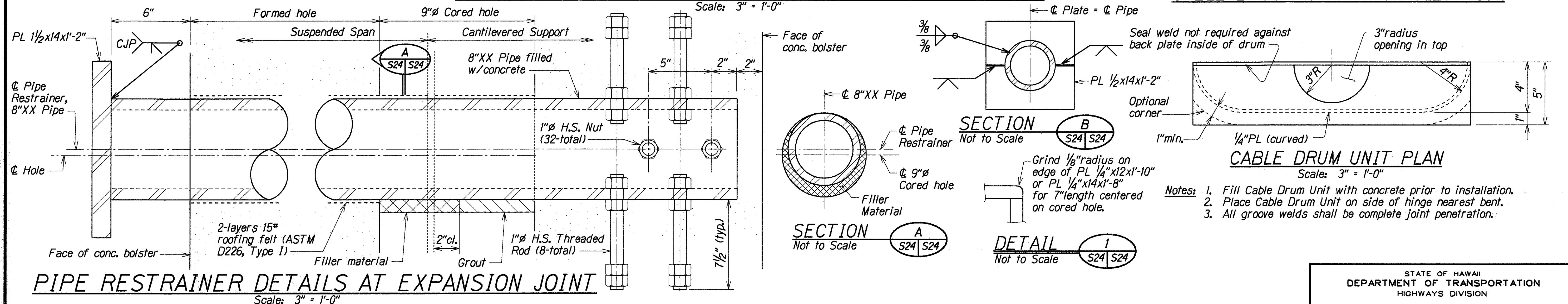
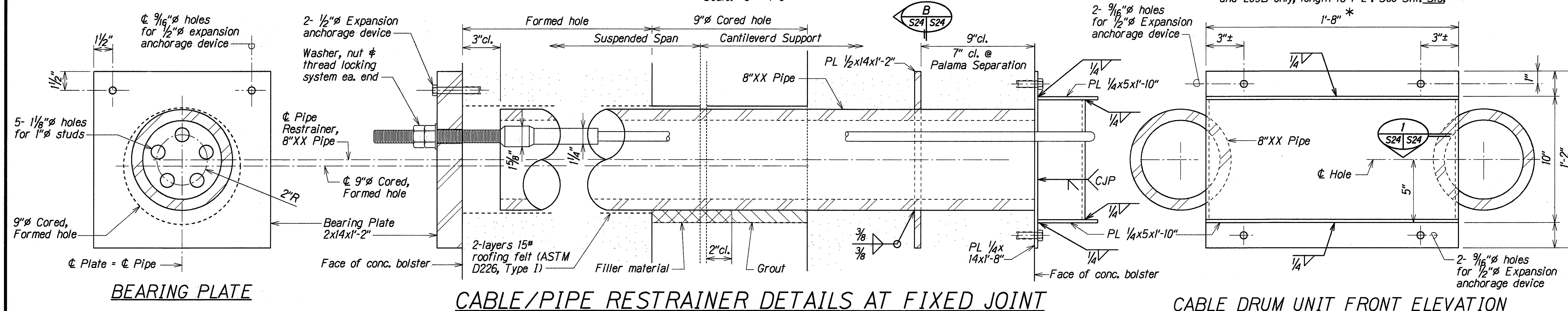
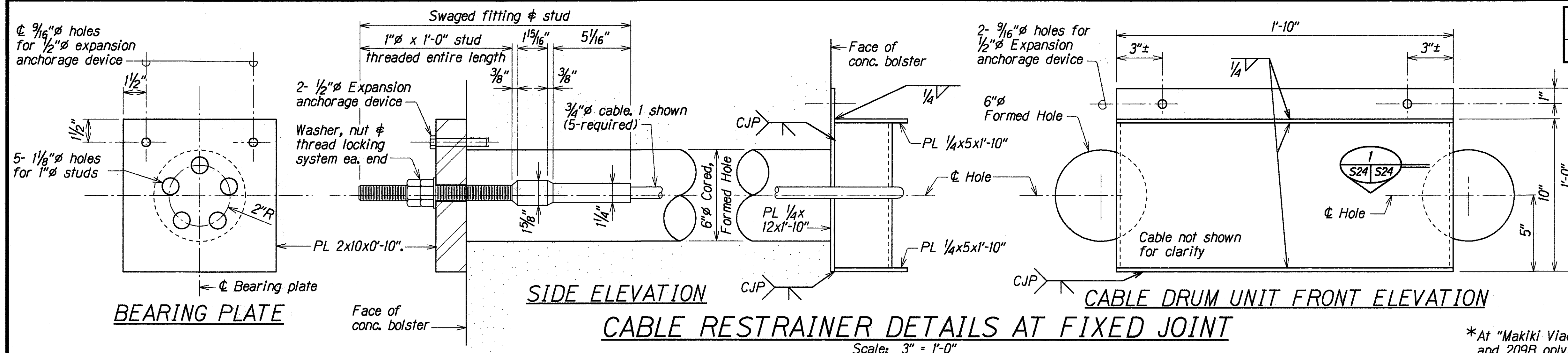


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-HI-1(225)	2000	30	37



RESTRAINER ASSEMBLY NOTES

- Location of drilled dowel holes shown in the plans are approximate. Prior to drilling holes in existing concrete, the Contractor shall locate all existing reinforcing steel and adjust the location of the drilled holes to clear all existing reinforcing bars. Final hole locations are subject to the approval of the Engineer.
- All cut and/or exposed reinforcing shall be embedded into the concrete a minimum of two (2) inches below the existing concrete surface. The surface shall be finished by applying mortar cement.
- The anchor nuts shall be snug tightened to take up any slack in the restrainer cables. After that, tighten the nuts by one (1) turn per 5 foot length of cable.
- Drilling of holes through existing concrete structure shall be done in such a manner as to avoid any damage to the existing structure. Any damage incurred throughout the work shall be borne by the Contractor and shall be repaired at the Contractor's expense, to the satisfaction of the Engineer.
- Payment of drilled holes will not be made separately and shall be considered incidental to Diaphragm Bolster Item.
- Cable length shown is approximate. The Contractor shall verify actual cable length in the field.
- Pipe unit to be placed against top of hole and grouted on "cantilever support" side only.
- Tightly wrap pipe with two (2) layers of 15# roofing felt (ASTM D 226, Type I).
- All metal parts to be hot-dip galvanized after fabrication.
- Abrasive blast-cleaning of existing concrete is not required.
- Reinforcement, including dowels, may be adjusted to avoid conflict with location of pipe.

- Notes:**
- Fill Cable Drum Unit with concrete prior to installation.
 - Place Cable Drum Unit on side of hinge nearest bent.
 - All groove welds shall be complete joint penetration.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

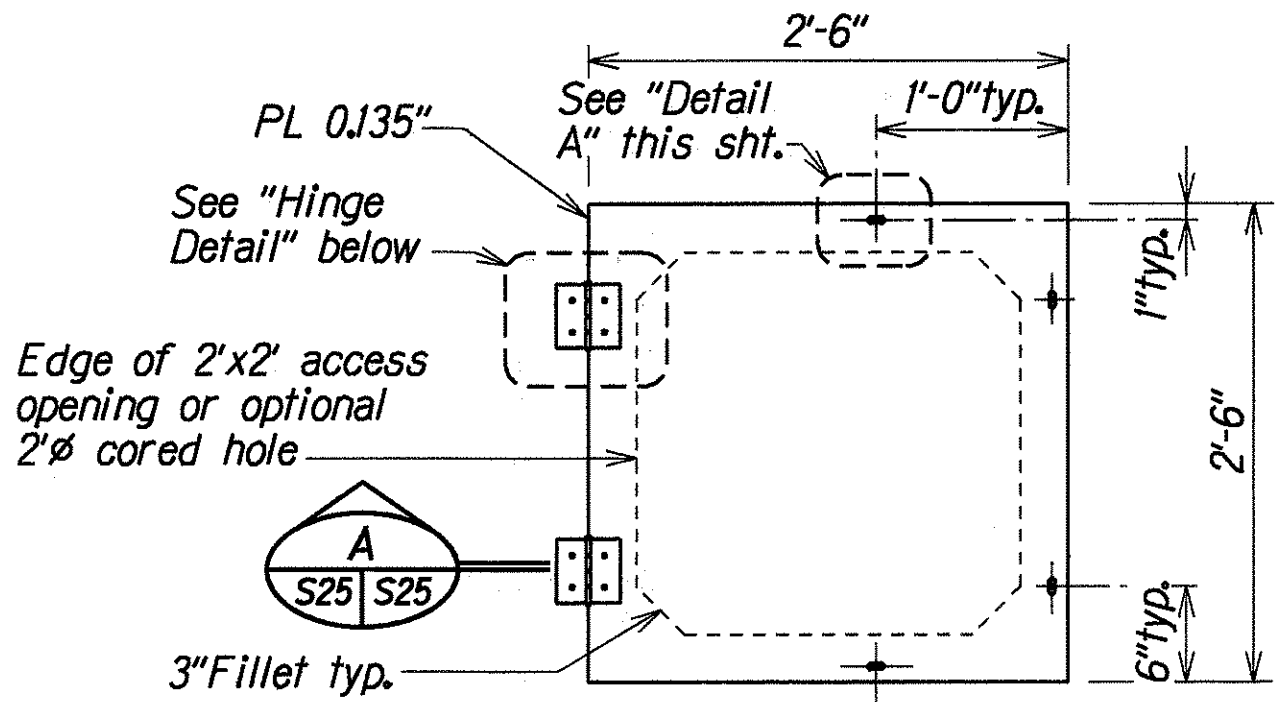
CABLE, CABLE/PIPE and PIPE RESTRAINER DETAILS

SEISMIC RETROFIT for LUNALLILO-VINEYARD OFF-RAMP,
MAKIKI VIADUCT AND PALAMA SEPARATION
Fed. Aid Proj. No. BR-HI-1(225)

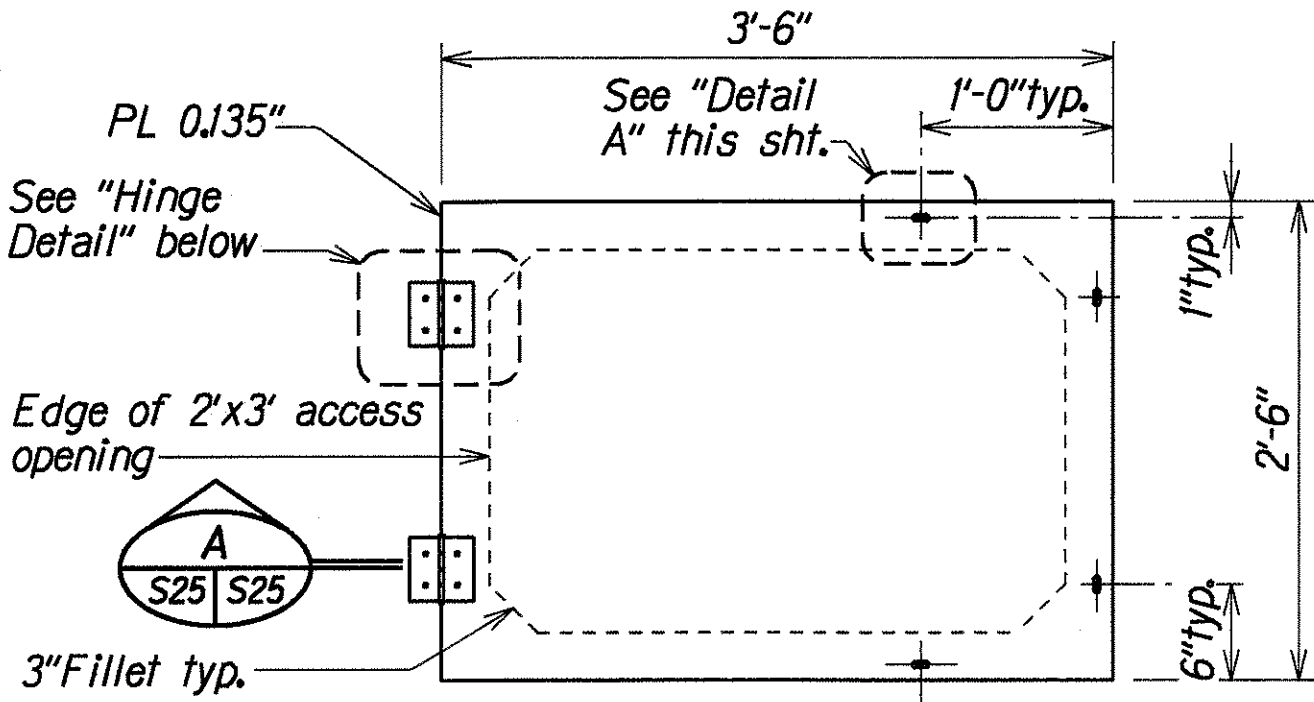
Scale: As Noted Date: Jul, 1999

SHEET No. S24 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-HI-K(225)	2000	31	37



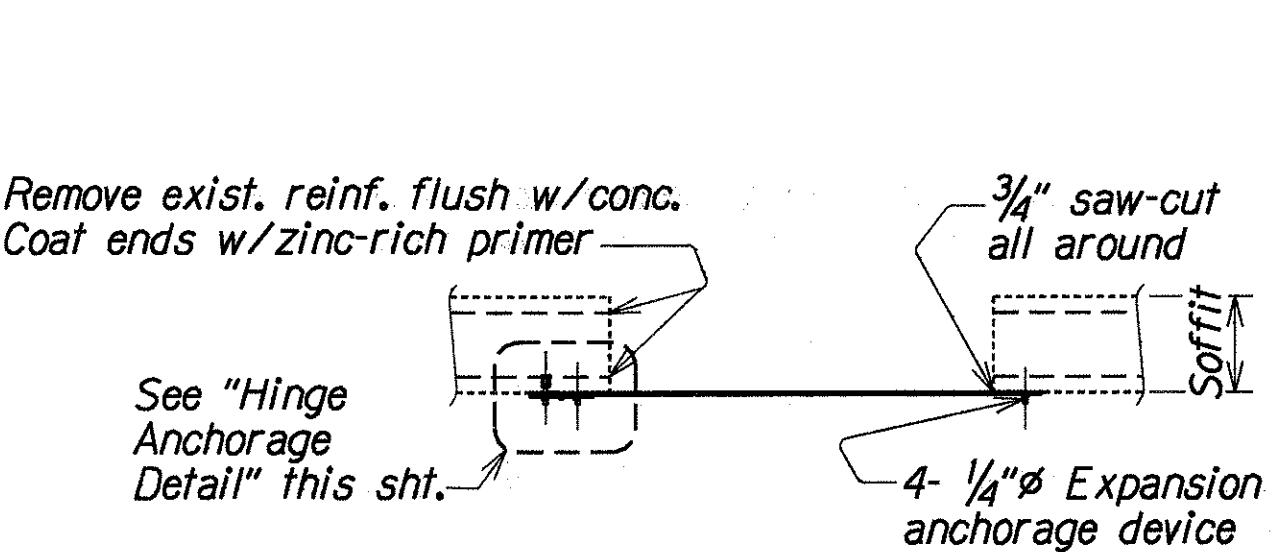
AT NORMAL SOFFIT ACCESS



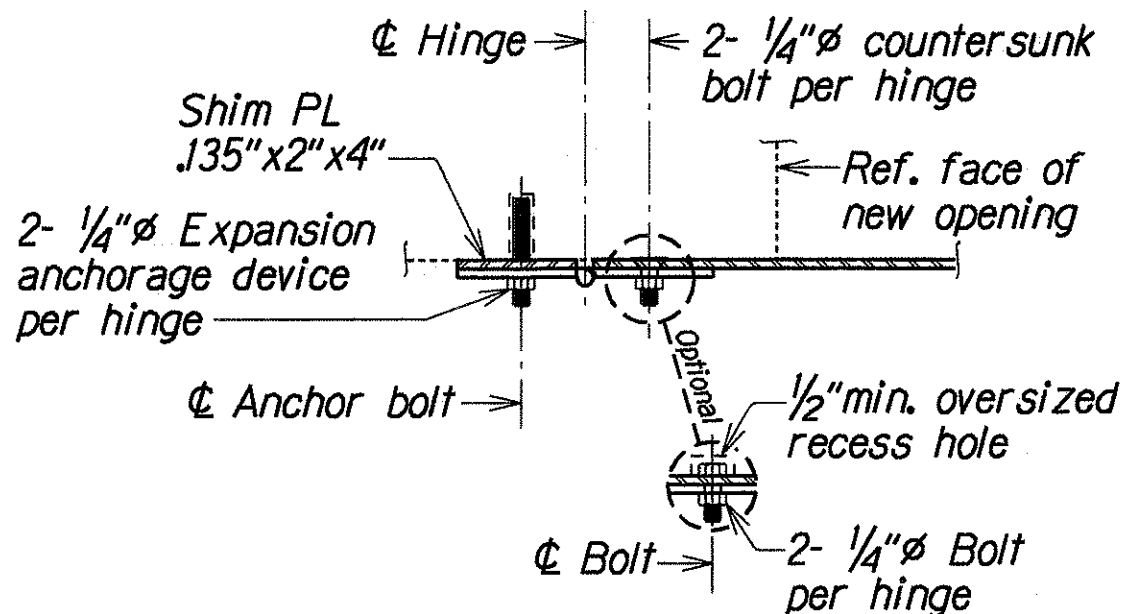
AT STATION 210+99.76 ONLY
See "Partial Plan" on Sht.#S12

REFLECTED CEILING PLAN

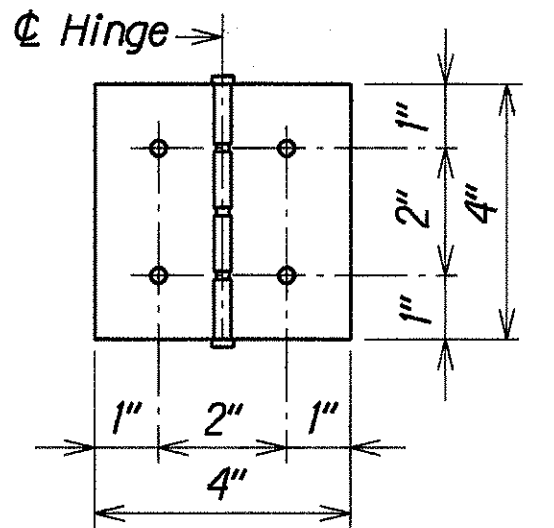
Scale: 1/2" = 1'-0"



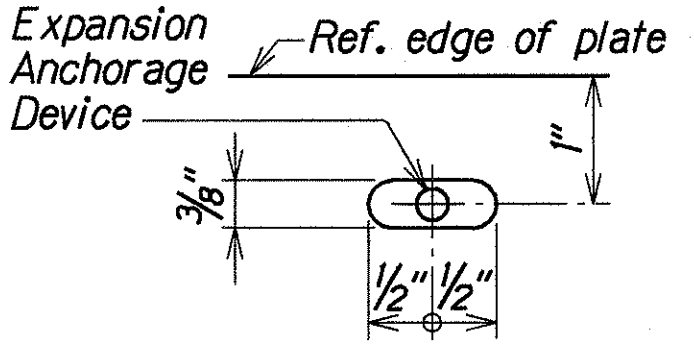
SECTION A
Scale: 1/2" = 1'-0"



HINGE ANCHORAGE DETAIL
Scale: 1/8" = 1'-0"



HINGE DETAIL
Scale: 1/8" = 1'-0"



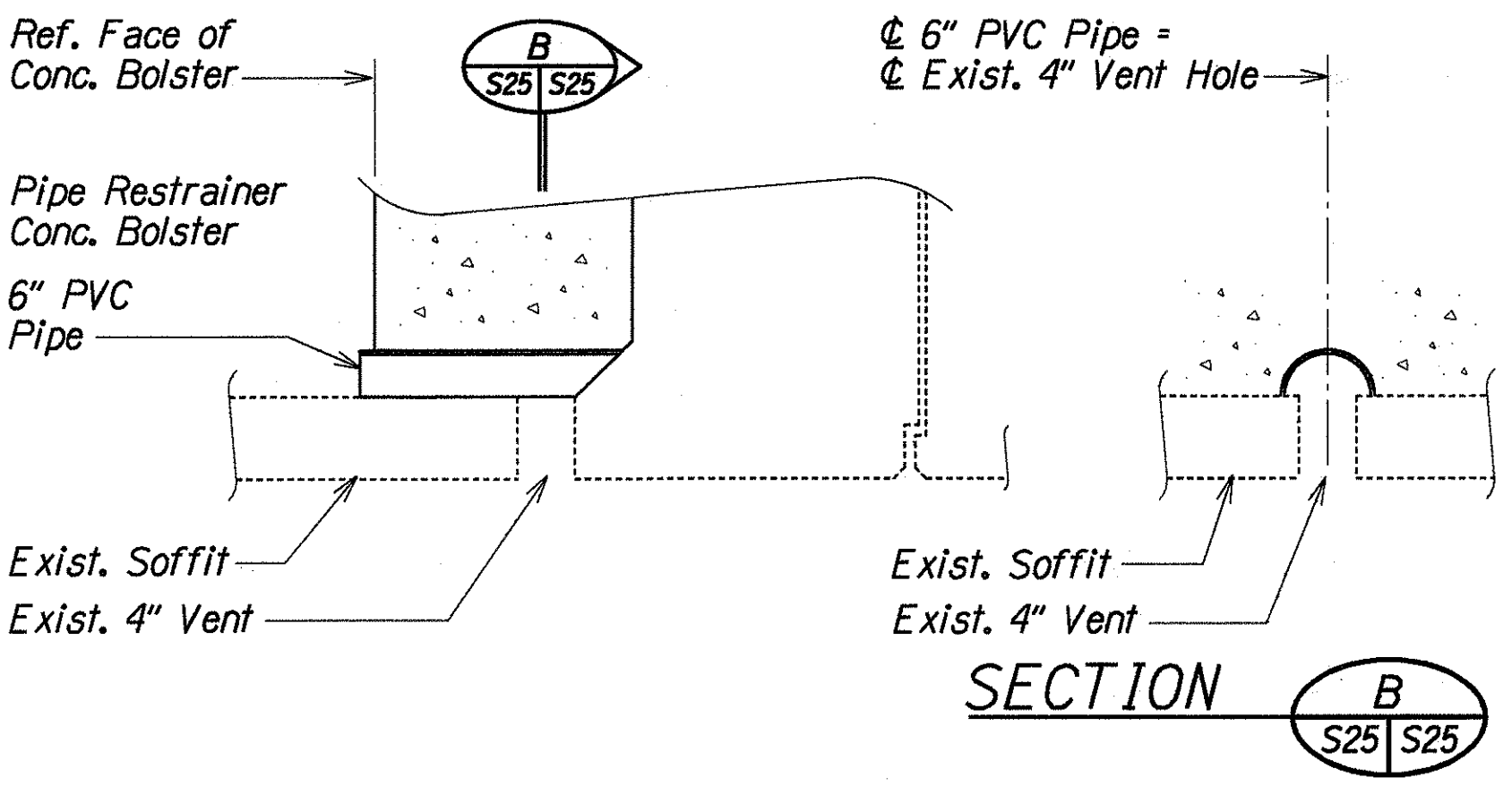
DETAIL "A"
Not to Scale

ACCESS DOOR ASSEMBLY NOTES:

1. Soffit access door opening direction to be determined by the Engineer.
2. Access opening covers shall be fabricated from commercial quality sheet steel.
3. Sheet steel for access doors and shim plates shall be galvanized sheet conforming to the provisions of ASTM Designation: A 526/A 526M, Coating Designation: G 210.
4. Expansion Anchorage Devices and Nuts shall be zinc-coated.

HINGE NOTES:

1. Non-removable pin in hinge.
2. Hinge assembly to be galvanized, brass or stainless steel.
3. Use thread locking system for all hinge nuts.
4. Hinge assembly to be minimum 1/8" thk.



NOTE: Where Concrete Bolster Interferes with Existing Vent Holes, Vent Hole shall be maintained open with the installation of a 6" PVC Pipe or Similar Device.

VENT EXTENSION DETAILS

Not to Scale

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	JUL 1999
DRAWN BY	KSE
DESIGNED BY	DAF ST SA
CHECKED BY	DAF ST SA
APPROVED BY	DAF ST SA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
SOFFIT ACCESS ASSEMBLY and
VENT EXTENSION DETAILS
SEISMIC RETROFIT for LUNALILO-VINEYARD OFF-RAMP,
MAKIKI VIADUCT and PALAMA SEPARATION
Fed. Aid Proj. No. BR-HI-K(225)

Scale: As Noted
Date: July, 1999