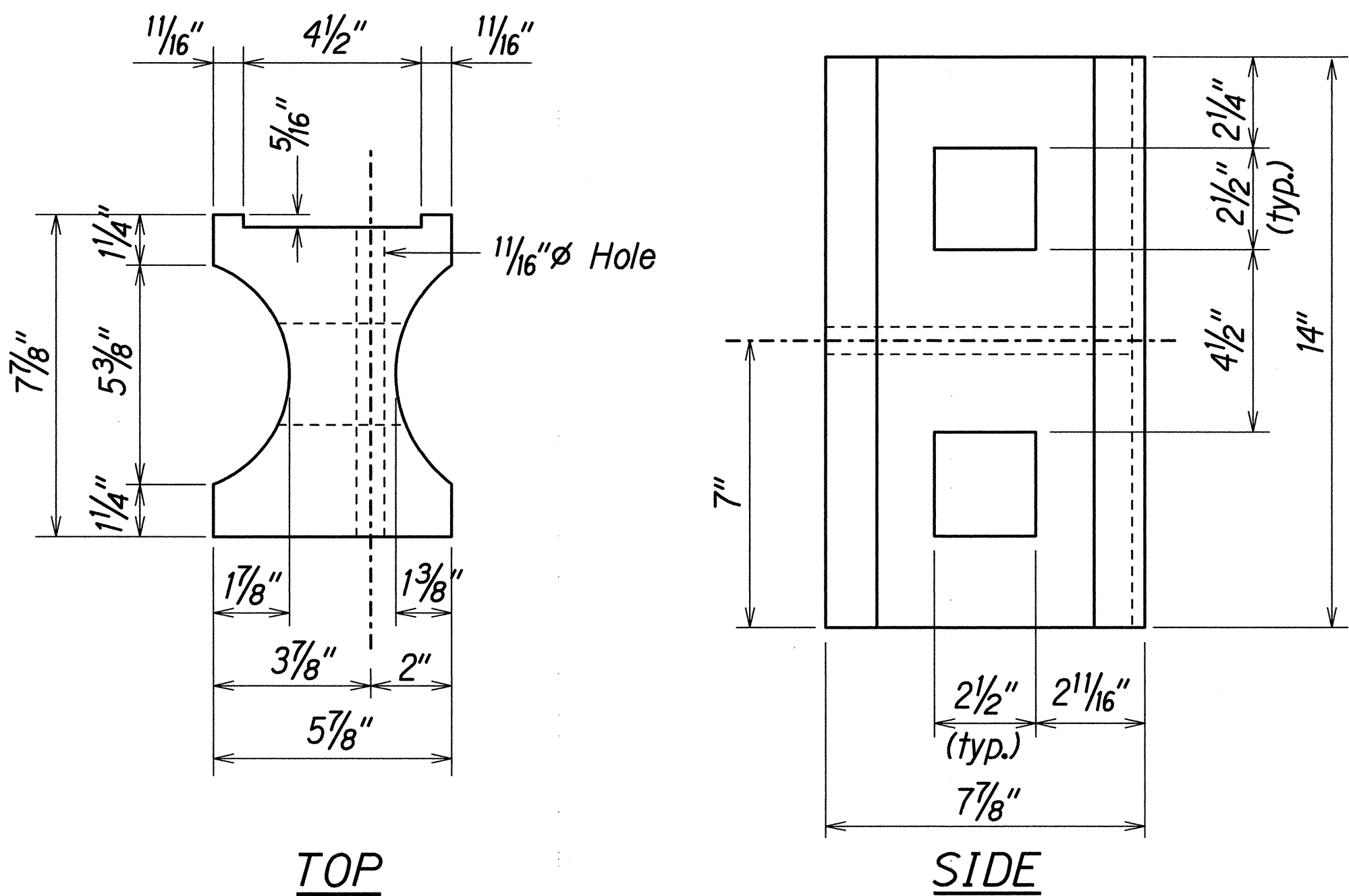


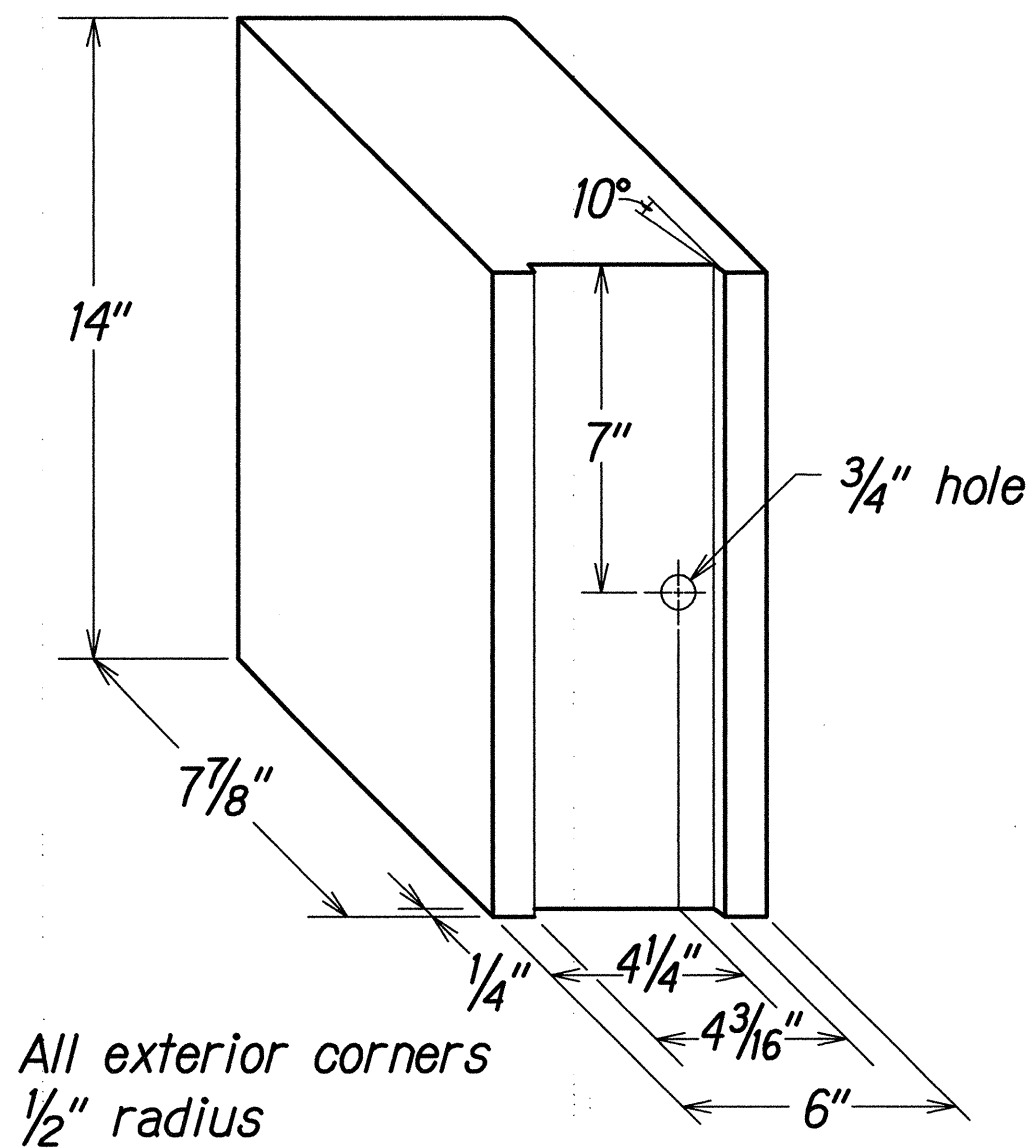
| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 2000E-01-00 | 2000        | 24        | 60           |

### GENERAL NOTES

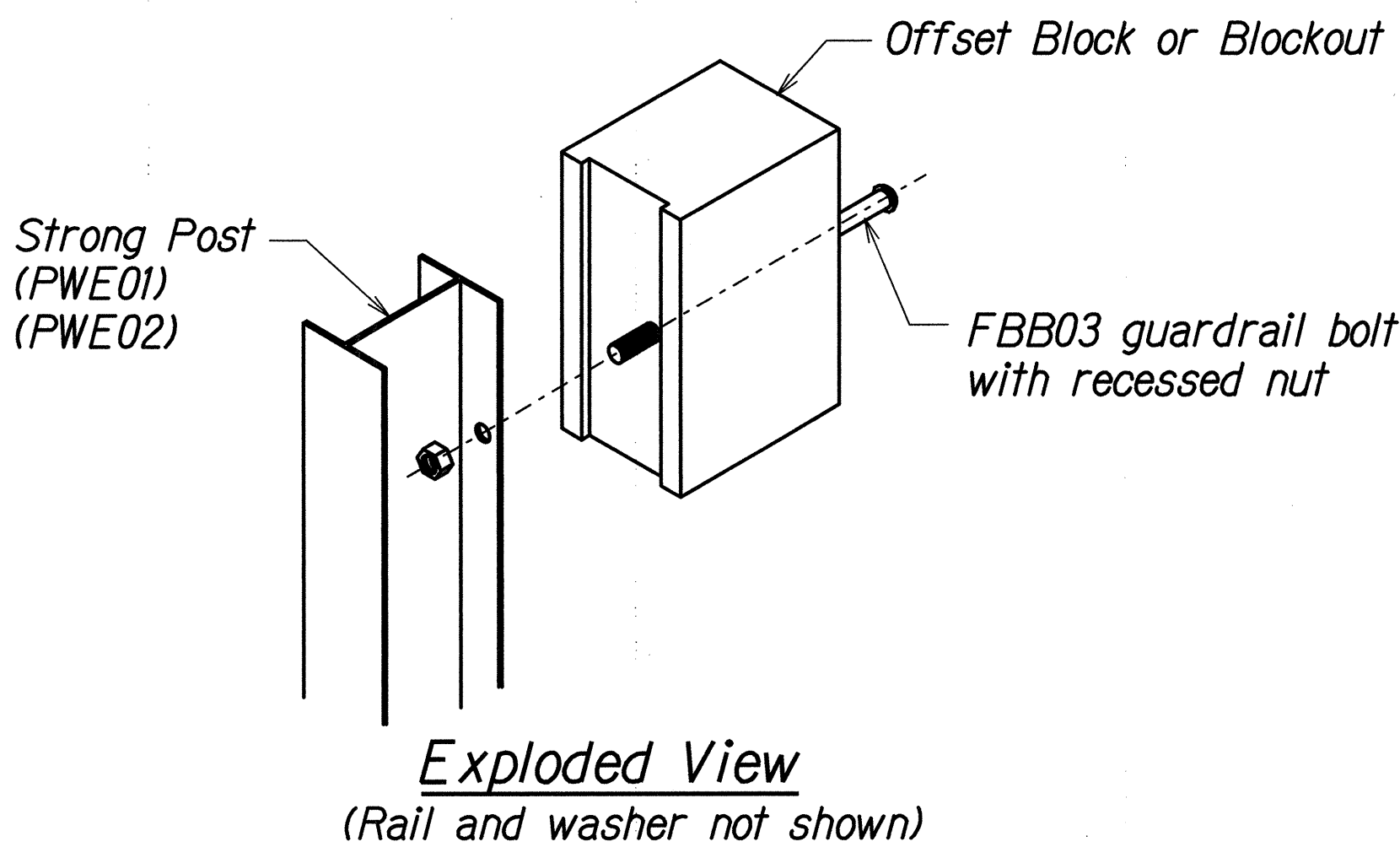
- All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
- Where conditions require, special post lengths in increments of 6 inches may be specified.
- All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02b, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware," a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
- The Recycled Plastic Block or Offset Block shall be approved by the State.
- After the guardrail posts are installed in the paved area, the Contractor shall grout around the guardrail post and seal all cracks in the paved area that was caused during the guardrail post installation. If required by the inspector/engineer, the Contractor shall tamper the paved area around the guardrail post prior to grouting. The cost for this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
- When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.



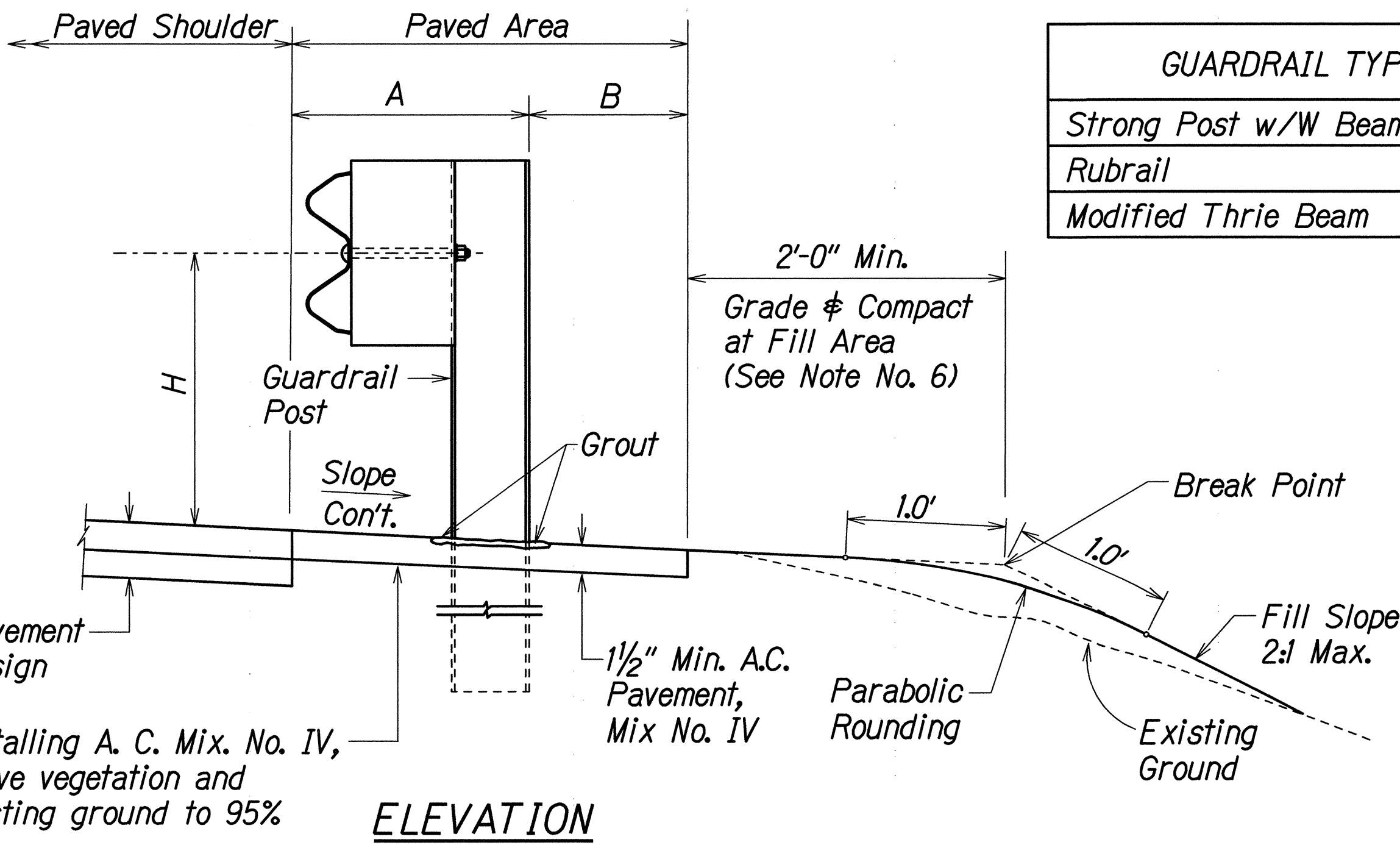
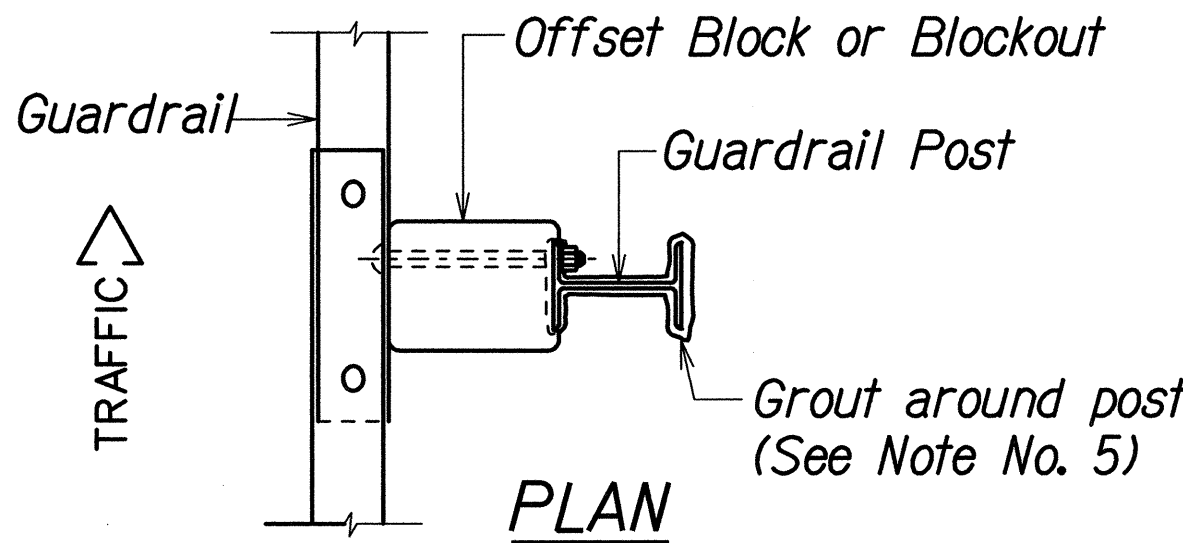
TOP  
SIDE  
**RECYCLED PLASTIC BLOCKOUT (TYPE I)**



**RECYCLED POLYETHYLENE  
OFFSET BLOCK (TYPE II)**



**STEEL POST AND BLOCK DETAIL**

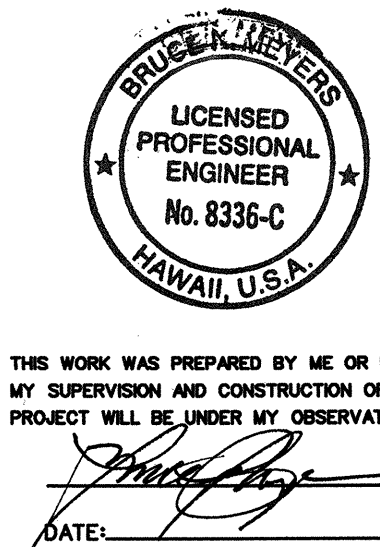


**TYPICAL GUARDRAIL INSTALLATION**

| GUARDRAIL TYPE       | DIMENSION |       |       |
|----------------------|-----------|-------|-------|
|                      | H         | A     | B     |
| Strong Post w/w Beam | 1'-9 5/8" | 1'-6" | 1'-0" |
| Rubrail              | 2'-0"     | 1'-6" | 2'-0" |
| Modified Thrie Beam  | 2'-0"     | 2'-0" | 1'-0" |

|               |      |
|---------------|------|
| DESIGNED BY   | DATE |
| DRAWN BY      |      |
| CHECKED BY    |      |
| NOTED BY      |      |
| QUANTITIES BY |      |
| ORIGINAL PLAN |      |
| NOTE BOOK     |      |
| DATE          |      |

99050/400agdr1.dgn



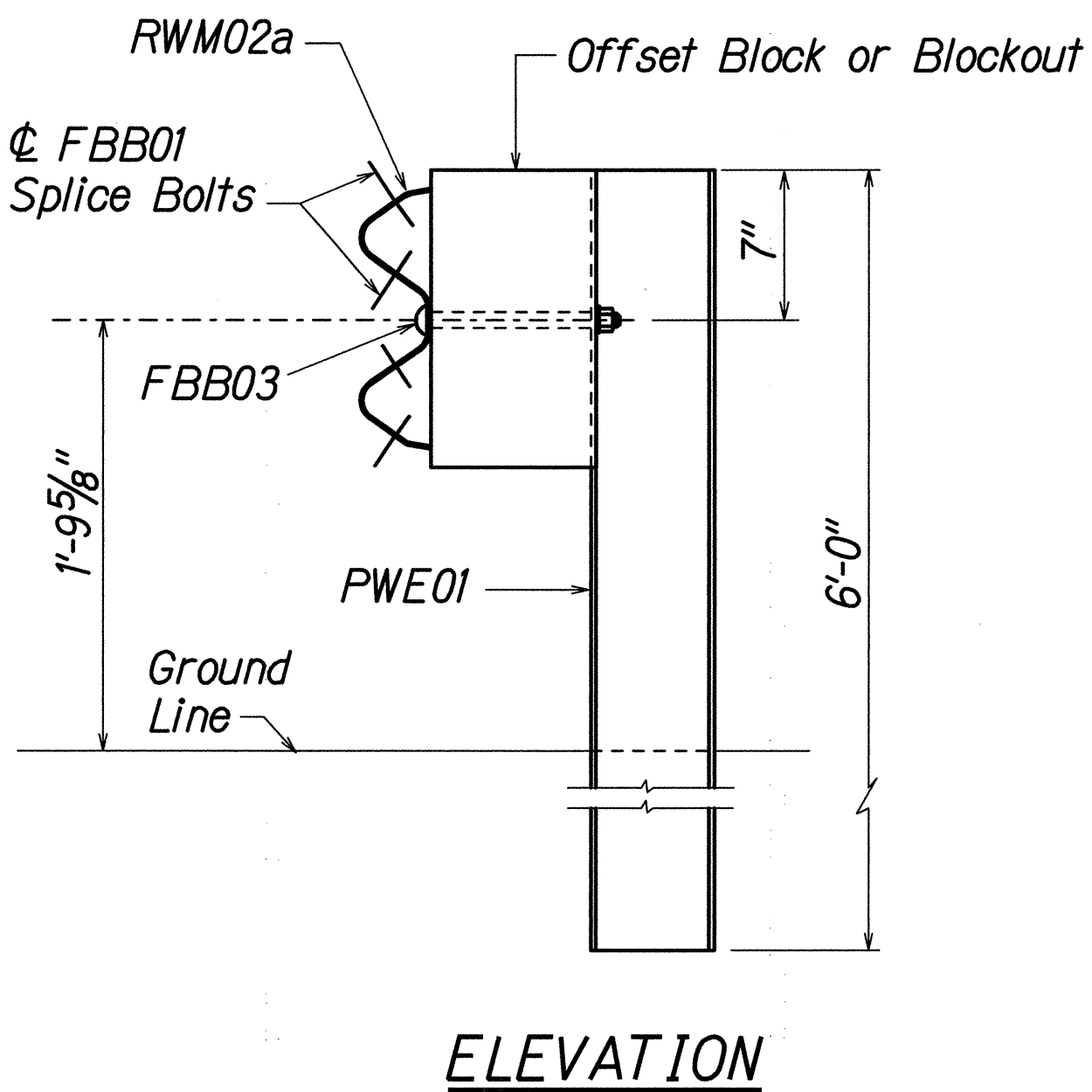
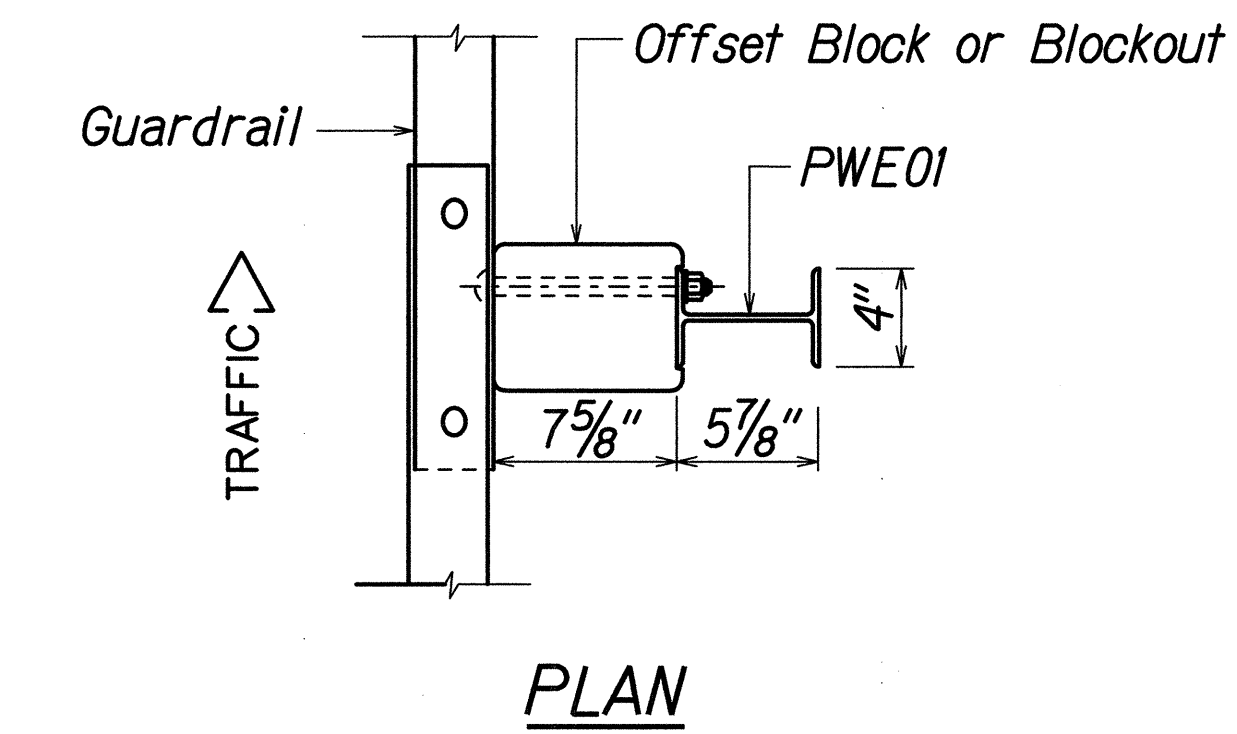
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

DATE: *[Signature]*

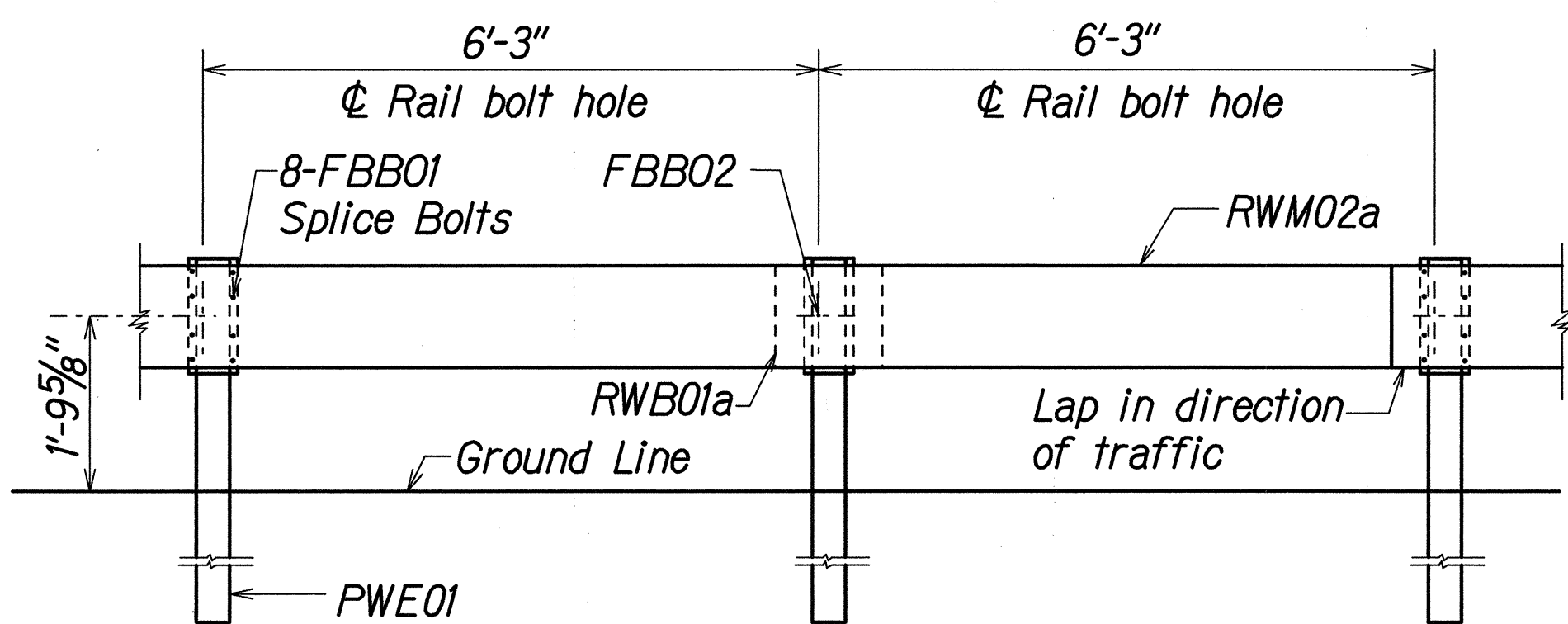
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**GUARDRAIL DETAILS & NOTES**  
  
**PUAINAKO STREET IMPROVEMENTS, PHASE 1**  
Kilauea Ave. to Kanoelohua Ave.  
Project No. 2000E-01-00  
Scale: N.T.S. Date: May, 2000

SHEET No. 1 OF 4 SHEETS

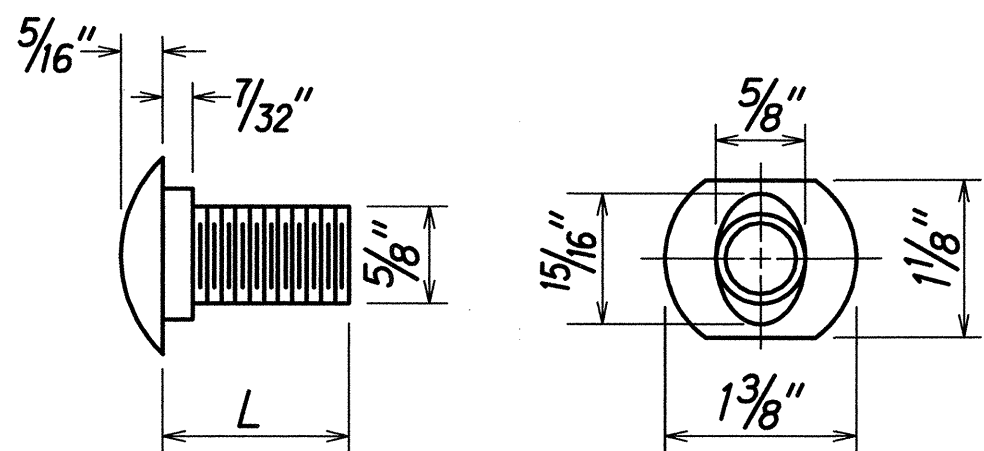
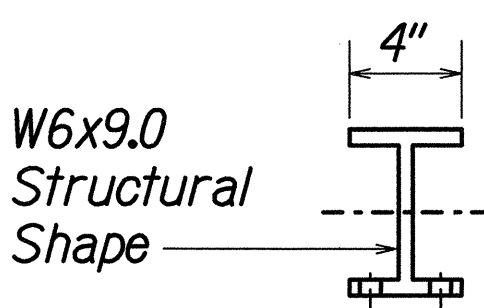
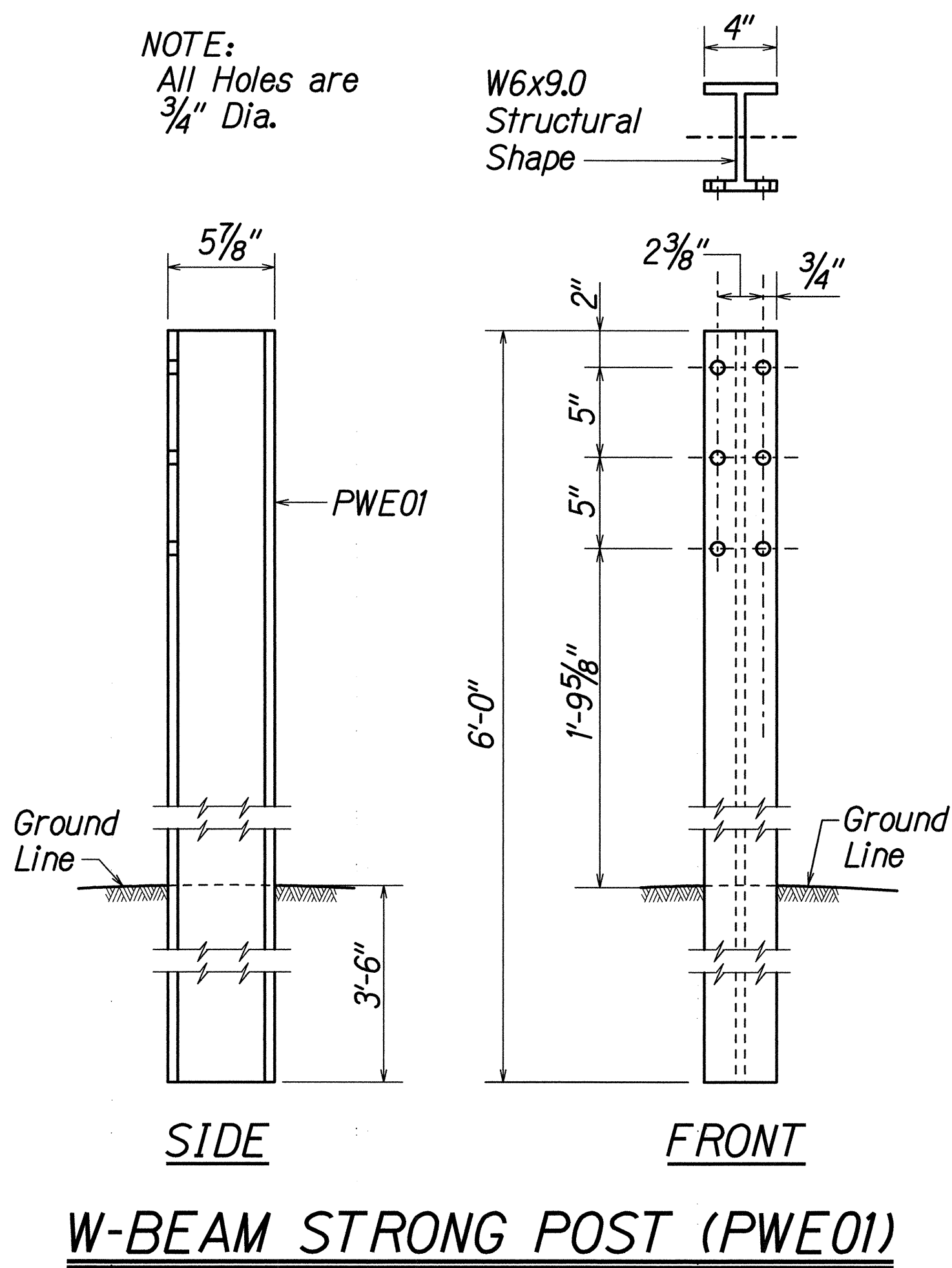


**STRONG POST W-BEAM GUARDRAIL (SGR04a)**

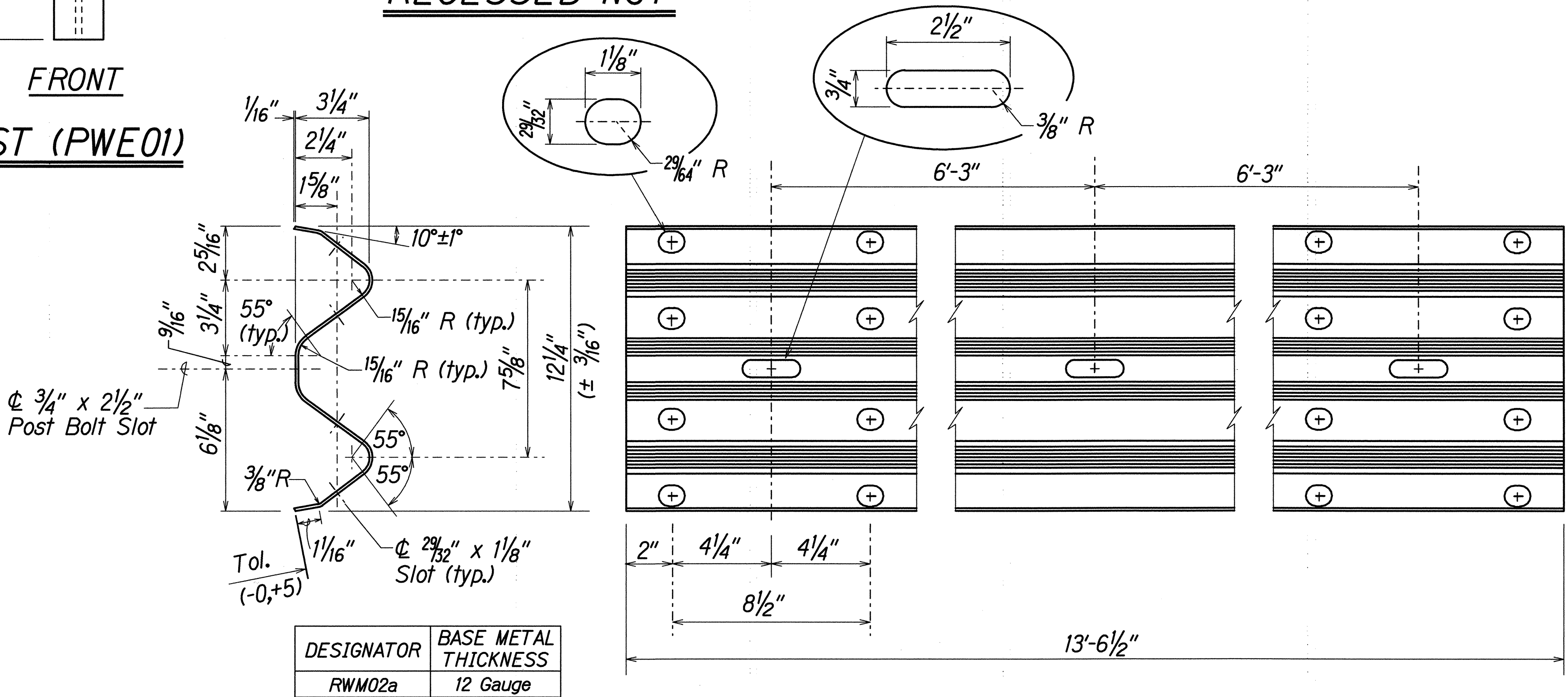
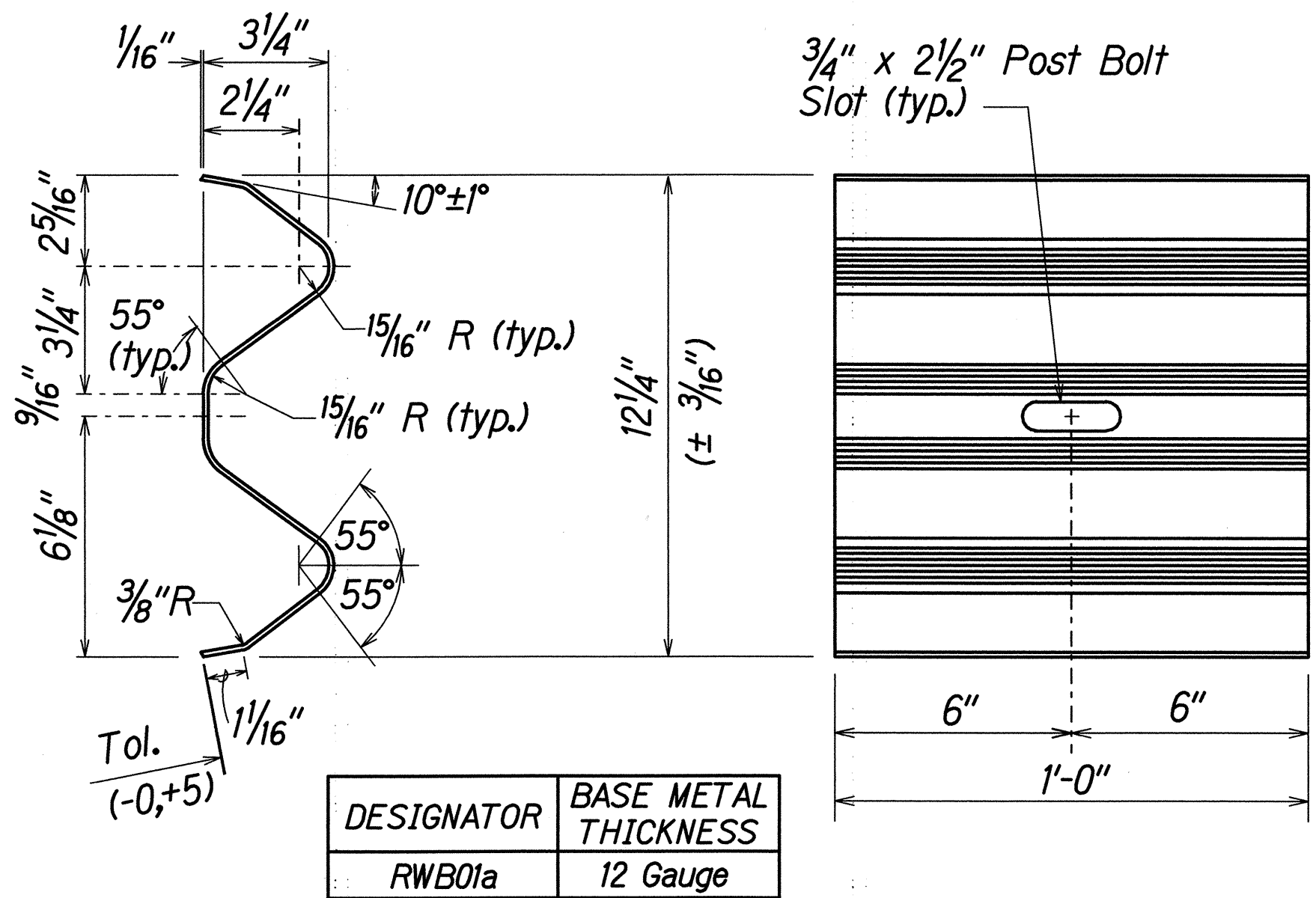


**STRONG POST W-BEAM GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT**

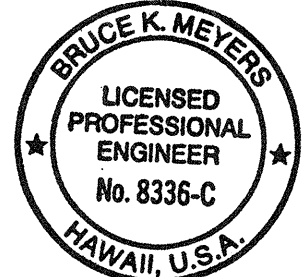
NOTE:  
All Holes are  
3/4" Dia.



**GUARDRAIL BOLTS AND RECESSED NUT**



DATE: \_\_\_\_\_  
SURVEY PLOTTED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
NOTE BOOK: \_\_\_\_\_  
QUANTITIES BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

DATE: \_\_\_\_\_

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

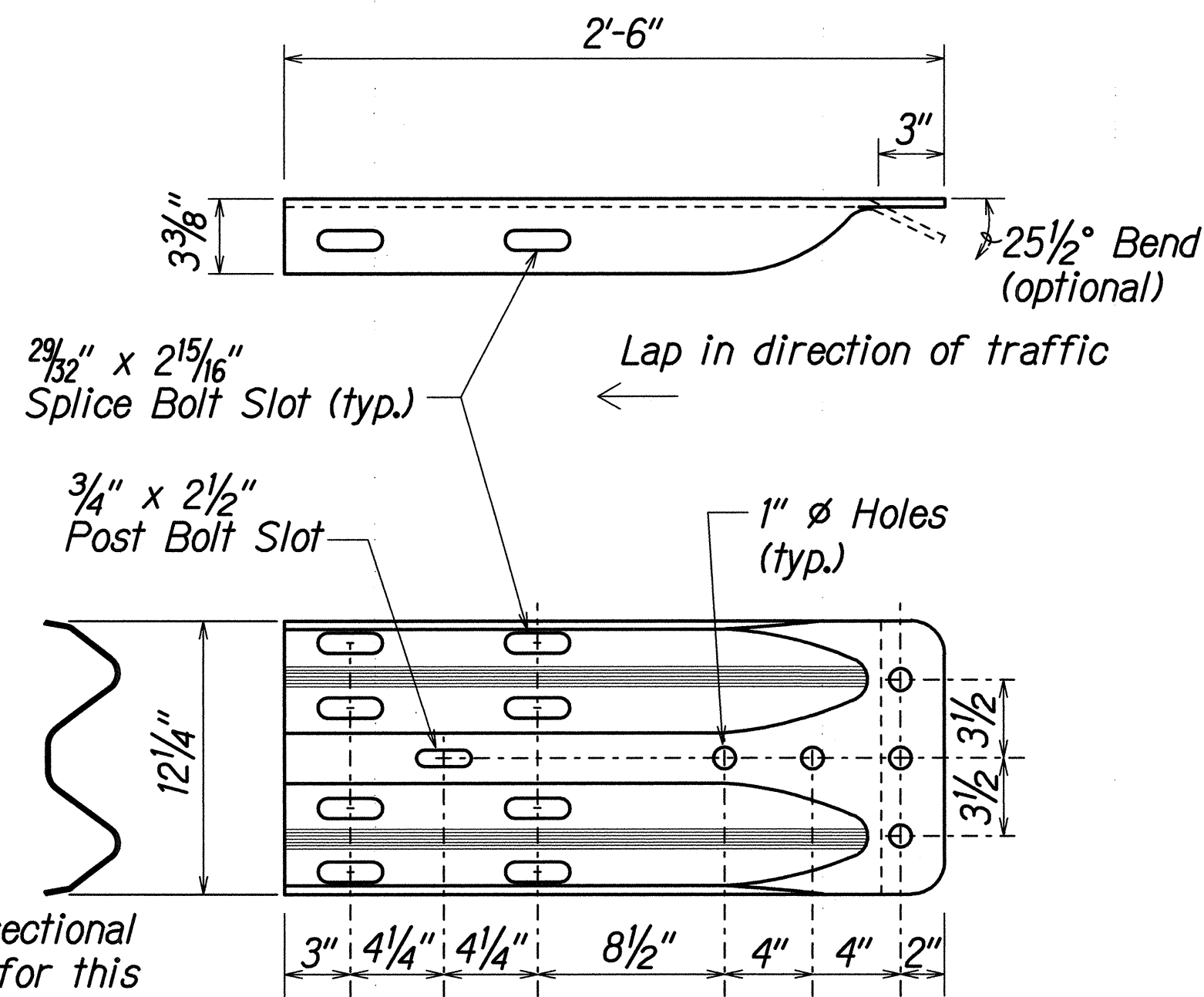
**STRONG POST W-BEAM GUARDRAIL**

**PUAINAKO STREET IMPROVEMENTS, PHASE 1**  
Kilauea Ave. to Kanoelehua Ave.

Project No. 2000E-01-00

Scale: N.T.S. Date: May, 2000

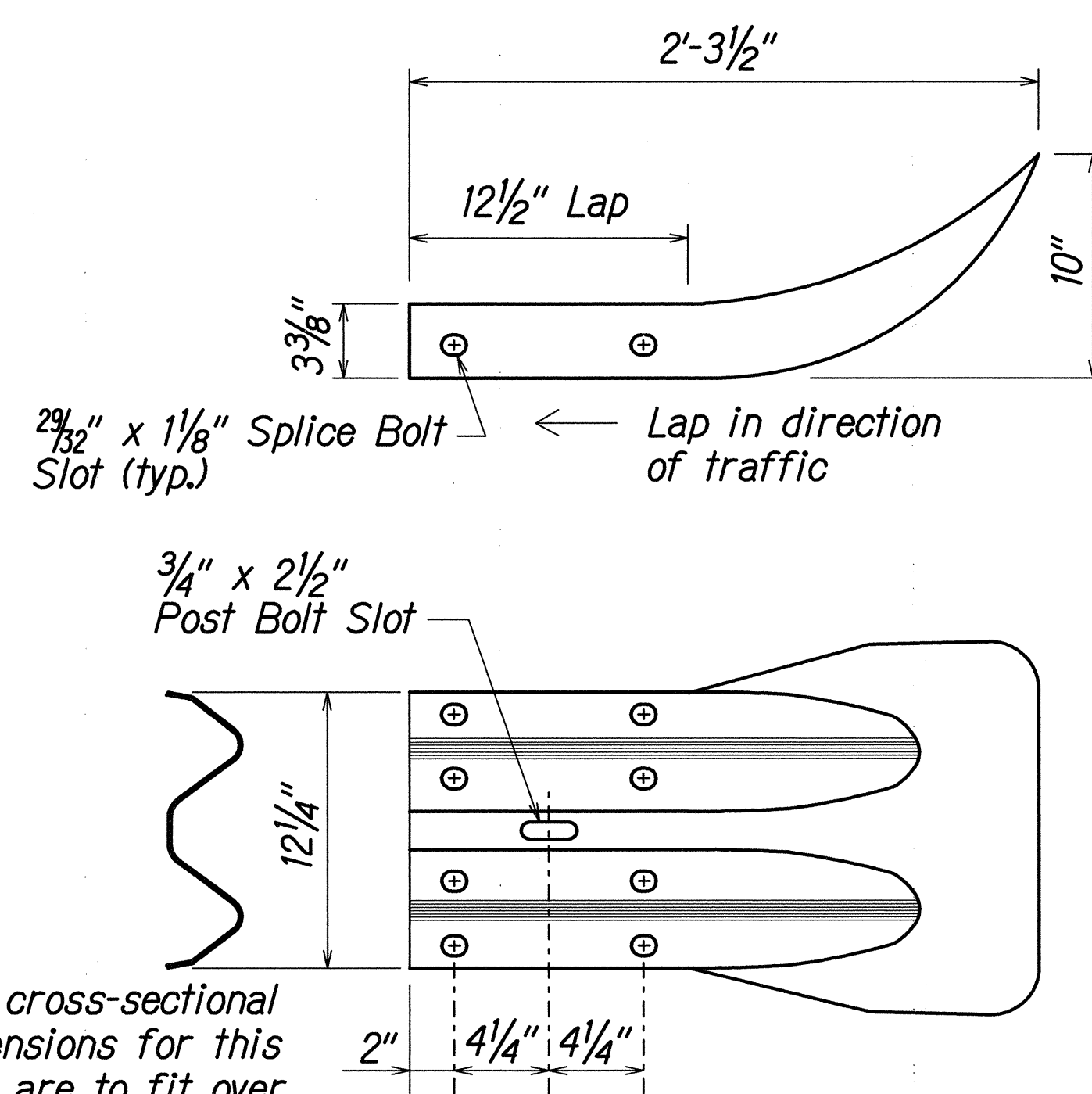
SHEET No. 2 OF 4 SHEETS



The cross-sectional dimensions for this part are to fit over part RWM02b on the approach end and under part RWM02b on the trailing end.

| DESIGNATOR | BASE METAL THICKNESS |
|------------|----------------------|
| RWE02b     | 10 Gauge             |

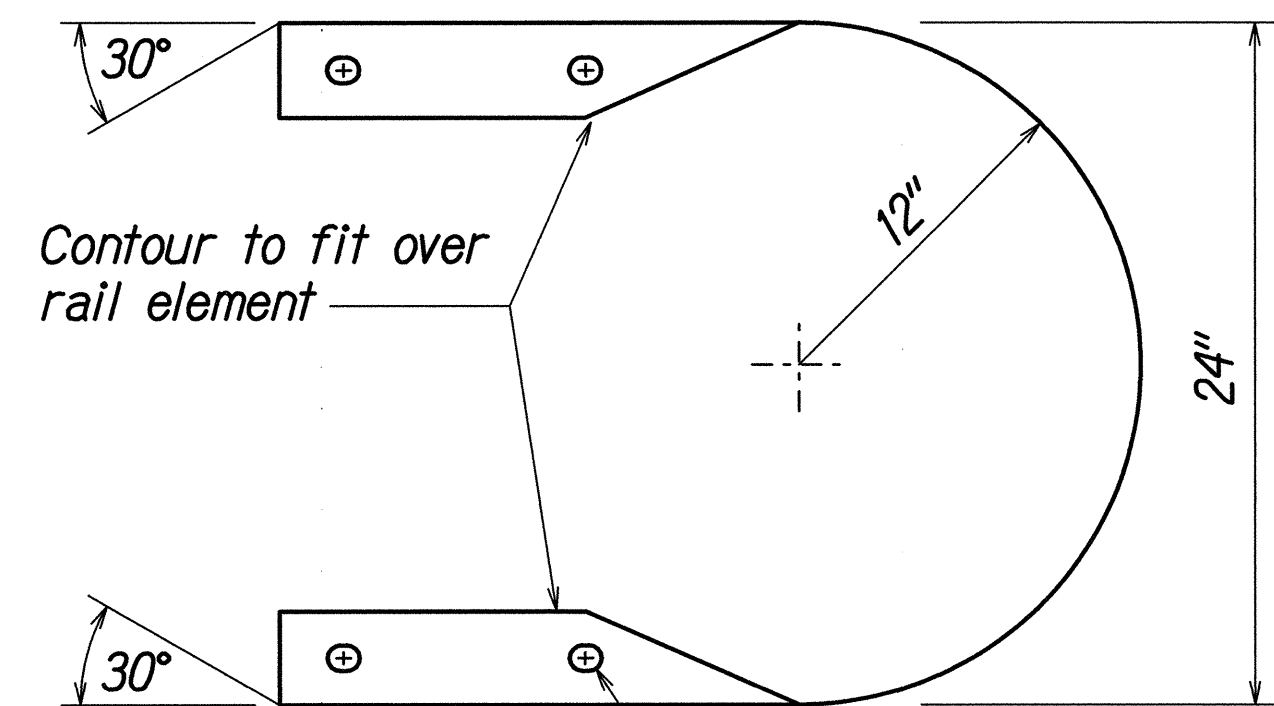
**W-BEAM TERMINAL CONNECTOR (RWE02b)**



The cross-sectional dimensions for this part are to fit over part RWM02a on the approach end and under part RWM02a on the trailing end.

| DESIGNATOR | BASE METAL THICKNESS |
|------------|----------------------|
| RWE01a     | 12 Gauge             |

**W-BEAM END SECTION (FLARED RWE01a)**



Shape to fit rail element

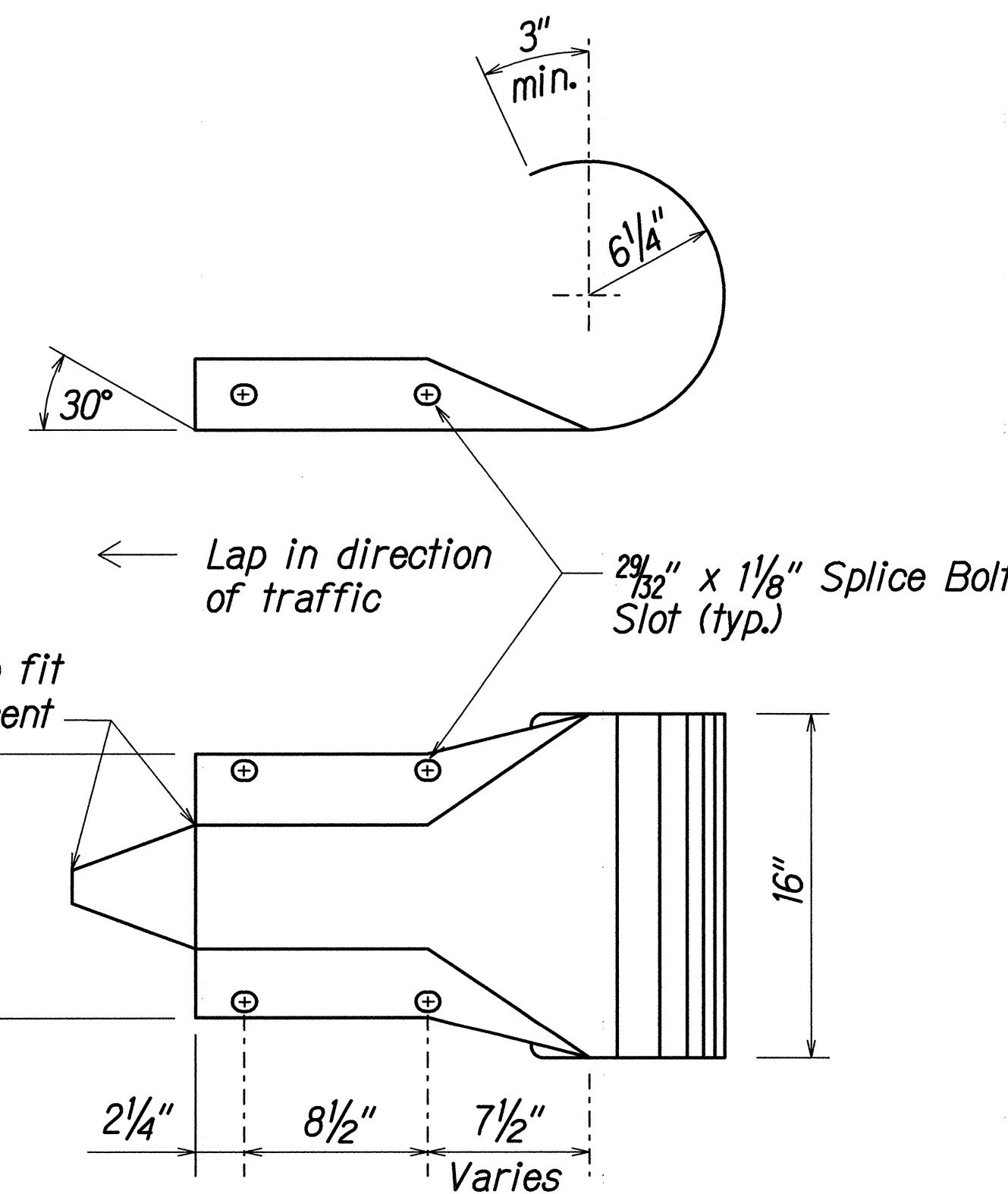
Lap in direction of traffic

29 1/32" x 1 1/8" Splice Bolt Slot (typ.)

The cross-sectional dimensions for this part are to fit over part RWM02a

| DESIGNATOR | BASE METAL THICKNESS |
|------------|----------------------|
| RWE06a     | 12 Gauge             |

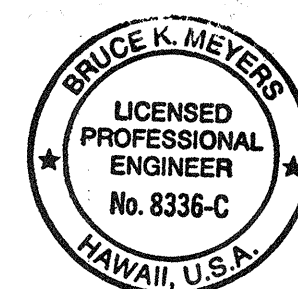
**W-BEAM END SECTION (BUFFER RWE06a)**



The cross-sectional dimensions for this part are to fit over part RWM02a

| DESIGNATOR | BASE METAL THICKNESS |
|------------|----------------------|
| RWE03a     | 12 Gauge             |

**W-BEAM END SECTION (ROUNDED RWE03a)**



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

DATE: *[Signature]*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

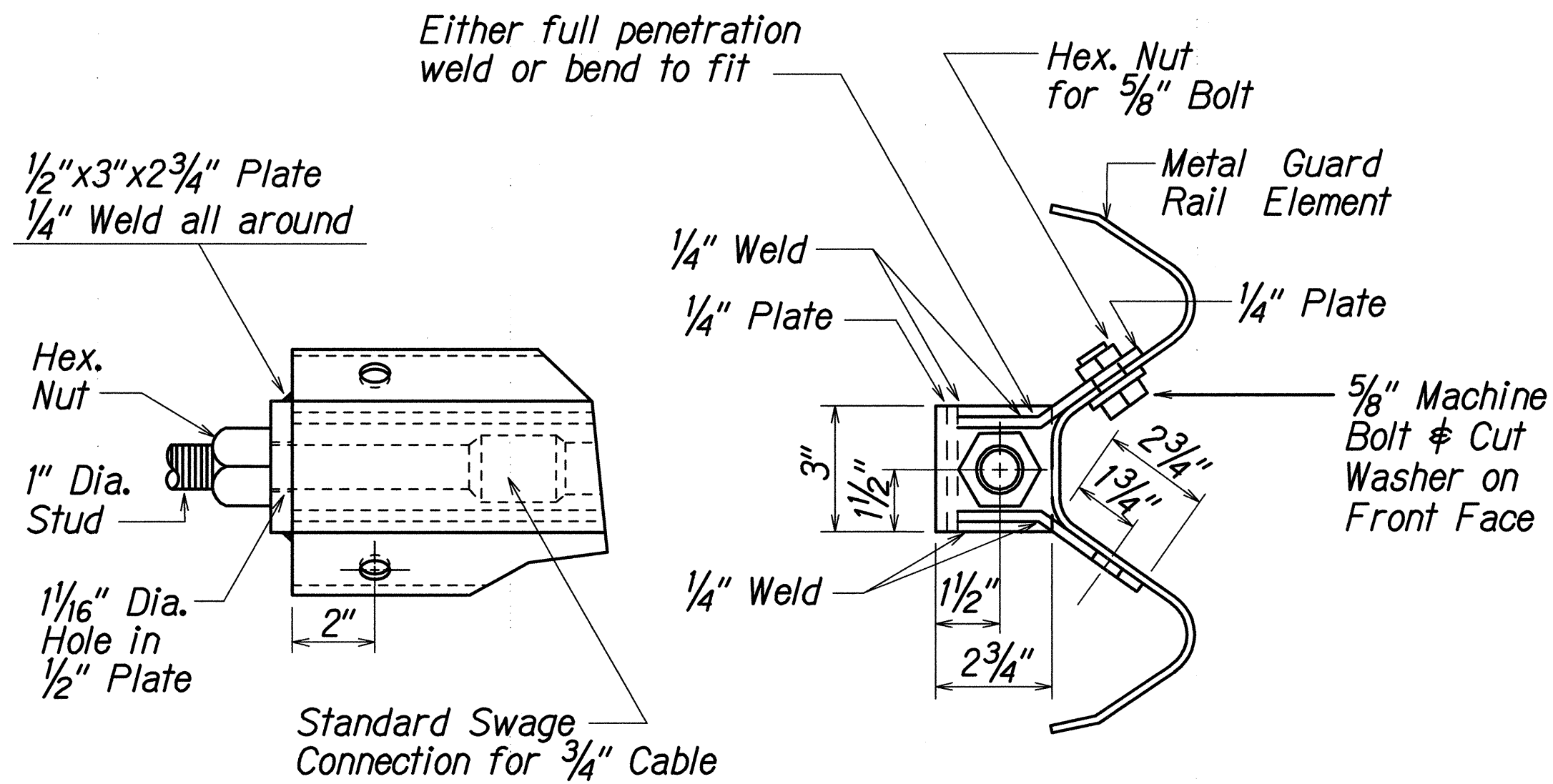
**STRONG POST W-BEAM GUARDRAIL**

**PUAINAKO STREET IMPROVEMENTS, PHASE 1**  
**Kilauea Ave. to Kanoelehua Ave.**  
**Project No. 2000E-01-00**

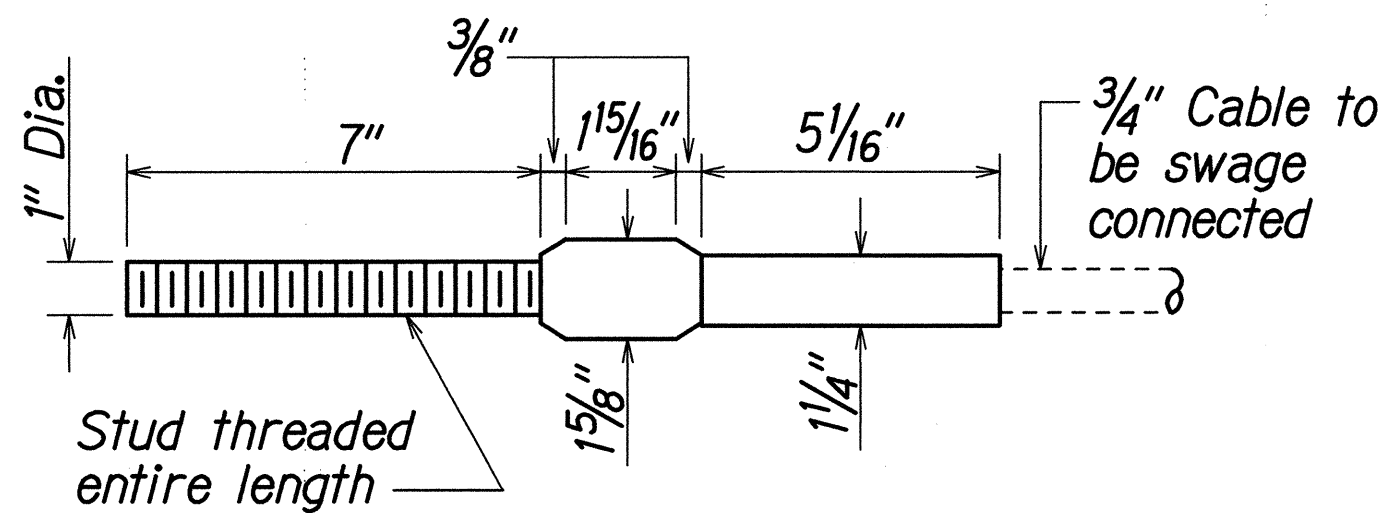
Scale: N.T.S. Date: May, 2000

SHEET No. 3 OF 4 SHEETS

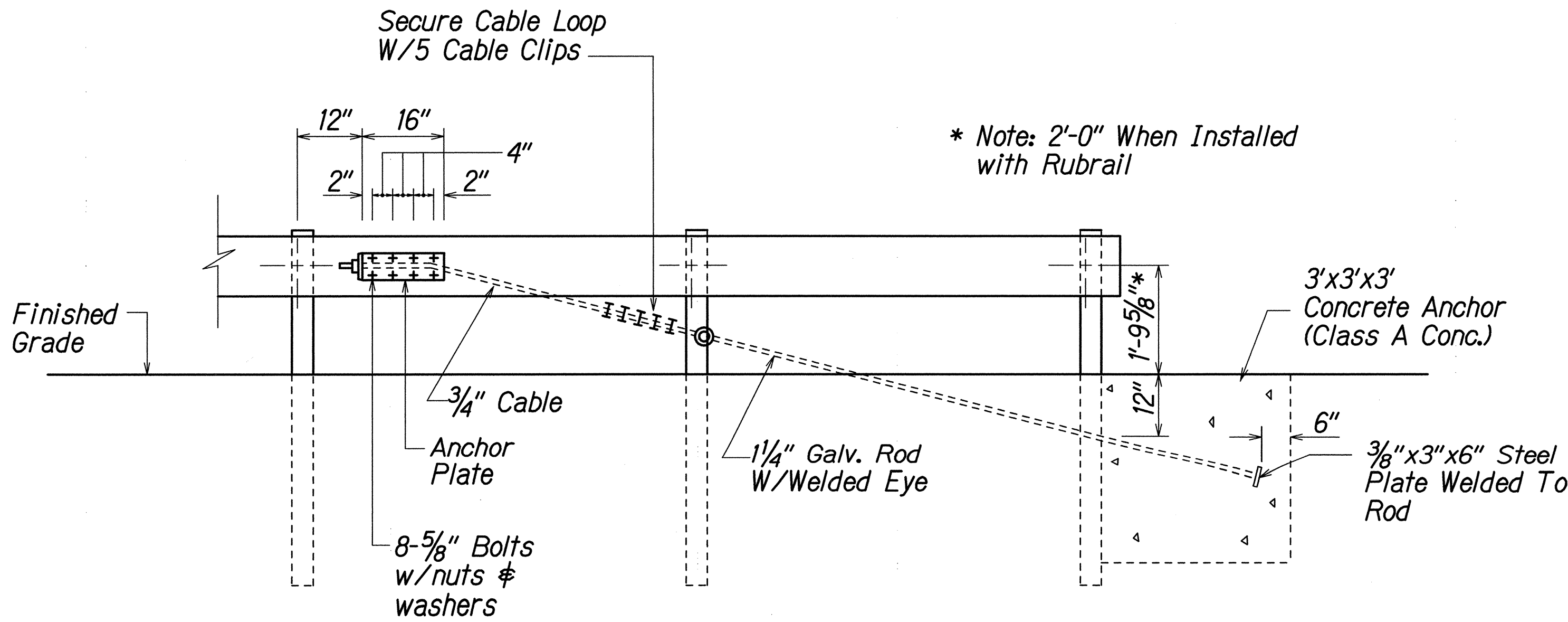
| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 2000E-01-00 | 2000        | 27        | 60           |



ANCHOR PLATE DETAILS

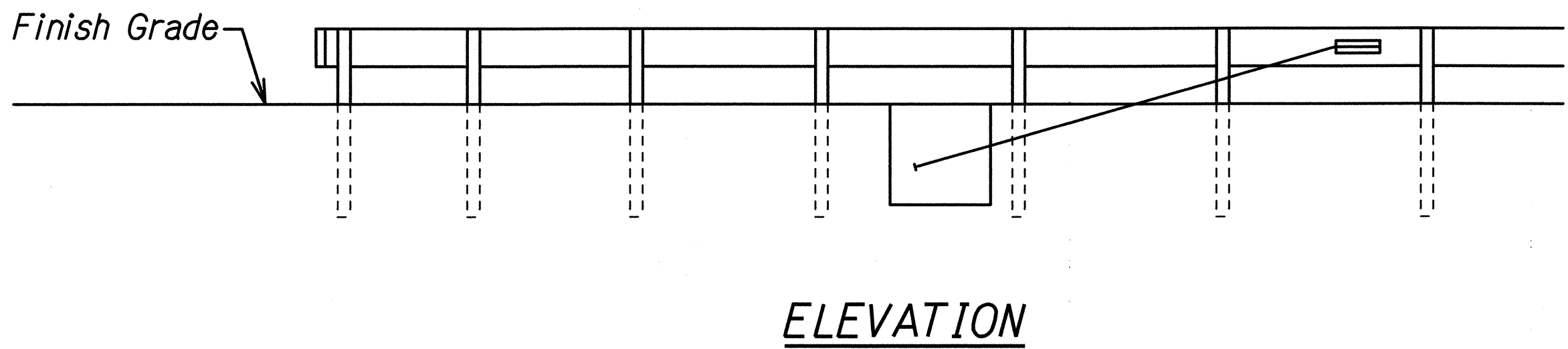
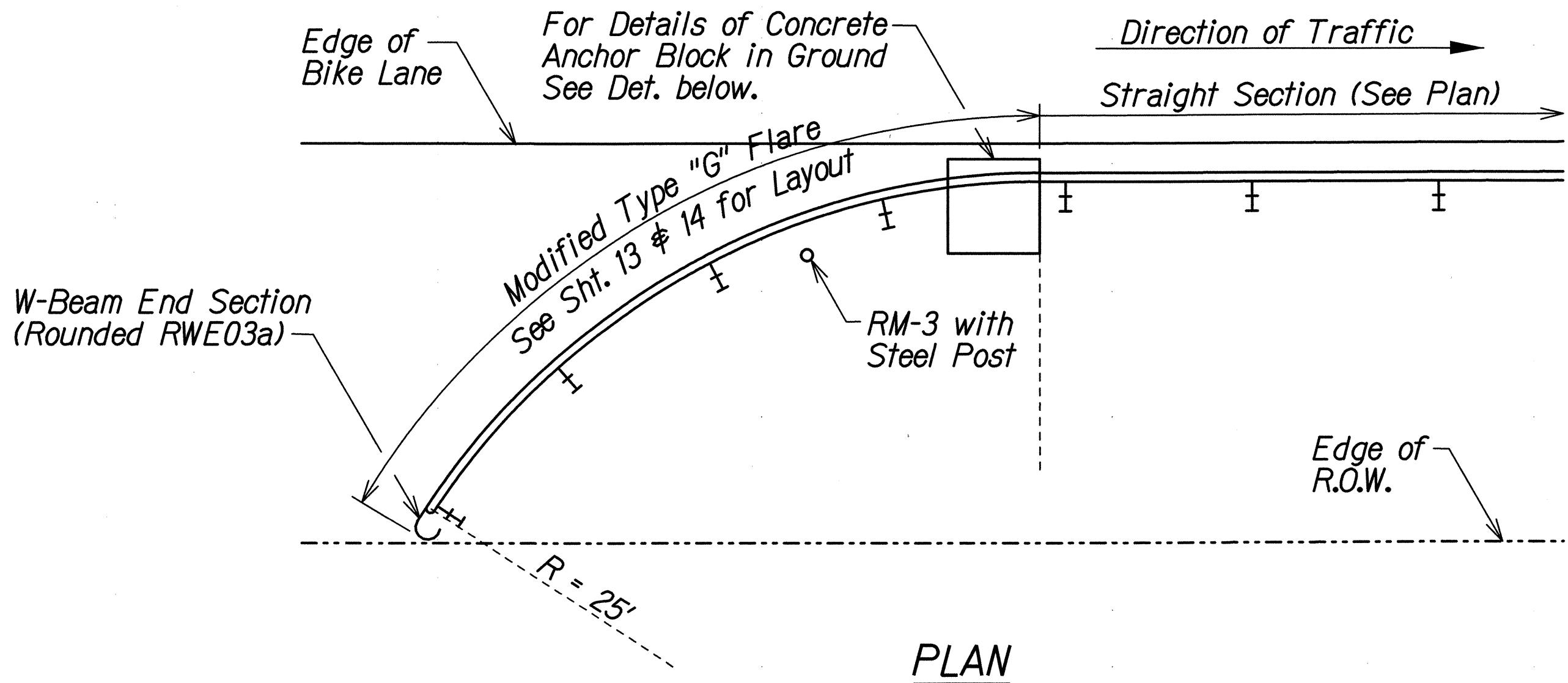


STANDARD SWAGED FITTING AND STUD



ANCHOR BLOCK DETAIL

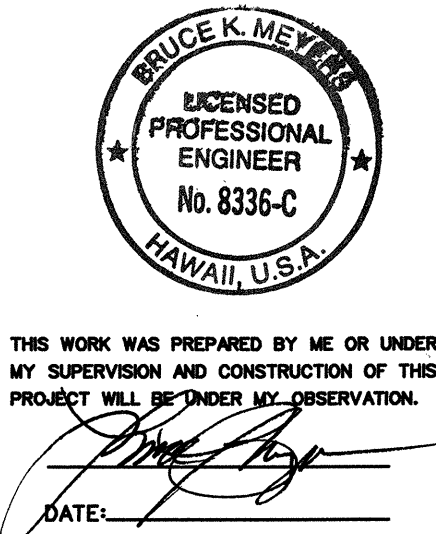
1. Concrete, G.R.P., excavation, anchor rod and miscellaneous appurtenances necessary to anchor the guardrail ends shall be incidental to metal guardrail.



TYPICAL MODIFIED TYPE "G" END TERMINAL

|               |       |
|---------------|-------|
| DATE          | _____ |
| DESIGNED BY   | _____ |
| CHECKED BY    | _____ |
| NOTED BY      | _____ |
| QUANTITIES BY | _____ |
| ORIGINAL PLAN | _____ |
| NOTE BOOK     | _____ |
| DATE          | _____ |

99050/4/2000gdr4.dgn



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**GUARDRAIL DETAILS**  
**PUAINAKO STREET IMPROVEMENTS, PHASE 1**  
**Kilauea Ave. to Kanoiehewa Ave.**  
**Project No. 2000E-01-00**  
Scale: N.T.S.      Date: May, 2000

SHEET No. 4 OF 4 SHEETS