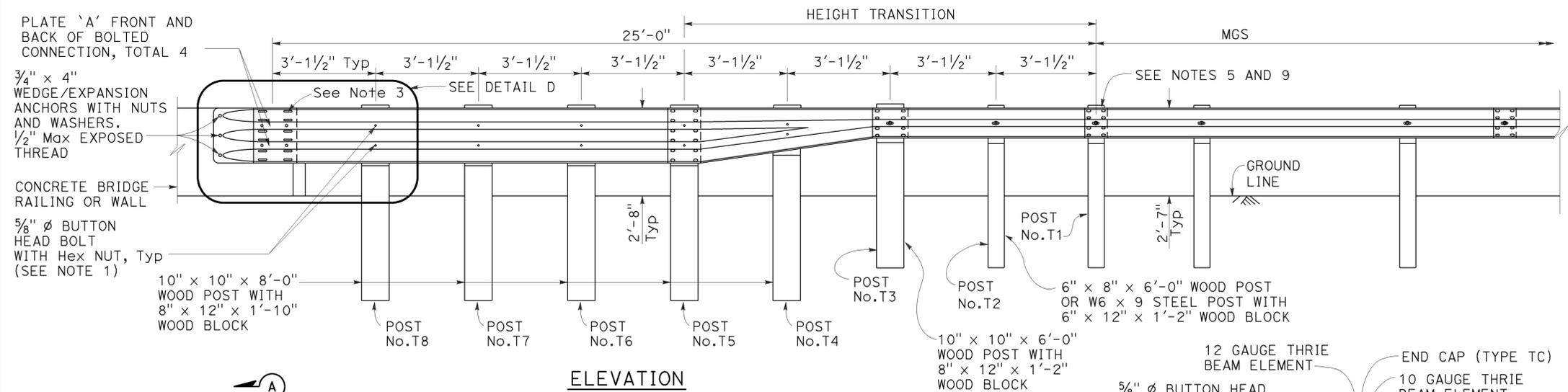
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	37	49

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

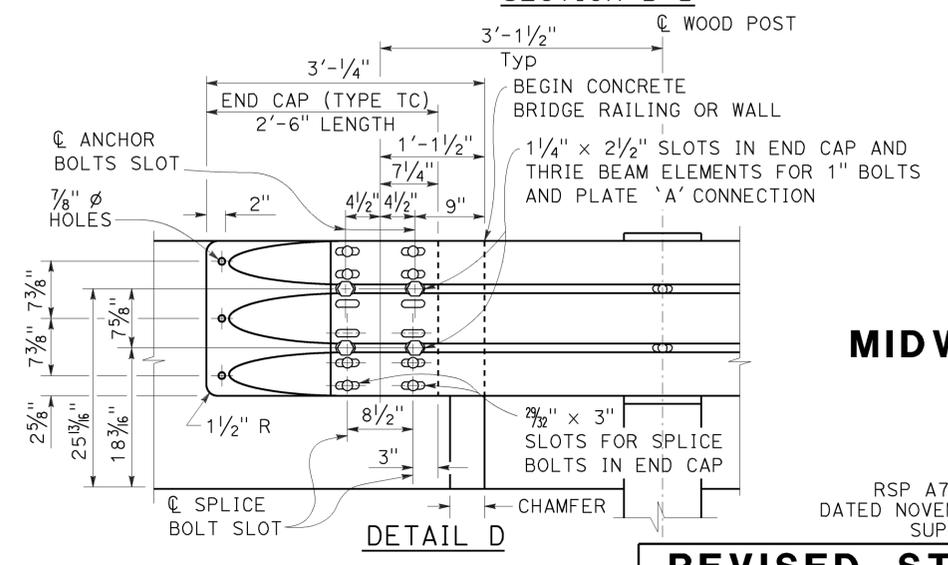
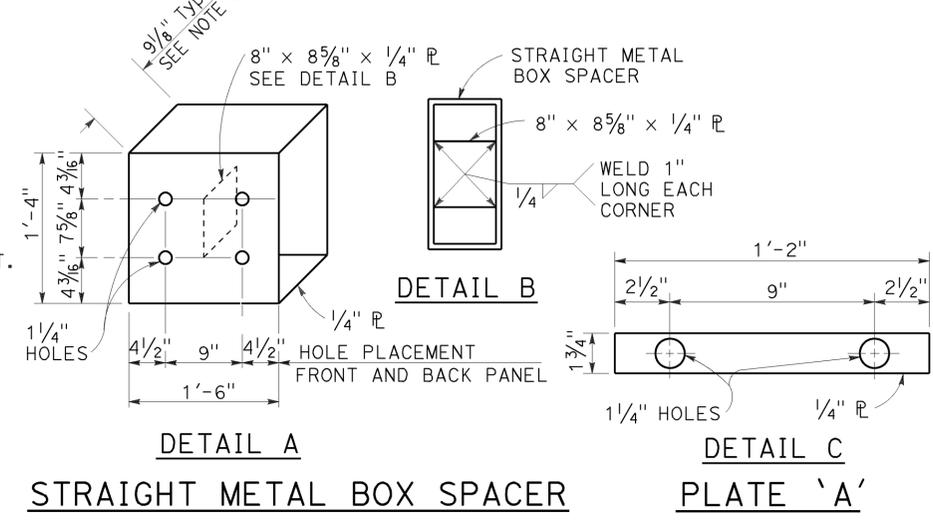
January 23, 2015  
PLANS APPROVAL DATE

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

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



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



**NOTES:** TO ACCOMPANY PLANS DATED 1-25-16

1. Use 5/8"  $\phi$  Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
2. The nested rail elements, end cap, and "W" beam to thrie beam element may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
3. Exterior splice bolt holes for rail element splices at Post No. T5 and the connection to the concrete barrier or railing shall be the standard 29/32" x 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1/4"  $\phi$ . Only the top 4 and the bottom 4 splice bolts with washers and nuts are required for rail splices at Post No. T5 and the connection to the concrete barrier or railing.
4. The top elevation of Posts No. T2 through No. T7 shall not project more than 1" above the top elevation of the rail element.
5. Typically, the railing connected to Transition Railing (Type WB-31) will be either standard railing section of MGS with height transition ratio of 150:1 or a Caltrans approved 31" end treatment attached to Post No. T1.
6. The depth of the metal box spacer varies from the 9/8" to 1/2" and is dependent on the width of the concrete railing or wall. The combined dimension for the depth of the metal box spacer plus the width of railing or wall is typically 21 1/8". Where the space between the backside of the concrete railing or wall and the rear thrie beam element is less than 1/2", metal plates similar to Plate 'A' are to be used as spacers.
7. Where the width of the concrete railing or wall is greater than 17 1/8", wood blocks are to be used to fill the space created between the backside of Posts No. T5 through No. T8 and the rear thrie beam element. These wood blocks shall be 8" in width and 1'-2" in length. The dimension between the front thrie beam element and the rear thrie beam element is to match the width of the concrete railing or wall.
8. End cap may be installed over 12 gauge and 10 gauge thrie beam elements where transition railing is installed on the departure end of bridge railing.
9. Conform standard railing section height to 31" at Post No. T1 using height transition ratio of 150:1.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

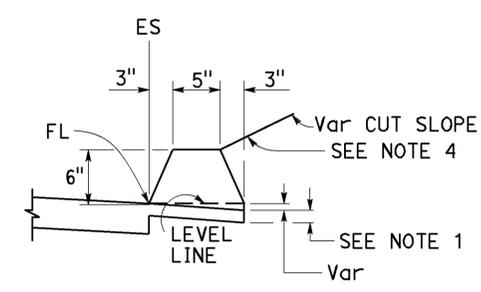
NO SCALE

RSP A77U4 DATED JANUARY 23, 2015 SUPERSEDES RSP A77U4 DATED NOVEMBER 15, 2013 AND RSP A77U4 DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

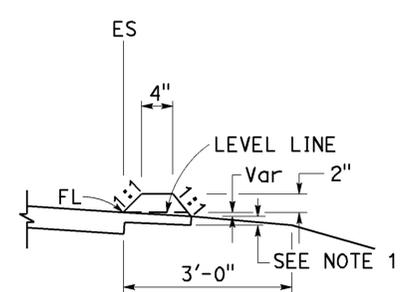
**REVISED STANDARD PLAN RSP A77U4**

2010 REVISED STANDARD PLAN RSP A77U4

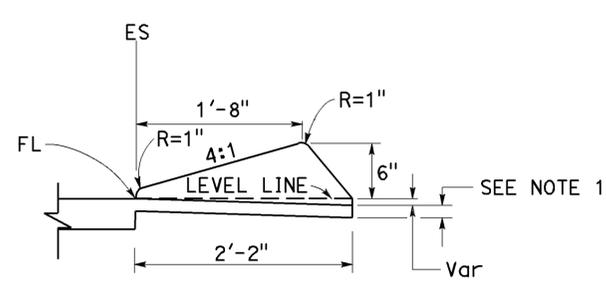
TO ACCOMPANY PLANS DATED 1-25-16



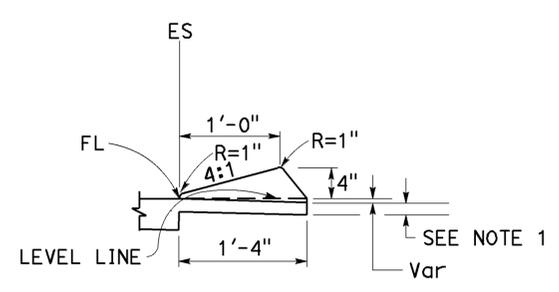
**TYPE A**  
See Notes 3 and 5



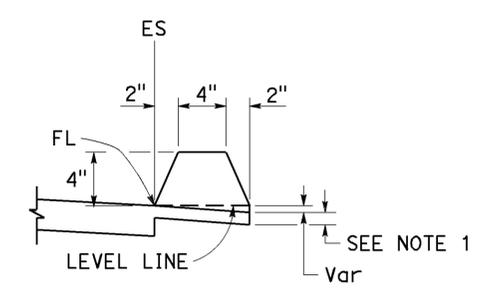
**TYPE C**



**TYPE D**

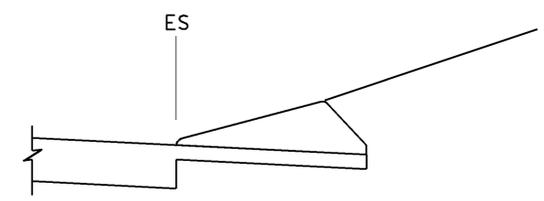


**TYPE E**

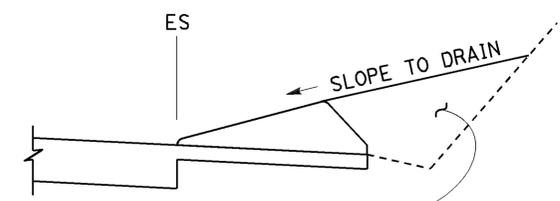


**TYPE F**  
See Note 5

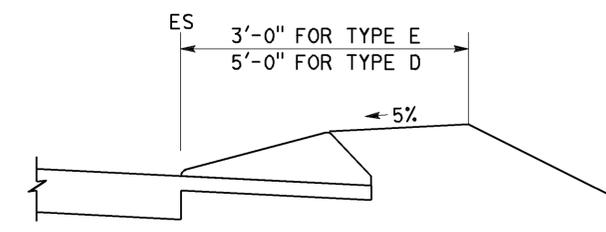
**DIKES**



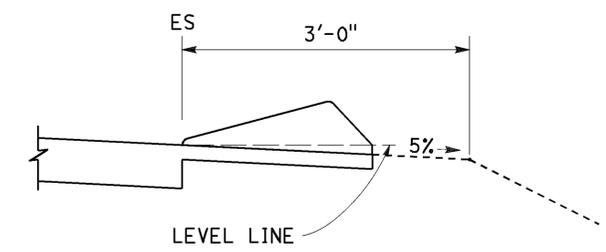
**CASE C-1**  
Cut Slope



**CASE C-2**  
Cut Slope



**CASE F**



**CASE R**  
See Note 2

**TYPE D AND E BACKFILL DETAILS**

**NOTES:**

- For HMA shoulders only, extend top layer of HMA placed on the shoulder under dike with no joint at the ES. For projects with OGFC shoulders, do not extend OGFC under dike. See project plans for modified dike detail.
- Case R applies to retrofit only projects where restrictive conditions do not provide enough width for Case F backfill.
- Type A dike only to be used where restrictive slope conditions do not provide enough width to use Type D or Type E dike.
- Fill and compact with excavated material to top of dike.
- Use Type A or F dike, where dike is required with guardrail installations. See Revised Standard Plan RSP A77N4 for dike positioning details. See Revised Standard Plan RSP A77N3 for hinge point offsets with guardrail.

**DIKE QUANTITIES**

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

Quantities based on 5% cross slope.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**HOT MIX ASPHALT DIKES**

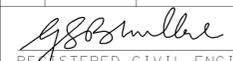
NO SCALE

RSP A87B DATED JANUARY 15, 2016 SUPERSEDES RSP A87B DATED JULY 19, 2013 AND STANDARD PLAN A87B DATED MAY 20, 2011 - PAGE 120 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A87B**

2010 REVISED STANDARD PLAN RSP A87B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	39	49

  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE



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

TO ACCOMPANY PLANS DATED 1-25-16

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING							
SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	X	Y	Z **
					TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	55	110	27
60	1440	720	360	240	60	120	30
65	1560	780	390	260	65	130	32
70	1680	840	420	280	70	140	35

\* - For other offsets, use the following merging taper length formula for L:  
 For speed of 40 mph or less,  $L = WS^2/60$   
 For speed of 45 mph or more,  $L = WS$

Where: L = Taper length in feet  
 W = Width of offset in feet  
 S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

\*\* - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING				
SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
		ft	ft	ft
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

\* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph  
 \*\* - Longitudinal buffer space or flagger station spacing  
 \*\*\* - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

\* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

## TRAFFIC CONTROL SYSTEM TABLES FOR LANE AND RAMP CLOSURES

NO SCALE

RSP T9 DATED JULY 19, 2013 SUPERSEDES RSP T9 DATED APRIL 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T9**

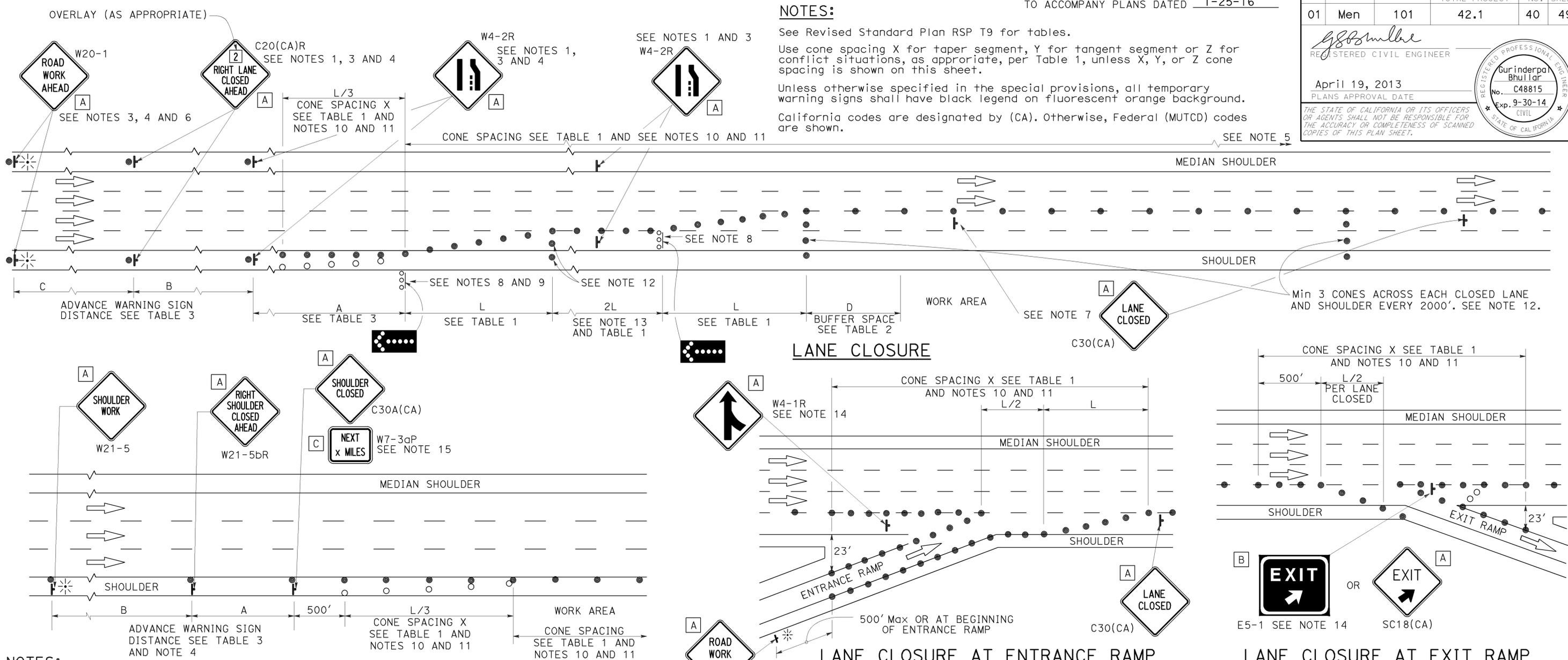
2010 REVISED STANDARD PLAN RSP T9

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	40	49

REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE

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

2010 REVISED STANDARD PLAN RSP T10



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

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

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

**LEGEND**

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

**SIGN PANEL SIZE (Min)**

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

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

## REVISED STANDARD PLAN RSP T10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	41	49

REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE  
 Gurinderpal Bhullar  
 No. C48815  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**LEGEND**

- TRAFFIC CONE
- ⌋ TEMPORARY TRAFFIC CONTROL SIGN
- ⬢ FLASHING ARROW SIGN (FAS)
- ⦿ FAS SUPPORT OR TRAILER
- ⊛ PORTABLE FLASHING BEACON

**SIGN PANEL SIZE (Min)**

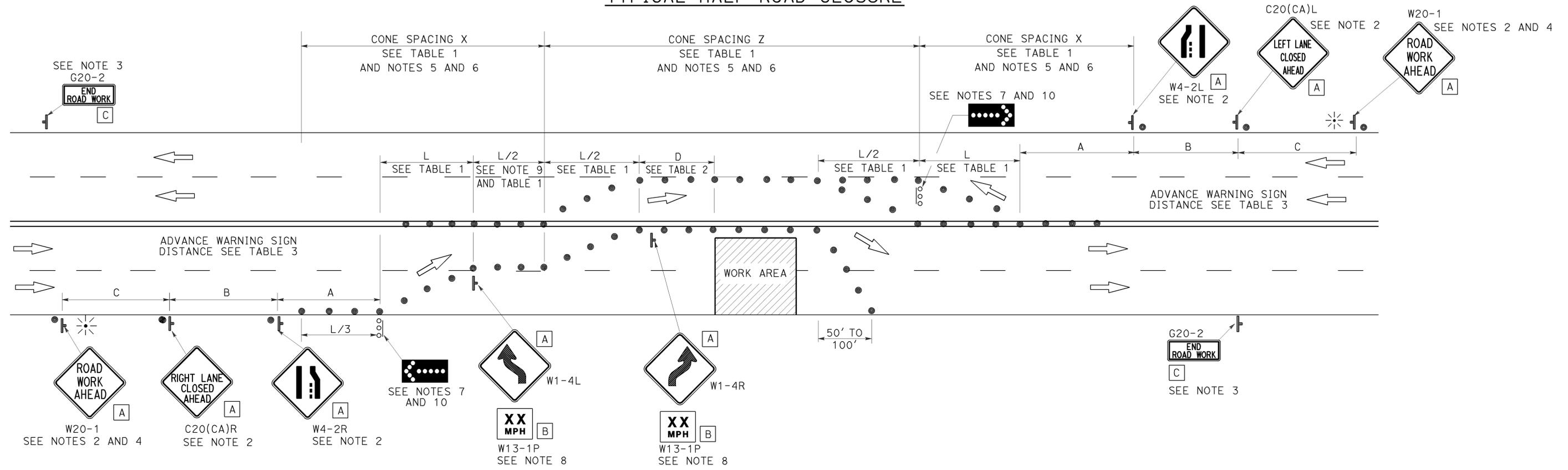
- A 48" x 48"
- B 24" x 24"
- C 36" x 18"

**NOTES:**

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

TO ACCOMPANY PLANS DATED 1-25-16

**TYPICAL HALF ROAD CLOSURE**



**NOTES:**

1. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.
2. Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious, or ends within a larger project's limits.
4. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT \_\_\_\_\_ MILES", use a C20(CA) sign for the first advance warning sign.
5. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
6. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
7. Flashing arrow signs shall be either Type I or Type II.
8. Advisory speed will be determined by the Engineer. The W13-1P Plaque will not be required when advisory speed is more than the posted or maximum speed limit.
9. Unless otherwise specified in the special provisions, the tangent (L/2) shall be used.
10. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM  
 FOR HALF ROAD CLOSURE ON  
 MULTILANE CONVENTIONAL  
 HIGHWAYS AND EXPRESSWAYS**

NO SCALE

RSP T12 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T12 DATED MAY 20, 2011 - PAGE 240 OF THE STANDARD PLANS BOOK DATED 2010.

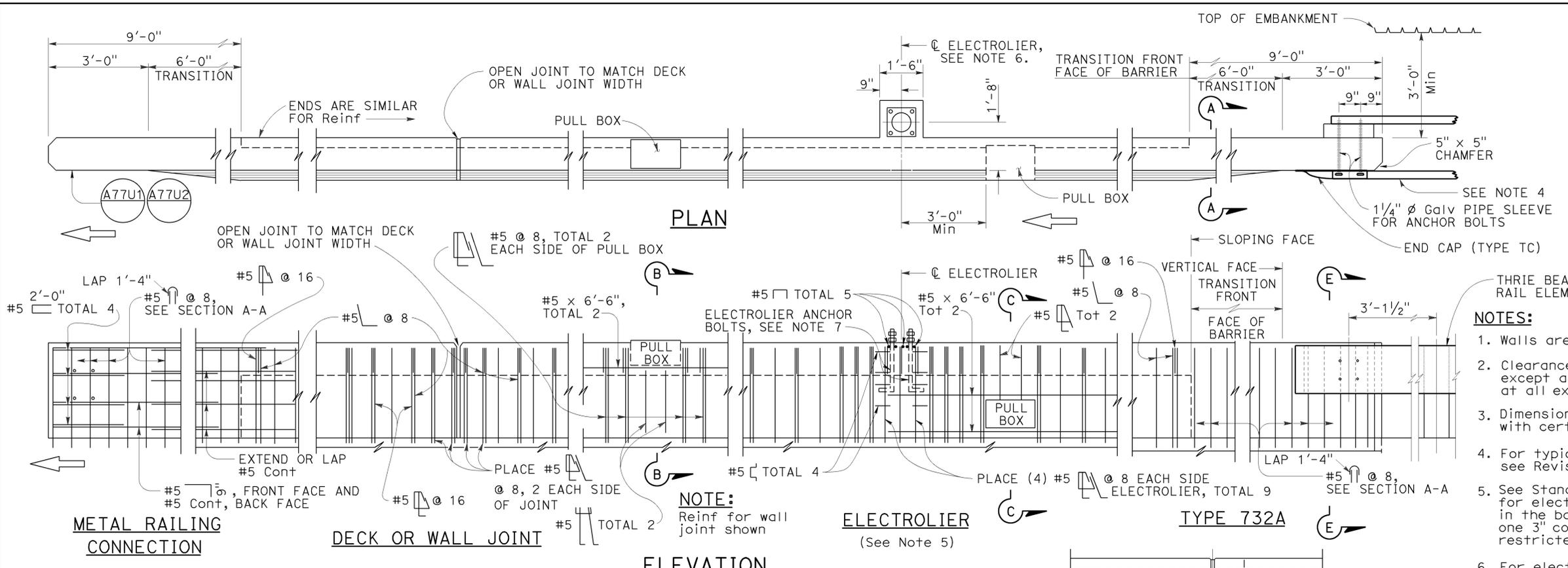
**REVISED STANDARD PLAN RSP T12**

2010 REVISED STANDARD PLAN RSP T12

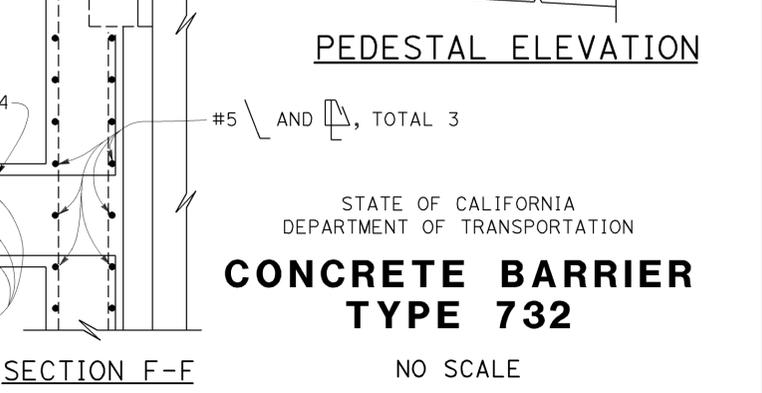
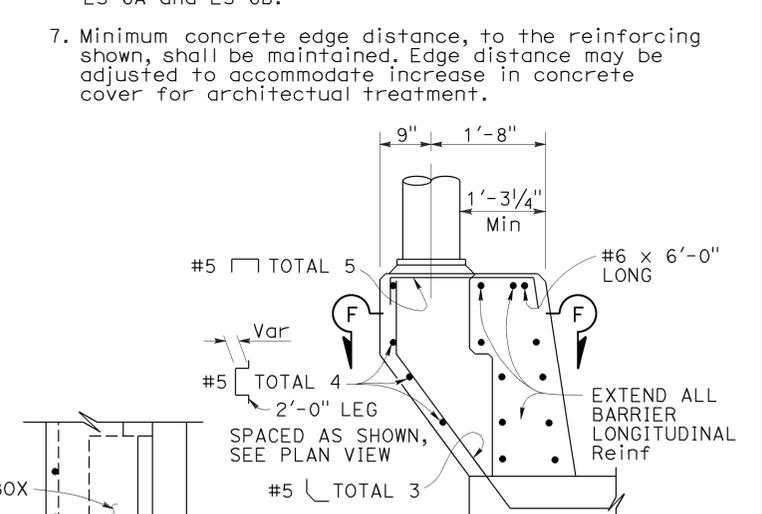
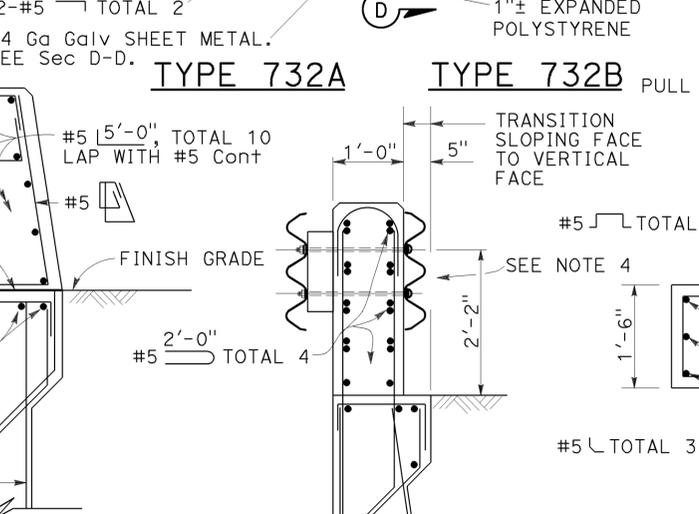
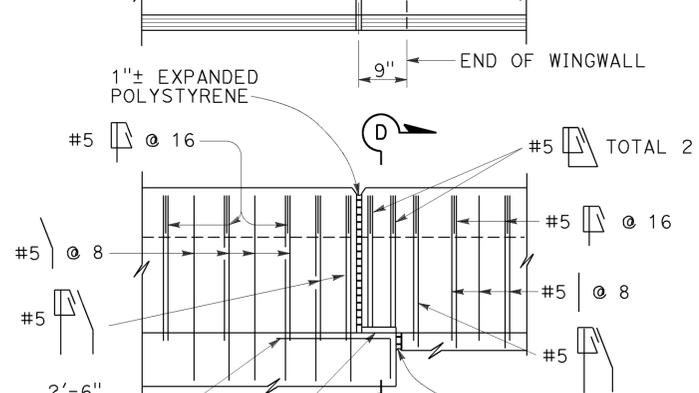
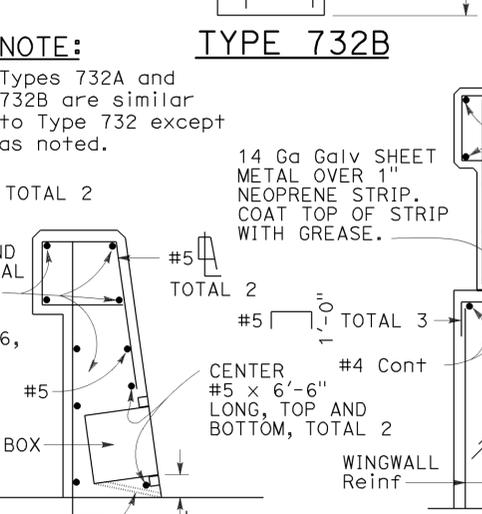
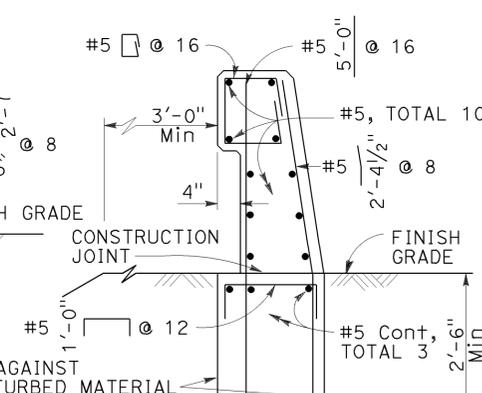
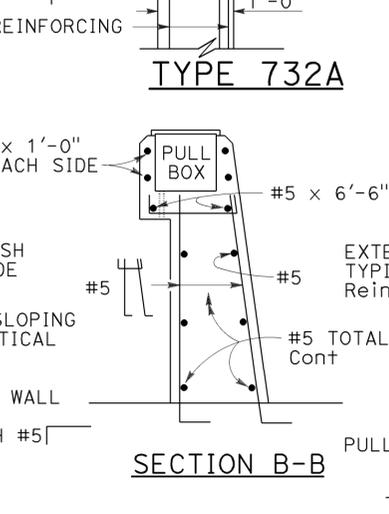
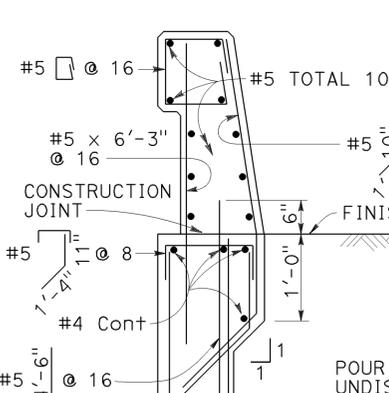
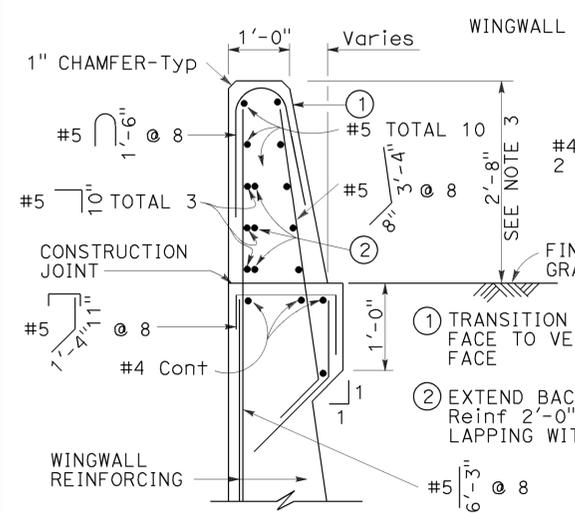
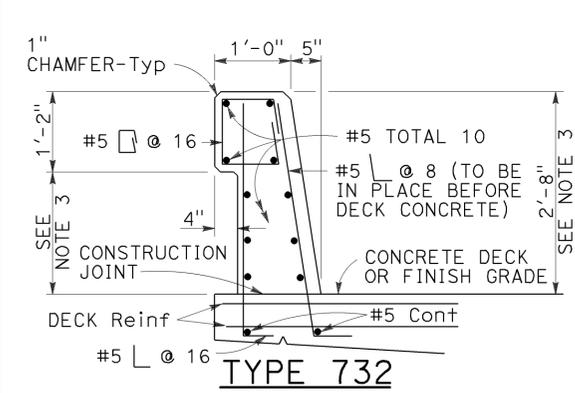
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	42	49

REGISTERED CIVIL ENGINEER  
 November 15, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.  
 TO ACCOMPANY PLANS DATED 1-25-16

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



- NOTES:**
- Walls are to be backfilled before barrier is placed.
  - Clearance to reinforcing steel in barrier to be 1", except as noted. Longitudinal reinforcement to stop at all expansion joints.
  - Dimensions may vary with roadway cross slope and with certain thickness of surfacing. See Project Plans.
  - For typical metal railing connection details not shown, see Revised Standard Plans RSP A77U1 and RSP A77U2.
  - See Standard Plans ES-9A, ES-9B, ES-9C, ES-9D and ES-9E for electrical details. The maximum number of conduits in the barrier is limited to two 2" conduits along with one 3" conduit. When a 3" conduit is used, it is restricted to the base of the barrier.
  - For electrolier mounting details, See Standard Plans ES-6A and ES-6B.
  - Minimum concrete edge distance, to the reinforcing shown, shall be maintained. Edge distance may be adjusted to accommodate increase in concrete cover for architectural treatment.



Details shown for barrier anchorage to Type 732A. Anchorage for barrier Types 732 and 732A are similar to their respective details.

2010 REVISED STANDARD PLAN RSP B11-55

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CONCRETE BARRIER  
 TYPE 732**  
 NO SCALE

RSP B11-55 DATED NOVEMBER 15, 2013 SUPERSEDES  
 RSP B11-55 DATED JULY 19, 2013 AND STANDARD PLAN B11-55  
 DATED MAY 20, 2011 - PAGE 297 OF THE STANDARD PLANS BOOK DATED 2010.

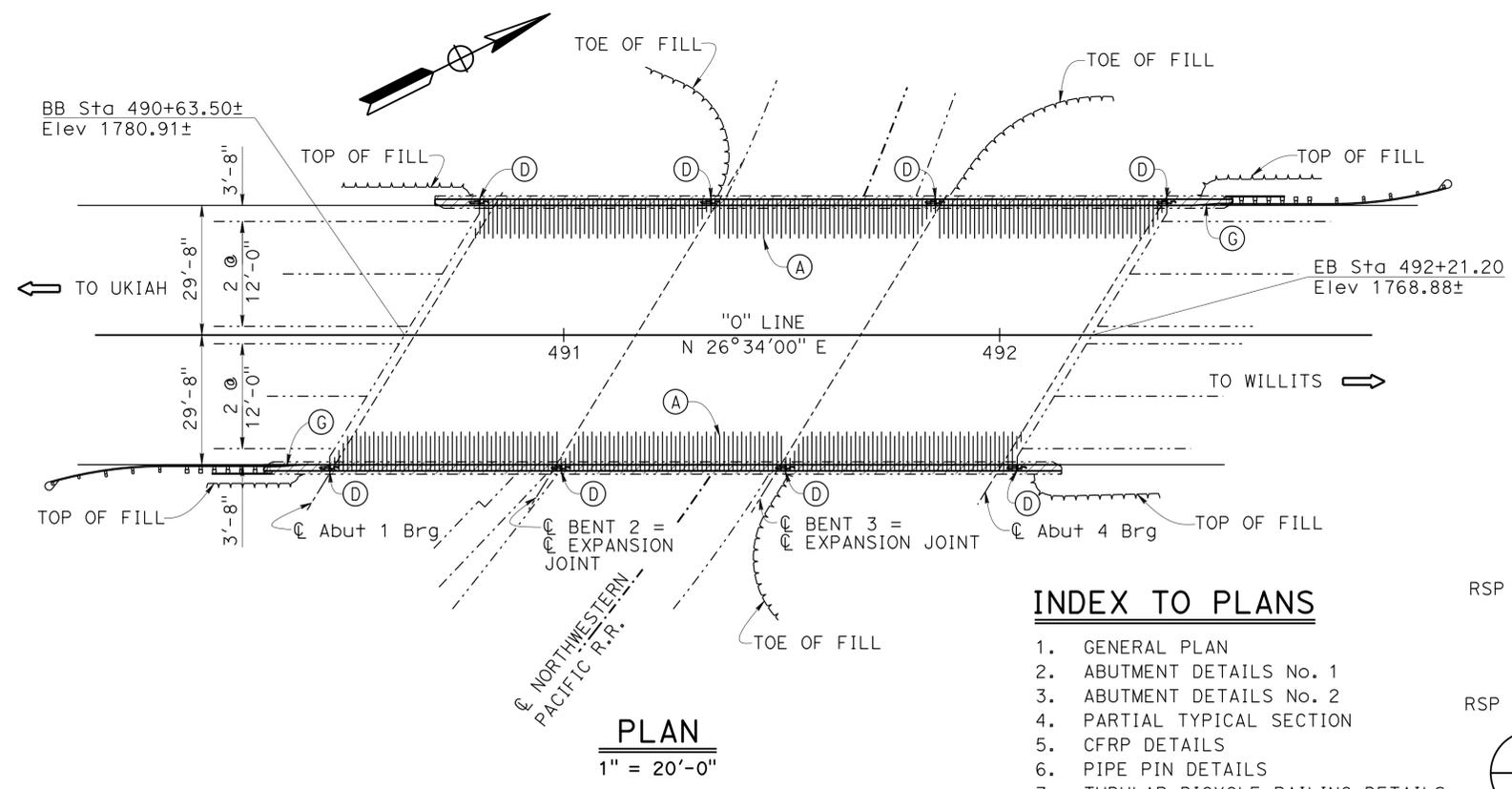
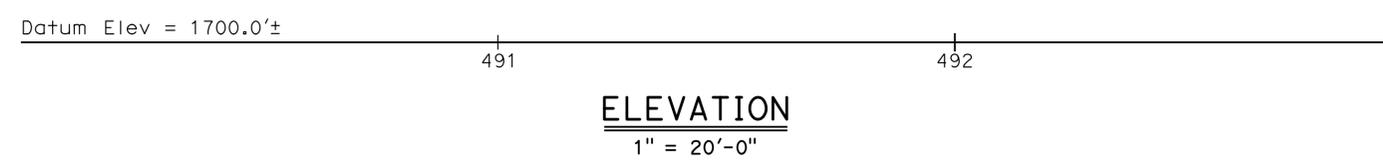
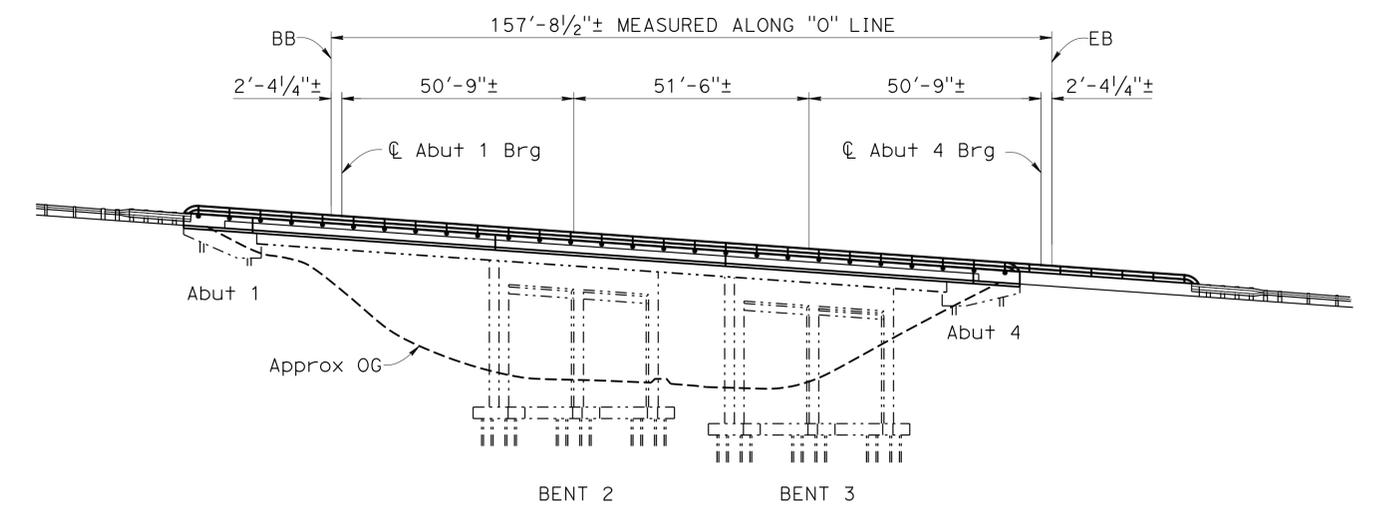
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
1	Men	101	42.1	43	49

10-19-15  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE  
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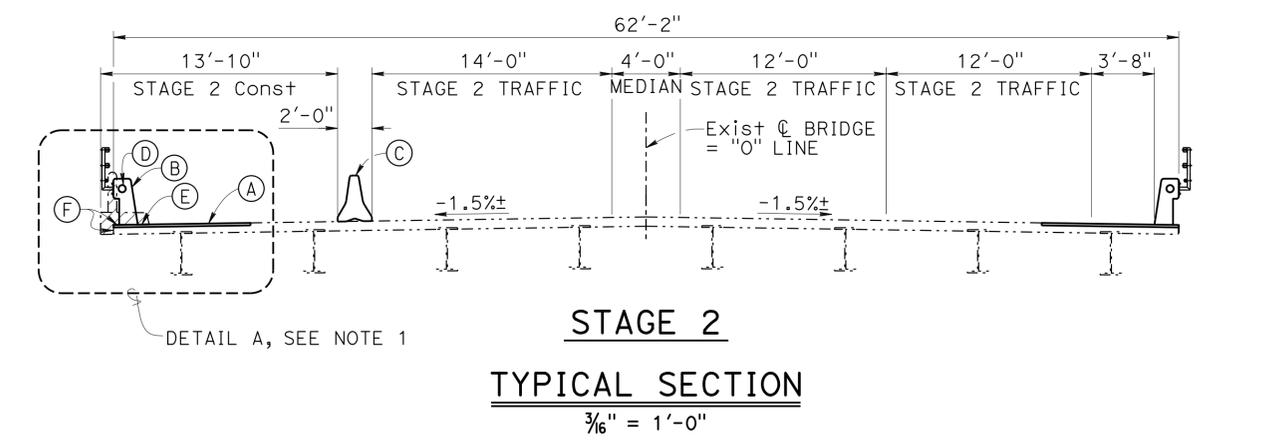
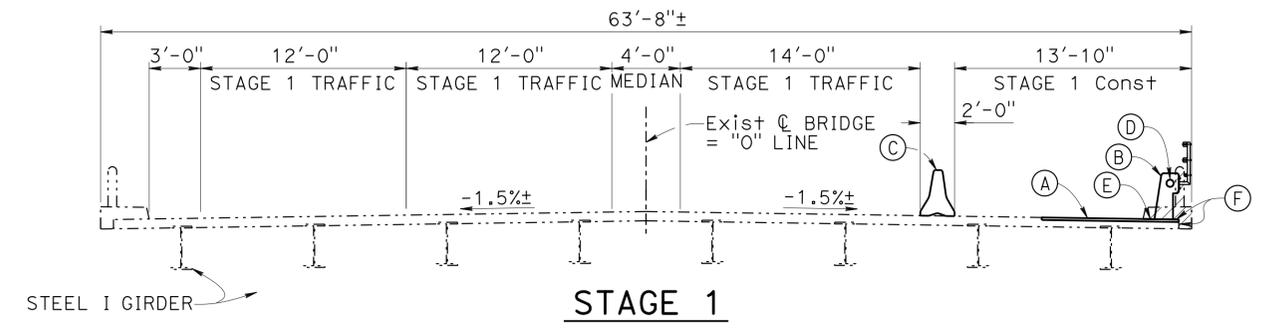
G. SLOCUM  
 No. 44950  
 Exp. 3-31-18  
 CIVIL  
 STATE OF CALIFORNIA

NOTE:  
1. For Detail A, see "PARTIAL TYPICAL SECTION" sheet.

- LEGEND:
- (A) or [diagonal lines] Indicates limits of sawcut grooves in existing concrete deck and place new Carbon Fiber Reinforced Polymer (CFRP) flexural strengthening in each groove, see "CFRP DETAILS" sheet.
  - (B) New Concrete Barrier Type 732 MOD with bicycle railing.
  - (C) Temporary railing Type K, see "Roadway Plans".
  - (D) Barrier Pipe Pin, see "PIPE PIN DETAILS" sheet.
  - (E) Place polyester concrete patch to match existing overlay.
  - (F) Repair deck surfaces after removal of existing curb, see Detail A.
  - (G) Paint bridge name "SOUTH WILLITS" and number "10-0001".
  - Indicates new construction
  - - - Indicates existing structure
  - [hatched area] Indicates metal bridge rail and concrete sidewalk removal (Bridge removal, portion)



- INDEX TO PLANS**
- GENERAL PLAN
  - ABUTMENT DETAILS No. 1
  - ABUTMENT DETAILS No. 2
  - PARTIAL TYPICAL SECTION
  - CFRP DETAILS
  - PIPE PIN DETAILS
  - TUBULAR BICYCLE RAILING DETAILS



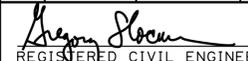
- STANDARD PLANS 2010**
- A10A ABBREVIATIONS (SHEET 1 OF 2)
  - RSP A10B ABBREVIATIONS (SHEET 2 OF 2)
  - A10C LINE AND SYMBOLS
  - A10D LINE AND SYMBOLS
  - A62C LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE
  - RSP B11-55 CONCRETE BARRIER TYPE 732 MOD
- (circle with arrow) STANDARD PLAN SHEET No.  
 (circle with arrow) DETAIL No.

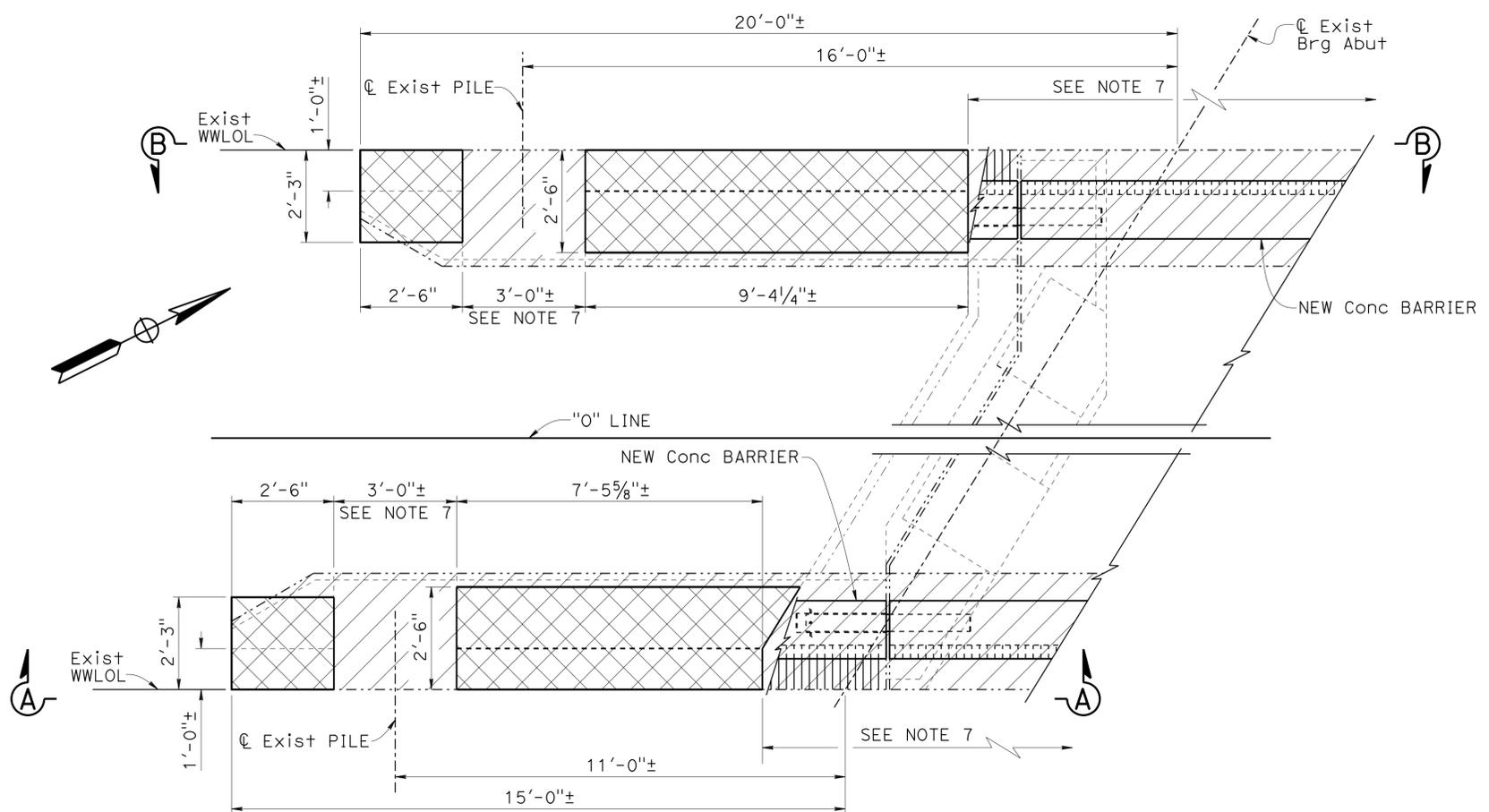
QUANTITIES

REPAIR SPALLED SURFACE AREA	169	SQFT
PREPARE CONCRETE BRIDGE DECK SURFACE	210	SQFT
REFINISH BRIDGE DECK	140	SQFT
FURNISH POLYESTER CONCRETE OVERLAY	16	CF
PLACE POLYESTER CONCRETE OVERLAY	210	SQFT
CARBON FIBER REINFORCED POLYMER STRIP	5,200	LF
BRIDGE REMOVAL (PORTION)	LUMP	SUM
STRUCTURE EXCAVATION (BRIDGE)	11	CY
STRUCTURE BACKFILL (BRIDGE)	6	CY
STRUCTURAL CONCRETE, BRIDGE	8	CY
DRILL AND BOND DOWEL	95	LF
BAR REINFORCING STEEL (BRIDGE)	1,360	LB
TUBULAR BICYCLE RAILING	376	LF
CONCRETE BARRIER (TYPE 732 MODIFIED)	376	LF

MANODE KODSUNTIE DESIGN ENGINEER	DESIGN BY G. SLOCUM	CHECKED G. ZUNIGA	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 10-0001	<b>SOUTH WILLITS OH</b> <b>GENERAL PLAN</b>
	DETAILS BY C. FIGUERRES	CHECKED G. ZUNIGA	LAYOUT BY G. SLOCUM	CHECKED G. ZUNIGA		POST MILE 42.1	
	QUANTITIES BY G. SLOCUM	CHECKED G. ZUNIGA	SPECIFICATIONS BY V. RENGANATHAN	PLANS AND SPECS COMPARED V. RENGANATHAN		UNIT: 3577 PROJECT NUMBER & PHASE: 0100020336	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS  
 STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)  
 FILE => 10-0001-a-app01\_gp.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	44	49
 REGISTERED CIVIL ENGINEER			10-19-15	DATE	
1-25-16			PLANS APPROVAL DATE		
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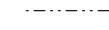
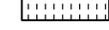
**ABUTMENT 1 WINGWALL PLAN**

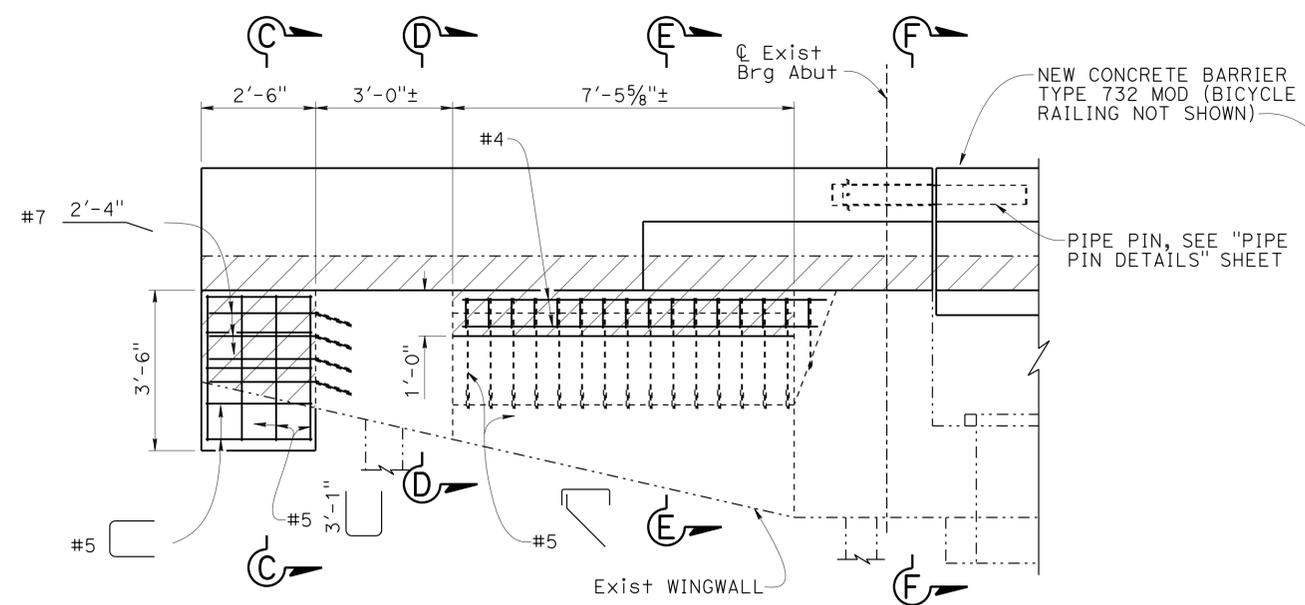
1/2" = 1'-0"  
SEE NOTE 1

**NOTES:**

1. Abutment 1 Wingwall Detail shown, Abutment 4 Wingwall Detail similar.
2. Abutment 1 Right Side View A-A shown, Abutment 4 Left Side View similar.
3. Abutment 1 Left Side View B-B shown, Abutment 4 Right Side View similar.
4. For Section C-C, D-D, E-E and F-F, see "ABUTMENT DETAILS No. 2" sheet.
5. For bicycle railing details, see "TUBULAR BICYCLE RAILING DETAILS" sheet.
6. For typical details and notes, see "RIGHT SIDE VIEW A-A".
7. Exposed horizontal concrete surfaces to be refinished following removal of existing barrier rail curb, see "ABUTMENT 1 WINGWALL PLAN" for longitudinal limits and "ABUTMENT DETAILS No. 2" and "PARTIAL TYPICAL SECTION" sheets for transverse limits.

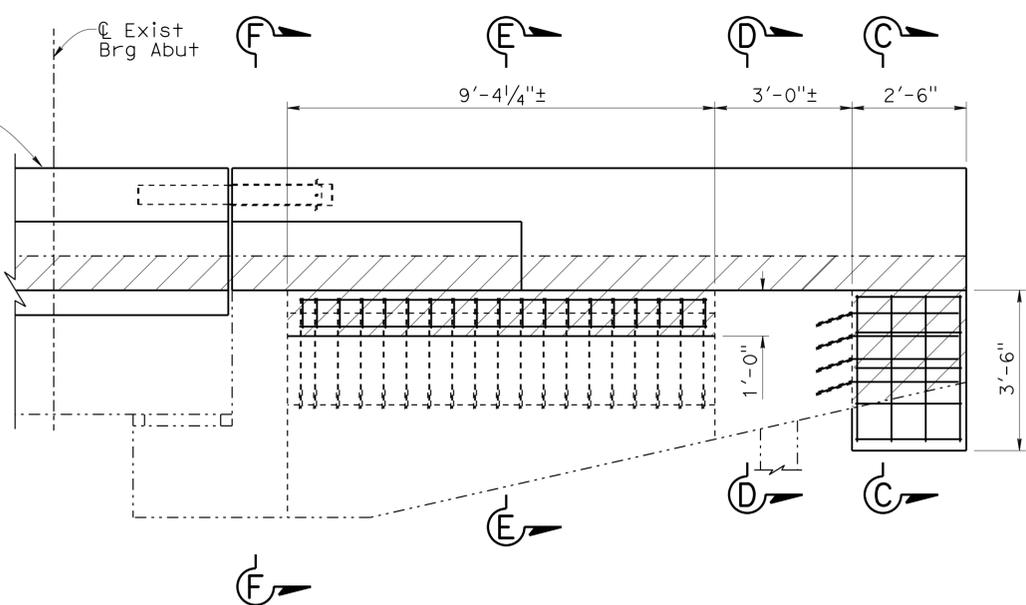
**LEGEND:**

-  Indicates metal barrier rail and concrete sidewalk removal (Bridge removal, portion)
-  Indicates new construction
-  Indicates new construction
-  Indicates existing structure
-  Indicates limits of refinish bridge deck.



**RIGHT SIDE VIEW A-A**

1/2" = 1'-0"  
SEE NOTE 2



**LEFT SIDE VIEW B-B**

1/2" = 1'-0"  
SEE NOTE 3 AND 6

DESIGN	BY G. SLOCUM	CHECKED G. ZUNIGA
DETAILS	BY C. FIGUERRES	CHECKED G. ZUNIGA
QUANTITIES	BY G. SLOCUM	CHECKED G. ZUNIGA

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

**DIVISION OF ENGINEERING SERVICES**  
STRUCTURE DESIGN  
**DESIGN BRANCH 2**

BRIDGE NO.	10-0001
POST MILE	42.1

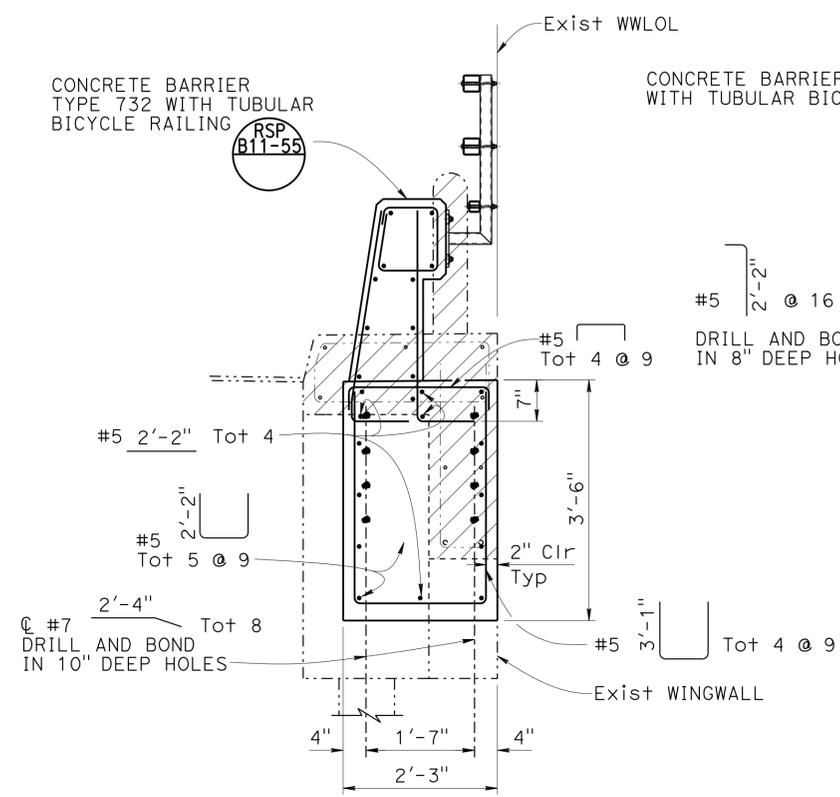
**SOUTH WILLITS OH**  
**ABUTMENT DETAILS No. 1**

REVISION DATES	SHEET	OF
4-28-15 5-5-15 6-22-15	2	7

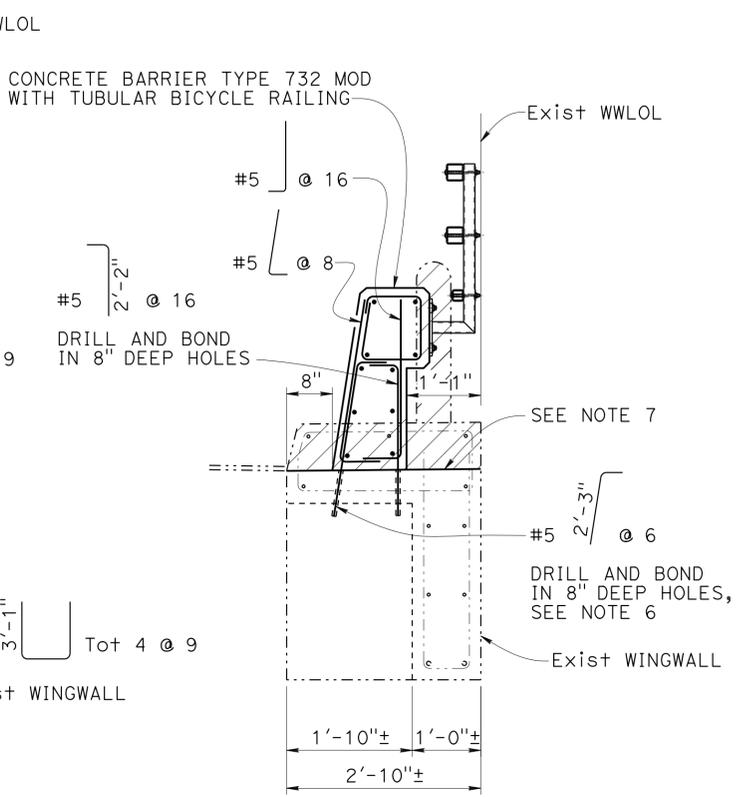
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	45	49

10-19-15  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE  
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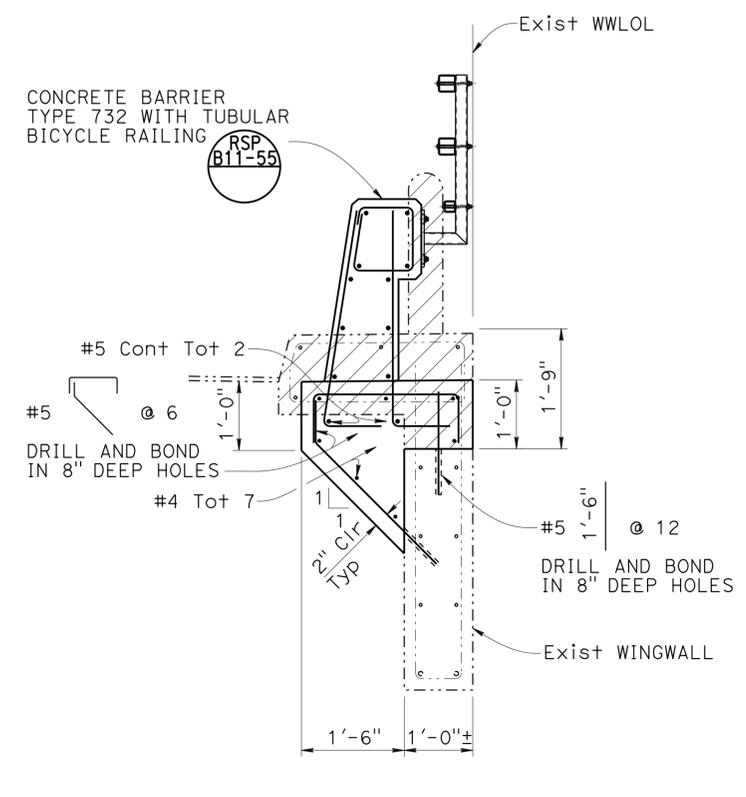
REGISTERED PROFESSIONAL ENGINEER  
 G. SLOCUM  
 No. 44950  
 Exp. 3-31-18  
 CIVIL  
 STATE OF CALIFORNIA



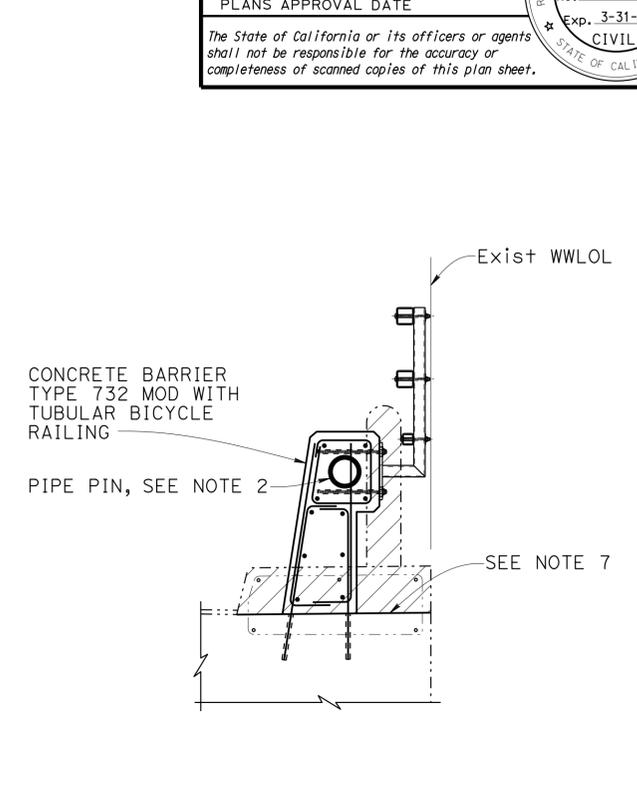
**SECTION C-C**  
3/4" = 1'-0"



**SECTION D-D**  
3/4" = 1'-0"  
SEE NOTE 9



**SECTION E-E**  
3/4" = 1'-0"



**SECTION F-F**  
3/4" = 1'-0"  
SEE NOTE 1

- NOTES:
- For typical reinforcement and notes, see "SECTION D-D".
  - For Pipe Pin, see "PIPE PIN DETAILS" sheet.
  - For section location, see "ABUTMENT DETAILS No. 1" sheet.
  - Clearance to reinforcing steel in barrier to be 1 inch except as noted. Longitudinal reinforcement to stop at all expansion joints.
  - For barrier rail dimensions and notes not shown, see RSP B11-55.
  - Avoid existing reinforcement when drilling.
  - For limits of refinish bridge deck (horizontal surface), see "SECTION D-D" and "ABUTMENT DETAILS No. 1" sheet.
  - For bicycle railing details, see "TUBULAR BICYCLE RAILING DETAILS" sheet.
  - For reinforcement callouts not shown, see "DETAIL A" on "PARTIAL TYPICAL SECTION" sheet.

- LEGEND:
- Indicates metal barrier rail and concrete sidewalk removal (Bridge removal, portion)
  - Indicates new construction
  - Indicates existing structure

DESIGN	BY G. SLOCUM	CHECKED G. ZUNIGA
DETAILS	BY C. FIGUERRES	CHECKED G. ZUNIGA
QUANTITIES	BY G. SLOCUM	CHECKED G. ZUNIGA

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0001
POST MILE	42.1

**SOUTH WILLITS OH**  
**ABUTMENT DETAILS No. 2**

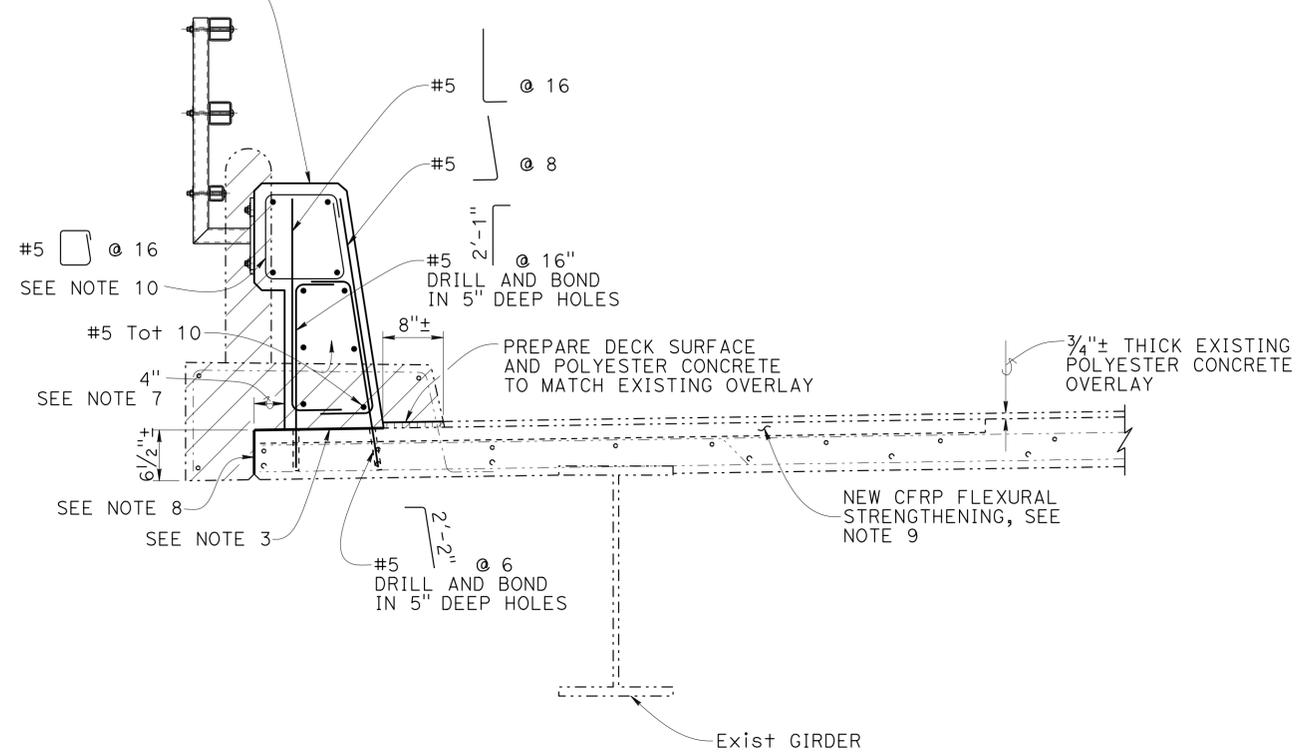
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	46	49

10-19-15  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE

G. SLOCUM  
 No. 44950  
 Exp. 3-31-18  
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NEW CONCRETE BARRIER TYPE 732 MOD WITH TUBULAR BICYCLE RAILING



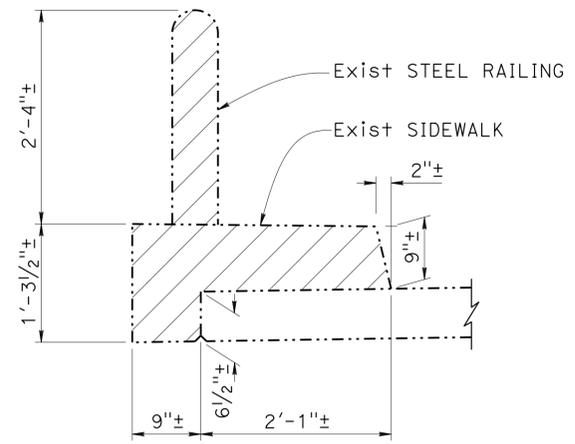
**DETAIL A**  
1" = 1'-0"

NOTES:

1. For location of "DETAIL A", see "GENERAL PLAN" sheet.
2. For barrier rail dimensions and notes not shown, see RSP (B11-55).
3. Roughen existing bridge deck surface before casting new concrete against existing concrete.
4. Avoid existing reinforcement when drilling.
5. Clearance to reinforcing steel in barrier to be 1 inch except as noted. Longitudinal reinforcement to stop at all expansion joints.
6. For bicycle railing details, see "TUBULAR BICYCLE RAILING DETAILS" sheet.
7. Limits of refinish bridge deck from BB to EB.
8. Repair spalled vertical surface area after removal of barrier curb from BB to EB.
9. For CFRP details, see "CFRP DETAILS" sheet.
10. For stirrup spacing at pipe pins, see "PIPE PIN DETAILS" sheet.

LEGEND:

- Indicates metal barrier rail and concrete sidewalk removal (Bridge removal, portion)
- Indicates new construction
- Indicates existing structure
- Indicates new polyester concrete patch



**EXISTING STEEL RAILING AND SIDEWALK**  
1" = 1'-0"

DESIGN	BY G. SLOCUM	CHECKED G. ZUNIGA
DETAILS	BY C. FIGUERRES	CHECKED G. ZUNIGA
QUANTITIES	BY G. SLOCUM	CHECKED G. ZUNIGA

STATE OF CALIFORNIA  
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DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0001
POST MILE	42.1

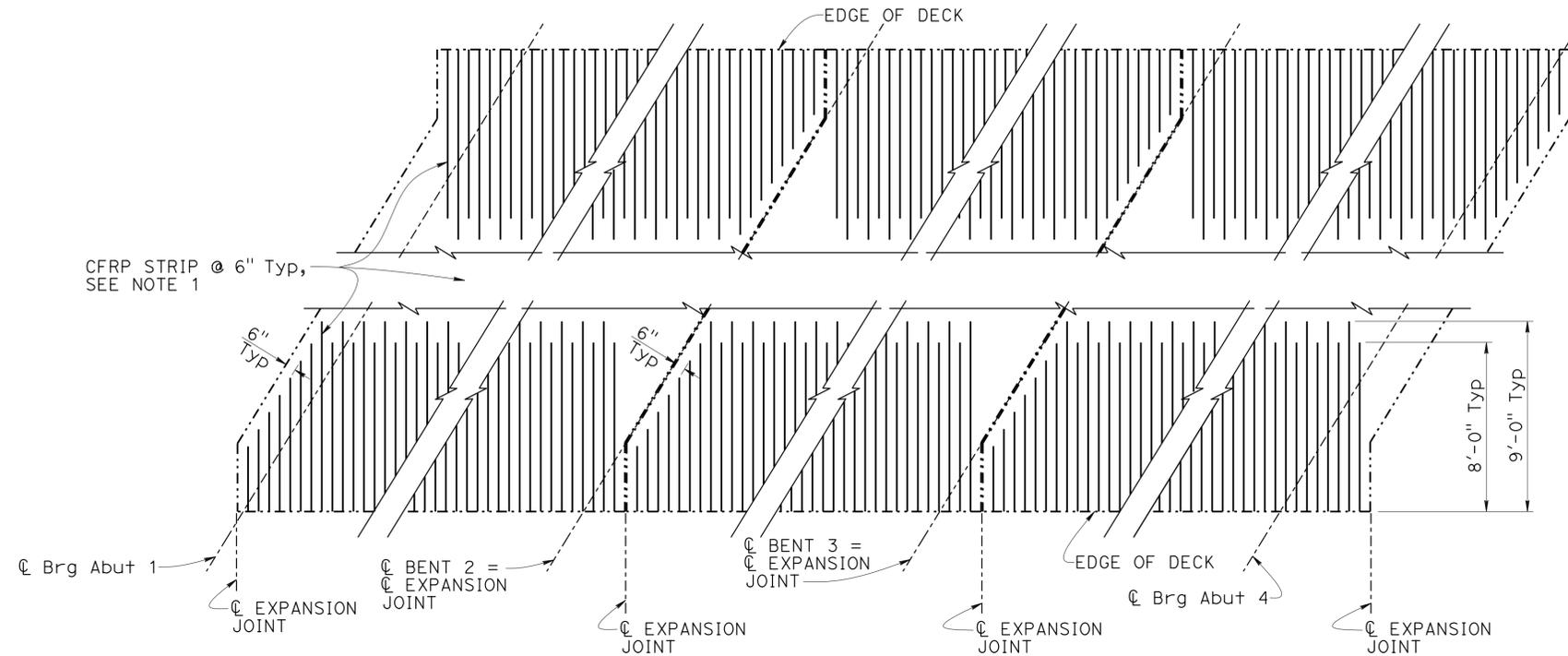
**SOUTH WILLITS OH**  
**PARTIAL TYPICAL SECTION**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	47	49

10-19-15  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE

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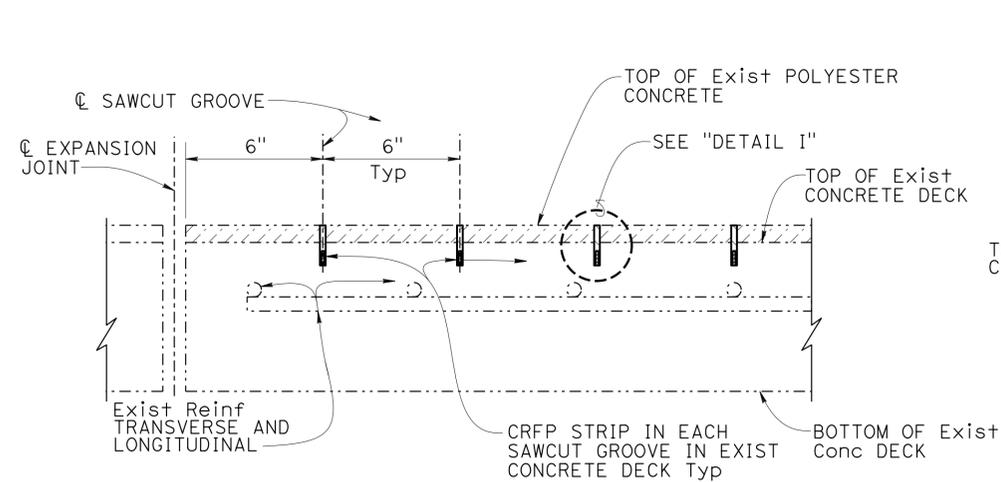
**CFRP STRIP LAYOUT**  
1/4" = 1'-0"

NOTES:

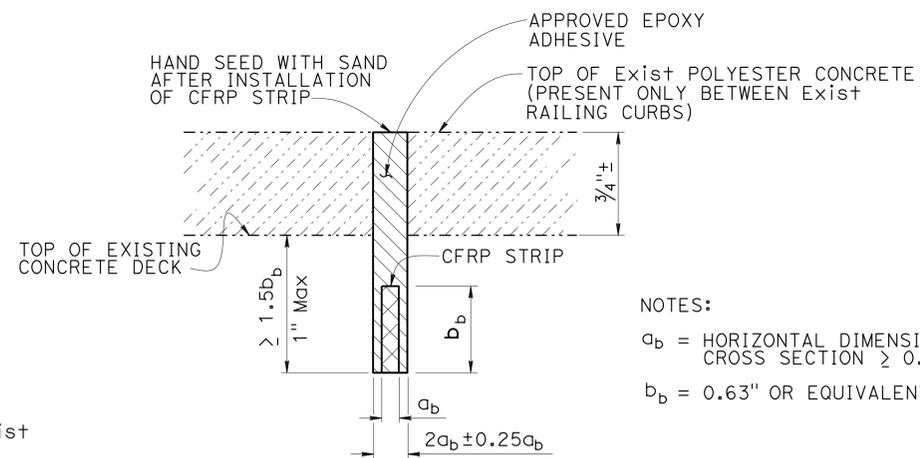
- Place perpendicular to and space along edge of deck.
- For pipe pin details, see "PIPE PIN DETAILS" sheet.

LEGEND:

----- Indicates existing structure



**CFRP TYPICAL DETAIL**  
3" = 1'-0"



**DETAIL I**  
NO SCALE

NOTES:

- $a_b$  = HORIZONTAL DIMENSION FOR MINIMUM CROSS SECTION  $\geq 0.11$  SQ IN  
 $b_b$  = 0.63" OR EQUIVALENT

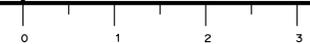
DESIGN	BY G. SLOCUM	CHECKED G. ZUNIGA
DETAILS	BY C. FIGUERRES	CHECKED G. ZUNIGA
QUANTITIES	BY G. SLOCUM	CHECKED G. ZUNIGA

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0001
POST MILE	42.1

**SOUTH WILLITS OH**  
**CFRP DETAILS**

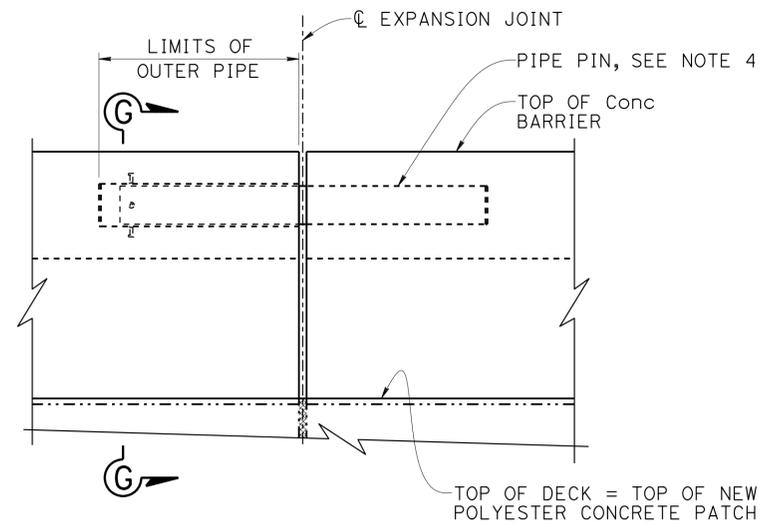


REVISION DATES	SHEET	OF
8-14-15	5	7

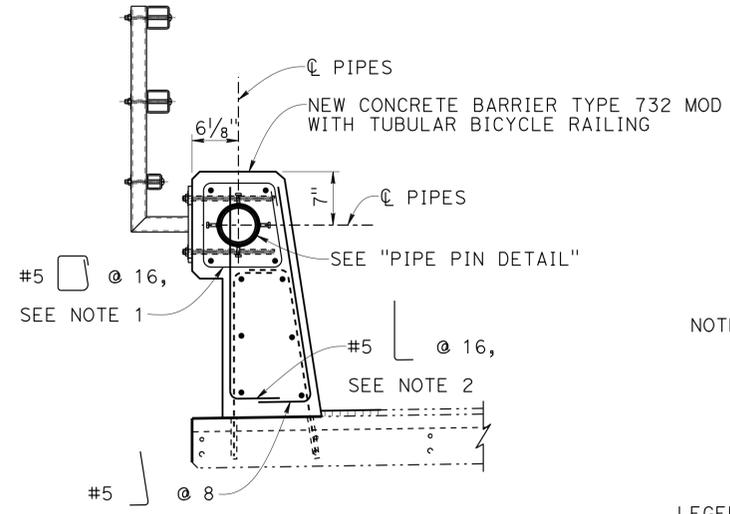
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	48	49

10-19-15  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
 PLANS APPROVAL DATE  
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**PART ELEVATION**  
1" = 1'-0"



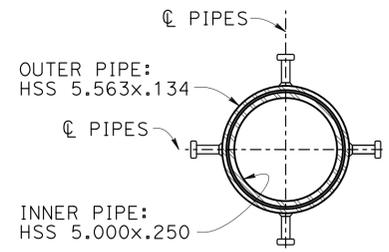
**SECTION G-G**  
1" = 1'-0"

**NOTES:**

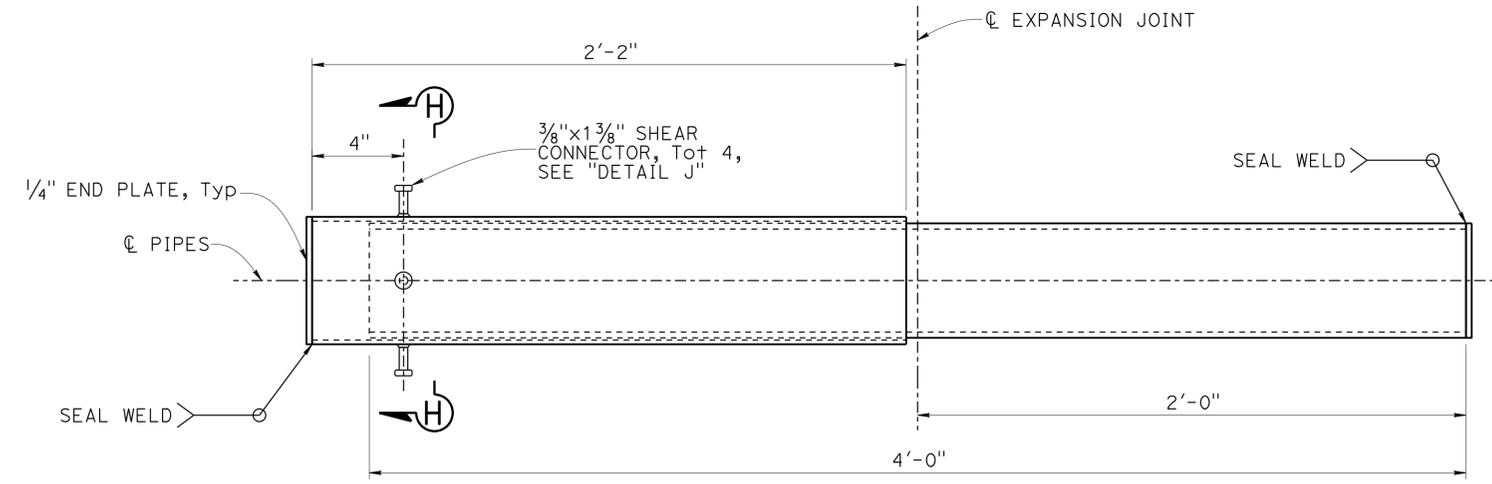
- Barrier rail stirrup spacing 4" within length of pipe pin.
- Bar to be shortened the minimum amount required to clear pipe pin.
- Galvanize all pipe pin components.
- For pipe pin locations, see "GENERAL PLAN" sheet.

**LEGEND:**

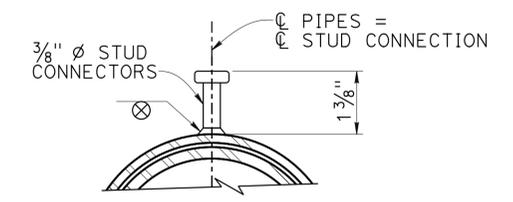
- Indicates new construction
- Indicates existing structure
- Indicates new polyester concrete patch



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



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



**DETAIL J**  
6" = 1'-0"

DESIGN	BY G. SLOCUM	CHECKED G. ZUNIGA
DETAILS	BY C. FIGUERRES	CHECKED G. ZUNIGA
QUANTITIES	BY G. SLOCUM	CHECKED G. ZUNIGA

**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
**DESIGN BRANCH 2**

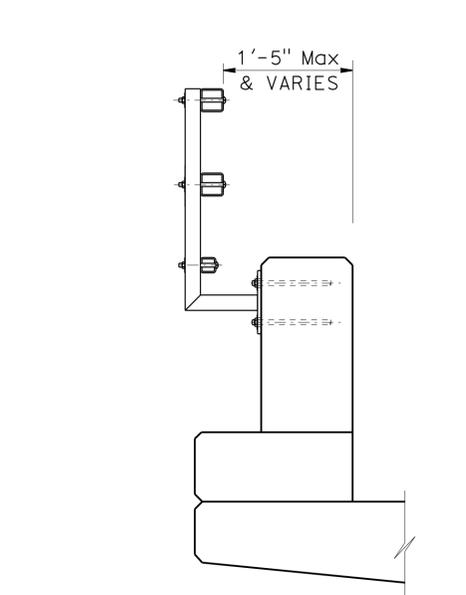
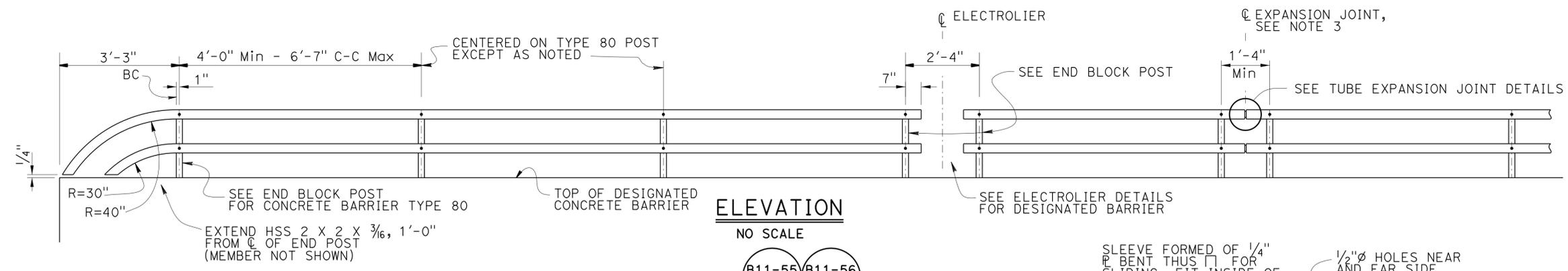
BRIDGE NO.	10-0001
POST MILE	42.1

**SOUTH WILLITS OH**  
**PIPE PIN DETAILS**

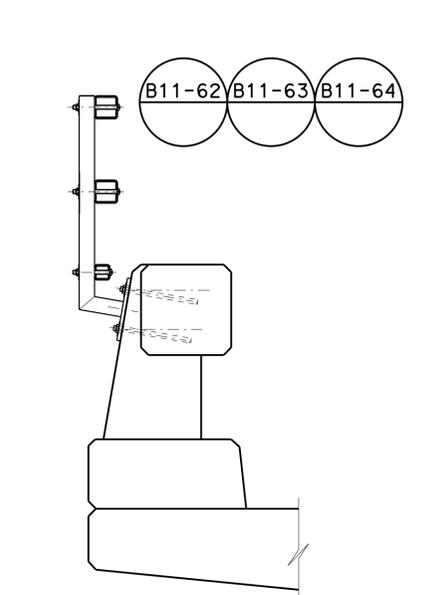
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	42.1	49	49

10-19-15  
 REGISTERED CIVIL ENGINEER DATE  
 1-25-16  
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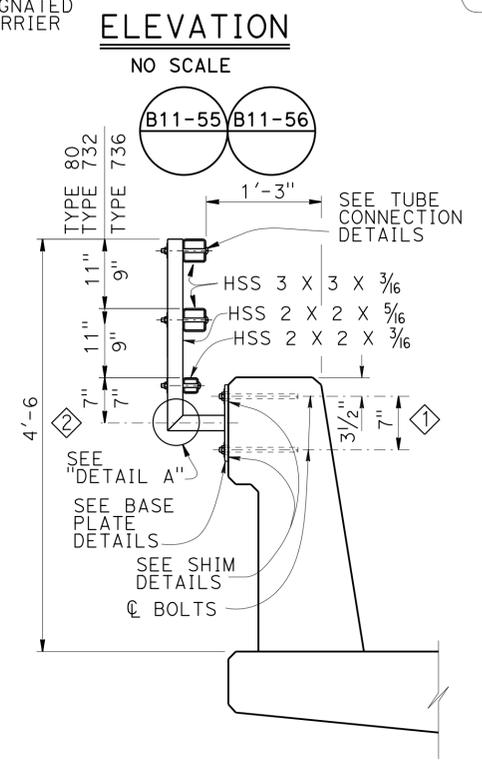
G. SLOCUM  
 No. 44950  
 Exp. 3-31-18  
 CIVIL  
 STATE OF CALIFORNIA



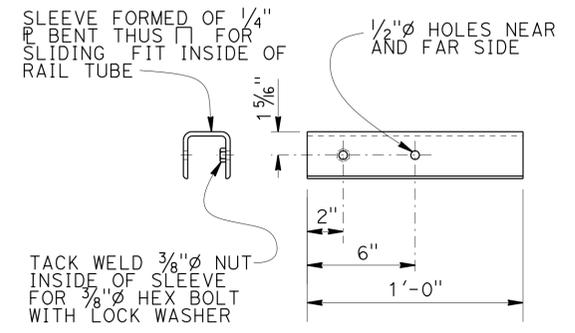
NOTE: For details not shown, see "TYPE 732 OR 736"  
**TYPE 80 END BLOCK POST**  
 1" = 1'-0"



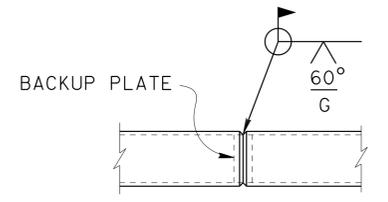
NOTE: For details not shown, see "TYPE 732 OR 736"  
**TYPE 80**  
 1" = 1'-0"



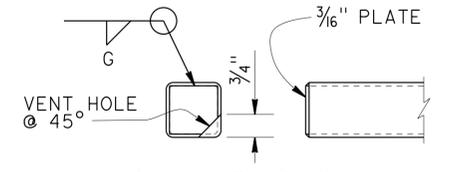
**TYPE 732 OR 736**  
 1" = 1'-0"



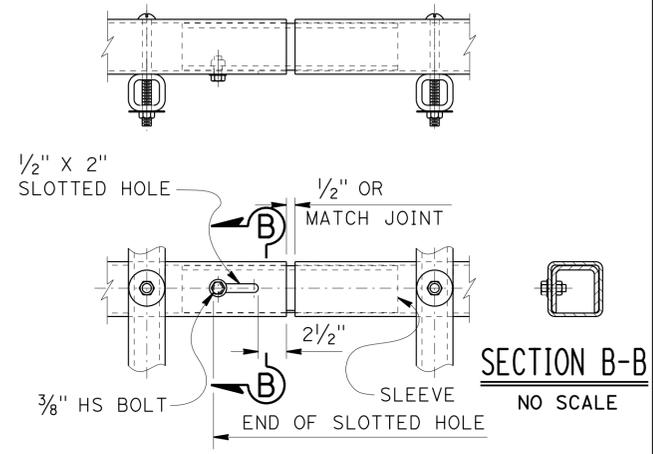
**SLEEVE DETAIL**  
 NO SCALE



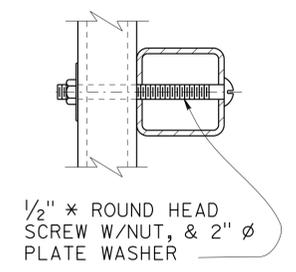
**WELDED SPLICE DETAIL**  
 NO SCALE



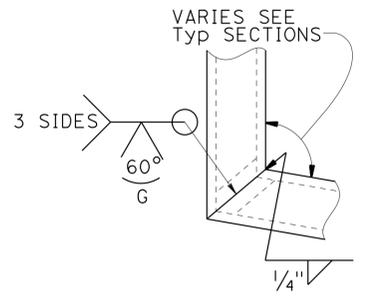
**RAIL CAP DETAIL**  
 NO SCALE



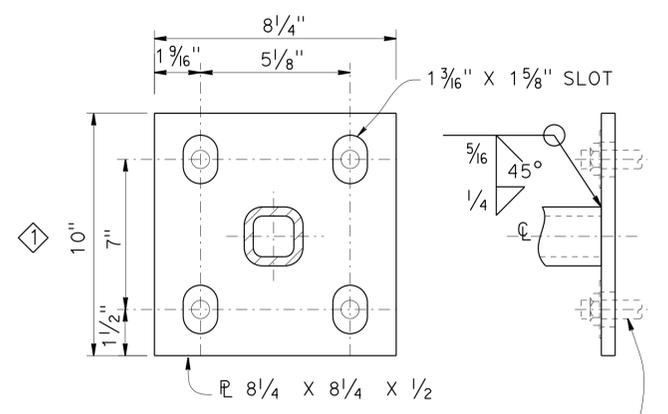
**TUBE EXPANSION JOINT DETAILS**  
 NO SCALE



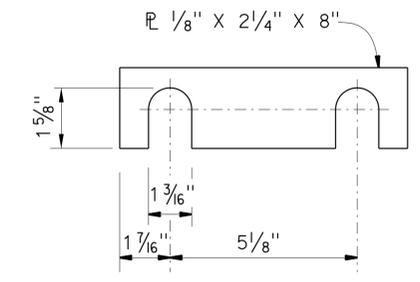
**TUBE CONNECTION DETAIL**  
 NO SCALE



**DETAIL A**  
 NO SCALE



5/8" Ø THREADED ROD 12" LONG W/NUTS AND 2" Ø PLATE WASHERS, Tot 4  
**BASE PLATE DETAIL**  
 NO SCALE



**SHIM DETAILS**  
 NO SCALE

- NOTES:
1. Post must be normal to railing.
  2. Rail tubes must be shop bent or fabricated to fit horizontal curve when radius is less than 950'.
  3. Tube expansion joints must be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length correspondingly.
  4. Top rail tube must be continuous over not less than two posts except a short post spacing is permitted near deck or wall joints, electroliers, or other rail discontinuities as noted.
  5. See Project Plans for limits of tubular bicycle railing.

STANDARD DRAWING

FILE NO. **xs16-035**

APPROVAL DATE October 2014

- ◇ BASE PLATE SIZE AND BOLT HOLE LOCATION MODIFIED.
- ◇ POST LENGTHENED 1".

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF ENGINEERING SERVICES

BRIDGE NO.	10-0001
POST MILE	42.1

**SOUTH WILLITS OH**  
**CONCRETE BARRIER TYPE 80, 732 & 736**  
**TUBULAR BICYCLE RAILING DETAILS**