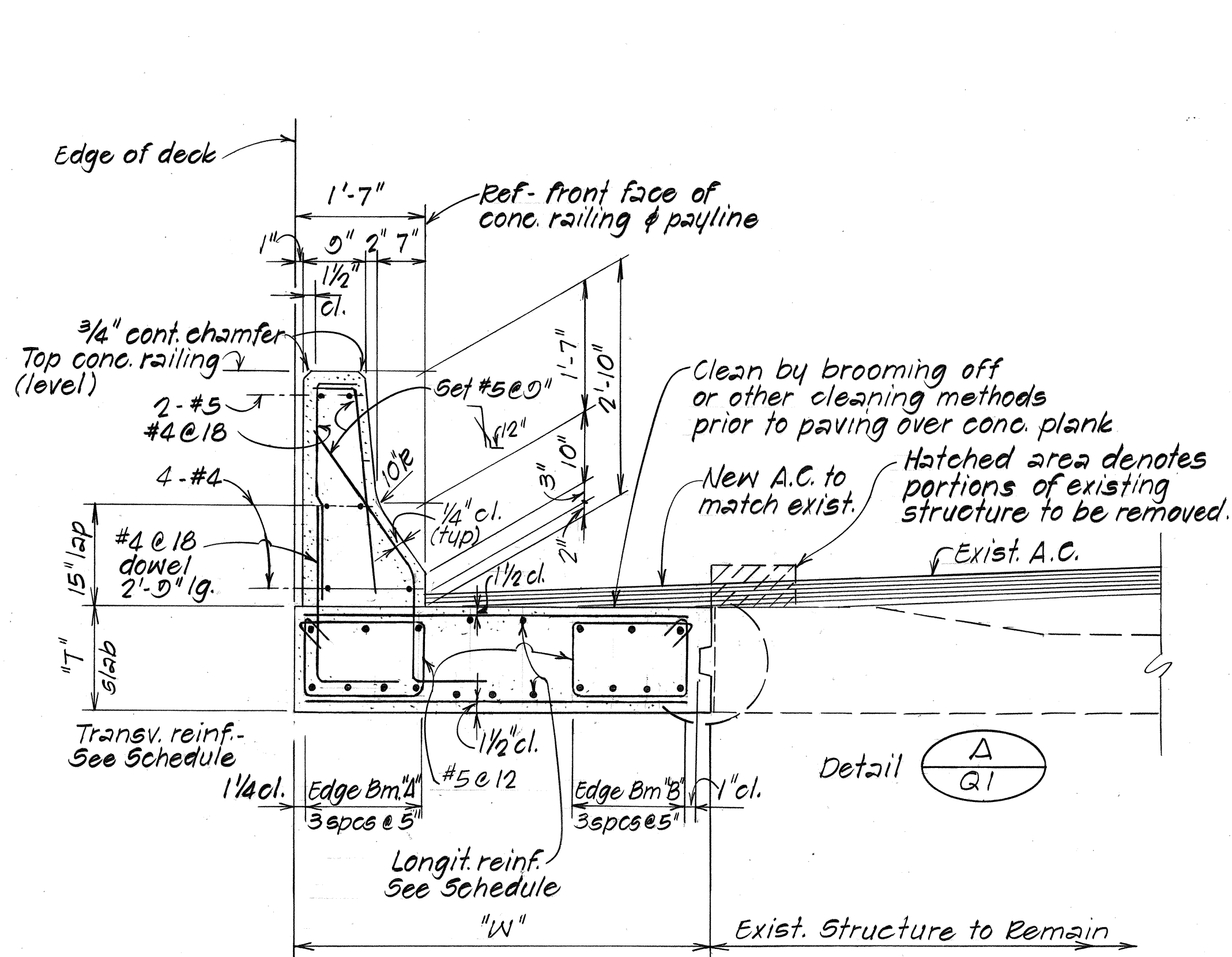
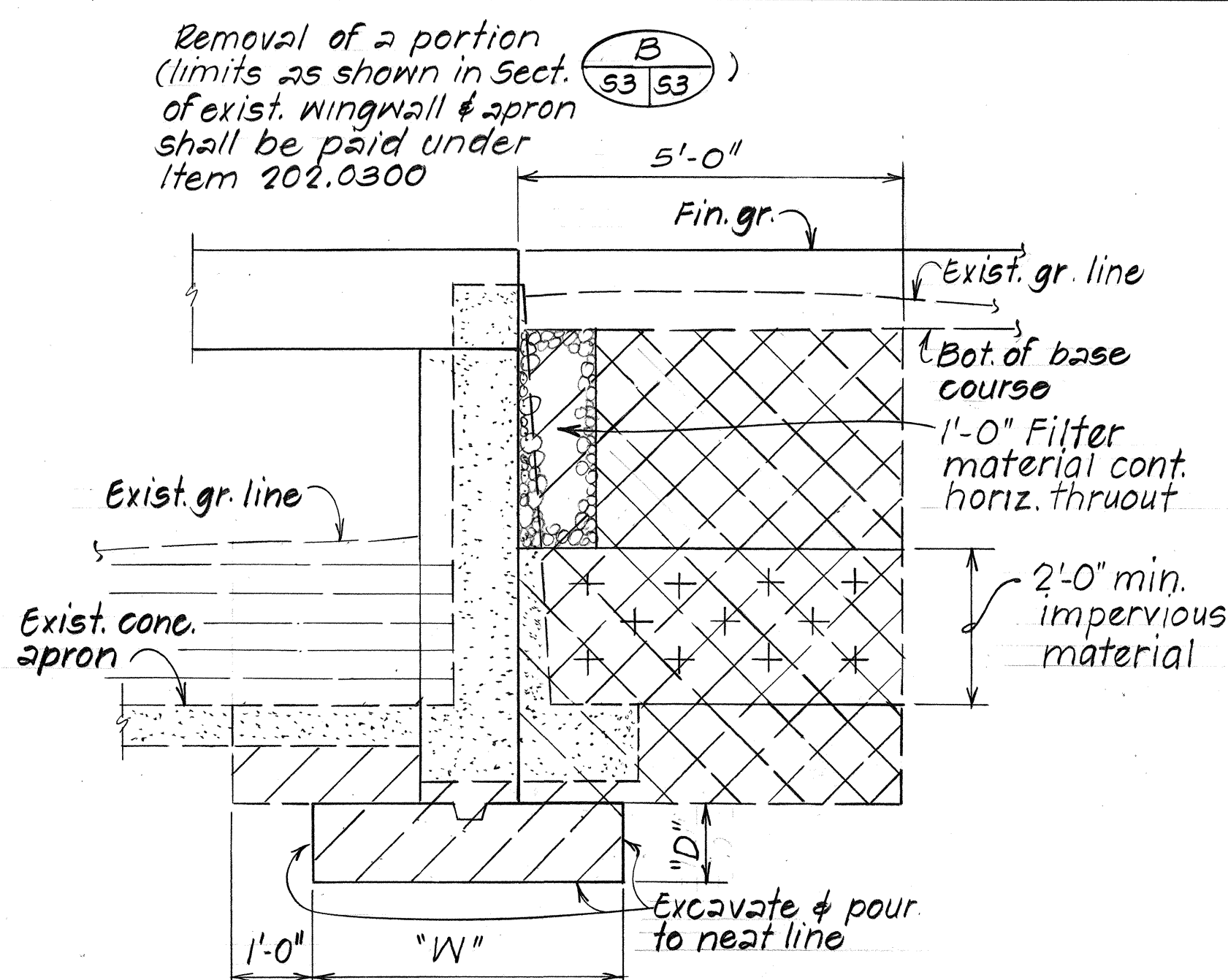
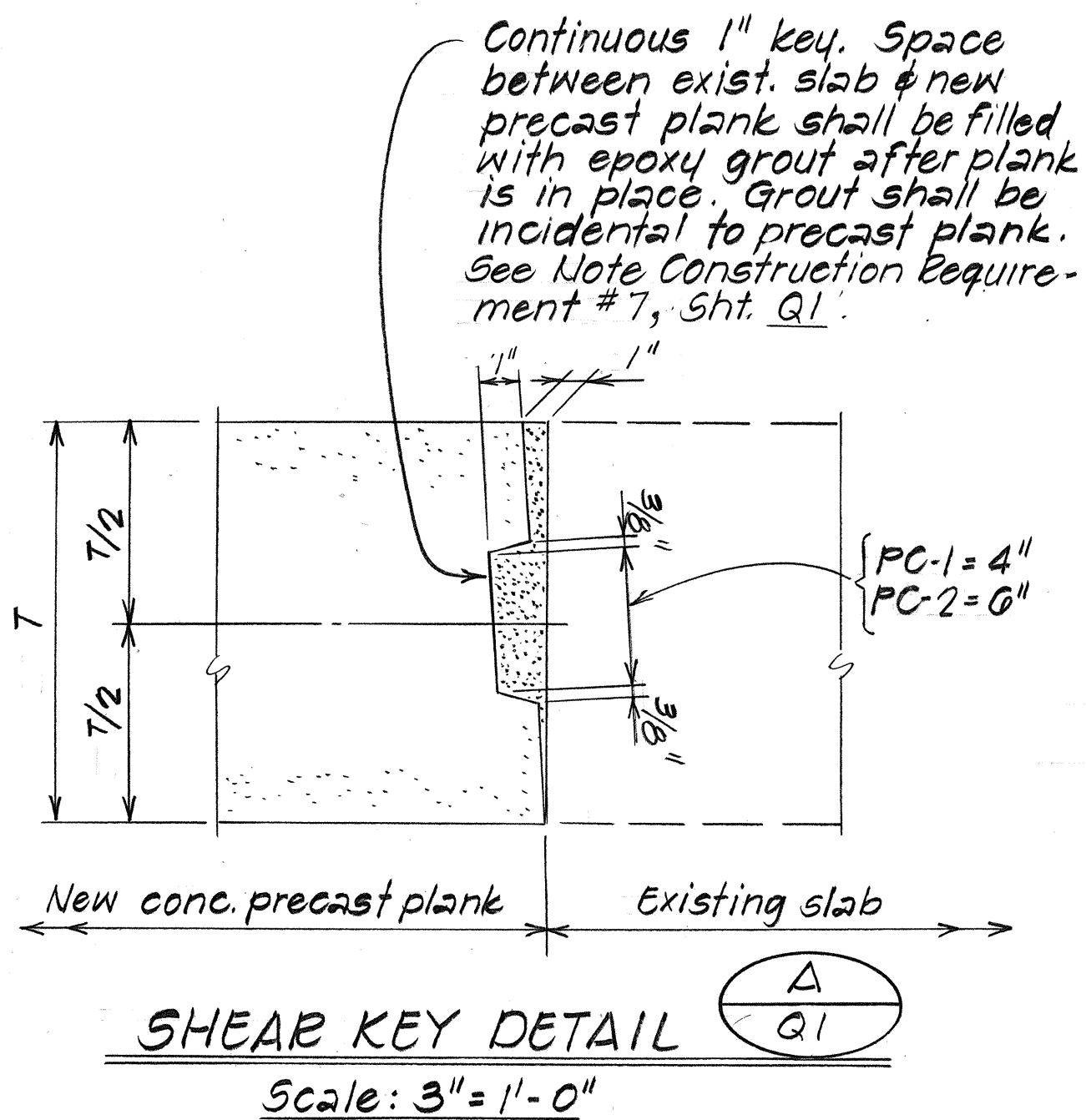


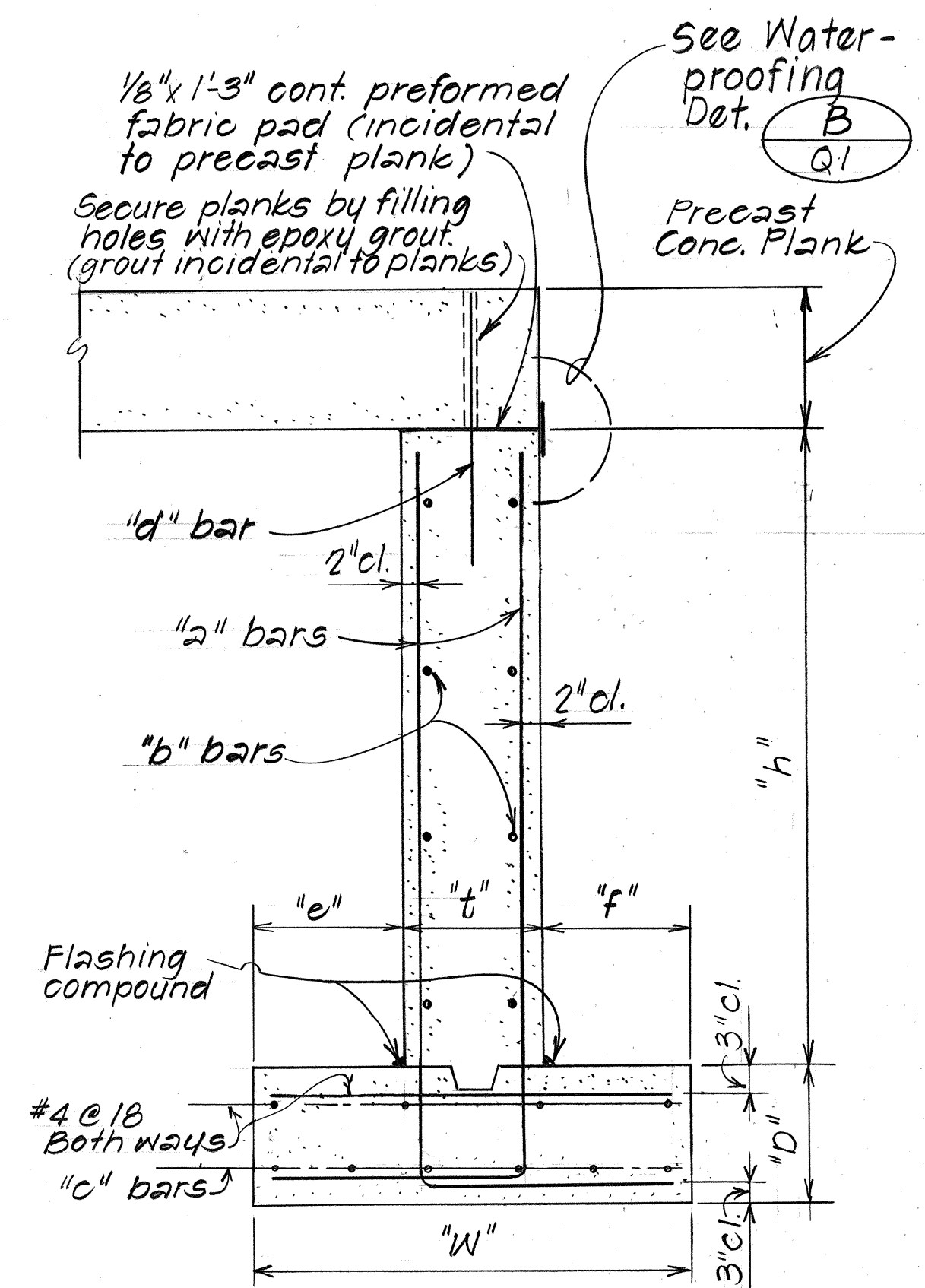
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83EF-02-86	1986	23	52



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



STRUCTURE EXCAVATION & DRAINAGE DETAIL
Not to scale



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

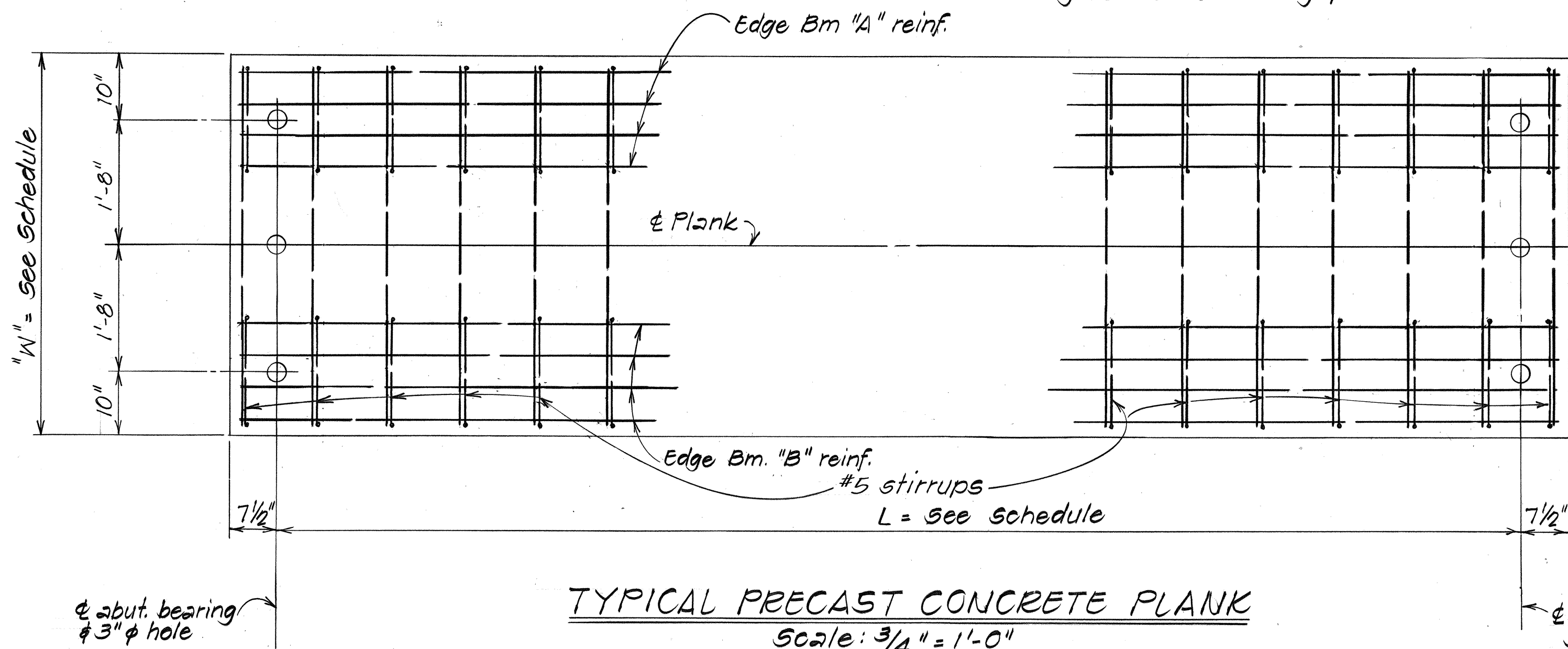
NOTES

1. Area shown thus denote limits of channel excavation.
2. Hatched area shown thus denote limits of structure excavation.
3. Hatched area shown thus denote limits of structure backfill.

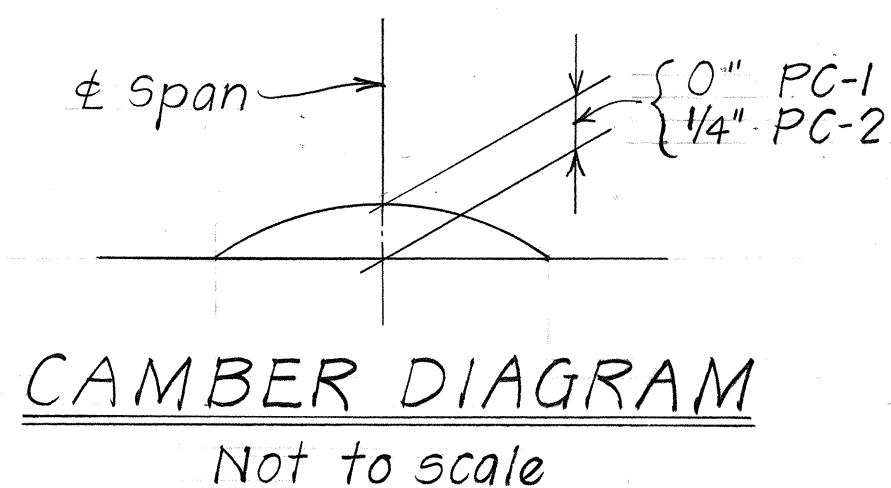
IMPERVIOUS MATERIALS

- Impervious material as selected by the Engineer shall be incidental to structure excavation.
- The subgrade upon which filter material is to be placed shall be made as impervious as possible by pneumatic tamping or other approved methods.

NOTE: Contractor to verify dimensions & angles before casting planks.

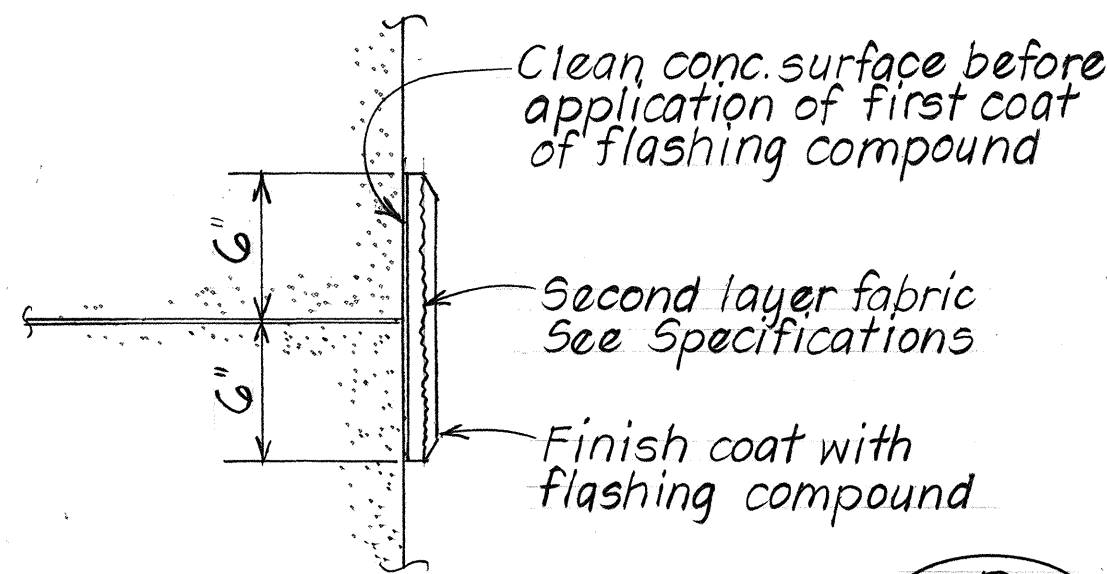


TYPICAL PRECAST CONCRETE PLANK
Scale: 3/4" = 1'-0"



CAMBER DIAGRAM
Not to scale

ABUTMENT DIMENSION & REINFORCING SCHEDULE										
	DIMENSION						REINFORCINGS			
	STEM		FOOTING							
CULVERT STATION	"t" stem width	"h" stem height	"w" footing width	"D" footing depth	"e"	"f"	"a" bars vert. stem	"b" bars horiz. stem	"c" bars footing cont.	"d" bars dowels
428+00	1'-3"	5'-6"	5'-0"	1'-3"	2'-0"	1'-0"	#5@12	#4@18	6-#4	#8x2'-6"
430+50	1'-3"	6'-1"	6'-6"	1'-3"	2'-0"	2'-6"	#6@12	#4@18	6-#4	#8x3'-0"



WATERPROOFING DETAIL

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

PRECAST CONCRETE PLANK SCHEDULE												
ITEM CULVERT LOCATION	TYPE	DIMENSION			REINFORCING STEEL							
		"W"	"L"	"T"	Edge Beam "A"		Edge Beam "B"		Longit. Bars		Transverse Bars	
					Top Cont.	Bot. Cont.	Top Cont.	Bot. Cont.	Top Layer	Bot. Layer	Stirrups	Top Cont. Bot. Cont.
Sta. 428+50	PC-1	5'-0"	17'-0"	15"	3-#7	4-#8	3-#7	4-#8	2-#5	3-#8	#5@12	#4@12 #5@12
Sta. 430+50	PC-2	5'-0"	27'-3"	20"	3-#7	4-#8	3-#7	4-#8	2-#5	4-#8	#5@12	#4@12 #6@12

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
PRECAST CONCRETE PLANK & ABUTMENT DETAILS

PROJ. NO. 83EF-02-86

Scale: As Noted Date: Jan., 1986

SHEET NO. 01 OF 3 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	1/1/86
CHECKED BY	
NO.	

CURVE DATA
 $\Delta = 40^{\circ} 06' 25''$
 $R = 10'-0''$
 $L_c = 7'-0''$

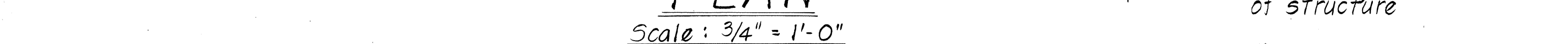
⊗ ⊗ Dimensions as detailed except as otherwise noted on detailed drawings.

PLAN

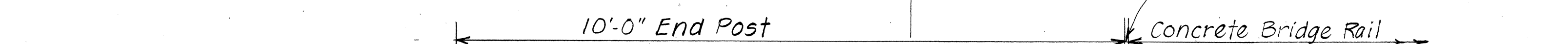
Ref. - Front face of end post
 1'-9"
 6" 1'-0"
 End of End Post
 Radius = 10'-0"
 P.C.
 2'-6 5/8" Slot
 Ref. - Edge of structure
 2"
 1'-7"
 Ref. - Front face of conc. railing and end post
 Terminal Connector (lap in direction of traffic)
 3'-1 1/2"
 1'-11 3/4"
 ⊗ ⊗ 3'-0"
 1/2" Exp. Jt.
 Abut. width
 Ref. line ⊗ ⊗ 5/8" anchor bolt.
 Outline - Footing See Plan
 ⊗ 10'-0" End Post
 Concrete Bridge Rail Barrier Type
 Ref. - Beginning or ending
 25'-0" (2 Standard Guard Rail Panels) Supports @ 3'-1 1/2" o.c. See Note (5), Sht. Q3.
 ⊗ Post Bolt

TYPE I

Ref. - Front face of end post
 1'-9"
 7" 2" 1'-0"
 End Post For additional details & reinf. details, see Typ. Det. Sht. # Q3.
 2'-8"
 Fin. gr.
 Conc. Railing
 3" 10" 1'-7"
 12" ±
 Bot. of base course
 "h"
 "t"
 1'-0"
 3" cl.
 3" cl.
 3" cl.
 10 1/2" 10 1/2"
 2" cl.
 2" cl.
 12" cl.
 "b" bars
 Flashing compound
 "a" bar
 "c" bar
 "a" bar
 Neat cut
 W
 1'-0"
 1'-0"
 Bot. ftg.

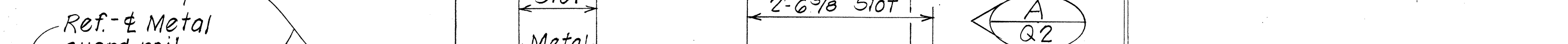


Ref. - P.C. → 1/2" Exp. jt.



7'-0" Curved Section 3'-0" Barrier Type

4 Guard rail post	Slot	Slot = 5 1/2" x 1 1/2"	
-------------------	------	------------------------	--



Technical drawing showing a cross-section of a rail and a spacer. The rail is labeled "guard rail" and the spacer is labeled "Spacer". The drawing includes dimension lines and arrows indicating the components and their assembly.

A hand-drawn diagram of a horizontal beam of length 10m. A triangular load is applied over the first 5m, with a peak intensity of 10 kN/m. A point load of 10 kN is applied at the free end (10m). The diagram shows the beam, the triangular load distribution, and the point load.

Finish grade

1'-0"

2'-8"

10"

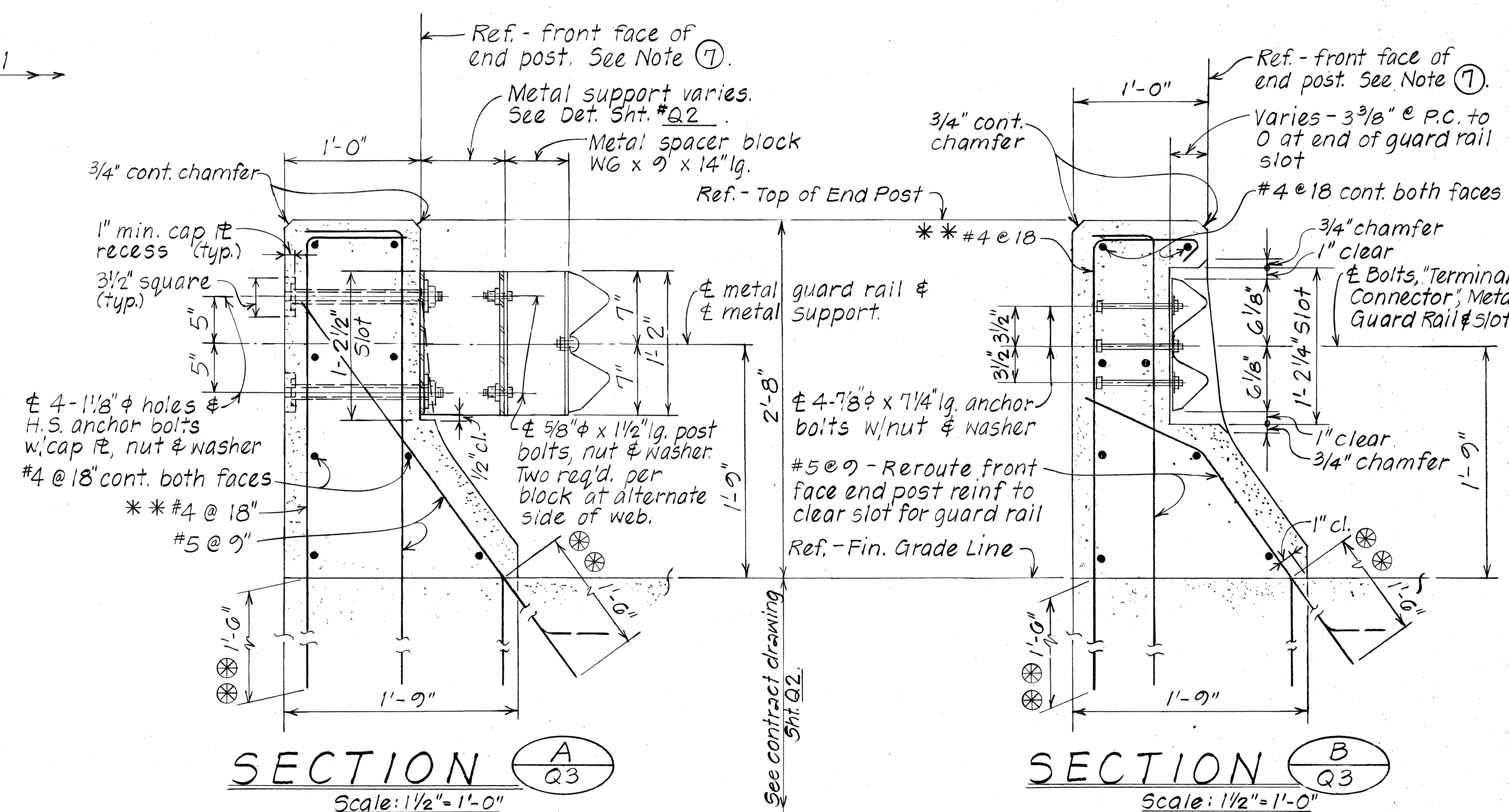
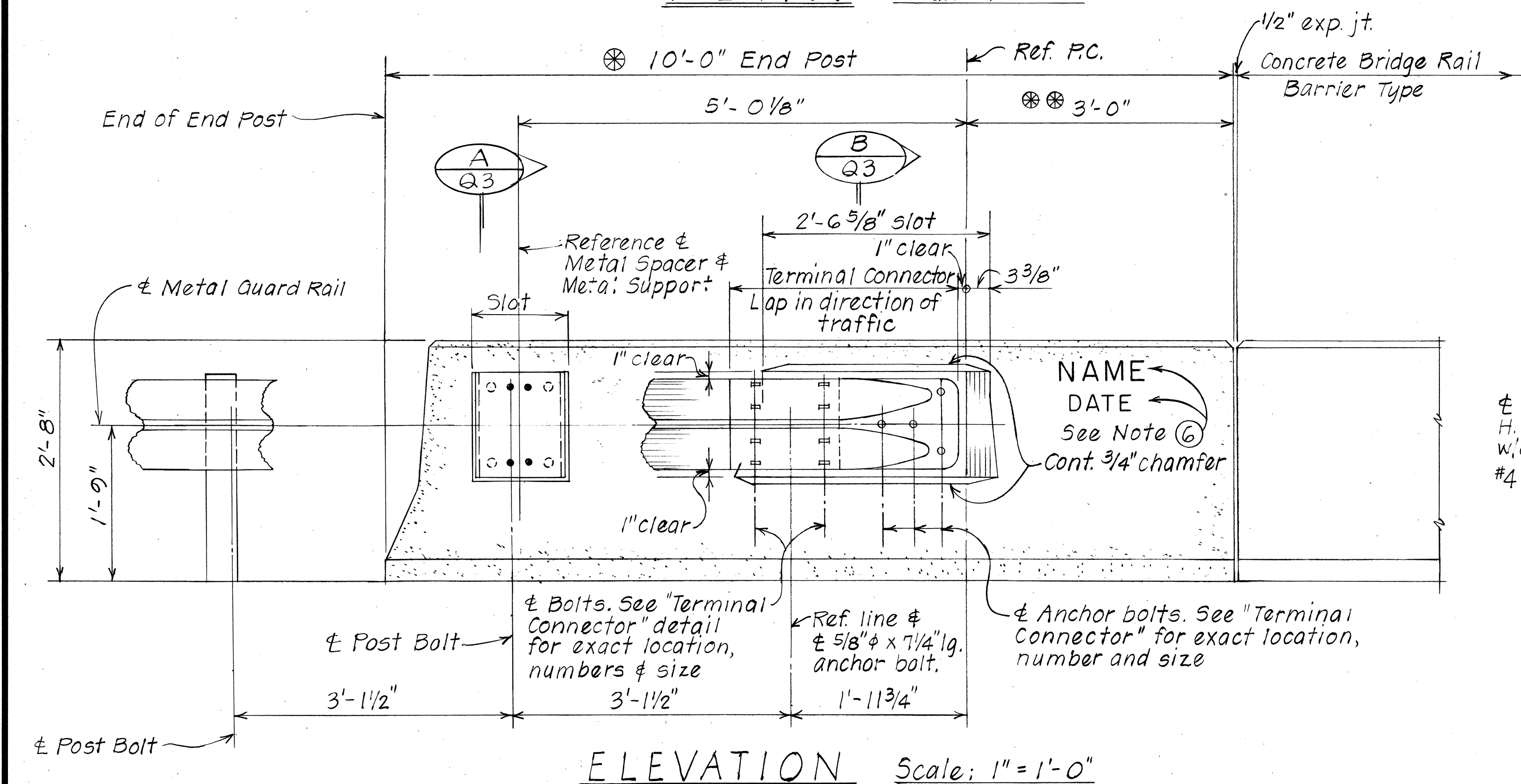
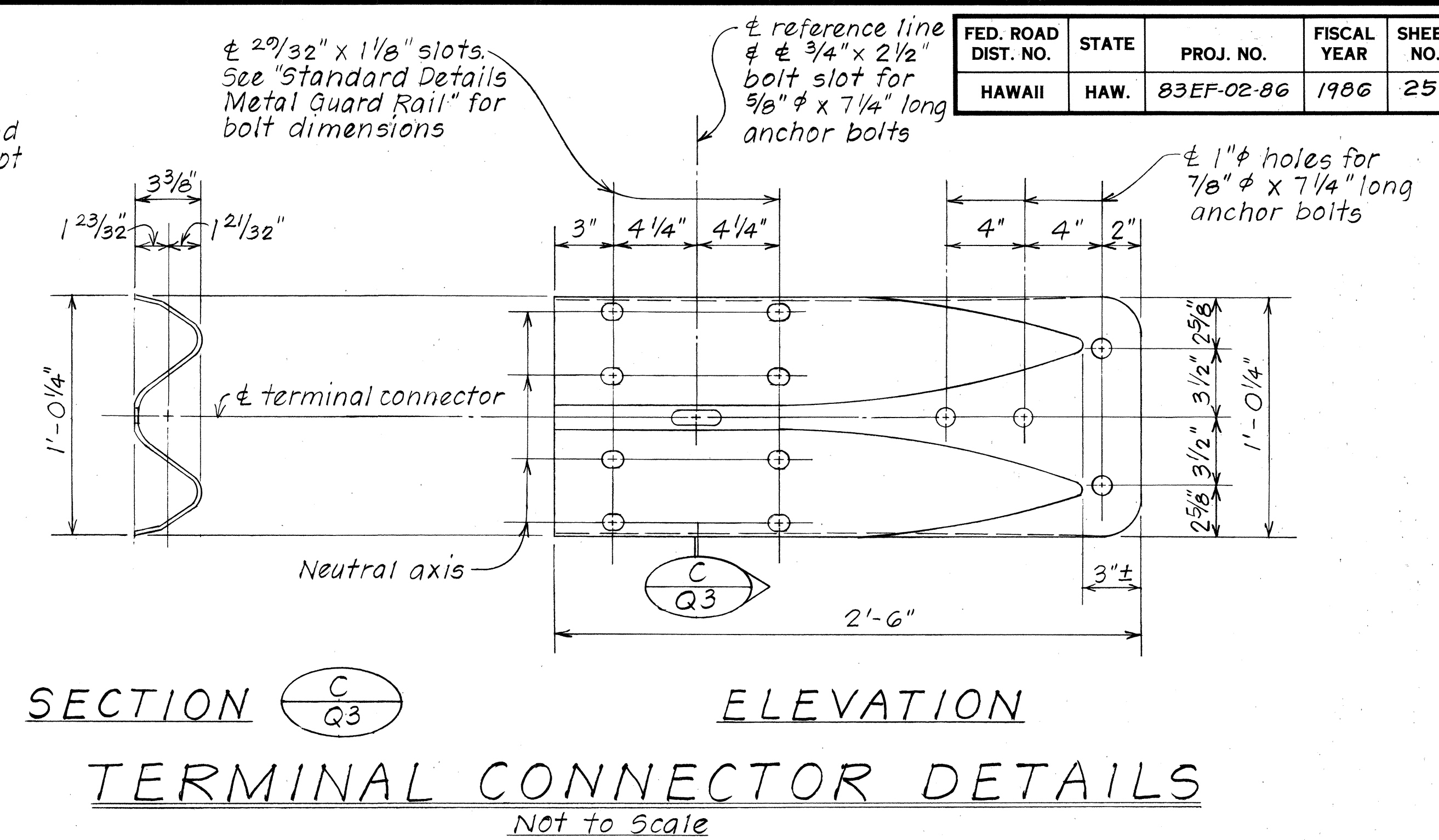
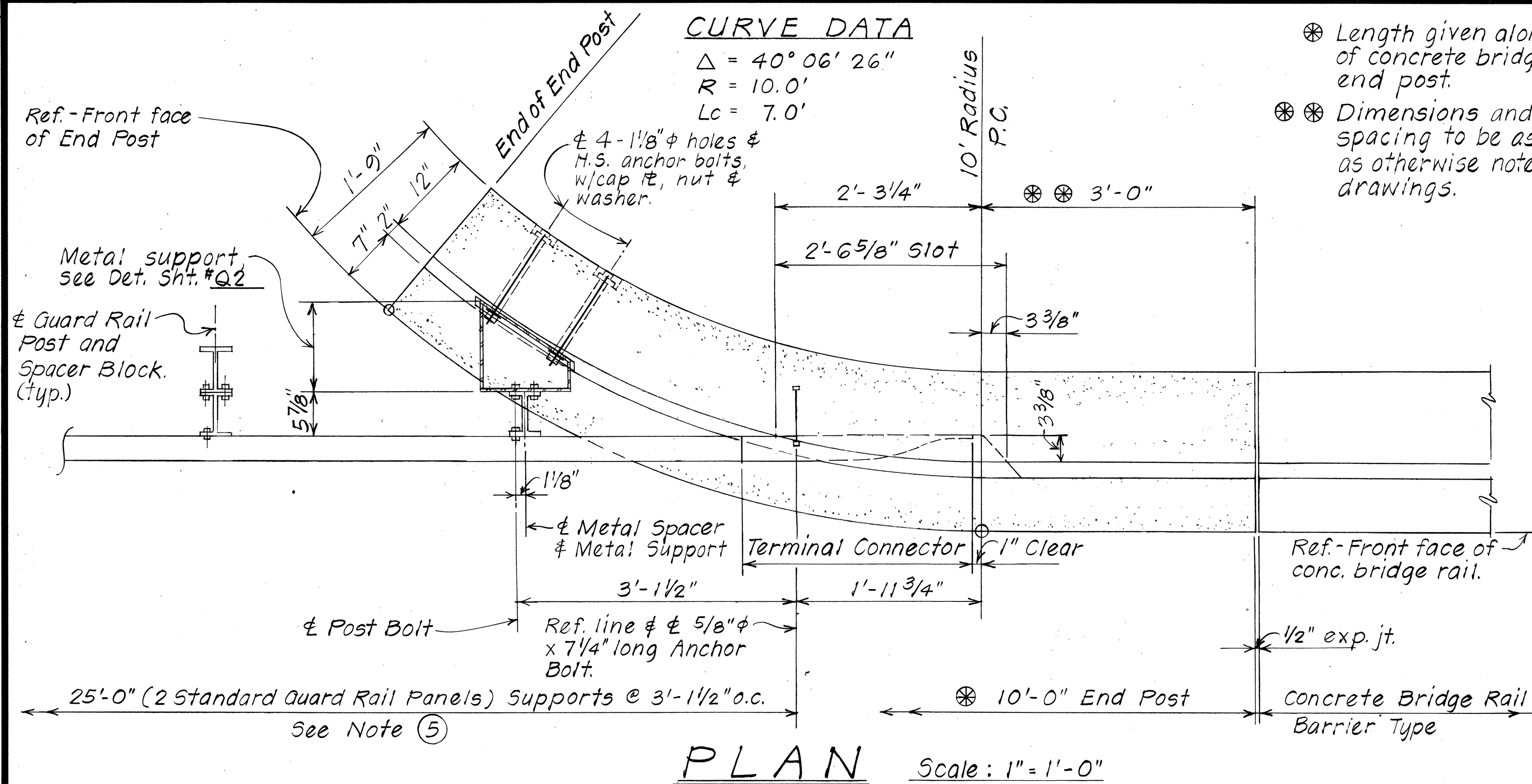
Front

Terminal Connector

← Ref. line # 5/8" φ anchor bolt

post bolts

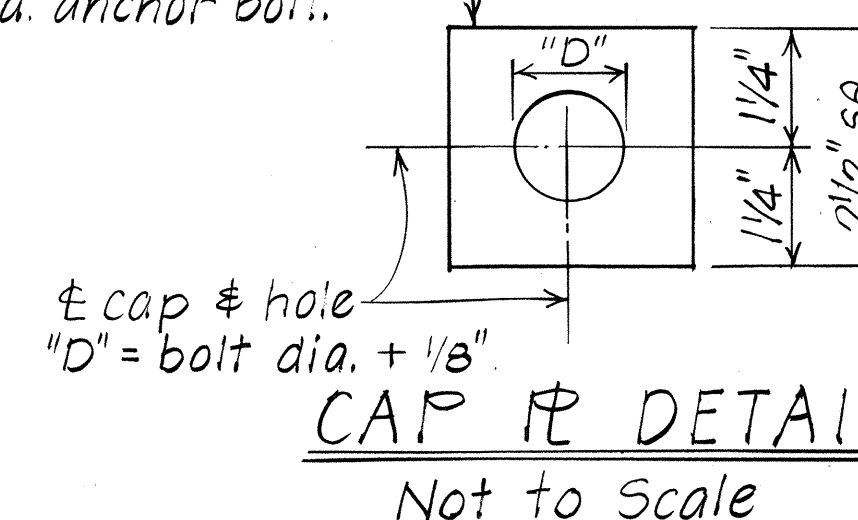
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83EF-02-86	1986	25	52



NOTES:

- All anchor bolts shall be high strength bolts conforming to the requirements of ASTM A325.
- All "Terminal Connector," including anchor bolts, nuts and washers shall be galvanized.
- Anchor bolt length given from under bolt head. Embedment of bolts shall be such that a snug fit of the rail elements & full thread engagement plus 1/4 inch (max.) is attained, without any additional washers or fillers.
- "Terminal Connector" shall be fabricated from 10 gage steel conforming to the requirements of AASHTO M180.
- First 25'-0" of guard rail adjoining "Terminal Connector" shall be galvanized steel. (See Plan Sht. Q2.)
- Place name of structure as shown. For location, see "Plan" on Contract Drawing. Date shown will be year structure is completed. Letter size and detail see Standard Drawing DB-100.
- Front face of End Post to match front face of typical concrete bridge rail.

2 1/2" x 2 1/2" x 1/2" thick & galv. after fabrication.
 1-at ea. anchor bolt.



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TYPICAL DETAILS	
METAL GUARDRAIL CONNECTION AT CONCRETE BRIDGE RAILING END POST	
Proj. No. 83EF-02-86	Date: Jan., 1986
Scale: As Noted	SHEET No. Q3 OF 3 SHEETS