

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56D-01-80	1980	5	18

ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITIES
202.0300	REMOVAL OF PORTION OF EXISTING CONCRETE HEADWALL & CRM WING WALLS	L.S.	
206.4010	STRUCTURE EXCAVATION FOR BOX CULVERT & WING WALLS	C.Y.	22 C.Y.
206.7010	STRUCTURE BACKFILL FOR BOX CULVERT & WING WALLS	C.Y.	33 C.Y.
206.8000	FILTER MATERIAL	C.Y.	1 C.Y.
503.1032	CONCRETE IN BOX CULVERT & WING WALLS	L.S.	43 C.Y.
602.0032	REINFORCING STEEL IN BOX CULVERT & WING WALLS	L.S.	12,100 lbs.
624.9010	EXTENDING PIPE FOR AIR RELIEF VALVE OF 6" WATER LINE	L.S.	1

GENERAL NOTES

Design Specifications:

AASHTO Standard Specifications for Highway Bridges, 12TH Edition, with subsequent interim Specifications.

Design Loads:

H5-20-44

Materials:

- Concrete - Class A
- Reinforcing Steel - ASTM A615 Grade 40.
- Steel shapes & plates - ASTM A36.
- Epoxy Grout.
 - Epoxy grout shall be a 2 componet, 100% solids, moisture-insensitive, epoxy-resin system made for use as a high strength grout for anchoring #5 x 2'-6" lg. dowels when mixed with an aggregate and shall meet the following requirements.

Neat Material:

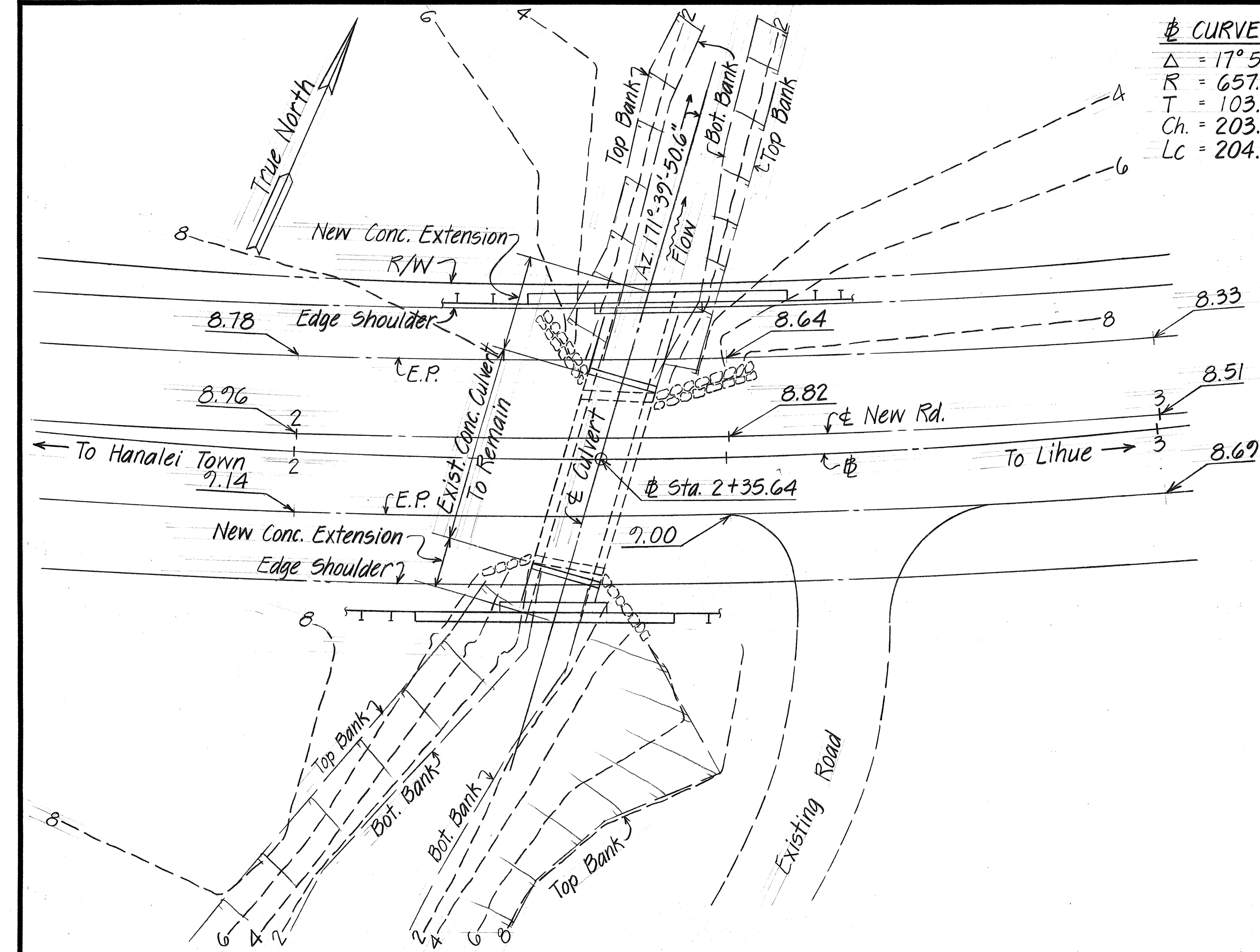
- Tensile strength ASTM D-638 3000 psi min. @ 14 days 73° F cure
- Tensile elongation ASTM D-638, modified 1/2 - 2% @ 14 days 73° F cure
- Compressive strength ASTM D-695 2000 psi min. @ 28 days 73° F cure
- Compressive modulus ASTM D-695 360,000 psi min. @ 28 days 73° F cure
- Water pick-up ASTM D-570 1.0% max.

- Stones removed from the existing walls may be reused provided they conform to the requirements of Subsection 508.02 (A) of the Standard Specifications.

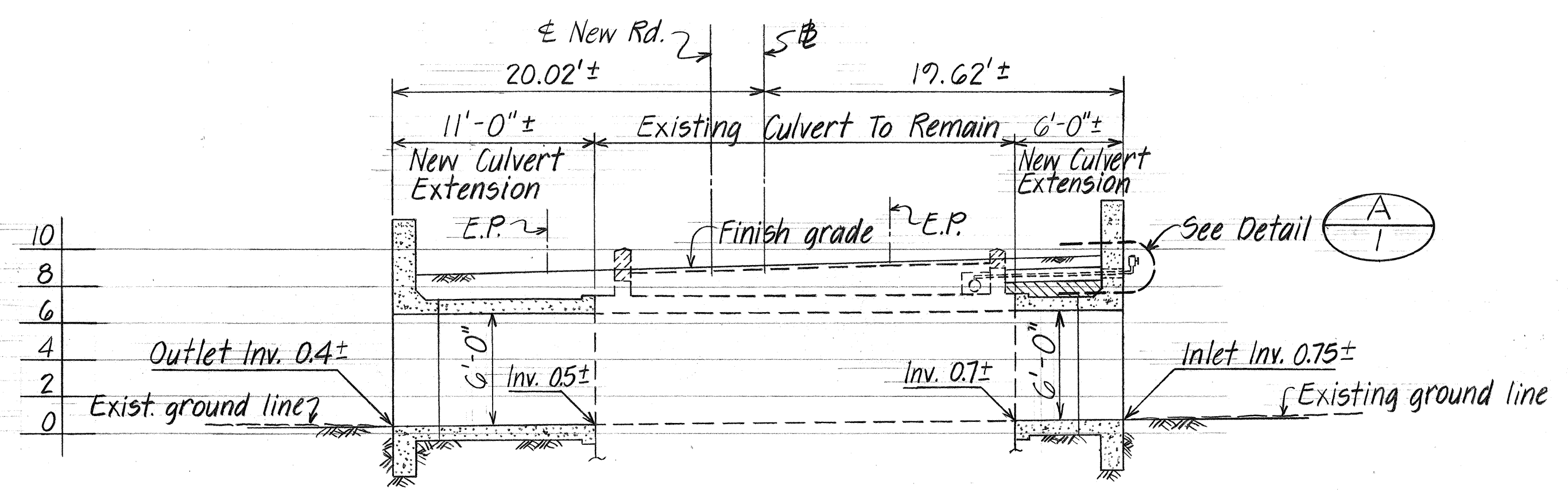
Construction Requirements:

- See Standard Specifications for Road & Bridge Construction, 1976 Edition & Special Provisions.

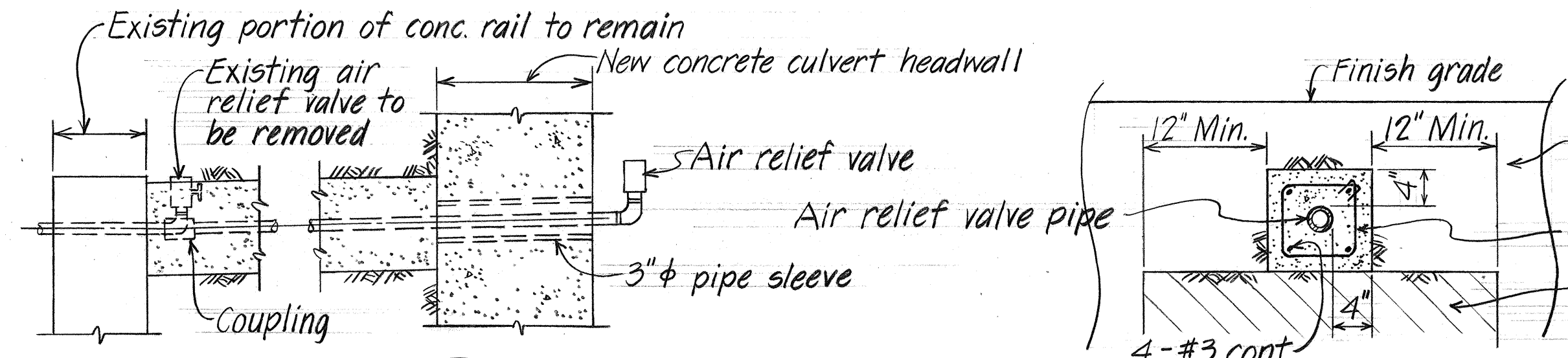
Note: Payment for concrete & reinforcing in pipe jacket, air relief valve pipe extension, sleeve and coupling will be paid under item no. 624.9010 "Extending pipe for air relief valve of 6" water line".



LAYOUT PLAN Scale: 1"=10'-0"



LONGITUDINAL SECTION ALONG & CULVERT Scale: 1"=6'-0"



DETAIL A-1 Scale: 1"=1'-0" TYPICAL CONCRETE PIPE JACKET FOR AIR RELIEF VALVE

APPROVAL IS GIVEN FOR PERMISSION TO ADJUST WATER FACILITIES AS SHOWN ON THIS PLAN.

APPROVED BY: *Wayne Winesumi* 2/28/80
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI DATE

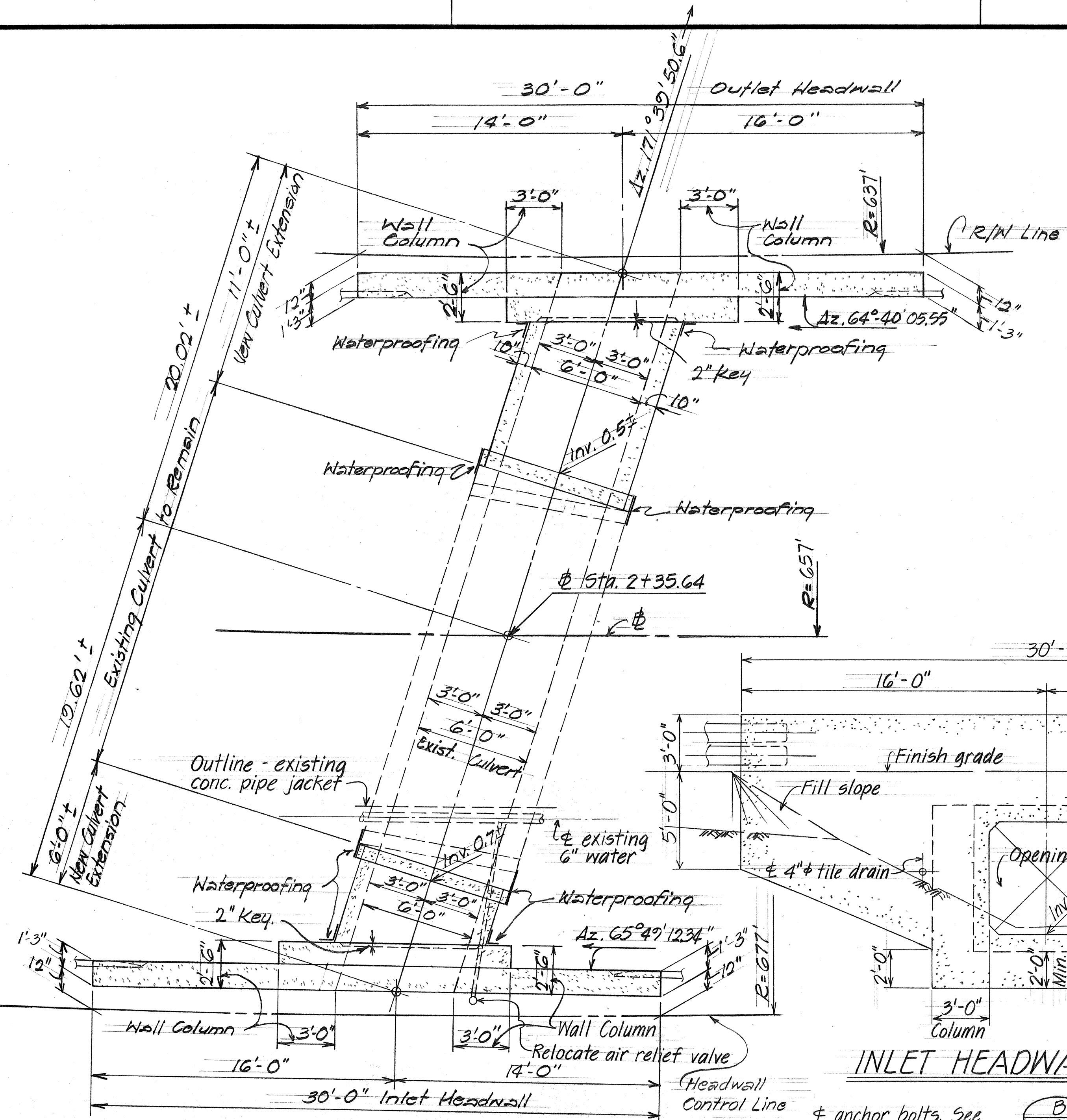
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

6'-0" x 6'-0" BOX CULVERT EXTENSION
AT STA. 2+35.64

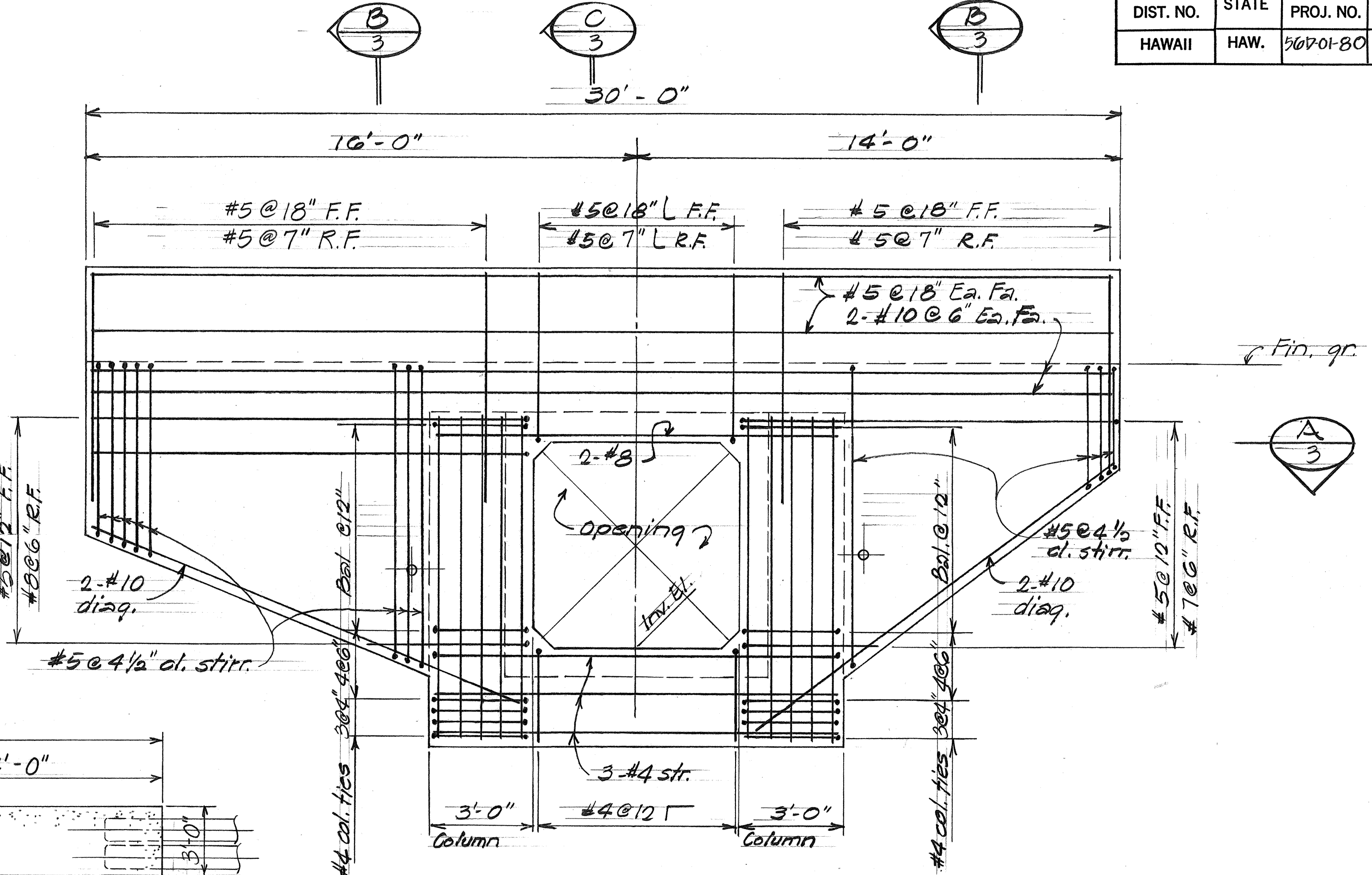
KUHIO HWY. SAFETY IMPROVEMENT AT HANAIEI
Proj. No. 56D-01-80
Scale: As Shown Date:
SHEET No. 1 OF 3 SHEETS

5

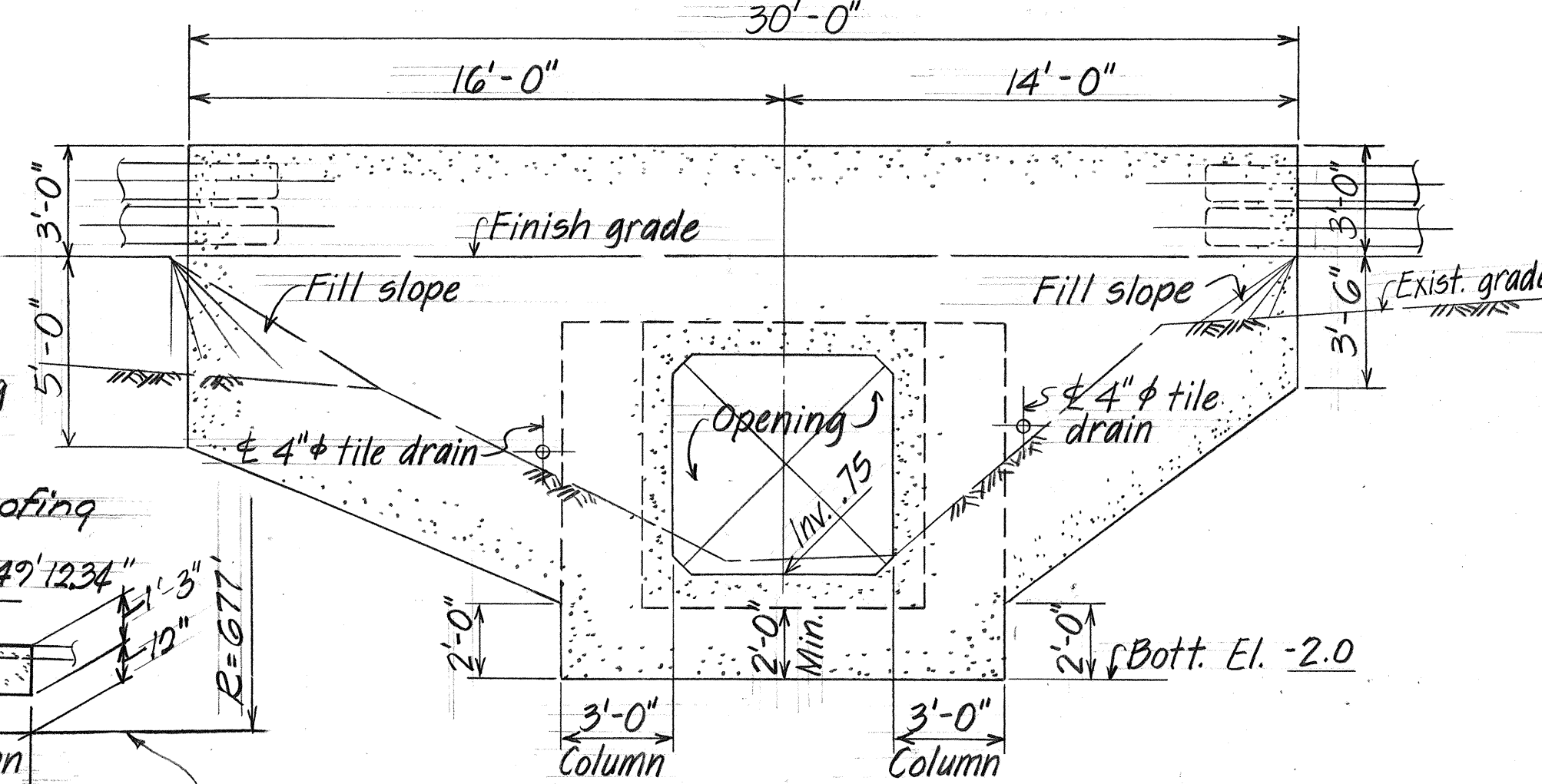
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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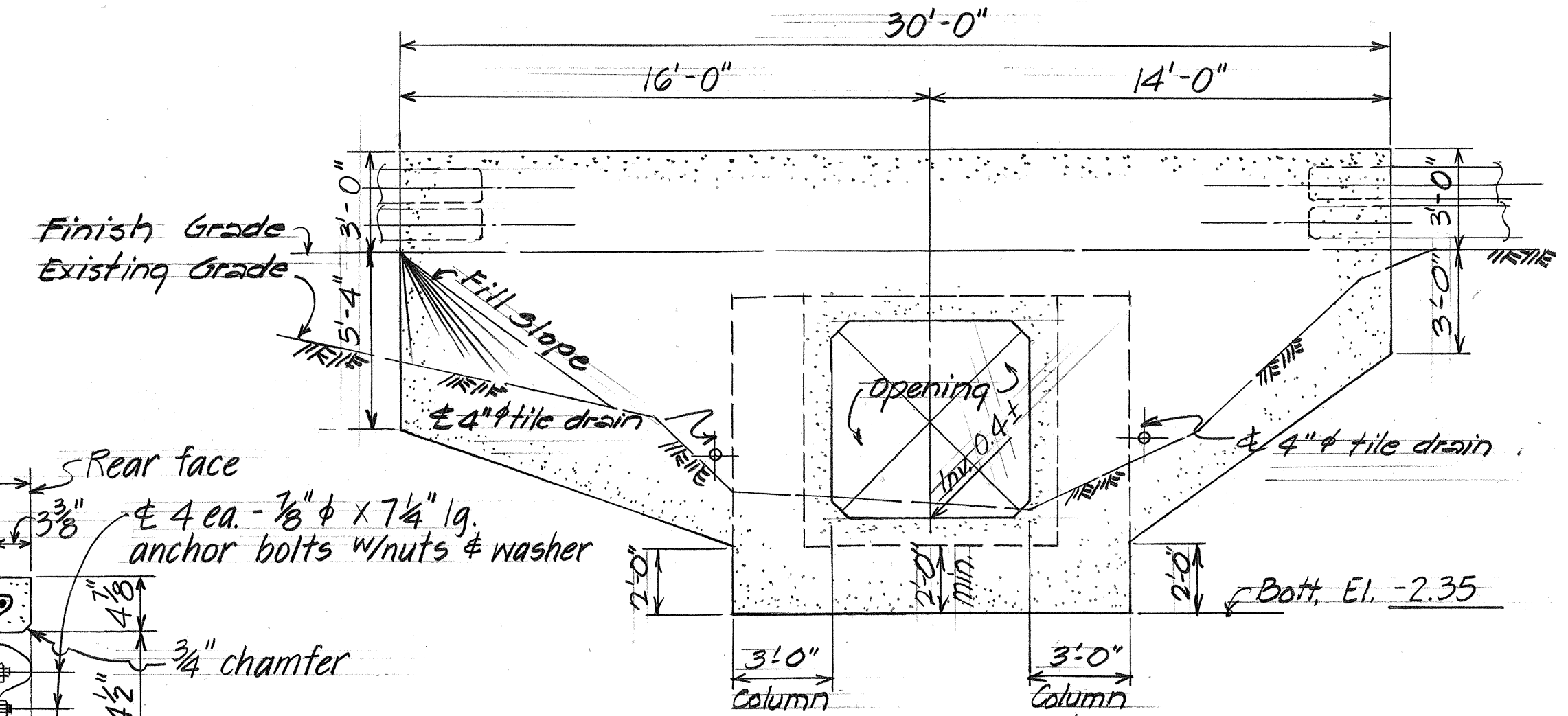
PLAN Scale: 1/4" = 1'-0"



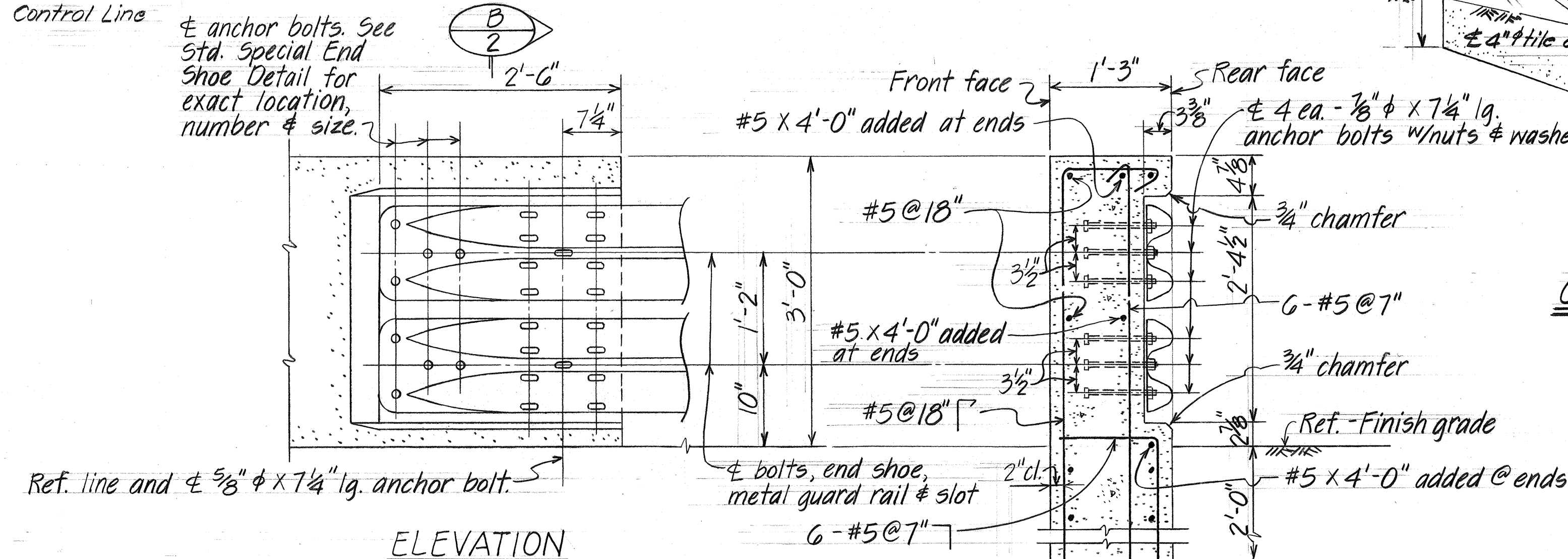
TYPICAL ELEVATION - HEADWALL REINFORCEMENTS Scale: 3/8" = 1'-0"



INLET HEADWALL Scale: 1/4" = 1'-0"



OUTLET HEADWALL Scale: 1/4" = 1'-0"

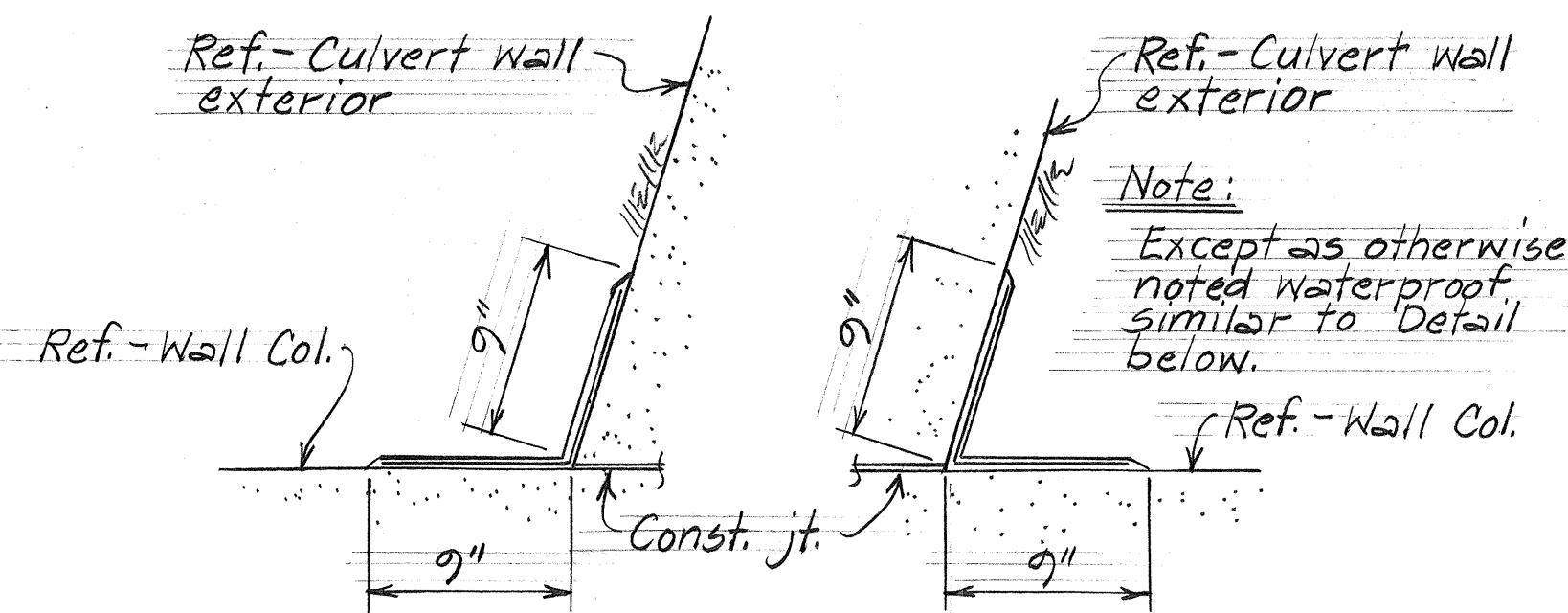


ELEVATION TYPICAL DETAIL - METAL GUARD RAIL CONNECTION AT CULVERT HEADWALL Scale: 1" = 1'-0"

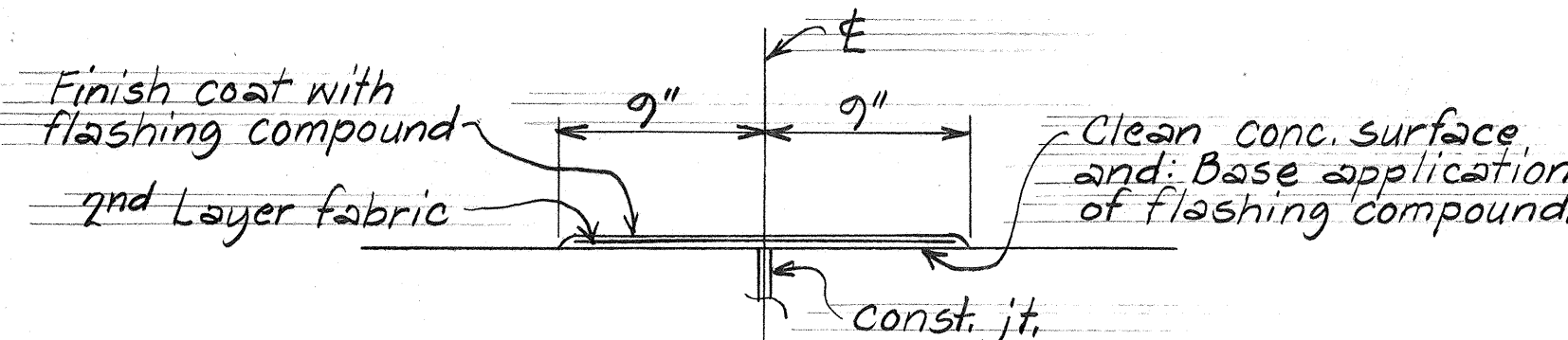
SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
NO.	

STATE OF HAWAII
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6'-0" x 6'-0" BOX CULVERT EXTENSION
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KUHIO HWY, SAFETY IMPROVEMENT AT HANAIE
Proj. No. 56D-01-80
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SHEET NO. 2 OF 3 SHEETS

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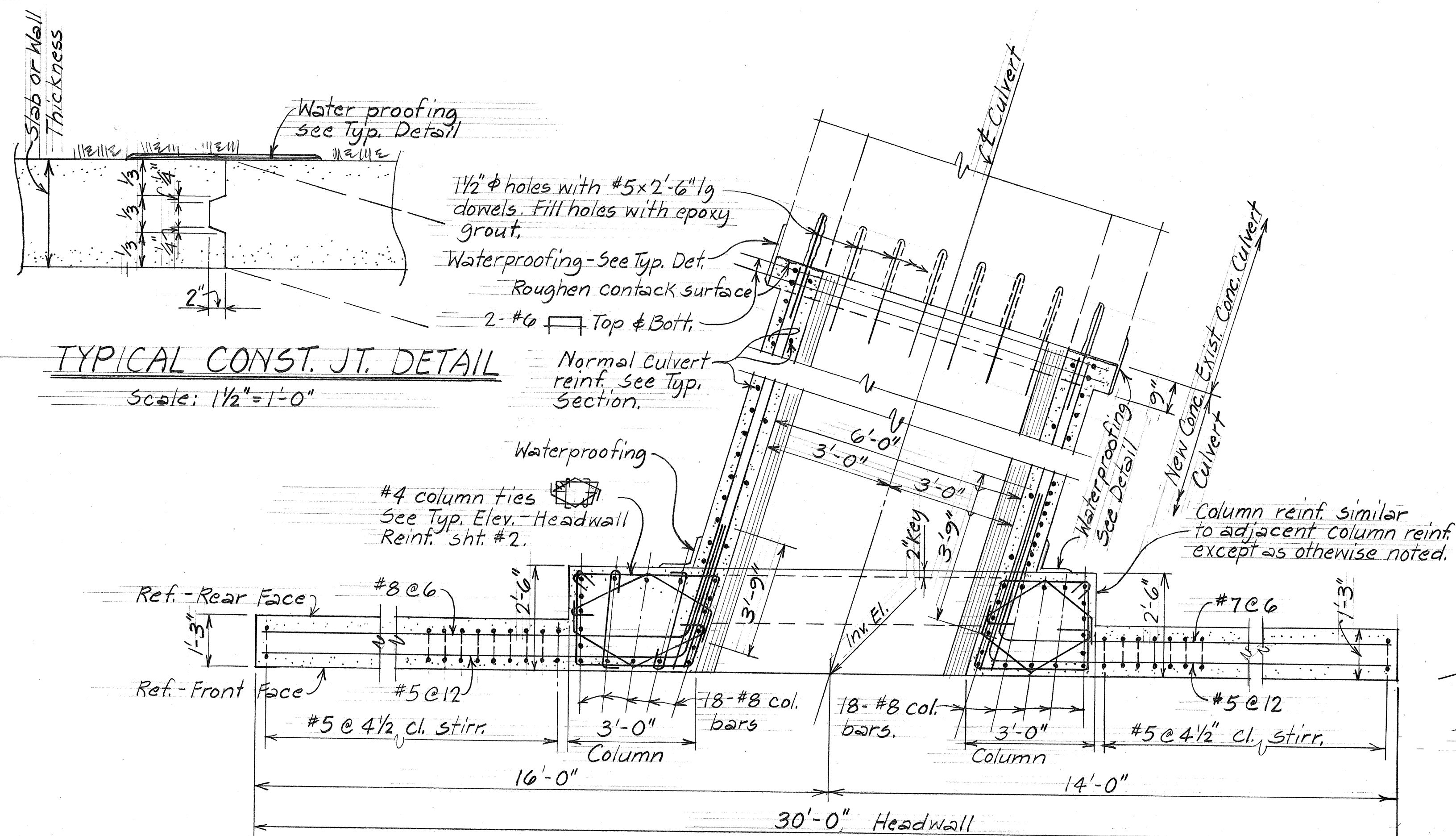
AT CULVERT WALLS



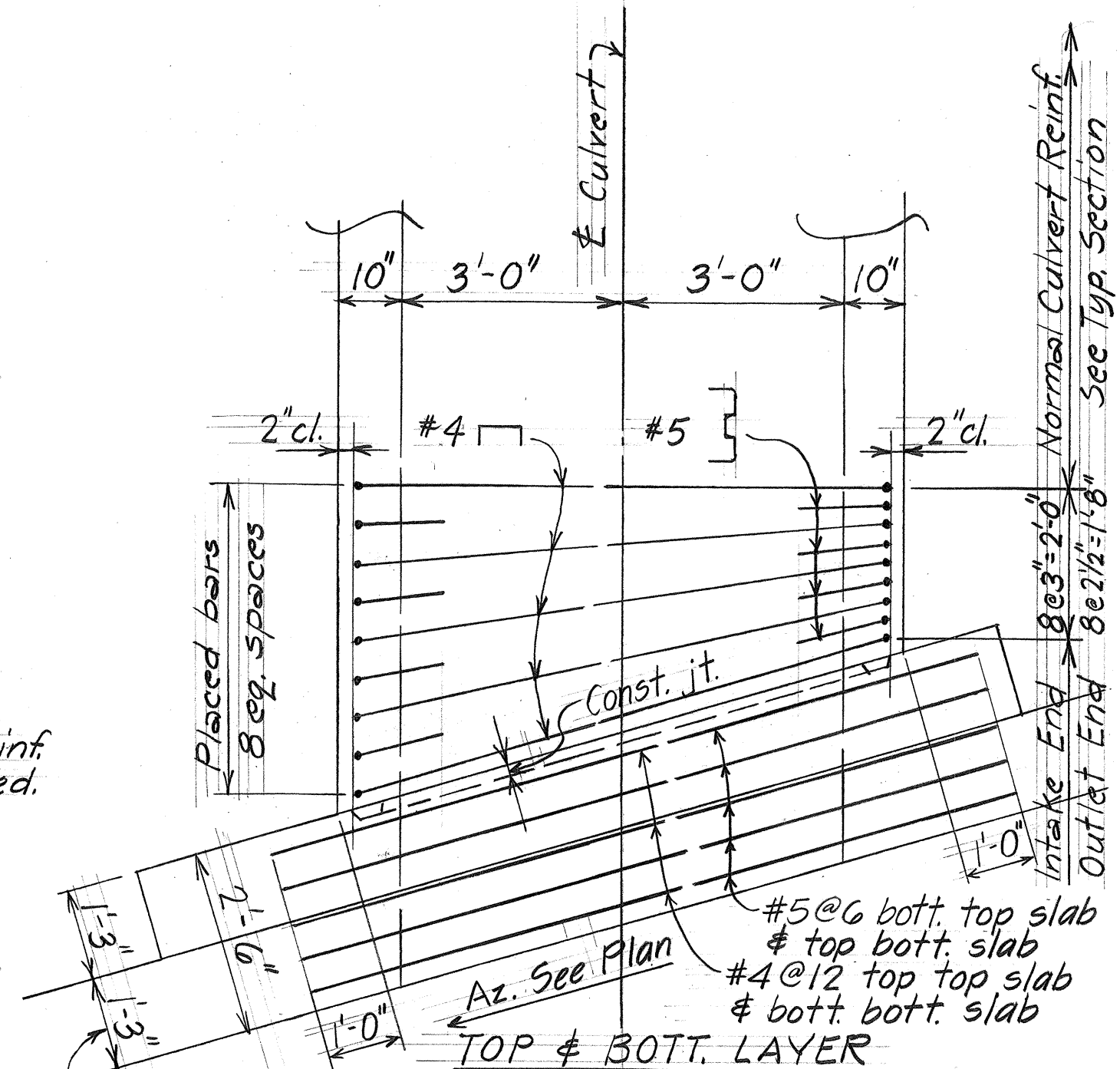
AT TOP SLAB

TYPICAL WATERPROOFING DETAIL

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

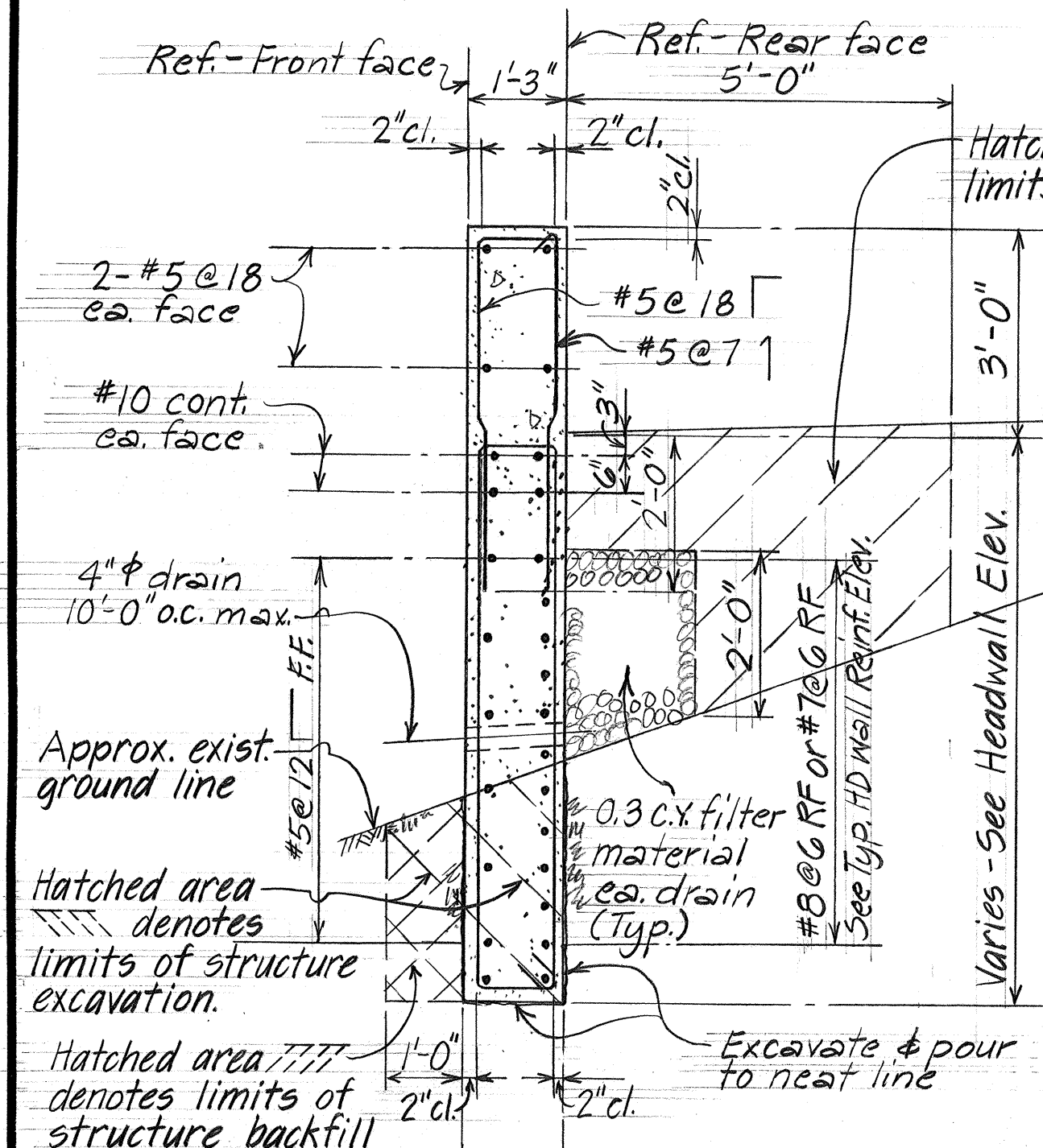


SECTION A 3



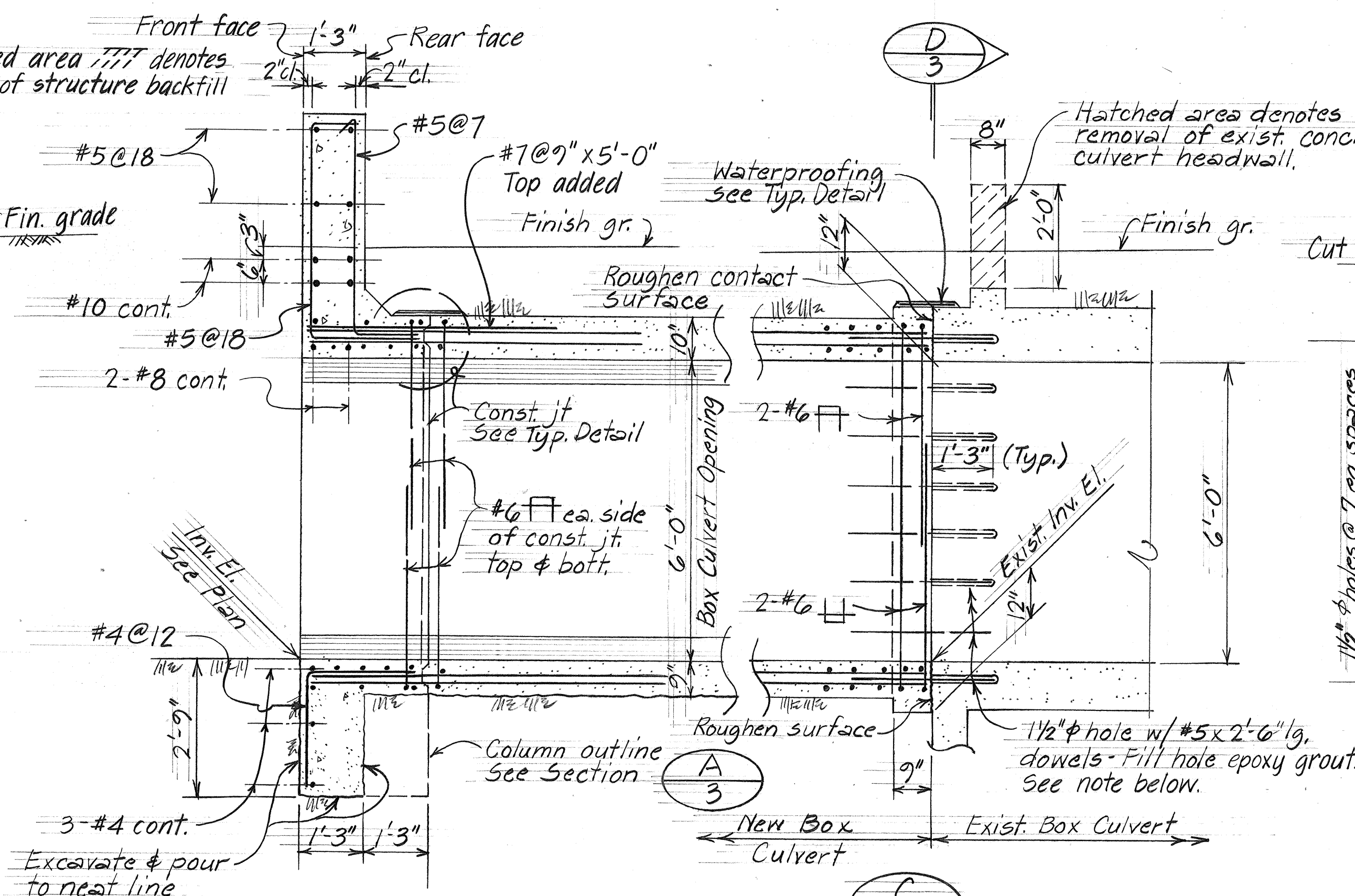
TYP. FLARE REINF. PLAN

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



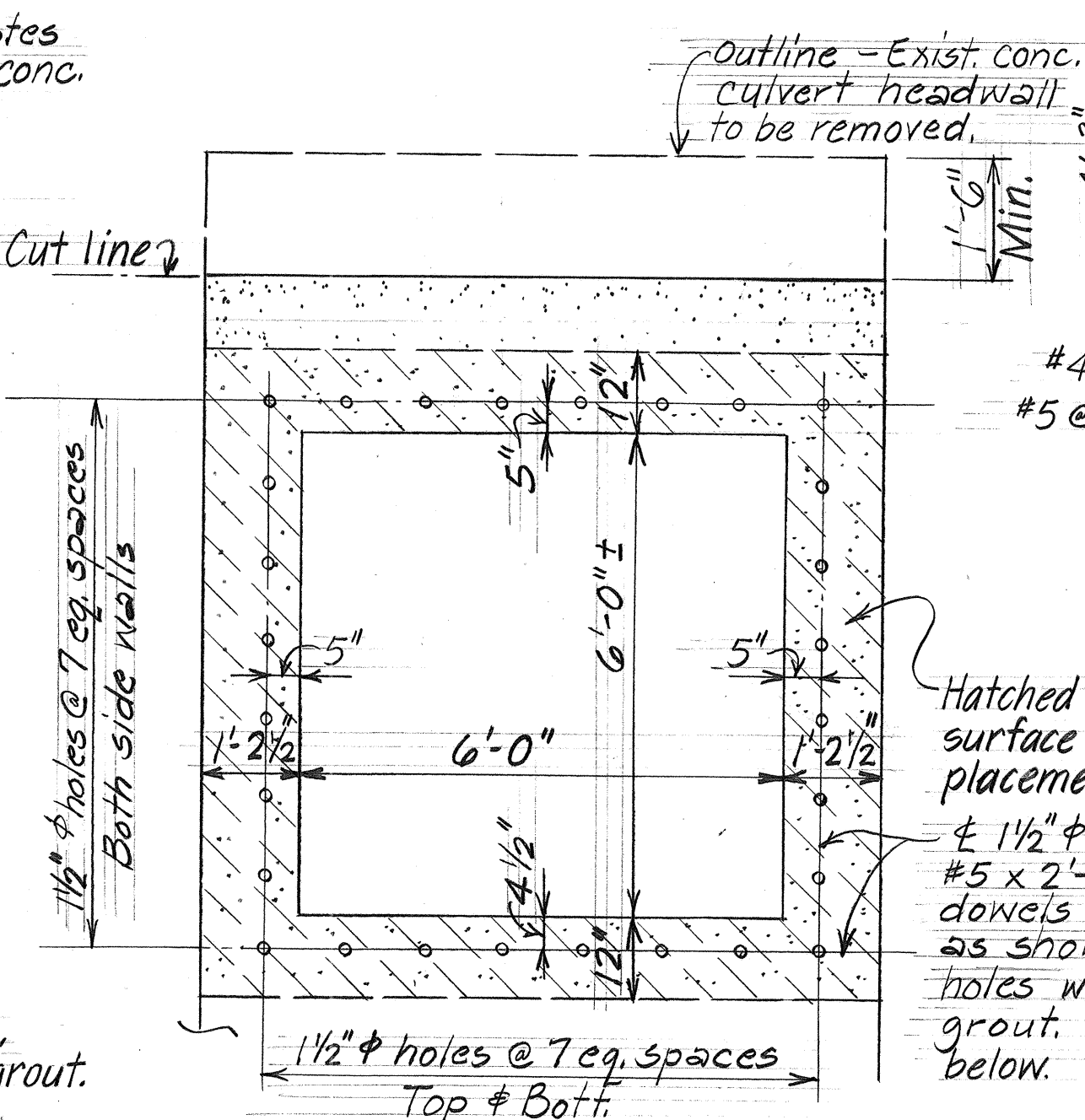
SECTION B 3

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



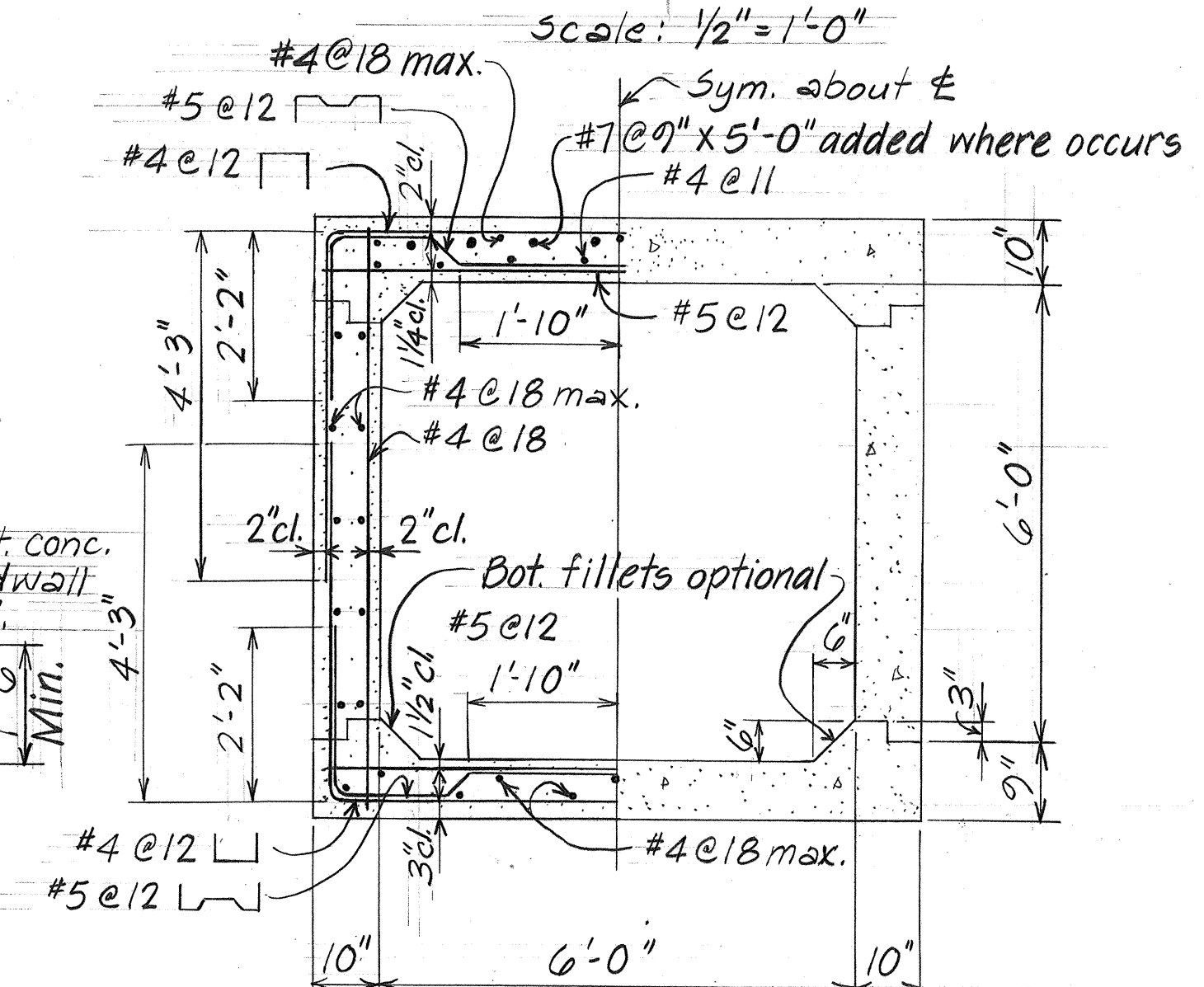
SECTION C 3

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



SECTION D 3

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



TYPICAL CULVERT SECTION

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

Note: Drilling of 1/2" ϕ holes & grout shall be incidental to item no. 503.1032 "Concrete in box culvert & wing walls".

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SHEET NO. 3 OF 3 SHEETS