

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(12)	1994	24	41

GENERAL NOTES

DESIGN SPECIFICATIONS:

AASHTO Standard Specification for Highway Bridges (15th Edition) including Interim Specification.

DESIGN LIVE LOAD:

HS20-40

DESIGN STRESSES:

- Reinforced Concrete: $f'_c = 3000$ psi
- Reinforcing Steel: $f_s = 20,000$ psi

MATERIALS:

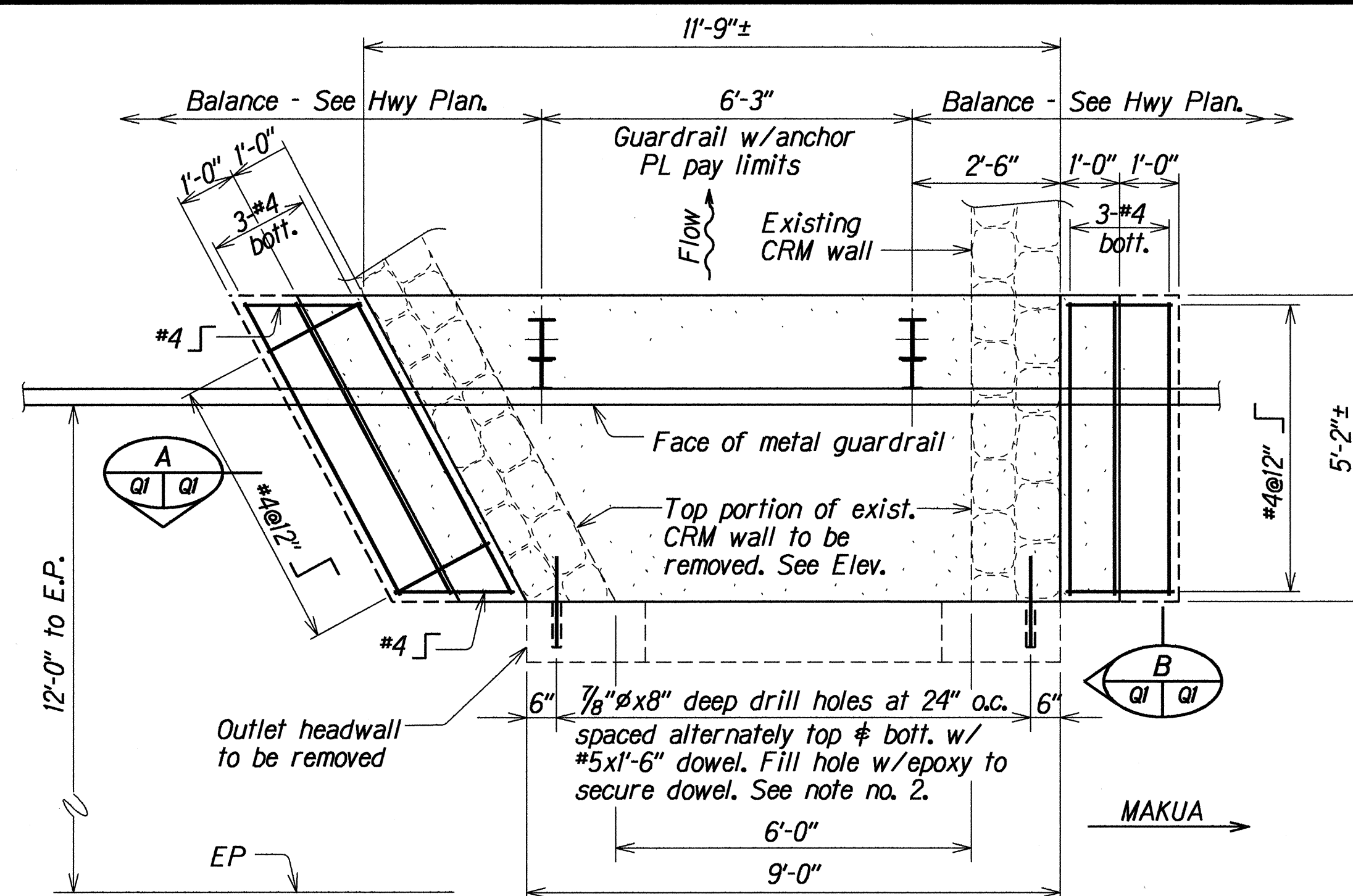
- Concrete: Class A
- Reinforcing Steel: ASTM A 615 Grade 40
- Epoxy Grout: High early strength type (1000 psi minimum compressive strength at 4 hours) approved by Engineer and applied in strict accordance with the manufacturer's recommendations.

CONSTRUCTION REQUIREMENTS:

- See Standard Specification for Road and Bridge Construction, (Hawaii 1985) and Special Provisions.
- A 325 anchor bolts, structural steel shapes and plates shall be hot-dip galvanized after fabrication.
- All items designated for removal shall be removed in such a manner as to preclude any damage to the existing structure. Large impacting or vibratory type of equipment will not be permitted in the removal operation nor in drilling holes for dowels. Small vibratory tools, approved by the Engineer, will be permitted.
- Metal guardrail post on structure including spacer, steel plates, structural tubing, PL washers and all anchor bolts, cap PL's, nuts and washers, shall be hot-dip galvanized after fabrication.
- Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus $\frac{1}{4}$ " (max.) is attained.
- Existing bridge structure shown by hatched area. Drilling of thru holes shall be done in such a manner that will prevent cone puncturing of the daylighting end.
- The work necessary to connect guardrail to concrete structure shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and shall be incidental to the metal guardrail and will not be paid for separately.
- The Contractor shall be solely responsible for the protection of adjacent property, utilities and existing and new structures from damage due to construction and shall repair any damage at his expense, to the satisfaction of the Engineer. He shall provide temporary shoring of other measures as may be necessary to insure the safety of all concerned.

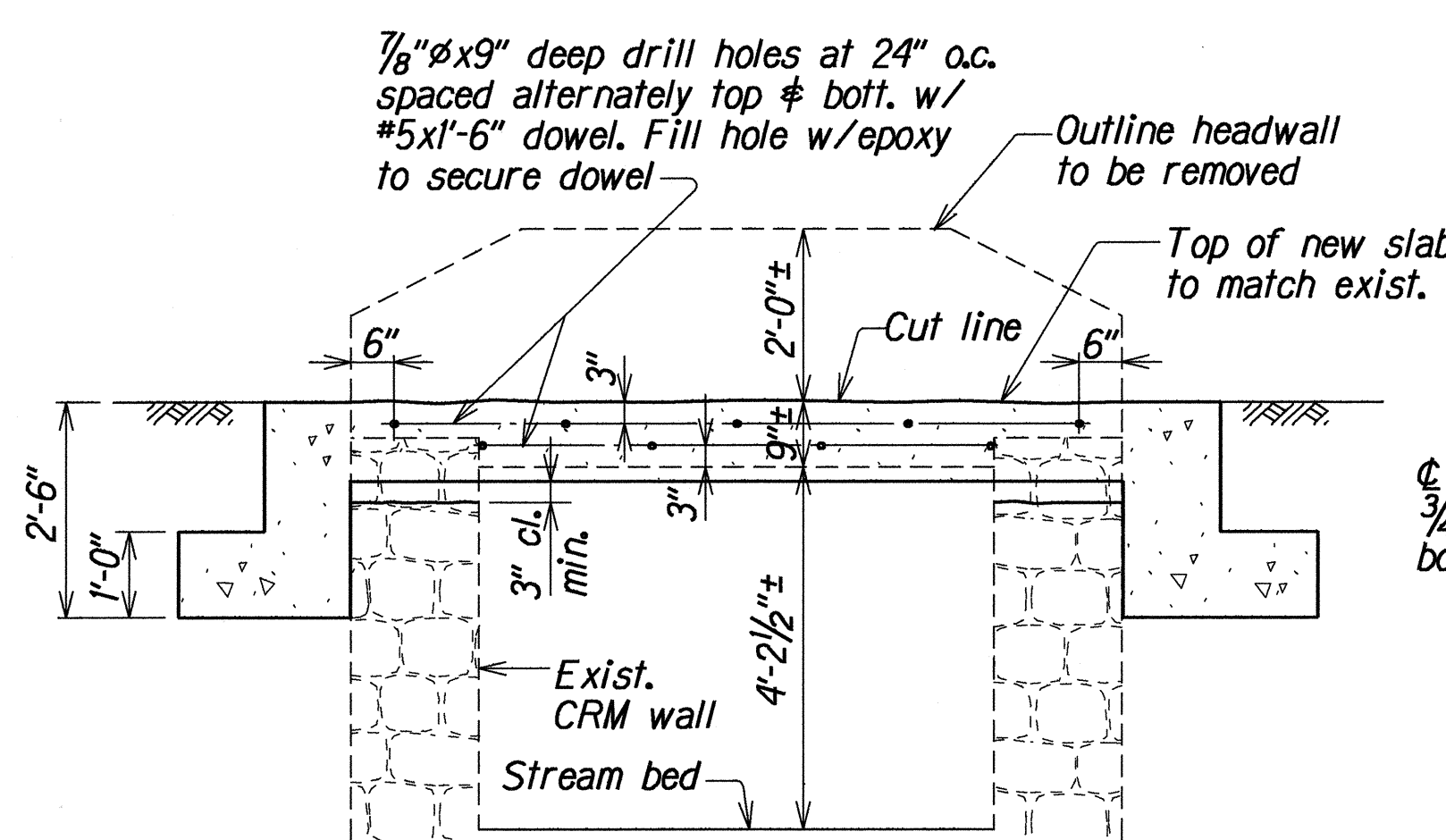
GENERAL:

- All items noted incidental will not be paid for separately.
- The Contractor shall verify all grades and dimensions before commencing with any work.
- The Contractor shall verify the locations of all existing utility lines near the bridge and notify their respective owners before commencing with work.
- All anchor bolts shall be high strength bolts conforming to the requirements of ASTM A 325.
- Any damage to the existing structures due to the Contractor's operation shall be repaired at his expense, to the satisfaction of the Engineer.



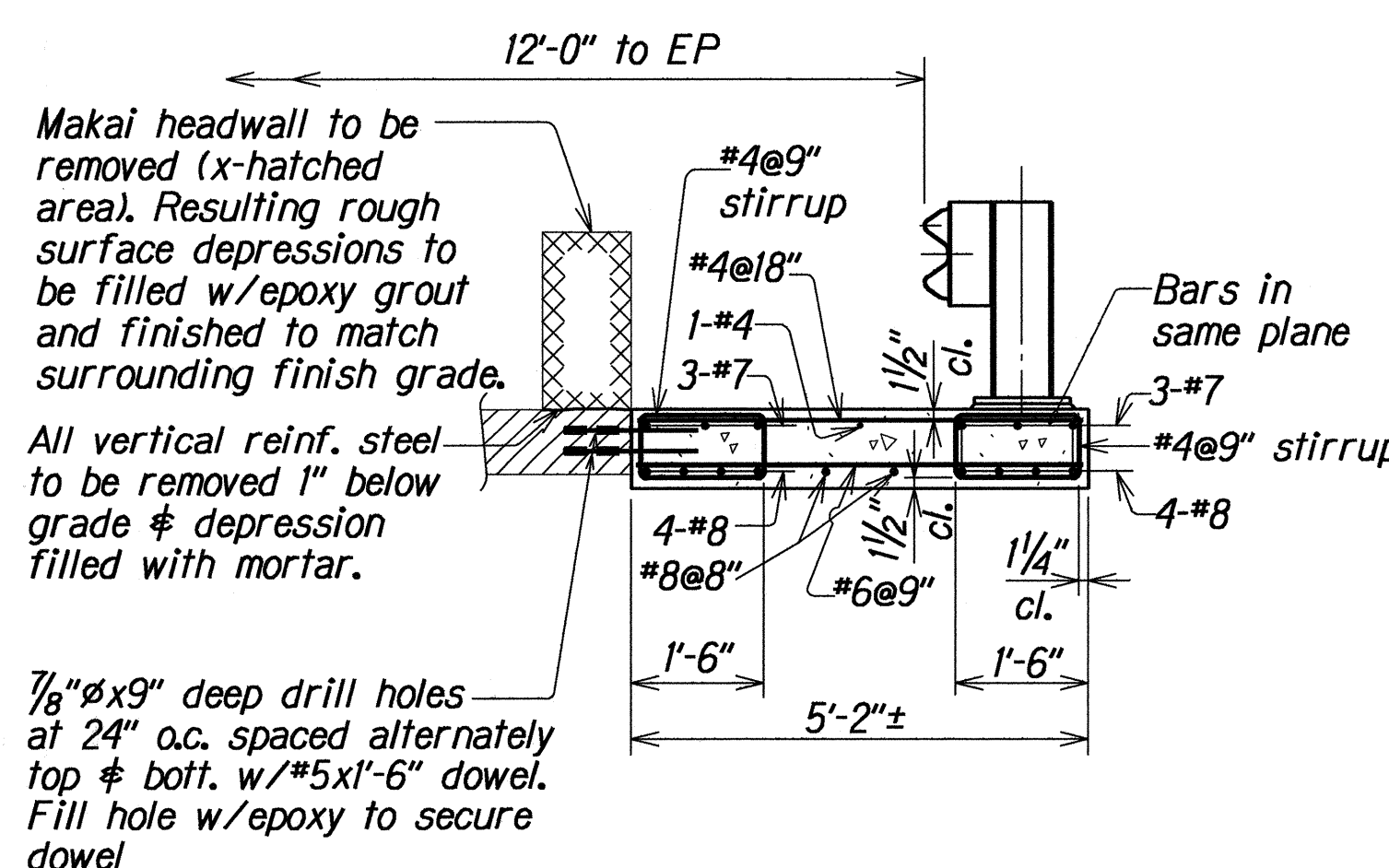
PLAN AT OUTLET

Scale: $\frac{1}{2}$ " = 1'-0"



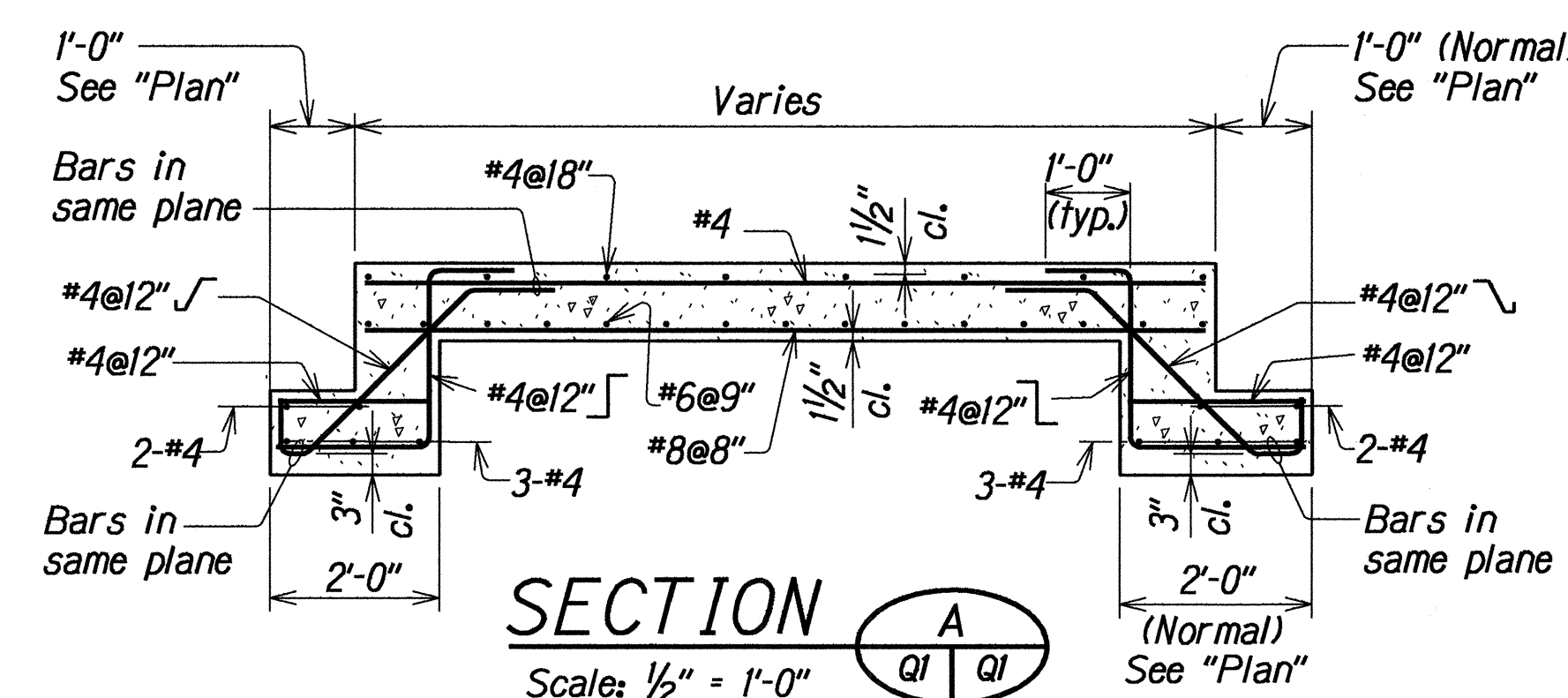
ELEVATION AT OUTLET

Scale: $\frac{1}{2}$ " = 1'-0"



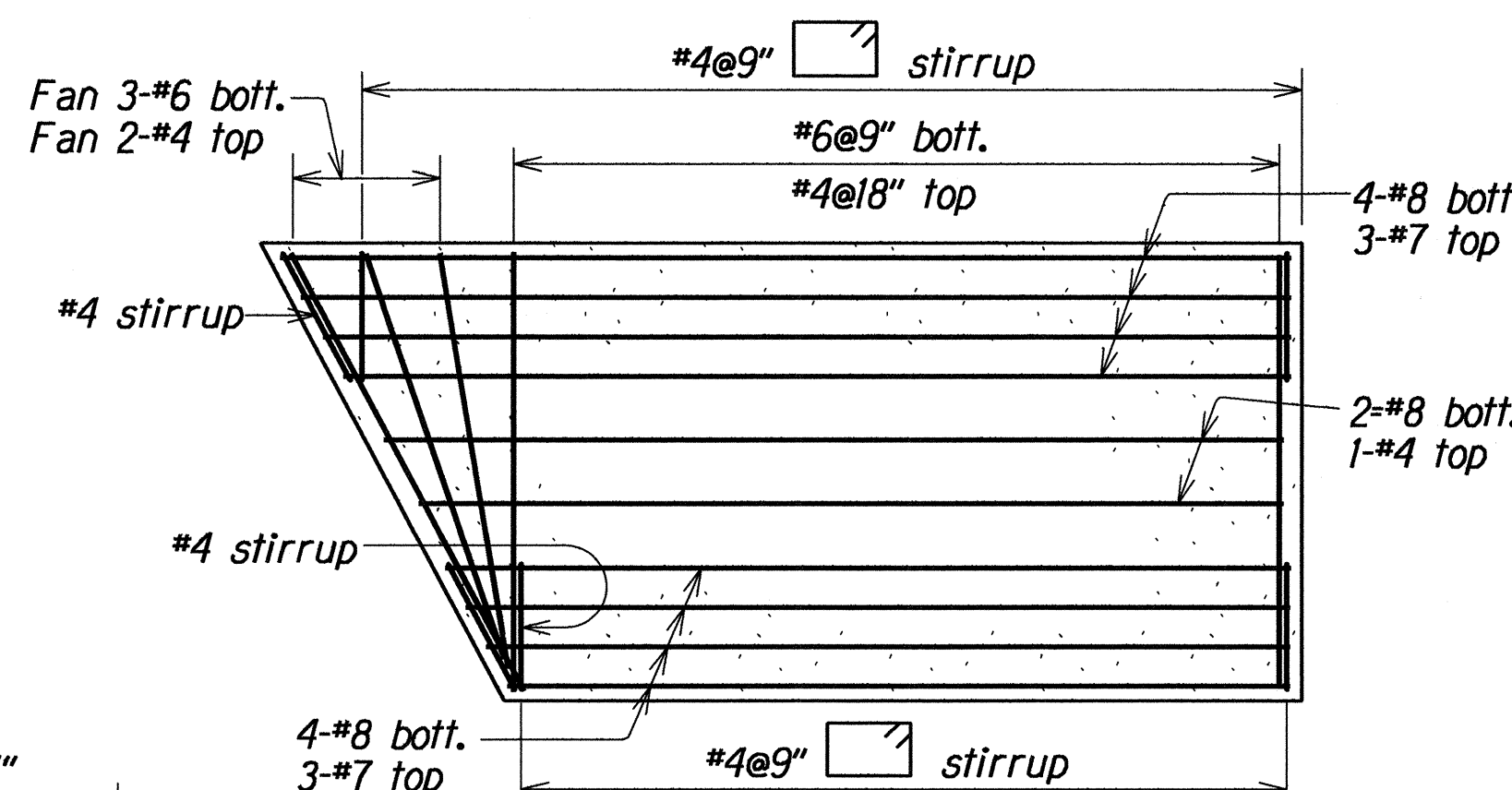
SECTION B

Scale: $\frac{1}{2}$ " = 1'-0"



SECTION A

Scale: $\frac{1}{2}$ " = 1'-0"

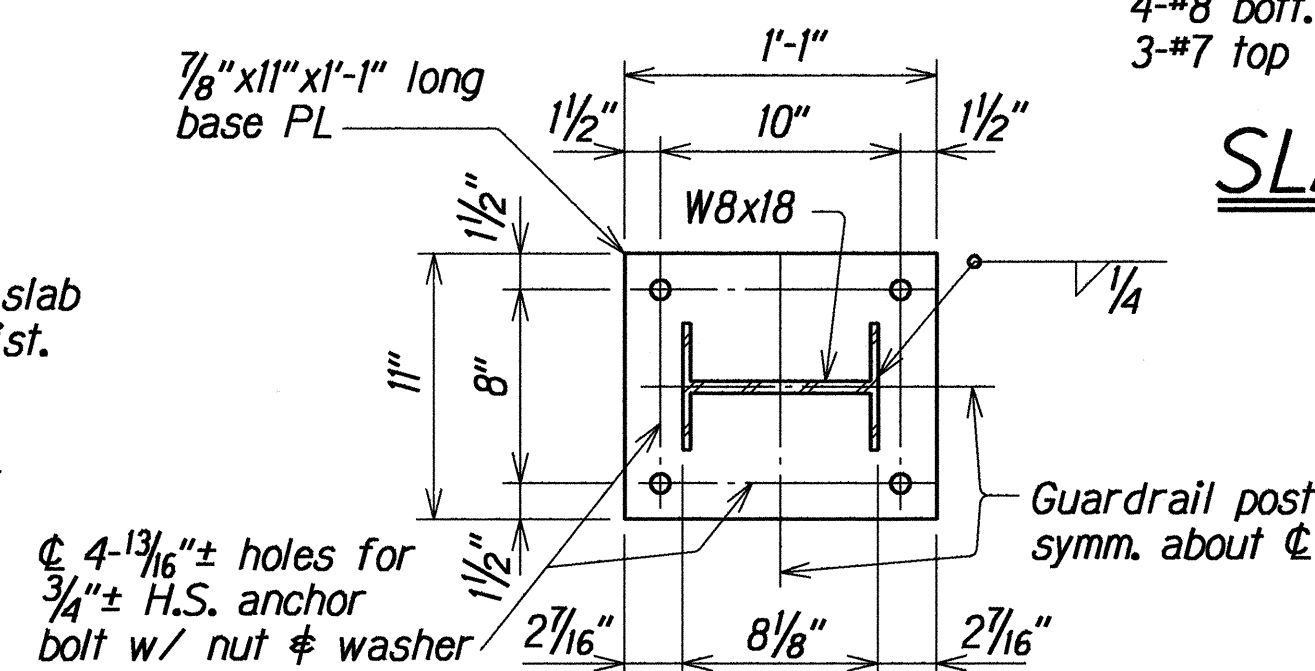


SLAB REINFORCEMENT LAYOUT

Scale: $\frac{1}{2}$ " = 1'-0"

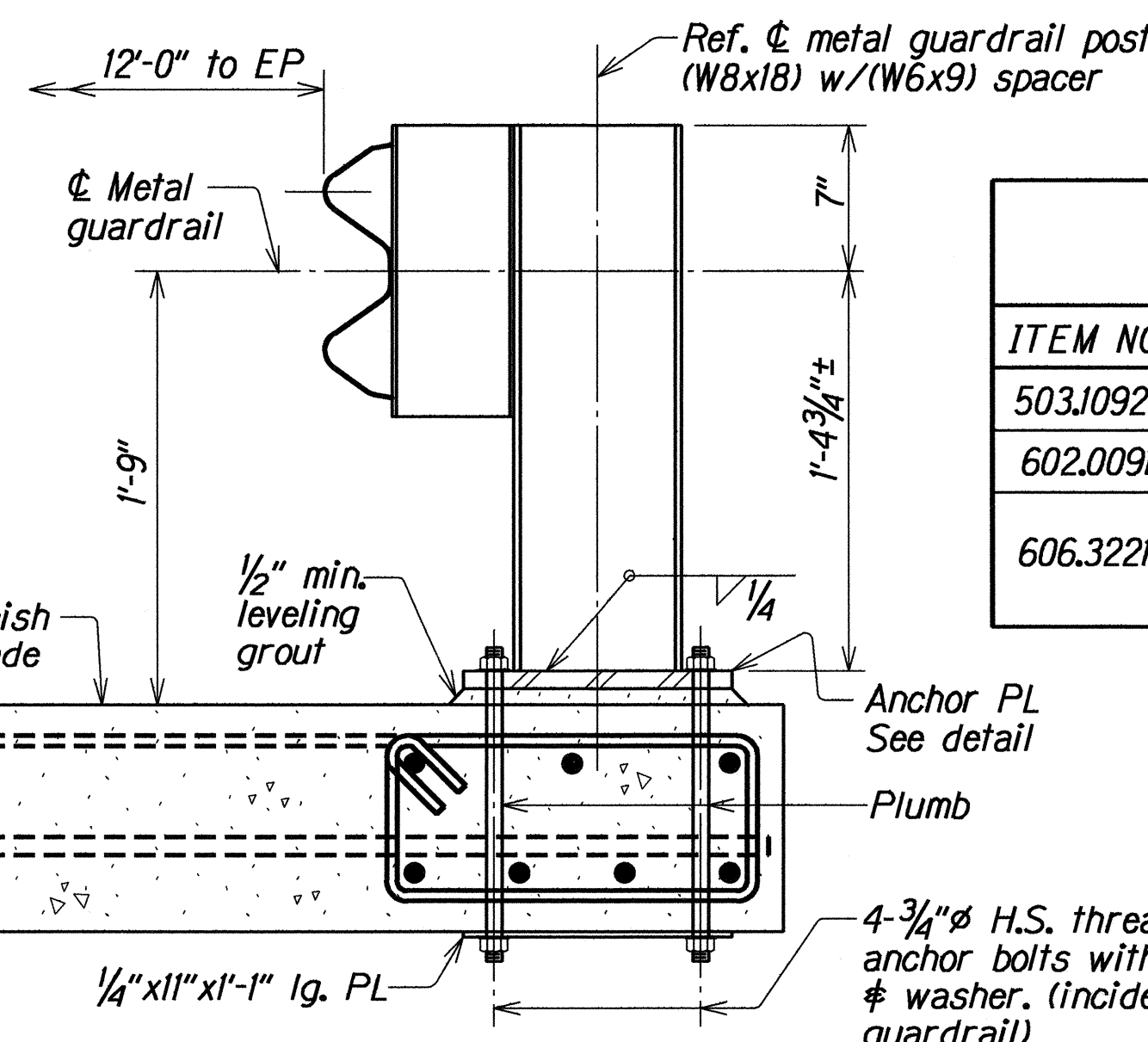
NOTE:

- Metal guardrail post, anchor PL and bolts mounted on concrete structure shall be incidental to Item No. 606.3110 Guardrail, Type 3-Single with steel post.
- Drilling of hole and epoxy grout shall be incidental to Class A concrete.
- Removing of existing concrete headwall and CRM wall shall be incidental to Class A concrete.
- Excavation and backfill for footing shall be incidental to Class A concrete.



POST ANCHOR PL DETAIL

Scale: $\frac{1}{2}$ " = 1'-0"



TYPICAL GUARDRAIL W/ANCHOR PL SECTION

Scale: $\frac{1}{2}$ " = 1'-0"

ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL
503.1092	Concrete in Culvert	Lump Sum	(4.0 C.Y.)
602.0091	Reinforcing Steel in Culvert	Lump Sum	(810 Lbs.)
606.3221	Guardrail, Type 3 - Single with Steel Post on Concrete Culvert	Lin. Ft.	50.0

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT EXTENSION AT STA. 1061+80

FARRINGTON HIGHWAY RESURFACING
Makau St. to Satellite Tracking Sta. Rd.
Fed. Aid Project No. STP-093-1(12)

Scale: As Noted

Date: May, 1994

SHEET No. 24 OF 24 SHEETS