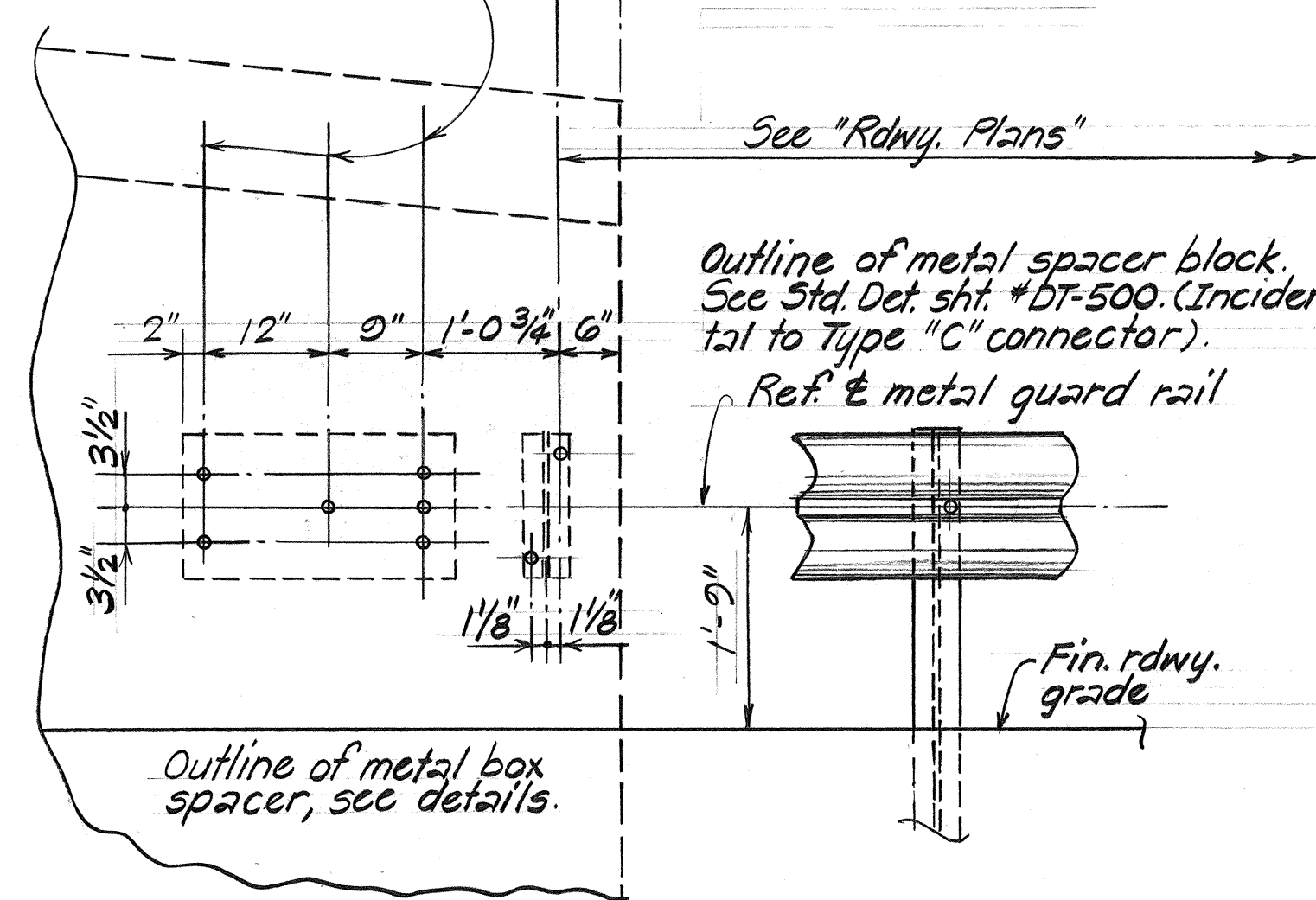


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FR-093-1(6)	1983	22	51

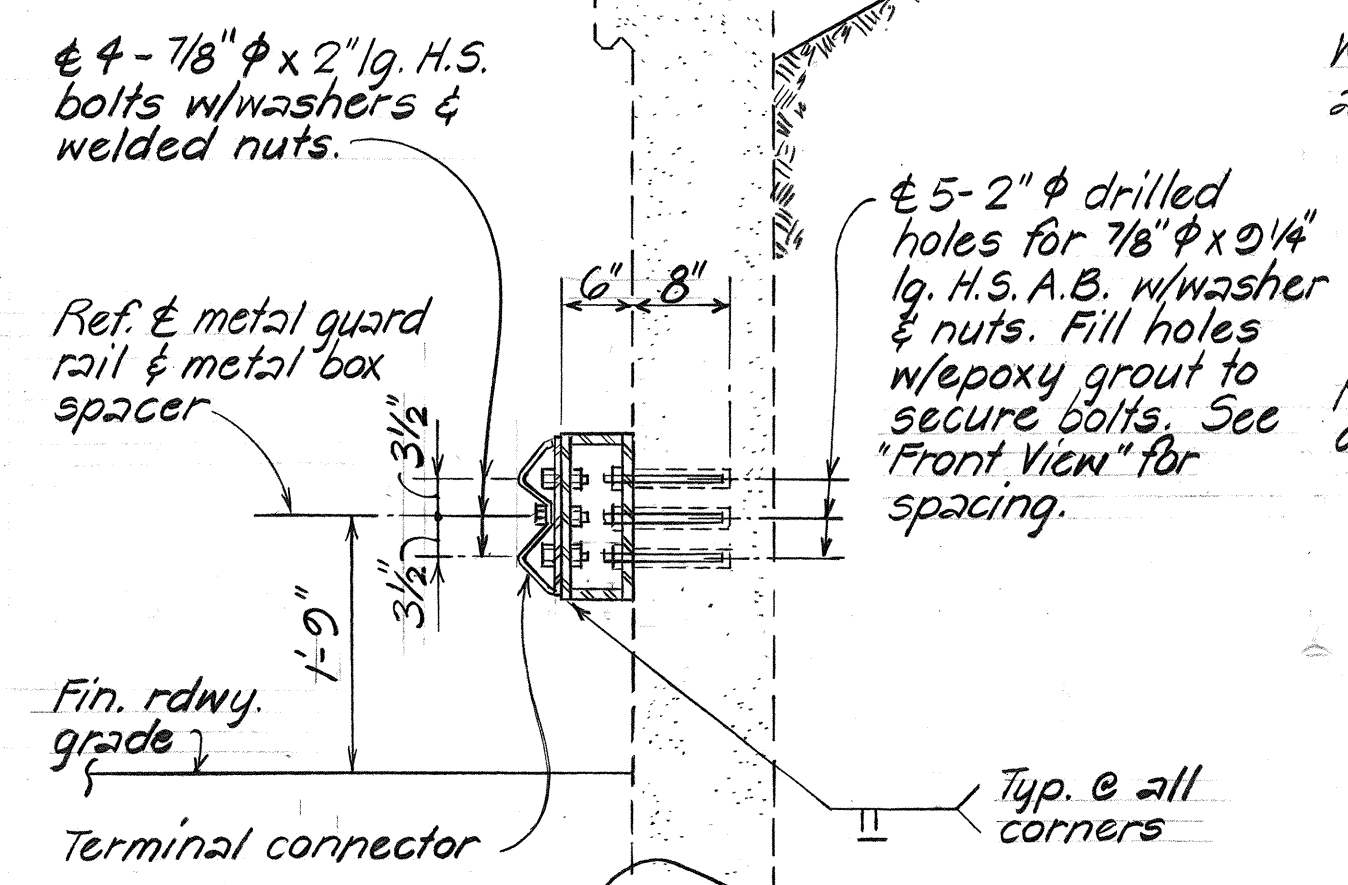
4-5-2" ϕ drilled holes for 7/8" ϕ x 2 1/4" lg. H.S. A.B. w/washer & nuts. Fill holes w/epoxy grout to secure bolts. See "Front View" for spacing.

Req. exist. conc. ret. wall. @ Sta. 227+00

Ref. Line & 5/8" ϕ bolt



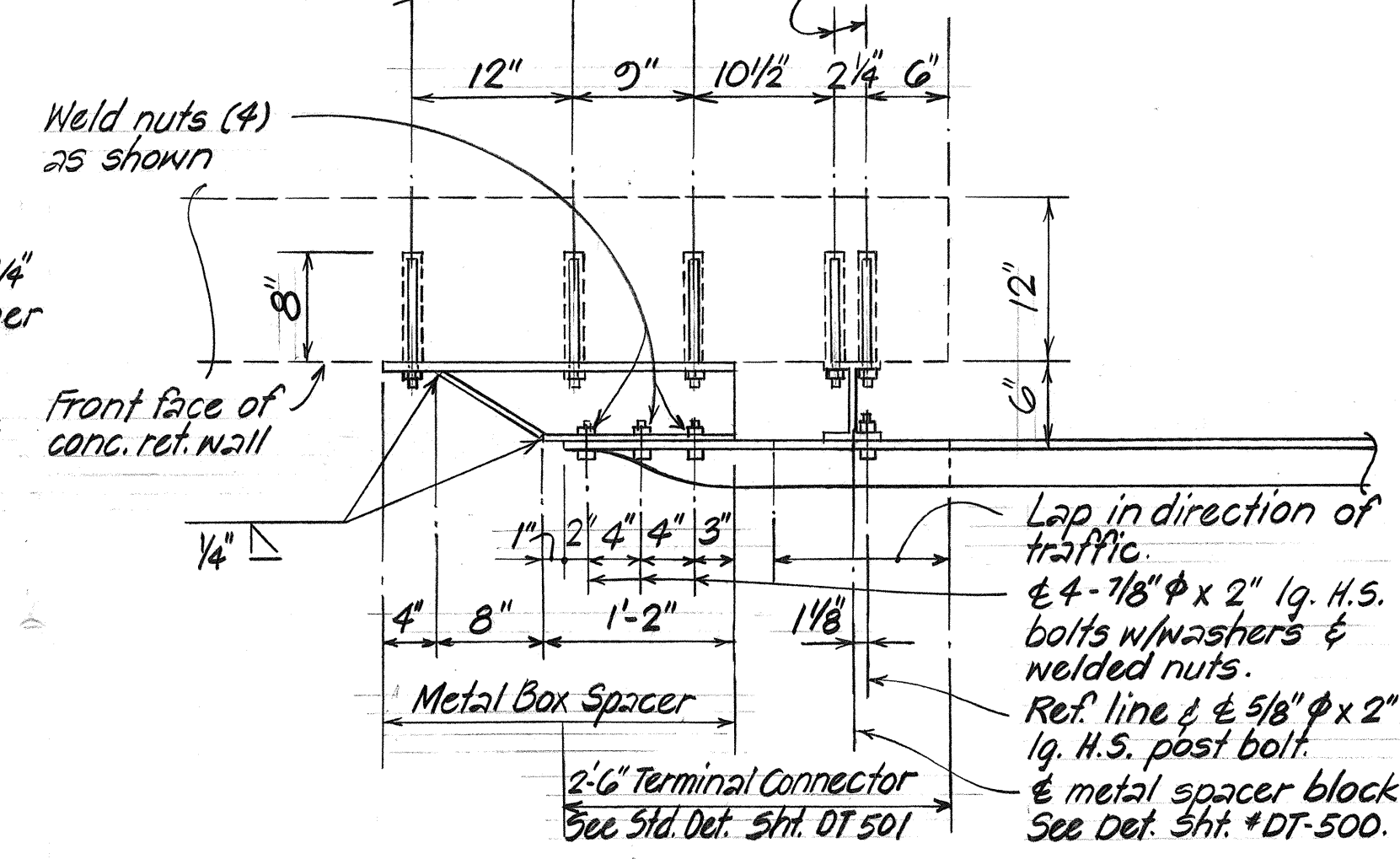
PART ELEVATION
Scale: 3/4" = 1'-0"



SECTION
Scale: 3/4" = 1'-0"

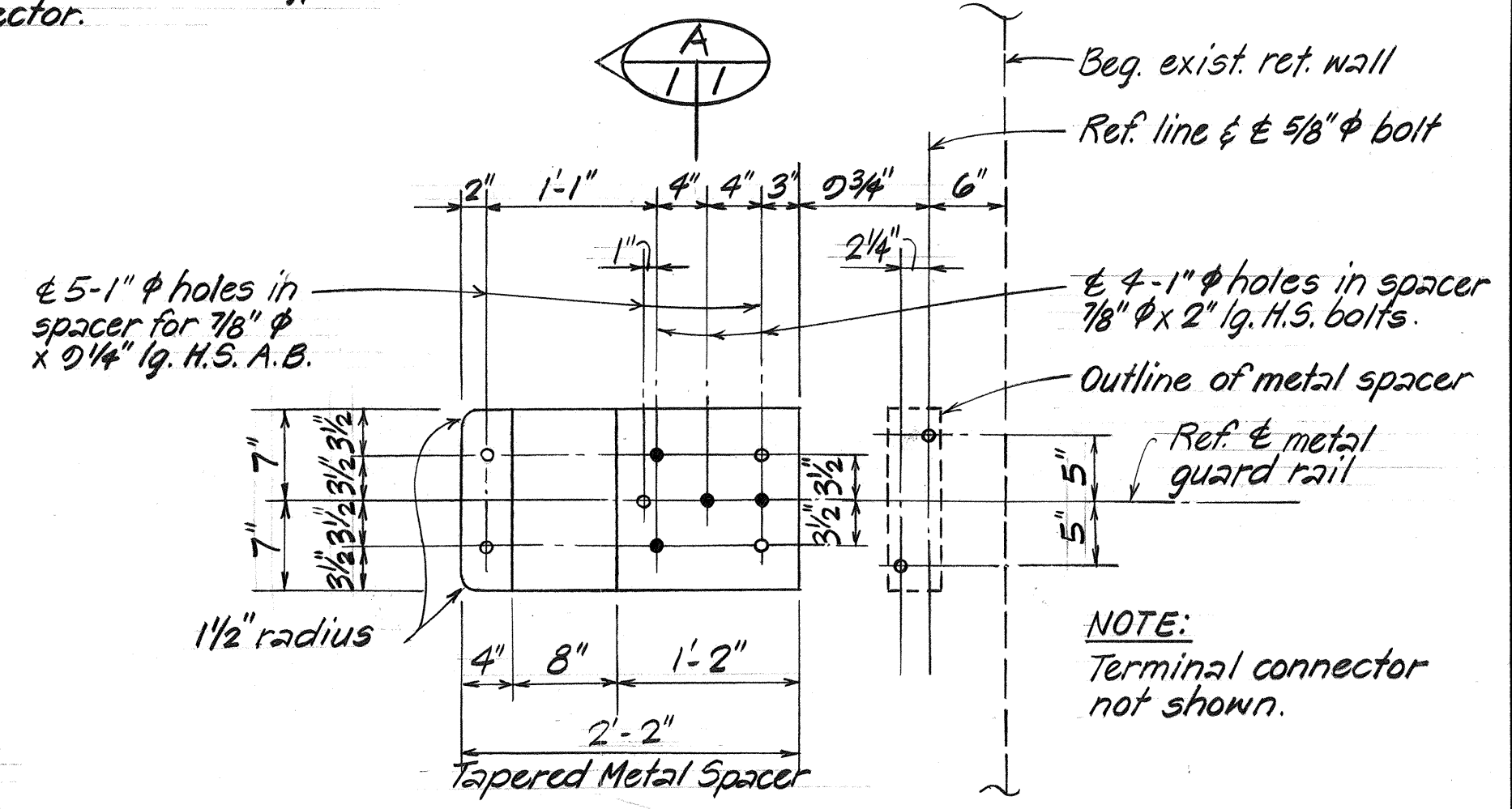
4-5-2" ϕ drilled holes in wall for 7/8" ϕ x 2 1/4" lg. H.S. A.B. w/washers & nuts. One each side of web. Fill holes w/epoxy grout to secure bolts.

2" ϕ drilled holes in wall for 5/8" ϕ x 2 1/4" lg. H.S. A.B. w/washers & nuts. One each side of web. Fill holes w/epoxy grout to secure bolts.



TOP VIEW

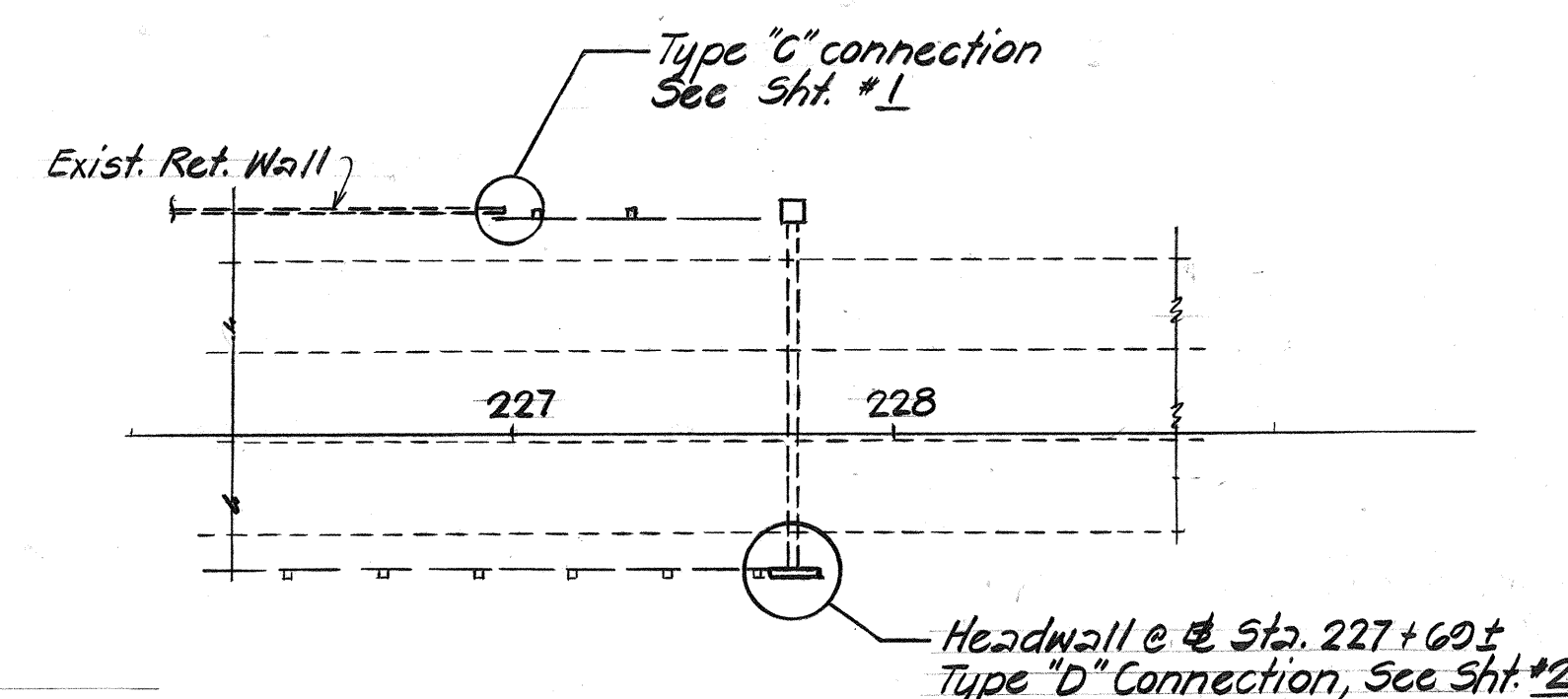
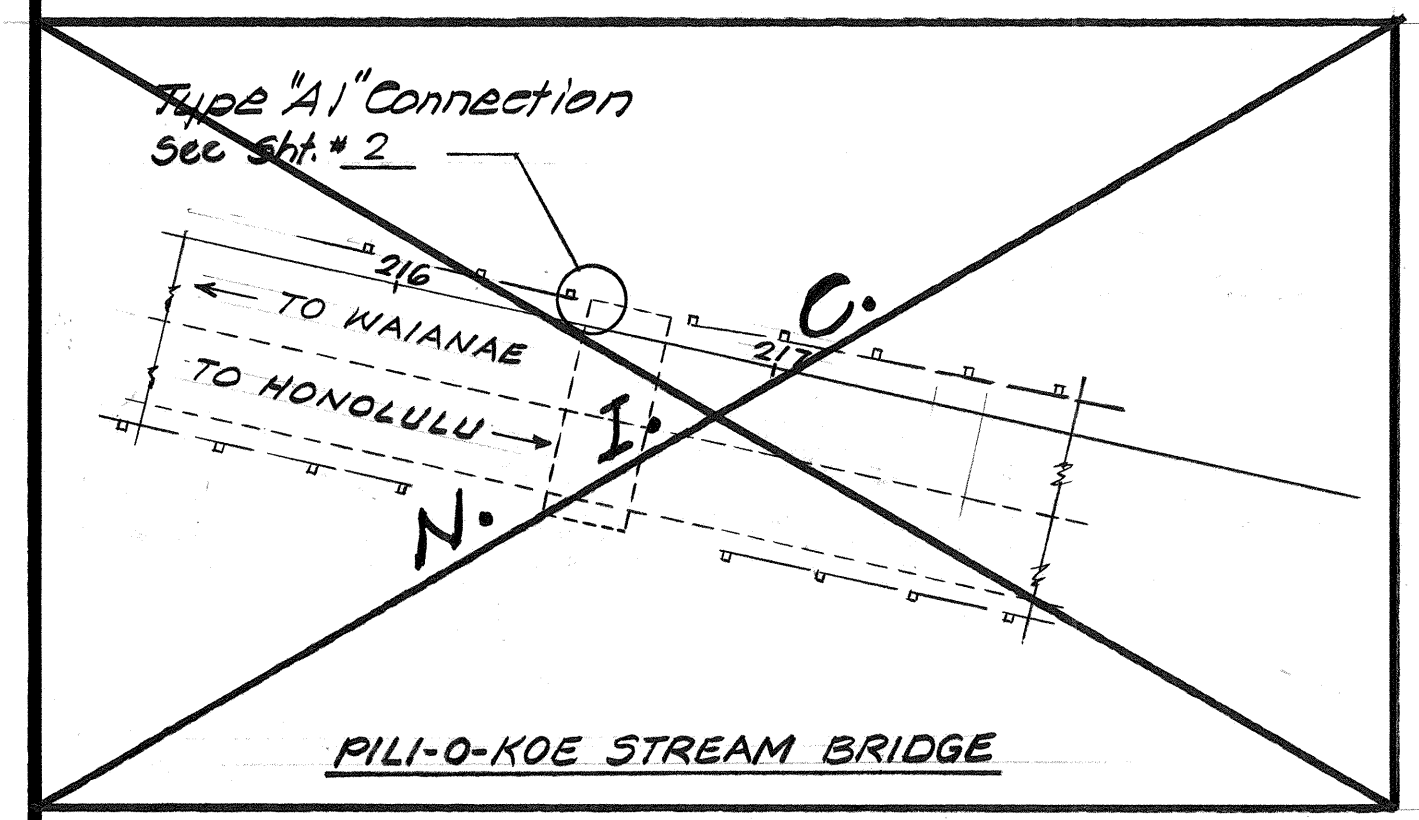
NOTE:
Terminal connector, spacer block & 6" tapered spacer block incidental to Type "C" connector.



FRONT VIEW

6" METAL BOX SPACER WITH TAPERED END
Scale: 1" = 1'-0"

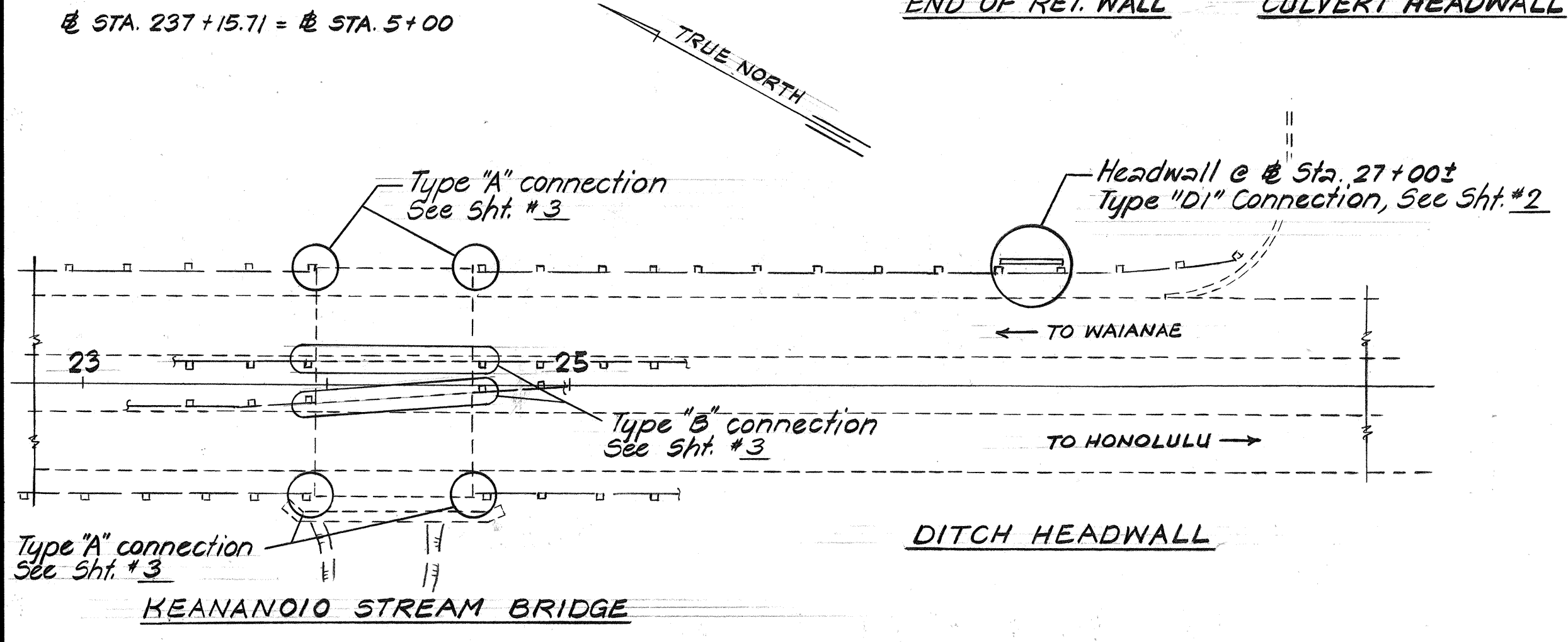
METAL GUARD RAIL CONNECTION TO EXISTING RETAINING WALL AT STA. 227+00 (TYPE "C" CONNECTION)



GENERAL NOTES:

1. See Standard Specifications for Road & Bridge Construction, (Hawaii, 1976) & Special Provisions.
2. All anchor bolts shall be high strength bolts conforming to the requirements of ASTM A325.
3. All "terminal connector" and metal box spacers, including all anchor bolts, nuts and washers, shall be galvanized.
4. "Terminal connector" shall be fabricated from 10 gage steel conforming to the requirements of AASHTO 180.
5. First 25'-0" of guard rail adjoining "terminal connector" shall be of galvanized steel.
6. Large impacting or vibratory type of equipment will not be permitted for drilling.
7. Any damage to the existing structures due to the Contractor's operation shall be repaired at his expense, to the satisfaction of the Engineer.
8. The work necessary to connect guard rail to concrete end post, headwall, parapet and Retaining Wall shall include all labor, materials, tools, equipment and incidentals necessary to complete the work. This work will be measured and paid for in units of one.
9. The Contractor shall verify all dimensions in field before commencing with work.
10. The Contractor shall verify the location of all existing utility lines near structures and notify their respective owners before commencing with work.

STA. EQUATION
@ STA. 237+15.71 = @ STA. 5+00



METAL GUARD RAIL ATTACHMENT STRUCTURAL JOB SITE
Scale: 1" = 50'-0"

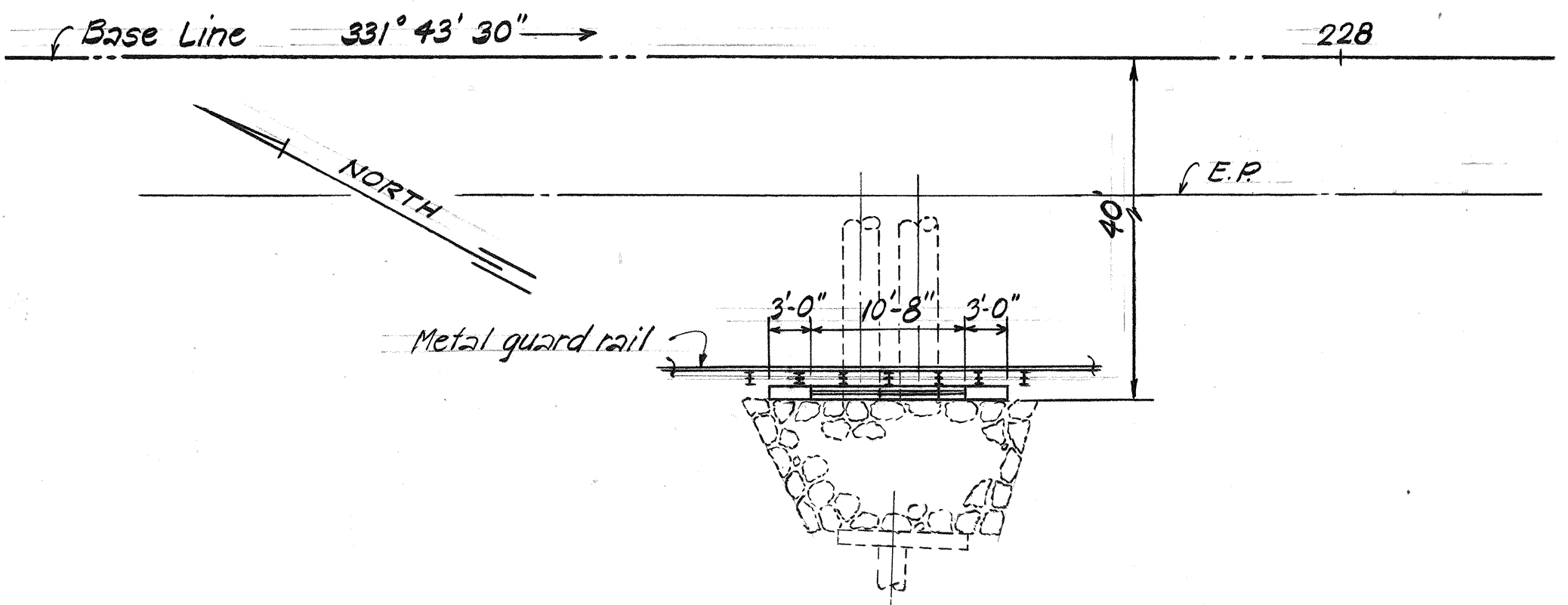
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

GUARD RAIL CONNECTION DETAILS
RETAINING WALL @ STA. 227+00

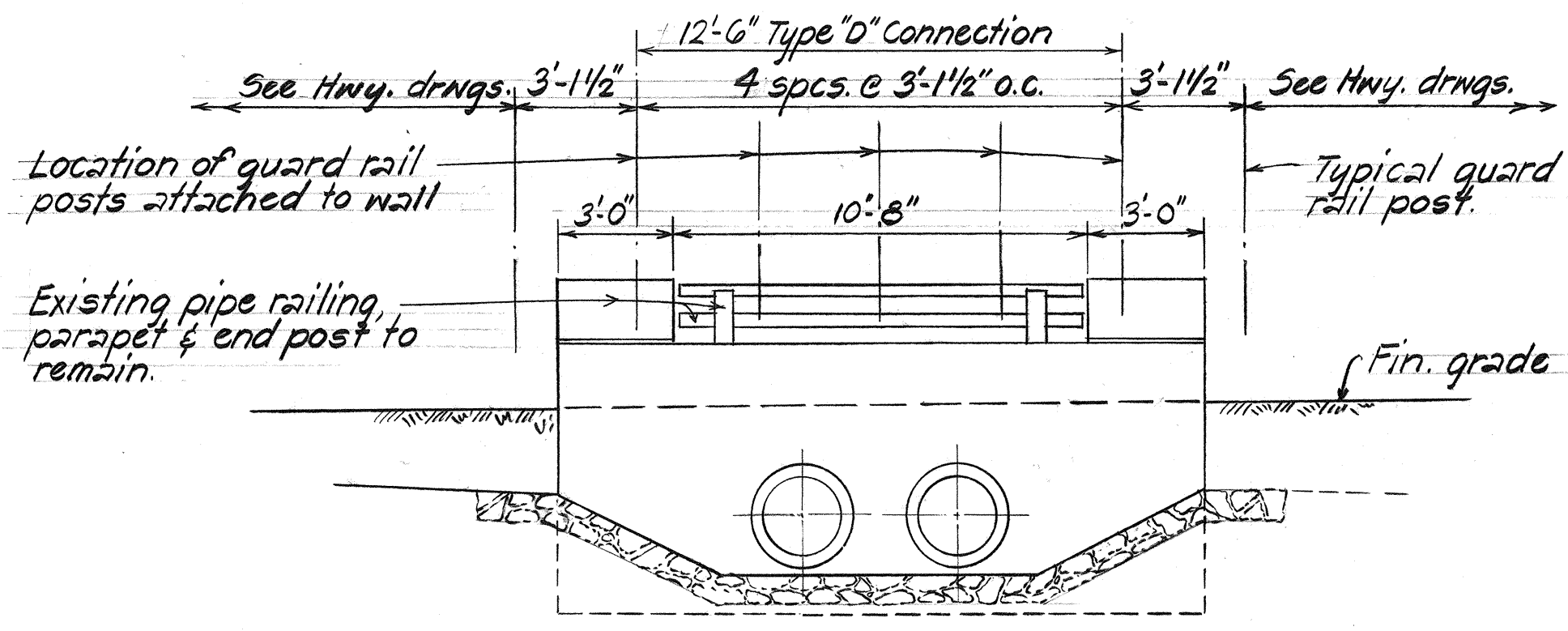
FARRINGTON HIGHWAY RESURFACING
PILIOKOE TO PALAILAI INTERCHANGE
F.A. PROJ. NO. FR-093-1(6)
Scale: As Noted Date: March 1983
SHEET No. 1 OF 3 SHEETS

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FR-093-1(6)	1983	23	51

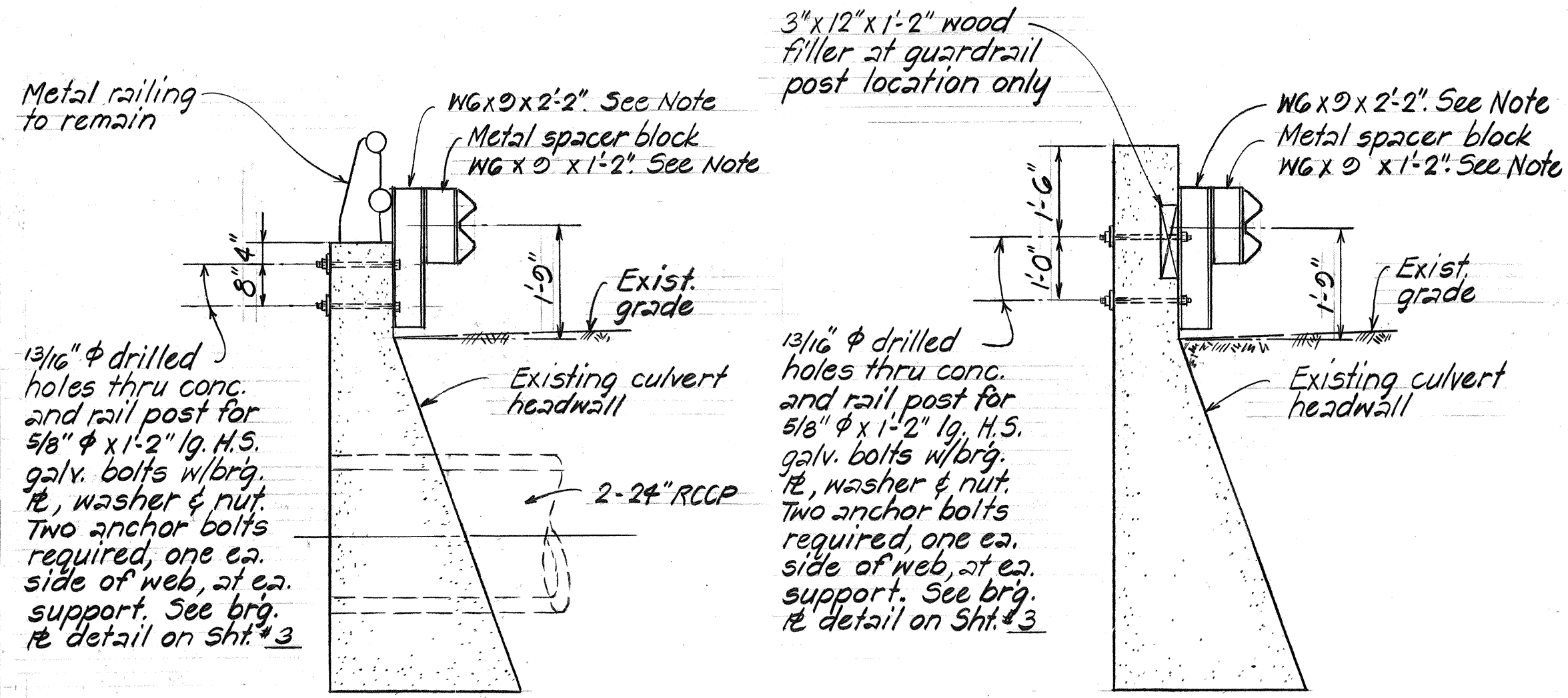


PLAN
CULVERT @ STA. 227 + 69 ± (EXISTING)
Scale: 1" = 10'-0"

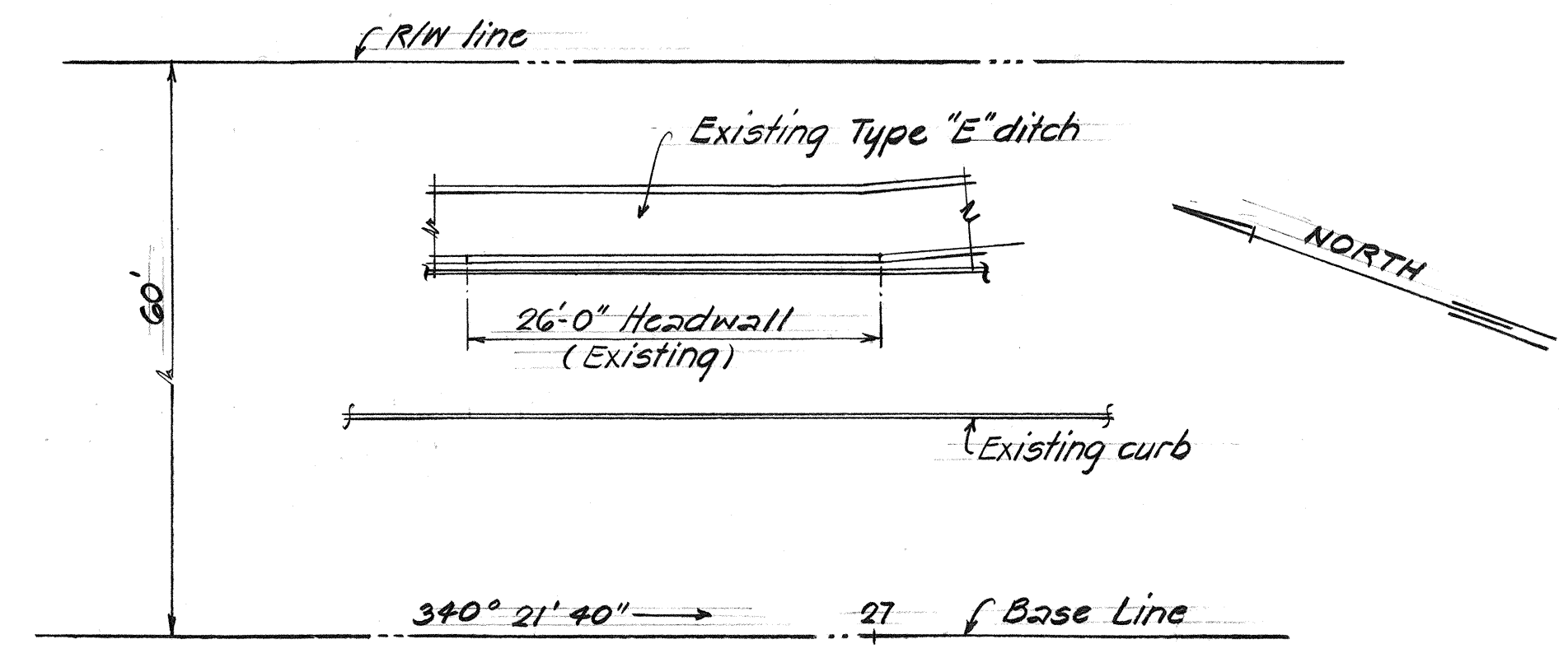


ELEVATION
CULVERT @ STA. 227 + 69 ± (EXISTING)
Scale: 1/4" = 1'-0"

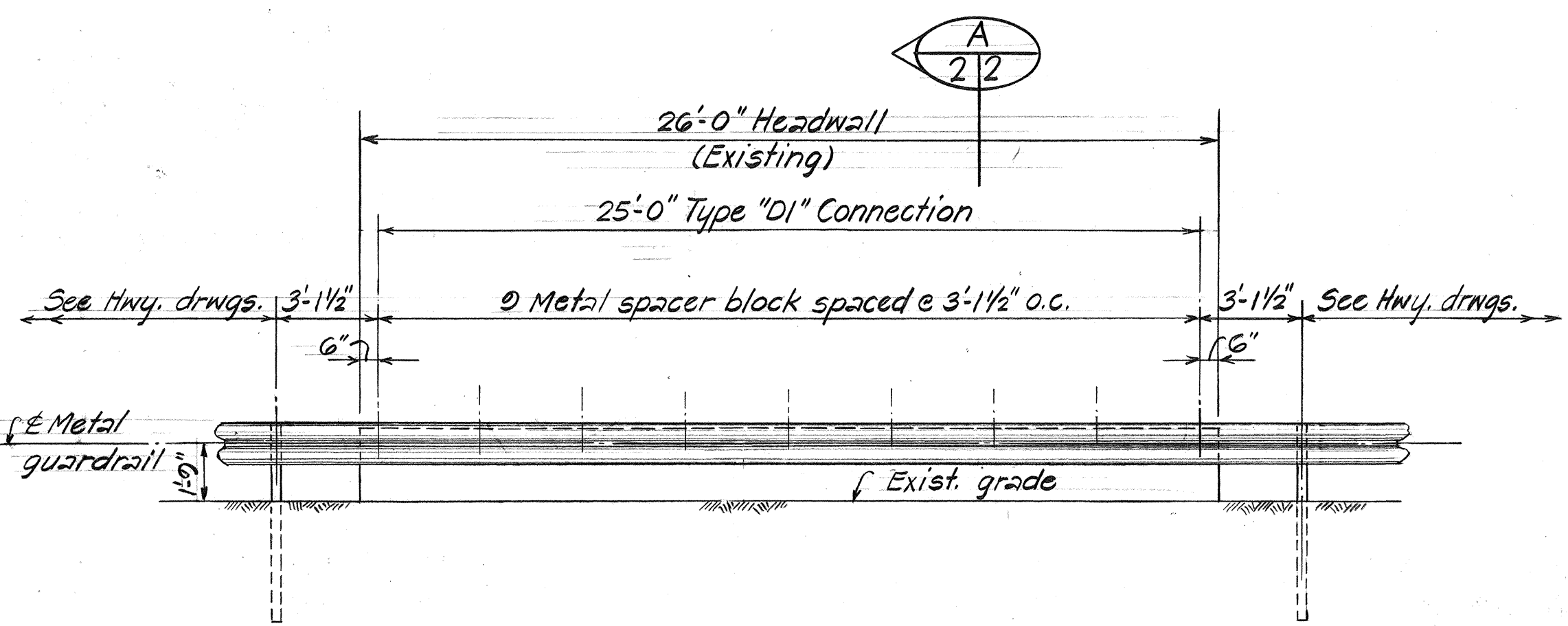
NOTE:
For additional rail post and metal spacer details and information, see Standard Details, Sht. #DT-500.



AT METAL RAILING
AT END POST
METAL GUARD RAIL CONNECTION DETAILS (TYPE "D")
CULVERT @ STA. 227 + 69 ±
Scale: 1/2" = 1'-0"

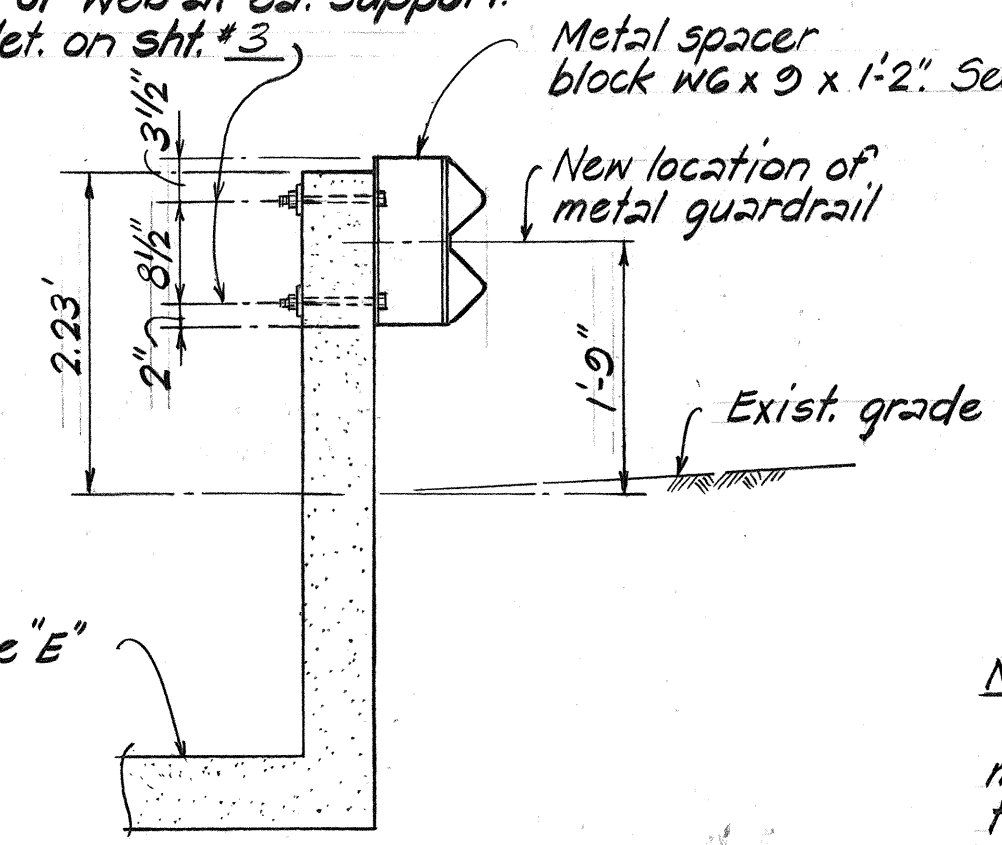


PLAN
HEADWALL @ STA. 27 + 00 ±
Scale: 1" = 10'-0"



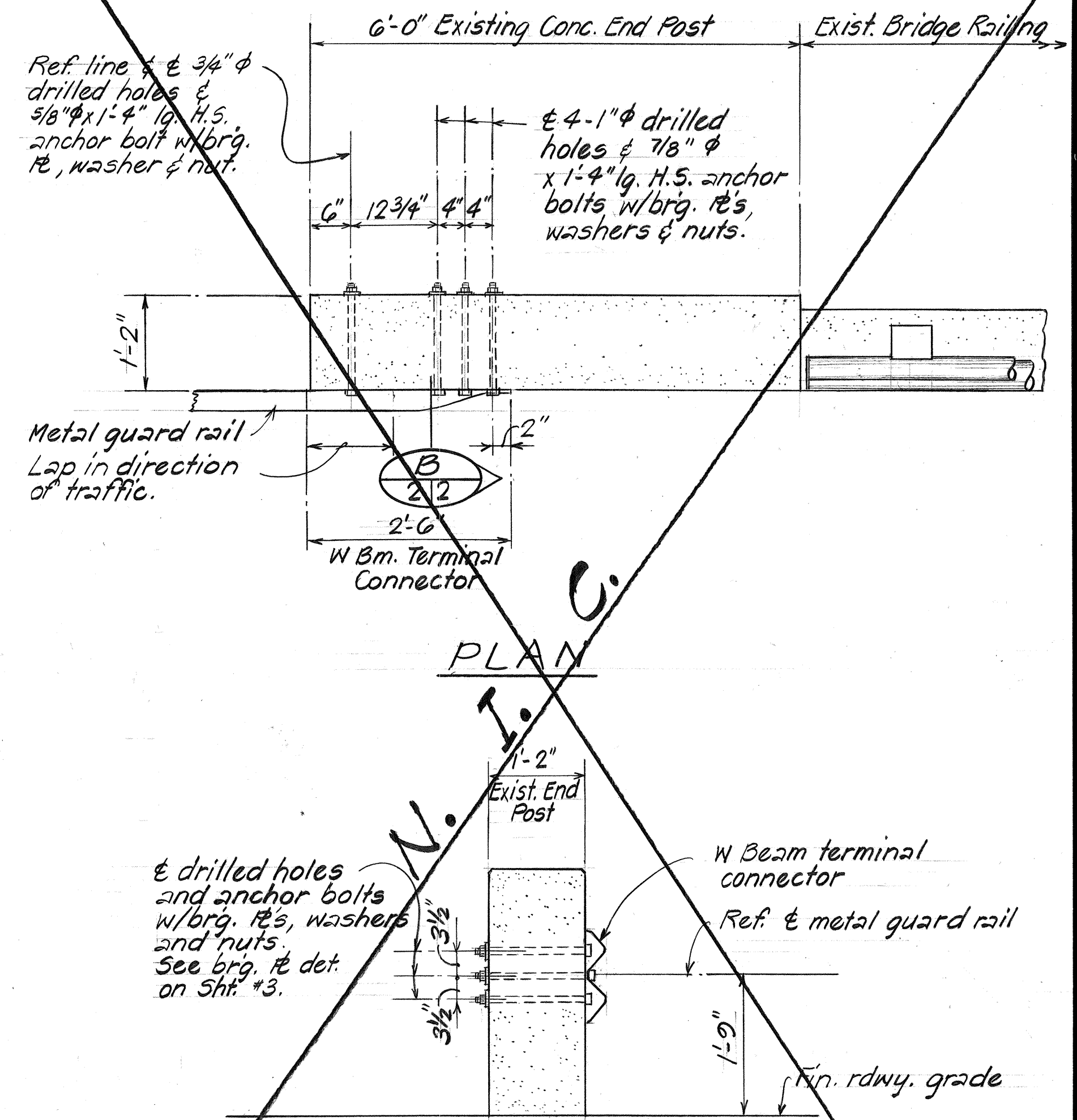
ELEVATION
HEADWALL @ STA. 27 + 00 ±
Scale: 1/4" = 1'-0"

13/16" drilled holes thru conc. and metal spacer for 5/8" x 8" lg. H.S. galv. bolts w/brg. flt., washer & nut. Two anchor bolts required, one on each side of web at each support. See brg. flt. det. on Sht. #3.



SECTION
METAL GUARD RAIL CONNECTION DETAILS (TYPE "D1")
CULVERT @ STA. 27 + 00 ±
Scale: 1/2" = 1'-0"

NOTE:
For additional rail post and metal spacer details and information, see Std. Details, Sht. #DT-500.



PLAN
SECTION
METAL GUARD RAIL CONNECTION TO PILI-O-KOE STREAM BRIDGE
TYPE "A1" CONNECTION
Scale: 3/4" = 1'-0"

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

LAND TRANSPORTATION FACILITIES DIVISION

GUARD RAIL CONNECTION DETAILS

CULVERT @ STA. 227 + 69 ±

HEADWALL @ STA. 27 + 00 ±

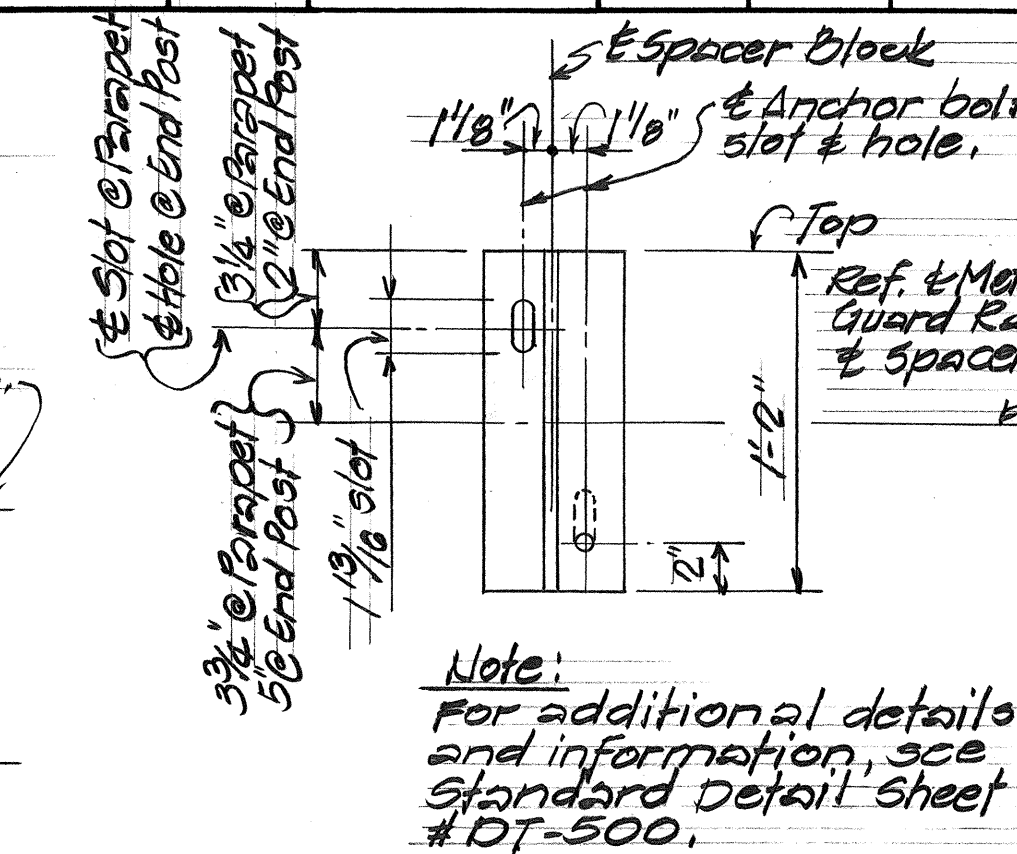
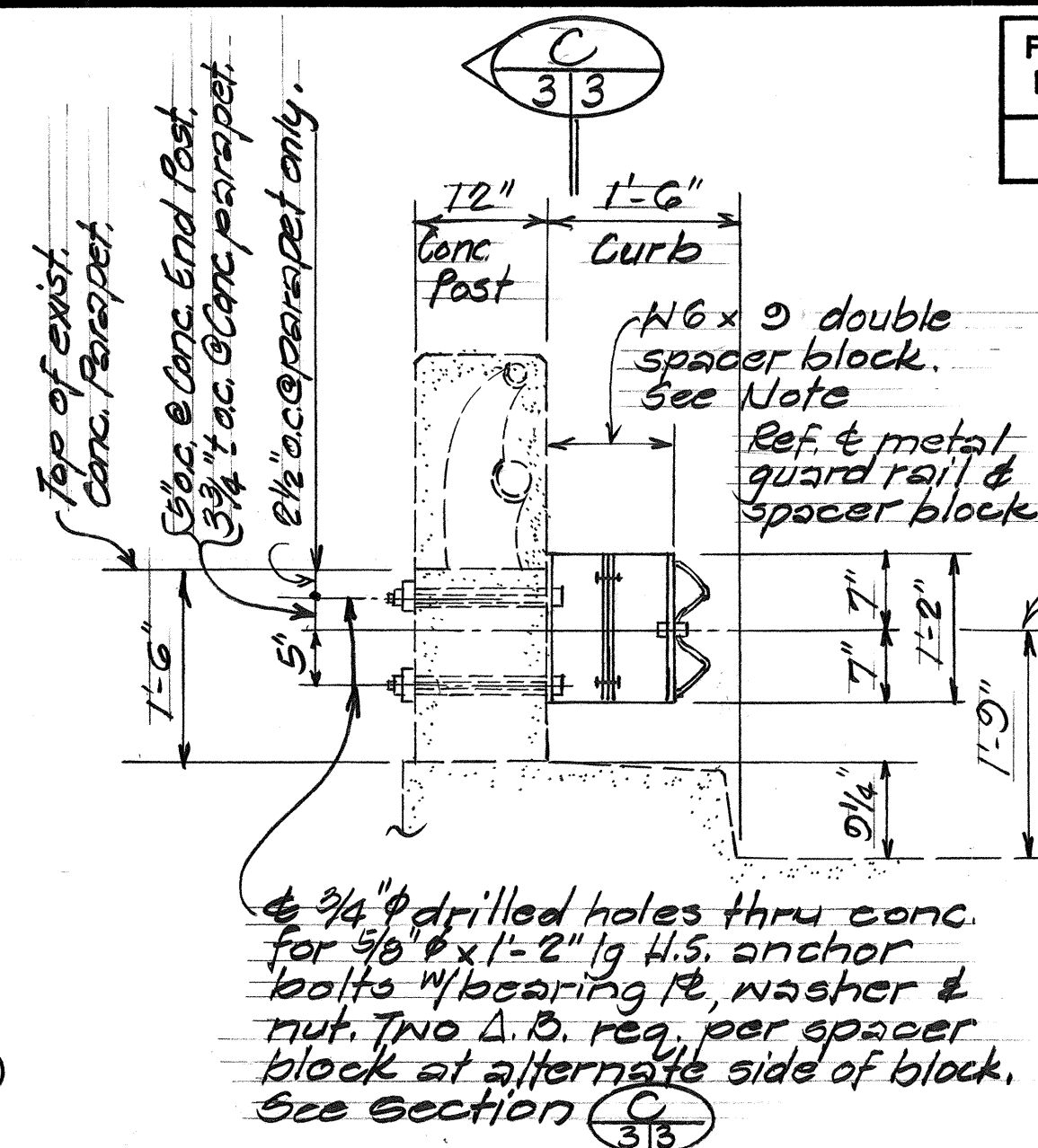
PILI-O-KOE STREAM BRIDGE

FARRINGTON HIGHWAY RESURFACING

PILILOKOE TO PALALAI INTERCHANGE

F.A. PROJ. NO. FR-093-1(6)

Scale: As Noted Date: March 1983

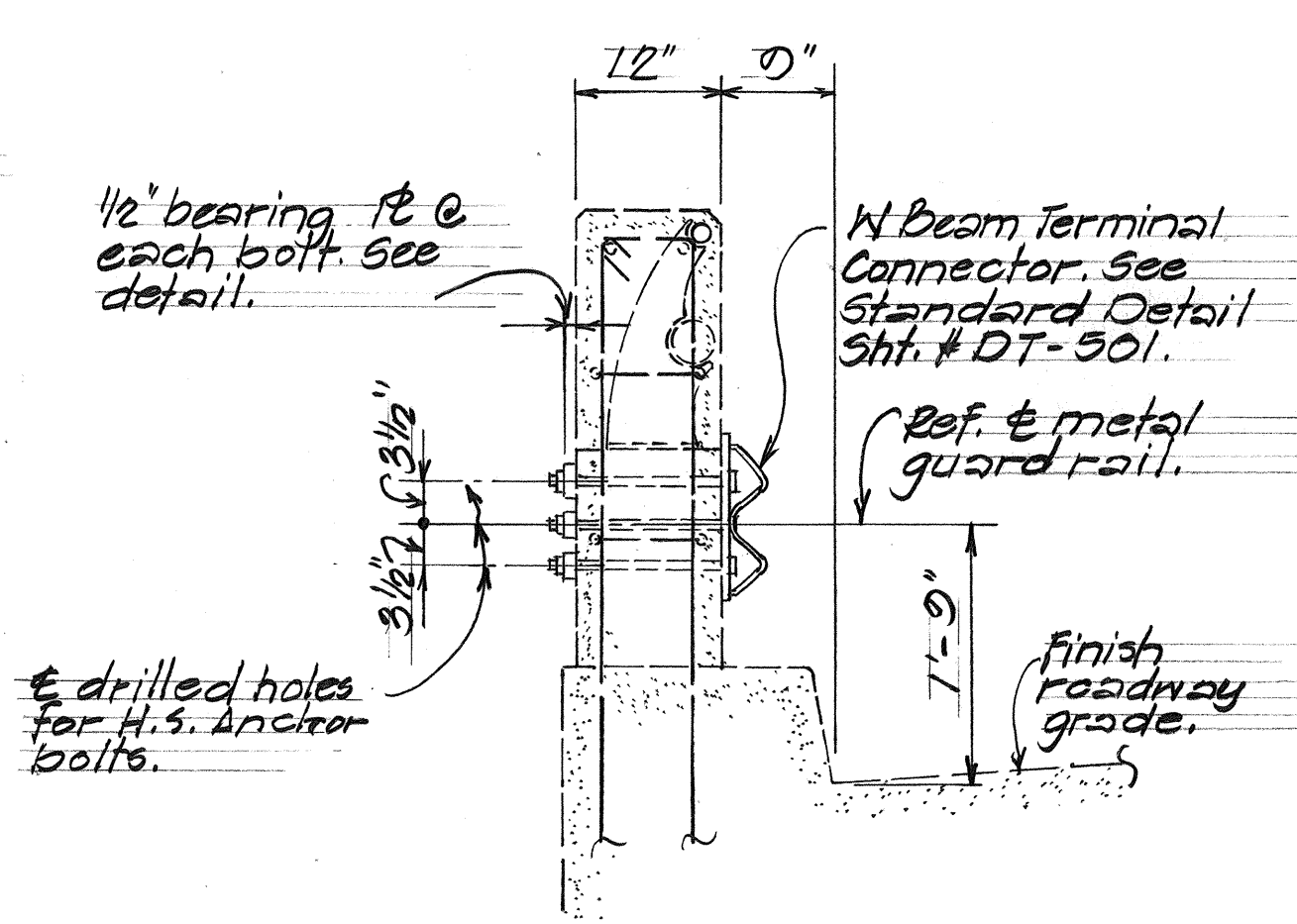
[illegible]

SECTION
Scale: $\frac{3}{4}" = 1' - 0"$

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

1" ϕ or $\frac{3}{4}$ " ϕ hole (Dt $\frac{1}{8}$)
centered in $\frac{1}{2}$ " thick
steel flt. Galvanized
after fabrication

BEARING & DETAIL
Not To scale



SECTION 

Scale: $\frac{3}{4}" = 1'-0"$

6" CONCRETE CURB
Not To Scale

PLAN
Scale: $\frac{3}{4}" = 1'-0"$

METAL GUARD RAIL CONNECTION TO OUTER BRIDGE RAILING END POST ~ (TYPE "A" CONNECTION)

Material & work necessary to install concrete curb shall be incidental to the respective Guard Rail Connection and will not be paid for separately.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

GUARD RAIL CONNECTION DETAILS
KEANAUOIO STREAM BRIDGE
FARRINGTON HIGHWAY RESURFACING
PILIOKOE TO PALAILAI INTERCHANGE
F.A. PROJ. NO. FR-093-1(6)
Scale: As Noted Date: March 1983

SHEET NO. 3 OF 3 SHEETS