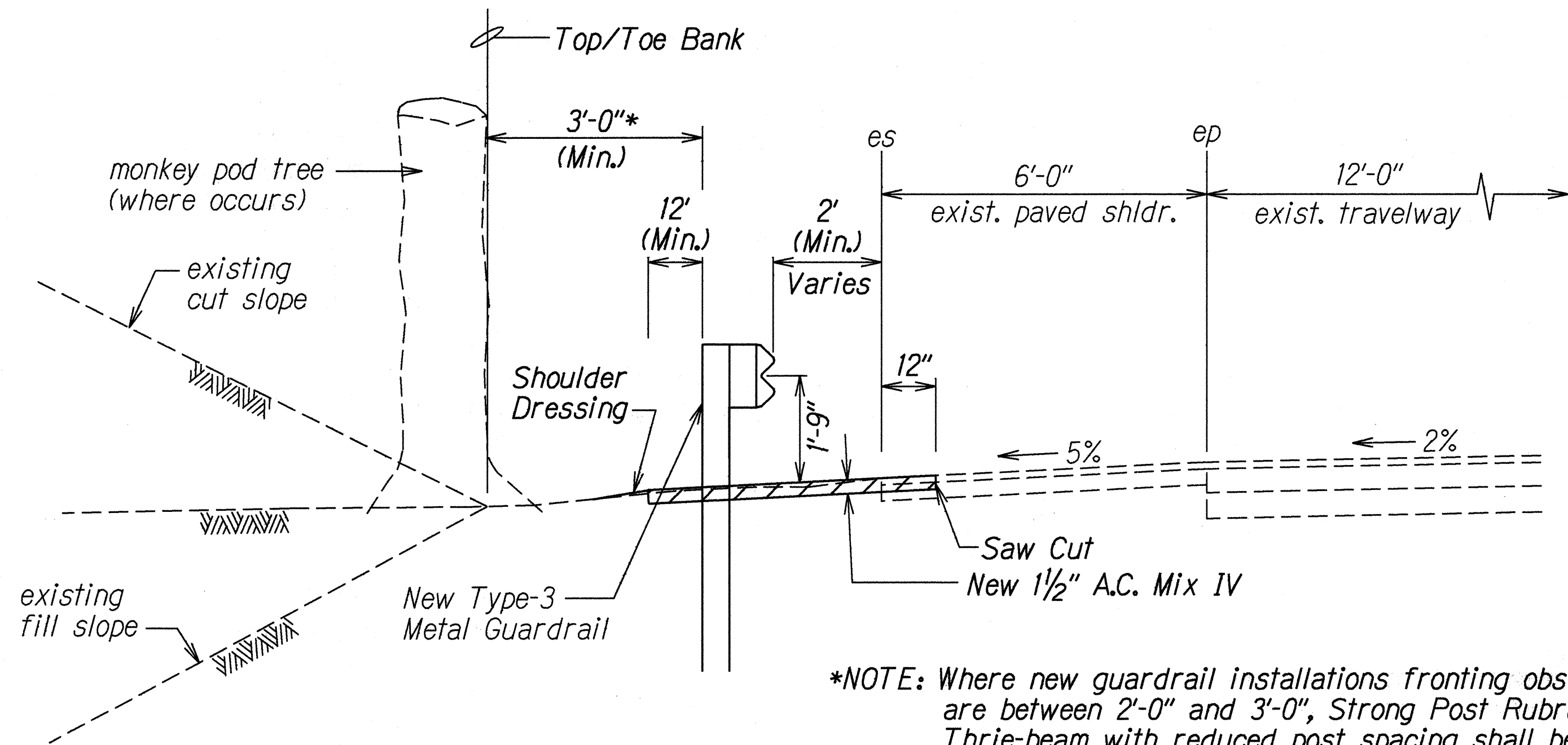
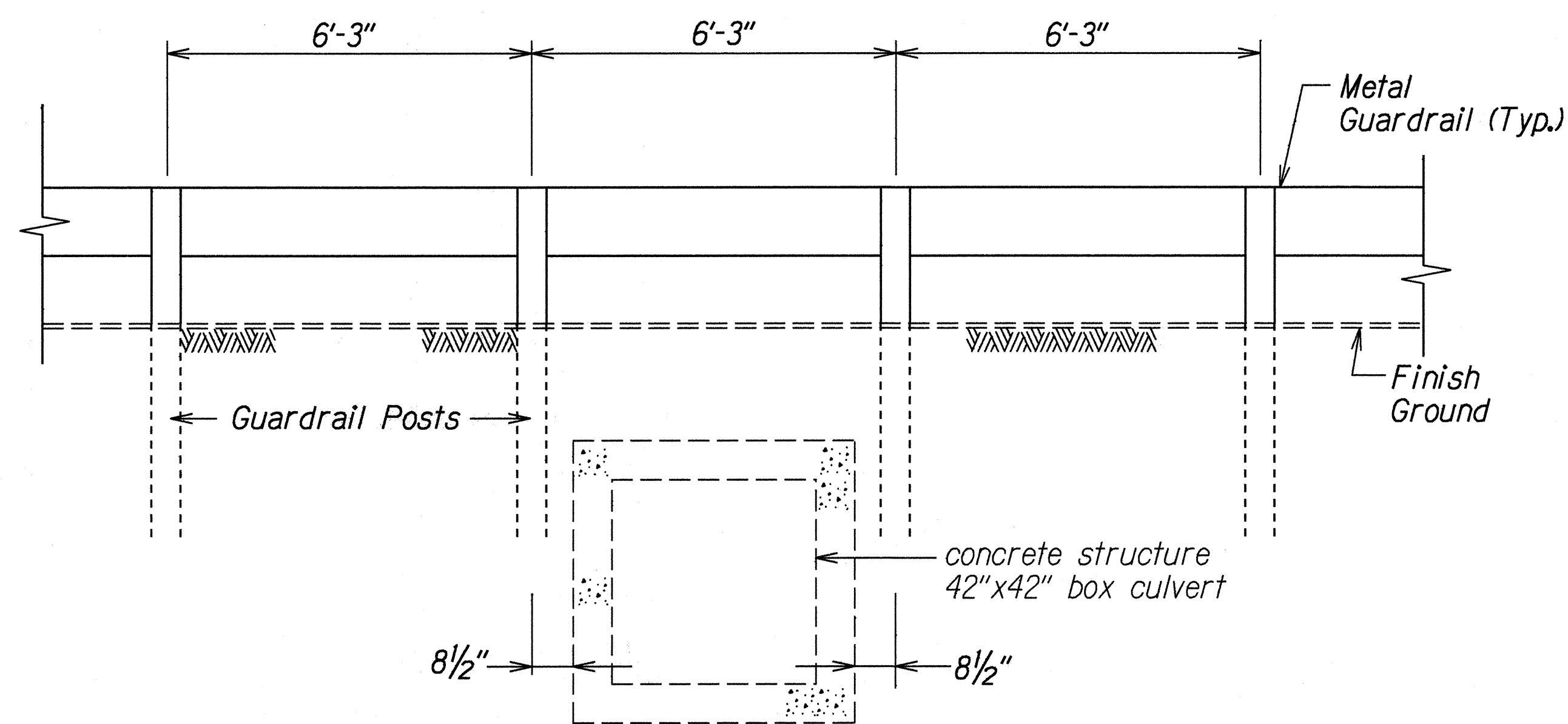


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(53) | 2000 | ADD.5 | 73 |

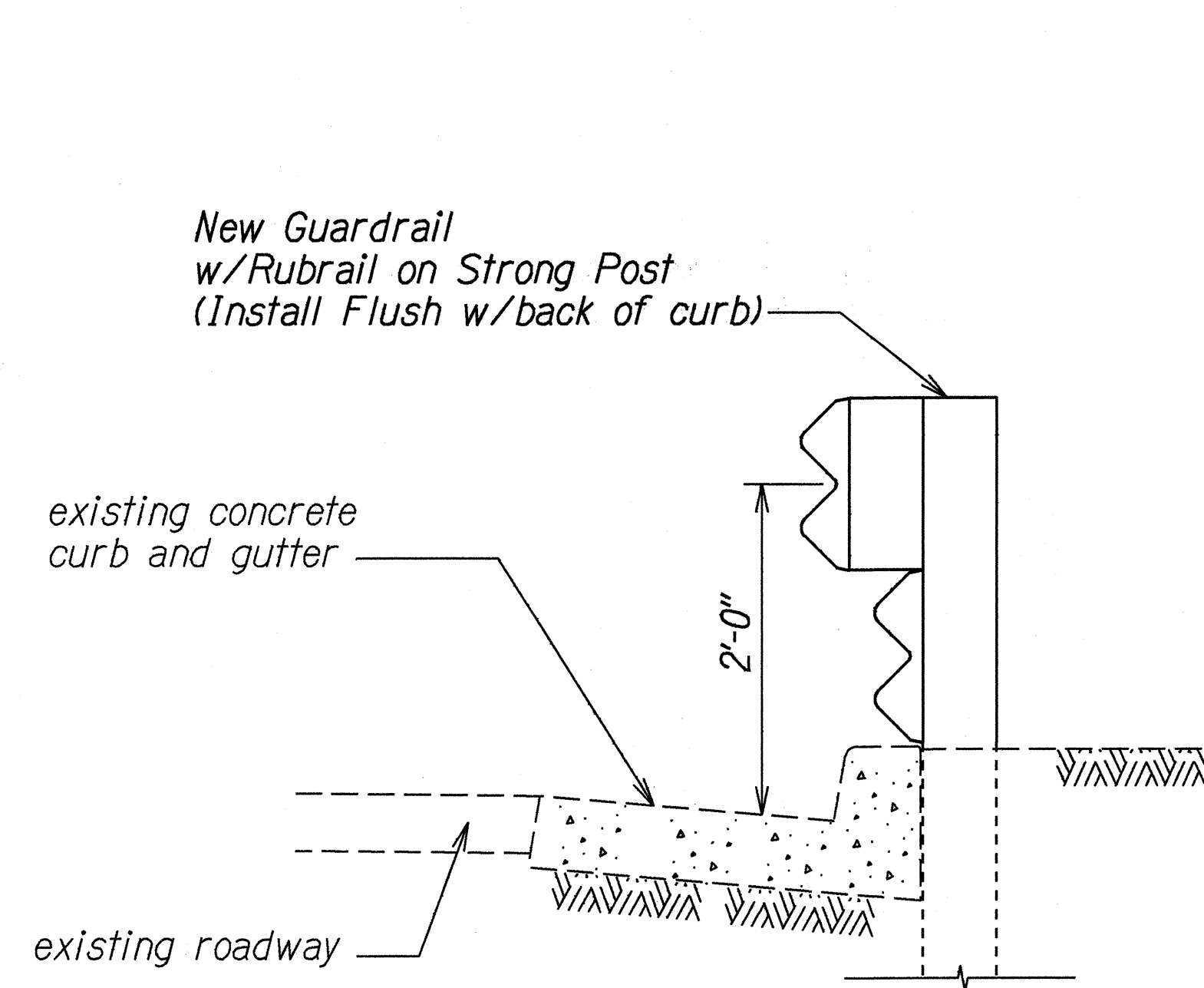


**NOTE: Where new guardrail installations fronting obstructions are between 2'-0" and 3'-0", Strong Post Rubrail or Modified Thrie-beam with reduced post spacing shall be required. Should distance between back of guardrail post and obstruction be less than 2'-0", a special guardrail design will be required. The Engineer will be notified at least 5 days prior to construction should a special guardrail design be required.*

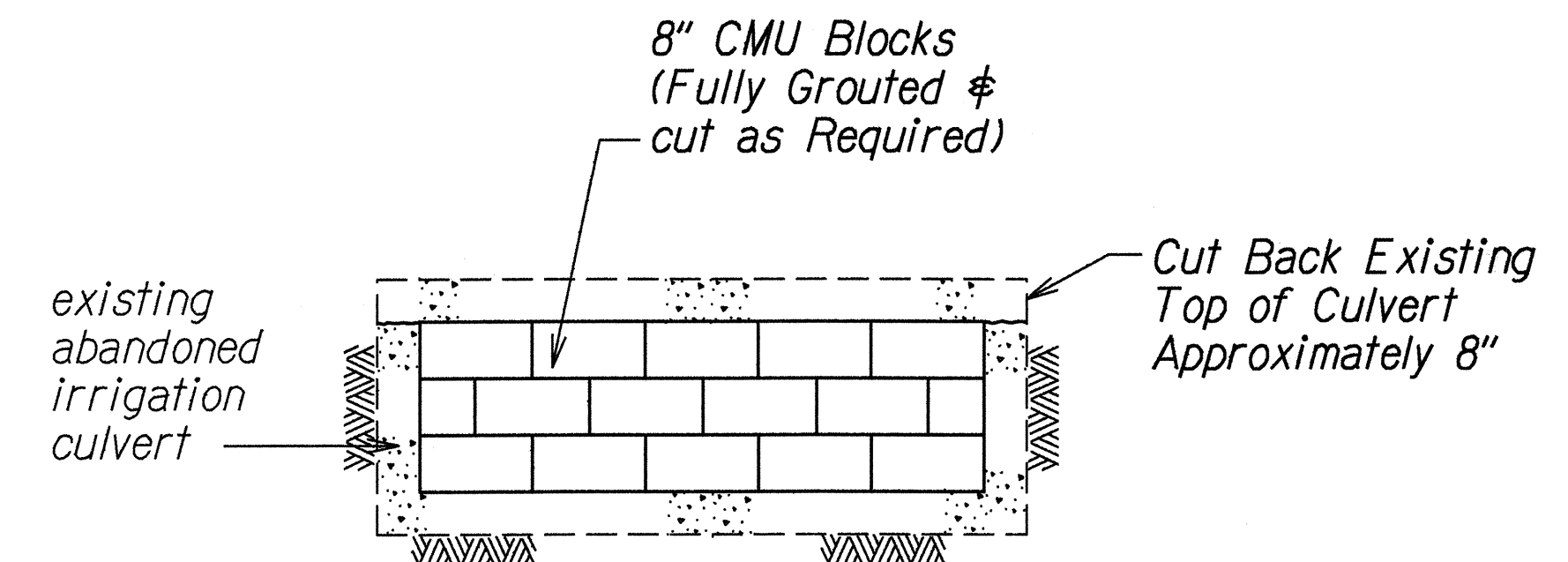
**TYPICAL HALF SECTION
FOR SHOULDER AND GUARDRAIL CONSTRUCTION**
Scale: 1/2" = 1'-0"



**DETAIL ON 42"X42" CONCRETE BOX CULVERT
@ STA. 164+82 (SEE PLAN SHT. 11)**
Scale: 1/2" = 1'-0"



**DETAIL - GUARDRAIL INSTALLATION AT
EXISTING CURB & GUTTERS
(STA. 273+90 - STA. 288+25)
(STA. 265+10 - STA. 271+50)**
Scale: 1" = 1'-0"



**DETAIL - SEAL IRRIGATION CULVERT
(STA. 242+06 - PLAN SHT. NO. 8)**
Scale: 1/2" = 1'-0"

MISCELLANEOUS NOTES:

1. Large impacting or vibratory type of equipment will not be permitted for drilling.
2. Any damage to the existing structures due to the Contractor's operation shall be repaired at his expense, to the satisfaction of the Engineer.
3. The Contractor shall verify all dimensions in field before commencing with work.
4. Structural Steel - ASTM A-36
5. H.S. Anchor Bolt - ASTM A-193, Class 2, Grade B8 with nuts and washers conforming to ASTM A-194, Grade 8A. Bolt shall be headless and threaded its full length. Bolts, nuts and washers shall be ungalvanized.
6. Structural steel shapes shall be hot dipped galvanized after fabrication.
7. Epoxy Grout - High early strength type (1000 psi minimum compressive strength @ 4 hours) conforming to the requirements of Subsection 712.04 (B), Epoxy Grout, of the Standard Specification and approved by the Engineer. Epoxy Grout shall be applied in strict conformance with the manufacturer's recommendation.
8. Removal of existing posts and supports shall include cutting of existing bolts 1" into the surface and patch to match existing surface.

| | |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY | |
| TRACED BY | |
| QUANTITIES BY | |
| CHECKED BY | |
| ORIGINAL PLAN | |
| NOTE BOOK | |
| legible | |
| signature | |

| 8/25/99 | Added Notes to Guardrail Installation Detail |
|---|--|
| DATE | REVISION |
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TYPICAL SECTIONS & DETAILS HONOAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS High Street to Puamana Fed. Aid Project No. STP-0900(53) Scale: As Shown Date: Aug., 1999 | |
| SHEET No. 1 OF 1 SHEETS | |