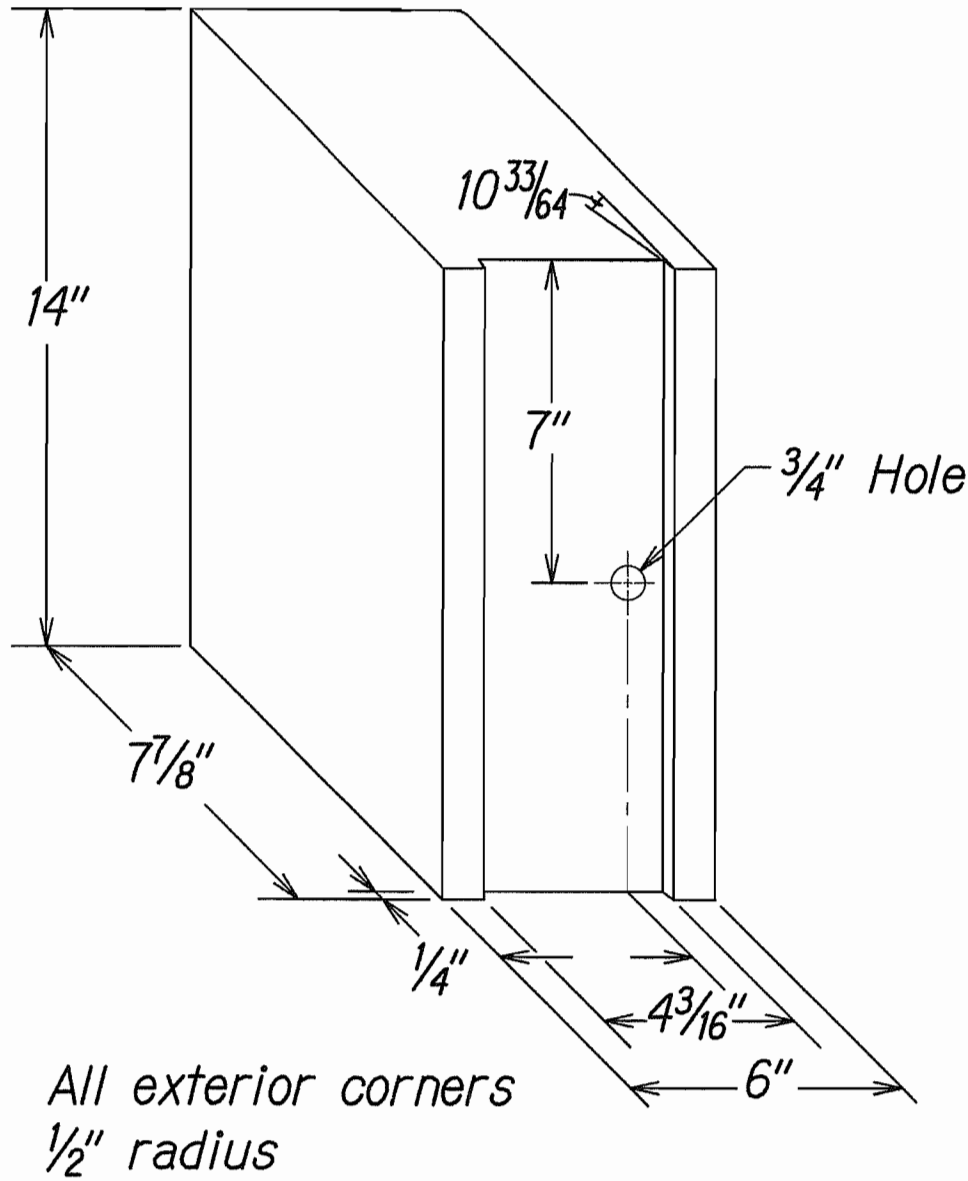


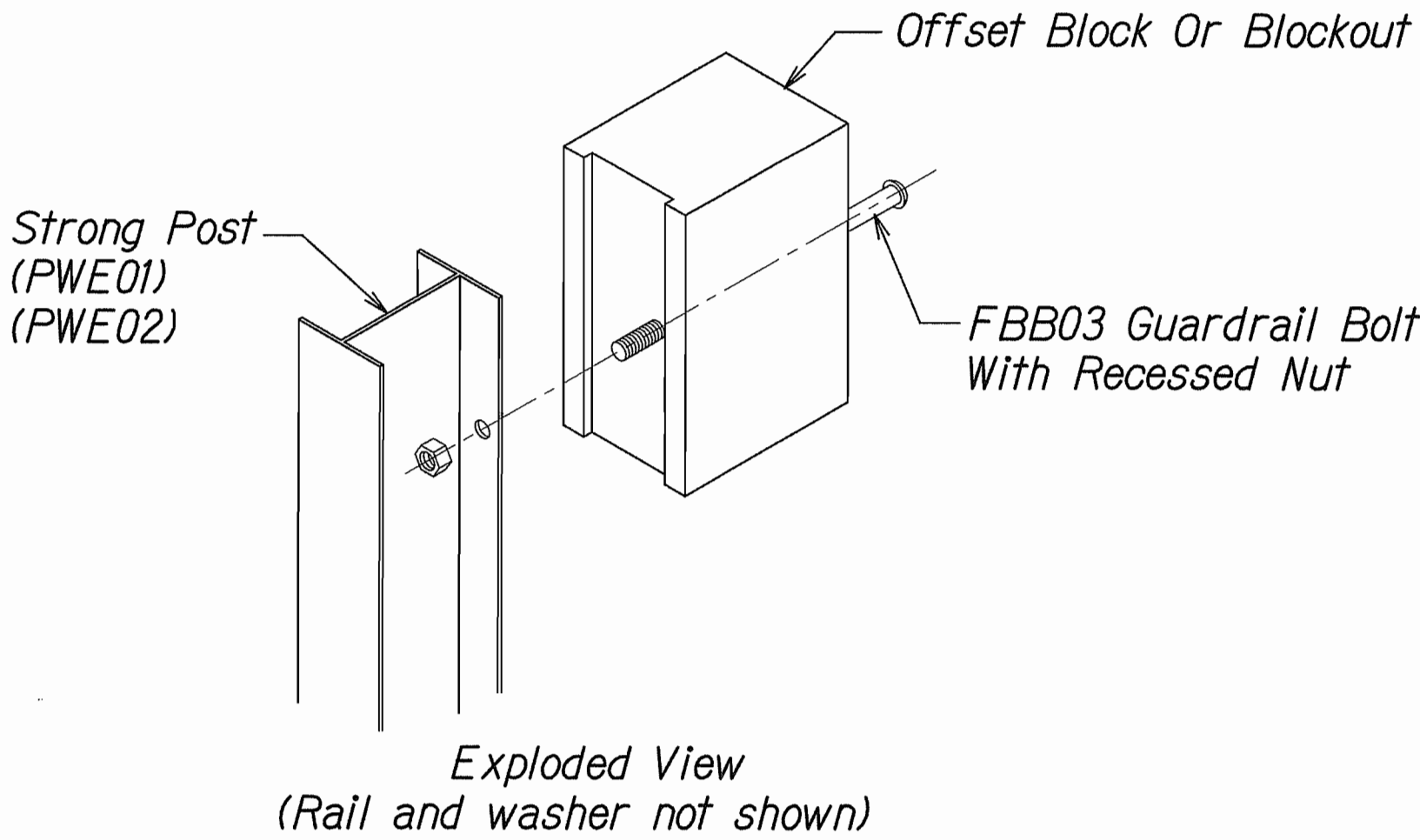
**RECYCLED PLASTIC BLOCKOUT (TYPE I)**



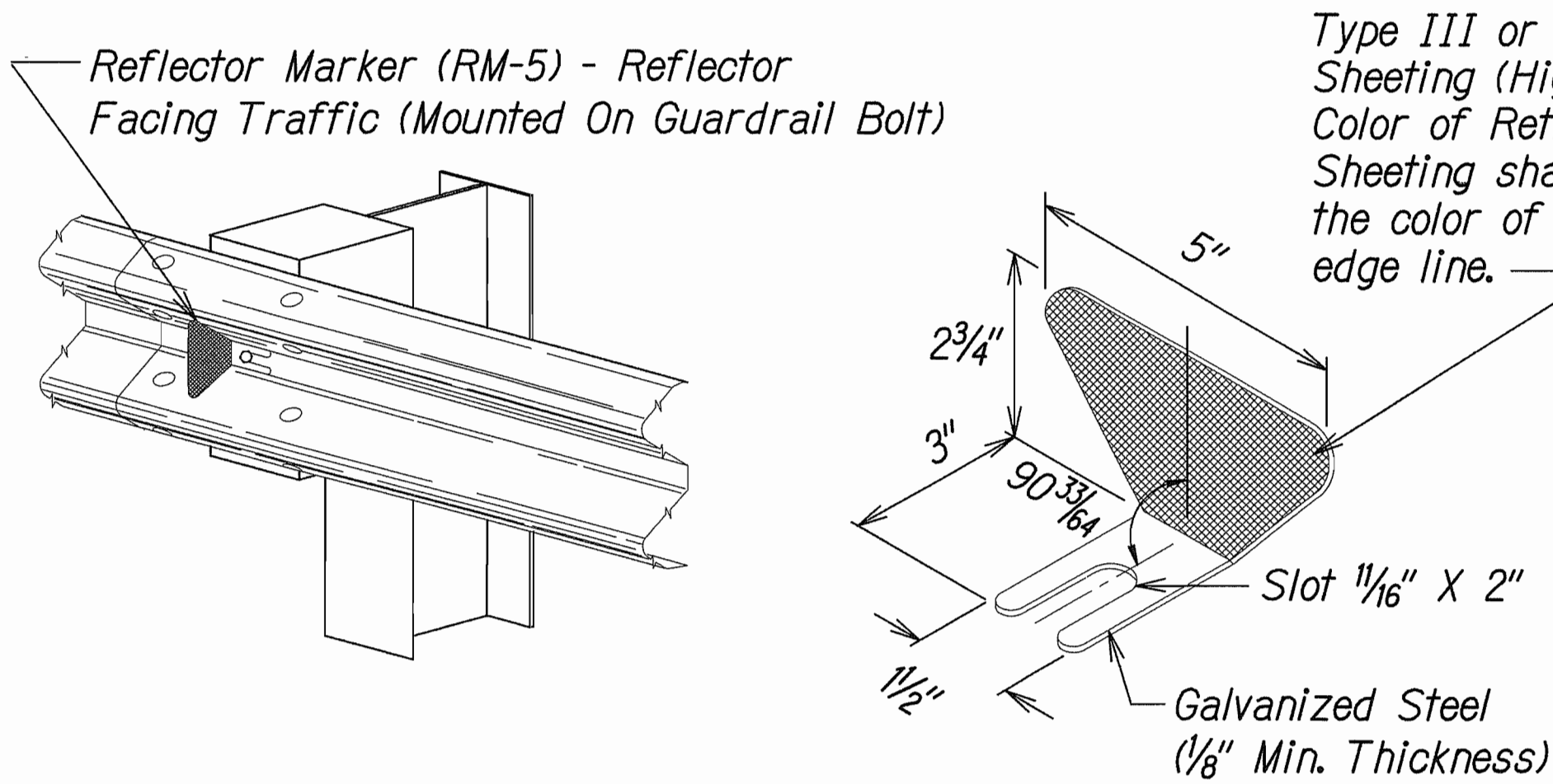
**RECYCLED POLYETHYLENE  
OFFSET BLOCK (TYPE II)**

**GENERAL NOTES:**

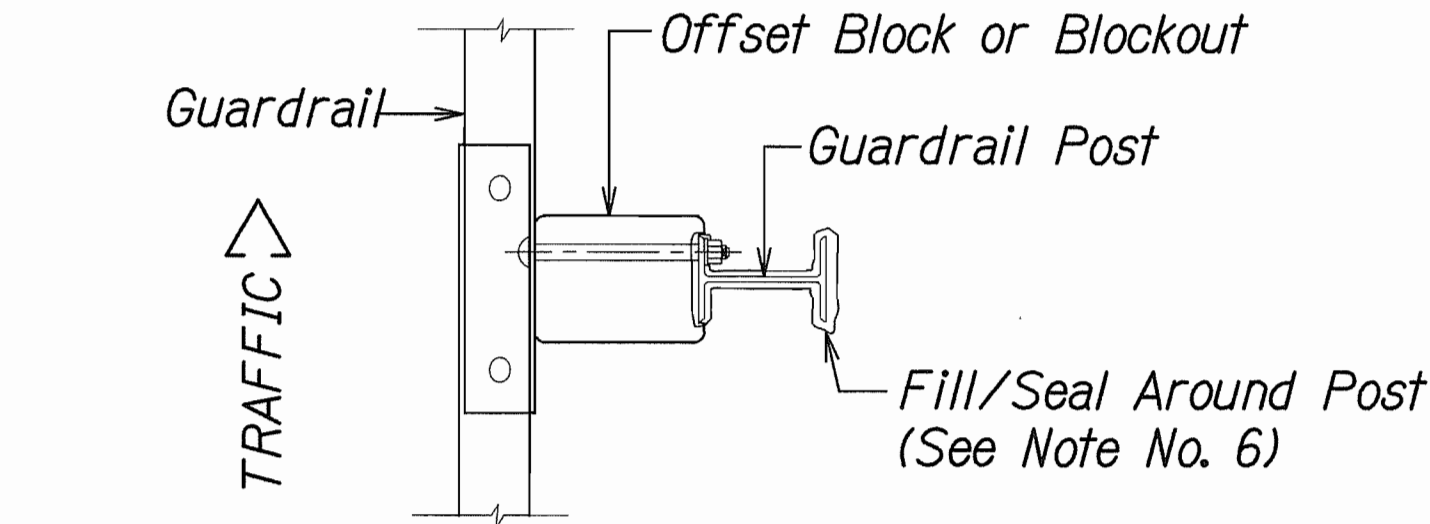
- All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
- Where conditions require, special post lengths in increments of 6 inches may be specified.
- All fasteners, posts, and rail elements (i.e. 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.
- All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
- After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around each guardrail post and all cracks in the paved area 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 filling/sealing. All costs associated with 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.
- New A.C. pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
- Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. RM-5's shall not be installed on Terminal Sections. Furnishing and installing of each RM-5 shall be considered incidental to the adjacent guardrail system.



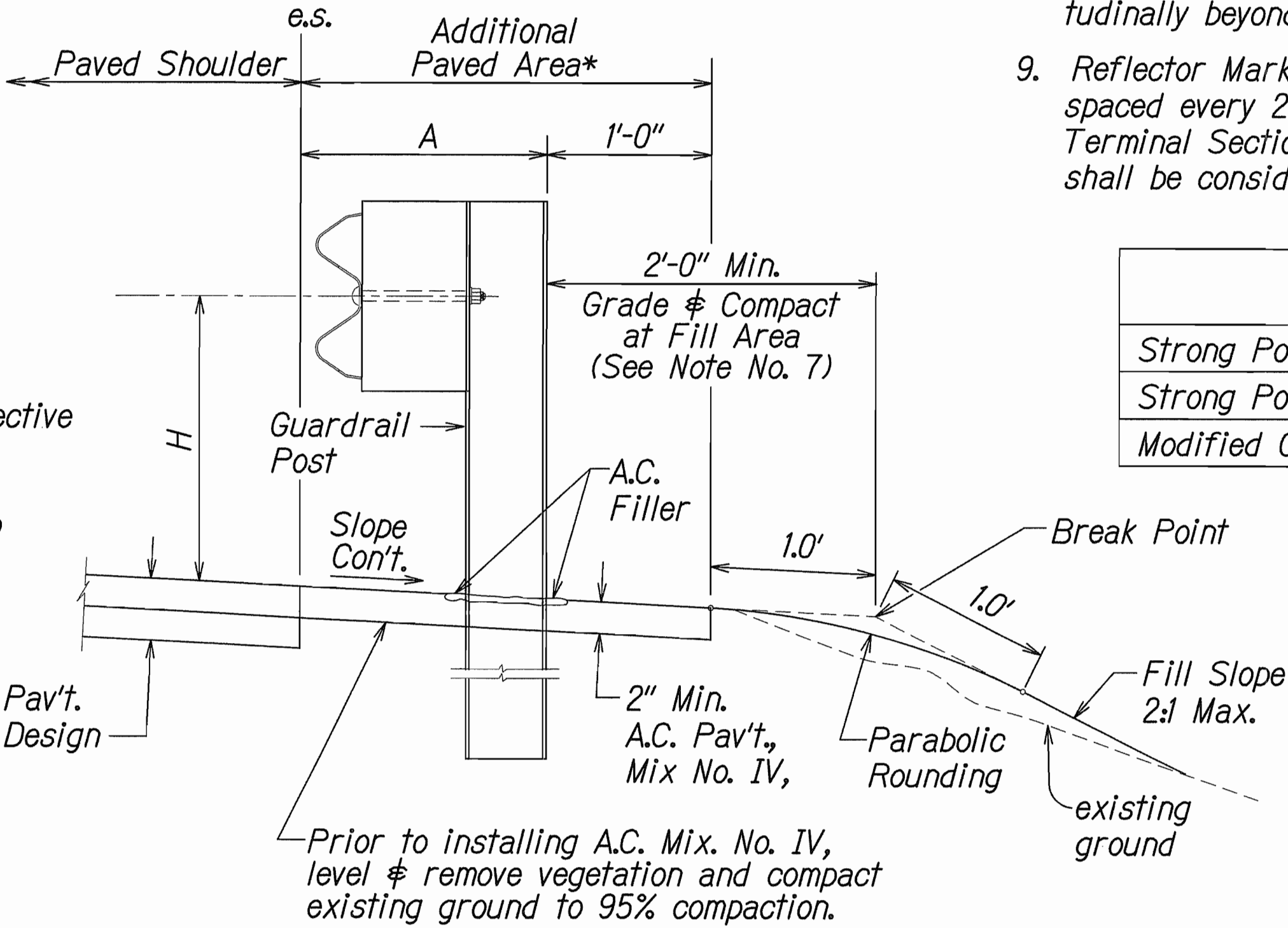
**STEEL POST AND BLOCK DETAIL**



**REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION**



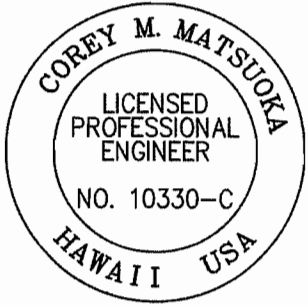
**PLAN**



**ELEVATION**

**TYPICAL GUARDRAIL INSTALLATION**

| GUARDRAIL TYPE                     | DIMENSION |       |
|------------------------------------|-----------|-------|
|                                    | H         | A     |
| Strong Post W-Beam                 | 1'-9 5/8" | 1'-6" |
| Strong Post Rubrail (W-Beam)       | 2'-0"     | 1'-6" |
| Modified Or Strong Post Thrie Beam | 2'-0"     | 2'-0" |



THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION

*Corey Matsuda*  
SIGNATURE

4/30/12  
EXPIRATION  
DATE OF THE  
LICENSE

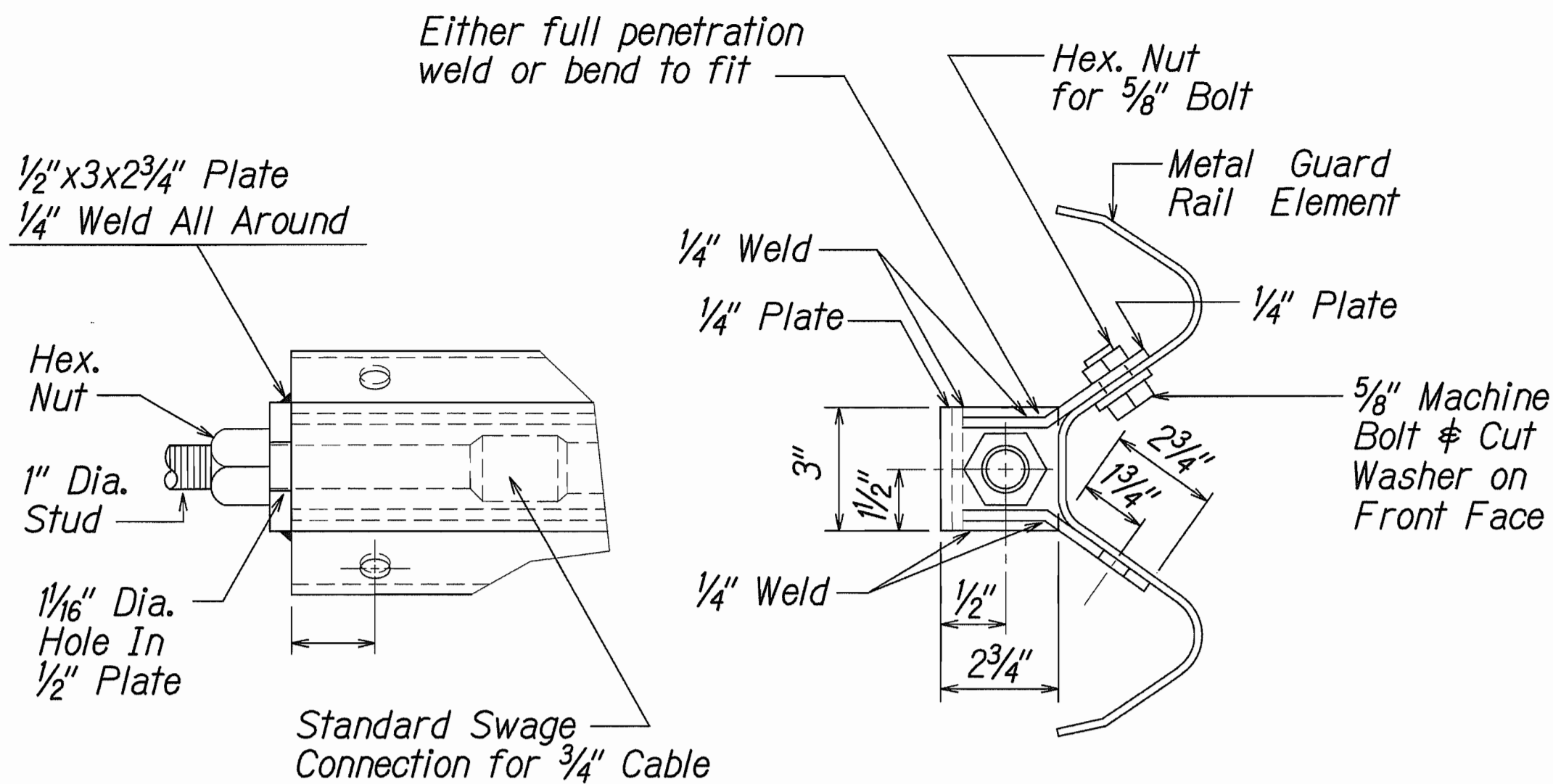
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**GUARDRAIL DETAILS**  
FARRINGTON HIGHWAY DRAINAGE IMPROVEMENTS  
Vicinity of Orange St.  
Project No. 93B-01-11  
Scale: N.T.S.      Date: FEB 2012

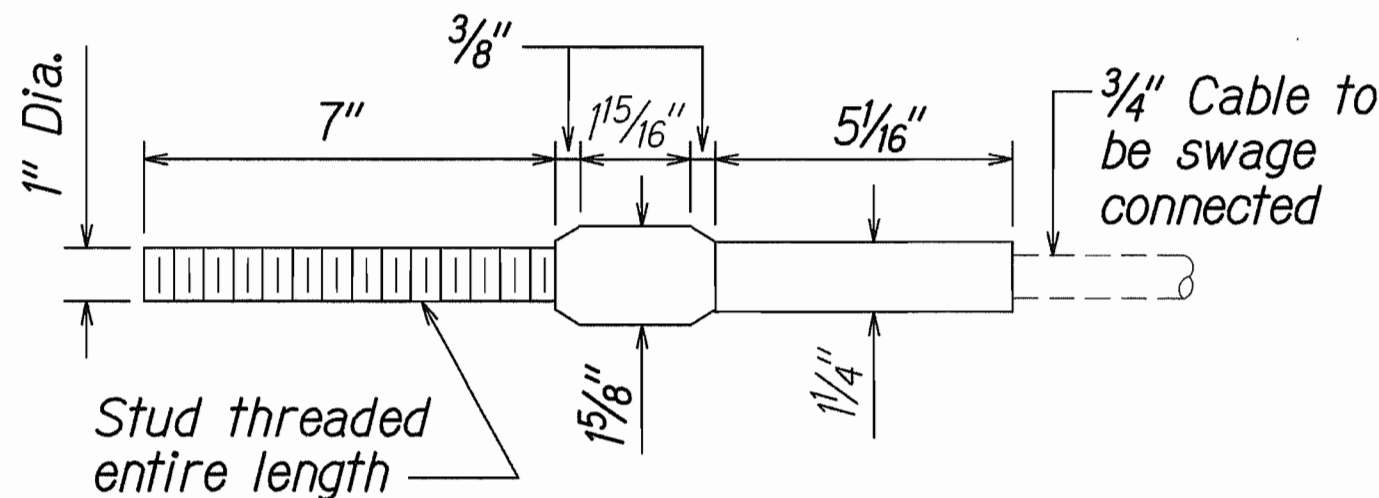
SHEET No. 1 OF 4 SHEETS



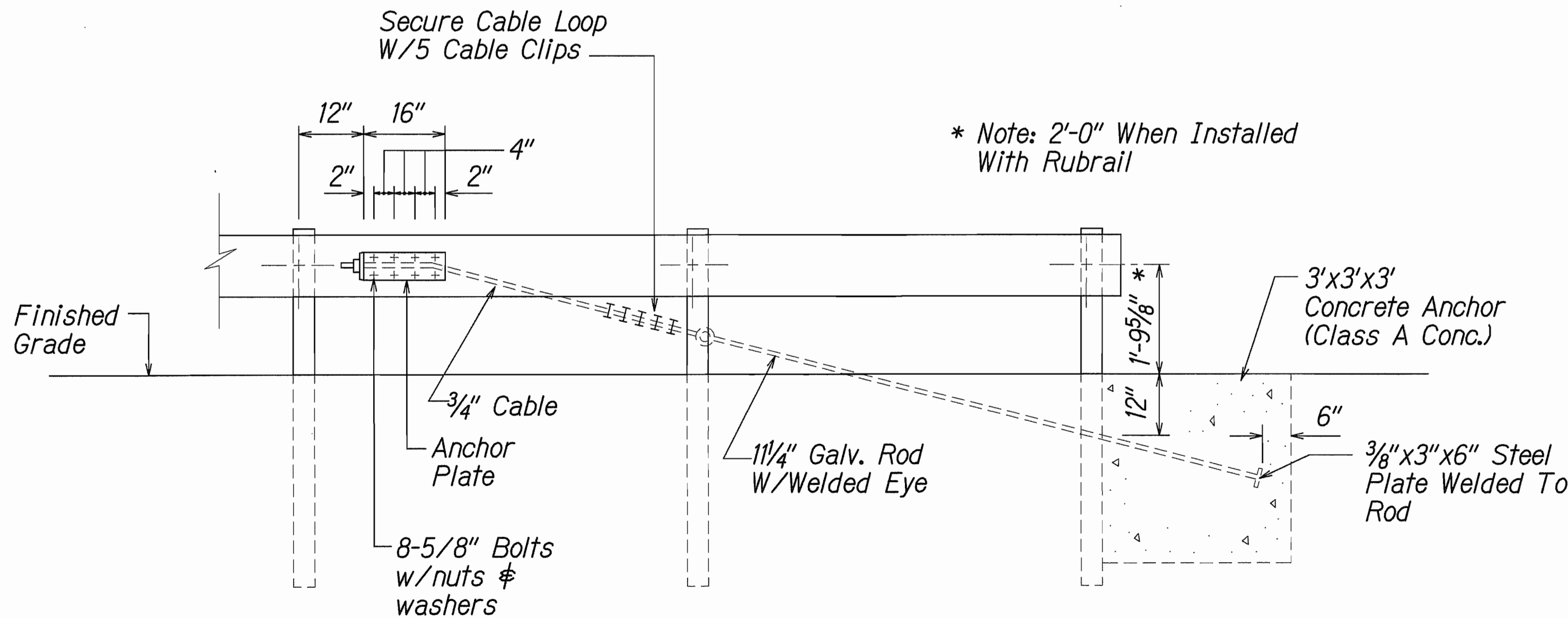
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 93B-01-11          | 2012        | 34        | 38           |



ANCHOR PLATE DETAILS

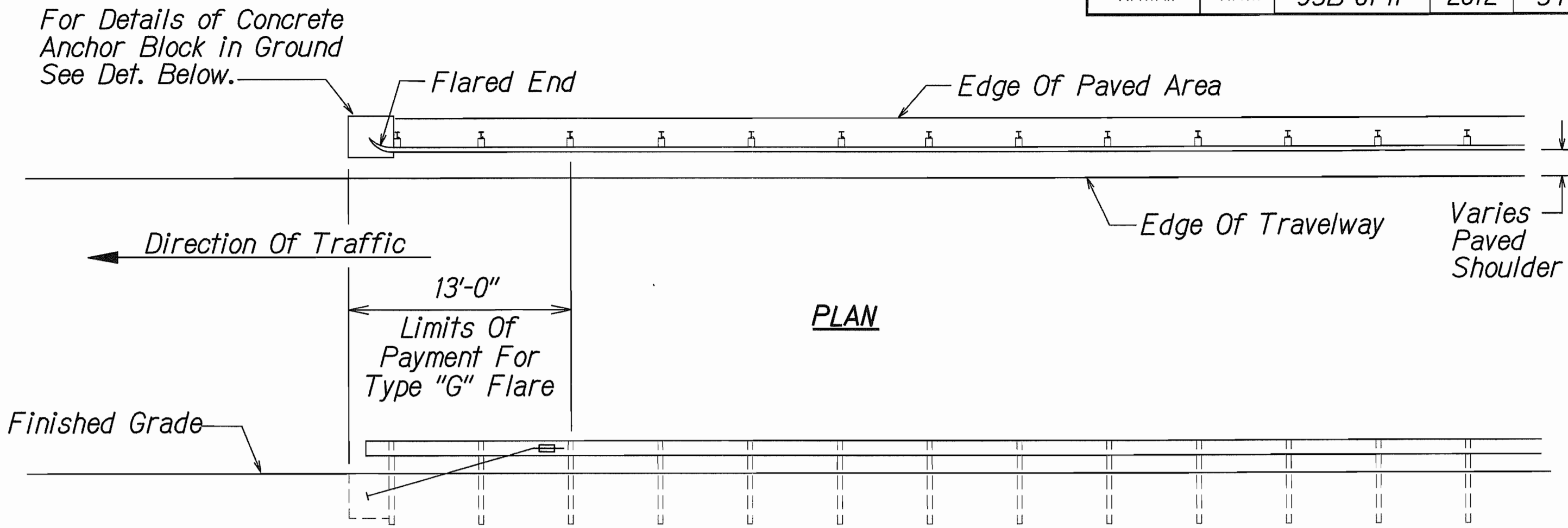


STANDARD SWAGED FITTING  
AND STUD



ANCHOR BLOCK DETAIL

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

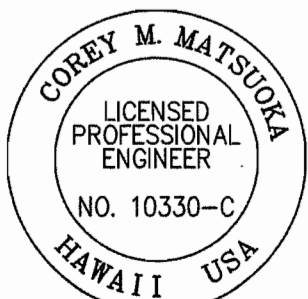


ELEVATION

TYPE "G" FLARE END TERMINAL

NOTE:

Type "G" Modified End Terminal is a site specific end terminal with a taper and radial termini. A site specific detailed drawing is required for all Type "G" Modified End Terminal and must receive Engineer's approval. The taper (flare rate) of the guardrail shall follow the latest edition of AASHTO'S Roadside Design Guide (currently, Table 5.6 - Suggested Flare Rate for Barrier Design, page 5-21, Jan. 1996 edition). The radius of the radial termini is an Engineer's judgement based on the site evaluation. The Engineer shall consider safety (minimize the spearing & blunt end situation); degree and potential seriousness of the hazard; bicycle and pedestrian accessibility; maintenance equipment accessibility; Right-of-Way availability; the smallest radii the metal w-beam/thrie-beam railing can be constructed (check with supplier/contractor); posted speed limit; angle of vehicle impact; and aesthetics when designing the Type "G" Modified End Terminal. During construction, the Contractor shall layout the proposed Type "G" Modified End Terminal and receive approval from the Construction Engineer prior to installation.



THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION

*Corey Matsuda*  
SIGNATURE

4/30/12

EXPIRATION  
DATE OF THE  
LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

GUARDRAIL DETAILS

FARRINGTON HIGHWAY DRAINAGE IMPROVEMENTS

Vicinity of Orange St.

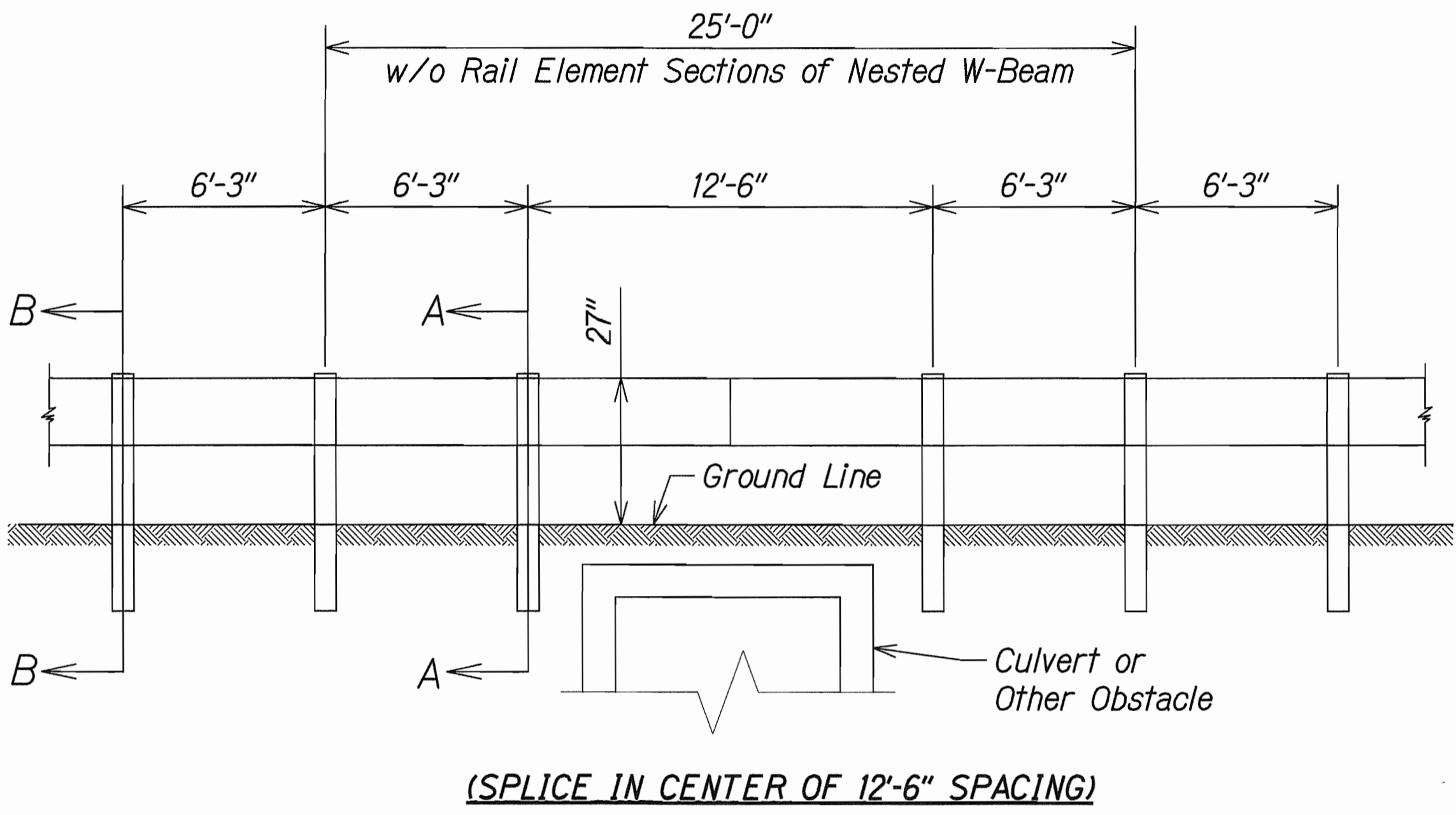
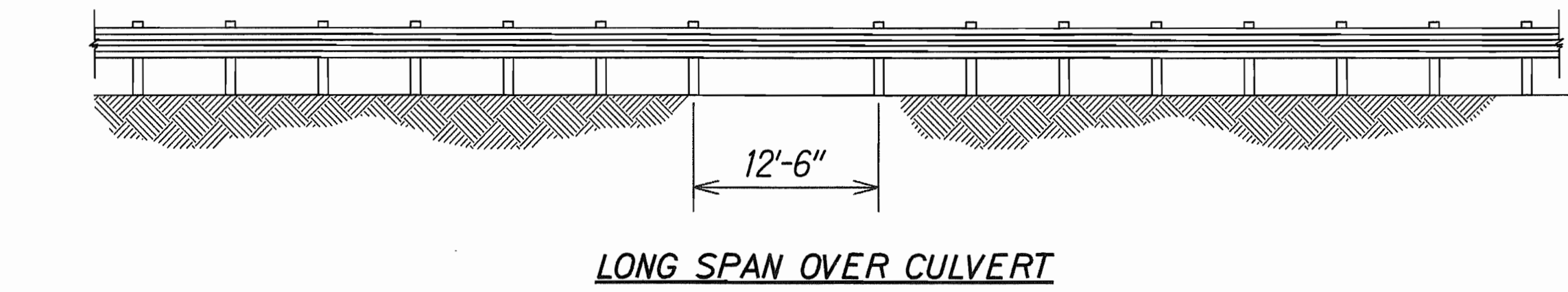
Project No. 93B-01-11

Scale: N.T.S.

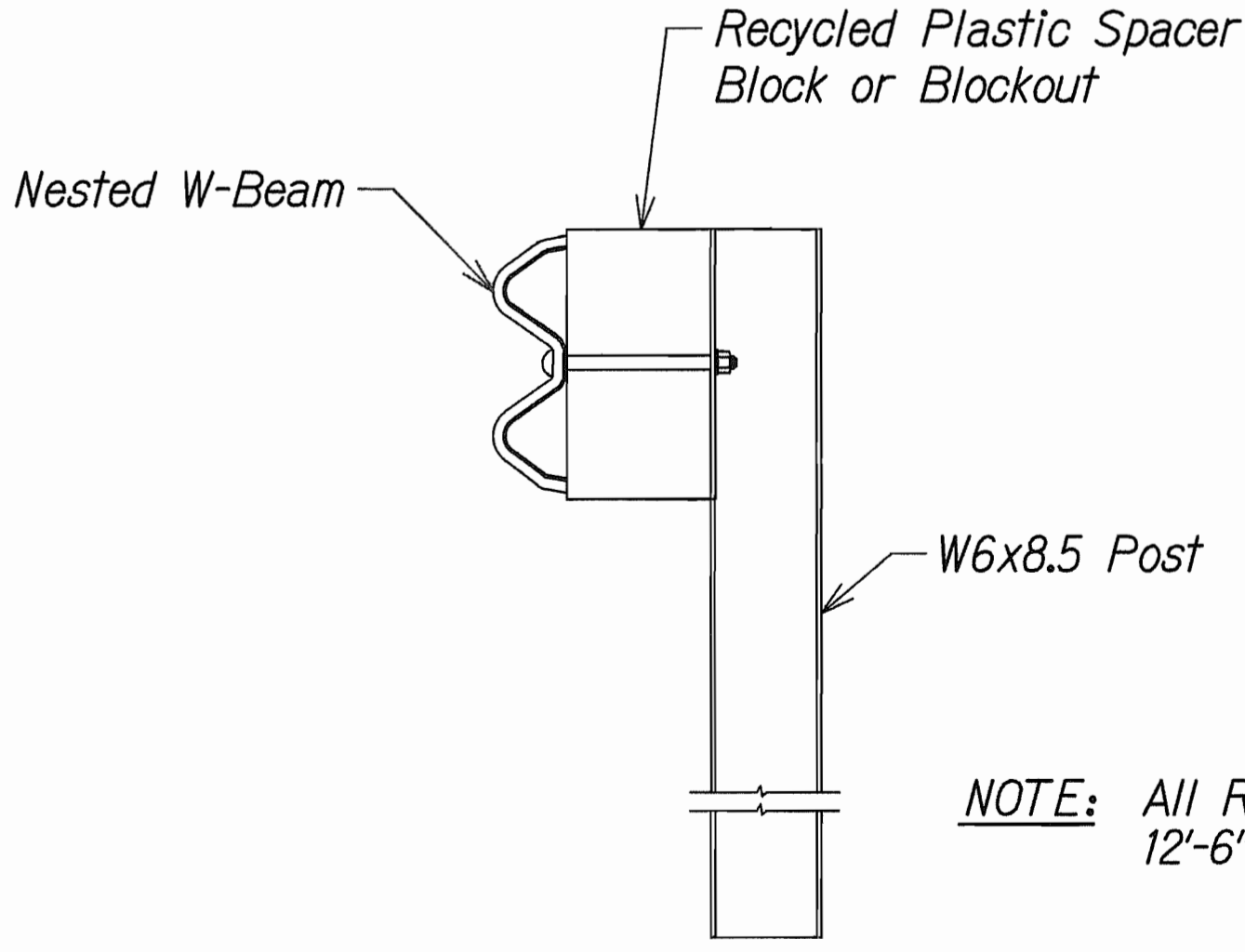
Date: FEB 2012

SHEET No. 3 OF 4 SHEETS

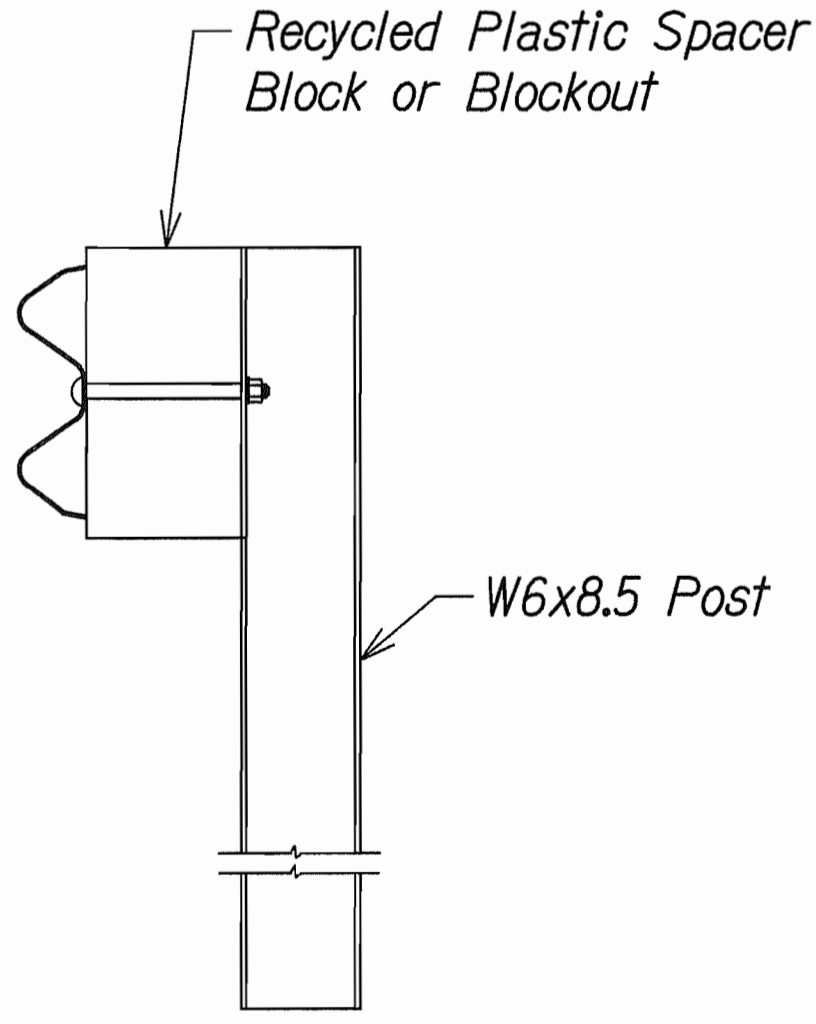
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 93B-01-11          | 2012        | 35        | 38           |



**NESTED LONG SPAN STRONG POST**  
**W-BEAM GUARDRAIL OVER 12'-6" CULVERT**  
**(MAXIMUM DYNAMIC DEFLECTION OF 3.1 FT.)**



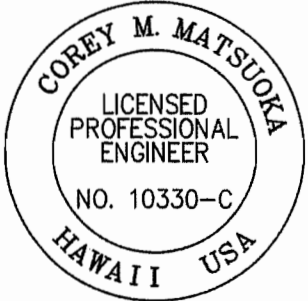
**SECTION A-A**



**SECTION B-B**

**NOTE:** All Rail Elements Sections are 12'-6" and All Posts are 6' Long

- NOTE:**
1. All Nested W-Beam splices points shall be staggered.
  2. Payment for installation shall be included in the unit cost for Item No. 606.0100 - W-Beam Guardrail.



THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION

*Corby M. Matsuda*  
SIGNATURE

4/30/12  
EXPIRATION  
DATE OF THE  
LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**GUARDRAIL DETAILS**  
FARRINGTON HIGHWAY DRAINAGE IMPROVEMENTS  
Vicinity of Orange St.  
Project No. 93B-01-11  
Scale: Date: FEB 2012