

INDEX OF PLANS

| SHEET No. | DESCRIPTION                                 |
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| 1         | TITLE AND LOCATION MAP                      |
| 2         | TYPICAL CROSS SECTIONS                      |
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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-P032(043)

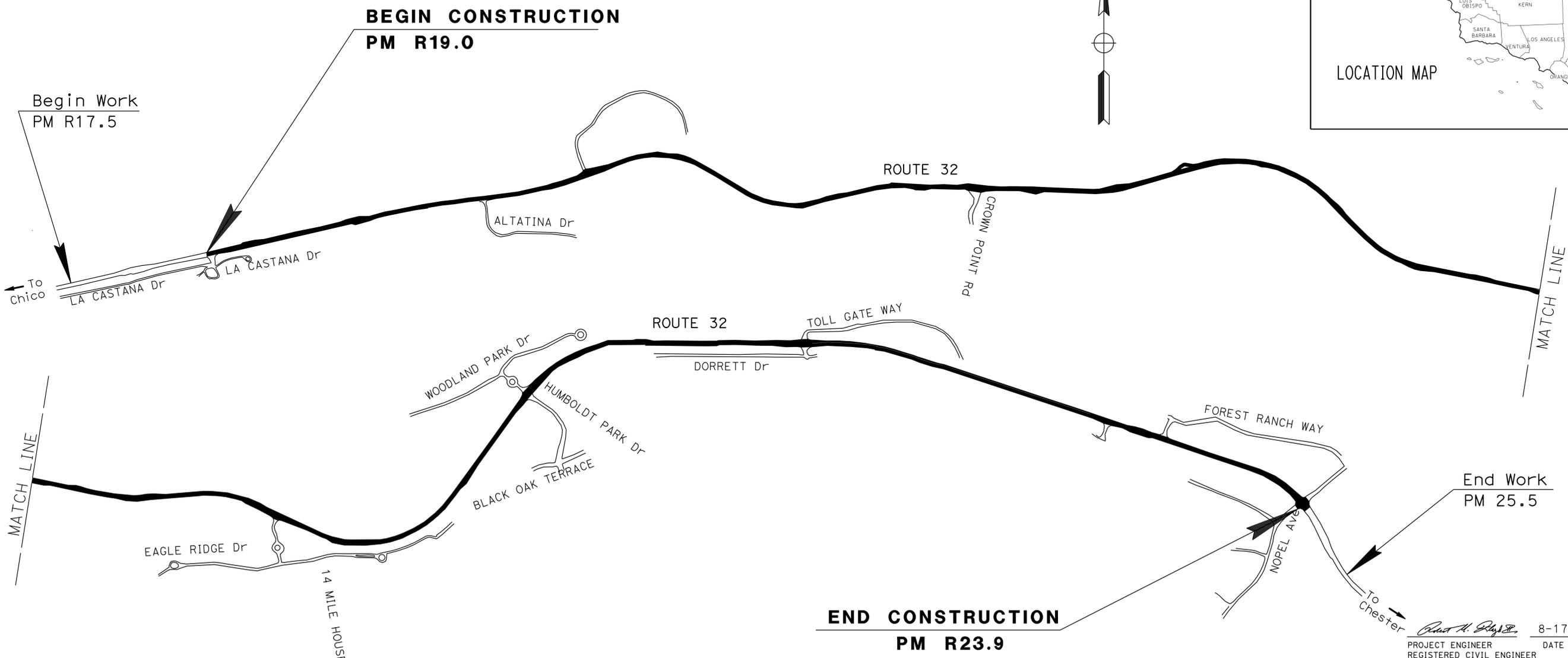
PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY

IN BUTTE COUNTY  
NEAR CHICO FROM LA CASTANA DRIVE  
TO NOPEL AVENUE

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 03   | But    | 32    | R19.0/R23.9              | 1         | 34           |

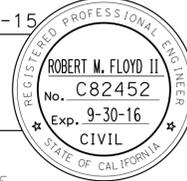
Caltrans



PROJECT MANAGER  
PATRICK D. BISHOP

DESIGN MANAGER  
PATRICK D. BISHOP

PROJECT ENGINEER  
REGISTERED CIVIL ENGINEER  
*Robert M. Floyd II*  
DATE 8-17-15



August 17, 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.

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

NO SCALE

|              |            |
|--------------|------------|
| CONTRACT No. | 03-0G1104  |
| PROJECT ID   | 0314000077 |

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 03   | But    | 32    | R19.0/R23.9              | 2         | 34           |

|   |  |
|---|--|
| <i>Robert M. Floyd II</i> 8-17-15<br>REGISTERED CIVIL ENGINEER DATE |  |
| 8-17-15<br>PLANS APPROVAL DATE                                      |  |

|   |
|---|
| REGISTERED PROFESSIONAL ENGINEER<br><b>ROBERT M. FLOYD II</b><br>No. C82452<br>Exp. 9-30-16<br>CIVIL<br>STATE OF CALIFORNIA |
|---|

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**NOTES:**

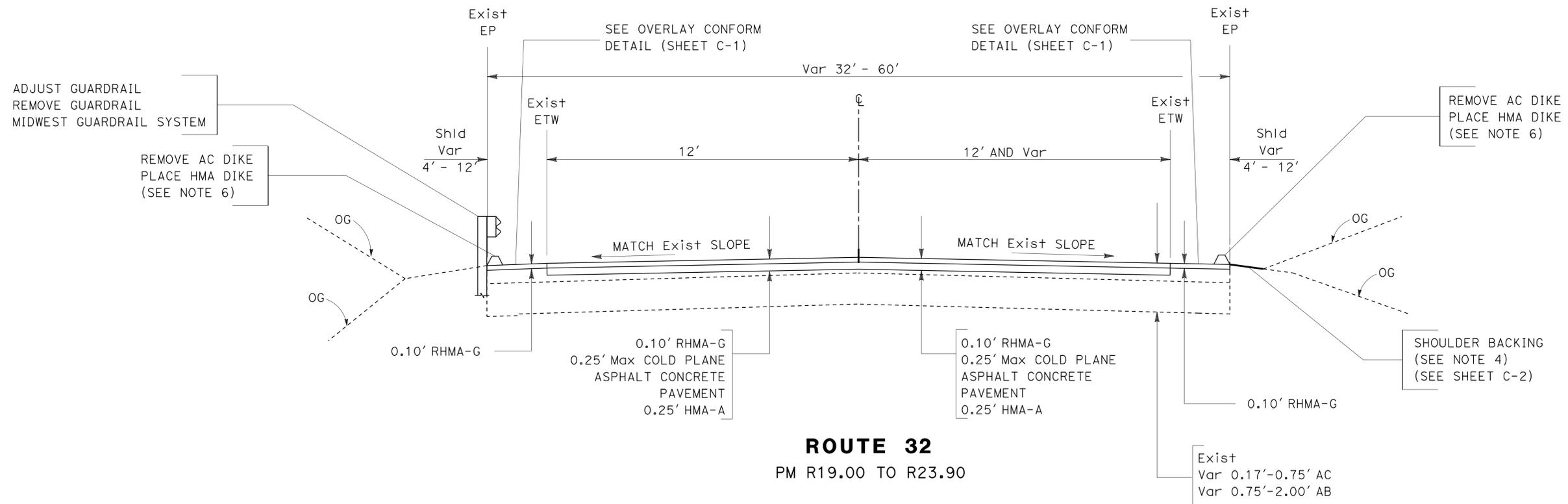
1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. EXISTING UTILITY FACILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.
3. EXACT LOCATION FOR COLD PLANE ASPHALT CONCRETE PAVEMENT AND HMA (TYPE A) TO BE DETERMINED BY THE ENGINEER.
4. EXACT LOCATION OF SHOULDER BACKING TO BE DETERMINED BY THE ENGINEER.
5. FOR COLD PLANE AC PAVEMENT, SEE CONSTRUCTION DETAIL SHEETS AND SHEET Q-1.
6. FOR HMA DIKE REMOVAL, PLACEMENT LOCATIONS AND TYPE, SEE SHEET Q-1.
7. FOR GUARDRAIL REMOVAL, ADJUSTMENT, AND REPLACEMENT LOCATIONS SEE SHEET Q-2.

**ABBREVIATIONS:**

- HMA-A HOT MIX ASPHALT (TYPE A)  
 RHMA-G RUBBERIZED HOT MIX ASPHALT (GAP GRADED)

PAVEMENT CLIMATE REGION

LOW MOUNTAIN



**TYPICAL CROSS SECTIONS**

NO SCALE

**X-1**

|  |                    |
|--|--------------------|
| STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | MAINTENANCE DESIGN |
| <b>Caltrans</b>                                    |                    |
| FUNCTIONAL SUPERVISOR                              | PATRICK D. BISHOP  |
| CALCULATED/DESIGNED BY                             | CHECKED BY         |
| ROBERT M. FLOYD II                                 | JIM FERREIRA       |
| REVISOR  | DATE               |
|  |                    |

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | But    | 32    | R19.0/R23.9              | 3         | 34           |

Robert M. Floyd II, 8-17-15  
 REGISTERED CIVIL ENGINEER DATE  
 8-17-15  
 PLANS APPROVAL DATE  
 No. C82452  
 Exp. 9-30-16  
 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.

**NOTES:**

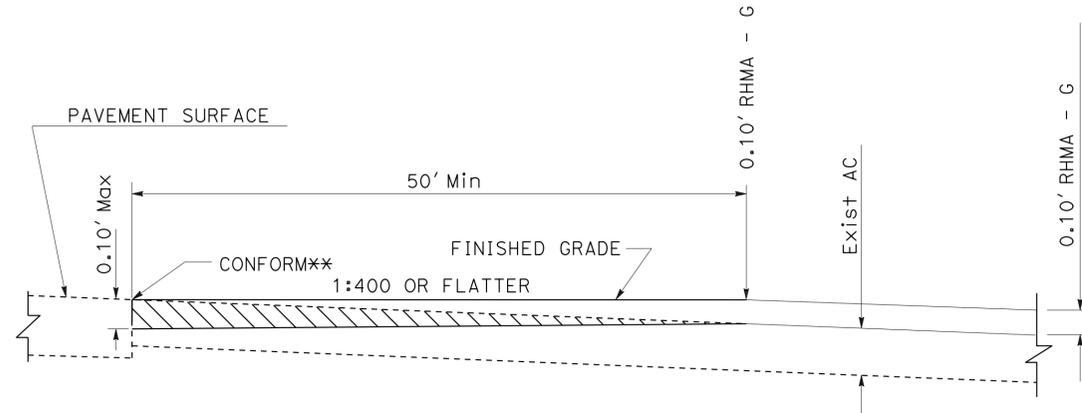
- EXISTING UTILITY FACILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.
- SEE SUMMARY OF QUANTITIES FOR ITEMS AND LIMITS OF GUARDRAIL WORK AND HMA DIKE WORK.

**LEGEND:**

 LIMITS OF COLD PLANE  
 AC PAVEMENT (0.10' Max)

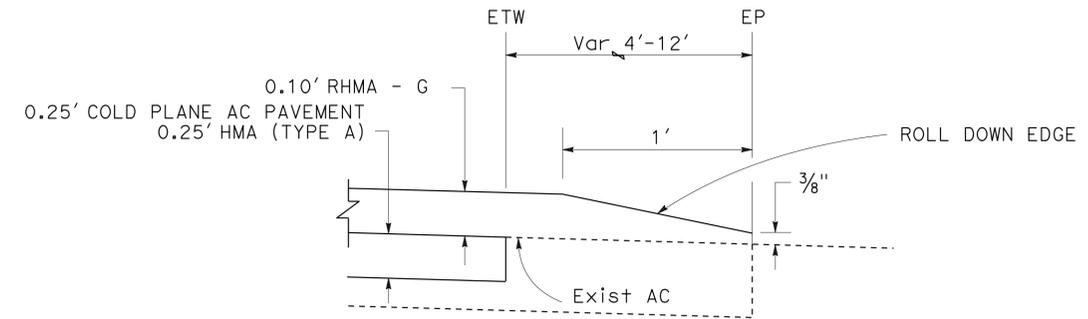
**ABBREVIATION:**

RHMA-G RUBBERIZED HOT MIX ASPHALT (GAP GRADED)



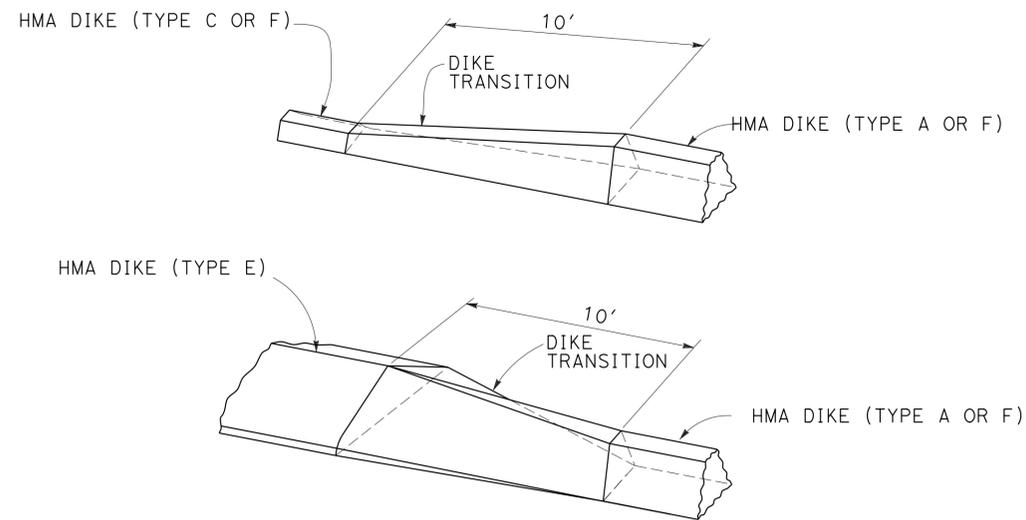
**PAVEMENT CONFORM**

\*\*BEGIN AND END OF CONSTRUCTION

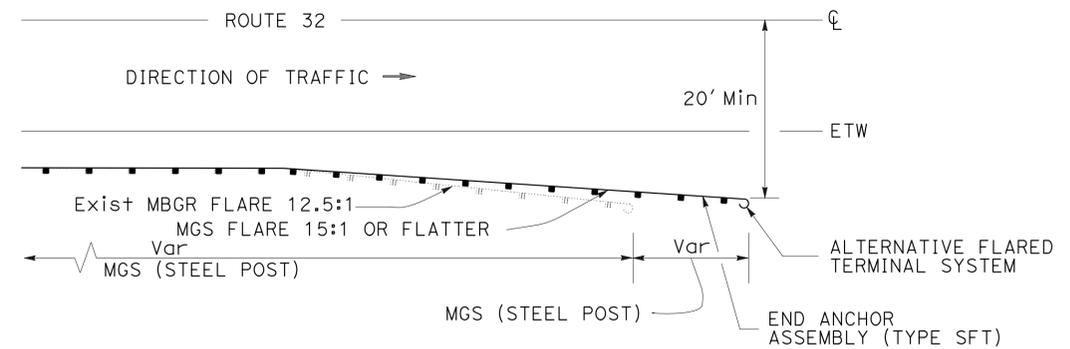


**OVERLAY CONFORM DETAIL**

(SEE X-1)



**DIKE TRANSITIONS**



**GUARDRAIL FLARE - TYPICAL**

**CONSTRUCTION DETAILS**

NO SCALE

**C-1**

|  |                       |                    |         |
|--|-----------------------|--------------------|---------|
| STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | FUNCTIONAL SUPERVISOR | REVISOR            | DATE    |
| <b>Caltrans</b>                                    | PATRICK D. BISHOP     | ROBERT M. FLOYD II | 8-17-15 |
| <b>MAINTENANCE DESIGN</b>                          |                       | JIM FERREIRA       |         |
|  |                       |                    |         |

|  |        |       |                                |              |                 |
|--|--------|-------|--------------------------------|--------------|-----------------|
| Dist   | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT    | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                    | 4            | 34              |
| Robert M. Floyd II<br>REGISTERED CIVIL ENGINEER  |        |       | 8-17-15<br>DATE                |              |                 |
|  |        |       | 8-17-15<br>PLANS APPROVAL DATE |              |                 |
| <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |        |       |                                |              |                 |

**NOTE:**

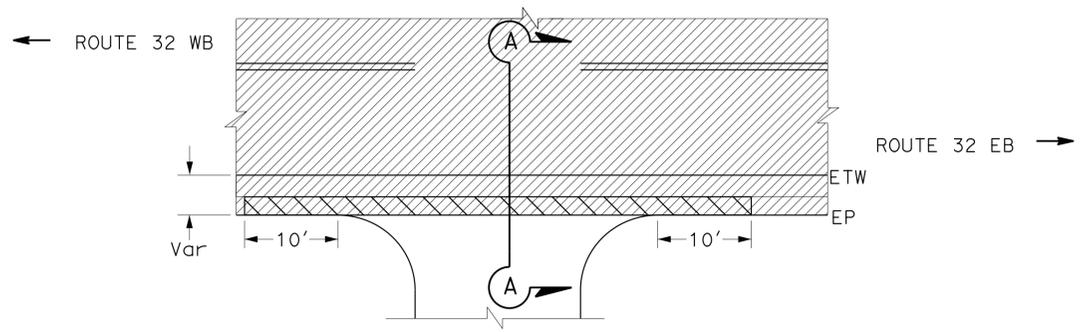
1. EXISTING UTILITY FACILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.

**LEGEND:**

- LIMITS OF COLD PLANE AC PAVEMENT (0.10' Max)
- RHMA-G

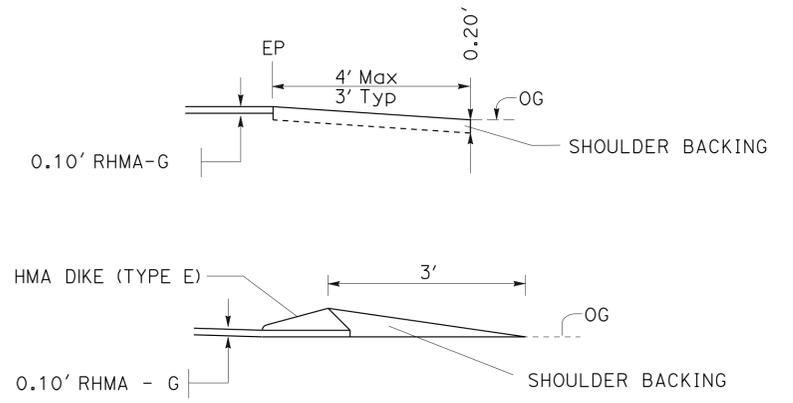
**ABBREVIATIONS:**

RHMA-G - RUBBERIZED HOT MIX ASPHALT (GAP GRADED)

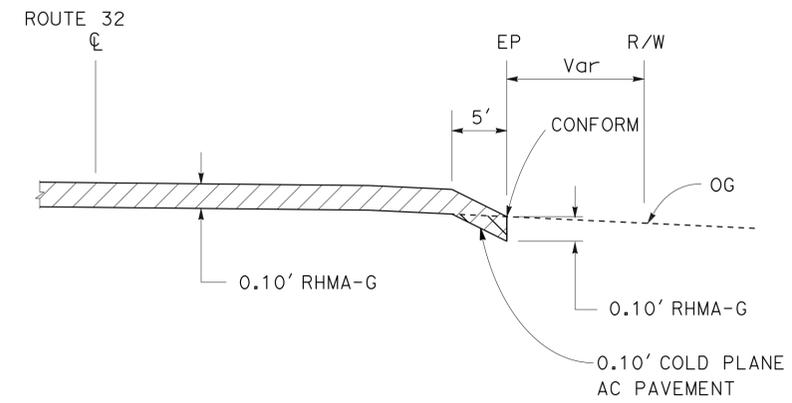


**ROADS AND DRIVEWAYS (Typ)**

|                     |           |                  |           |
|---------------------|-----------|------------------|-----------|
| LA CASANTA DRIVE    | PM R19.00 | TOLL GATE WAY    | PM R22.93 |
| ALTATINA DRIVE      | PM R19.50 | DORRET DRIVE     | PM R22.93 |
| CROWN POINT ROAD    | PM R20.37 | HEAVENLY GLEN    | PM R23.47 |
| 14 MILE HOUSE ROAD  | PM R21.42 | FOREST RANCH WAY | PM R23.57 |
| 14 MILE HOUSE DRIVE | PM R21.85 | NOPEL AVENUE     | PM R23.86 |
| HUMBOLDT PARK DRIVE | PM R22.42 | NOPEL AVENUE     | PM R23.86 |
| HUMBOLDT PARK DRIVE | PM R22.42 |                  |           |



**SHOULDER BACKING CONSTRUCTION**



SECTION A-A

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE DESIGN  
 FUNCTIONAL SUPERVISOR: PATRICK D. BISHOP  
 CALCULATED/DESIGNED BY: JEFF JEWETT  
 CHECKED BY: JEFF JEWETT  
 REVISIONS: ROBERT M. FLOYD II  
 REVISIONS: JEFF JEWETT

**CONSTRUCTION DETAILS**  
NO SCALE

# STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

| SIGN LETTER | SIGN CODE        |            | PANEL SIZE | SIGN MESSAGE                           | NUMBER OF POST AND SIZE | NUMBER OF SIGNS |
|-------------|------------------|------------|------------|--|-------------------------|-----------------|
|             | FEDERAL          | CALIFORNIA |            |  |                         |                 |
| A           | G20-1 [Spec] (4) |            | 60" x 30"  | ROAD WORK<br>NEXT 5 MILES              | 2 - 4" x 4"             | 2               |
| B           |                  | C40(Mod)   | 48" x 36"  | TRAFFIC FINES DOUBLED<br>IN WORK ZONES | 1 - 4" x 6"             | 2               |
| C           | W20-1            | C23        | 48" x 48"  | ROAD WORK AHEAD                        | 1 - 6" x 6"             | 11              |
| D           | G20-2            | C14        | 36" x 18"  | END ROAD WORK                          | 1 - 4" x 4"             | 2               |

**NOTE:**

EXACT SIGN LOCATION TO BE DETERMINED BY THE ENGINEER.

**LEGEND**

(X) CONSTRUCTION AREA SIGN LETTER

**SIGN DETAILS**

(A) G20-1 [Spec] (5)  
**ROAD WORK  
 NEXT 5 MILES**  
 6" C  
 SERIES  
 LETTERS  
 60"x30"  
 RETROREFLECTIVE ORANGE  
 BACKGROUND WITH BLACK  
 LEGEND AND BORDER.

(B) C40(Mod) <CA>  
**TRAFFIC FINES  
 DOUBLED IN  
 WORK ZONES**  
 4" D  
 SERIES  
 LETTERS  
 48"x36"  
 RETROREFLECTIVE WHITE  
 BACKGROUND WITH BLACK  
 LEGEND AND BORDER.

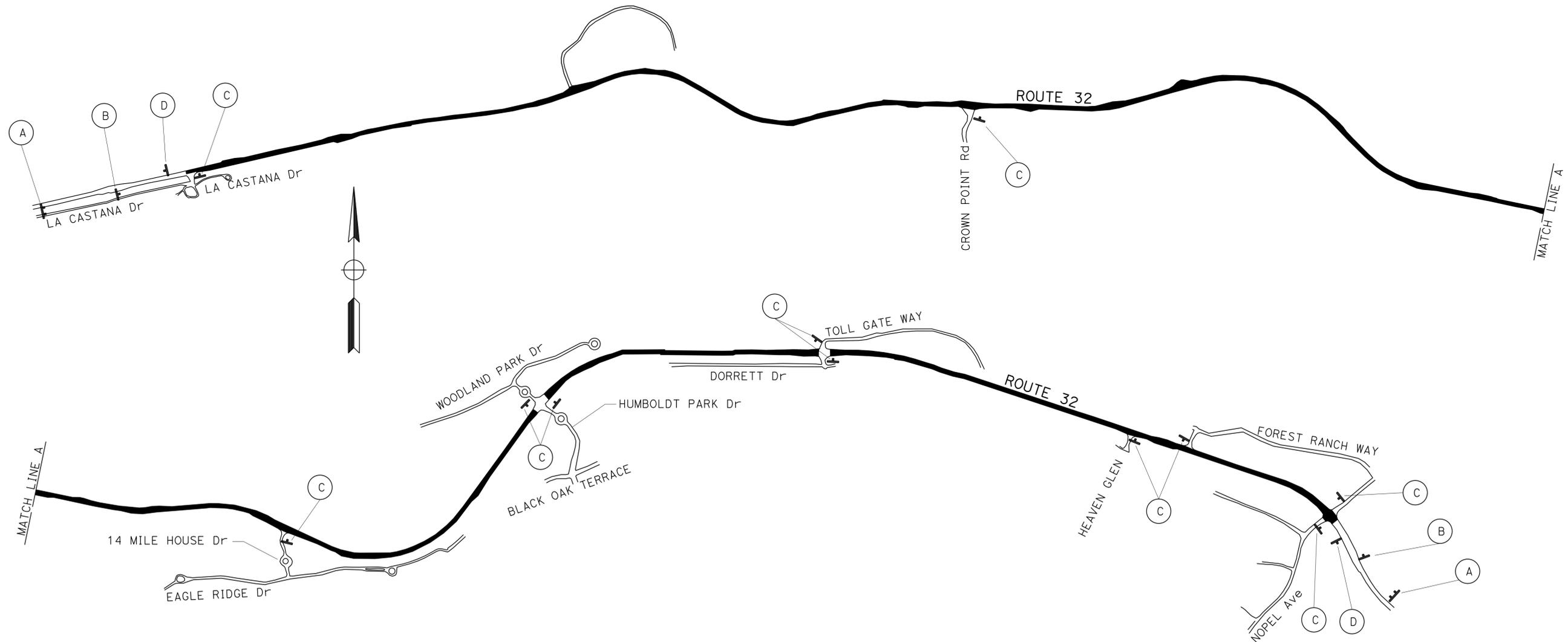
|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 5            | 34              |

*Kris M. Albers* 8-17-15  
 REGISTERED CIVIL ENGINEER DATE

8-17-15  
 PLANS APPROVAL DATE

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

**KRIS M. ALBERS**  
 No. 49986  
 Exp. 6-30-17  
 CIVIL  
 STATE OF CALIFORNIA



## CONSTRUCTION AREA SIGNS

NO SCALE

**CS-1**

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 TRAFFIC  
 FUNCTIONAL SUPERVISOR: SERGIO ACEVES  
 CHECKED BY: KRIS ALBERS  
 DESIGNED BY: CHUCK COOK  
 REVISIONS: REVISED BY: CHUCK COOK, DATE: 7/2/2010

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 6            | 34              |

*Kris M. Albers* 8-17-15  
REGISTERED CIVIL ENGINEER DATE

8-17-15  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
Kris M. ALBERS  
No. 49986  
Exp. 6-30-17  
CIVIL  
STATE OF CALIFORNIA

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**REMOVE THERMOPLASTIC TRAFFIC STRIPE**

| DESCRIPTION       | LF    |
|-------------------|-------|
| CHANNELIZING LINE | 2,858 |
| TOTAL             | 2,858 |

**REMOVE THERMOPLASTIC PAVEMENT MARKING**

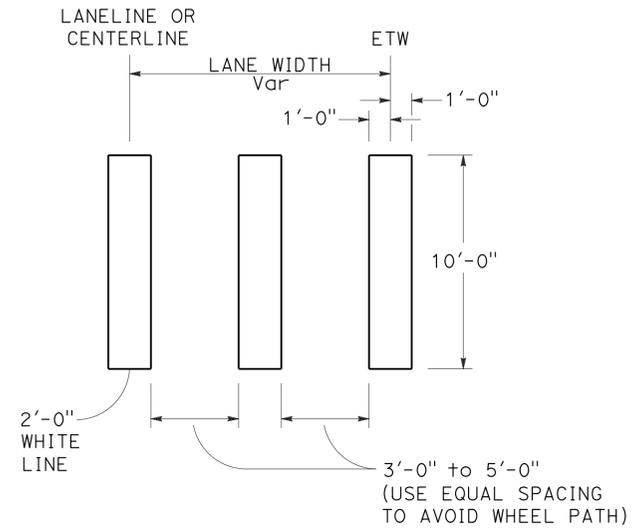
| DESCRIPTION           | SQUARE FEET |
|-----------------------|-------------|
| TYPE III ARROW        | 294         |
| TYPE V ARROW          | 33          |
| "STOP"                | 242         |
| CONTINENTAL CROSSWALK | 480         |
| LIMIT LINE            | 379         |
| TOTAL                 | 1,428       |

**4" THERMOPLASTIC TRAFFIC STRIPE (EWNV) (BROKEN 36-12)**

| DETAIL NUMBER | LF    |
|---------------|-------|
| 19            | 1,829 |
| TOTAL         | 1,829 |

**8" THERMOPLASTIC TRAFFIC STRIPE (EWNV)**

| DETAIL NUMBER | LF    |
|---------------|-------|
| 38            | 913   |
| 38A           | 516   |
| TOTAL         | 1,429 |



**CONTINENTAL CROSSWALK DETAIL**

**NOTES:**

- CROSSWALK MARKINGS SHALL BE INSTALLED PARALLEL TO THE ROADWAY CENTERLINE.
- ALL STRIPING PATTERNS SHALL STOP 1'-0" FROM THE CROSSWALK (TYPICAL).

**LEGEND**

EWNV = ENHANCED WET NIGHT VISIBILITY

**THERMOPLASTIC PAVEMENT MARKING (EWNV)**

| DESCRIPTION           | SQUARE FEET |
|-----------------------|-------------|
| TYPE III ARROW        | 294         |
| TYPE V ARROW          | 33          |
| "STOP"                | 242         |
| CONTINENTAL CROSSWALK | 300         |
| LIMIT LINE            | 379         |
| TOTAL                 | 1,248       |

**4" THERMOPLASTIC TRAFFIC STRIPE (EWNV)**

| DETAIL NUMBER | LF      |
|---------------|---------|
| 19            | 1,829   |
| 22            | 49,366  |
| 27B           | 49,279  |
| TOTAL         | 100,474 |

**PAVEMENT MARKER**

| DETAIL NUMBER | RETROREFLECTIVE |        |        | RETROREFLECTIVE-RECESSED |        |
|---------------|-----------------|--------|--------|--------------------------|--------|
|               | TYPE D          | TYPE G | TYPE H | TYPE D                   | TYPE G |
|               | EACH            | EACH   | EACH   | EACH                     | EACH   |
| 19            | 40              |        | 78     |                          |        |
| 22            | 1,612           |        |        | 448                      |        |
| 38            |                 | 17     |        |                          | 24     |
| SUBTOTAL      | 1,652           | 17     | 78     | 448                      | 24     |
| TOTAL         | 1,747           |        |        | 472                      |        |

**NOTE:**

PAVEMENT MARKERS ARE RETROREFLECTIVE - RECESSED BETWEEN PM R22.92(DORRETT Dr) AND R23.9.

**PAVEMENT DELINEATION DETAILS AND QUANTITIES**

**PDD-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
Caltrans



|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 8            | 34              |

Robert M. Floyd II 8-17-15  
 REGISTERED CIVIL ENGINEER DATE

8-17-15  
 PLANS APPROVAL DATE

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

### SHOULDER BACKING

| POST MILE LIMITS |        | TON |
|------------------|--------|-----|
| BEGIN            | END    |     |
| R19.00           | R23.90 | 583 |
| TOTAL            |        | 583 |

### TEMPORARY DRAINAGE INLET PROTECTION

| DESCRIPTION | POST MILE     | SIDE  | TEMPORARY DRAINAGE INLET PROTECTION |
|-------------|---------------|-------|-------------------------------------|
|             |               |       | EA                                  |
| MAINLINE    | R19.0 - R23.9 | L+/R+ | 37                                  |
| TOTAL       |               |       | 37                                  |

### MIDWEST GUARDRAIL SYSTEM

| DESCRIPTION | POST MILE |        | SIDE<br>L+/R+ | LAYOUT   | TREATED WOOD WASTE | REMOVE GUARDRAIL | ADJUST GUARDRAIL | MIDWEST GUARDRAIL SYSTEM (STEEL POST) | END ANCHOR ASSEMBLY (TYPE SFT) | ALTERNATIVE FLARED TERMINAL SYSTEM | OBJECT MARKER (TYPE L-1) |
|-------------|-----------|--------|---------------|----------|--------------------|------------------|------------------|---------------------------------------|--------------------------------|------------------------------------|--------------------------|
|             | BEGIN     | END    |               |          | LB                 | LF               | LF               | LF                                    | EA                             | EA                                 | EA                       |
| MAINLINE    | R19.83    | R20.01 | L+            |          |                    |                  | 1,426            |                                       |                                |                                    |                          |
| MAINLINE    | R19.86    | R20.10 | R+            |          |                    |                  | 792              |                                       |                                |                                    |                          |
| MAINLINE    | R20.22    | R20.35 | L+            |          |                    |                  | 686              |                                       |                                |                                    |                          |
| MAINLINE    | R20.30    | R20.36 | R+            |          |                    |                  | 317              |                                       |                                |                                    |                          |
| MAINLINE    | R20.42    | R20.53 | L+            |          |                    |                  | 581              |                                       |                                |                                    |                          |
| MAINLINE    | R20.60    | R20.66 | L+            |          |                    |                  | 634              |                                       |                                |                                    |                          |
| MAINLINE    | R20.62    | R20.72 | R+            |          |                    |                  | 211              |                                       |                                |                                    |                          |
| MAINLINE    | R20.81    | R21.00 | L+            |          |                    |                  | 1,003            |                                       |                                |                                    |                          |
| MAINLINE    | R21.20    | R21.35 | R+            |          |                    |                  | 792              |                                       |                                |                                    |                          |
| MAINLINE    | R21.60    | R21.80 | R+            |          |                    |                  | 1,056            |                                       |                                |                                    |                          |
| MAINLINE    | R21.64    | R21.80 | L+            |          |                    |                  | 845              |                                       |                                |                                    |                          |
| MAINLINE    | R21.96    | R22.14 | R+            | TYPE 11E | 12,263             | 950              |                  | 950                                   | 2                              | 2                                  | 1                        |
| MAINLINE    | R23.06    | R23.17 | R+            |          |                    |                  | 581              |                                       |                                |                                    |                          |
| MAINLINE    | R23.08    | R23.17 | L+            |          |                    |                  | 475              |                                       |                                |                                    |                          |
| MAINLINE    | R23.58    | R23.68 | R+            |          |                    |                  | 739              |                                       |                                |                                    |                          |
| MAINLINE    | R23.62    | R23.72 | L+            |          |                    |                  | 317              |                                       |                                |                                    |                          |
| TOTAL       |           |        |               |          | 12,263             | 950              | 10,455           | 950                                   | 2                              | 2                                  | 1                        |

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE DESIGN  
 FUNCTIONAL SUPERVISOR: PATRICK D. BISHOP  
 CALCULATED/DESIGNED BY: ROBERT M. FLOYD II  
 CHECKED BY: JIM FERREIRA  
 REVISED BY: ROBERT M. FLOYD II  
 DATE REVISED:

## SUMMARY OF QUANTITIES

Q-2

LAST REVISION: 06-25-15    DATE PLOTTED => 18-AUG-2015    TIME PLOTTED => 13:09

|            |  |  |
|------------|--|--|
|            | <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,<br>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,<br>PRECAST                         |  |
| PCC        | POINT OF COMPOUND CURVE,<br>PORTLAND CEMENT CONCRETE   |  |
| PCMS       | PORTABLE CHANGEABLE MESSAGE SIGN                       |  |
| PCP        | PERFORATED CONCRETE PIPE,<br>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,<br>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,<br>PLASTIC PIPE,<br>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,<br>REINFORCEMENT,<br>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,<br>REFERENCE POINT                |  |
| RR      | RAILROAD  |  |
| RSP     | ROCK SLOPE PROTECTION,<br>REVISED STANDARD PLAN |  |
| Rt      | RIGHT   |  |
| Rte     | ROUTE   |  |
| RW      | REDWOOD,<br>RETAINING WALL                      |  |
| R/W     | RIGHT OF WAY                                    |  |
| Rwy     | RAILWAY   |  |

|       |                                  |  |
|-------|----------------------------------|--|
|       | <b>S</b>                         |  |
| S     | SOUTH,<br>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,<br>SECTION               |  |
| Sep   | SEPARATION                       |  |
| SG    | SUBGRADE                         |  |
| Shld  | SHOULDER                         |  |
| Sht   | SHEET                            |  |
| Sim   | SIMILAR                          |  |
| ℒ     | STATION LINE                     |  |
| SM    | SELECTED MATERIAL                |  |
| Spec  | SPECIAL,<br>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,<br>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,<br>TRAFFIC SIGNAL,<br>TUBULAR STEEL |          |
| Typ   | TYPICAL   | <b>U</b> |
| UC    | UNDERCROSSING                                   |          |
| UD    | UNDERDRAIN                                      |          |
| UG    | UNDERGROUND                                     |          |
| UON   | UNLESS OTHERWISE NOTED                          |          |
| UP    | UNDERPASS                                       | <b>V</b> |
| V     | VALVE,<br>DESIGN SPEED                          |          |
| Var   | VARIABLE,<br>VARIES                             |          |
| VC    | VERTICAL CURVE                                  |          |
| VCP   | VITRIFIED CLAY PIPE                             |          |
| Vert  | VERTICAL  |          |
| Via   | VIADUCT   |          |
| Vol   | VOLUME  | <b>W</b> |
| W     | WEST,<br>WIDTH                                  |          |
| WB    | WESTBOUND                                       |          |
| WH    | WEEP HOLE                                       |          |
| WM    | WIRE MESH                                       |          |
| WS    | WATER SURFACE                                   |          |
| WSP   | WELDED STEEL PIPE                               |          |
| Wt    | WEIGHT  |          |
| WV    | WATER VALVE                                     |          |
| WW    | WINGWALL  |          |
| WWLOL | WINGWALL LAYOUT LINE                            | <b>X</b> |
| X Sec | CROSS SECTION                                   |          |
| Xing  | CROSSING  | <b>Y</b> |
| Yr    | YEAR  |          |
| Yrs   | YEARS   |          |

| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
|------|--------|-------|-----------------------------|--------------|-----------------|
| 03   | But    | 32    | R19.0/R23.9                 | 9            | 34              |

*Grace M. Tsushima*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Grace M. Tsushima  
 No. C49814  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 8-17-15

**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         |
| ∅                        | 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

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DEPARTMENT OF TRANSPORTATION

**ABBREVIATIONS  
(SHEET 2 OF 2)**

NO SCALE

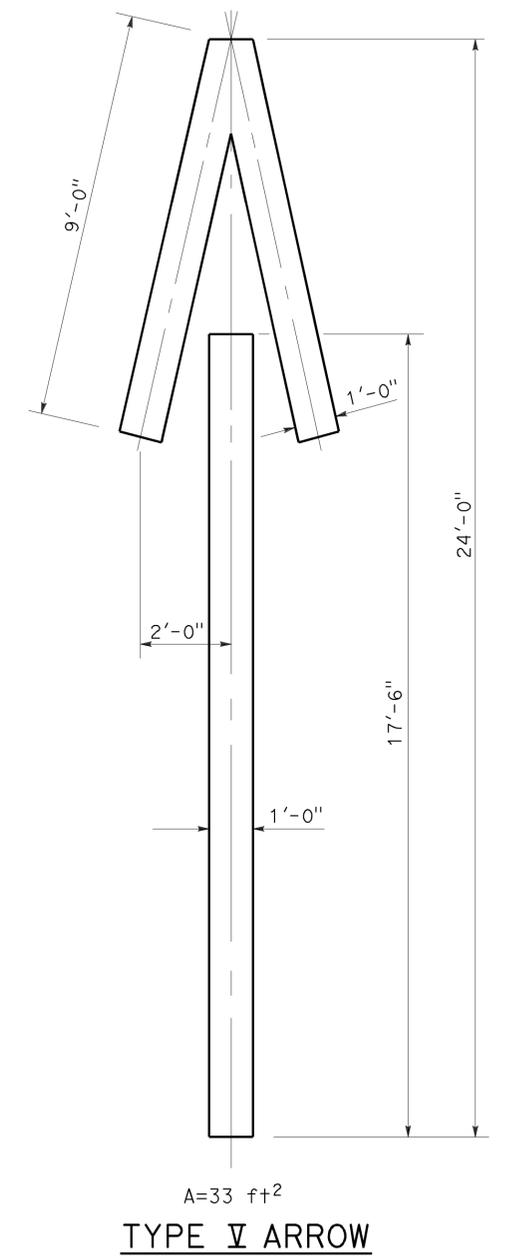
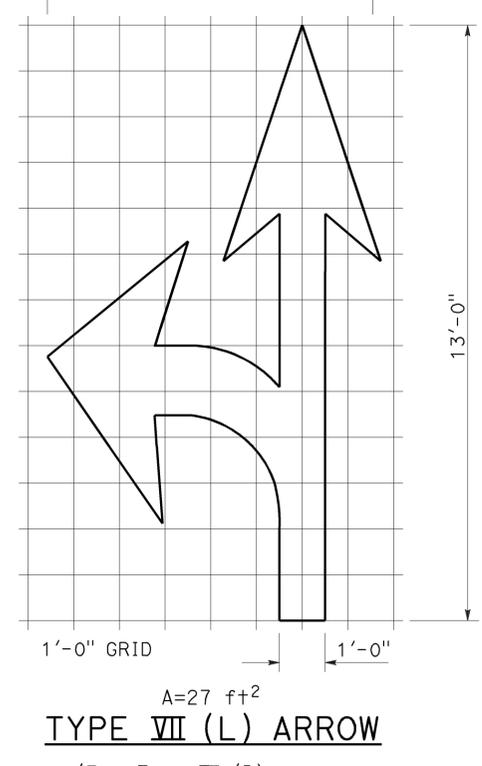
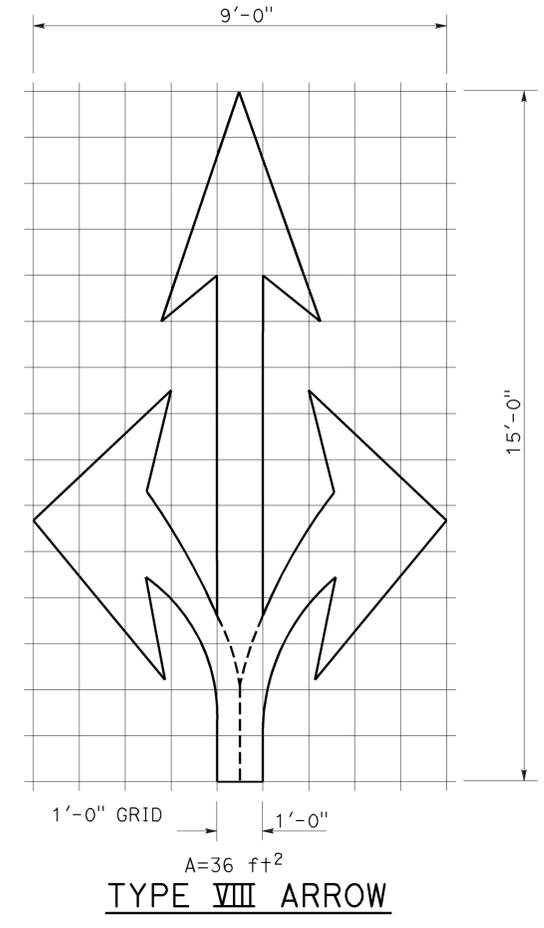
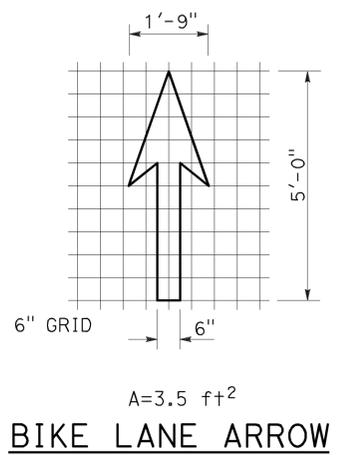
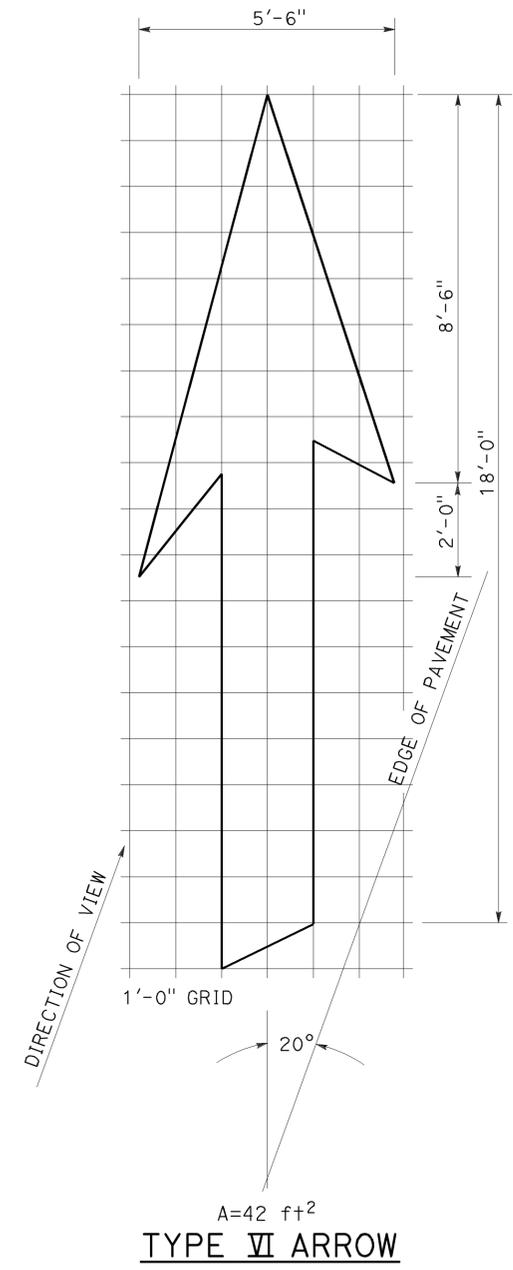
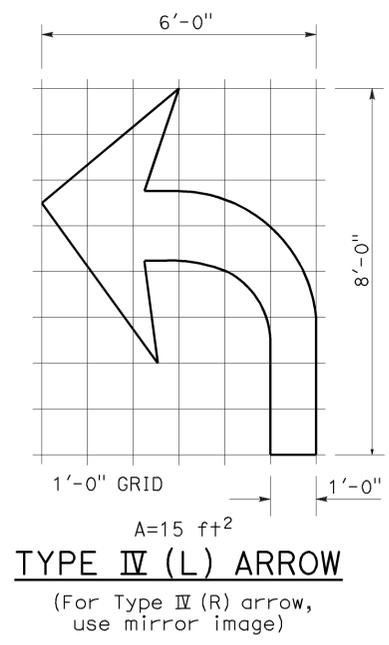
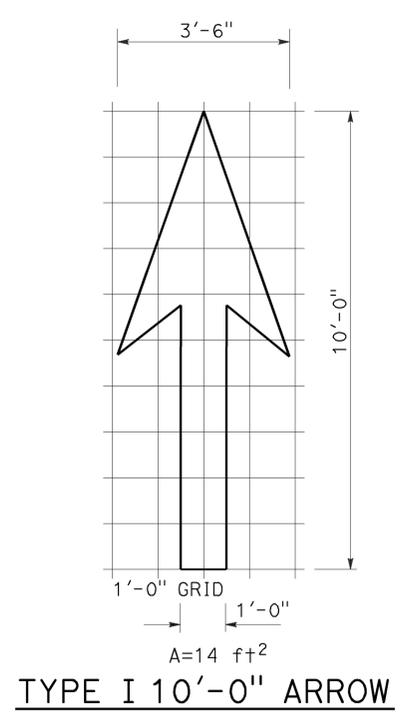
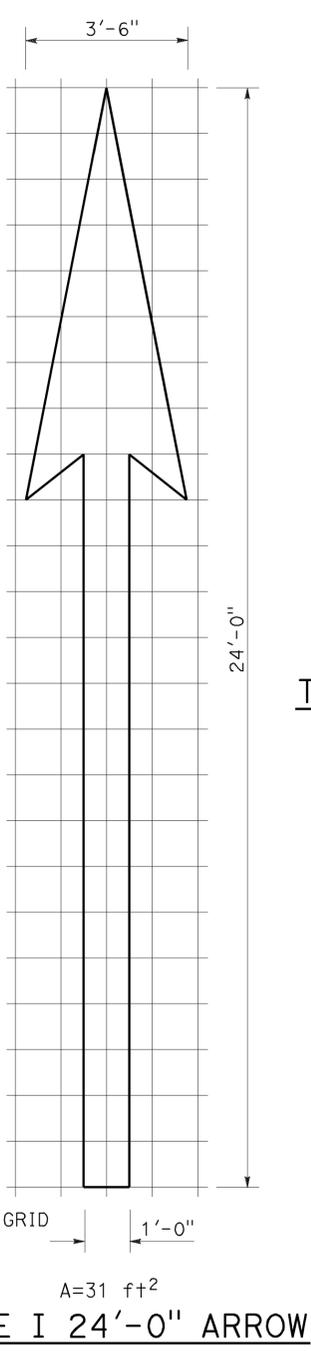
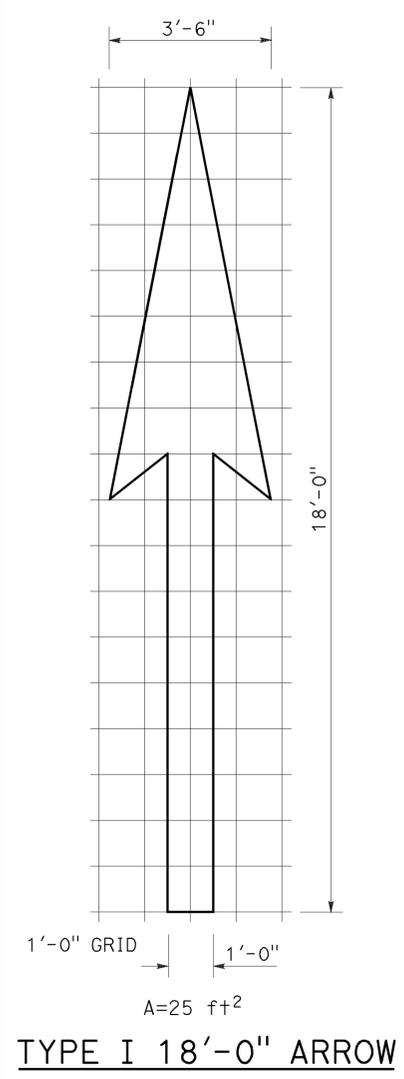
RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B  
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | Butt   | 32    | R19.0/R23.9                 | 10           | 34              |

Roberto L. McLaughlin  
 REGISTERED CIVIL ENGINEER  
 April 20, 2012  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Roberto L. McLaughlin  
 No. C40375  
 Exp. 3-31-13  
 CIVIL  
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-17-15



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

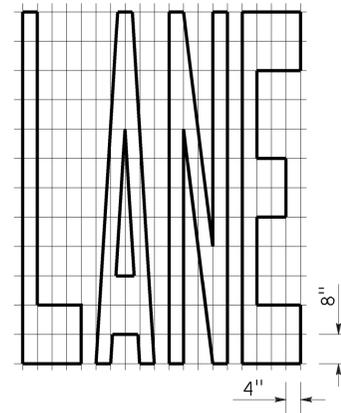
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
ARROWS**  
NO SCALE

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

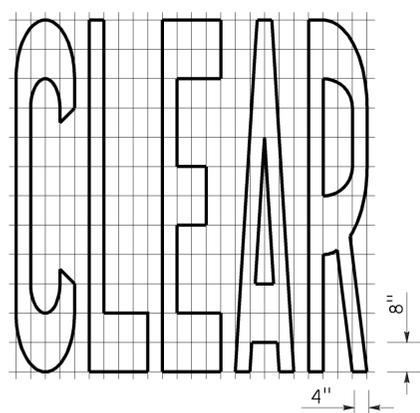
**REVISED STANDARD PLAN RSP A24A**

2010 REVISED STANDARD PLAN RSP A24A

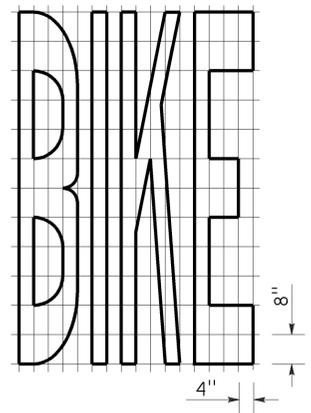
TO ACCOMPANY PLANS DATED 8-17-15



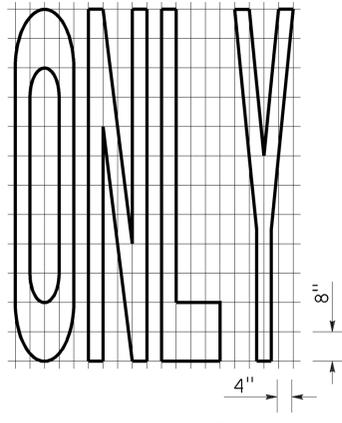
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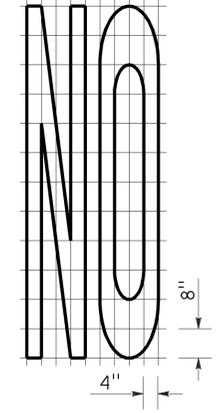
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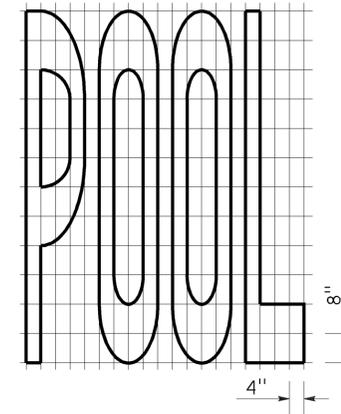
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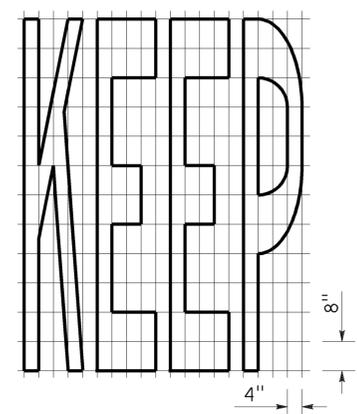
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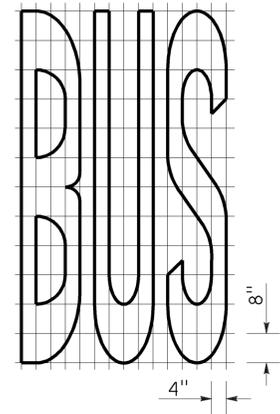
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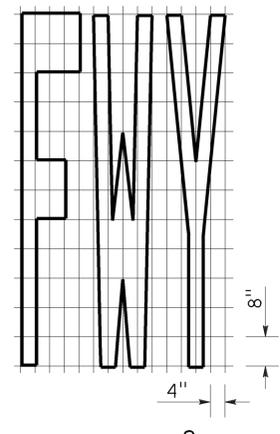
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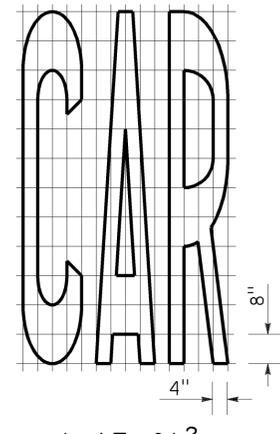
A=24 ft<sup>2</sup>



A=20 ft<sup>2</sup>

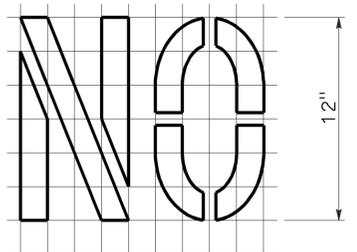


A=16 ft<sup>2</sup>



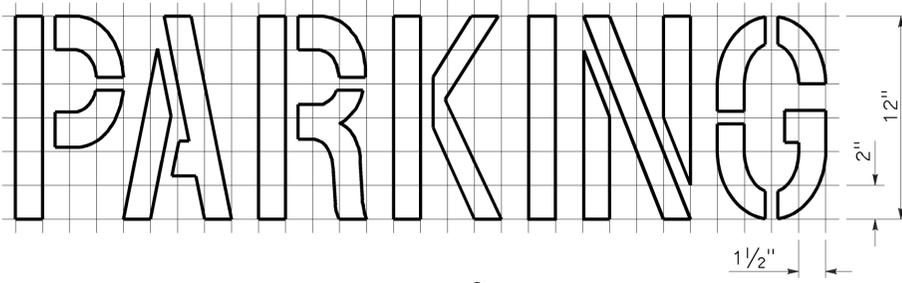
A=17 ft<sup>2</sup>

| WORD MARKINGS |                 |      |                 |
|---------------|-----------------|------|-----------------|
| ITEM          | ft <sup>2</sup> | ITEM | ft <sup>2</sup> |
| LANE          | 24              | NO   | 14              |
| POOL          | 23              | BIKE | 21              |
| CAR           | 17              | BUS  | 20              |
| CLEAR         | 27              | ONLY | 22              |
| KEEP          | 24              | FWY  | 16              |



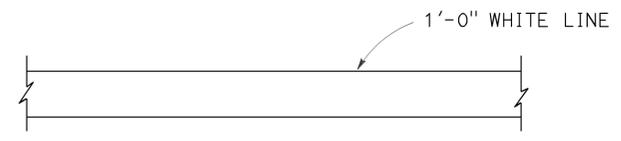
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See Notes 6 and 7

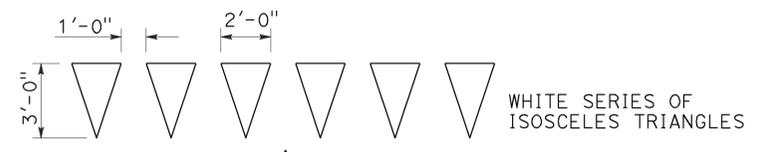


A=2 ft<sup>2</sup>

See Notes 6 and 7



LIMIT LINE (STOP LINE)



YIELD LINE

**NOTES:**

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

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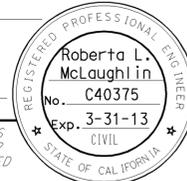
**PAVEMENT MARKINGS  
WORDS, LIMIT AND YIELD LINES**

NO SCALE

RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E  
DATED MAY 20, 2011 - PAGE 17 OF THE STANDARD PLANS BOOK DATED 2010.

| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET NO. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 03   | But    | 32    | R19.0/R23.9              | 12        | 34           |

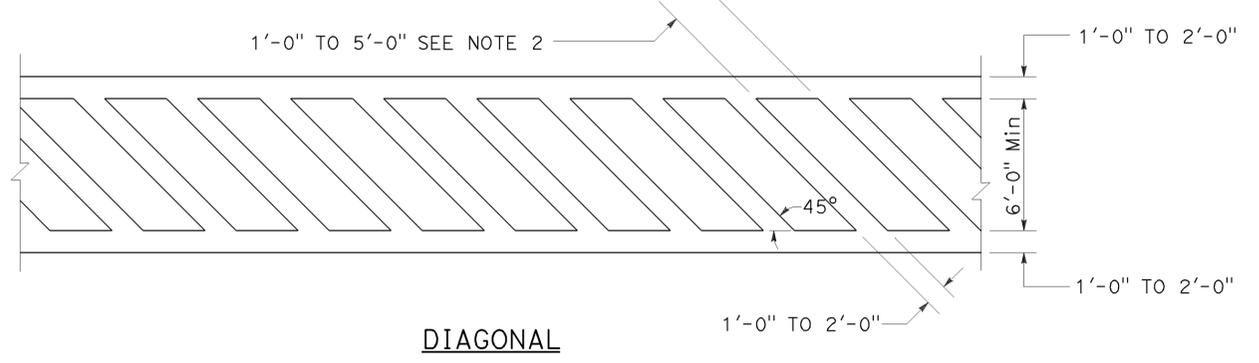
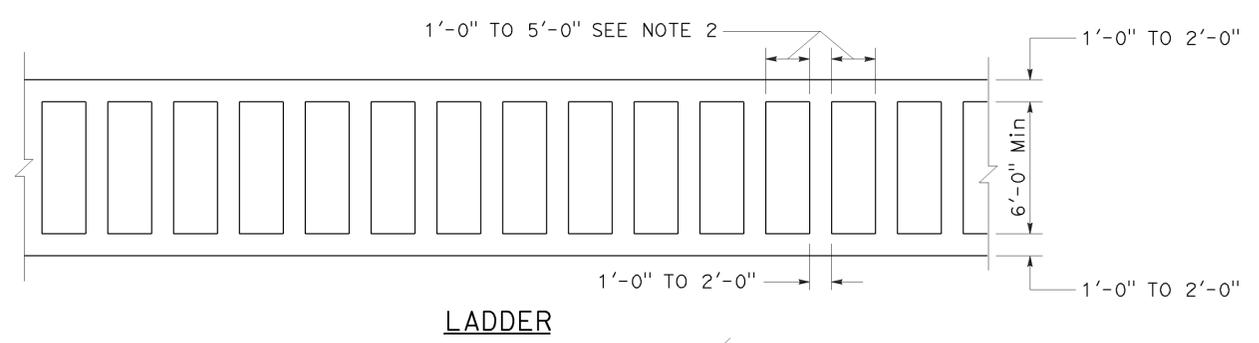
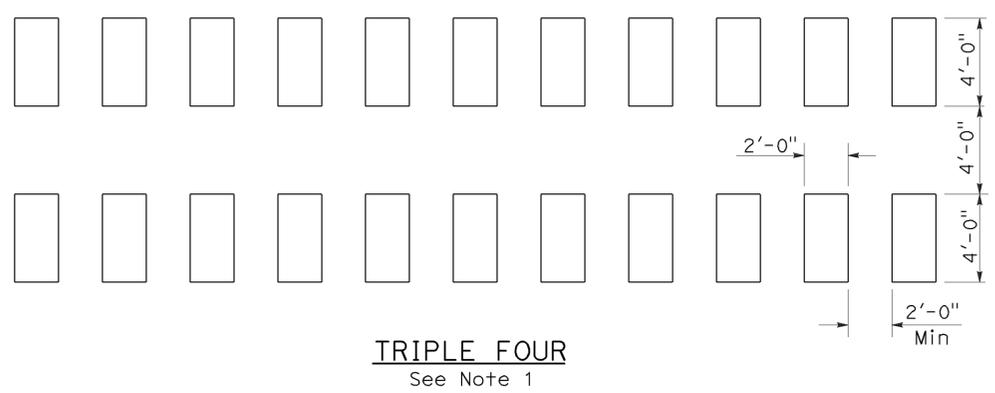
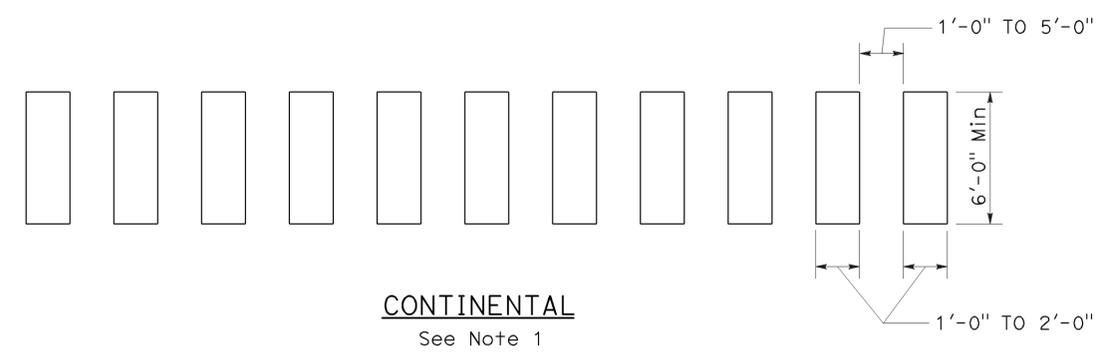
*Roberta L. McLaughlin*  
 REGISTERED CIVIL ENGINEER  
 July 20, 2012  
 PLANS APPROVAL DATE



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TO ACCOMPANY PLANS DATED 8-17-15

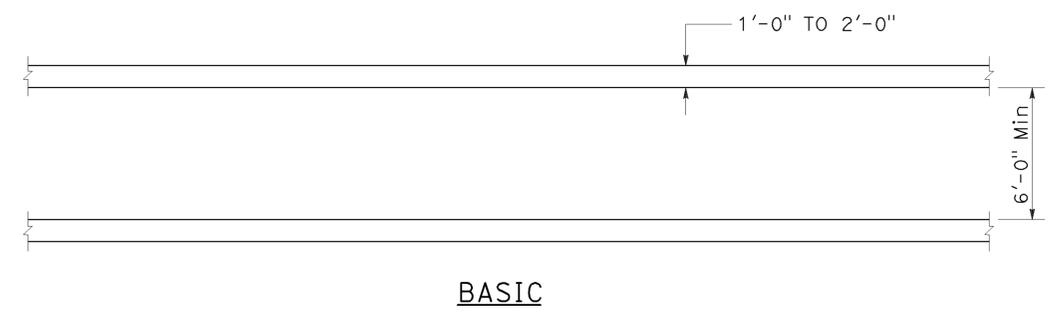
2010 REVISED STANDARD PLAN RSP A24F



**HIGHER VISIBILITY CROSSWALKS**

**NOTES:**

1. Spaces between markings should be placed in wheel tracks of each lane.
2. Spacings not to exceed 2.5 times width of longitudinal line.
3. All crosswalk markings must be white except for those near schools must be yellow.



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

RSP A24F DATED JULY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24F**

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | Butt   | 32    | R19.0/R23.9                 | 13           | 34              |

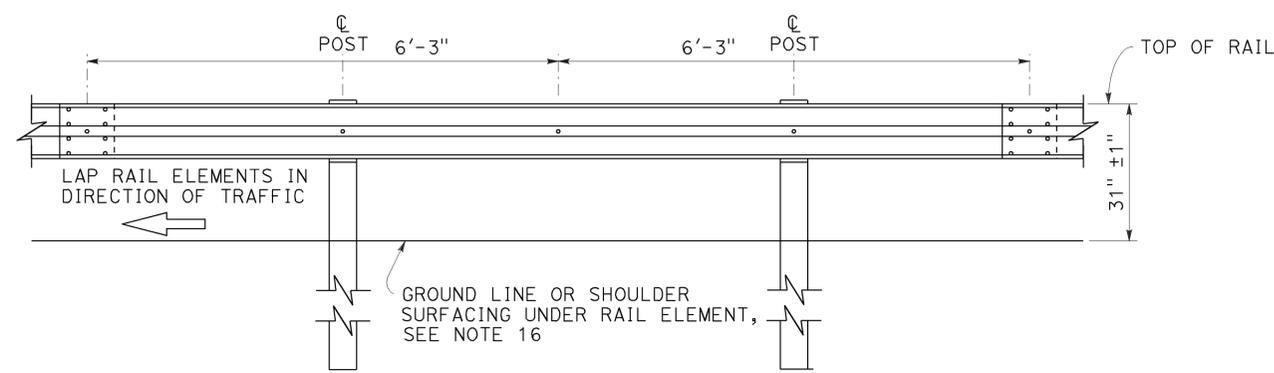
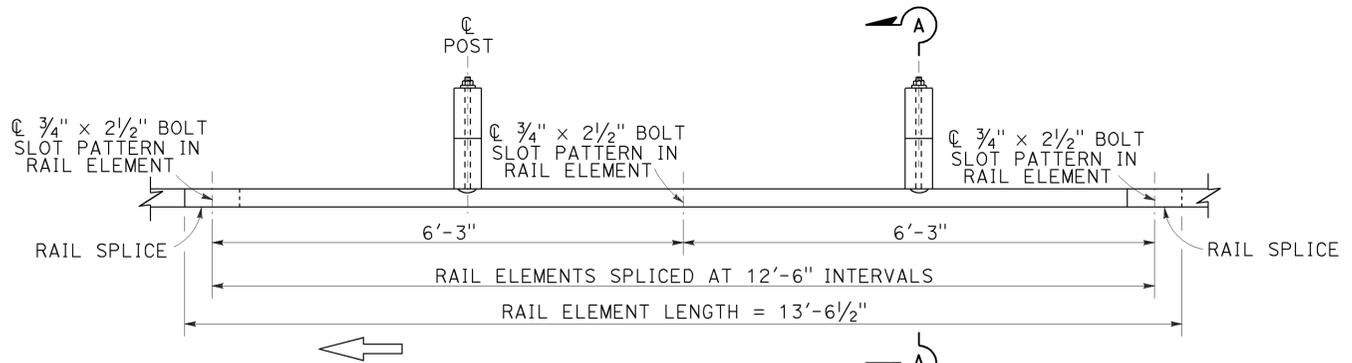
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

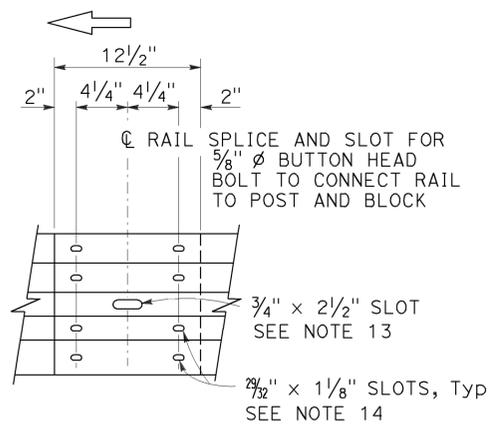
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REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

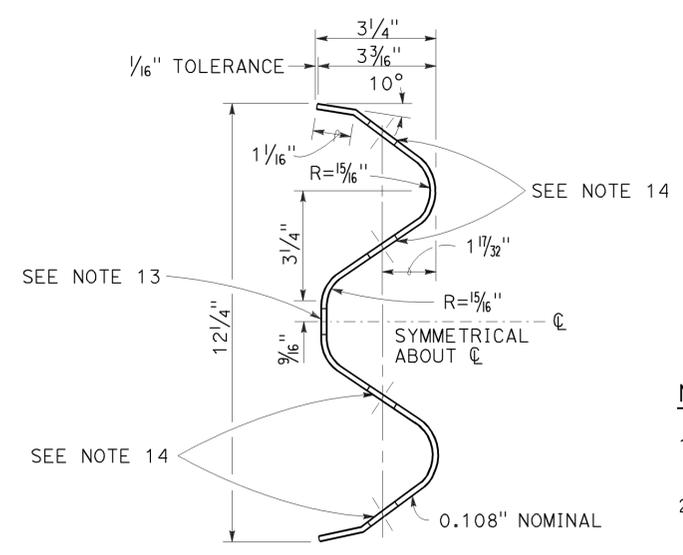
TO ACCOMPANY PLANS DATED 8-17-15



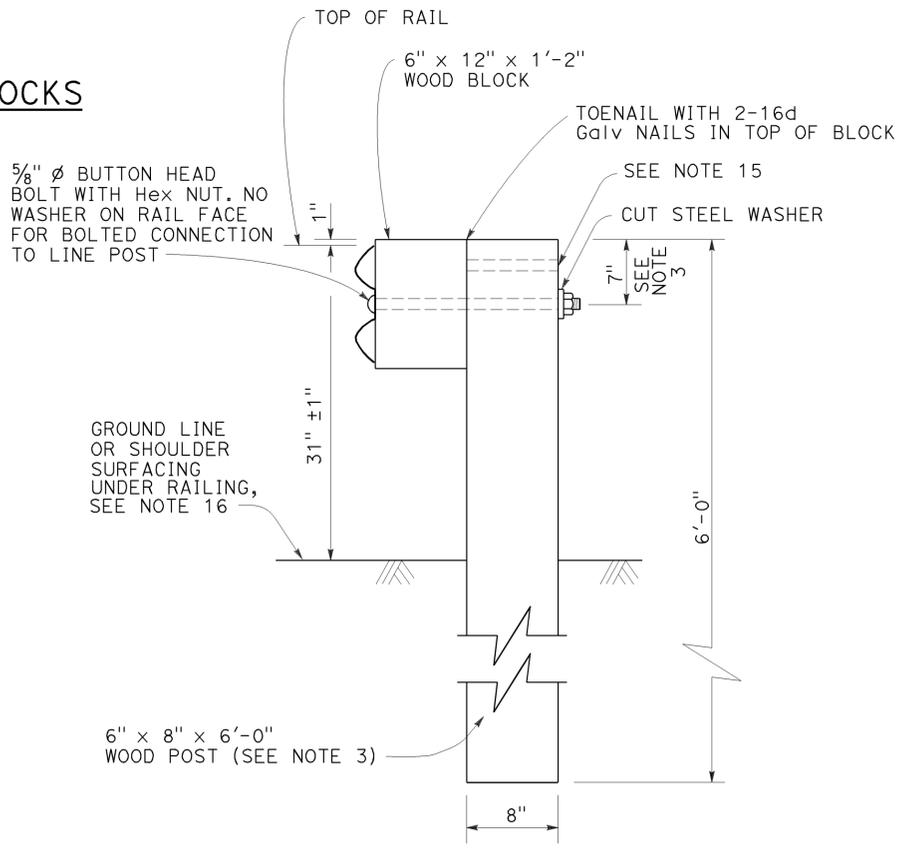
**MIDWEST GUARDRAIL SYSTEM WITH WOOD POST AND BLOCKS**



- Connect the over lapped end of the rail elements with 5/8" Ø x 1 3/8" button head oval shoulder splice bolts inserted into the 7/32" x 1 1/8" slots and bolted together with 5/8" Ø 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

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | Butt   | 32    | R19.0/R23.9              | 14        | 34           |

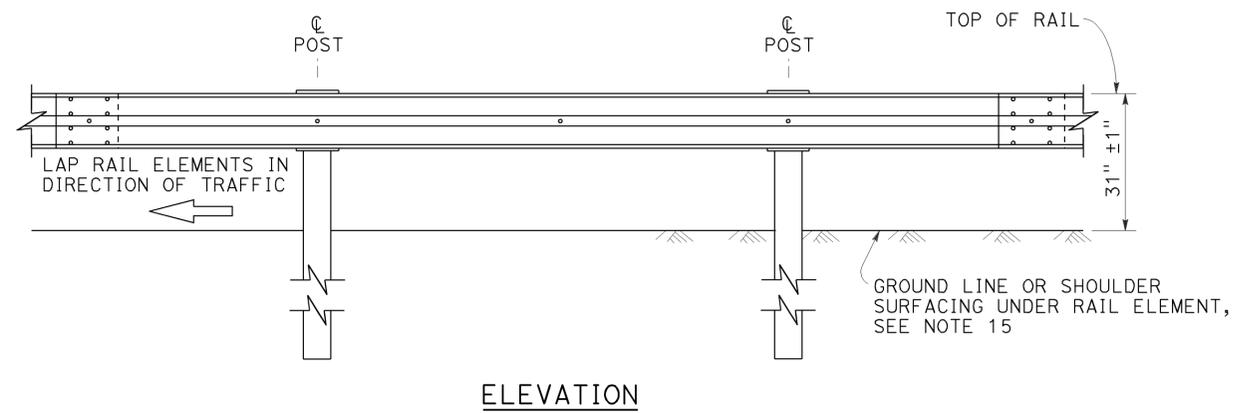
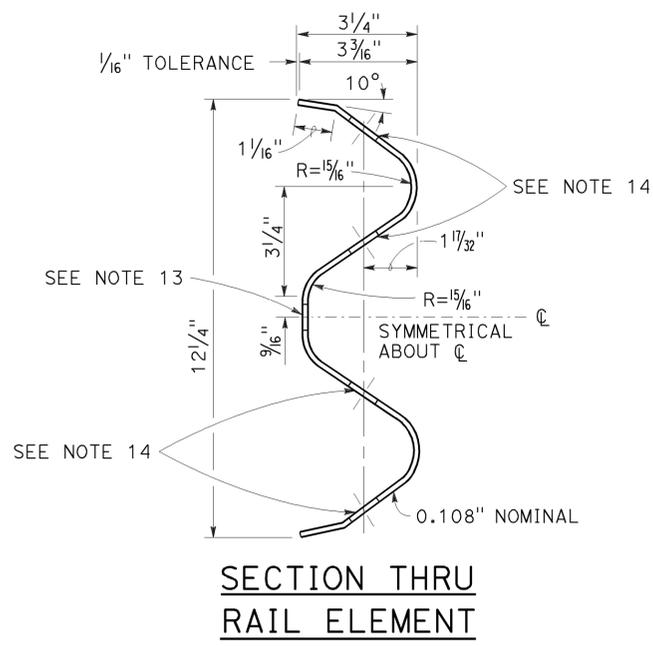
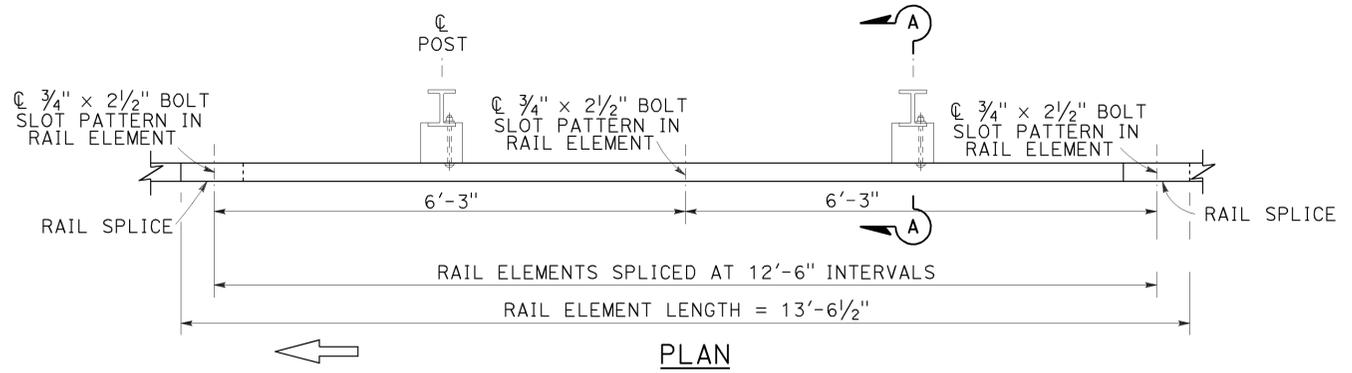
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED 8-17-15

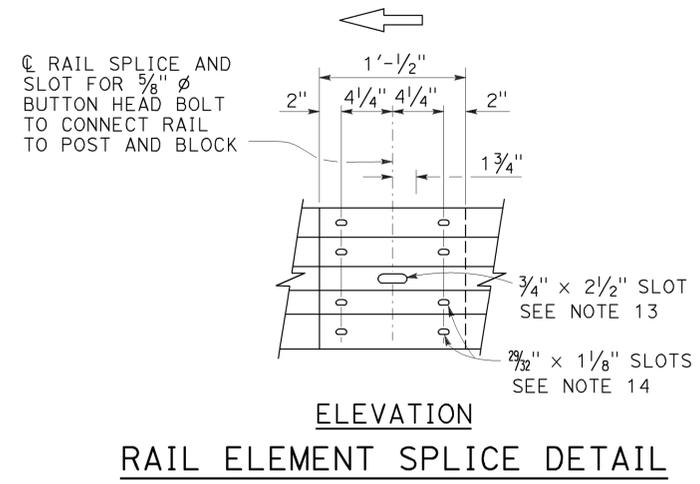
**Randell D. Hiatt**  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA



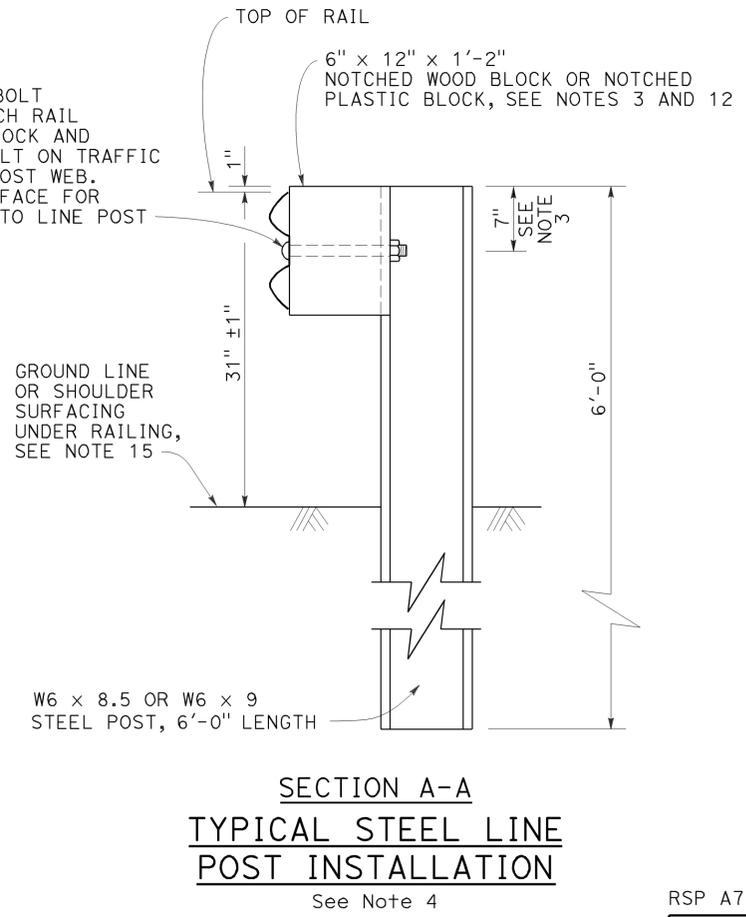
**MIDWEST GUARDRAIL SYSTEM WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS**

**NOTES:**

- For details of wood post installations, see Revised Standard Plan RSP A77L1.
- For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
- For details of steel posts and notched wood blocks used to construct MGS, see Revised Standard Plan RSP A77N2.
- 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 railings, see Revised Standard Plans RSP A77U1, RSP A77U2 and RSP A77V1.
- For dike positioning and MGS delineation details, see Revised Standard Plan RSP A77N4.
- Notched face of block faces steel post.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Install posts in soil.



- Connect the overlapped end of the rail elements with 5/8"  $\phi$  x 1 3/8" button head oval shoulder splice bolts inserted into the 7/32" x 1 1/8" slots and bolted together with 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.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77L2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77L2**

2010 REVISED STANDARD PLAN RSP A77L2

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | But    | 32    | R19.0/R23.9              | 15        | 34           |

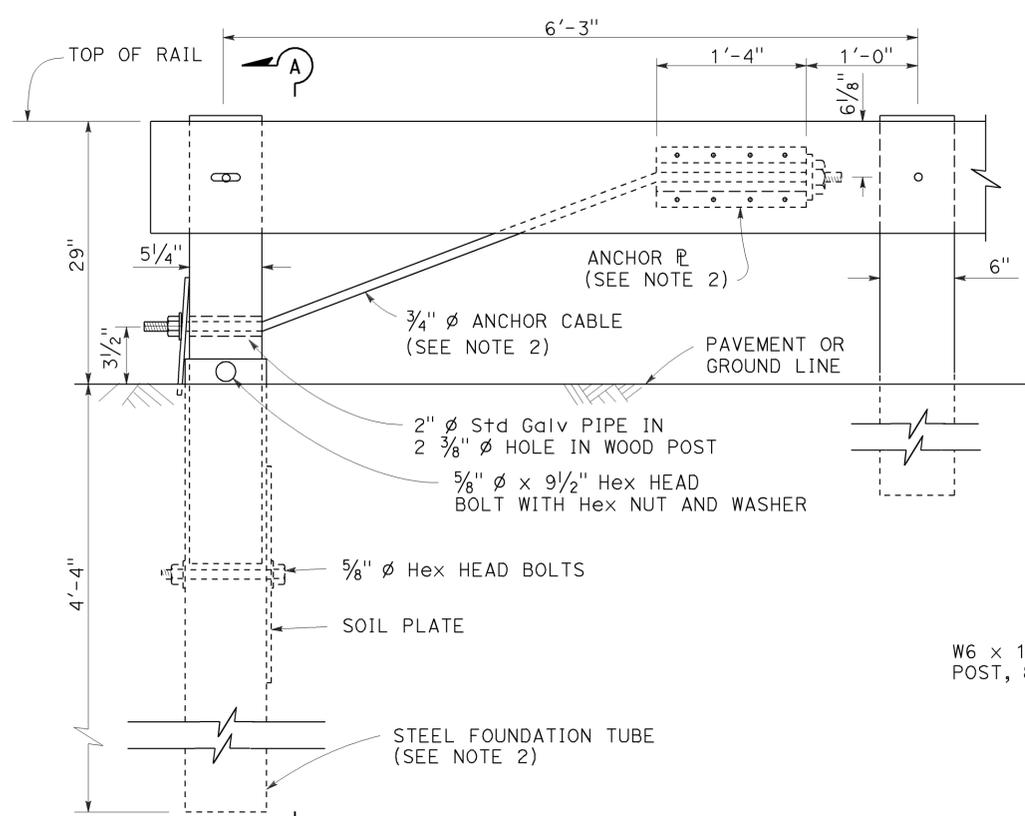
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

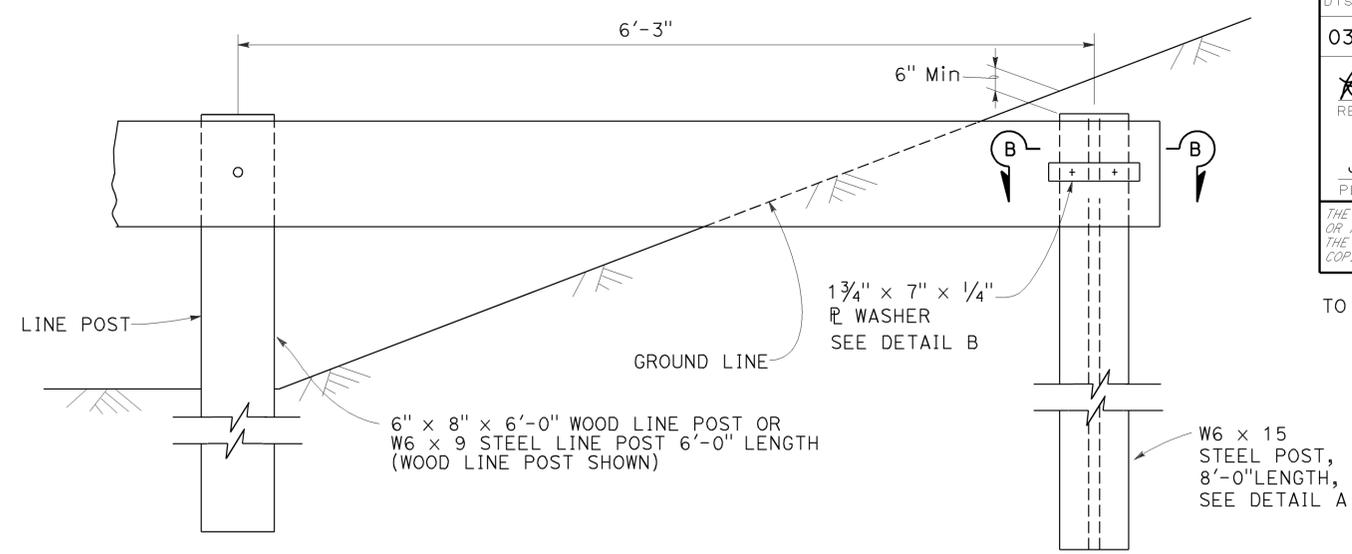
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TO ACCOMPANY PLANS DATED 8-17-15

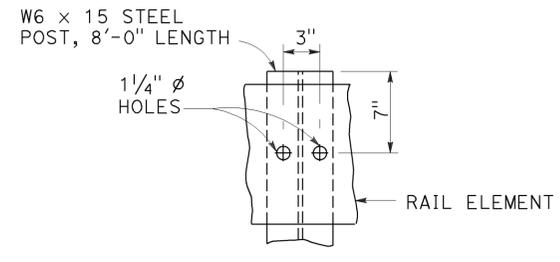
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA



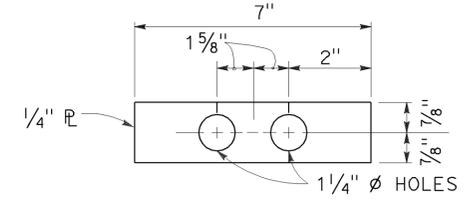
**ELEVATION  
END ANCHOR  
ASSEMBLY (TYPE SFT)**



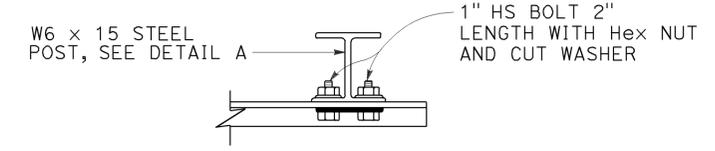
**BURIED POST END ANCHOR**



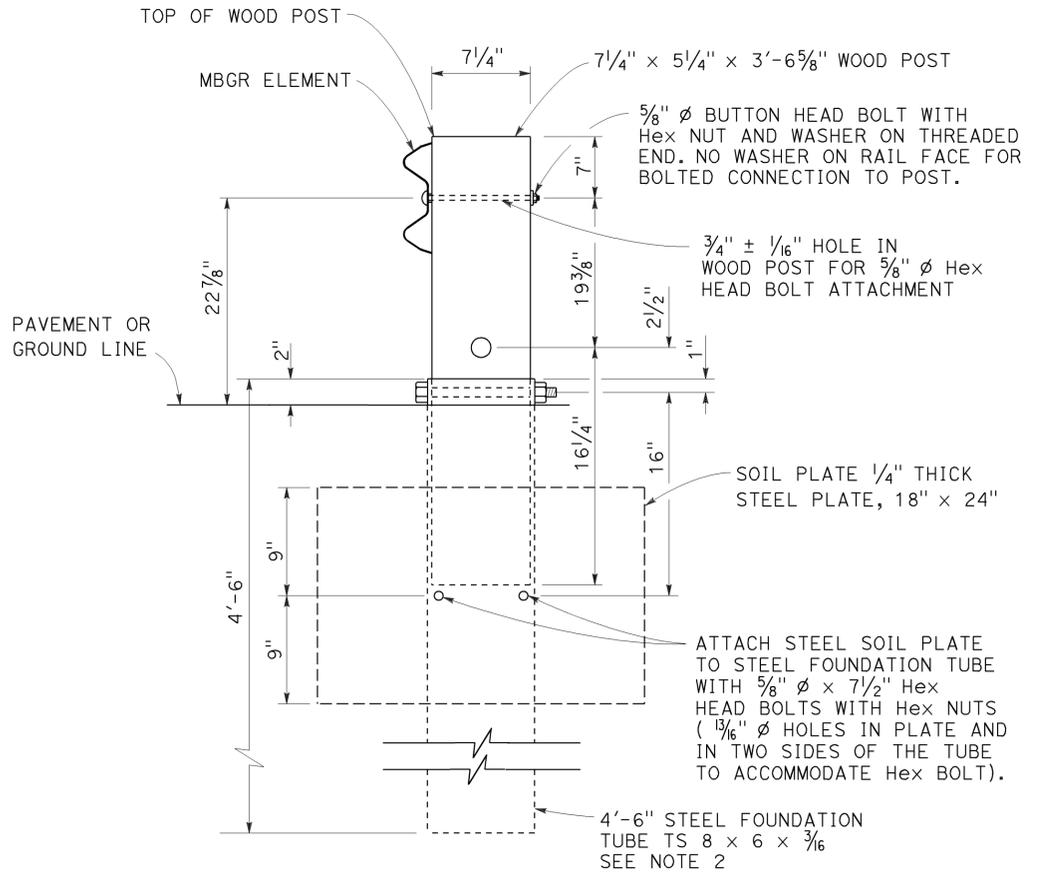
**DETAIL A**



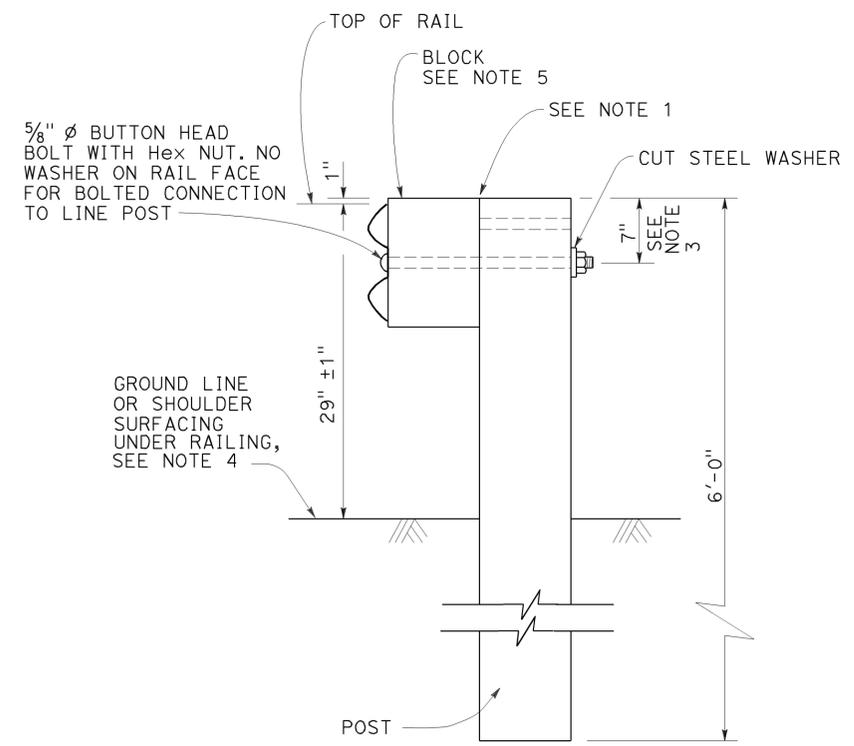
**DETAIL B**



**SECTION B-B**



**SECTION A-A**



**TYPICAL LINE  
POST INSTALLATION**

**NOTES:**

- For wood post and wood block, toenail with 2-16d Galv nails in top of block. For steel post and notched wood or plastic block, notched face of block faces steel post.
- 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"  $\phi$  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.
- To connect railing to 27" terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- Install posts in soil.
- See Revised Standard Plans RSP A77N1 and RSP A77N2 for details.
- Holes excavation in the slope to construct the buried post end anchor shall be backfilled with selected earth, placed in layers approximately 1'-0" thick. Each layer shall be moistened and thoroughly compacted.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
RECONSTRUCT INSTALLATION**

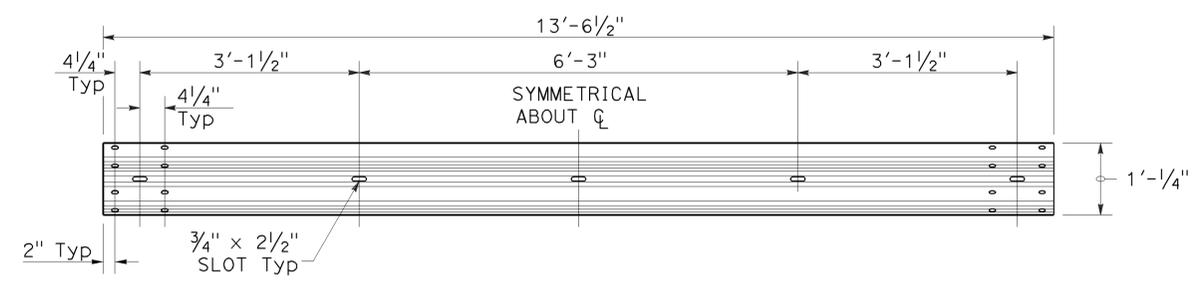
NO SCALE

RSP A77L3 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77L3**

2010 REVISED STANDARD PLAN RSP A77L3

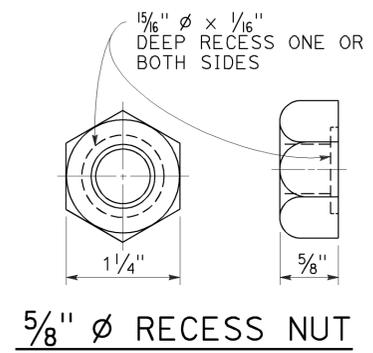
TO ACCOMPANY PLANS DATED 8-17-15



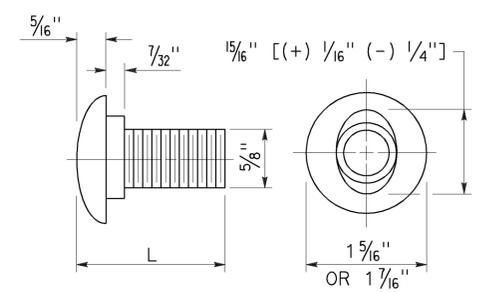
**TYPICAL RAIL ELEMENT**

**NOTE:**

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



**5/8" Ø RECESS NUT**

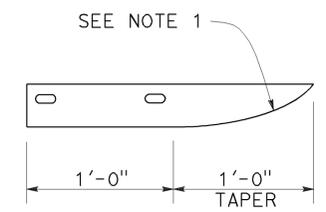


**5/8" Ø BUTTON HEAD BOLT**

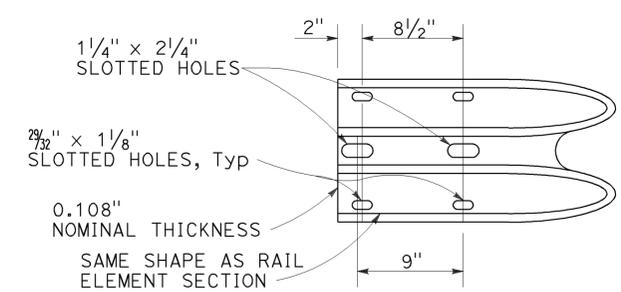
**BUTTON HEAD BOLT**

| 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.



**PLAN**



**ELEVATION  
END CAP  
(TYPE A)**

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<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 17           | 34              |

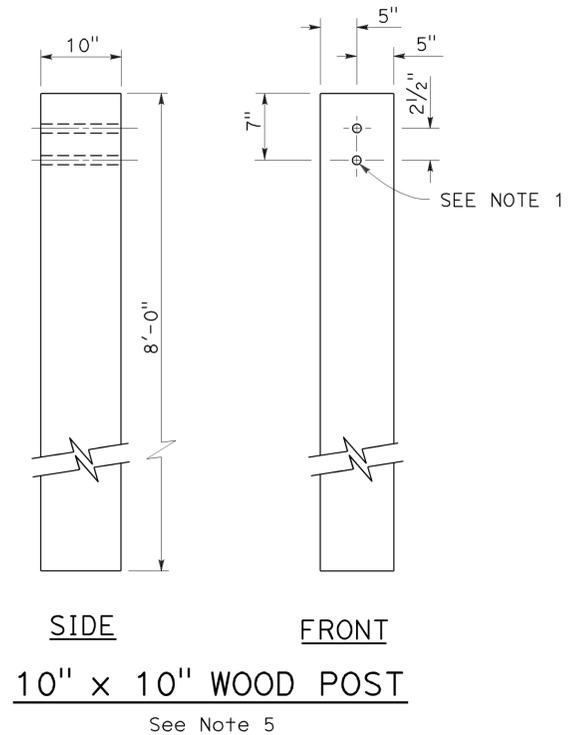
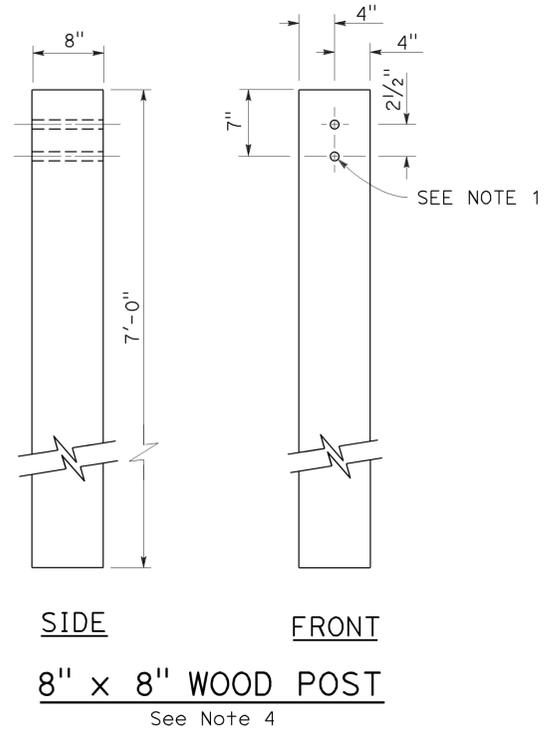
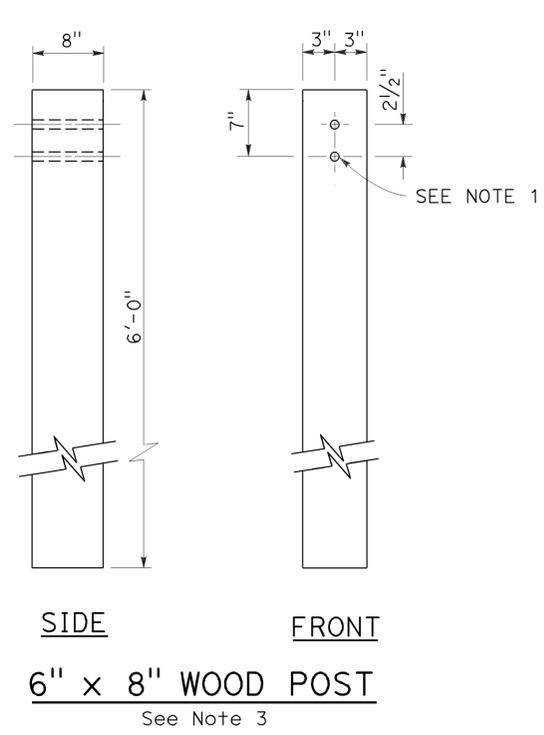
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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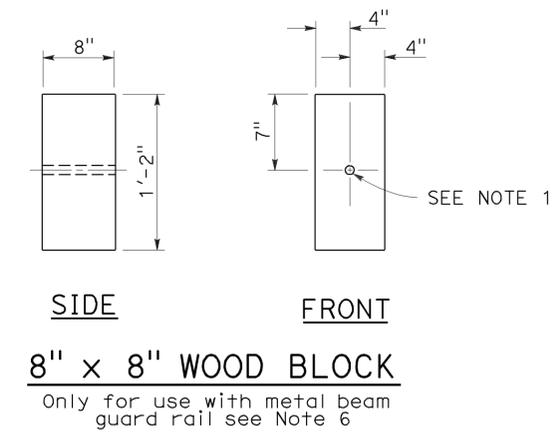
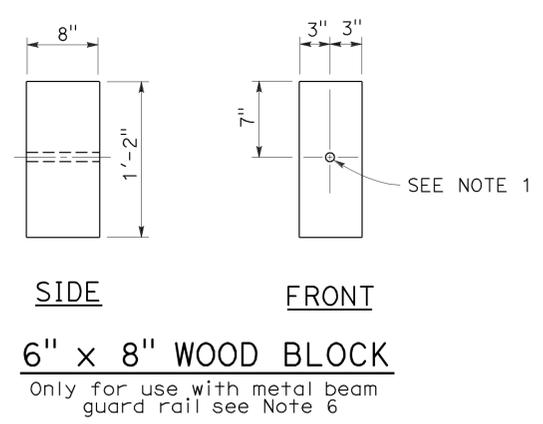
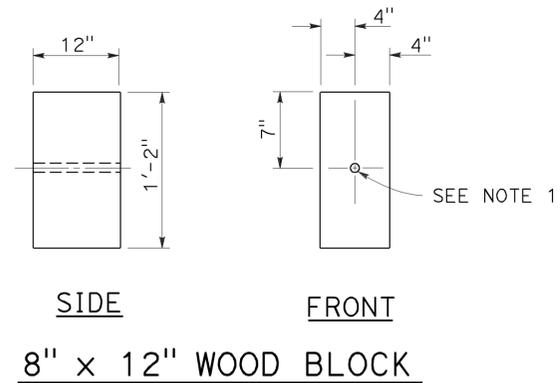
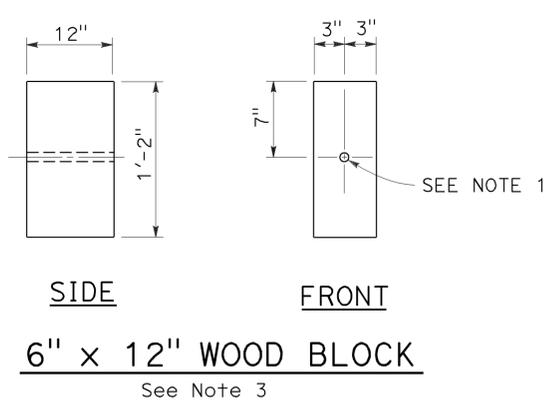
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-17-15



**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<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | Butt   | 32    | R19.0/R23.9                 | 18           | 34              |

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

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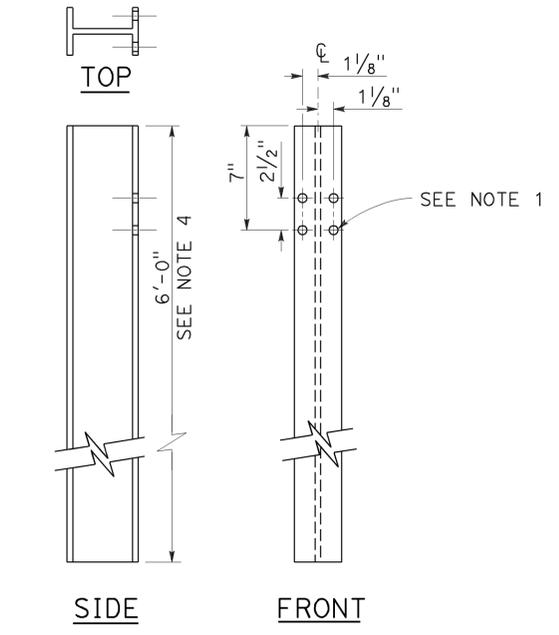
REGISTERED PROFESSIONAL ENGINEER  
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CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-17-15

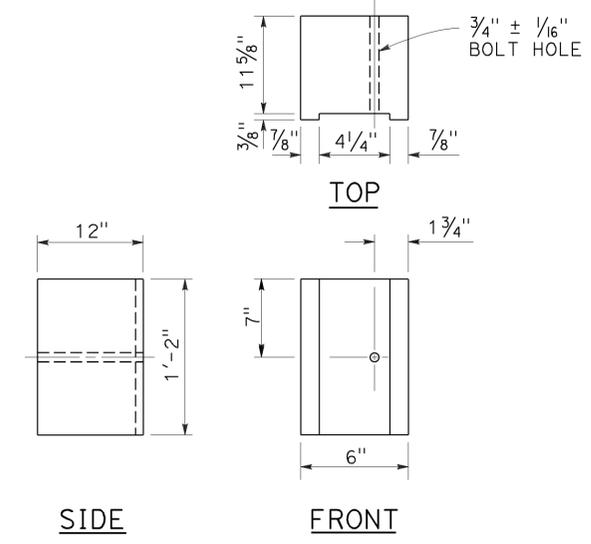
**NOTES:**

1. All holes in steel post shall be  $\frac{13}{16}$ " Dia maximum.
2. Dimensions shown for wood block are nominal.
3. Notched face of block faces steel post.
4. 6'-0" length posts to be used for typical roadway installation. See Revised Standard Plan RSP A77N3.
5. See Revised Standard Plan RSP A77L3 for use of 6" x 8" and 8" x 8" notched wood blocks.
6. This post and 8" x 12" block combination to be used for line post sections of MGS on narrow roadways and where strengthened line post sections of MGS are warranted to shield fixed objects.

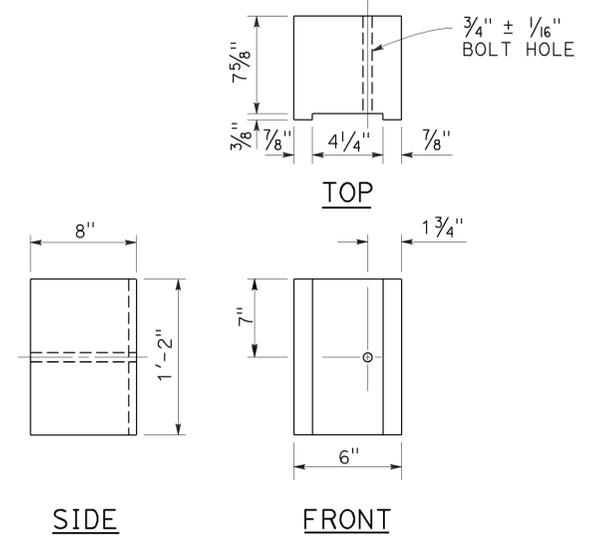
2010 REVISED STANDARD PLAN RSP A77N2



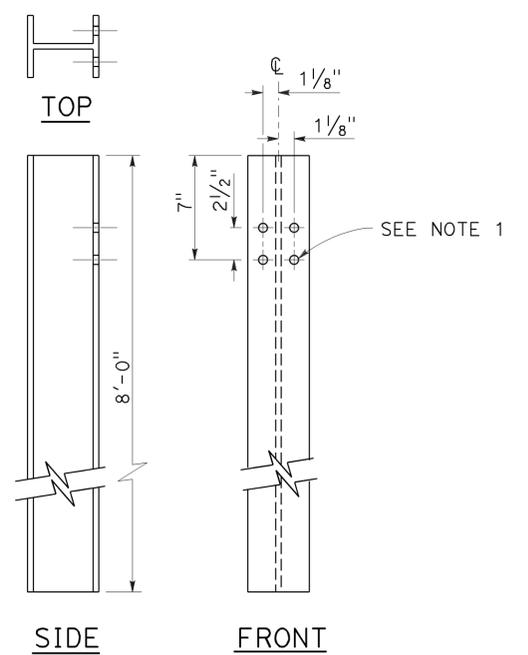
**W6 x 9 OR W6 x 8.5  
STEEL POST**  
See Note 4



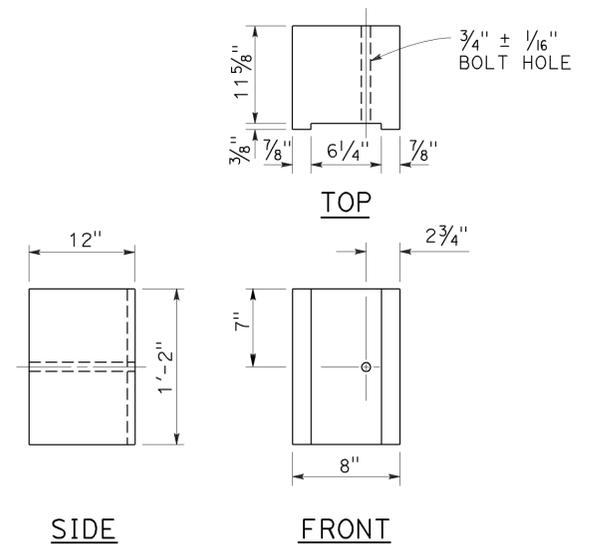
**6" x 12"  
NOTCHED WOOD BLOCK**  
See Notes 2 and 3



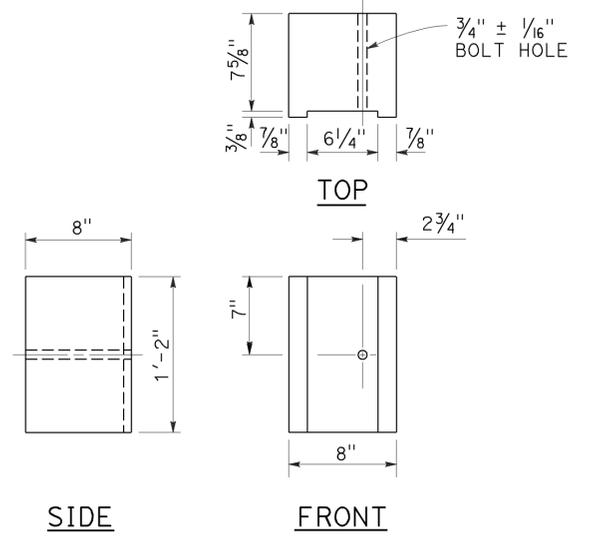
**6" x 8"  
NOTCHED WOOD BLOCK**  
Only for use with metal beam guard railing. See Note 5



**W6 x 15  
STEEL POST**  
See Note 6



**8" x 12"  
NOTCHED WOOD BLOCK**  
See Notes 2 and 3



**8" x 8"  
NOTCHED WOOD BLOCK**  
Only for use with metal beam guard railing. See Note 5

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77N2 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77N2  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | Butt   | 32    | R19.0/R23.9                 | 19           | 34              |

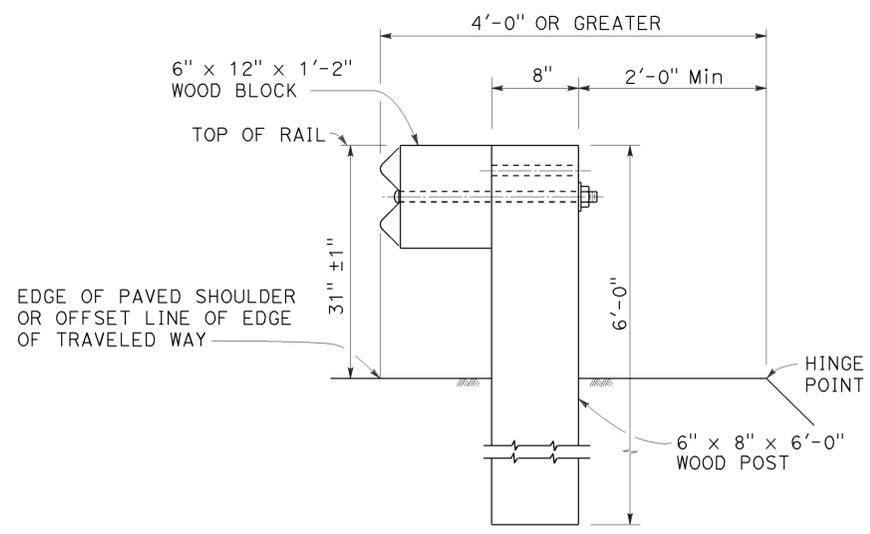
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

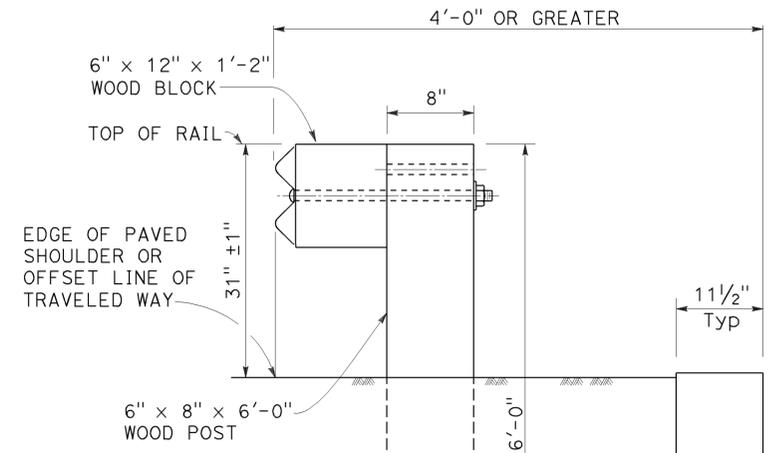
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*Randell D. Hiatt*  
No. C50200  
Exp. 6-30-15  
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STATE OF CALIFORNIA

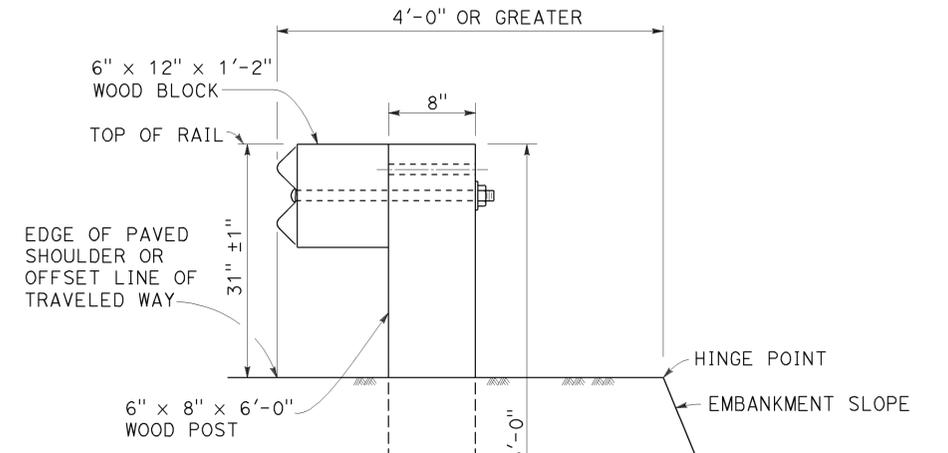
TO ACCOMPANY PLANS DATED 8-17-15



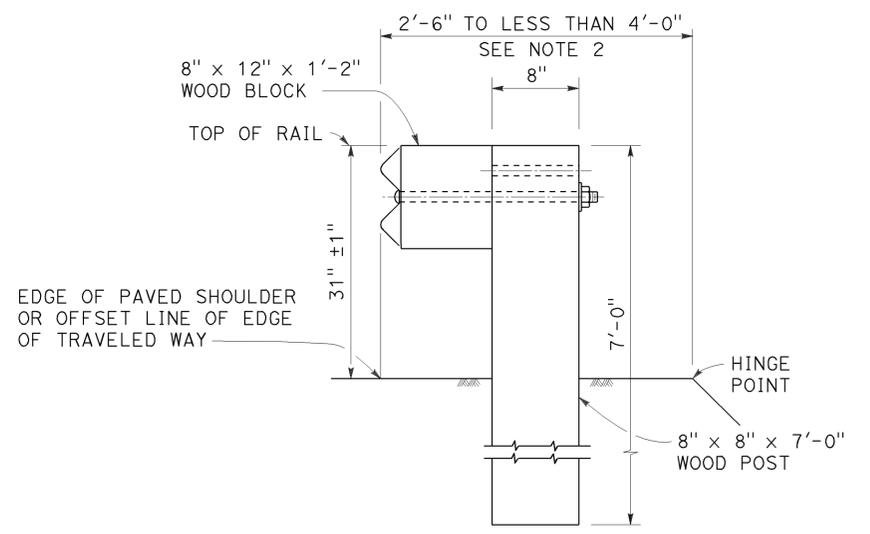
**DETAIL A**  
**TYPICAL ROADWAY**  
**INSTALLATION**  
See Note 1



**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 |
|------|--------|-------|--------------------------|-----------|--------------|
| 03   | But    | 32    | R19.0/R23.9              | 20        | 34           |

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

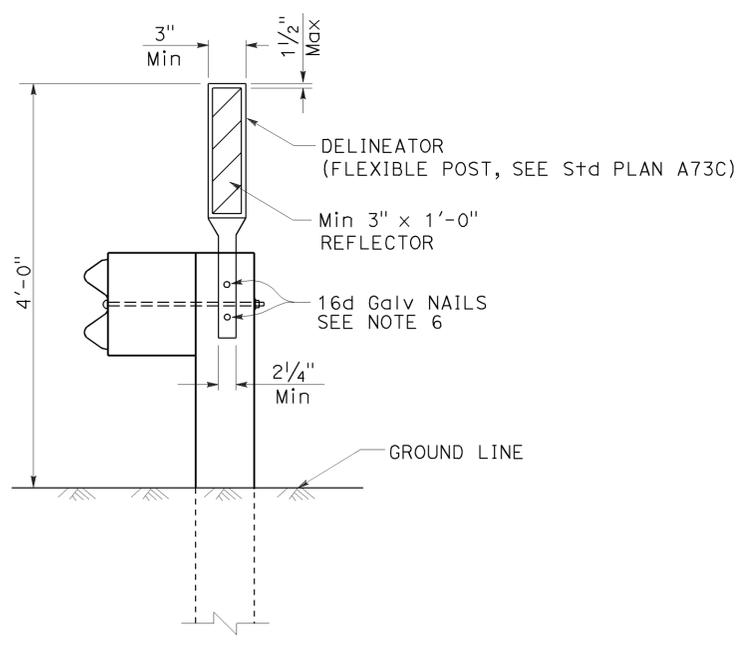
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REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
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CIVIL  
STATE OF CALIFORNIA

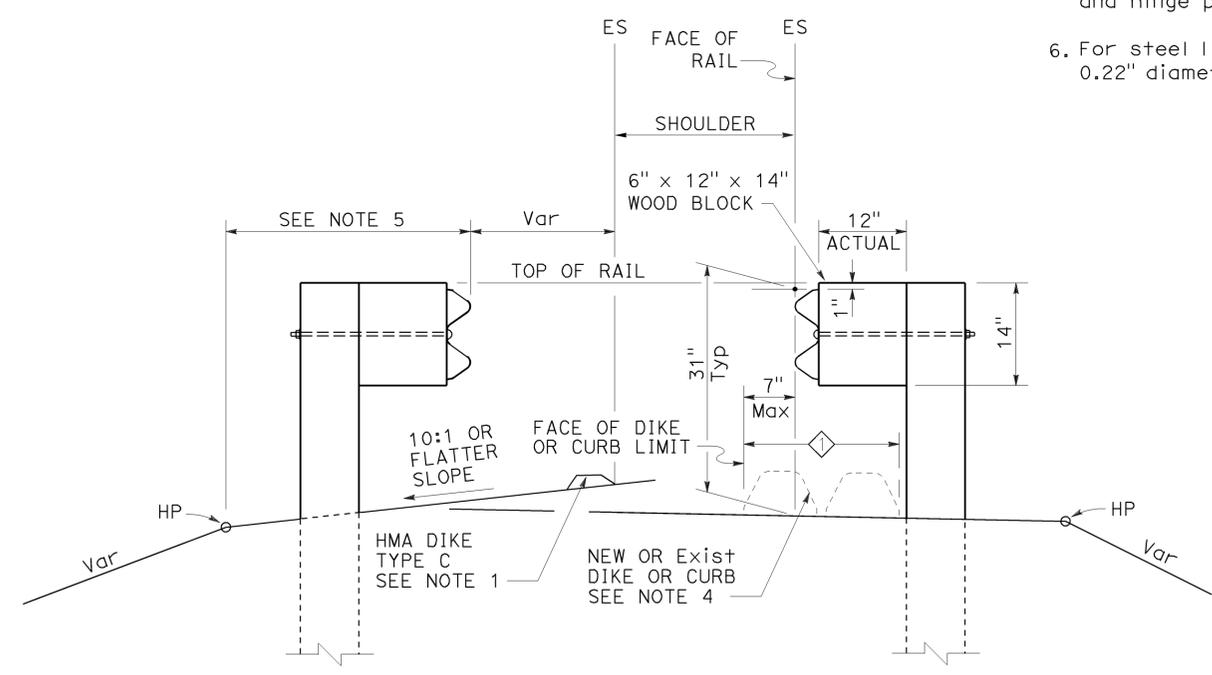
TO ACCOMPANY PLANS DATED 8-17-15

**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

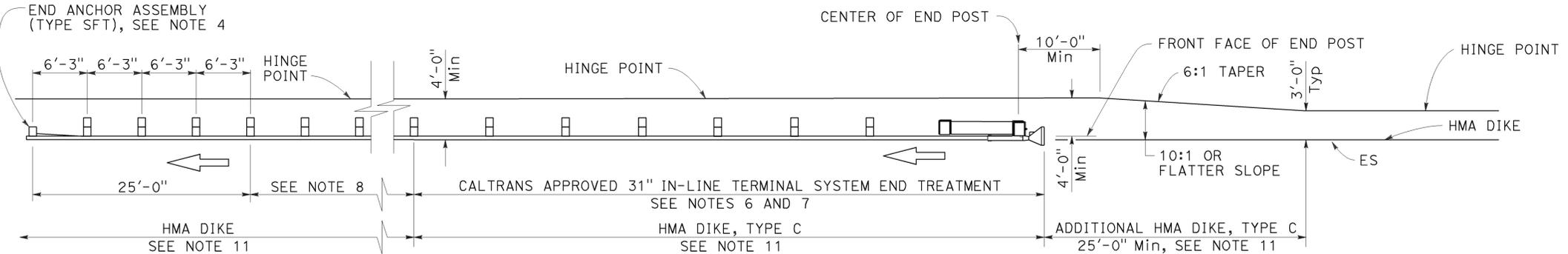
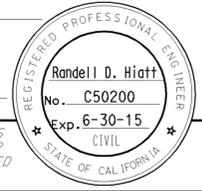
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|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | But    | 32    | R19.0/R23.9              | 21        | 34           |

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

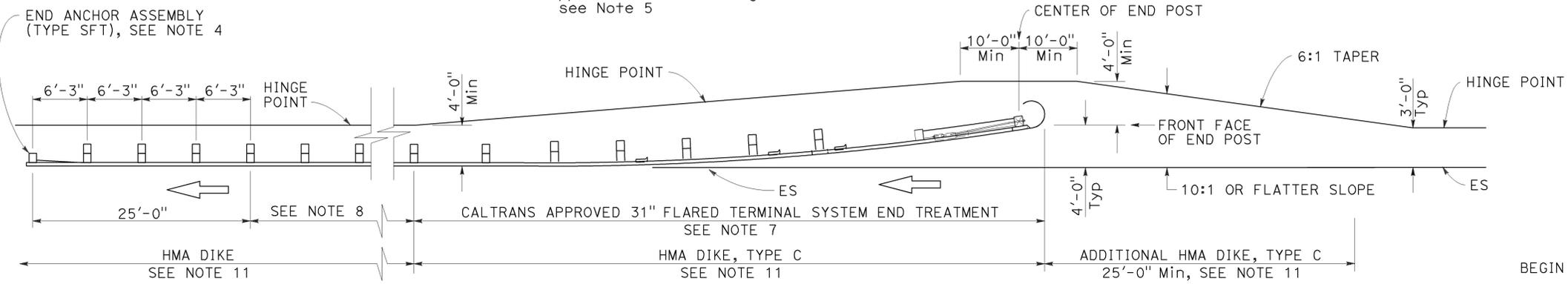
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TO ACCOMPANY PLANS DATED 8-17-15



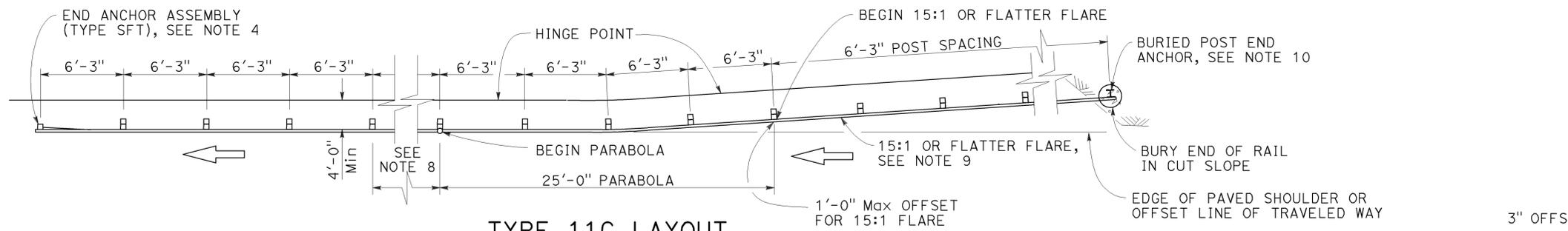
**TYPE 11A LAYOUT**

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



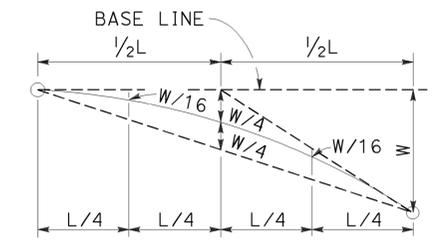
**TYPE 11B LAYOUT**

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

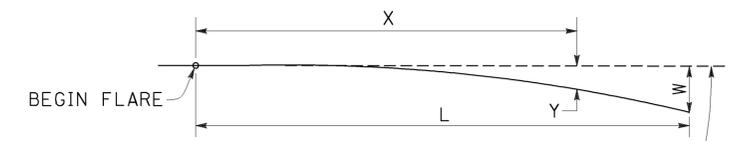


**TYPE 11C LAYOUT**

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



**TYPICAL PARABOLIC LAYOUT**

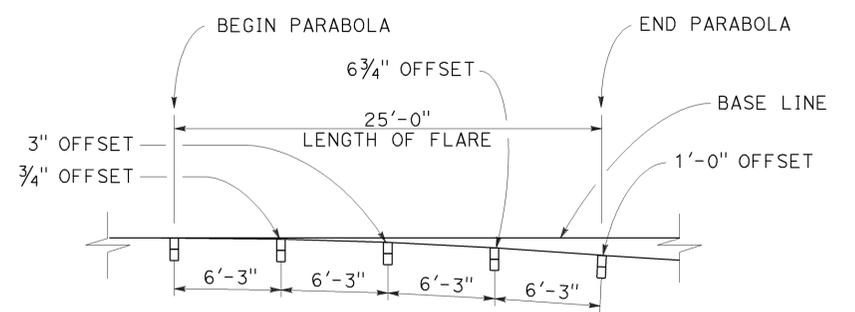


BASE LINE (EDGE OF PAVED SHOULDER OR OFFSET LINE OF EDGE OF TRAVELED WAY)

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

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

**PARABOLIC FLARE OFFSETS**



**TYPICAL FLARE OFFSETS FOR 1 FOOT Max END OFFSET**

**NOTES:**

- Line post, blocks and hardware to be used are shown on 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 recycled plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
- For End Anchor Assembly (Type SFT) details, see Revised Standard Plan RSP A77S1.
- Layout Types 11A, 11B or 11C are typically used where MGS is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a flared end treatment.
- The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11C Layout, see Revised Standard Plan RSP A77T2.
- Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR EMBANKMENTS**

NO SCALE

RSP A77P1 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77P1 DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77P1**

2010 REVISED STANDARD PLAN RSP A77P1

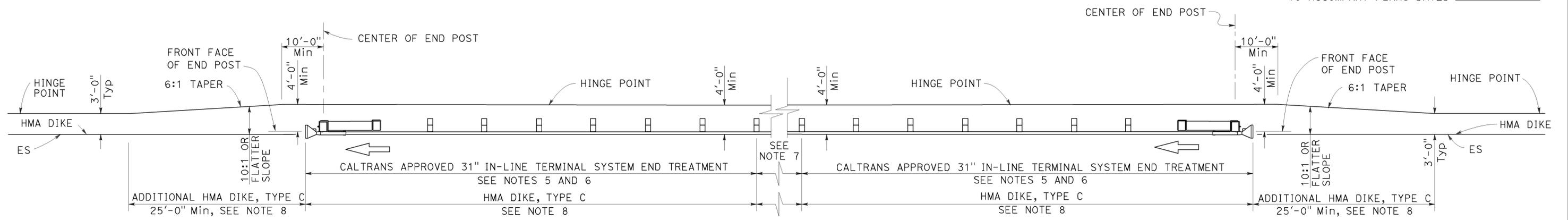
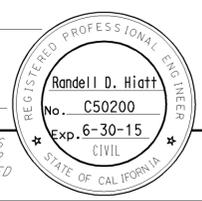
|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | But    | 32    | R19.0/R23.9              | 22        | 34           |

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

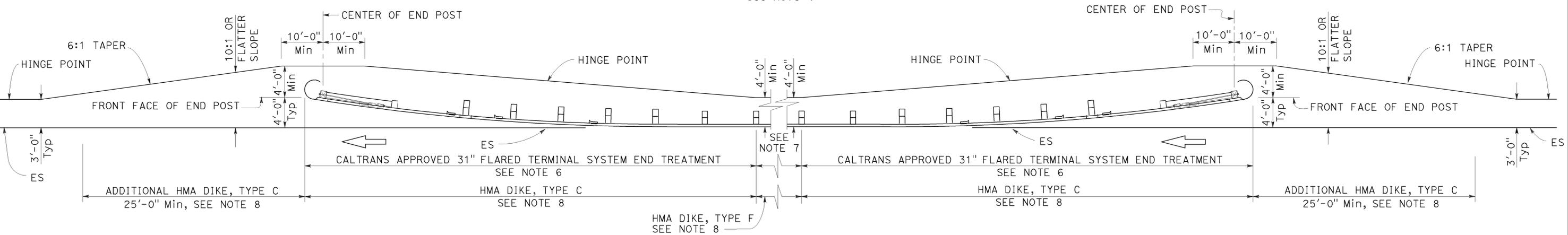
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TO ACCOMPANY PLANS DATED 8-17-15



**TYPE 11D LAYOUT**

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



**TYPE 11E LAYOUT**

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

**NOTES:**

1. 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.
2. MGS post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 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 post with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
4. Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
5. 31" in-line terminal system end treatments are used where site conditions will not accommodate a flared end treatment.
6. The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
7. Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
8. Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE

RSP A77P2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77P2**

2010 REVISED STANDARD PLAN RSP A77P2

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | But    | 32    | R19.0/R23.9              | 23        | 34           |

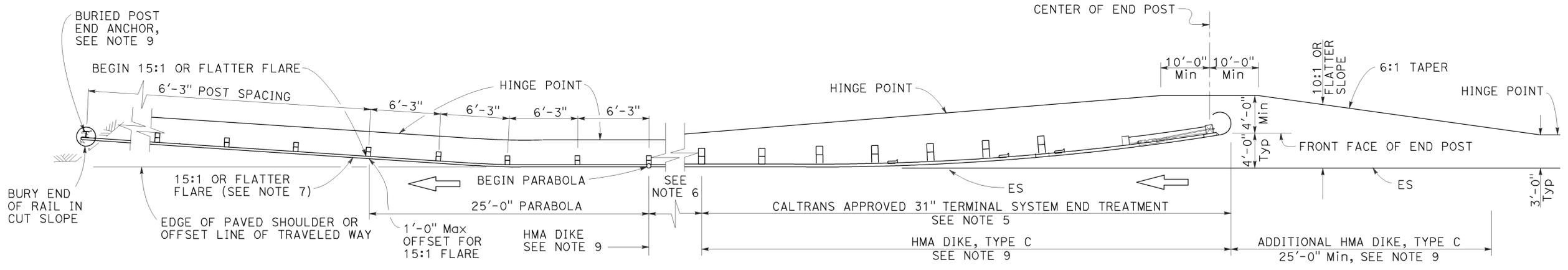
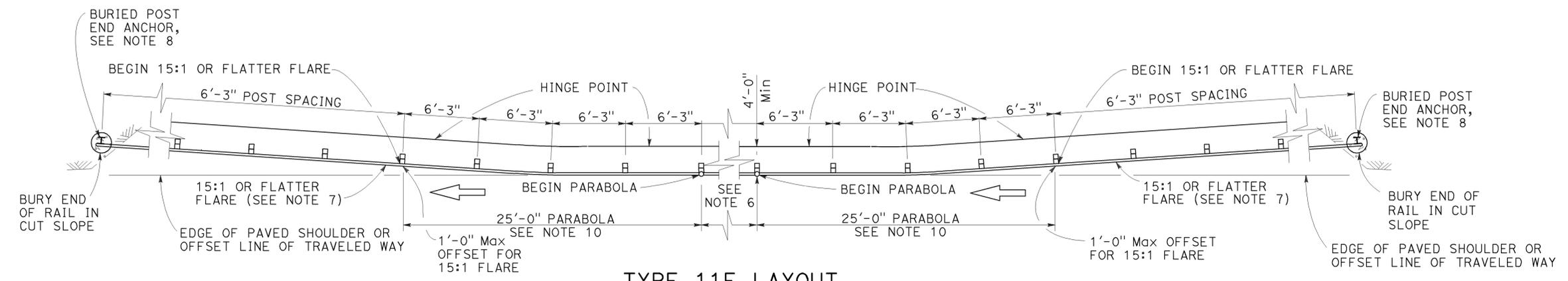
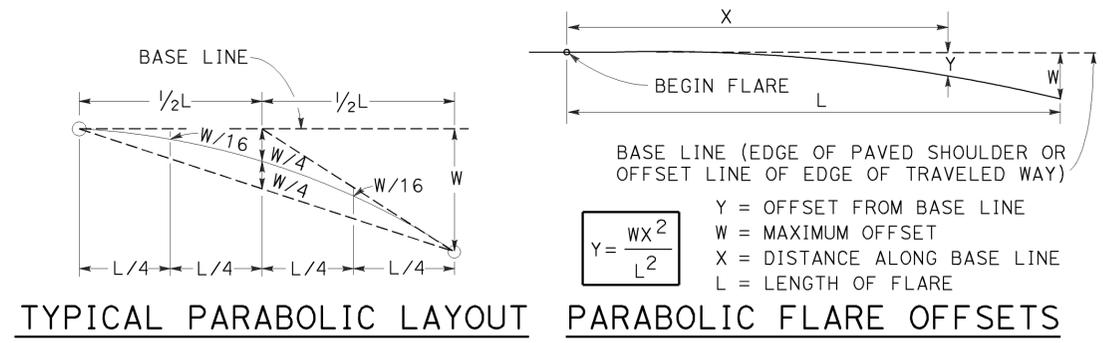
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

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 8-17-15



**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 post with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
- Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
- The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11F and 11G Layouts, 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.
- 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  
EMBANKMENTS**

NO SCALE

RSP A77P3 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77P3**

2010 REVISED STANDARD PLAN RSP A77P3

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 24           | 34              |

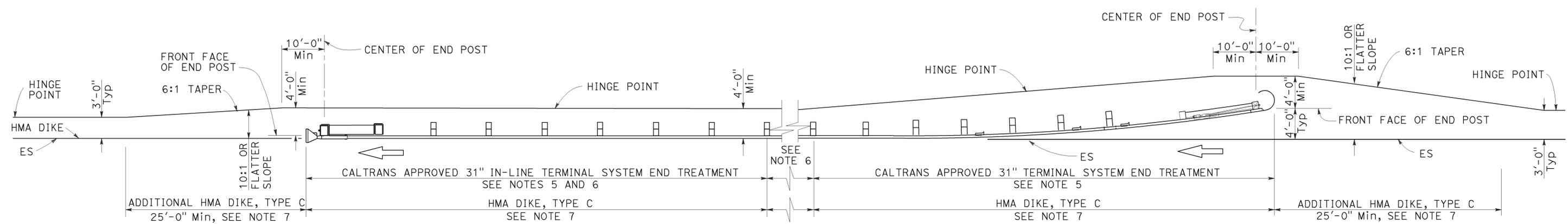
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

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 8-17-15



**TYPE 11H LAYOUT**

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

**NOTES:**

1. 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.
2. MGS post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 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 post with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
4. Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
5. The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
6. Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
7. Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.

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

2010 REVISED STANDARD PLAN RSP A77P4

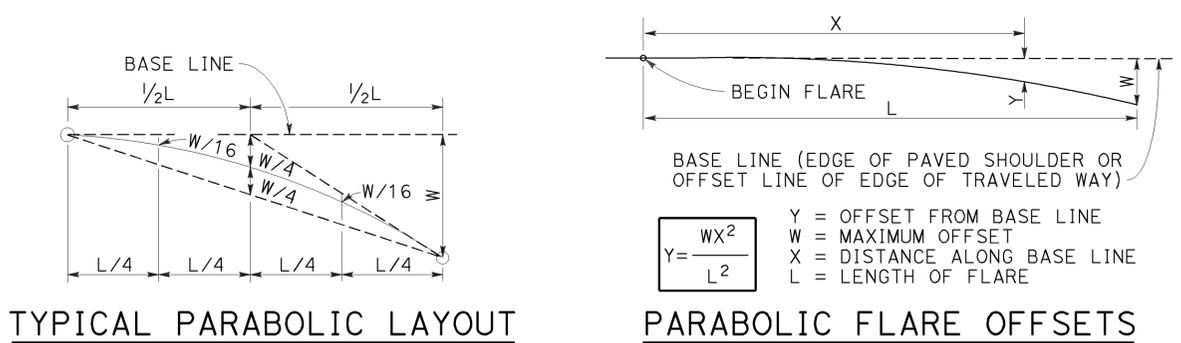
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|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | Bu+    | 32    | R19.0/R23.9              | 25        | 34           |

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

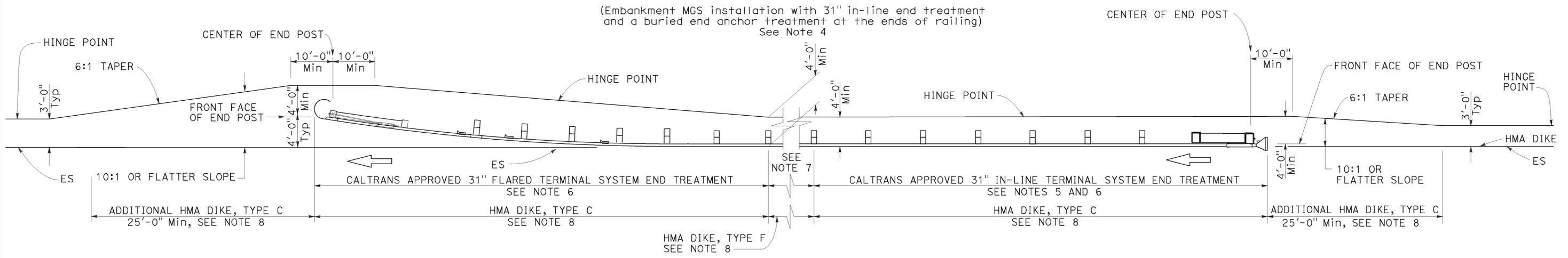
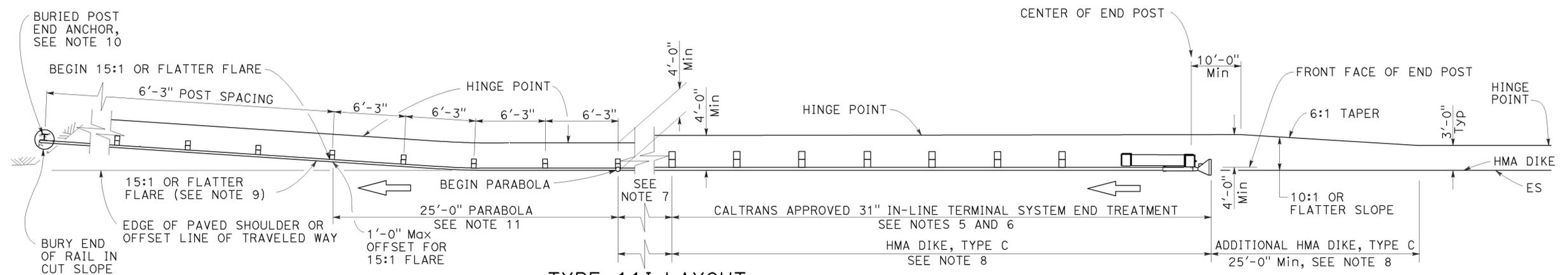
July 19, 2013  
PLANS APPROVAL DATE

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



TO ACCOMPANY PLANS DATED 8-17-15



**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 post with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
- Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.
- The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11I Layout, see Revised Standard Plan RSP A77T2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.

RSP A77P5 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77P5**

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

2010 REVISED STANDARD PLAN RSP A77P5

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | Bu+    | 32    | R19.0/R23.9              | 26        | 34           |

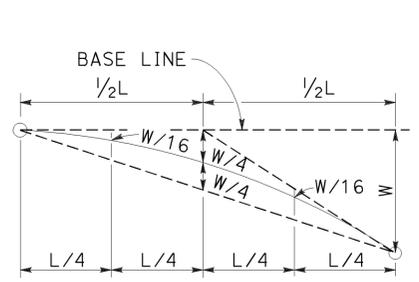
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

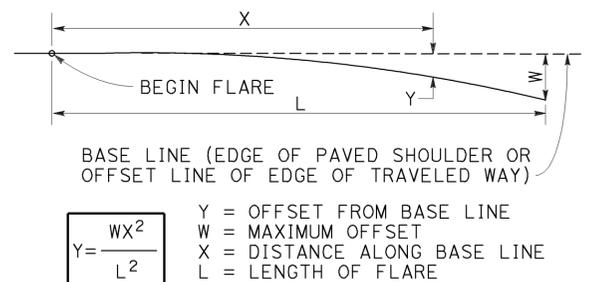
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Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-17-15



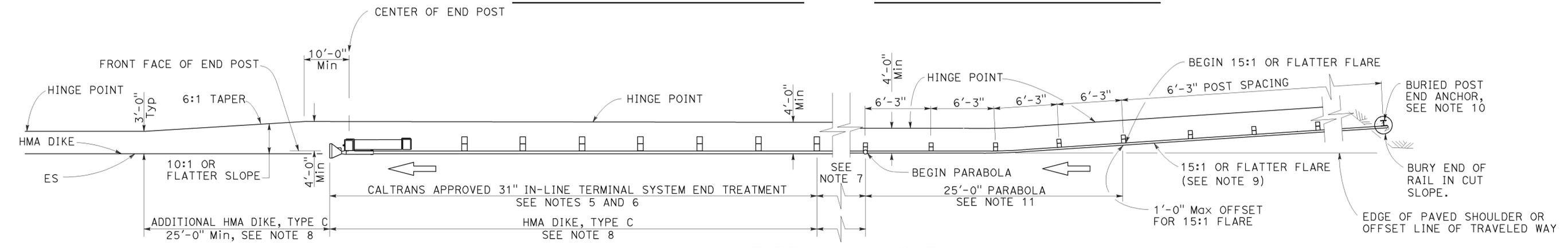
TYPICAL PARABOLIC LAYOUT



PARABOLIC FLARE OFFSETS

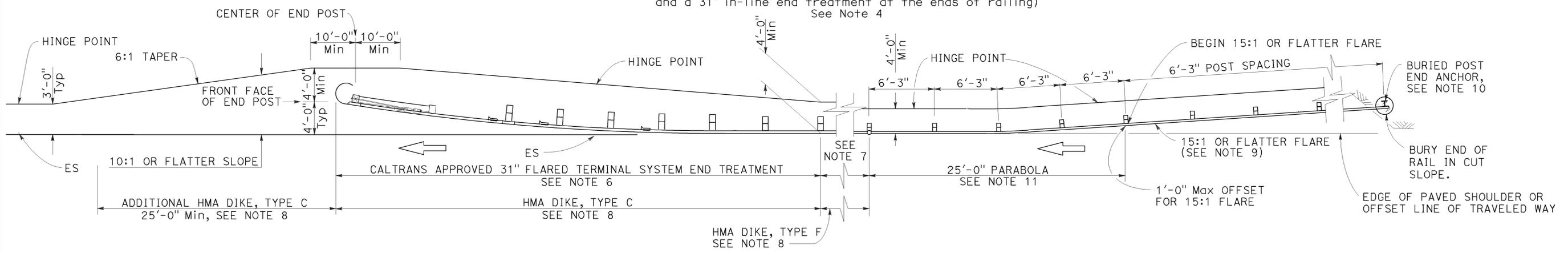
$$Y = \frac{WX^2}{L^2}$$

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



TYPE 11K LAYOUT

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



TYPE 11L LAYOUT

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

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP 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 post with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
- Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.
- The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11K and 11L Layouts, see Revised Standard Plan RSP A77T2.
- 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  
EMBANKMENTS**  
NO SCALE

RSP A77P6 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A77P6

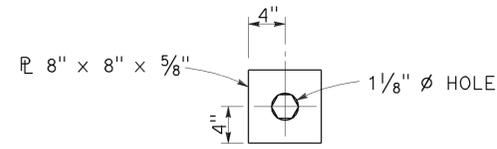
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|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 03   | But    | 32    | R19.0/R23.9              | 27        | 34           |

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

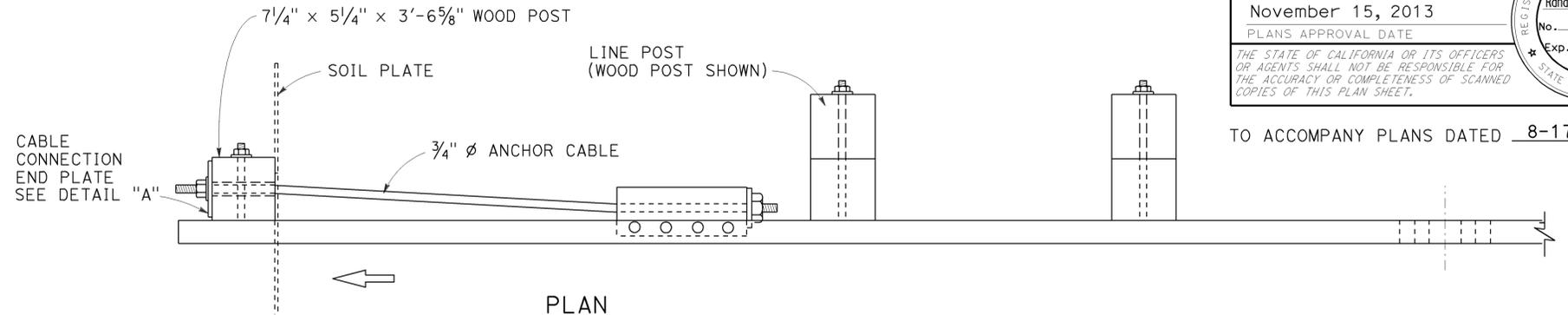
November 15, 2013  
PLANS APPROVAL DATE

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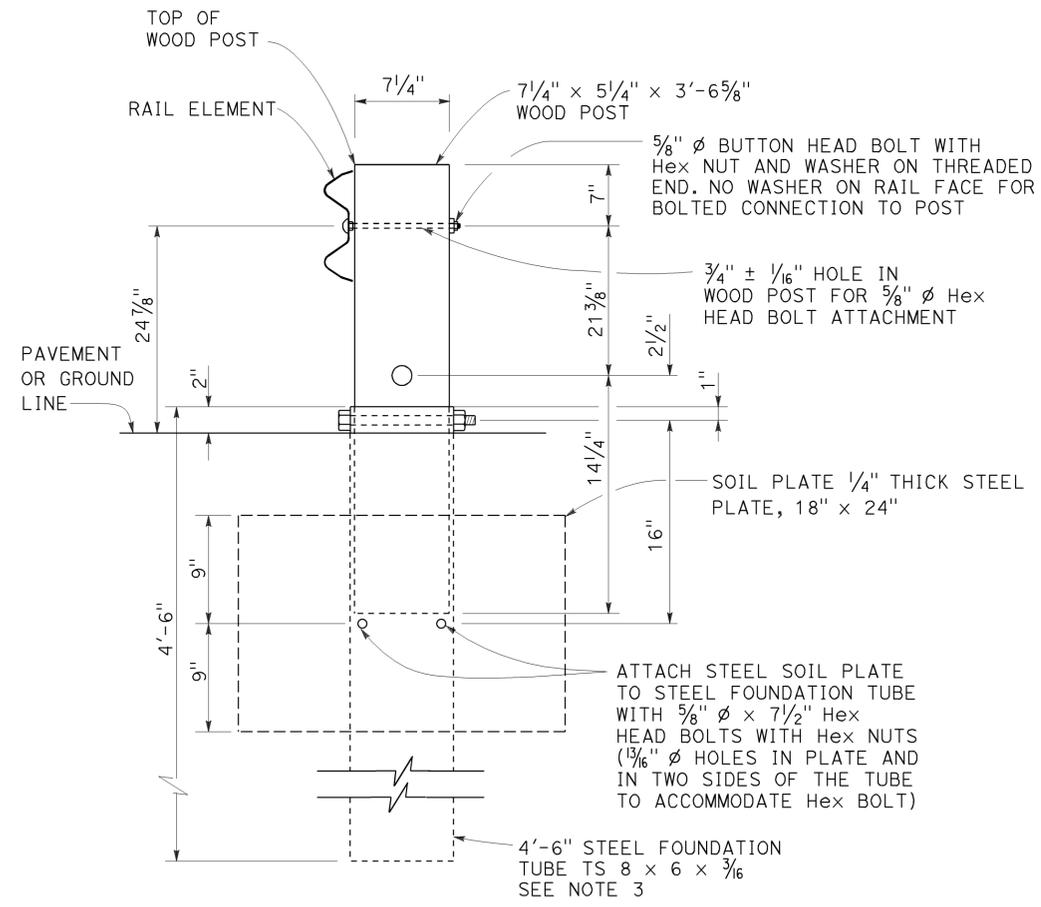
TO ACCOMPANY PLANS DATED 8-17-15



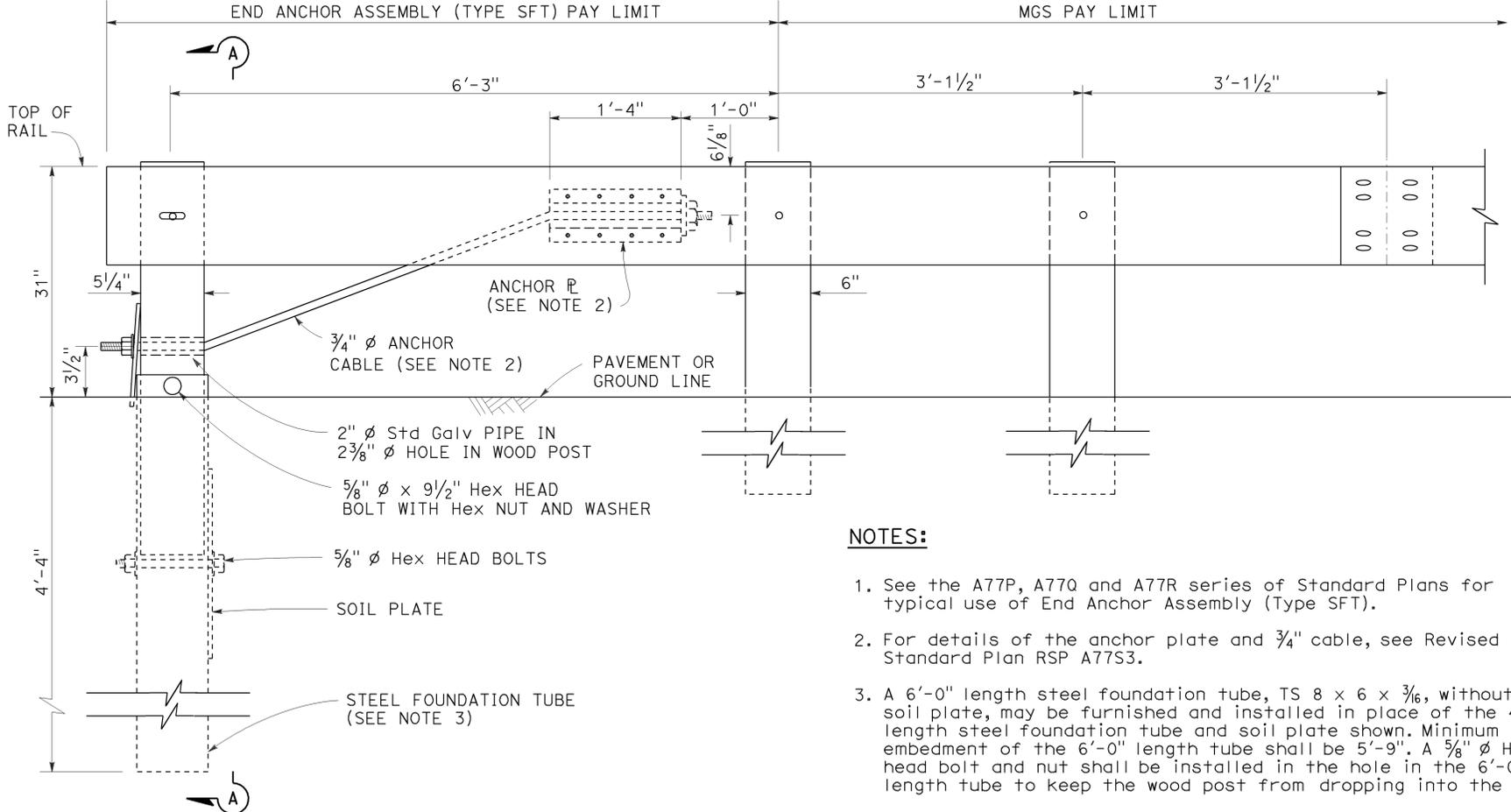
**DETAIL "A"**  
**CABLE CONNECTION**  
**END PLATE**



**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 |
|------|--------|-------|--------------------------|-----------|--------------|
| 03   | But    | 32    | R19.0/R23.9              | 28        | 34           |

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

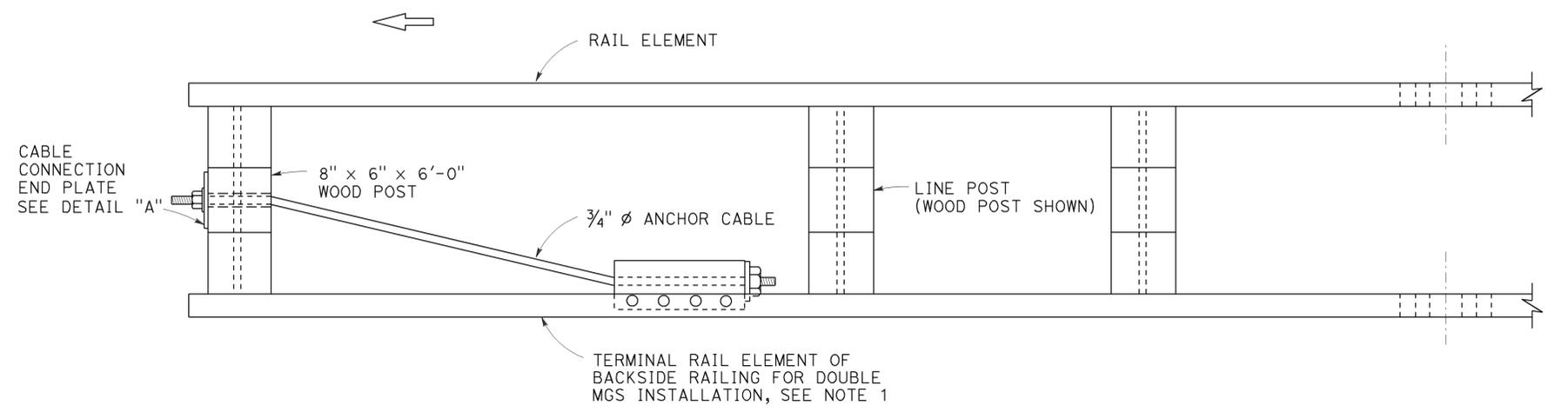
July 19, 2013  
PLANS APPROVAL DATE

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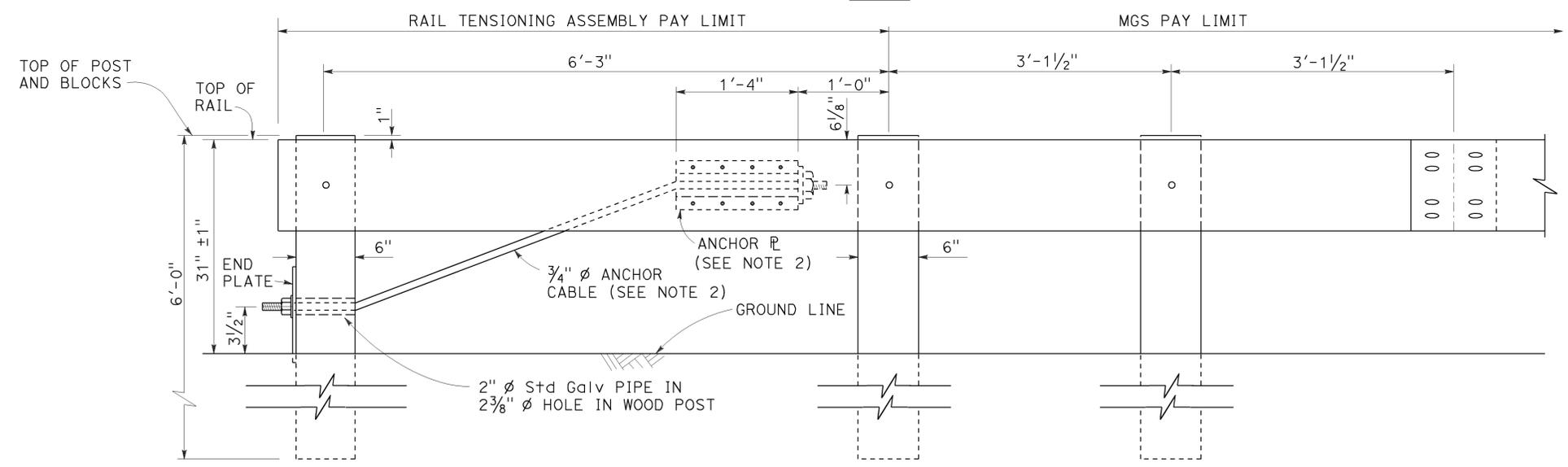
TO ACCOMPANY PLANS DATED 8-17-15

**NOTES:**

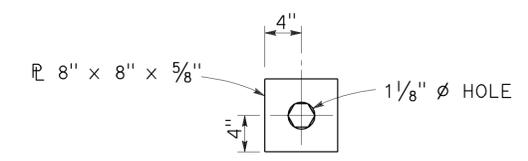
1. See Revised Standard Plans RSP A77Q3 and RSP A77R1 for typical use of rail tensioning assembly.
2. For details of the anchor plate and 3/4" cable, see Revised Standard Plan RSP A77S3.



**PLAN**



**ELEVATION**  
**RAIL TENSIONING**  
**ASSEMBLY**  
See Note 1



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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM**  
**RAIL TENSIONING ASSEMBLY**

NO SCALE

RSP A77S2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77S2**

2010 REVISED STANDARD PLAN RSP A77S2

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 29           | 34              |

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

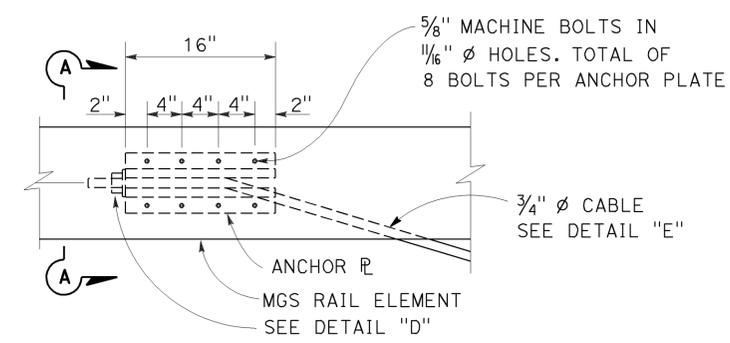
November 15, 2013  
PLANS APPROVAL DATE

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.

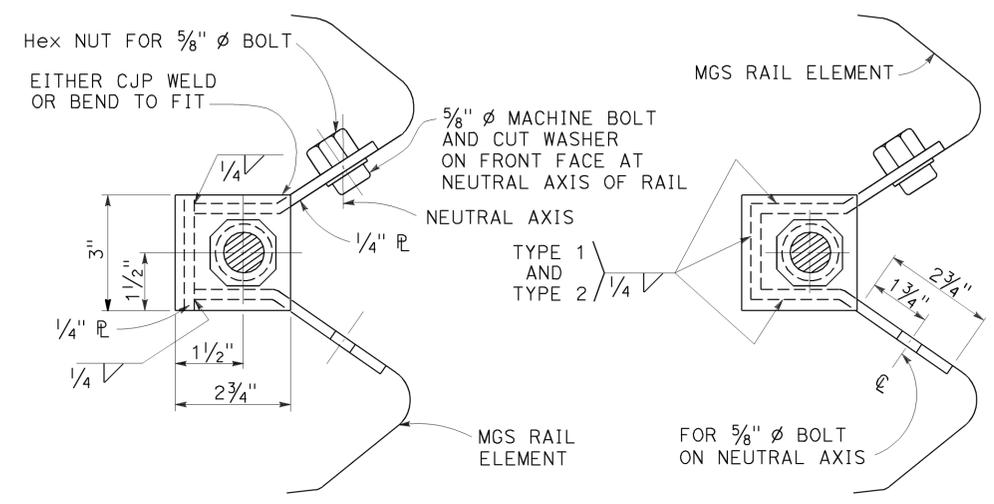
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 8-17-15

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



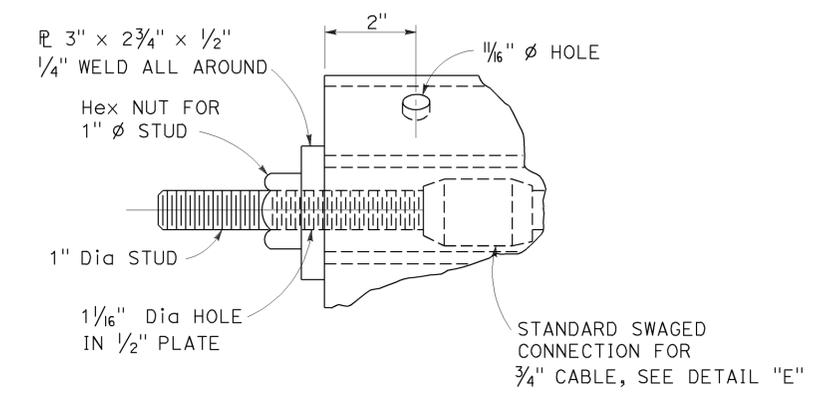
**ANCHOR PLATE DETAIL**  
(MGS shown, TBB similar)



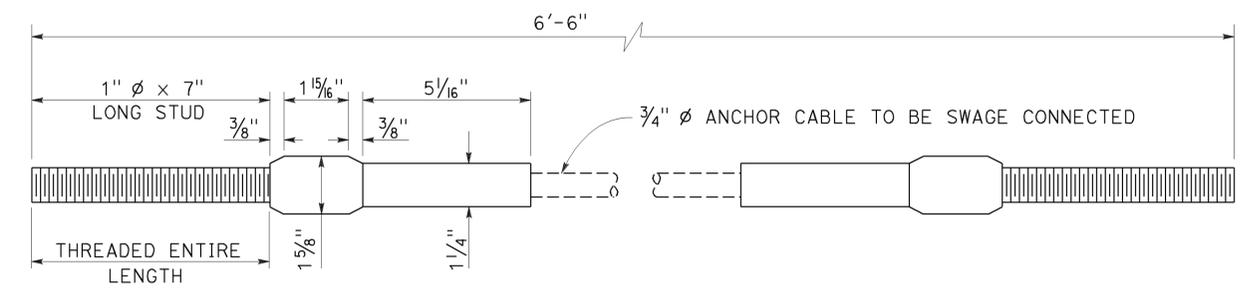
**SECTION A-A (ALTERNATIVE TYPE 1)**

**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

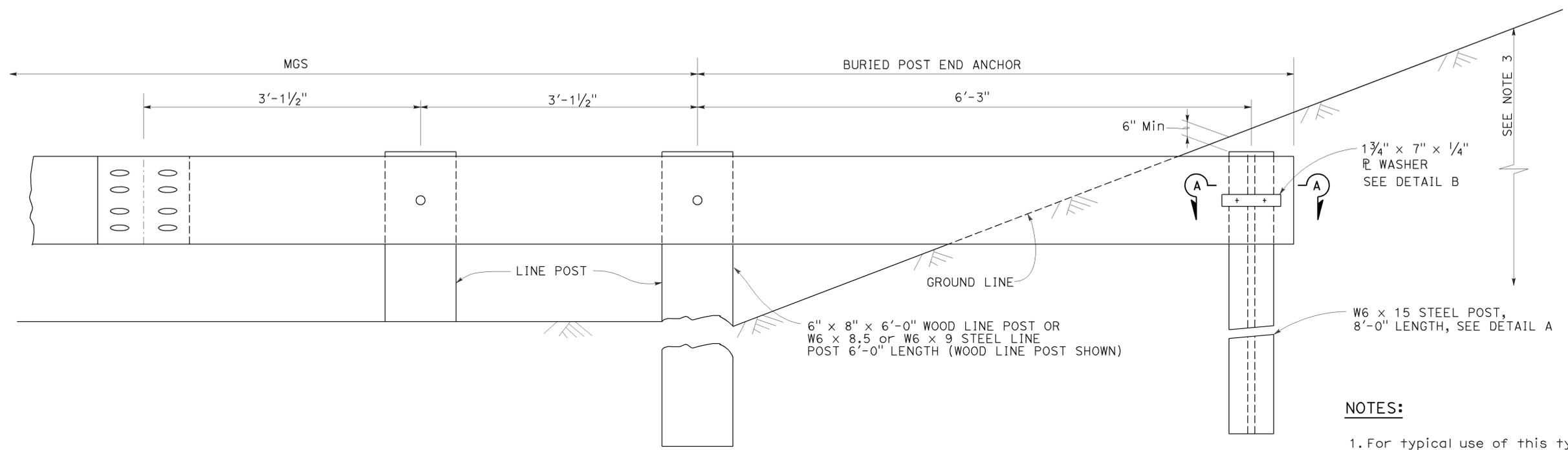
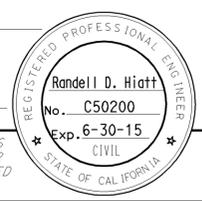
|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 30           | 34              |

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED 8-17-15

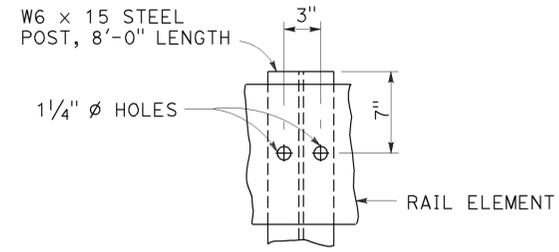


**BURIED POST END ANCHOR**

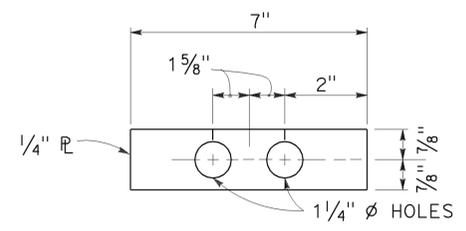
See Note 3

**NOTES:**

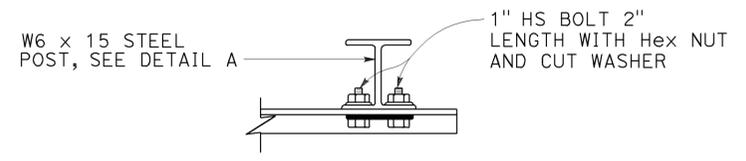
1. For typical use of this type of end anchor with MGS see the A77P, A77Q and A77R Series of the Standard Plans.
2. Holes excavation in the slope to construct the buried post end anchor shall be backfilled with selected earth, placed in layers approximately 1'-0" thick. Each layer shall be moistened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



**DETAIL A**



**DETAIL B**



**SECTION A-A**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**MIDWEST GUARDRAIL SYSTEM  
BURIED POST END ANCHOR**

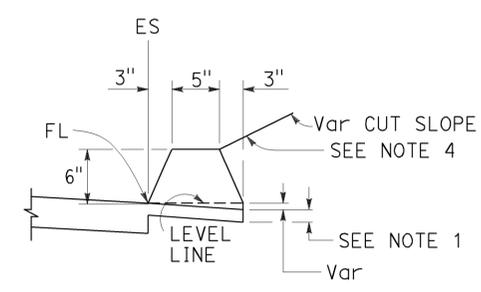
NO SCALE

RSP A77T2 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77T2  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

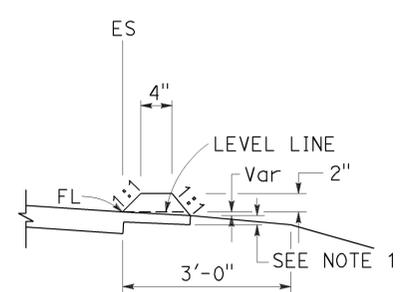
**REVISED STANDARD PLAN RSP A77T2**

2010 REVISED STANDARD PLAN RSP A77T2

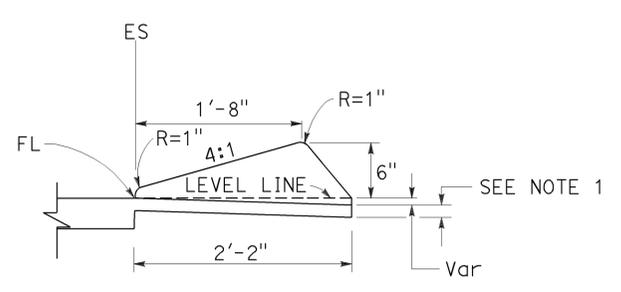
TO ACCOMPANY PLANS DATED 8-17-15



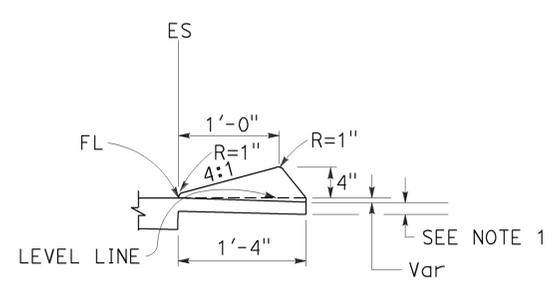
**TYPE A**  
See Note 3



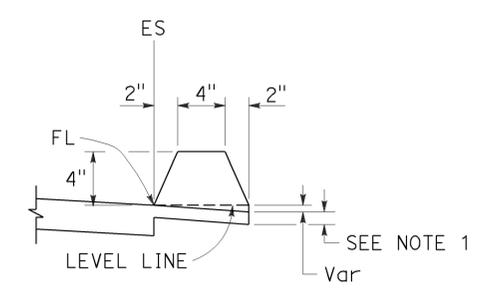
**TYPE C**



**TYPE D**

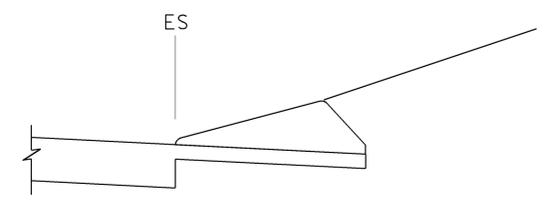


**TYPE E**

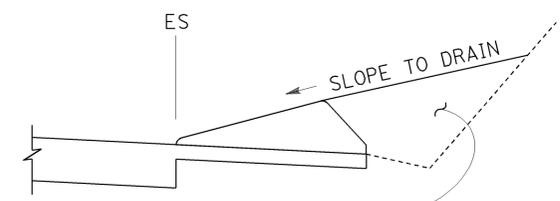


**TYPE F**  
See Note 5

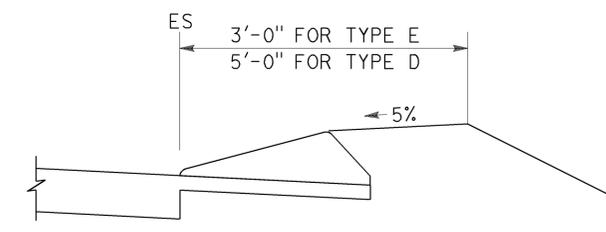
**DIKES**



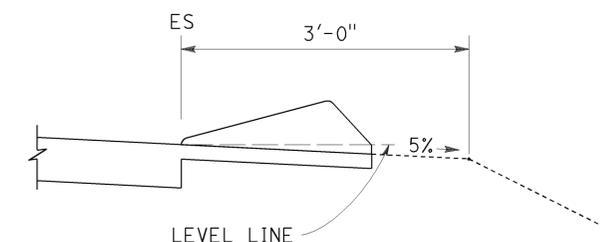
**CASE C-1**  
Cut Slope



**CASE C-2**  
Cut Slope



**CASE F**



**CASE R**  
See Note 2

**TYPE D AND E BACKFILL DETAILS**

**NOTES:**

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

**DIKE QUANTITIES**

| TYPE | CUBIC YARDS<br>PER LINEAR FOOT |
|------|--------------------------------|
| A    | 0.0135                         |
| C    | 0.0038                         |
| D    | 0.0293                         |
| E    | 0.0130                         |
| F    | 0.0066                         |

Quantities based on 5% cross slope.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**HOT MIX ASPHALT DIKES**

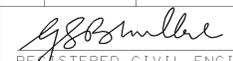
NO SCALE

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

**REVISED STANDARD PLAN RSP A87B**

2010 REVISED STANDARD PLAN RSP A87B

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 03   | But    | 32    | R19.0/R23.9                 | 32           | 34              |

  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE



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TO ACCOMPANY PLANS DATED 8-17-15

TABLE 1

| TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING |   |              |                 |                 |  |         |          |
|---|---|--------------|-----------------|-----------------|--|---------|----------|
| SPEED<br>(S)  | MINIMUM TAPER LENGTH *<br>FOR WIDTH OF OFFSET 12 FEET (W) |              |                 |                 | MAXIMUM CHANNELIZING<br>DEVICE SPACING |         |          |
|   | TANGENT<br>2L   | MERGING<br>L | SHIFTING<br>L/2 | SHOULDER<br>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  |
| 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.

2010 REVISED STANDARD PLAN RSP T9

**NOTES:**

See Revised Standard Plan RSP T9 for tables.

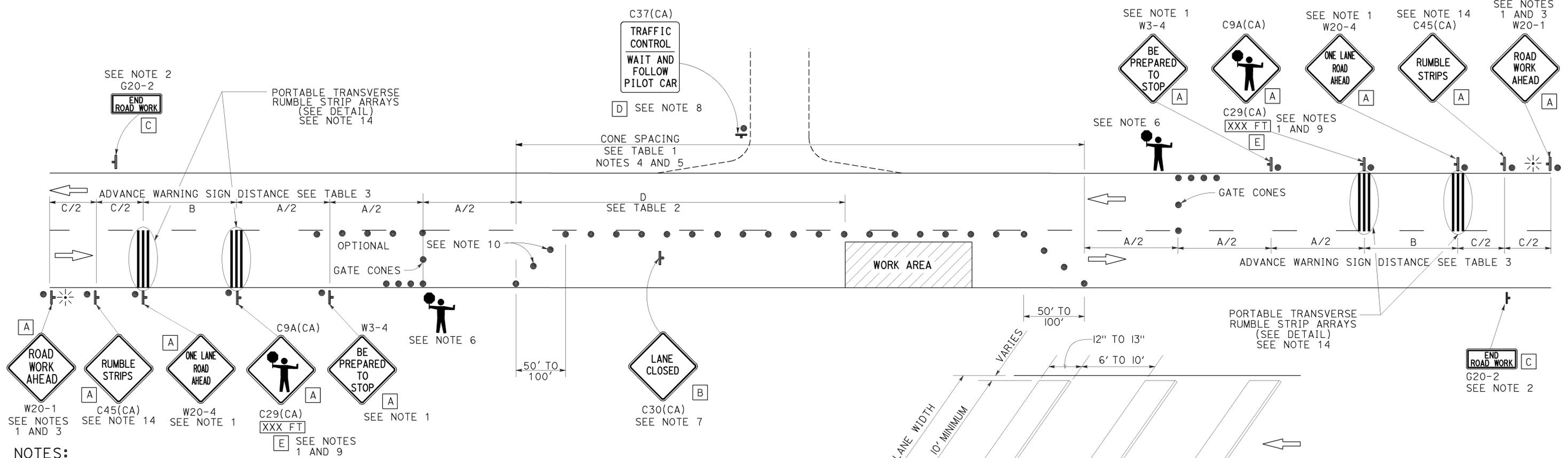
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

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.

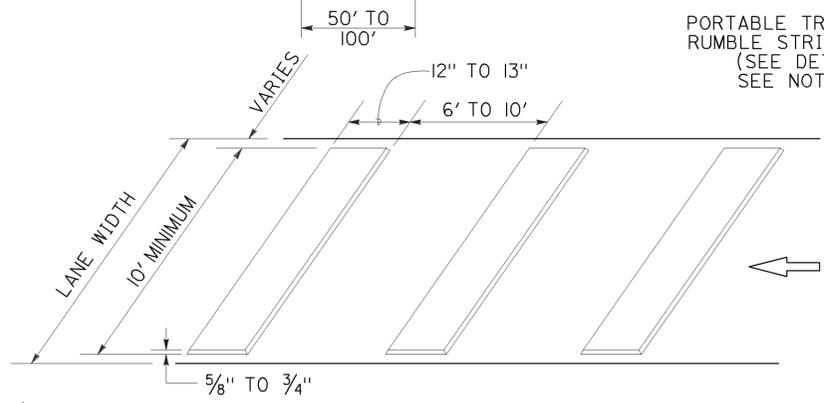
**TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL**

TO ACCOMPANY PLANS DATED 8-17-15



- NOTES:**
- 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.
  - A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
  - If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT \_\_\_\_\_ MILES", use a W20-4 sign for the first advance warning sign.
  - All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
  - Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
  - Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging-station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.

- Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
- When a pilot car is used, place a C37(CA) "TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR" sign with black legend on white background at all intersections, driveways and alleys without a flagger within traffic control area. Signs shall be clean and visible at all times. Where traffic can not be effectively self-regulated, at least one flagger shall be used at each intersection within traffic control area.
- An optional C29(CA) sign may be placed below the C9A(CA) sign.
- Either traffic cones or barricades shall be placed on the taper. Barricades shall be Type I, II, or III.
- The color of the portable transverse rumble strips shall be black or orange. Use 2 arrays, each array shall consist of 3 rumble strips.
- Portable transverse rumble strips shall not be placed on sharp horizontal or vertical curves nor shall they be placed through pedestrian crossings.
- If the portable transverse rumble strips become out of alignment (skewed) by more than 6 inches, measured from one end to the other, they shall be readjusted to bring the placement back to the original location.
- Portable transverse rumble strips are not required if any one of the following conditions is satisfied:
  - Work duration occupies a location for four hours or less
  - Posted speed limit is below 45 MPH
  - Work is of emergency nature
  - Work zone is in snow or icy weather conditions



**PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL**

**SIGN PANEL SIZE (Min)**

- A 48" x 48"
- B 30" x 30"
- C 36" x 18"
- D 36" x 42"
- E 20" x 7"

**LEGEND**

- TRAFFIC CONE
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- ⚡ PORTABLE FLASHING BEACON
- 🚧 FLAGGER

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

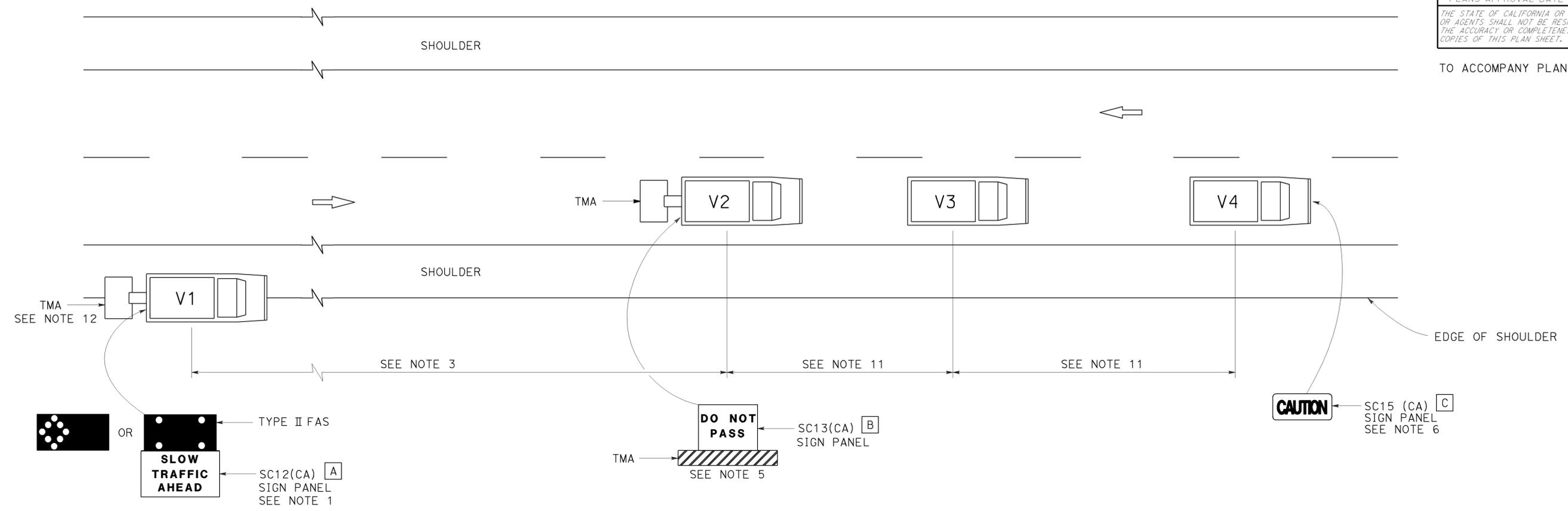
**TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS**

NO SCALE

RSP T13 DATED OCTOBER 30, 2015 SUPERSEDES RSP T13 DATED OCTOBER 17, 2014, RSP T13 DATED JULY 18, 2014 AND RSP T13 DATED APRIL 19, 2013 AND STANDARD PLAN T13 DATED MAY 20, 2011 - PAGE 241 OF THE STANDARD PLANS BOOK DATED 2010.



TO ACCOMPANY PLANS DATED 8-17-15



**NOTES:**

1. Either a changeable message sign or a SC12(CA) "SLOW TRAFFIC AHEAD" sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "CAUTION" message first, follow by the "SLOW TRAFFIC AHEAD" message. A Type II flashing arrow sign may be used with the SC12(CA) sign panel.
2. Sign vehicle V1 should be positioned where highly visible when shoulders are not available.
3. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue.
4. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
5. Shadow vehicle shall be equipped with a truck-mounted attenuator. The sign panel shown shall be mounted on the rear of shadow vehicle V2. The message "LANE CLOSED" may be used in place of the "DO NOT PASS" message.
6. The sign panel shown shall be mounted on the front of sign vehicle V4, facing opposing traffic.
7. All vehicles shall be equipped with flashing or rotating amber lights.
8. Sign vehicle V4 will not be required when the work and vehicles V2 and V3 are 2' or more from the centerline of the highway during the work or application operations.
9. All vehicles used for lane closures shall be equipped with two-way radios and the vehicle operators shall maintain communication during the work or application operation.
10. This plan shall not be used where workers would be on foot in the work area. Use a stationary type lane closure (Revised Standard Plan T13) for this condition.
11. Minimize spacing between vehicles V2 and V3 and vehicles V3 and V4 to deter road users from driving in between them.
12. If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.

**LEGEND**

- V1 SIGN VEHICLE
- V2 SHADOW VEHICLE
- V3 WORK/APPLICATION VEHICLE
- V4 SIGN VEHICLE
- TMA TRUCK-MOUNTED ATTENUATOR
-  FLASHING ARROW SIGN (FAS) IN FLASHING CAUTION MODE
-  FLASHING ARROW SIGN (FAS) IN ALTERNATING DIAMOND CAUTION

**SIGN PANEL SIZE (Min)**

- A** 72" x 42"
- B** 54" x 42"
- C** 54" x 24"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM  
 FOR MOVING LANE CLOSURE  
 ON TWO LANE HIGHWAYS**  
 NO SCALE

RSP T17 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T17  
 DATED MAY 20, 2011 - PAGE 245 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T17**

2010 REVISED STANDARD PLAN RSP T17