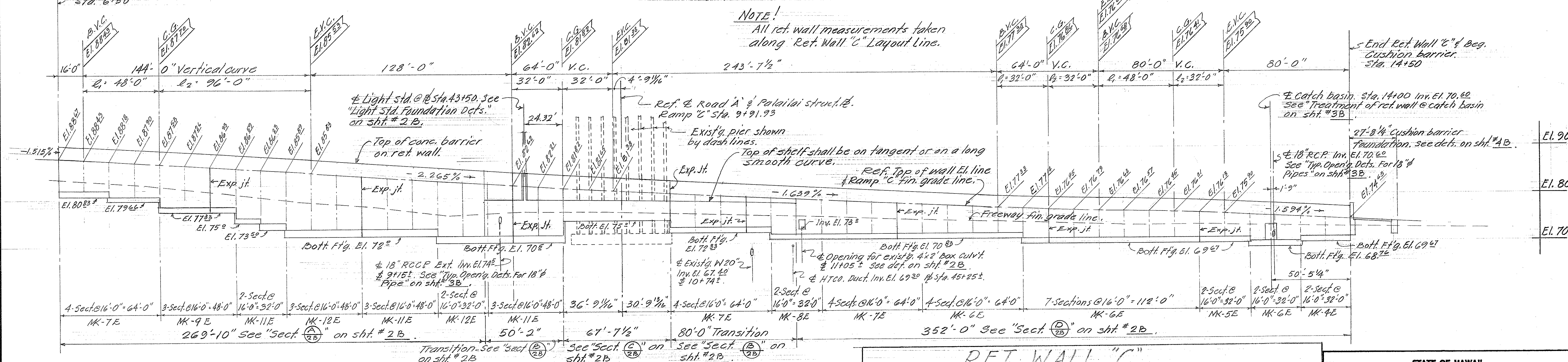
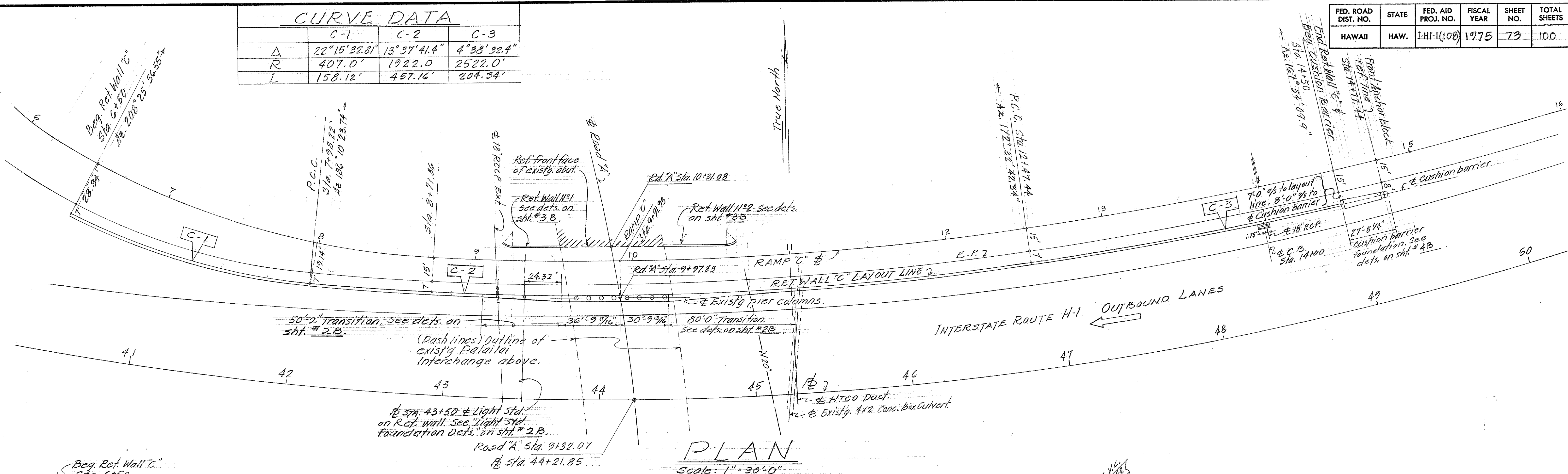


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(108)	1975	73	100

CURVE DATA			
	C-1	C-2	C-3
Δ	22°15'32.81"	13°37'41.4"	4°38'32.4"
R	407.0'	1922.0	2522.0'
L	158.12'	457.16'	204.34'

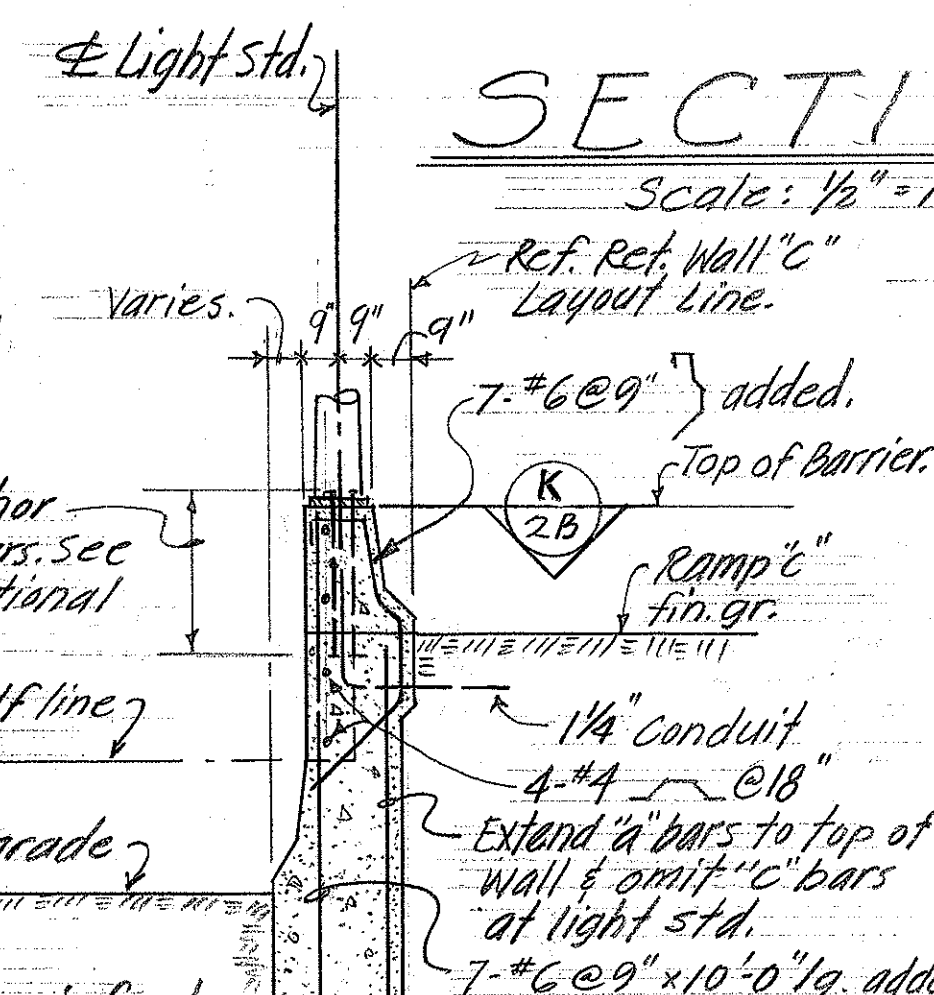
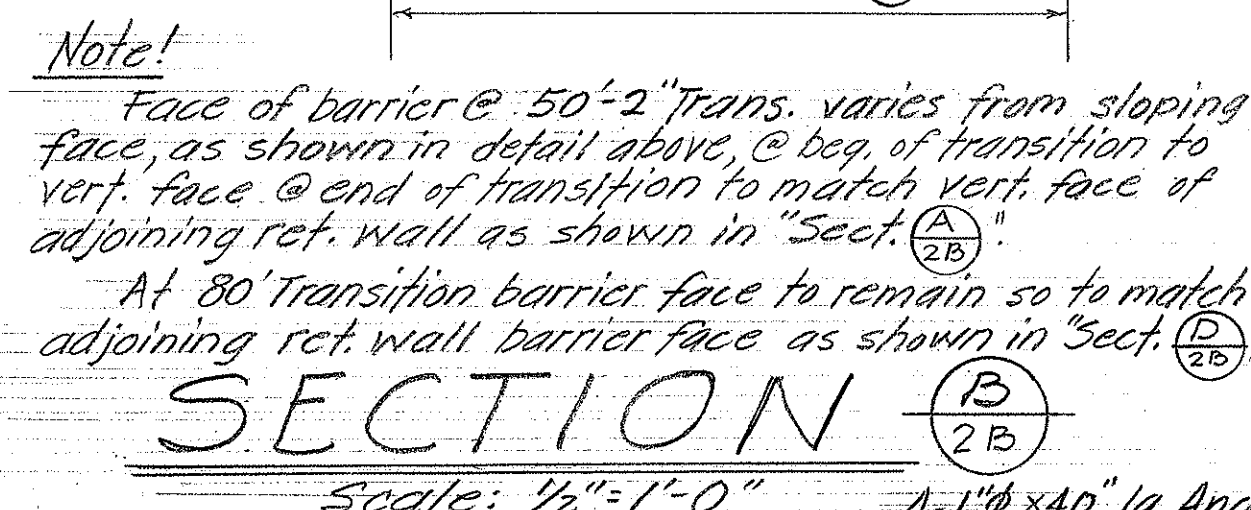
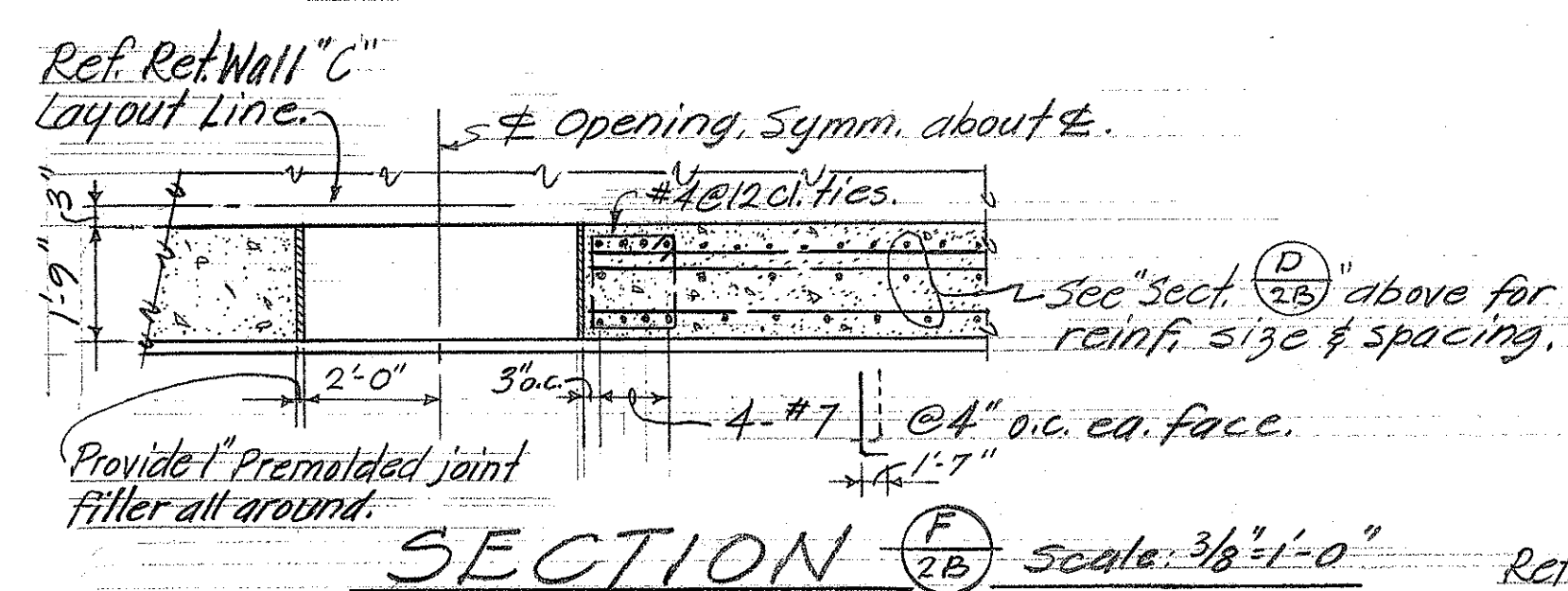
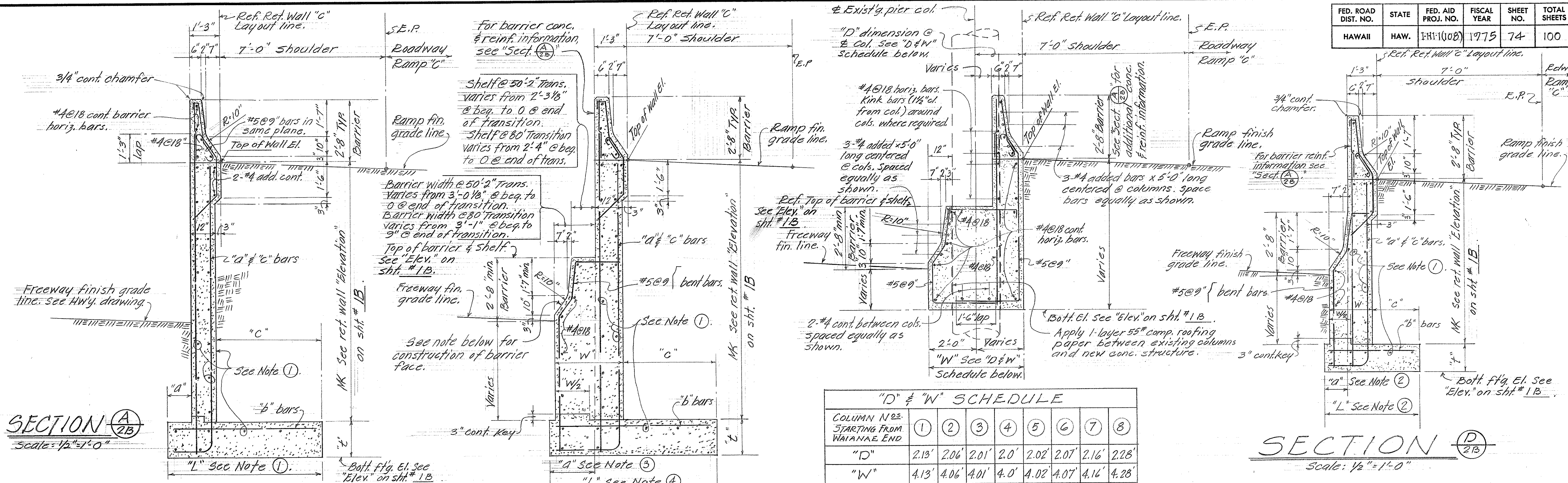


RET. WALL "C"	
ESTIMATED QUANTITIES	
CONCRETE	Lump Sum (600 c.y.)
REINF. STEEL	Lump Sum (50,000 LBS.)
STRUCT. EXCAVATION	886 c.y.
STRUCT. BACKFILL	688 c.y.
FILTER MATERIAL	92 c.y.

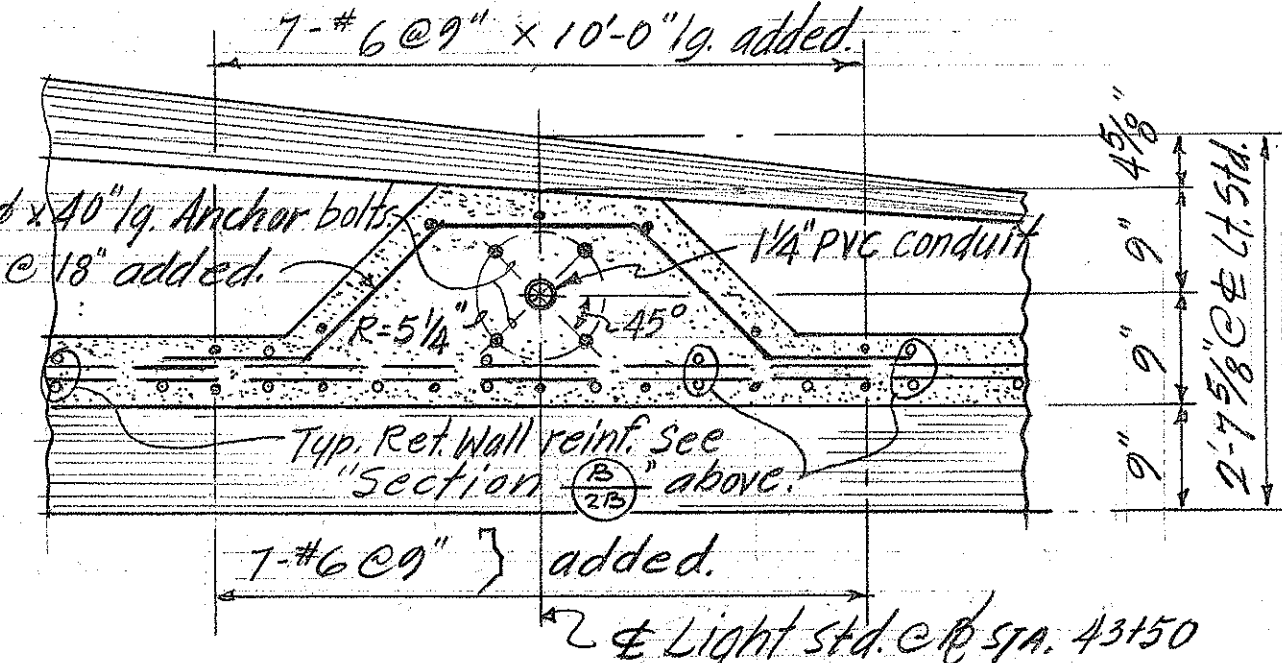
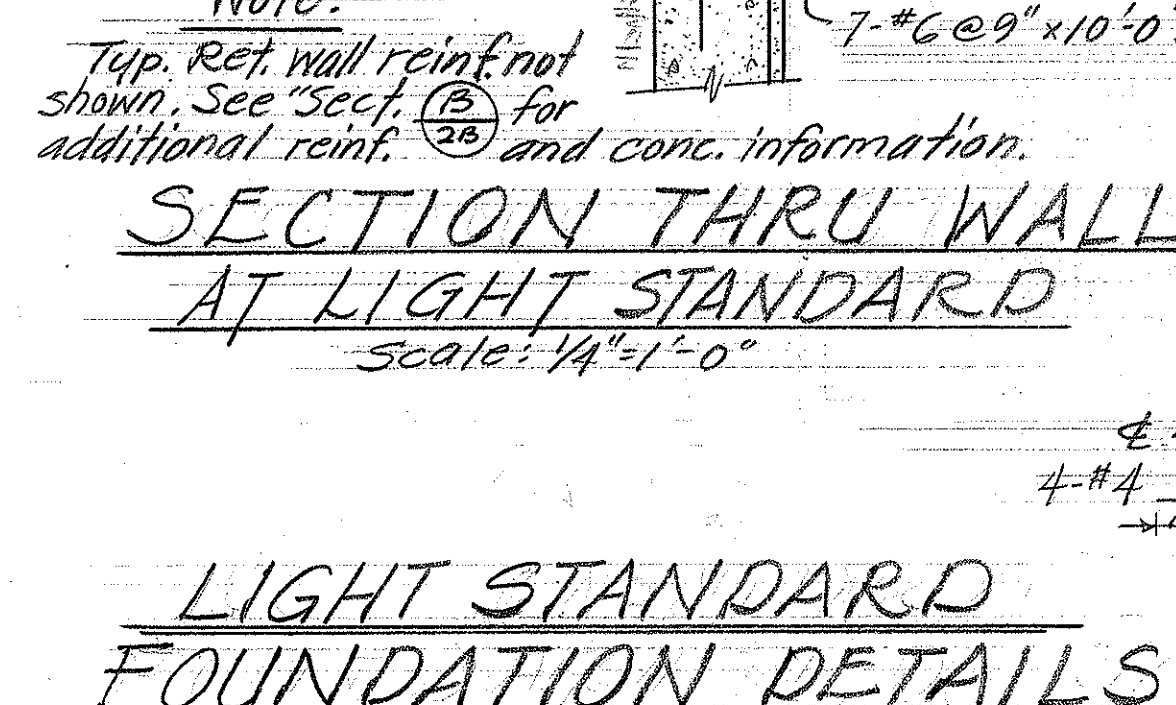
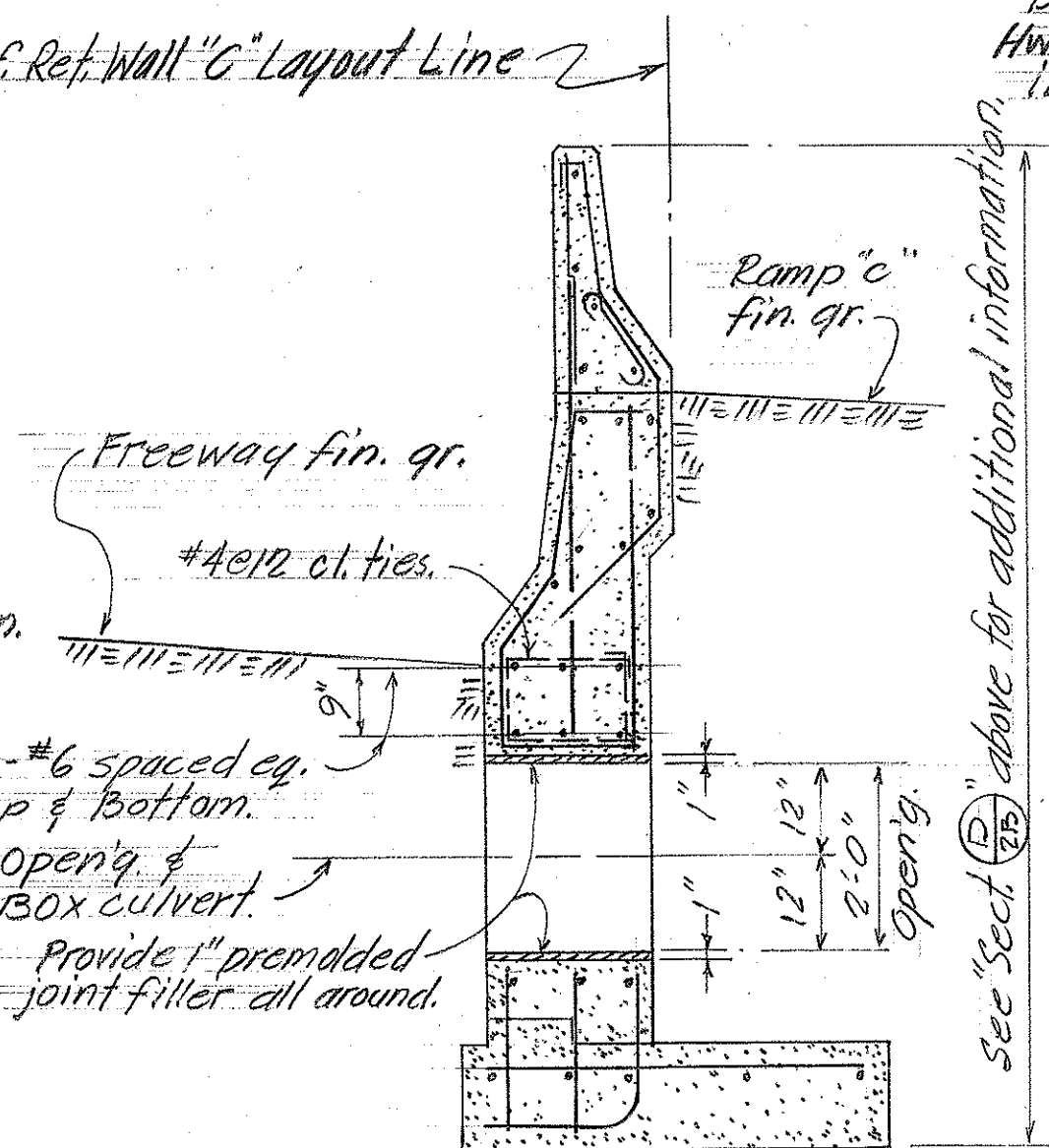
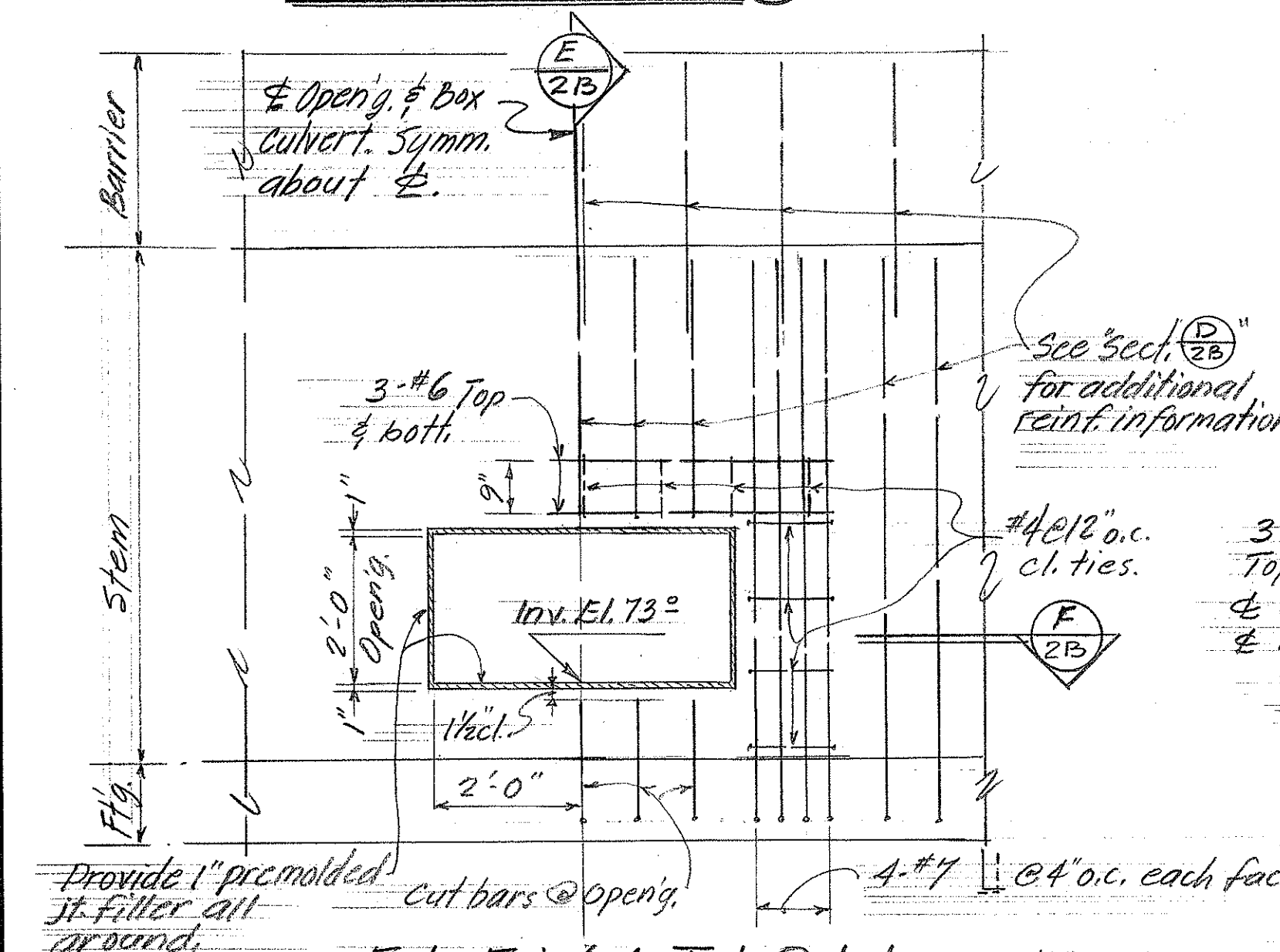
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RETAINING WALL "C"
PLAN & ELEVATION
SAFETY IMPROVEMENTS ALONG
INTERSTATE H-1
PALAILAI TO KUNIA
Proj. No. I-HI-1(108) Date: Nov. 1973
SHEET No. 18 OF 118 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
DESIGNED BY: _____
CHECKED BY: _____
ORIGINAL PLAN: _____
NOTE BOOK: _____
No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HA-1(108)	1975	74	100



- ① Except as otherwise noted on sections (A)_{2B}, (B)_{2B} and (D)_{2B} above, all reinf., concrete, excavation & drainage and other miscellaneous information shall be similar to standard ret. wall. See "Standard Details, Ret. Wall Type T-1" on sht. # 8B & 9B.
- ② "a" 12" and add 6" to "L" dimension for ret. wall MK 4E, 5E & 6E. Except for Transition section as noted on note ③, all others to remain as shown on schedule on sht. # 8B.
- ③ "a" dimension at Transition sections varies from 3'-4" @ beginning of transition to 12" @ end of transition.
- ④ "L" dimension at Transition sections shall be "L" (as shown on schedule on sht. # 8B) minus 12" plus varying "a" dimension noted on note ③ above.
- ⑤ For Ret. Wall "C" structure excavation and drainage detail, see "Case I" and for Ret. Wall N^o 1 & 2 see "Case II" on "Standard Details, Ret. Wall Type T-1" on sht. # 9B.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

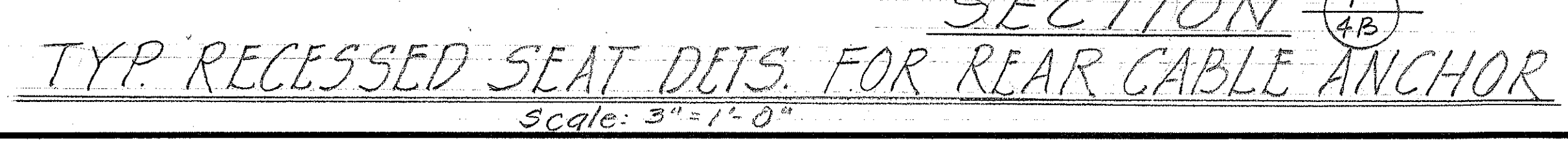
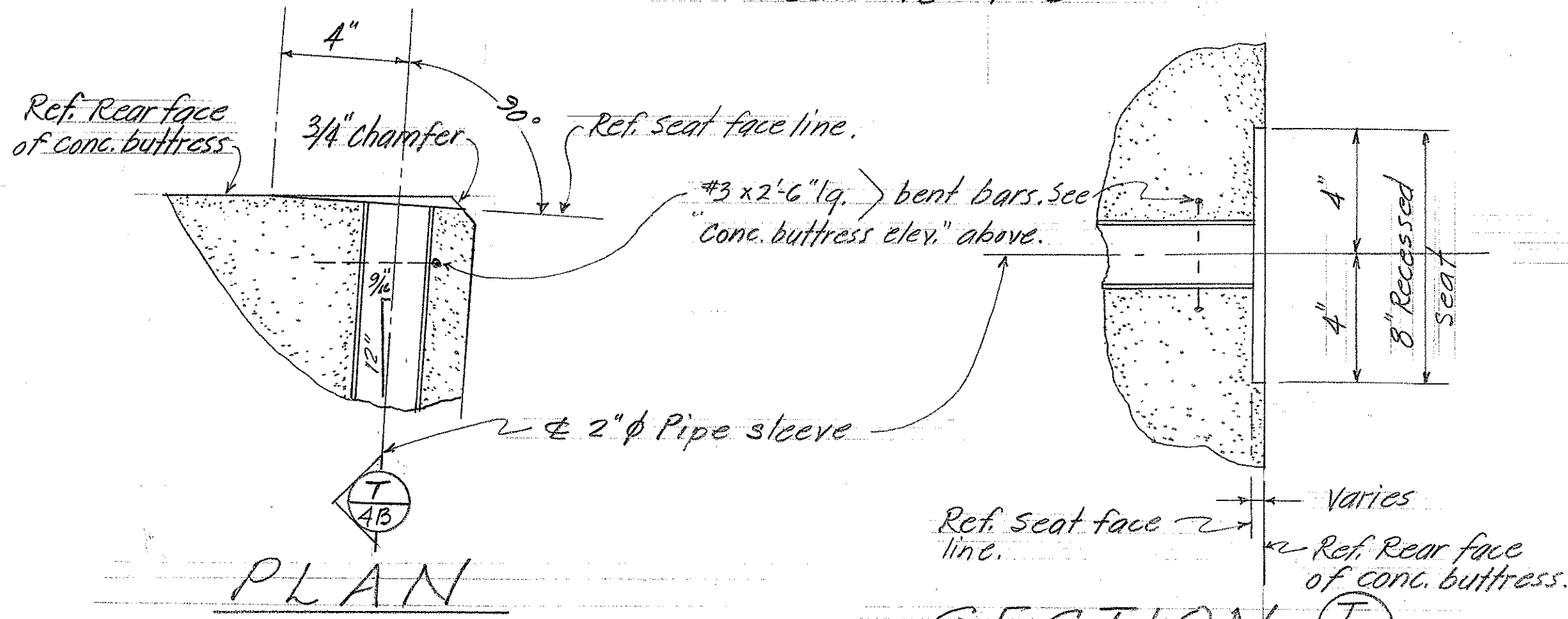
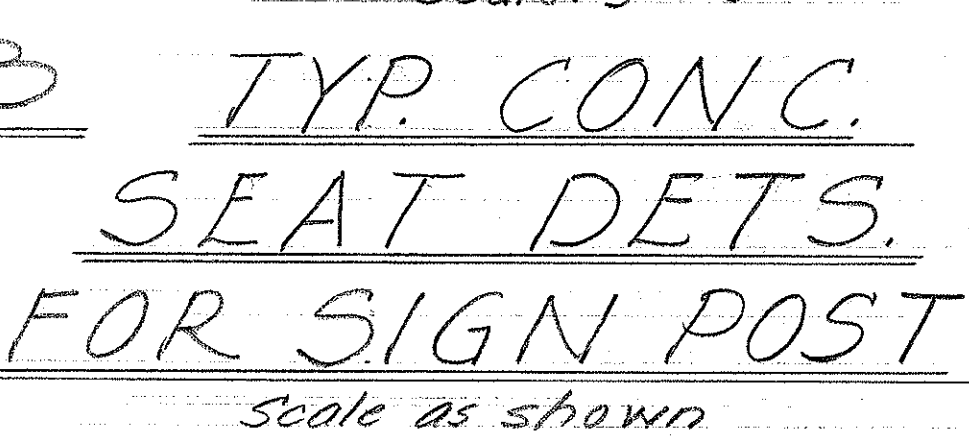
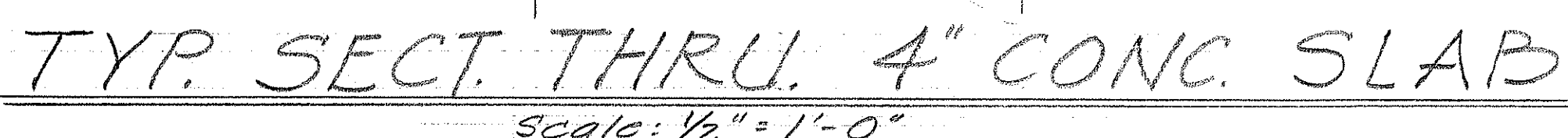
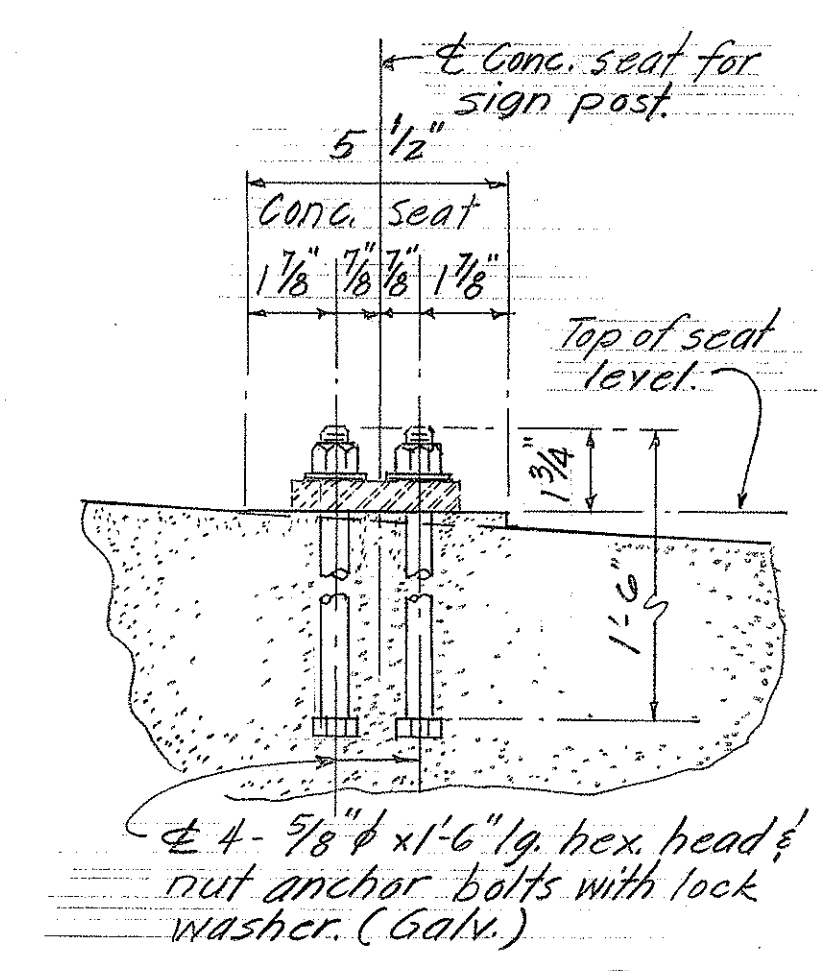
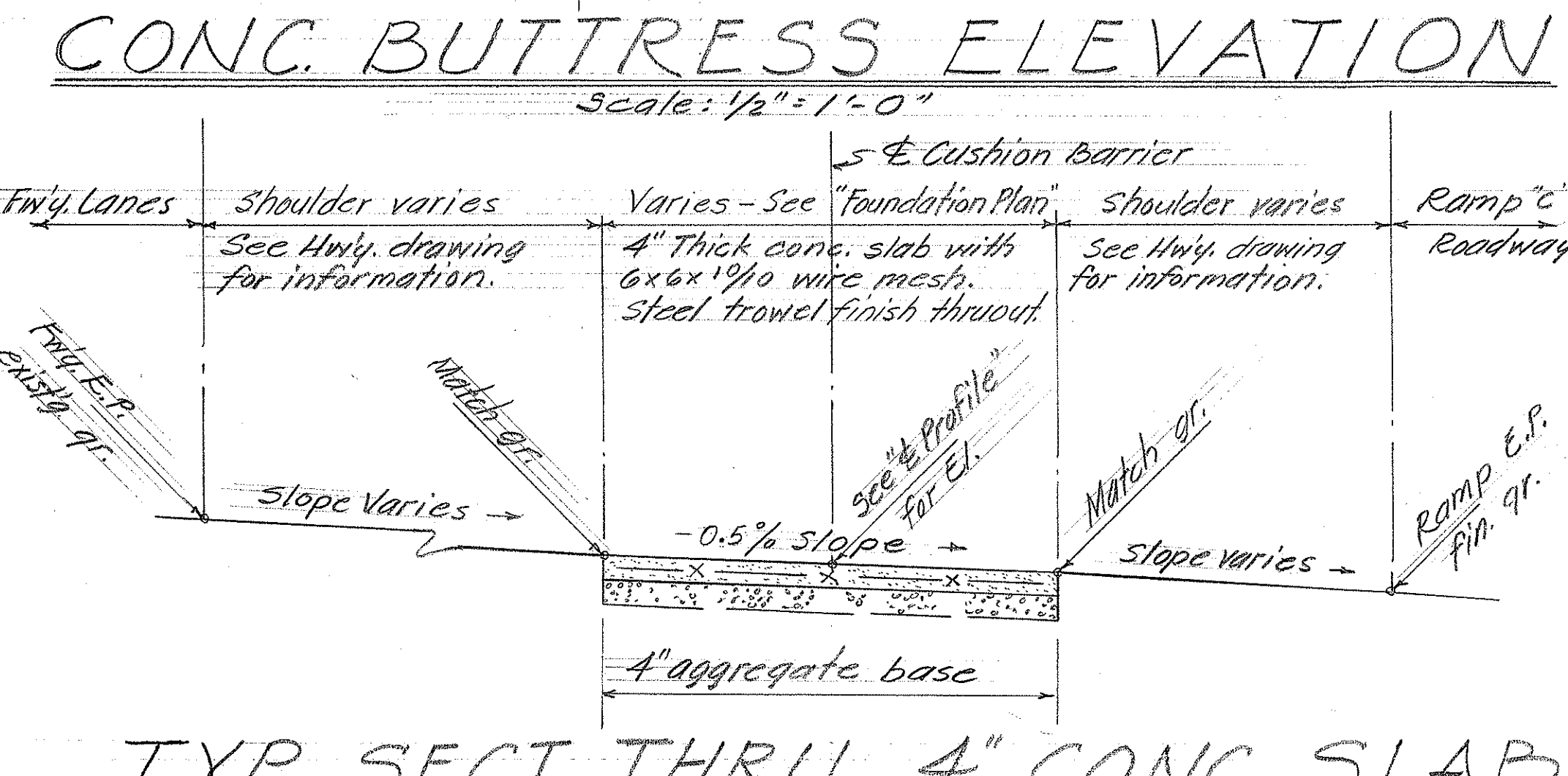
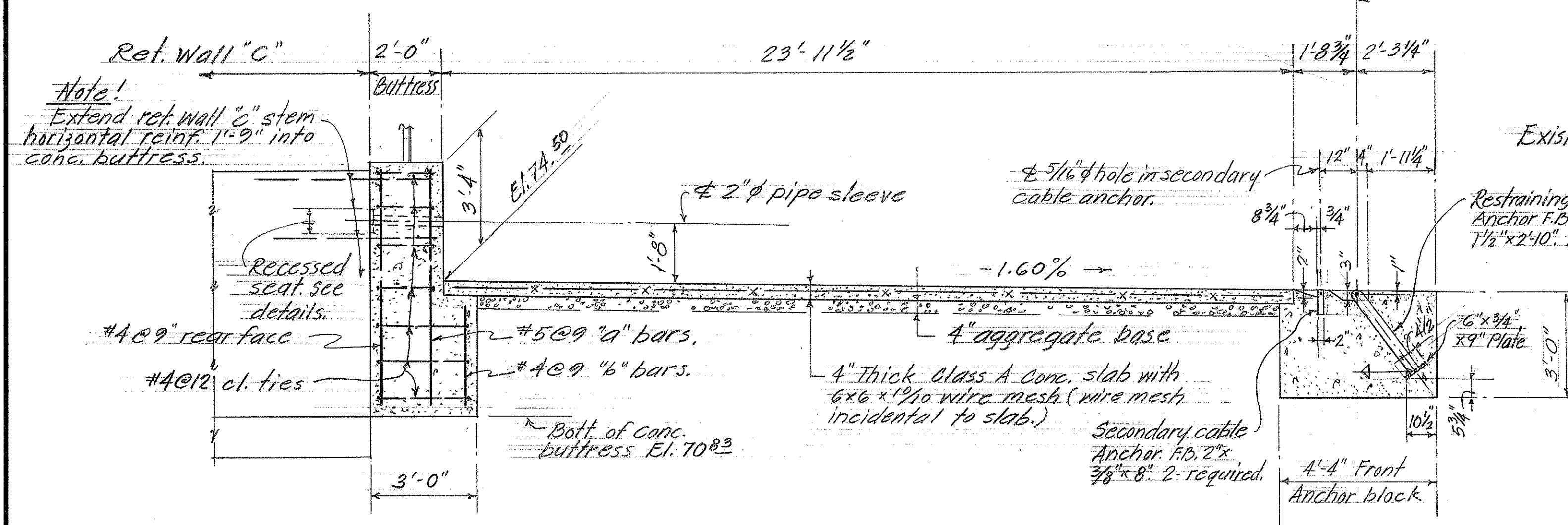
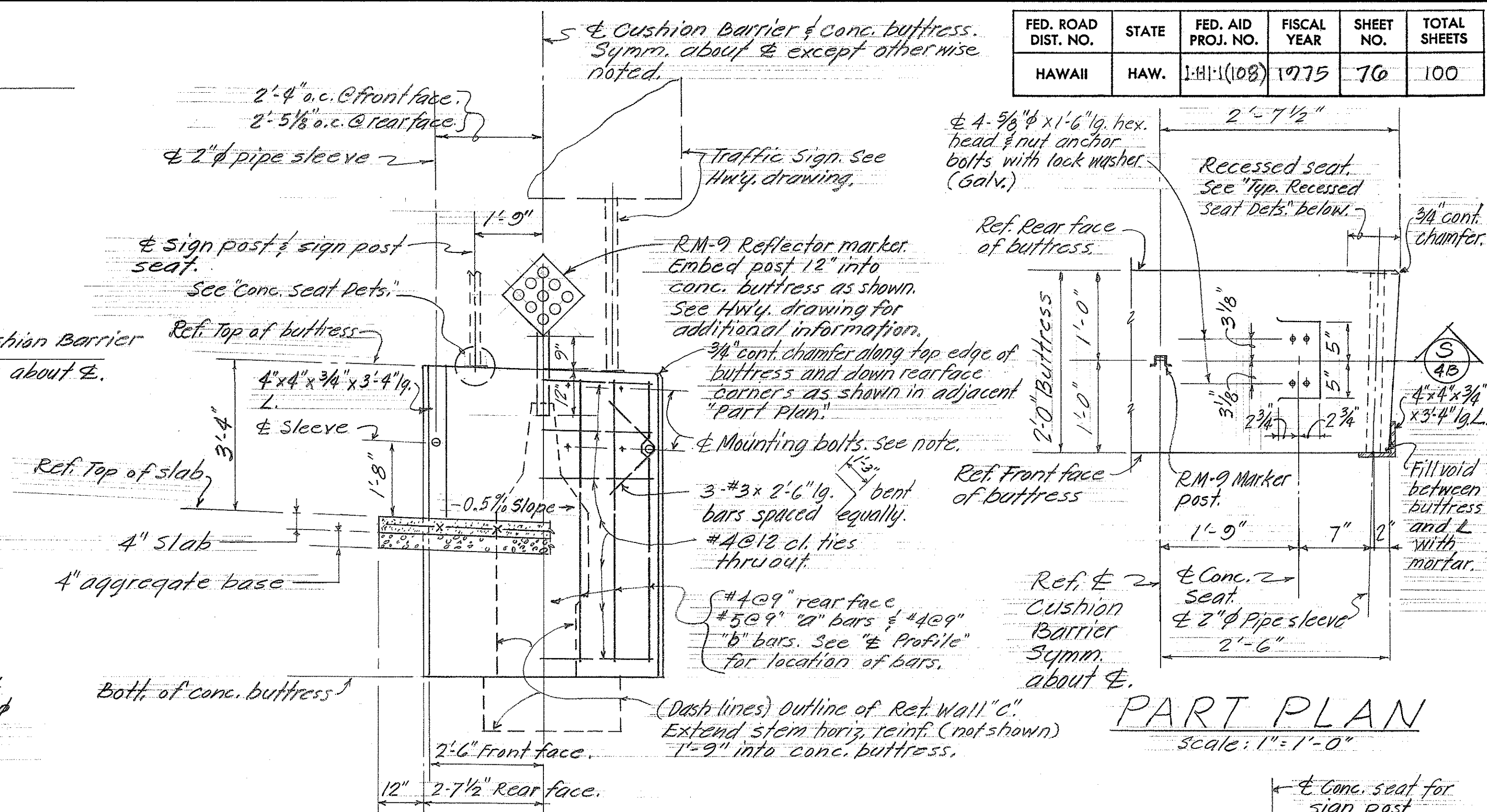
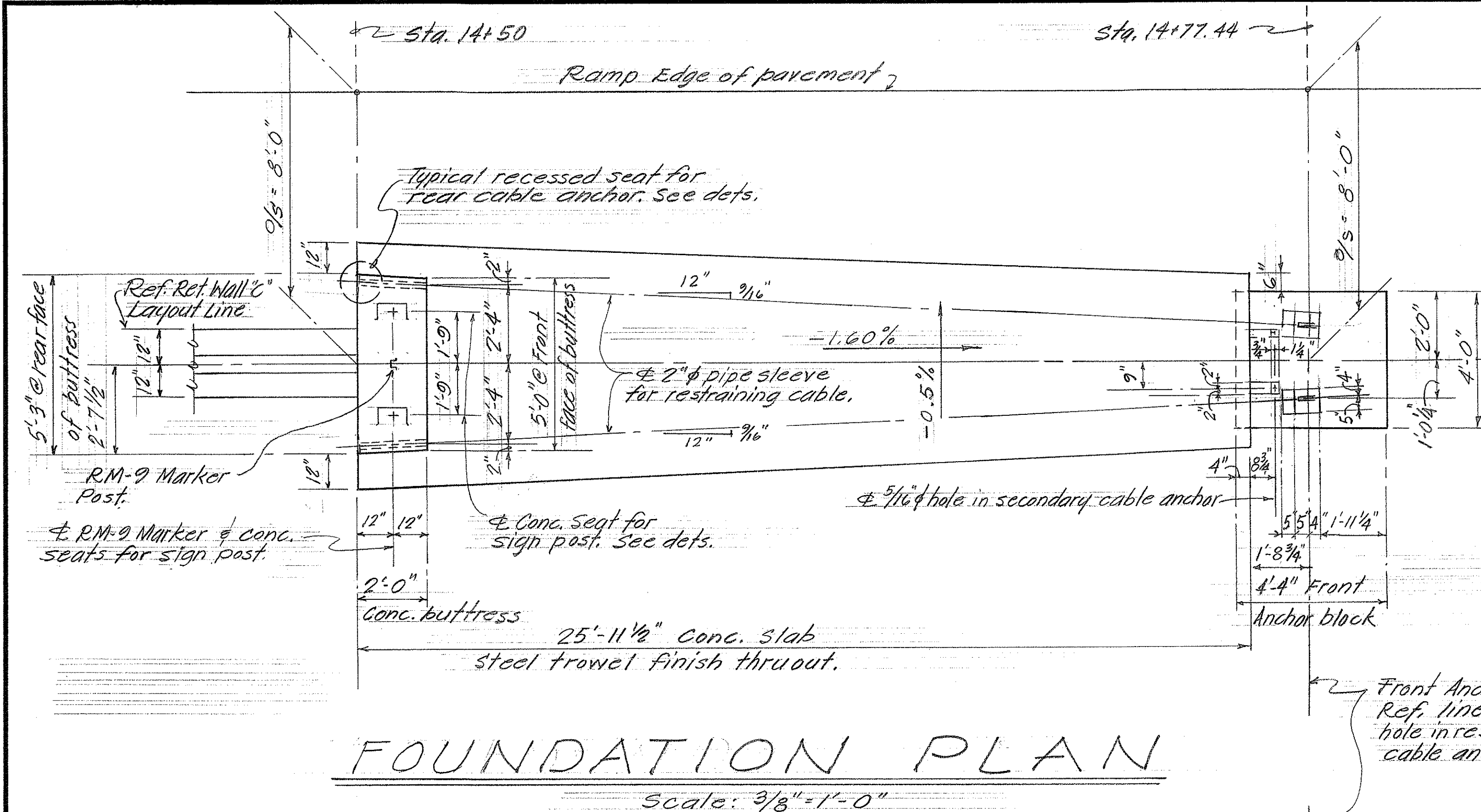
RETAINING WALL "C"
DETAILS

SAFETY IMPROVEMENTS ALONG
INTERSTATE H-1
PALAILAI TO KUNIA

Proj. No I-HI-1(10B) Date: Nov. 1973

SHEET No. 2B OF 11B SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(108)	1975	76	100



- All materials and information necessary to properly construct and install the cells shall be furnished by the manufacturer's of the cells. All brackets, bolts and other appurtenances necessary for the installation of the cushion barrier shall be placed in the structure that is being constructed, in accordance with the manufacturer's recommendations.

The individual components, fastenings and overall installation shall reflect the latest designs and installation practices at the time of installation.

Galvanize all anchor assemblies in front anchor block and buttress and all bolts, mounting straps, sleeves and other appurtenances used in the installation of the cushion barrier.

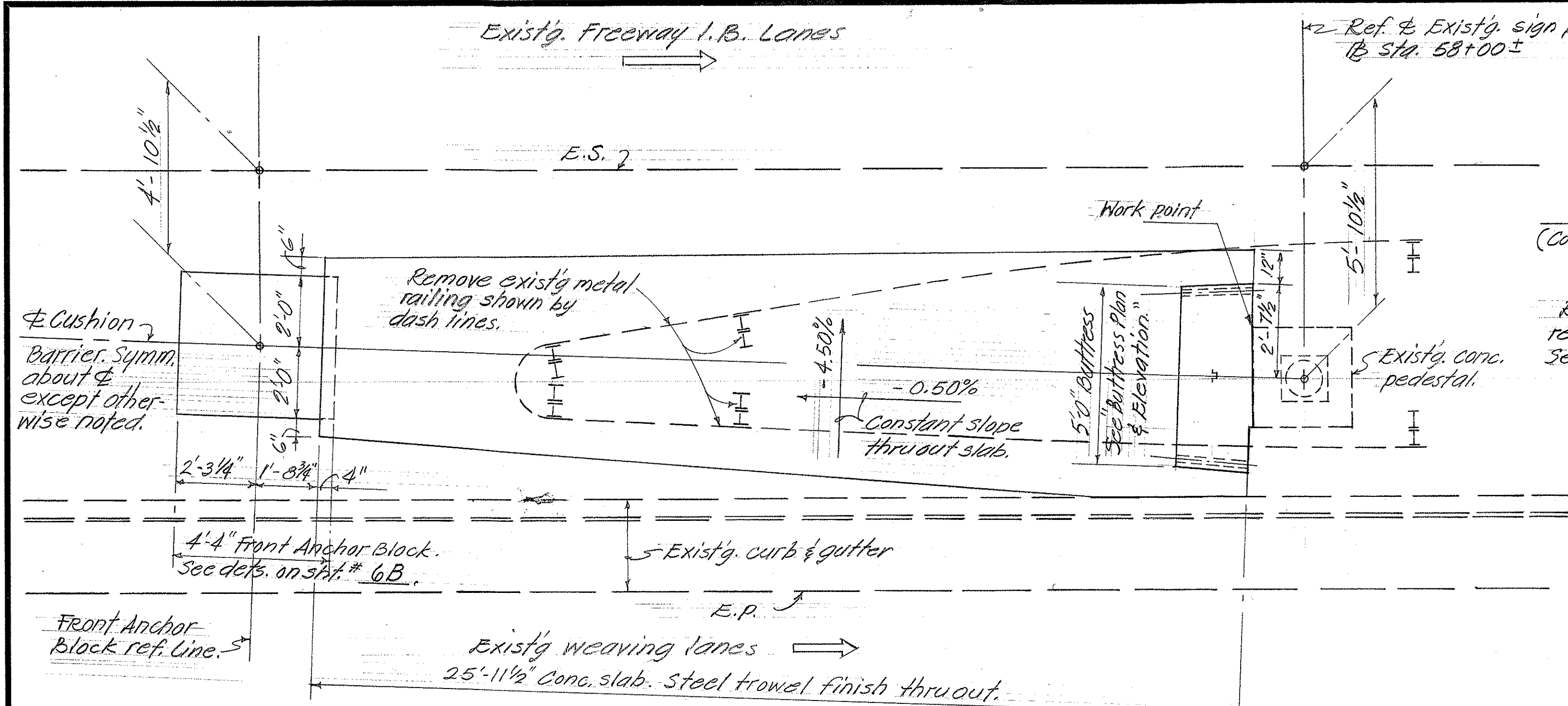
<u>CUSHION BARRIER</u>	
<u>ESTIMATED QUANTITIES</u>	
CONCRETE	9 c.y.
REINF. STEEL	173 lbs.
STRUCT. EXCAVATION	4 c.y.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

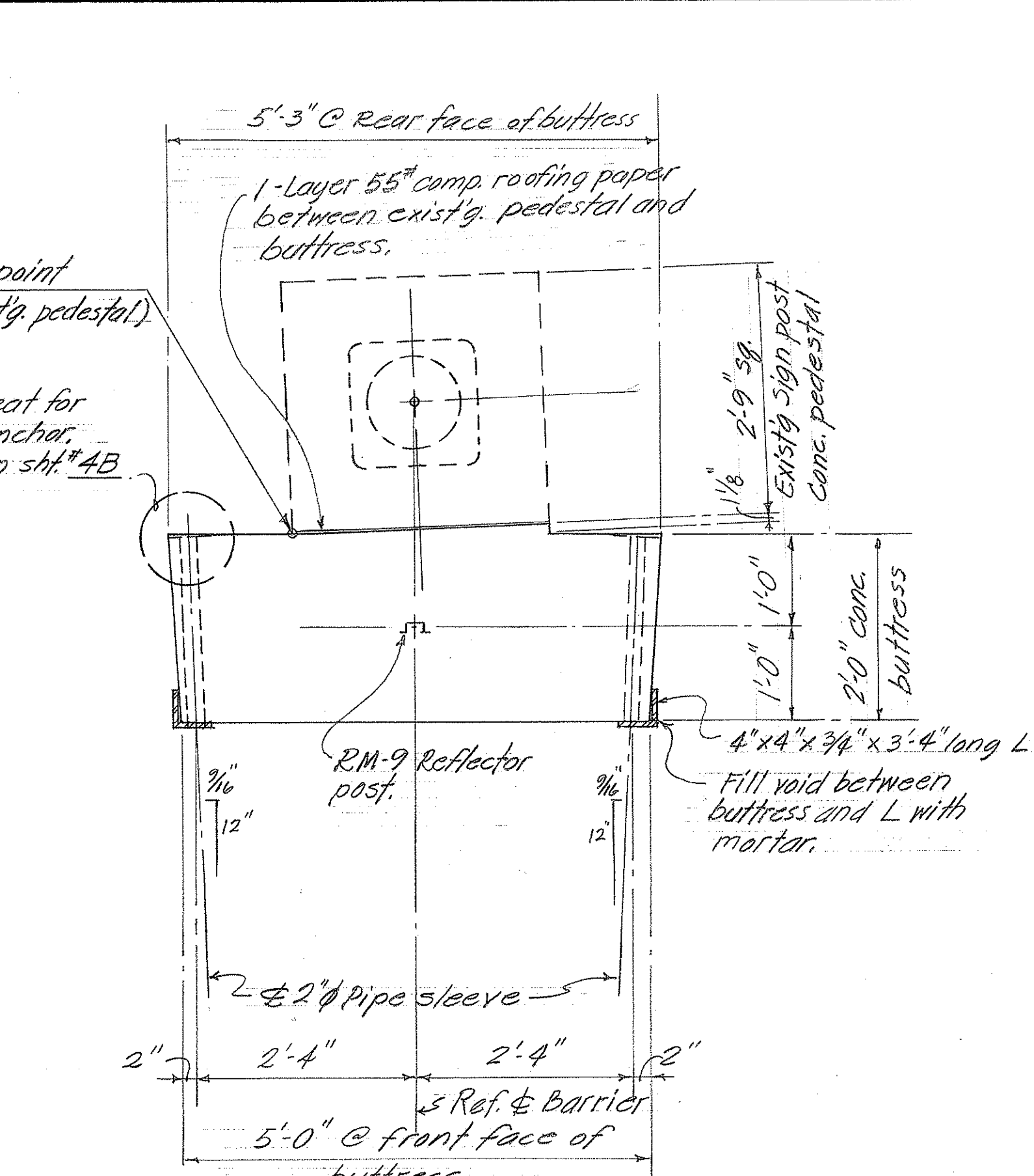
CUSHION BARRIER @
RAMP "C" STA. 14+50
FOUNDATION DETAILS
SAFETY IMPROVEMENTS ALONG
INTERSTATE H-1
PAIALLAI TO KUNIA
Proj. N° I-H-1-1 (108) Date: Nov, 1973

SHEET No. 4B OF 11B SHEETS

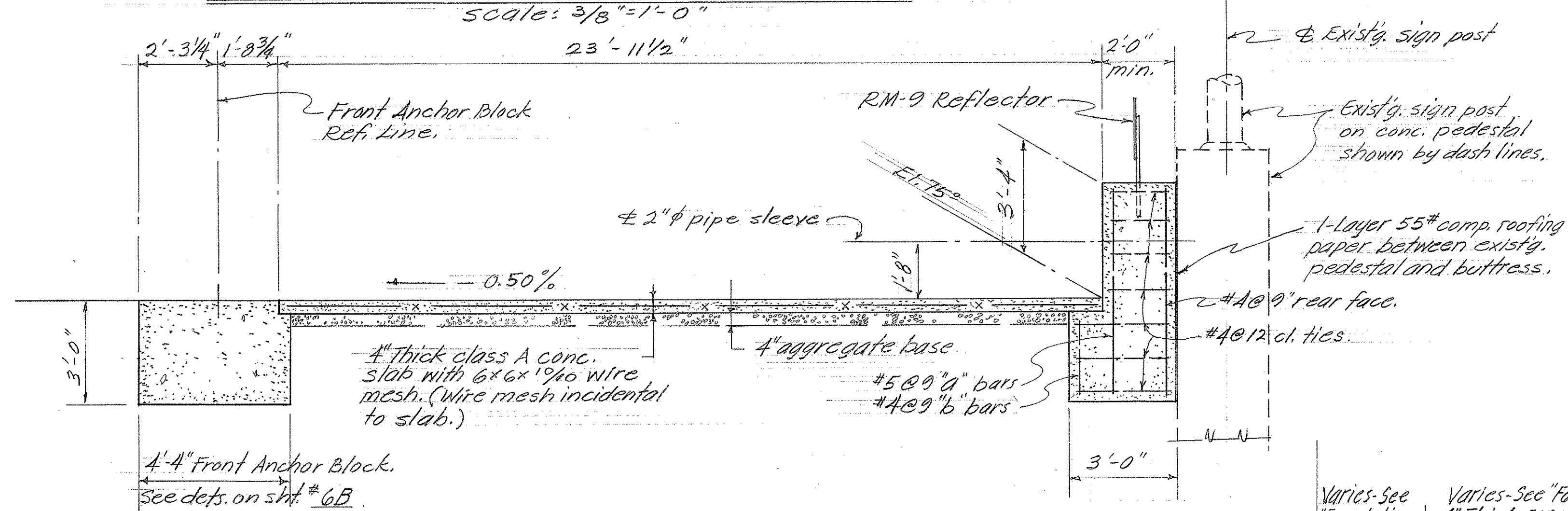
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHI-1(108)	1975	77	100



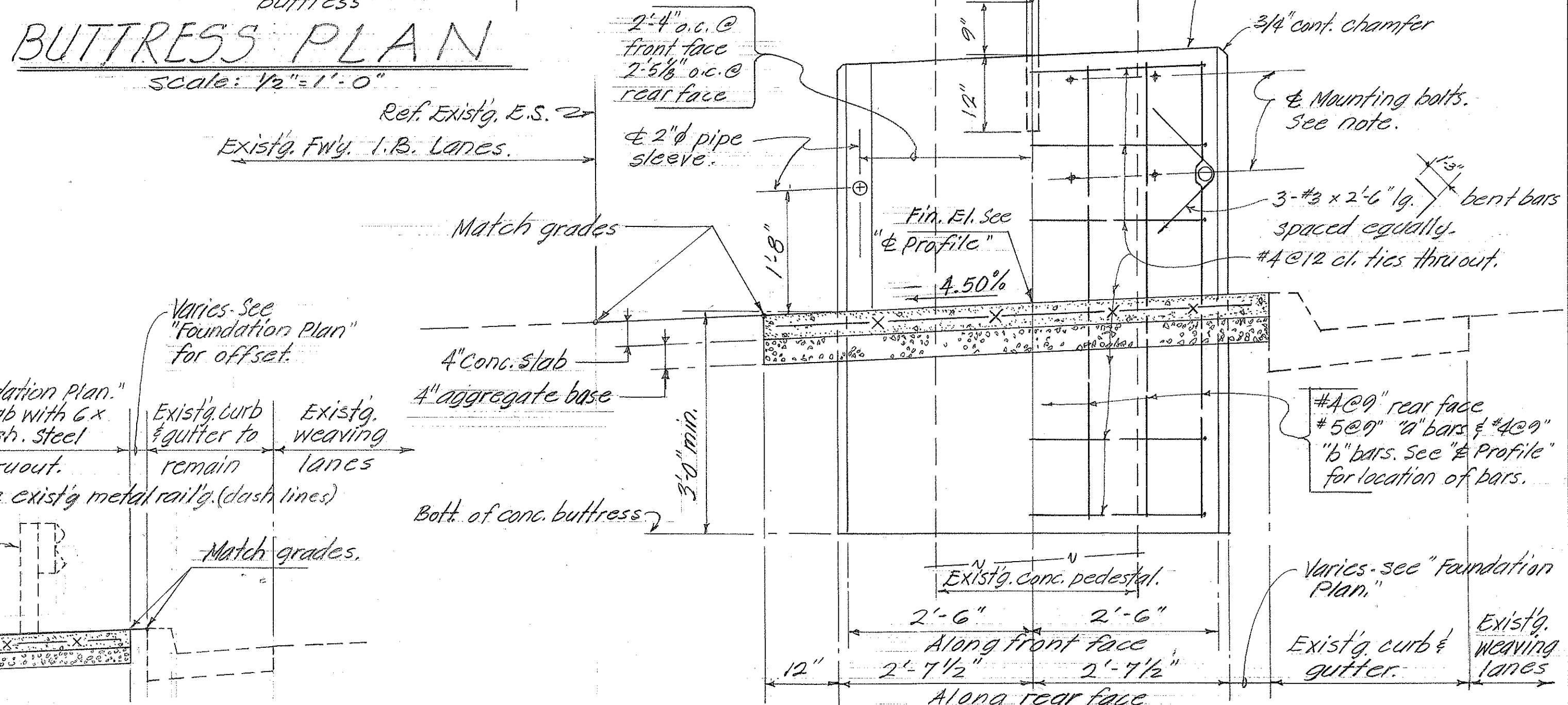
FOUNDATION PLAN
Scale: 3/8"=1'-0"



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



E PROFILE
Scale: 3/8"=1'-0"



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

TYP. SECTION THRU
4" CONC. SLAB
Scale: 1/2"=1'-0"

CUSHION BARRIER ESTIMATED QUANTITIES	
CONCRETE	10.5 c.y.
REINF. STEEL	200.0 lbs.
STRUCT. EXCAVATION	5.0 c.y.

NOTE

All materials and information necessary to properly construct and install the cells shall be furnished by the manufacturer of the cells. All brackets, bolts and other appurtenances necessary for the installation of the cushion barrier shall be placed in the structure that is being constructed, in accordance with the manufacturer's recommendations.

The individual components and overall installation shall reflect the latest designs and installation practices at the time of installation.

Galvanize all anchor assemblies in front anchor block and buttress and all bolts, mounting straps, sleeves and other appurtenances used in the installation of the cushion barrier.

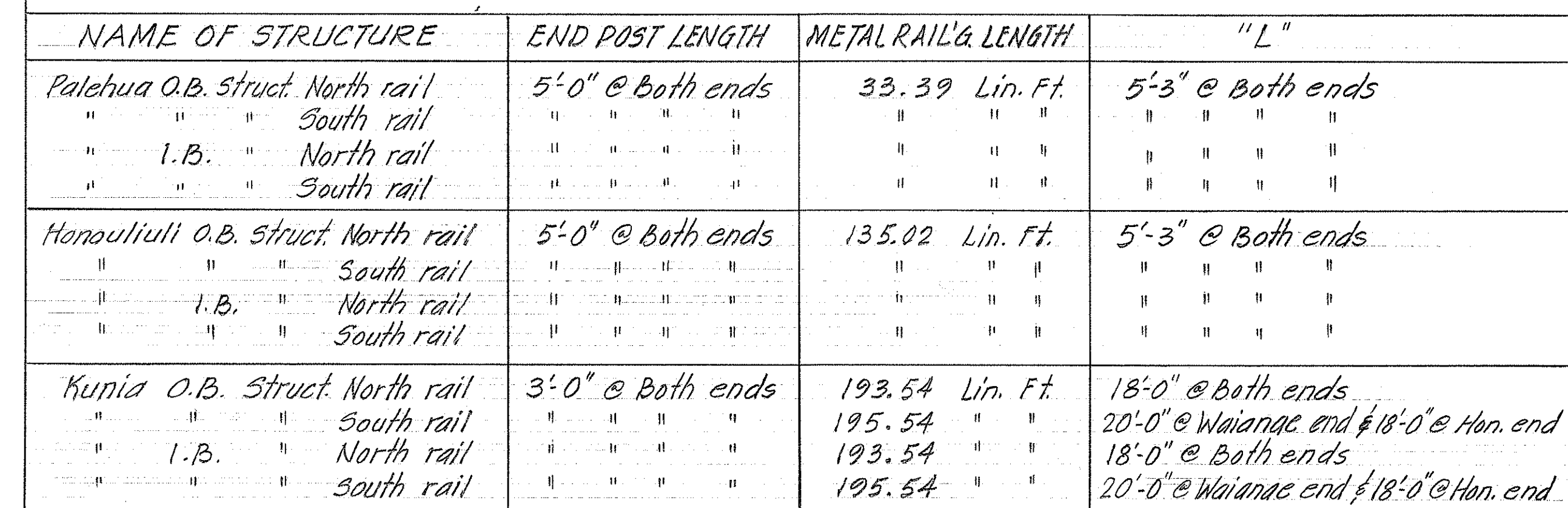
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CUSHION BARRIER @
Sta. 58+00±
FOUNDATION DETAILS
SAFETY IMPROVEMENTS ALONG
INTERSTATE HI
PALAILAI TO KUNIA
Proj. N° I-HI-1 (108) Date: Jan, 1974

SHEET NO. 5B OF 11B SHEETS

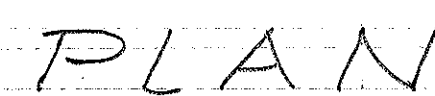
ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

SCHEDULE FOR REMOVAL LENGTH OF EXIST'G. BRIDGE STRUCT.

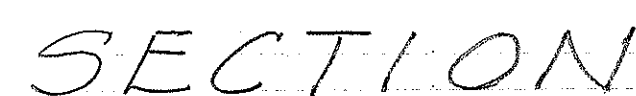


Omit slot and intermediate support block for metal guard rail connection from concrete end post at these locations.

- ① Honolulu I.B. Structure North rail, Waianae end.
② " I.B. " " " " " "
③ Kūia I.B. " " " " " "



See "Note" on corresponding cushion barrier drawings for additional informations.



FRONT CONC. ANCHOR BLOCK DETAILS

Scale: $1'' = 1'-0''$

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SCHEDULE FOR PALEHUA, HONOLULU I &
KUNIA SEPARATION AND CUSHION
BARRIER TYP. FRONT CONC. ANCHOR
BLOCK DETAILS

SAFETY IMPROVEMENTS ALONG
INTERSTATE H-1 ~ PALEILAI TO KUNIA

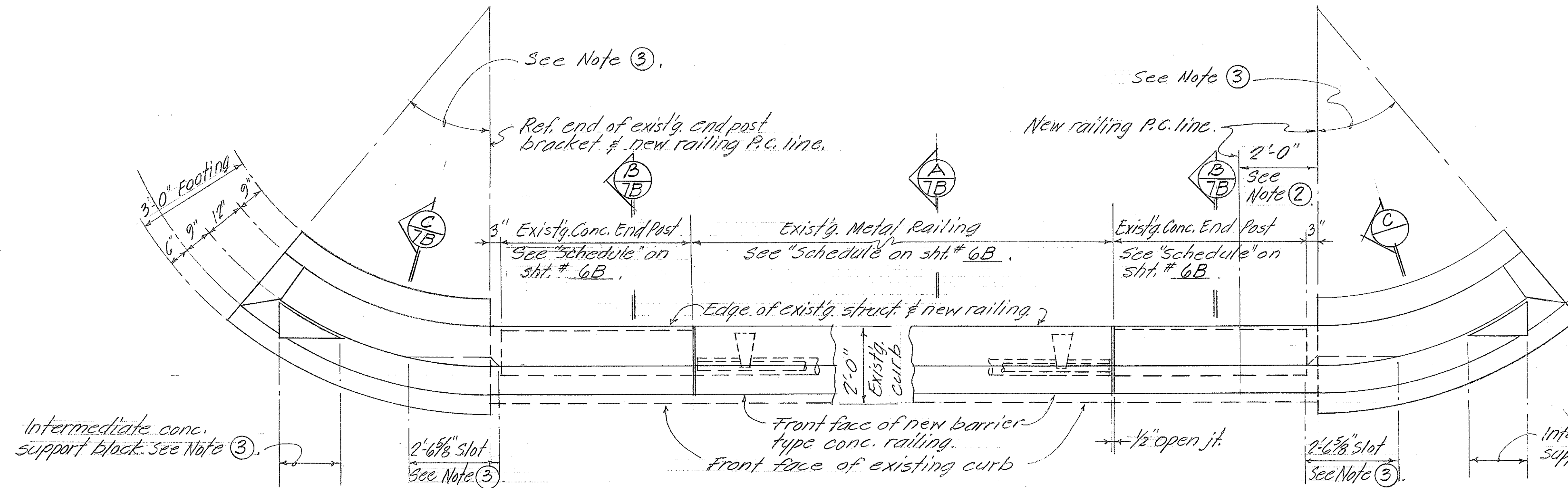
Proj: N° I-HI-1 (108) Date: Jan., 1974

SHEET No. 63 OF 118 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1HPT(108)	1975	79	100

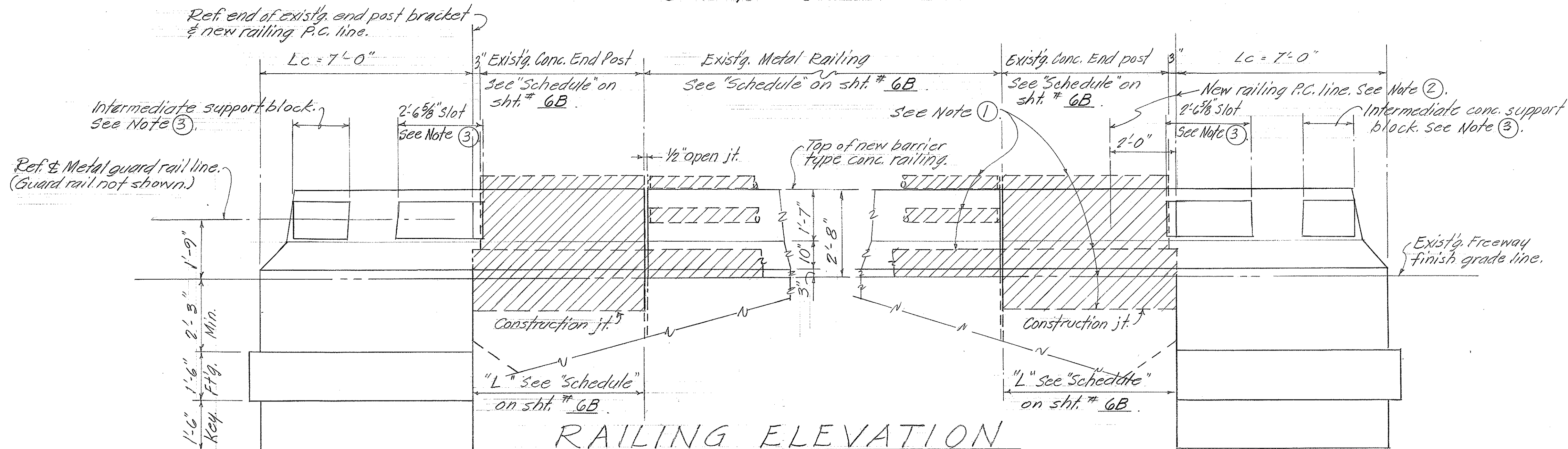
NOTES

- Existg. bridge structure shown by dash lines. Limits of removal of existg. structure shown by hatched line areas.
- For Honouliuli Stream bridge. Outbound struct., North rail Honolulu end only. Begin new railing P.C. 2'-0" in from end of existg. end post bracket as shown in Plan to clear existg. conc. sump. All others, begin P.C. at end of existg. end post bracket.
- For curve end section of new concrete railing and connection details of metal guard rail (slot & intermediate support block), see "Standard Details" on sht. # 11B for additional information and details. Also, see note on sht. # 6B.
- For removal of all existg. exposed reinf. (except those shown in Typ. Sect. (B) and noted on note (5)) burn 1" below existg. conc. deck line as shown in detail. Fill resulting 1" depression with mortar and smooth finish to match existg. deck grade.
- Clean all exposed vertical reinf. occurring in this section (see "Elev." & "Schedule" for location & limits) before pouring of new railing. Remove horizontal bars and curb reinf. (not shown in detail).
- The Contractor shall erect portable concrete guard rail when reconstructing the bridge exterior railing. See Sheets 13 & 14 for details of temporary guard rail.



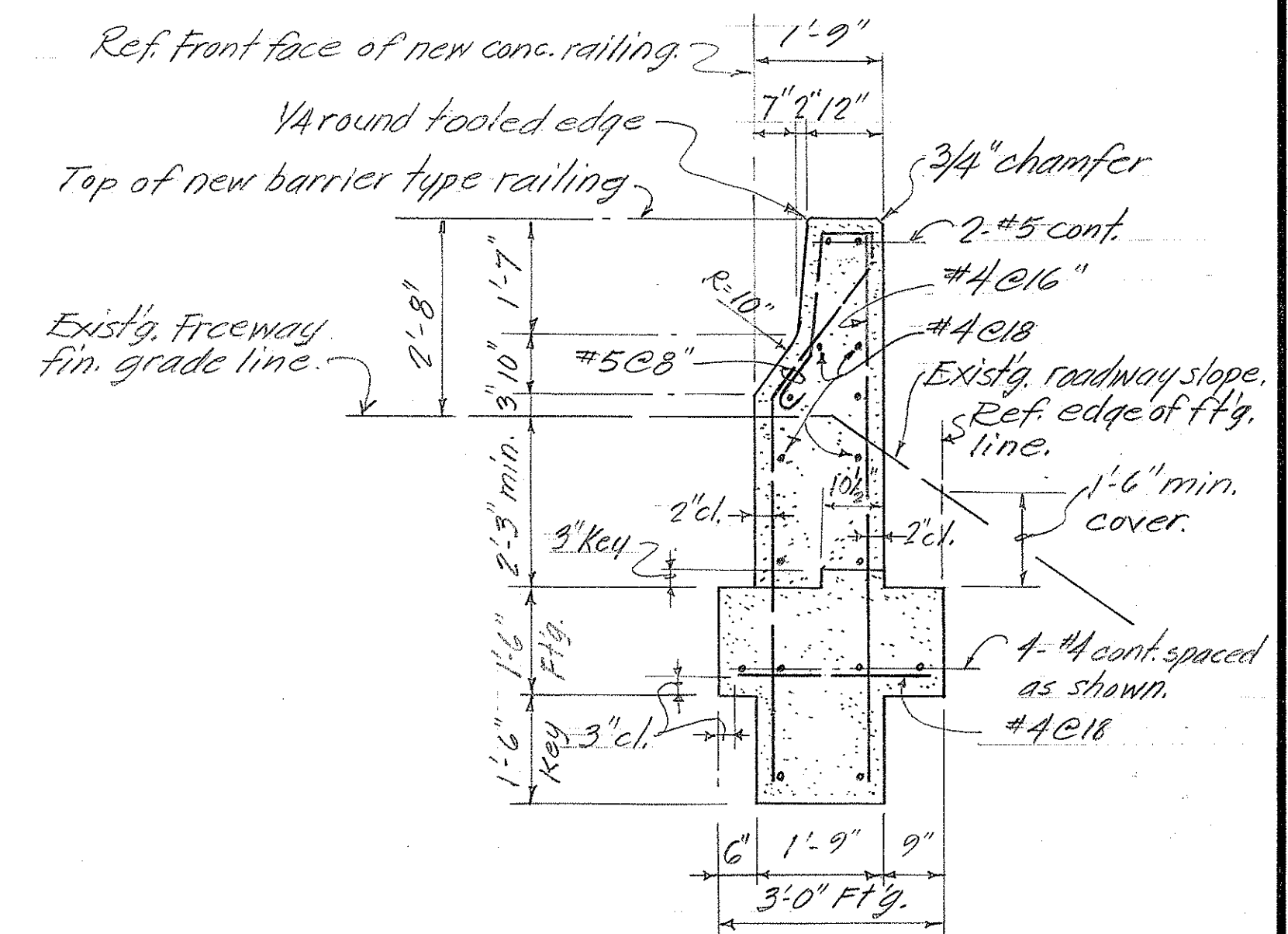
TYP. PART PLAN OF EXISTING & NEW CONC. RAILING FOR PALEHUA, HONOUULIULI & KUNIA SEPARATION

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



RAILING ELEVATION

scale: 1/8" = 1'-0"



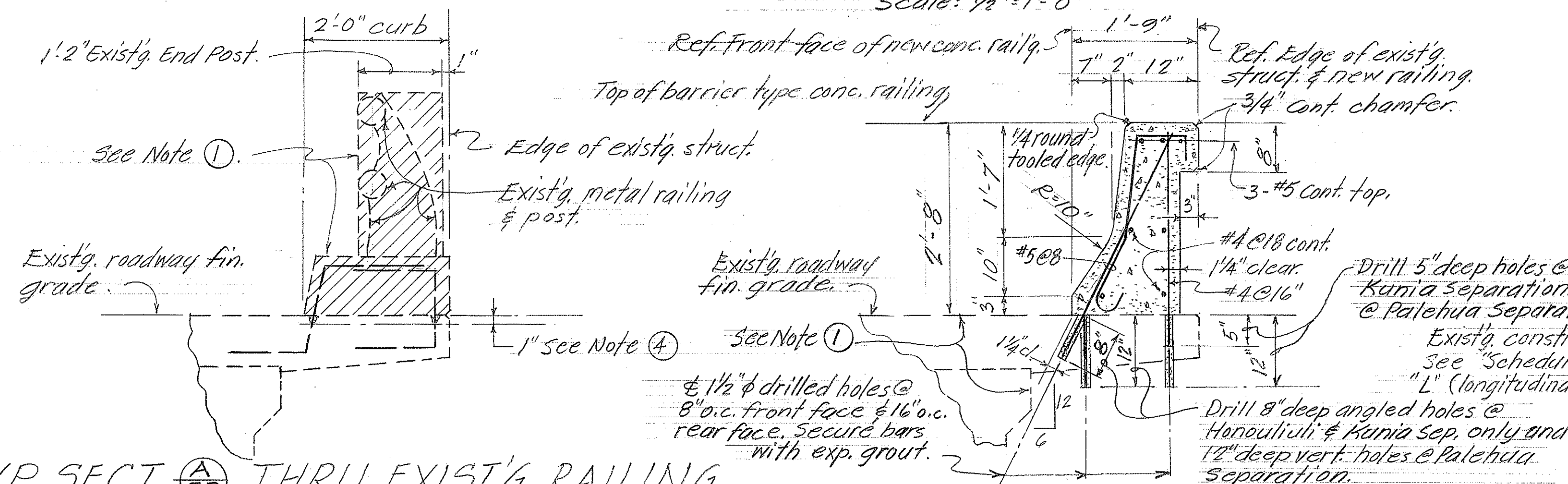
TYP. SECT. (C) THRU EXISTG. RAILING

scale: 3/4" = 1'-0"

ESTIMATED QUANTITIES

ITEM	LOCATION	PALEHUA SEPARATION	HONOUULIULI STR. BRIDGE	KUNIA SEPARATION
* REMOVAL OF EXISTG. CONCRETE CURB		176 Lm.Ft.	582 Lm.Ft.	804 Lm.Ft.
DRILLING OF HOLES FOR DOWELS		404 HOLES	1,312 HOLES	1,812 HOLES
NEW CONC. BARRIER TYPE RAILING		231.5 Lm.Ft.	638 Lm.Ft.	860 Lm.Ft.

* END POST INCLUDED

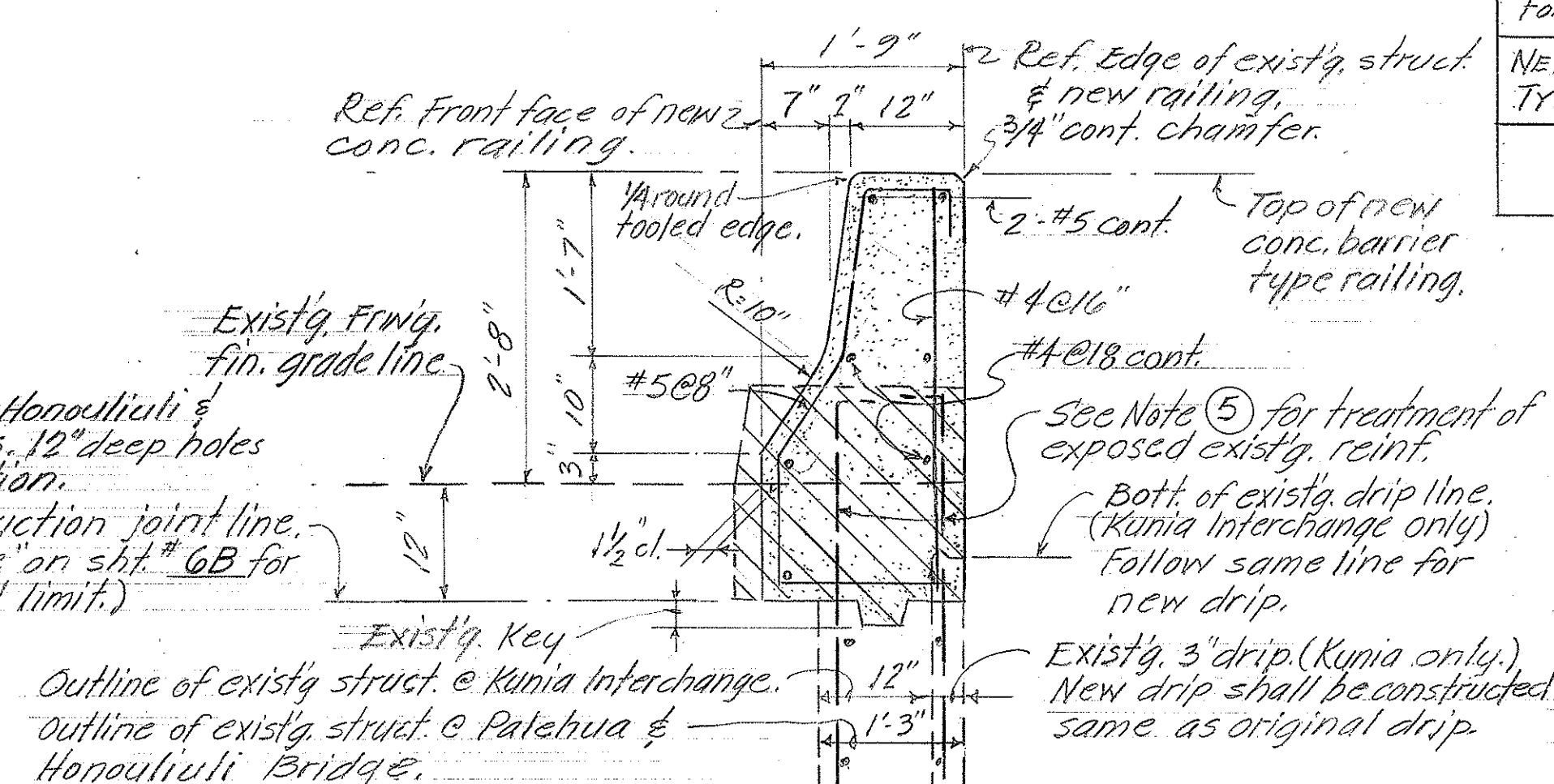


TYP. SECT. (A) THRU EXISTG. RAILING

scale: 3/4" = 1'-0"

TYP. SECT. (A) THRU NEW CONC. BARRIER TYPE RAILING

scale: 3/4" = 1'-0"



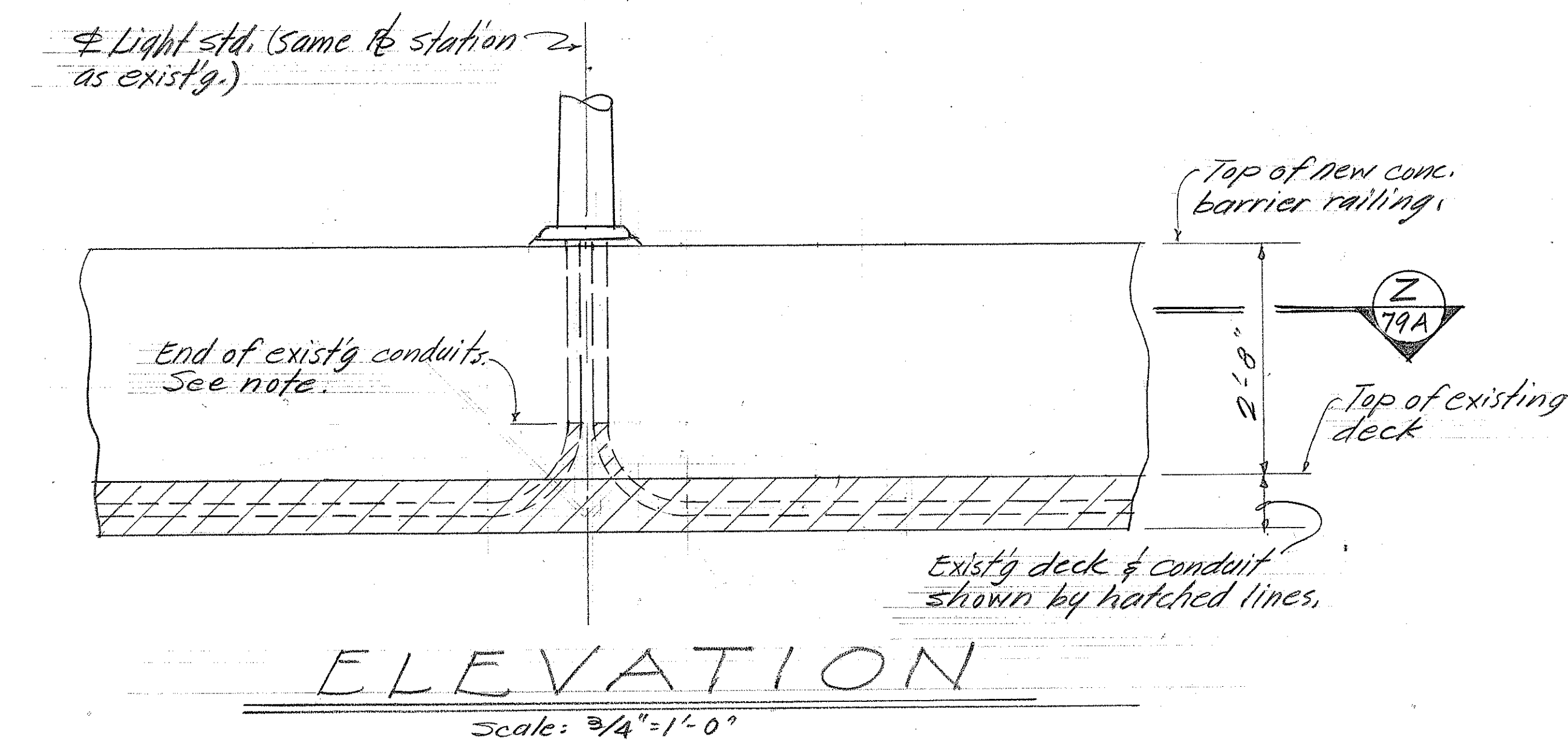
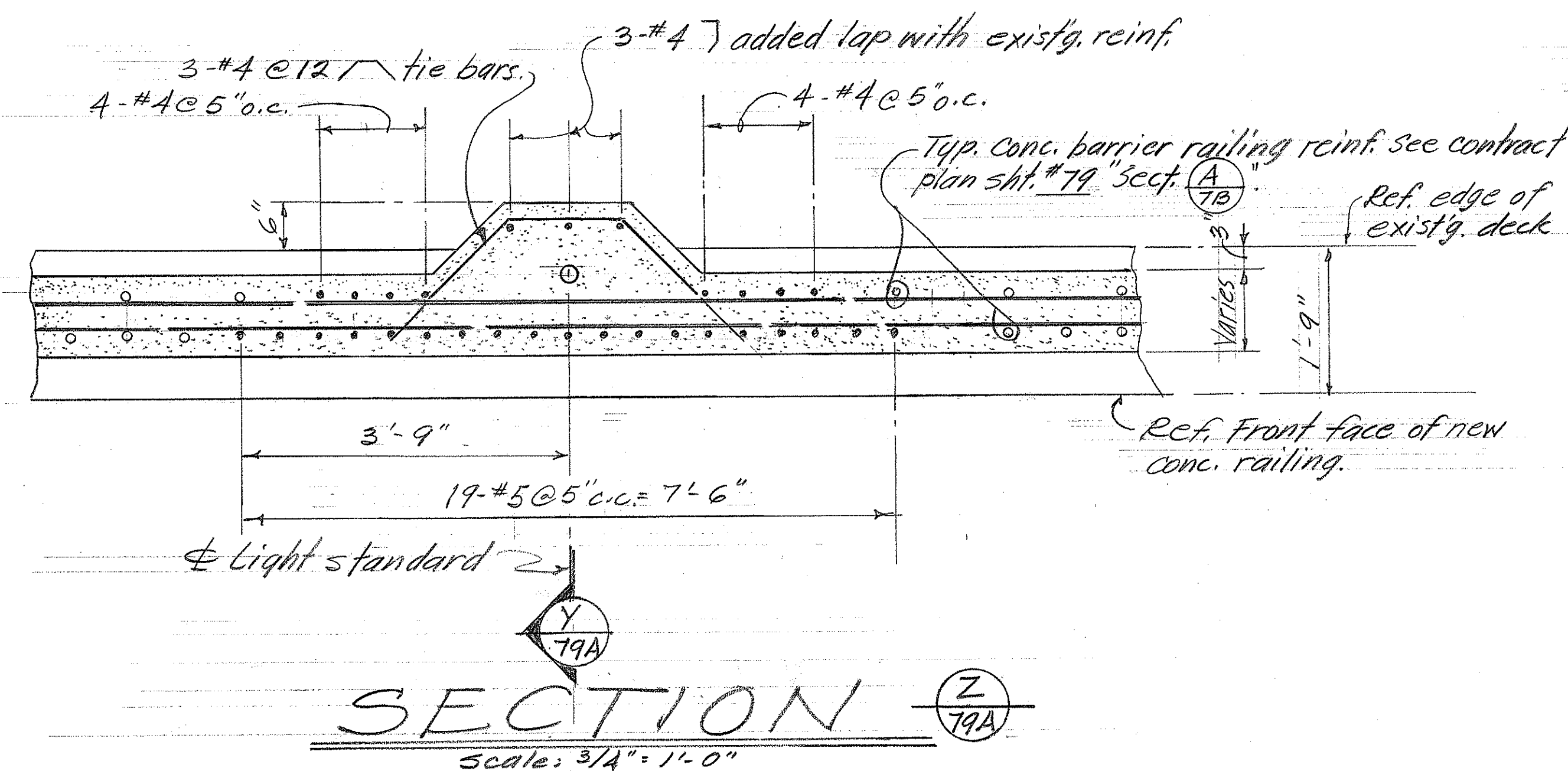
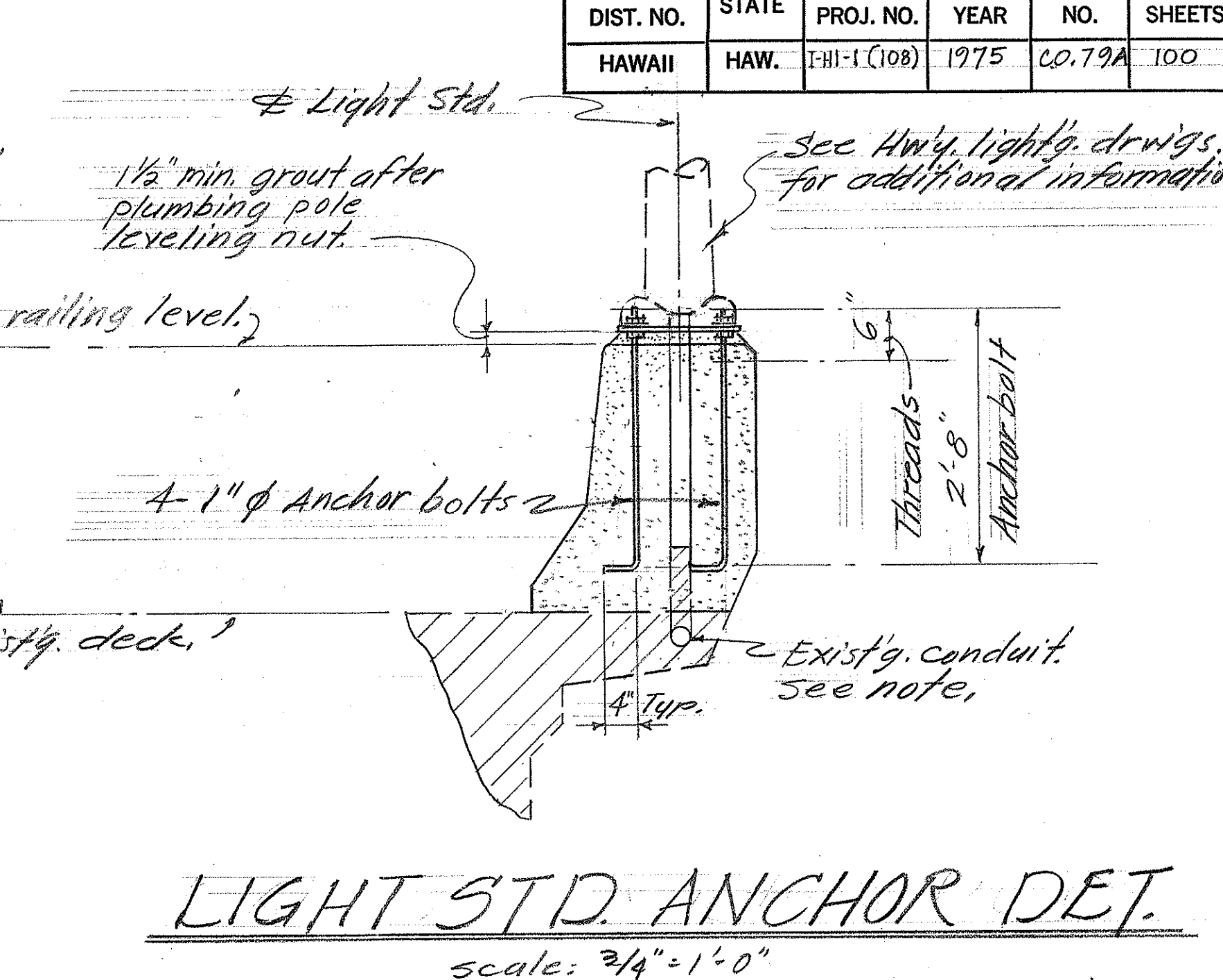
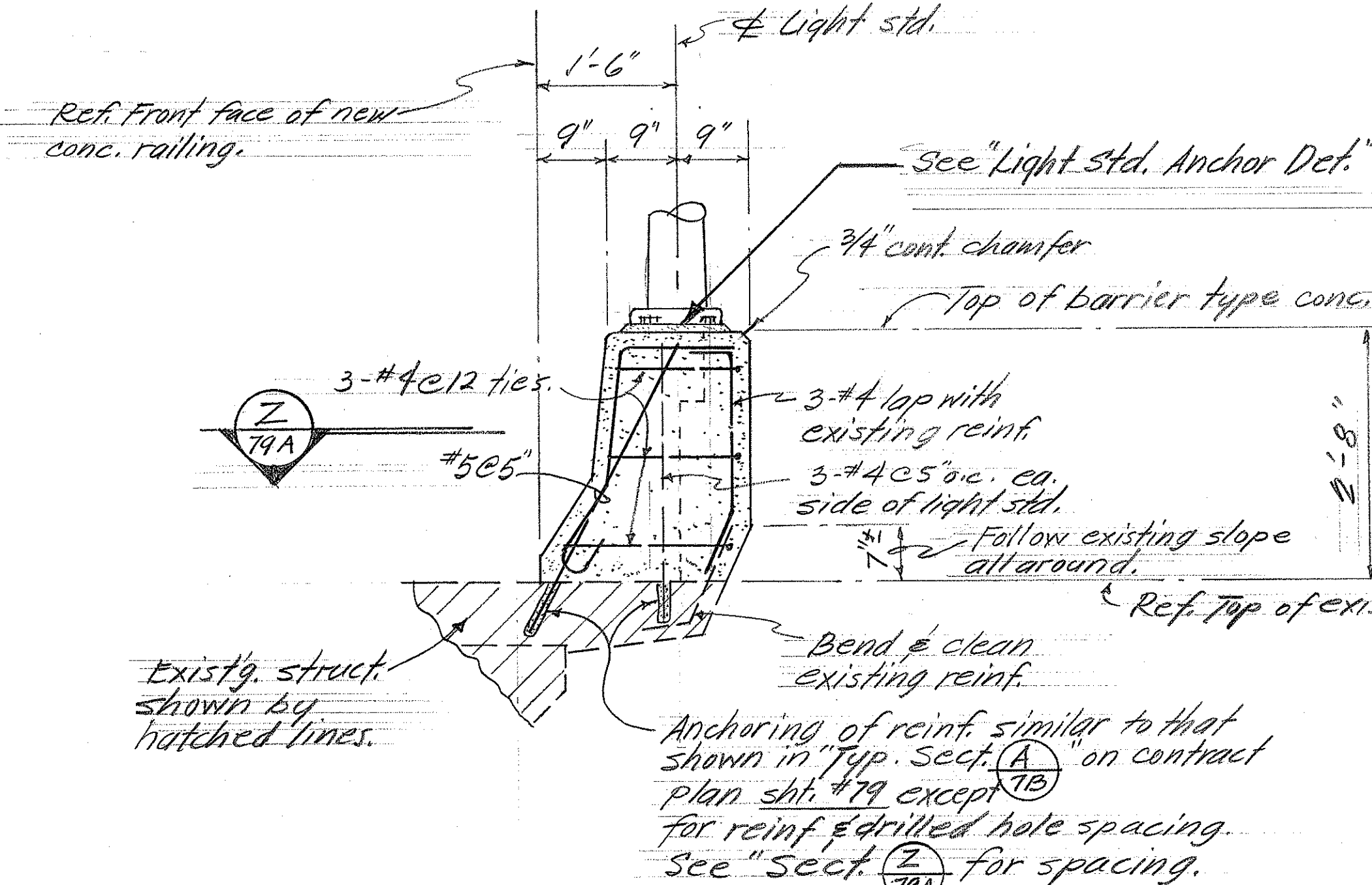
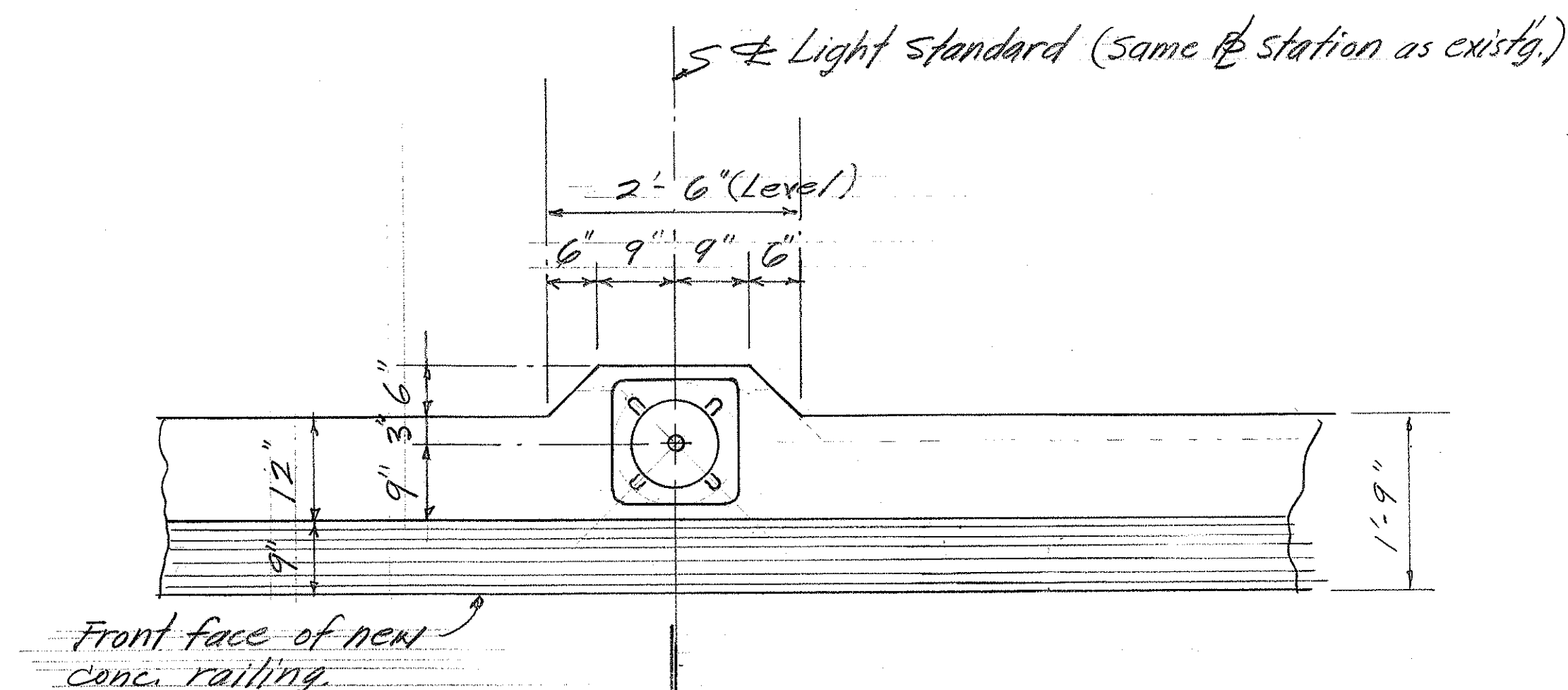
TYP. SECT. (B) THRU NEW CONC. BARRIER TYPE RAILING

scale: 3/4" = 1'-0"

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
REMOVAL & RECONSTRUCTION OF RAILING FOR PALEHUA, HONOUULIULI & KUNIA SEPARATION
SAFETY IMPROVEMENTS ALONG INTERSTATE H-1 PALAILAI TO KUNIA
Proj. No. I-HI-1(108) Date: Dec. '73
SHEET NO. 78 OF 118 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1 (108)	1975	CO. 79A	100



Note:
Use caution in removing existing conc. curb so as not to damage existing conduits. Clean and extend conduits as shown.

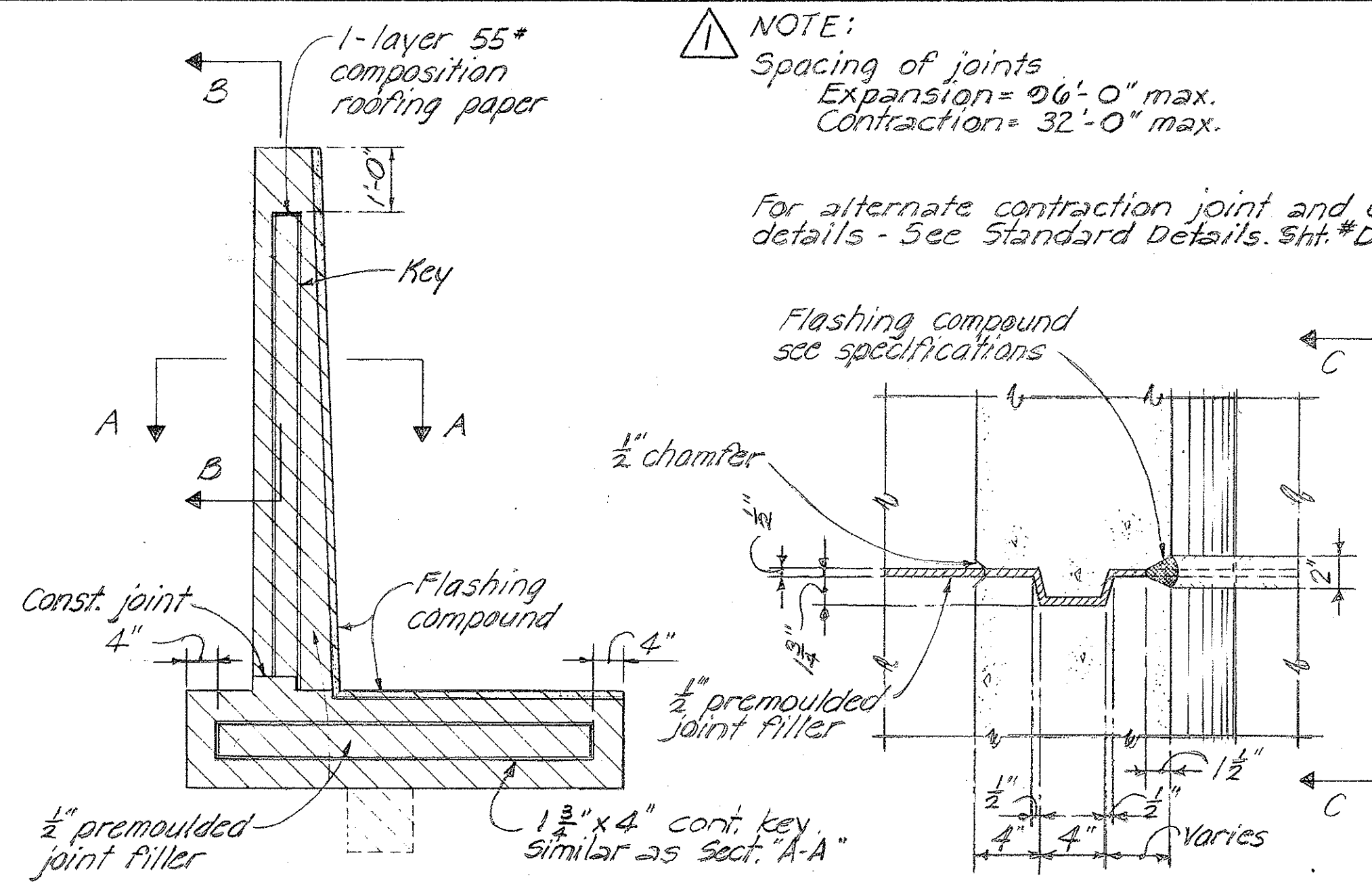
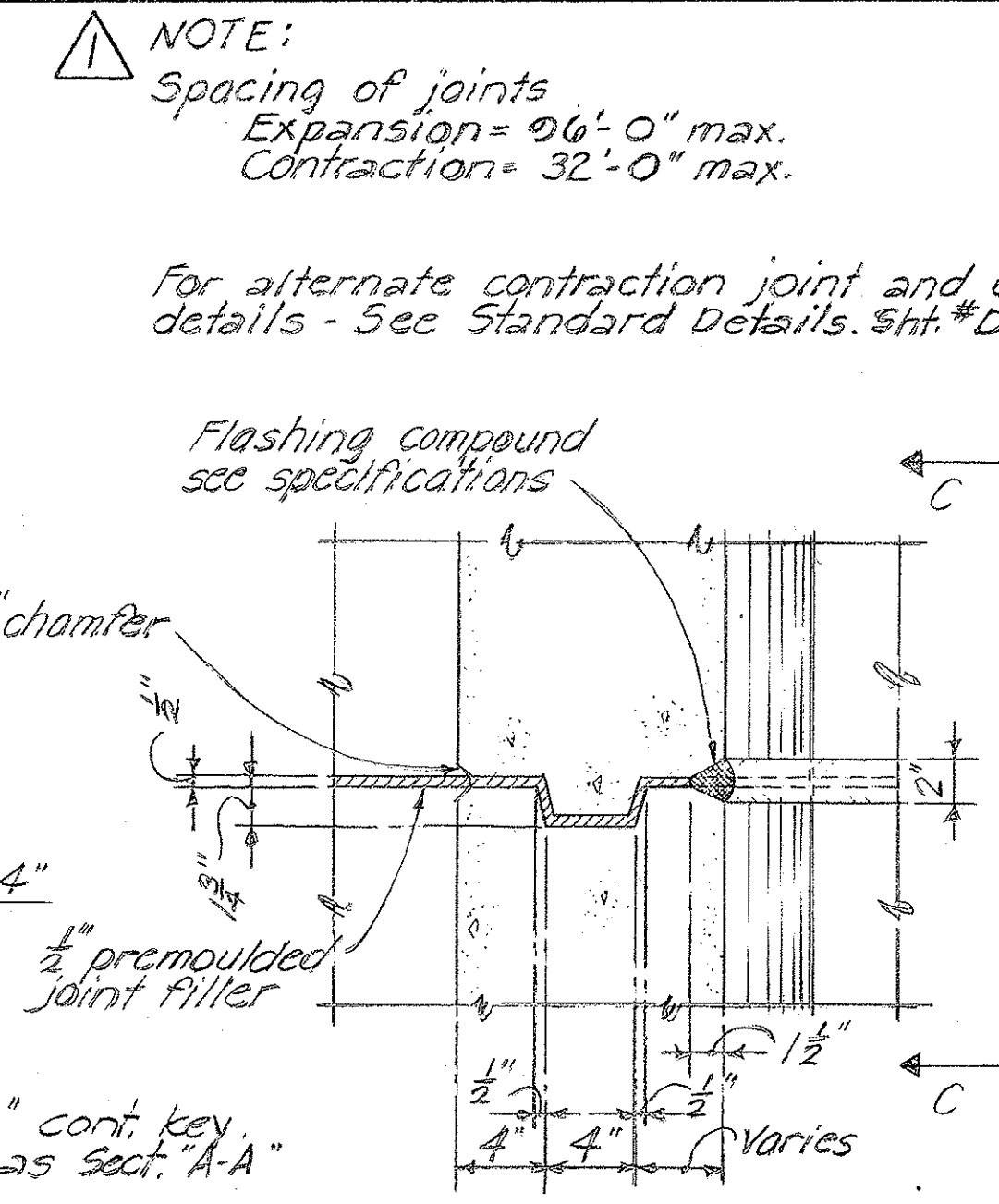
Aug. 8, '75 Light std. mounting detail added to Kunia Separation revised conc. railing.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
LIGHT BASE DETAILS FOR KUNIA SEPARATION	
SAFETY IMPROVEMENTS ALONG INTERSTATE H-1 PALAILAI TO KUNIA	
Proj. No. I-HI-1 (108)	DATE: AUG. 1975
SHEET NO. CO. 79A OF 110 SHEETS	

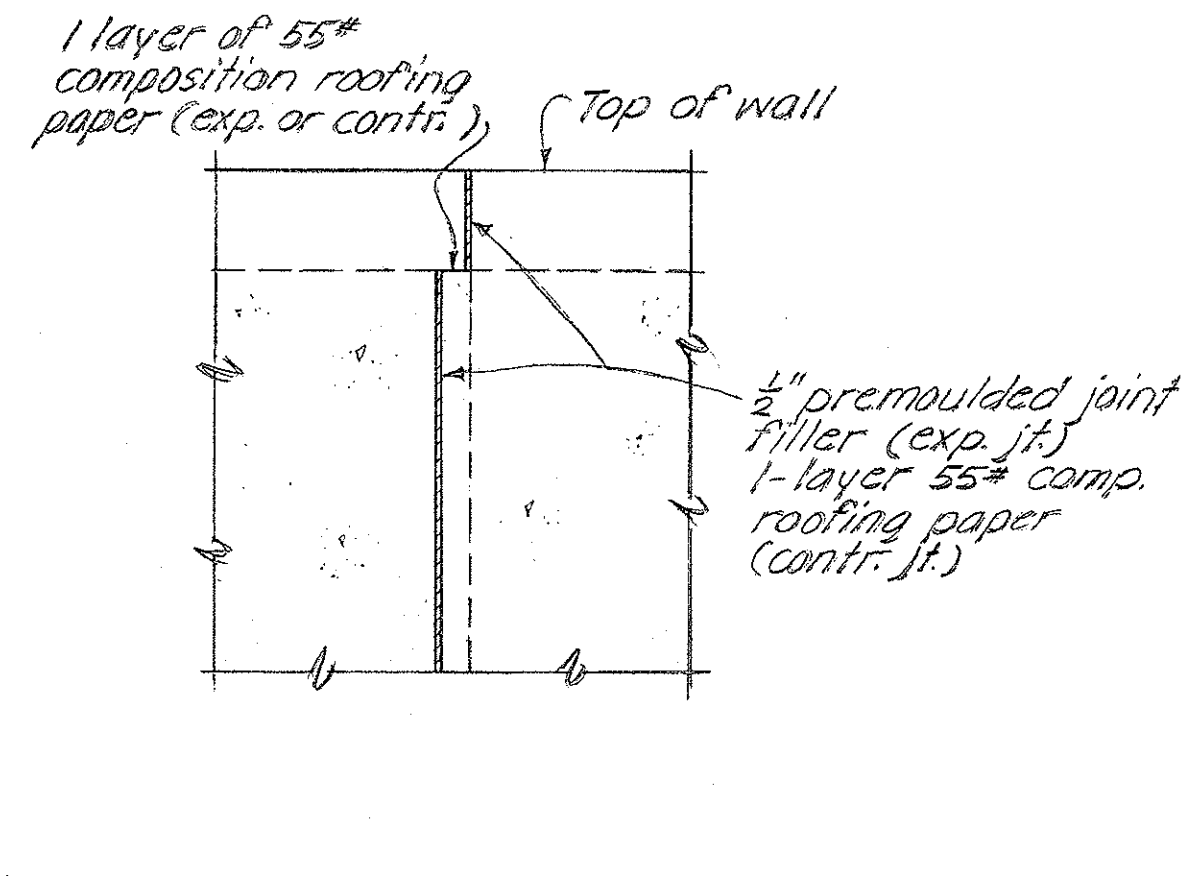
C.O. 79A

ORIGINAL	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	

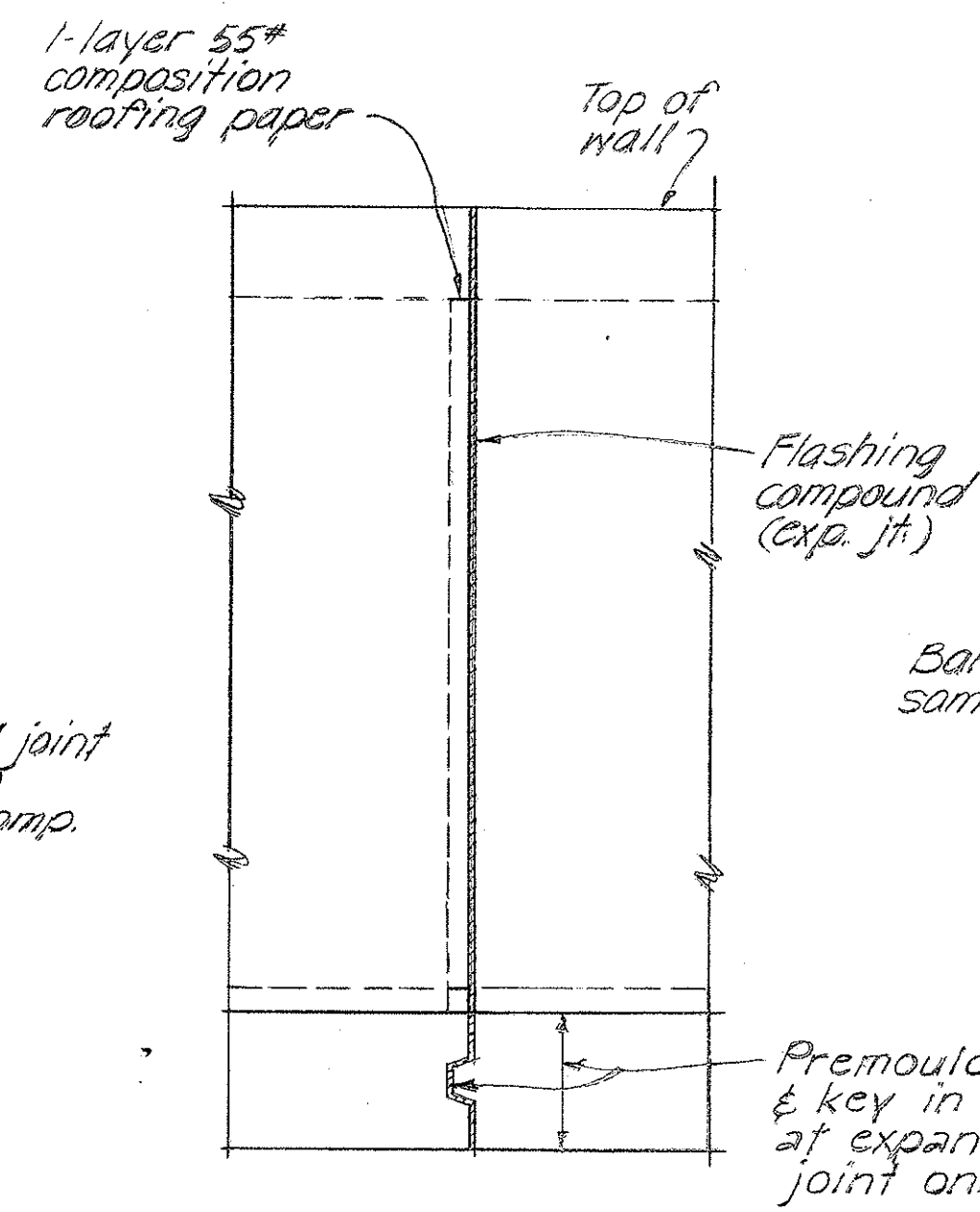
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(108)	1975	81	100

JOINT ELEVATION

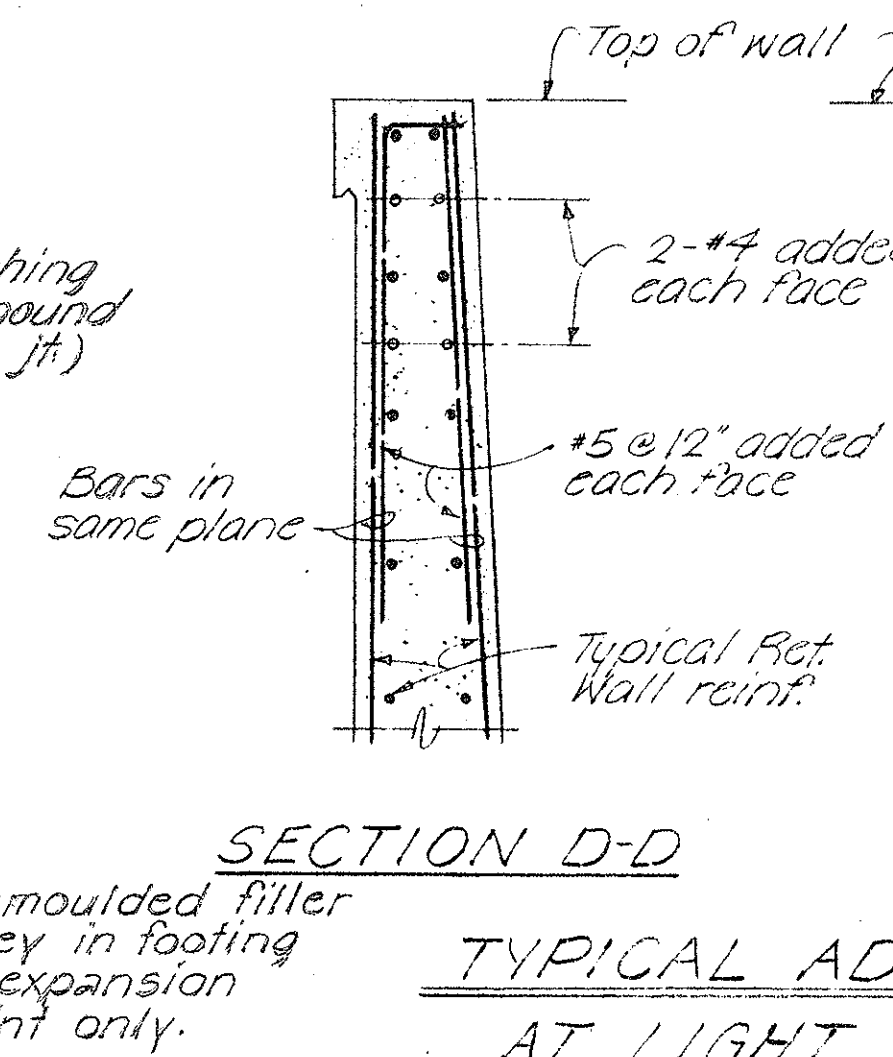
SECTION A-A



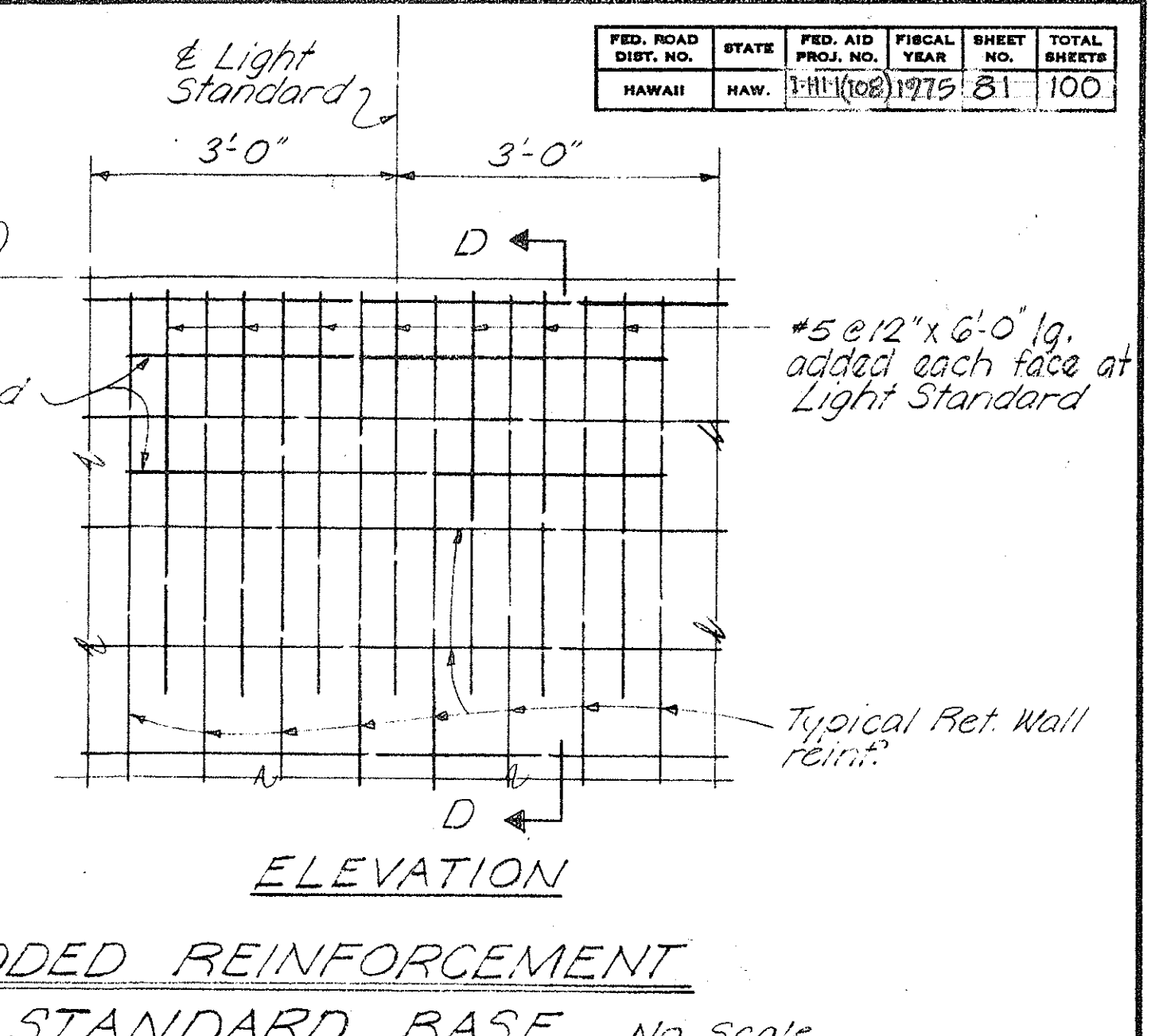
SECTION B-B



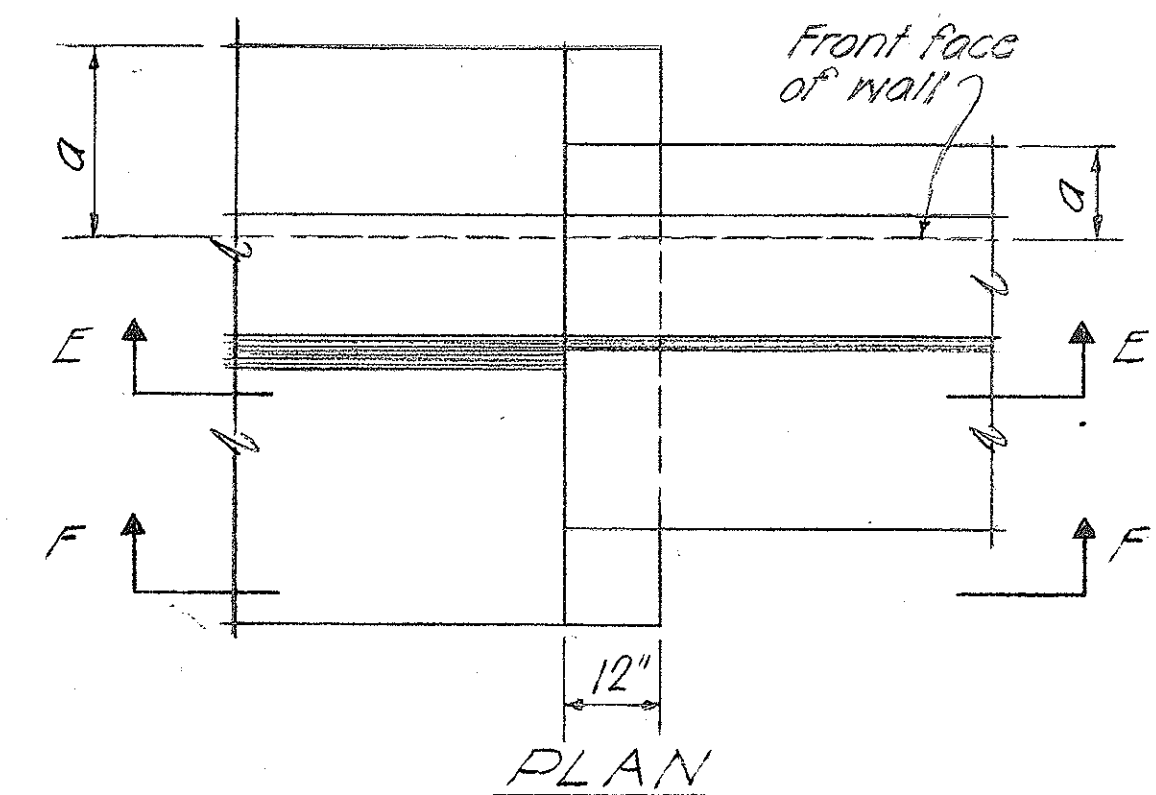
SECTION C-C



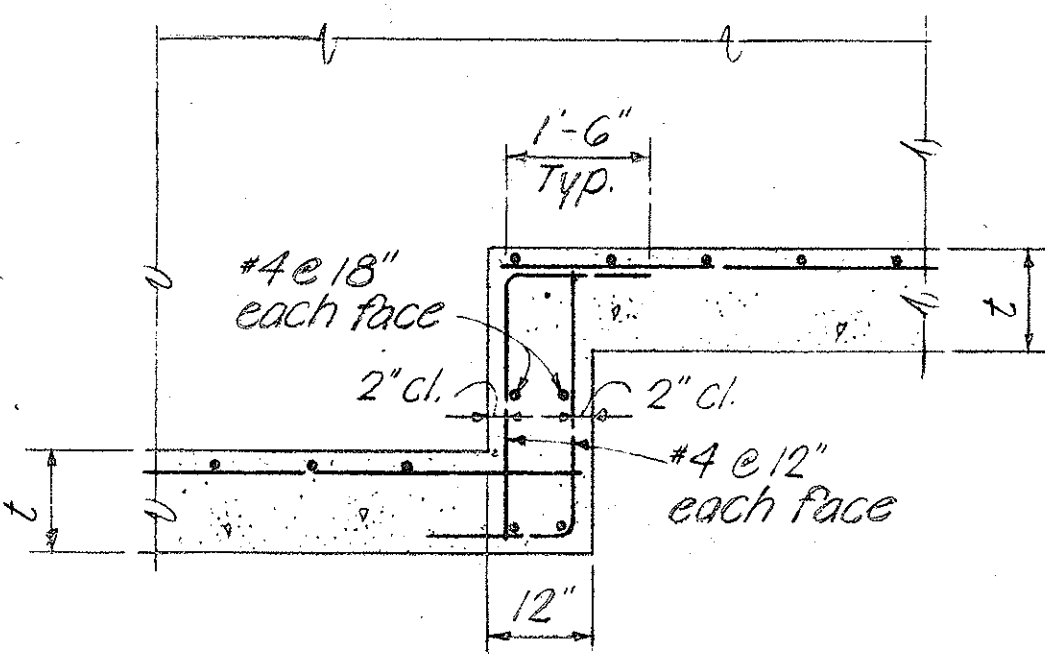
SECTION D-D



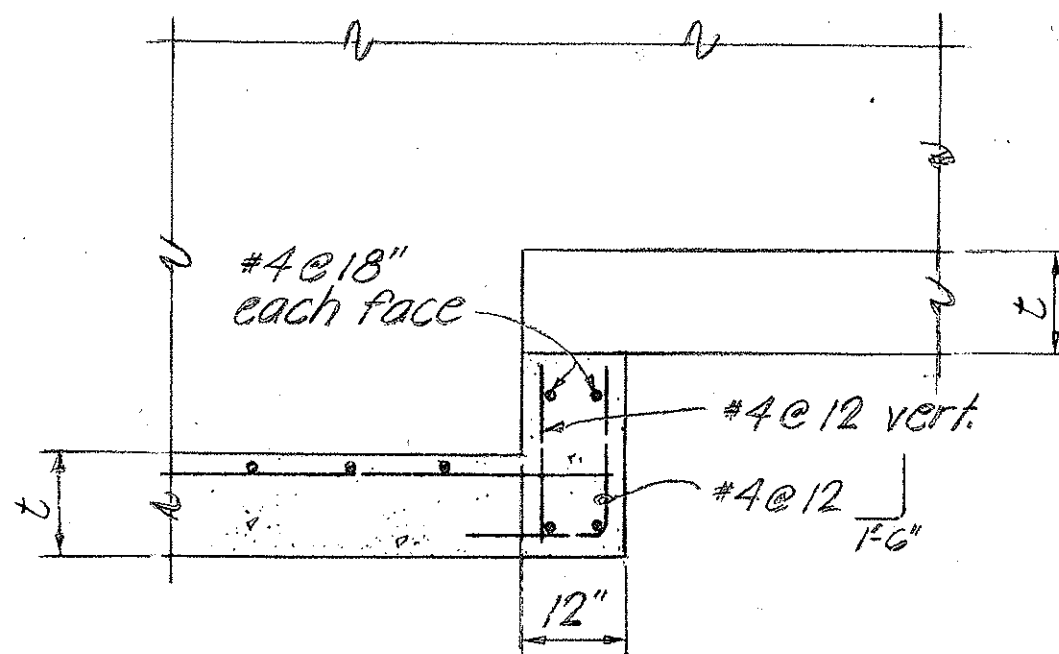
TYPICAL ADDED REINFORCEMENT
AT LIGHT STANDARD BASE *No Scale*



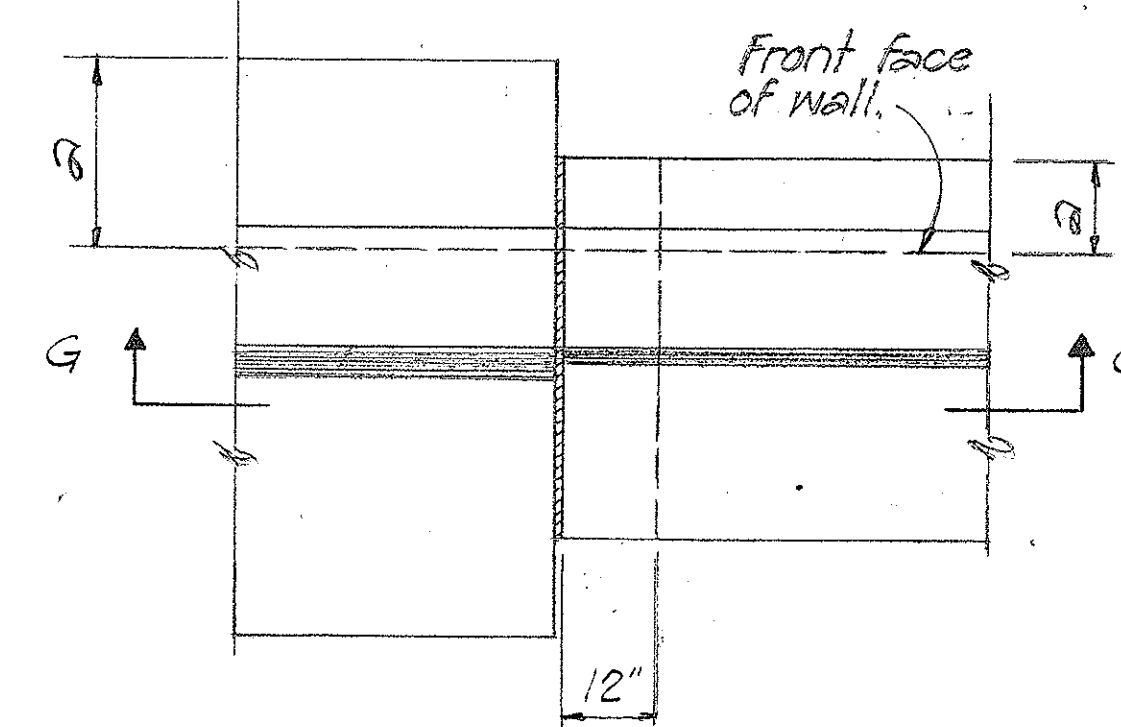
PLAN



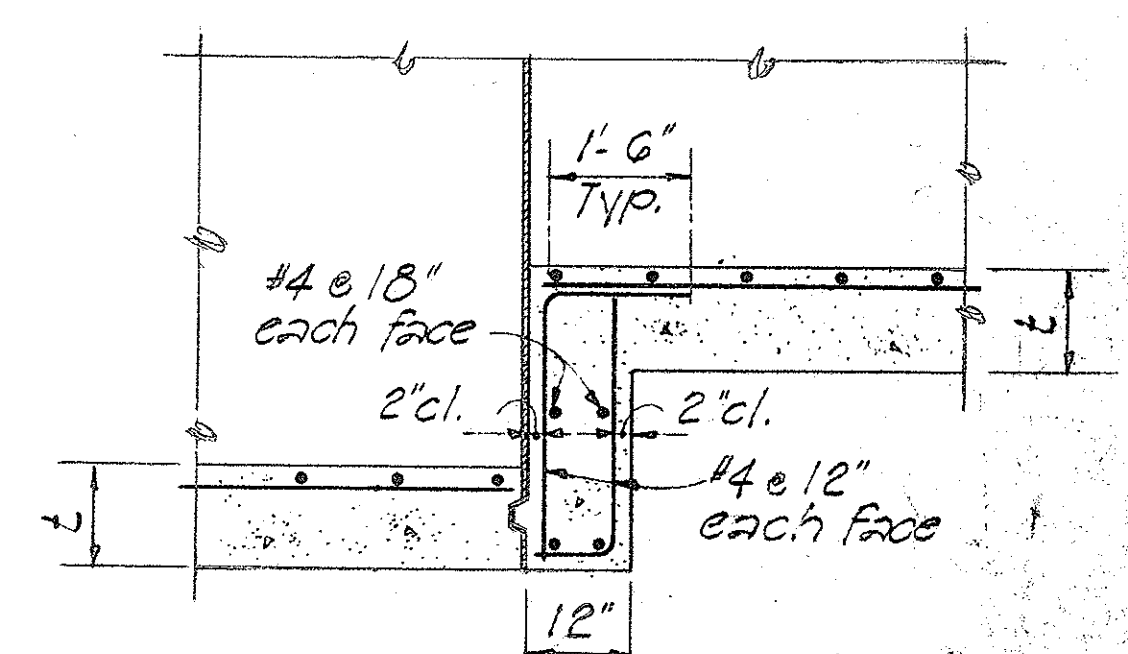
SECTION E-E
AT CONTINUOUS FOOTING



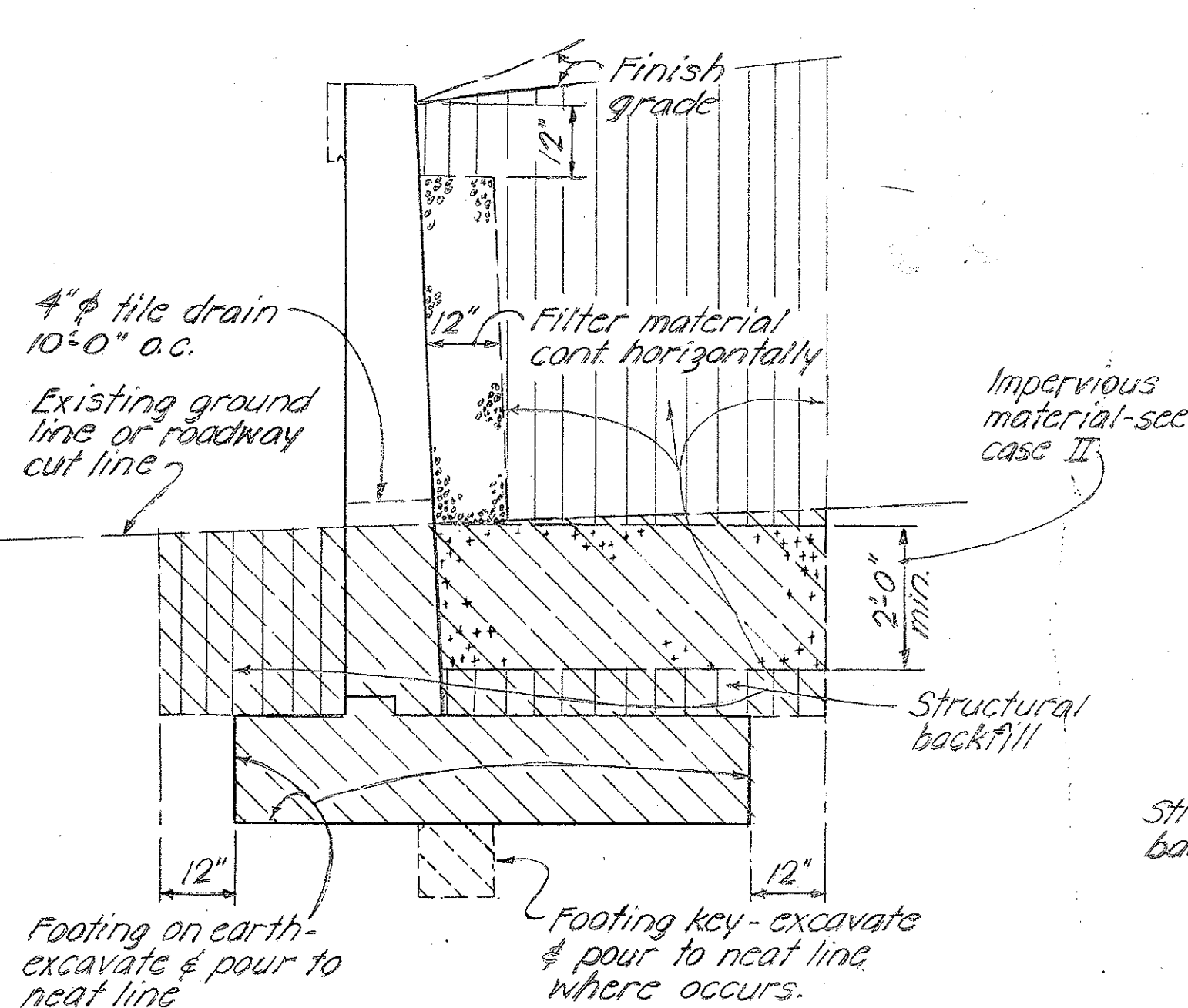
SECTION F-F



PLAN

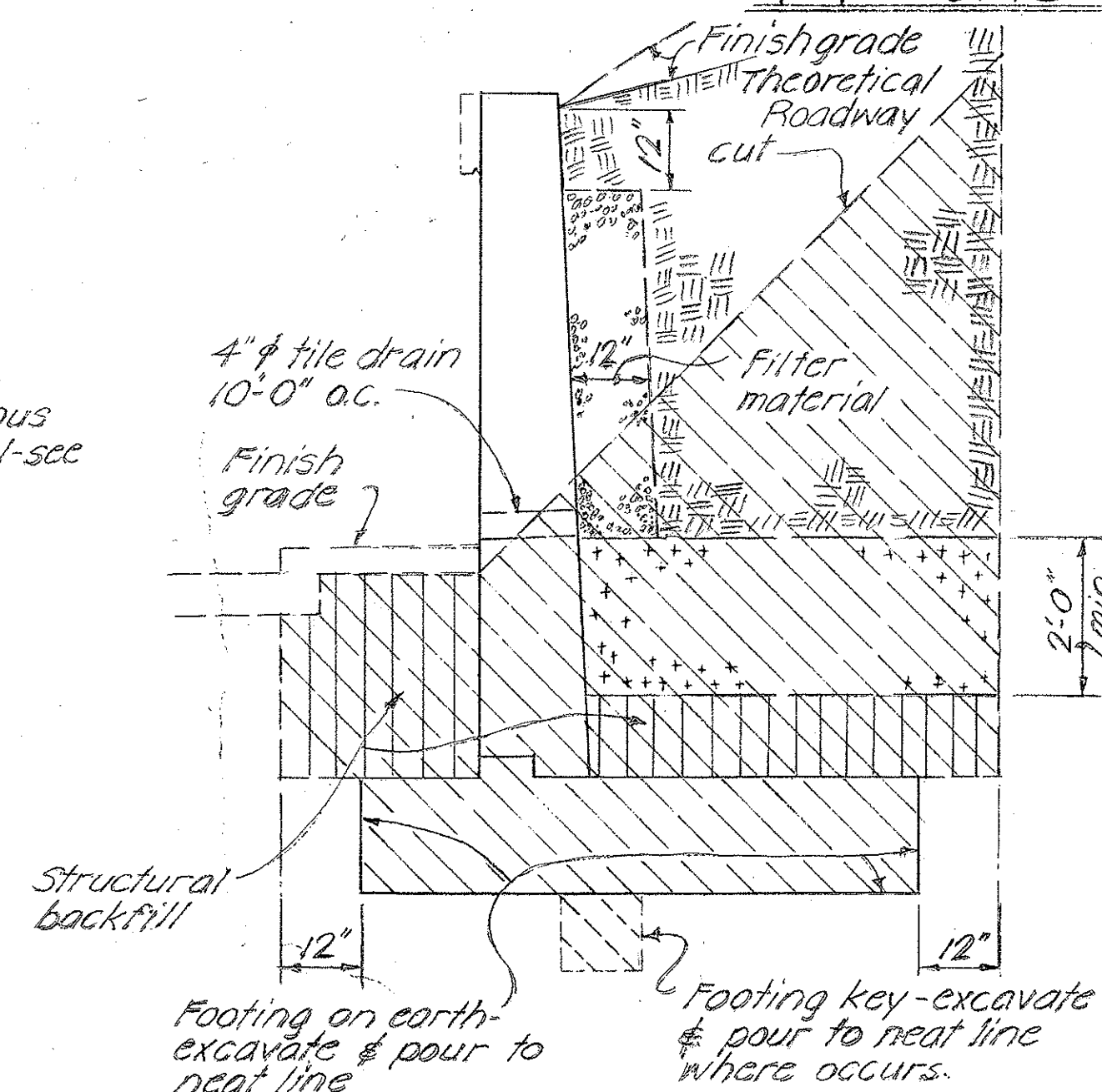


AT EXPANSION JOINT SECTION G-G



CASE I CASE II

STRUCTURAL EXCAVATION & DRAINAGE DETAILS No Scale



CASE II

NOTE

 Hatched areas denote limits of structural excavation pay line. All other excavation shall be roadway excavation except as otherwise noted.

 Pay limits for "Structure Backfill" shown by vertical lines.

 Ordinary Backfill

Impervious material as selected by the Engineer incidental to structural 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.
Impervious material shall be incidental to roadway excavation or imported borrow when used in embankment area.

APPROVAL RECOMMENDED:
Paul T. Yamashita 1-23-70
 BRIDGE DESIGN ENGINEER DATE

APPROVED Paul T. Yamashita 1-28-70
For ASSISTANT CHIEF, ENGINEERING DATE

NO	REVISION	APPROVED BY	DATE
1	Change note spacing of joint3.	H. J.	9.4.1

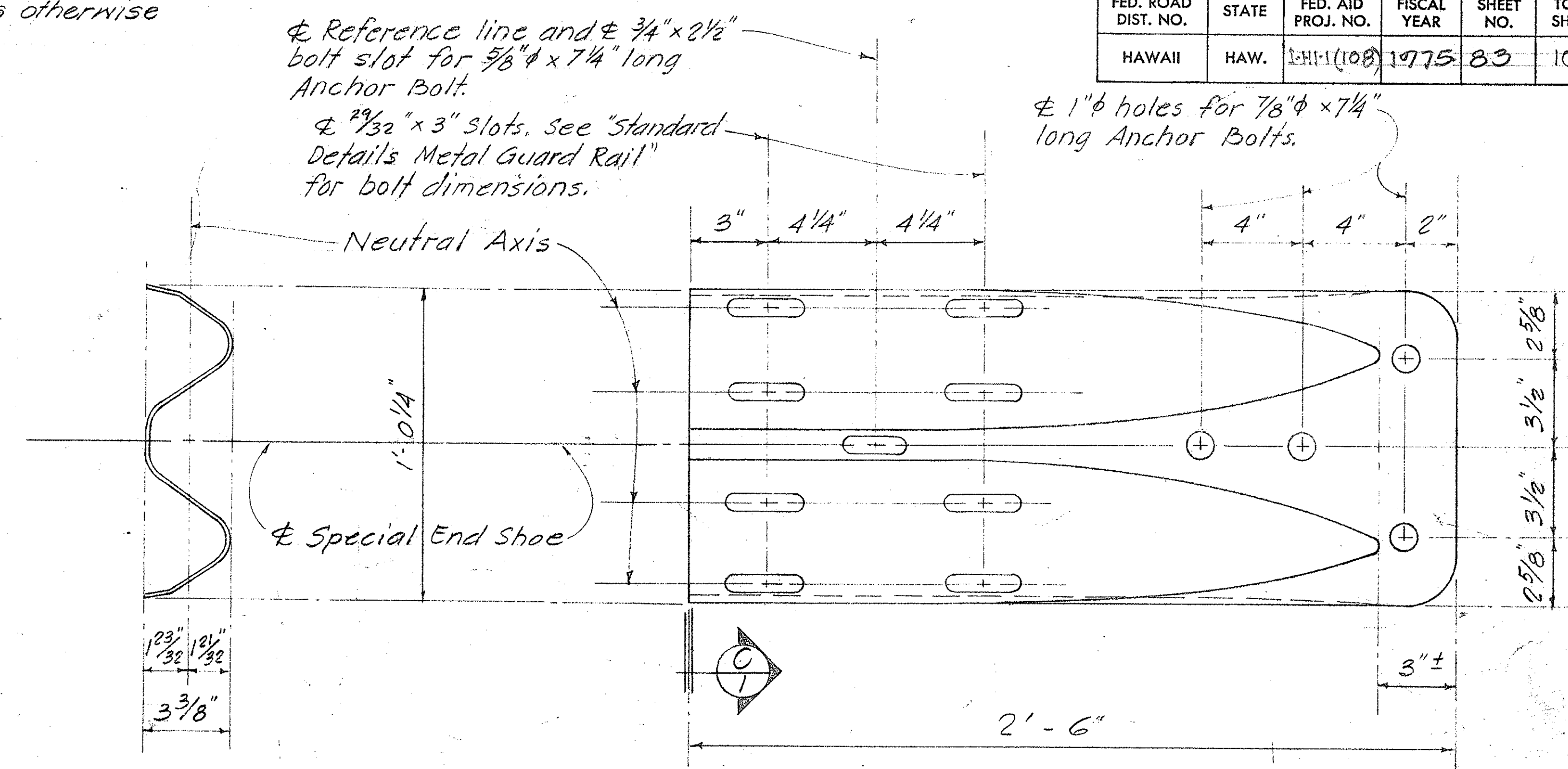
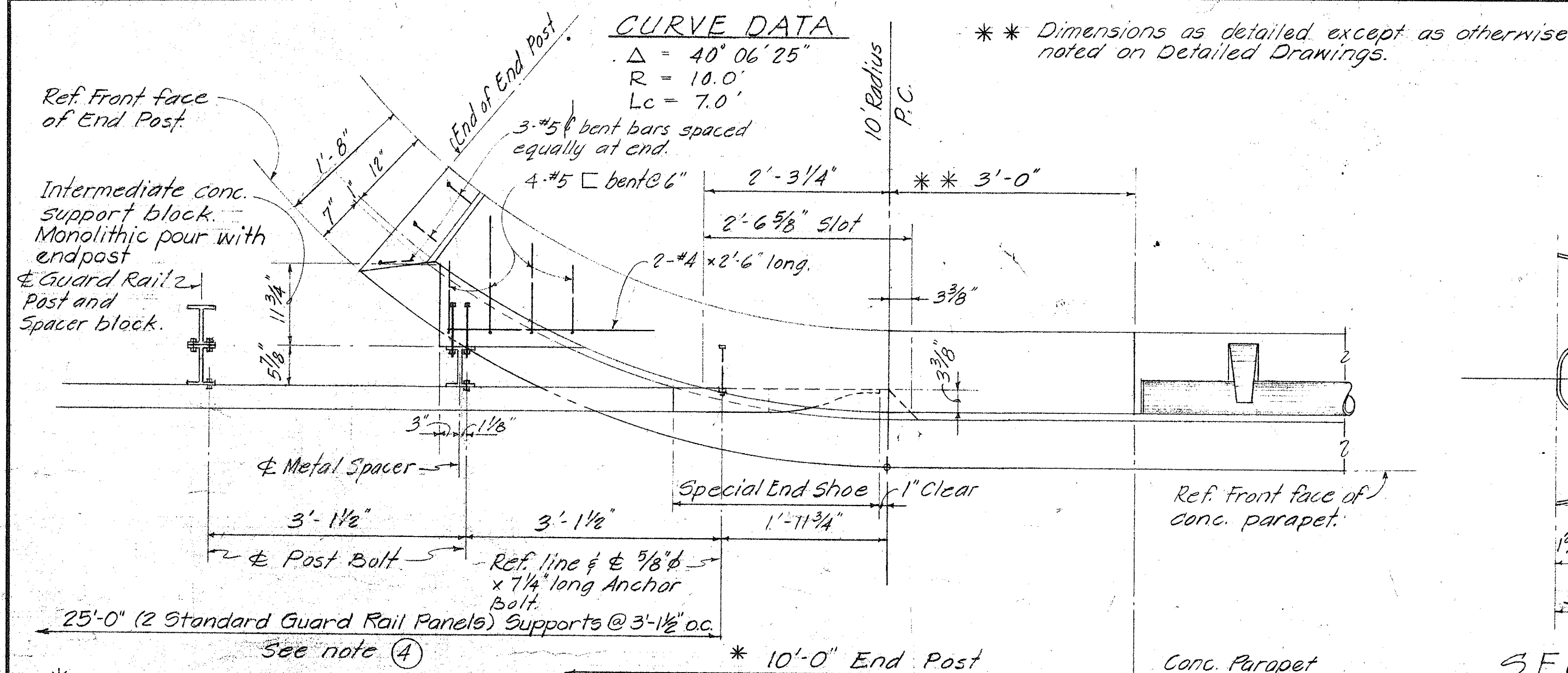
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
RETAINING WALL TYPE T-1

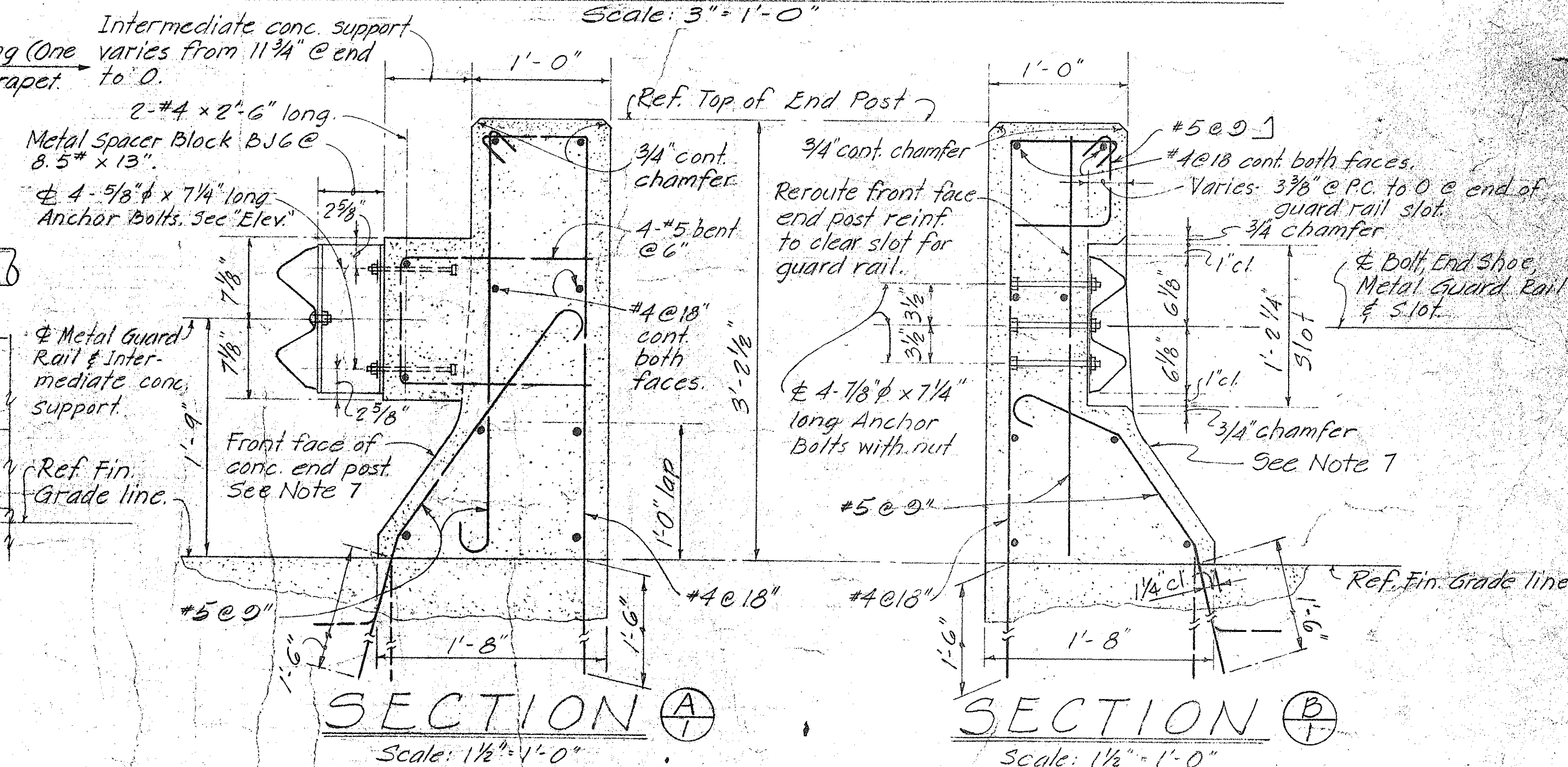
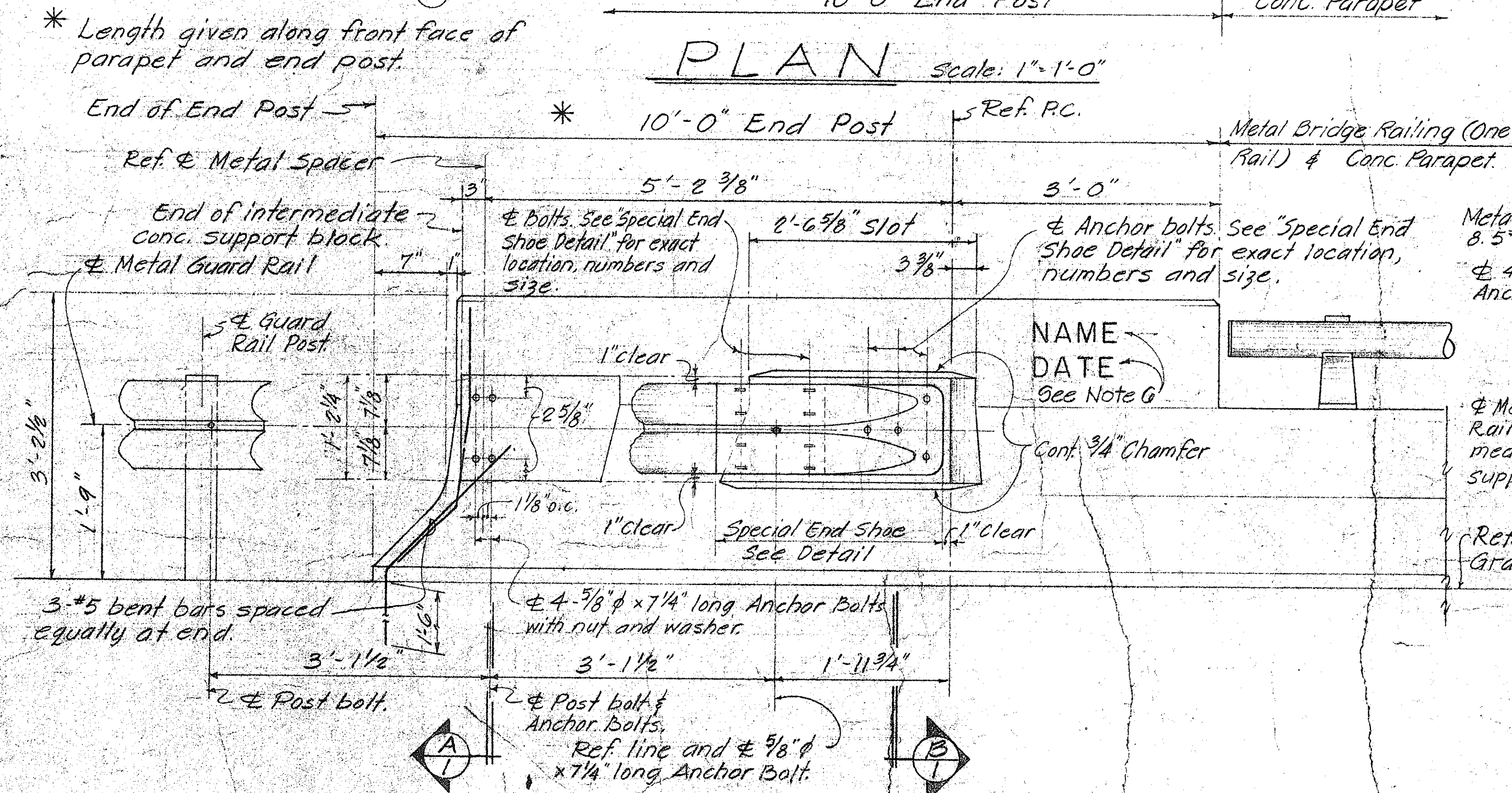
SCALE AS NOTED DATE

SHEET No. 98 OF 118 SHEETS DB-207-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HA-1(108)	1975	83	100



SECTION ⑨ ELEVATION
SPECIAL END SHOE DETAILS



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

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

NOTES:

- ① All Anchor Bolts shall be High Strength bolts conforming to the requirements of ASTM A325.
- ② All Shoe assembly, including anchor bolts, nuts and washers, shall be galvanized.
- ③ Special End Shoe shall be fabricated from 10 gage steel conforming to the requirements of AASHTO 180.
- ④ First 25'-0" of guard rail adjoining "Special End Shoe" shall be galvanized steel.
- ⑤ Anchor Bolt length given from under bolt head.
- ⑥ 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.
- ⑦ Front face of End Post to match front face of typical conc. parapet.

NO.	REVISION	APPROVED BY	DATE
1	Note 4, revised, 3'-1 1/2" post spacing extended to 25'-0". Note 6, 7 added.	H.F.	2-27-

APPROVAL RECOMMENDED:
Paul T. Yamashita
 BRIDGE DESIGN ENGINEER

APPROVED *Paul T. Varnaz*
 For ASSISTANT CHIEF, ENGINEERING

1-23-70
DATE

1-28-70
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

METAL GUARD RAIL CONNECTION

ONE RAIL COMBINATION TYPE END POST

Scale: As shown Date

SHEET No. 11B OF 11B SHEETS DB-205

GENERAL NOTES

- All concrete shall be Class A unless otherwise noted.
- Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
- Clearance for reinforcing bars shall be as follows, unless otherwise noted:
 - $1\frac{1}{2}$ " For stirrups of beams & pier caps.
 - 2" For ties of columns.
 - 2" For formed walls.
 - 3" For footings.
- Minimum spacing between parallel bars shall be $2\frac{1}{2}$ times the diameter of bars, but in no case shall the clear distance between the bars be less than $1\frac{1}{2}$ times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
- Reinforcing bars shall be securely tied at all intersections & lap splices & shall be held in place during pouring to maintain their proper locations as shown on plans.
- Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
- Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered $\frac{3}{4}" \times \frac{3}{4}"$.
- Concrete seats receiving steel plates, lead plates or neoprene pads shall be poured monolithically with supporting structures & top of concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
- Elastomeric Pads: Bottom of bridge bearing pads shall be secured against displacement with adhesives approved by the Engineer. Pads shall be incidental to concrete and will not be paid for separately.
- Forms for all exposed surfaces of separation structures and surfaces of retaining walls visible from a traveled way or from a populated area shall be plywood except that metal forms may be permitted provided a surface finish satisfactory to the Engineer can be obtained and the use of such forms is approved in writing by the Engineer. Forms for round columns shall be made of materials that will give a smooth finish and true dimensions as given in the plans. Forms for prestressed concrete members shall be either metal or plywood.
- Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
- The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work of excavation or driving of piles.
- Standard Detail Drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

TYPICAL CONCRETE GROOVE DETAIL

DRIP DETAIL

PLAN

PLAN

SECTION "Z-Z"

SECTION "X-X"

SECTION "Y-Y"

NOTE: Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately. Assembly of grillage and pipe shall be hot-dip galvanized after all welding is completed.

TYPICAL DRAINAGE DETAILS

Joint may be formed with $\frac{1}{8}"$ masonite & cut back to the root of the chamfer on the exposed face.

Cont. vert. control joint. $\frac{1}{2}"$ Wall face $\frac{3}{4}"$ chamfer

CONTROL JOINT DETAILS

TYP. FLASHING COMPOUND WATERPROOFING DETAIL

INSERT DETAIL

Contractor to take proper precautions to prevent the concrete from flowing into the opening of the inserts.

Vert. control joint on each face of wall to top of footing. See above detail and as directed by the Engineer.

30'-0" pc max. 30'-0" ac max. Flashing compound back face only. Back face. 5x4'-0" added center of wall 12" vertical spacing thruout. Stop all horiz. wall reinf. at joint as shown. Front face.

Clean conc surface and: Base application of flashing compound. End layer fabric. See specs. Finish coat with flashing compound.

NAME DATE

Use correct name of bridge. Date of Year built. **NOTE:** Refer to corresponding detail drawings for placement of such names & dates at end post. Exact details & spacing of letters & figures shall be as directed by the Engineer. See Note #12.

TYPICAL DETAIL OF LETTERS & FIGURES AT CONCRETE END POST

Depressed "V" letters $\frac{3}{8}"$ deep. Bottom of footing. Excavate and pour to neat line. **Note:** In case of over excavation, the contractor shall backfill this area with minimum class D concrete at his own expense.

TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

SECTION "G-G"

DETAIL of PIPE HANGERS & INSERTS

APPROVAL RECOMMENDED: Paul T. Yamashita 1-23-79
BRIDGE DESIGN ENGINEER DATE

APPROVED: Paul T. Yamashita 1-28-79
For ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
NOTES AND MISCELLANEOUS
DETAILS
Date: October 1969
SHEET No. OF SHEETS DB-100