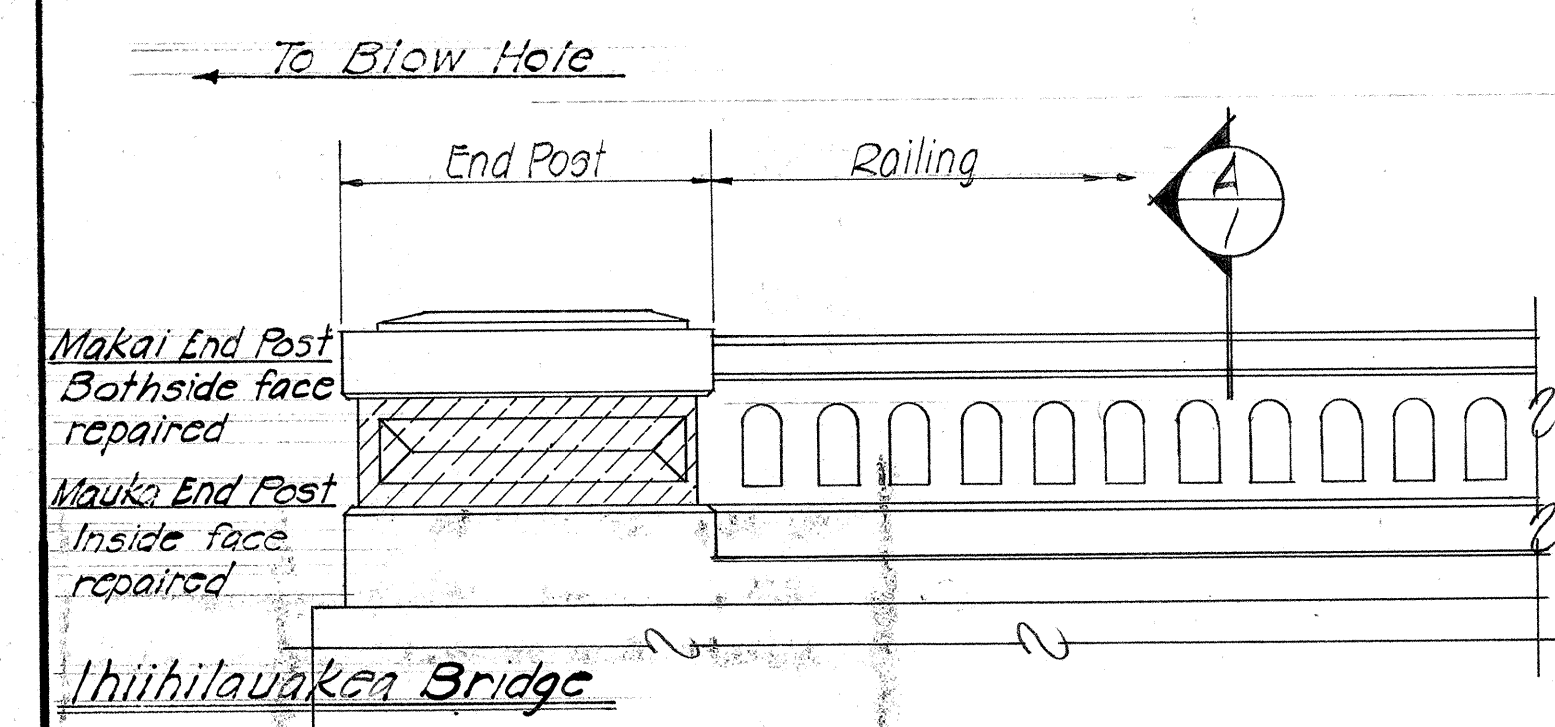
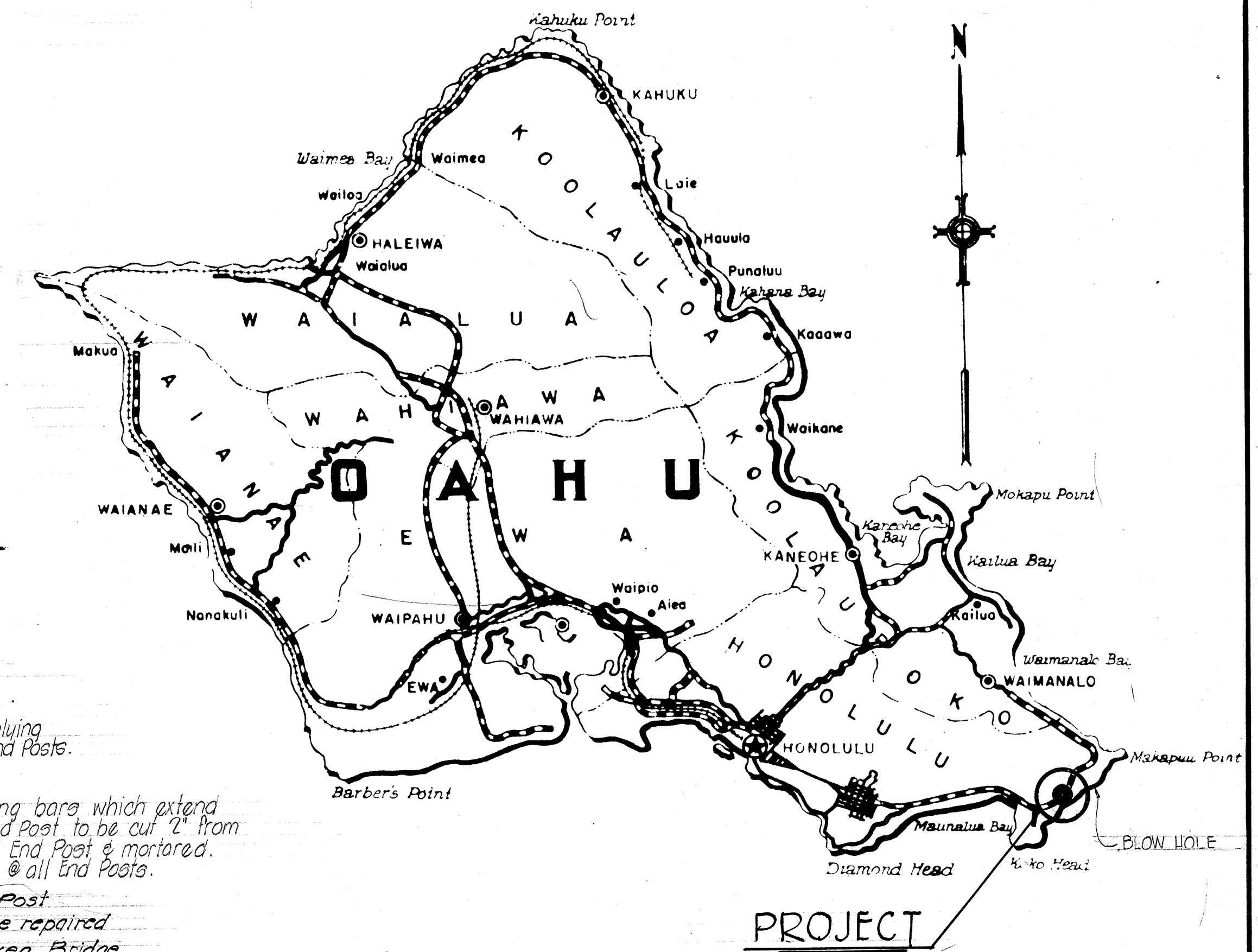


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW				

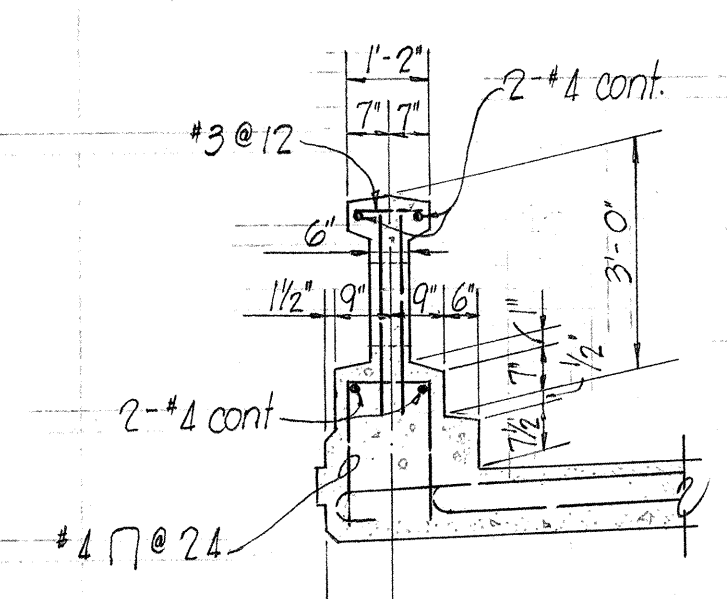
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU HAWAII

AS BUILT PLANS OF
REPAIRS TO IHIHILAUKEA
AND KAWAIAKAEI BRIDGES

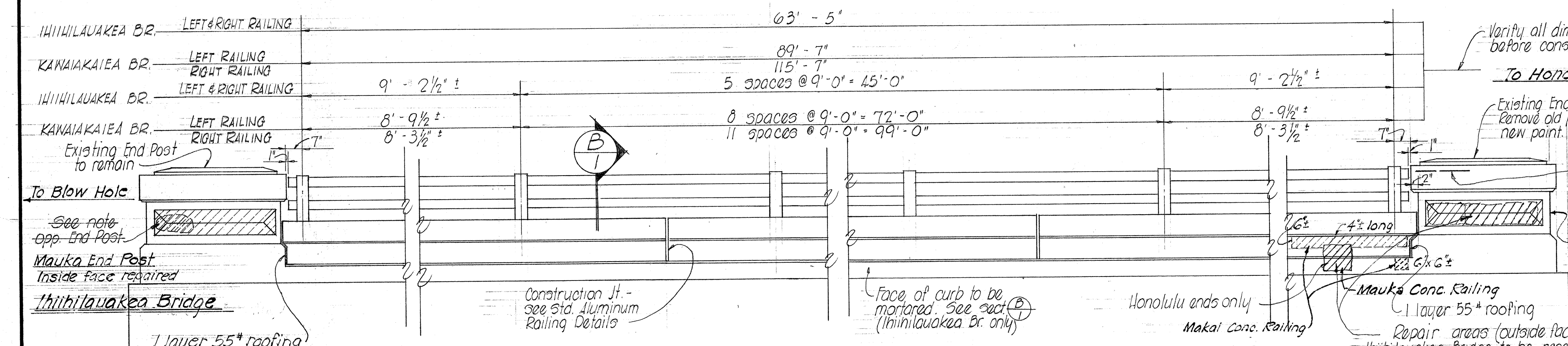
KALANIANA'OLE HWY.
PROJECT NO B-72-01-62
DISTRICT OF HONOLULU
ISLAND OF OAHU



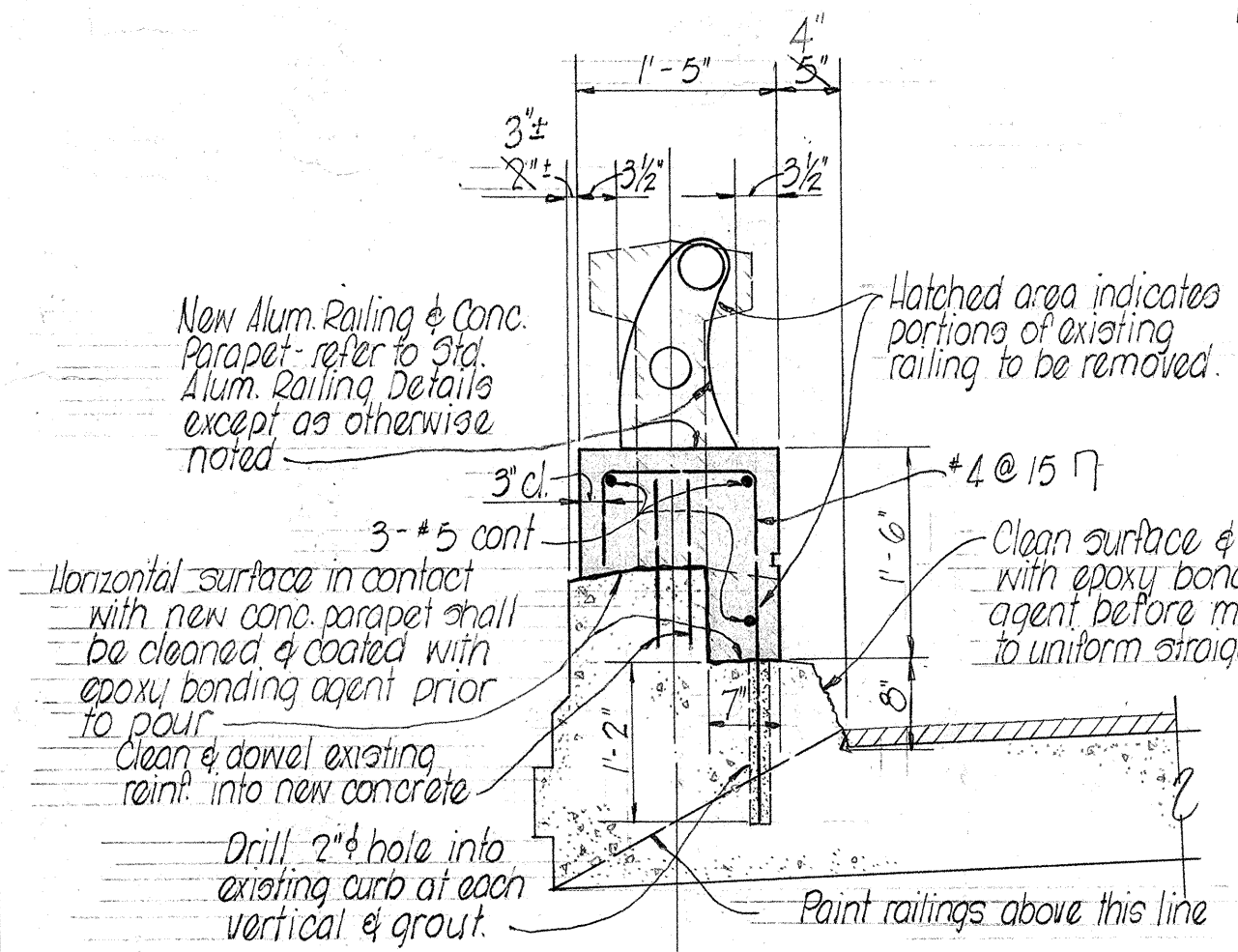
PART ELEVATION ~ EXISTING RAILING
IHIHILAUKEA & KAWAIAKAEI BRIDGES
SCALE: 3/8" = 1'-0"



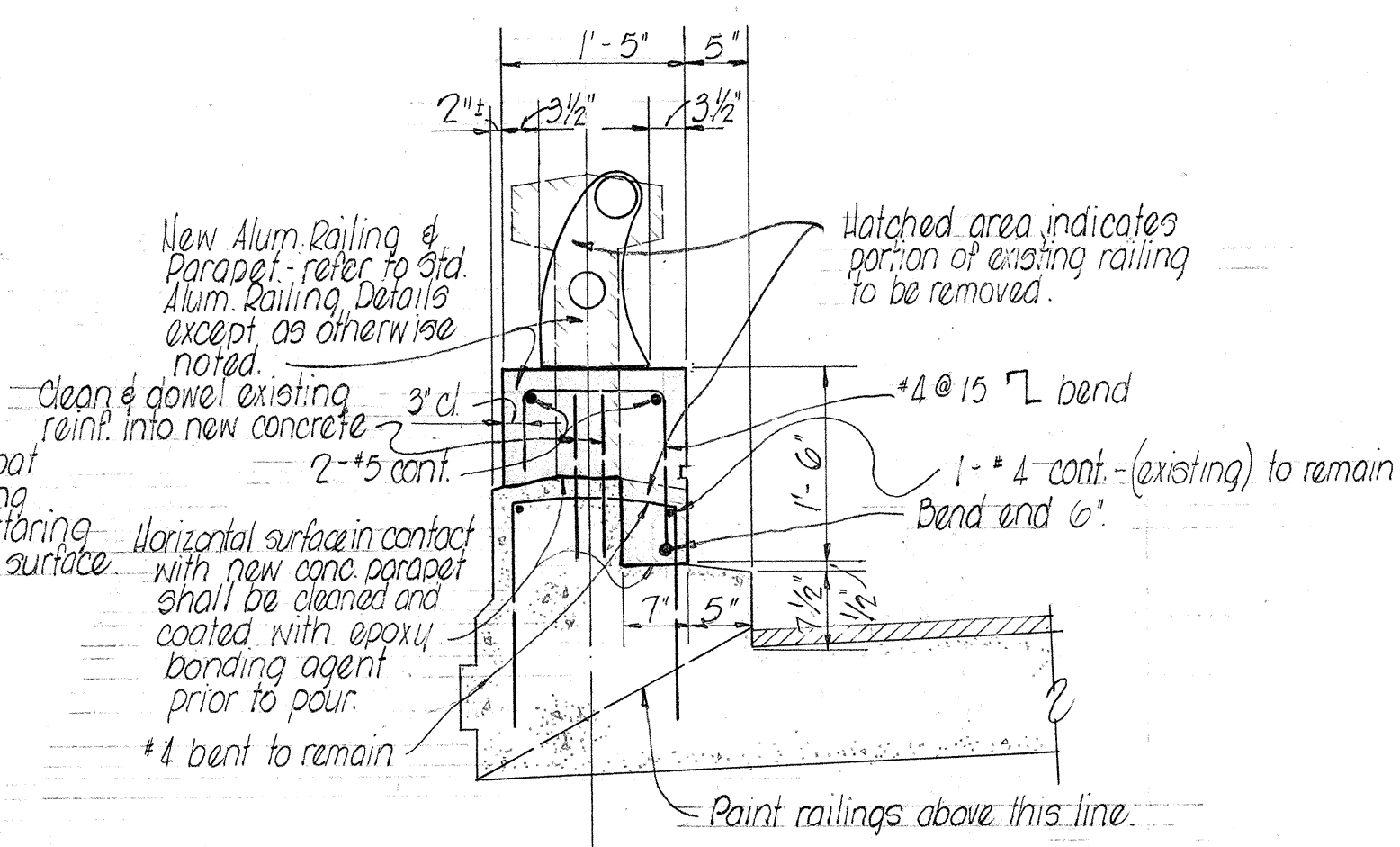
TYP. SECTION A
(EXISTING RAILING) SCALE: 3/8" = 1'-0"



ELEVATION ~ RECONSTRUCTION OF EXISTING RAILING
IHIHILAUKEA & KAWAIAKAEI BRIDGES
SCALE: 3/8" = 1'-0"



THRU IHIHILAUKEA BRIDGE



THRU KAWAIAKAEI BRIDGE

TYPICAL SECTION B
NOTE: LEFT & RIGHT RAILING DETAILS OF CORRESPONDING BRIDGES SIMILAR
SCALE: 3/4" = 1'-0"

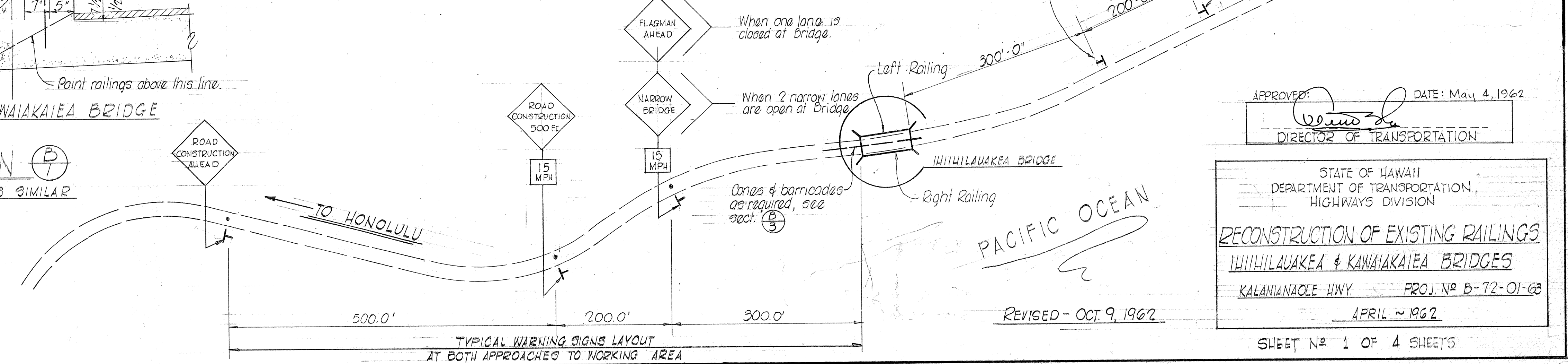
NOTES:

- 1- All concrete to be class A-1.
- 2- All steel reinforcement shall be intermediate grade.
- 3- Forms for exposed surfaces of railing shall be plywood.
- 4- Refer to Standard Specifications for Road & Bridge Construction.
- 5- Epoxy bonding agent shall be of approved type commonly used to bond new concrete to old concrete.
- 6- Paint concrete rails and anodize aluminum rails. See Special Provisions.

NOTE:

All changes made during construction have been noted in red on these tracings and checked by:

Jackie J.B.
Project Inspector
June 11, 1964
Date



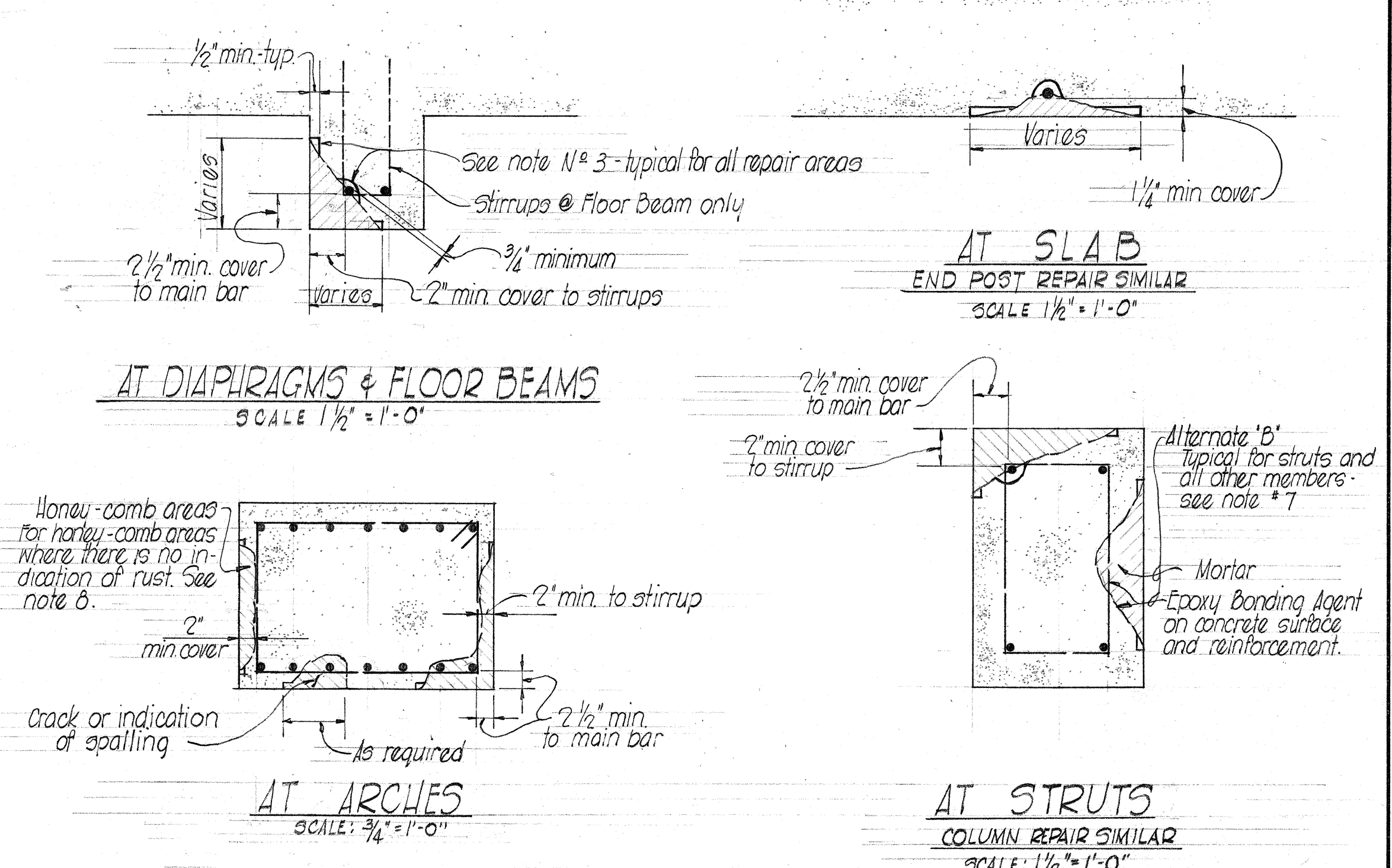
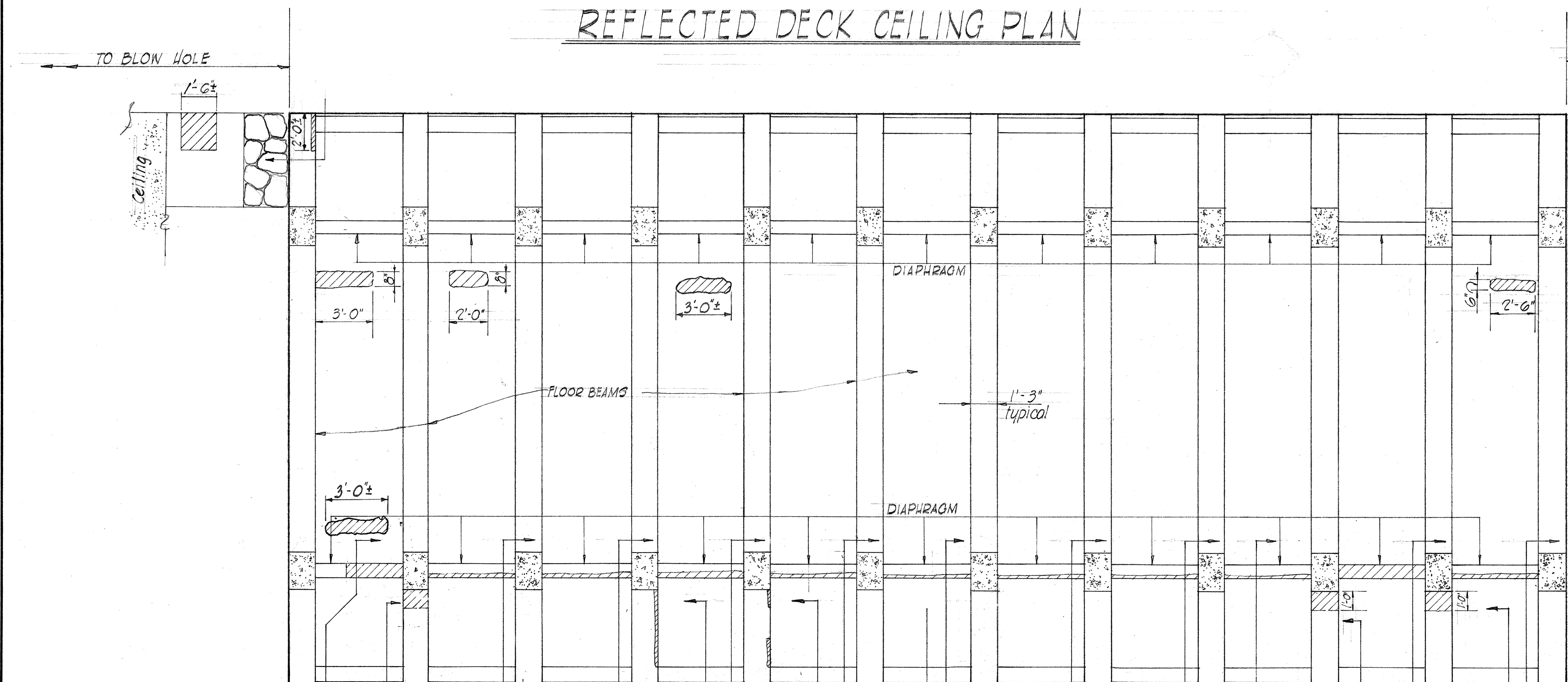
APPROVED: *[Signature]* DATE: May 4, 1962
DIRECTOR OF TRANSPORTATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RECONSTRUCTION OF EXISTING RAILINGS
IHIHILAUKEA & KAWAIAKAEI BRIDGES
KALANIANA'OLE HWY. PROJ. NO B-72-01-62
APRIL ~ 1962

DATE
DESIGNED BY
DRAWN BY
CHECKED BY
NOTED BY
ORIGINAL

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.				

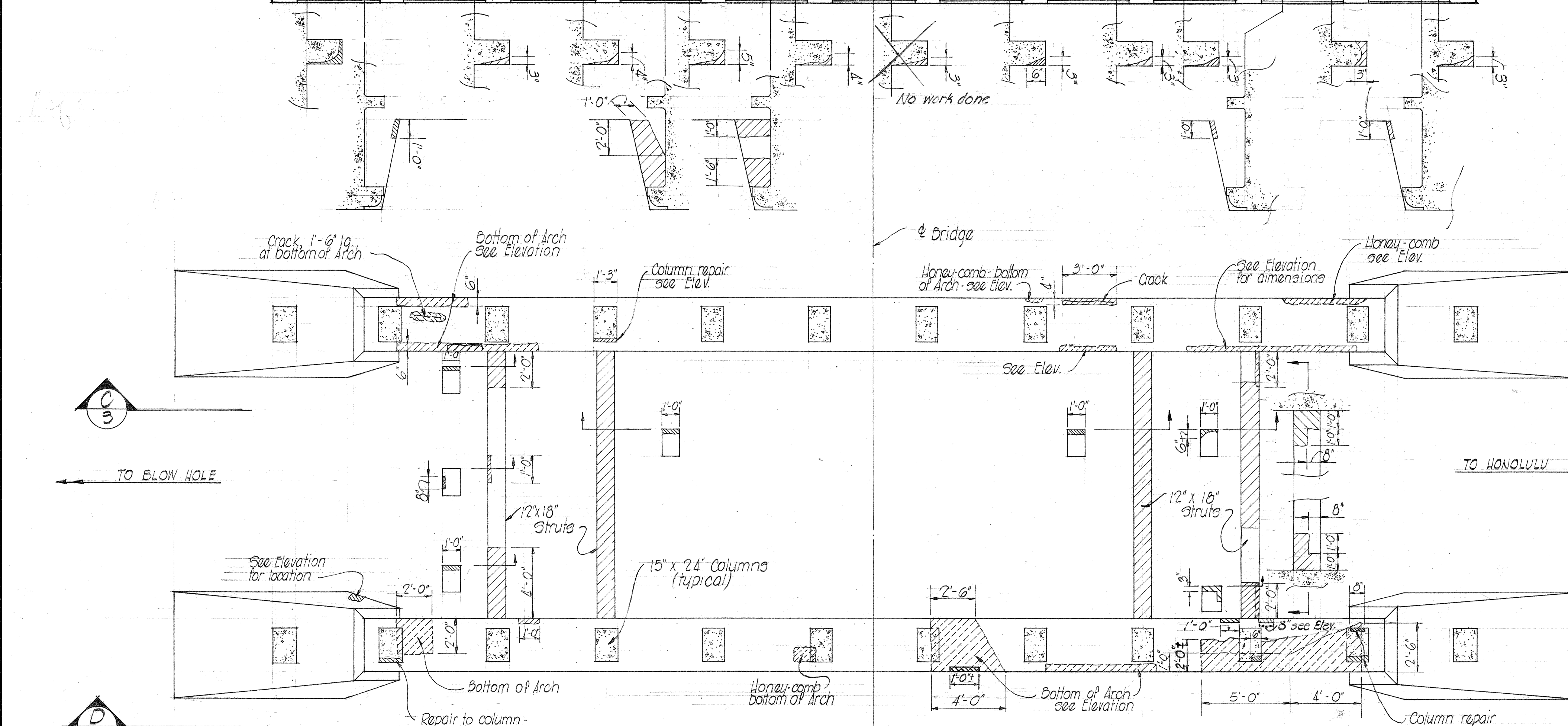
MAKAI REFLECTED DECK CEILING PLAN



TYPICAL REPAIR DETAILS FOR PNEUMATICALLY PLACED MORTAR (ALTERNATE 'A') SEE NOTE NO. 7 FOR ALTERNATE 'B' REPAIRS

GENERAL NOTES

- 1- All deteriorated, damaged, spalled, or honey-combed concrete at repair areas shall be replaced with pneumatically placed mortar (Alternate 'A') or epoxy and mortar (Alternate 'B').
- 2- The locations of repair areas are designated by hatched lines. The dimensions and limits shown are approximate. The final limits at each repair area will be determined by the Engineer.
- 3- Feathered edges of sound concrete shall be chipped square and trimmed to receive $\frac{1}{2}$ " of mortar. Concrete behind reinforcing bars shall be removed a minimum of $\frac{3}{4}$ " to permit cleaning the entire bar adequately.
- 4- All concrete surfaces and exposed reinforcing bars shall be thoroughly cleaned by sandblasting before applying pneumatic mortar (Alternate 'A') or epoxy and mortar (Alternate 'B').
- 5- Pneumatically placed mortar shall be placed to original lines or to a thickness necessary to provide minimum cover over reinforcing bars, whichever is greater (Alternate 'A'). Mortar for Alternate 'B' shall be placed to the same limits as Alternate 'A'.
- 6- Painting - see Special Provisions.
- 7- Repair details for Alternate 'B' shall be similar to Alternate 'A' except for the following:
 - a- All exposed reinforcing steel and concrete surfaces of repair areas shall be completely coated with an epoxy bonding agent.
 - b- The repair areas shall then be reconstructed to original lines with mortar.
 - c- For repair of lower right corner on Mauka Arch, see sect. (E).
- 8- Removal of honey-combed concrete will not be required unless there is indication of rusting of the reinforcing steel. When removal is not necessary, the surfaces of honey-combed concrete shall be sealed with an epoxy patching compound $\frac{1}{8}$ " in minimum thickness (Alternates 'A' & 'B').



TOP PLAN (A) CONCRETE ARCHES SCALE: $\frac{1}{4}$ " = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

REPAIRS TO
IIHILAUKEA BRIDGE

KALANIANA'OLE HWY. PROJ. NO. B-72-01-G3
APRIL ~ 1962

REVISID - OCT. 9, 1962

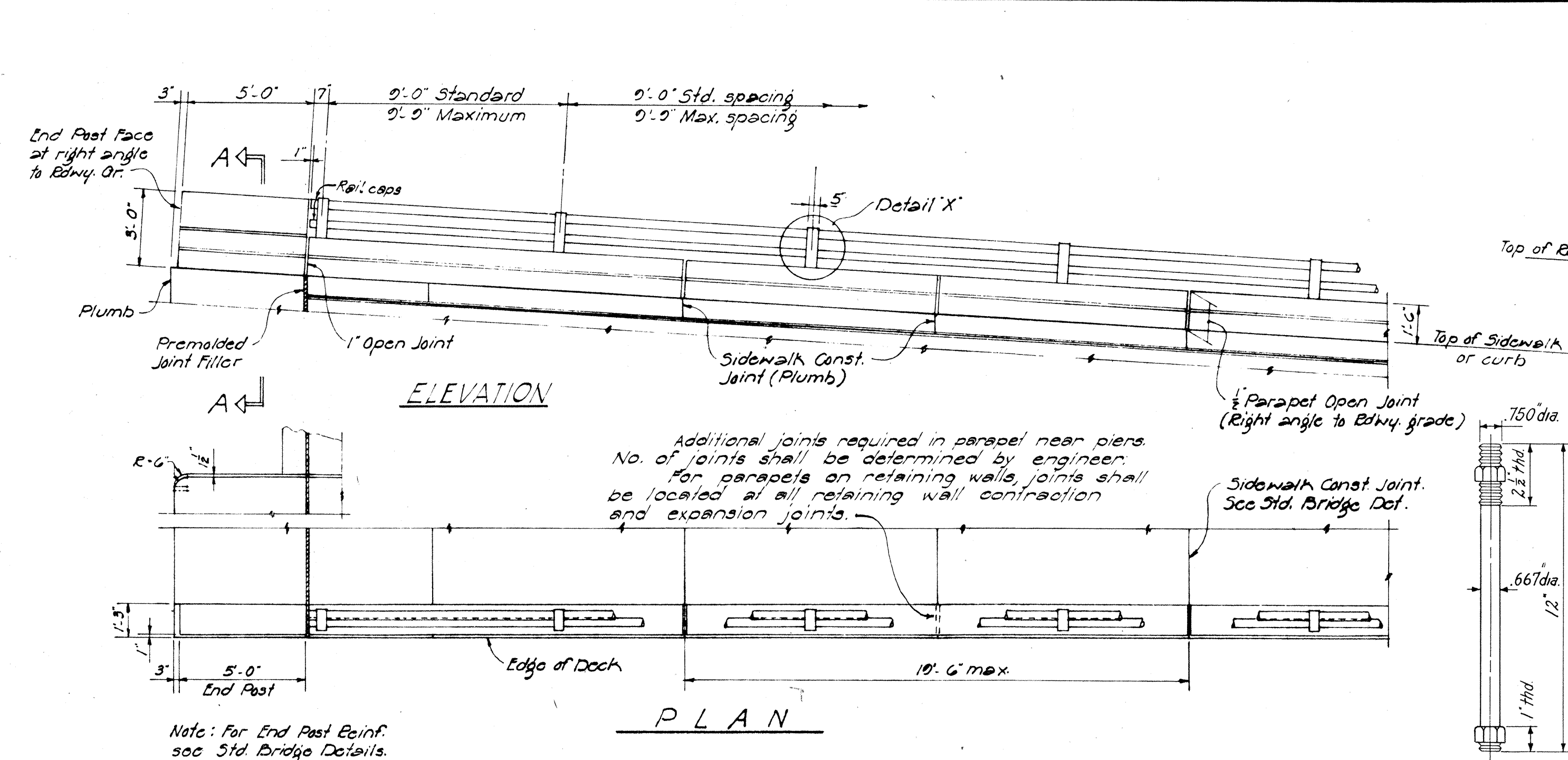
SHEET No. 2 OF 4 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

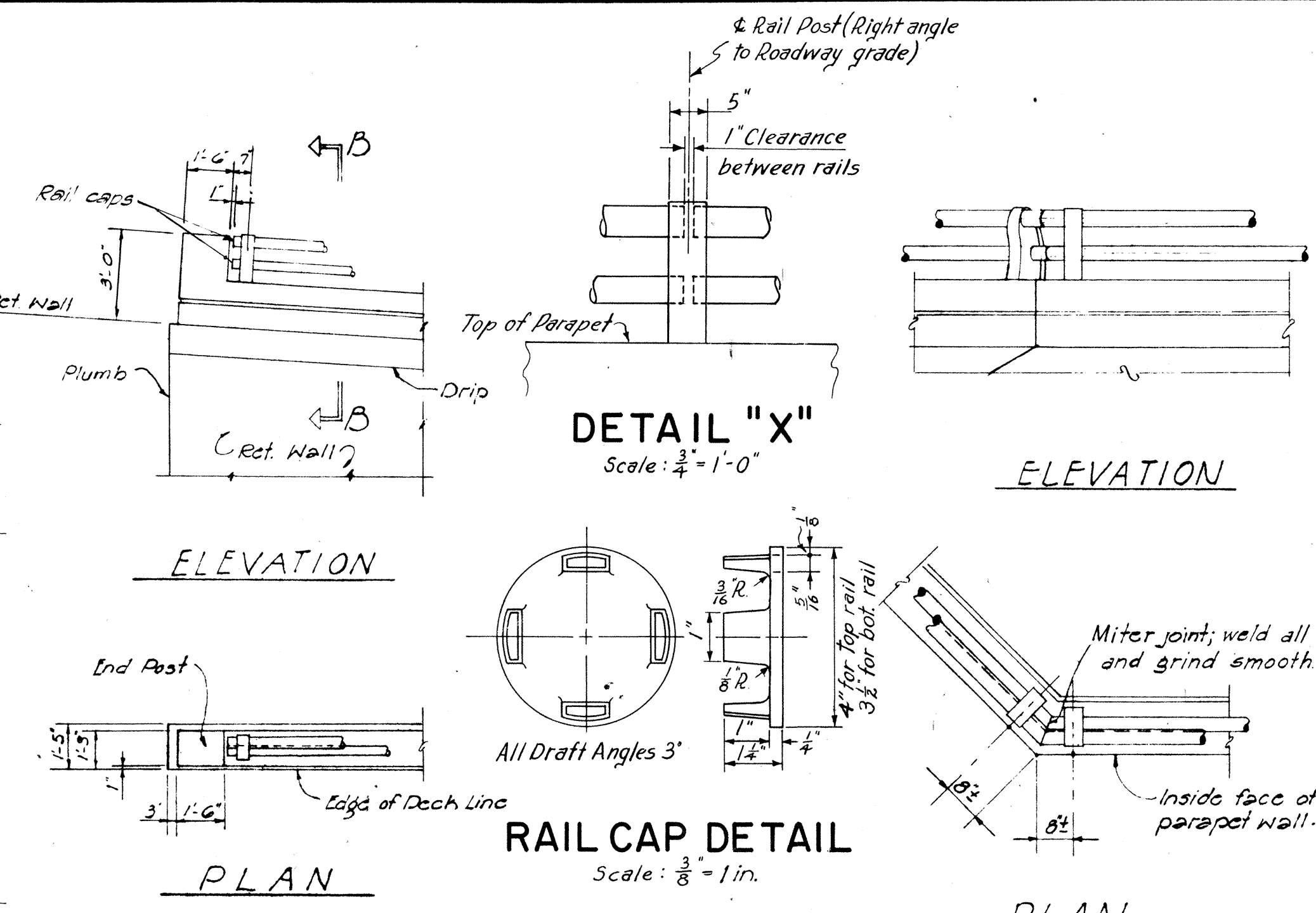
ORIGINAL PLAN	SURVEY PLOTTED BY.....	DATE.....
NOTE BOOK	DRAWN BY.....	at.....
	TRACED BY.....	at.....
	DESIGNED BY.....	at.....
	QUANTITIES BY.....	at.....
No.....	CHECKED BY.....	at.....

PRINTED ON CLEARPRINT 1000-H

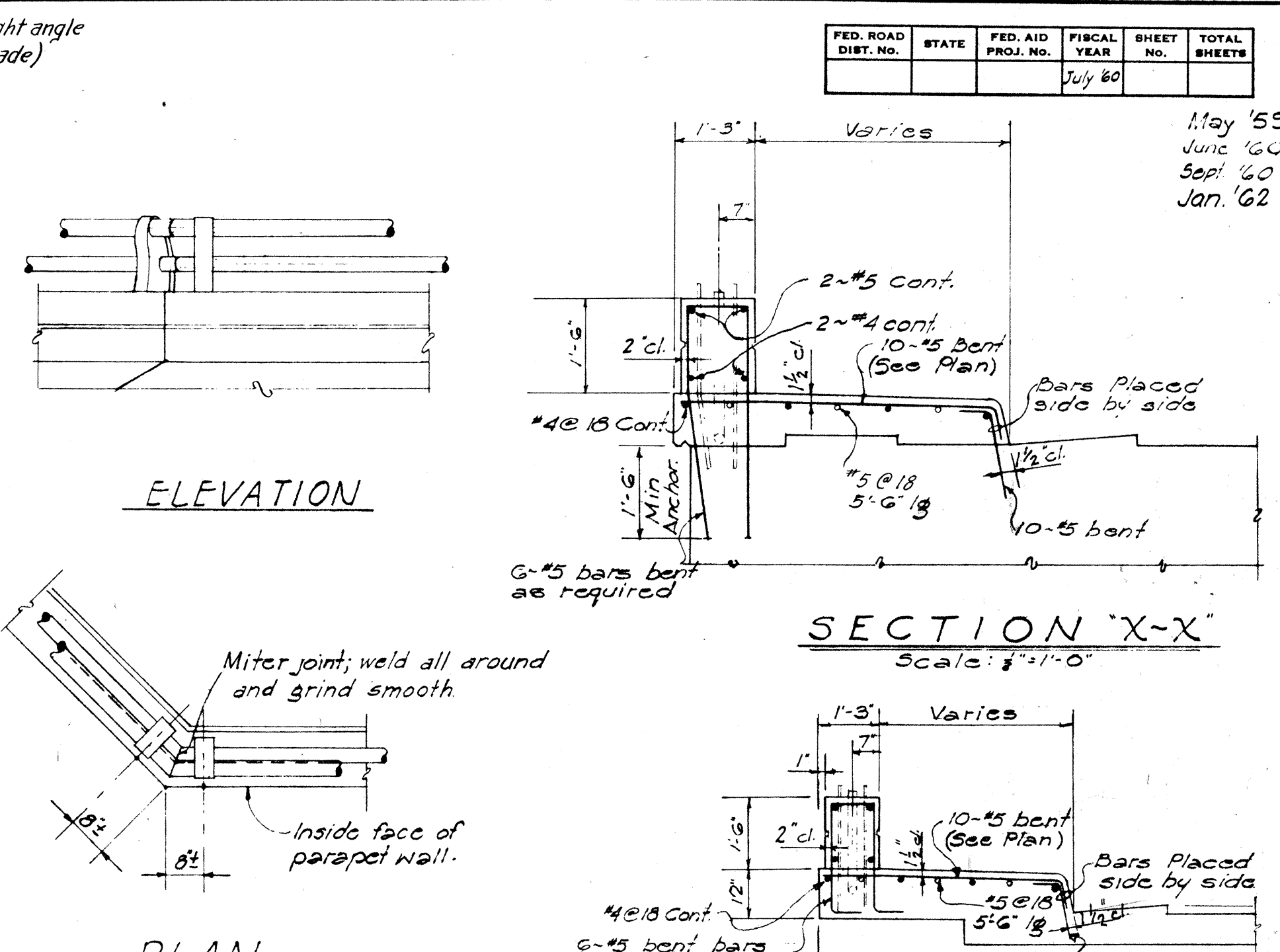
May '59
June '60
Sept. '60
Jan. '62



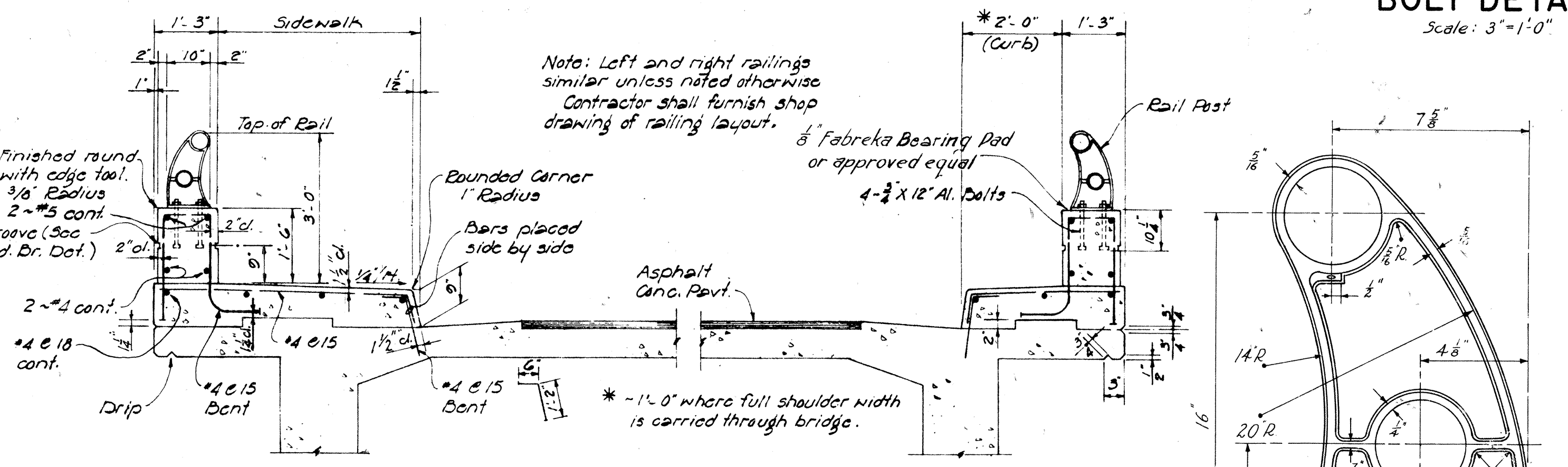
ALUMINUM RAILING DETAIL
Scale - 1/4" = 1'-0"



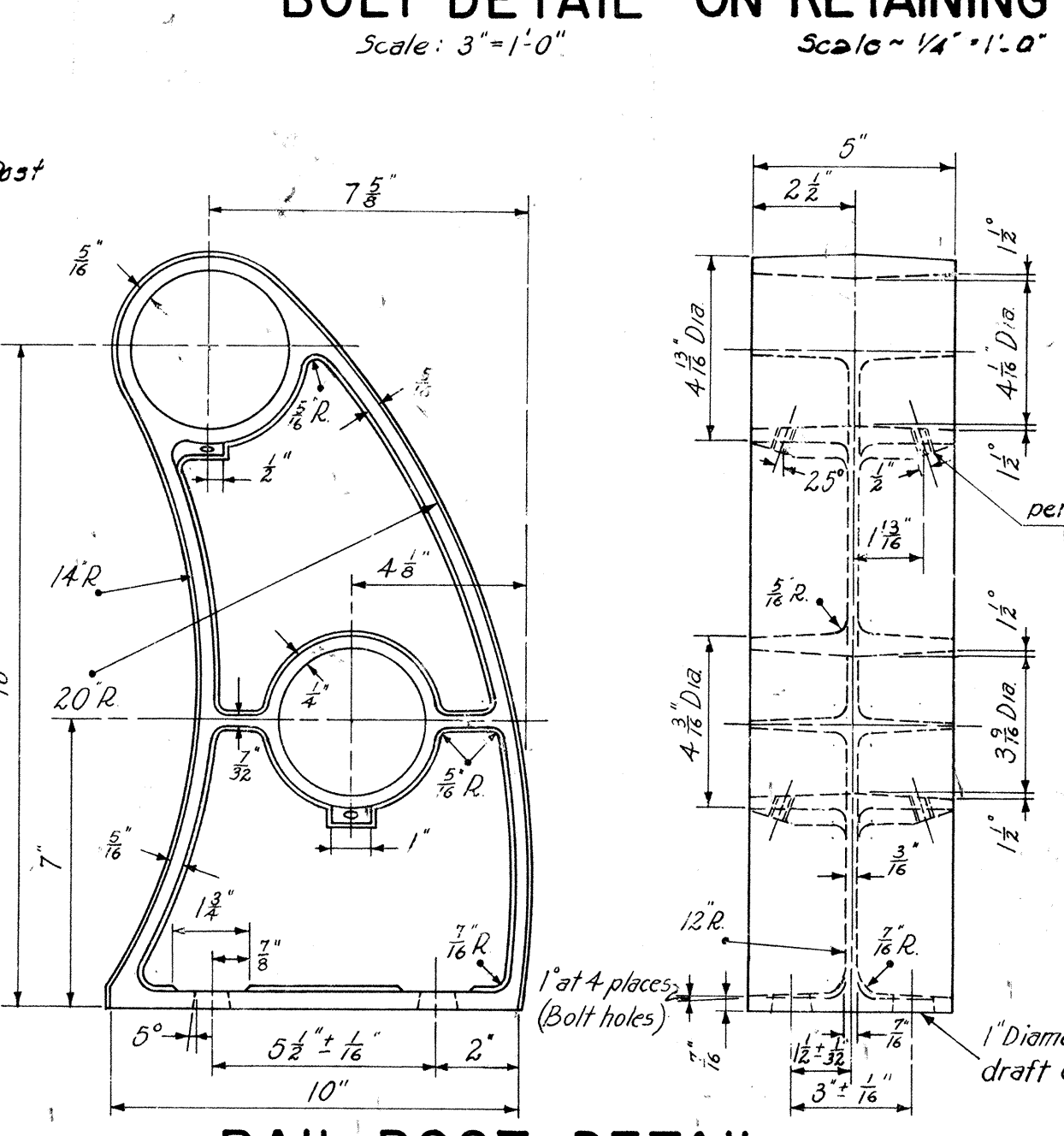
ANCHOR TREATMENT OF RAILING BOLT DETAIL ON RETAINING WALL
Scale - 3/8" = 1'-0"



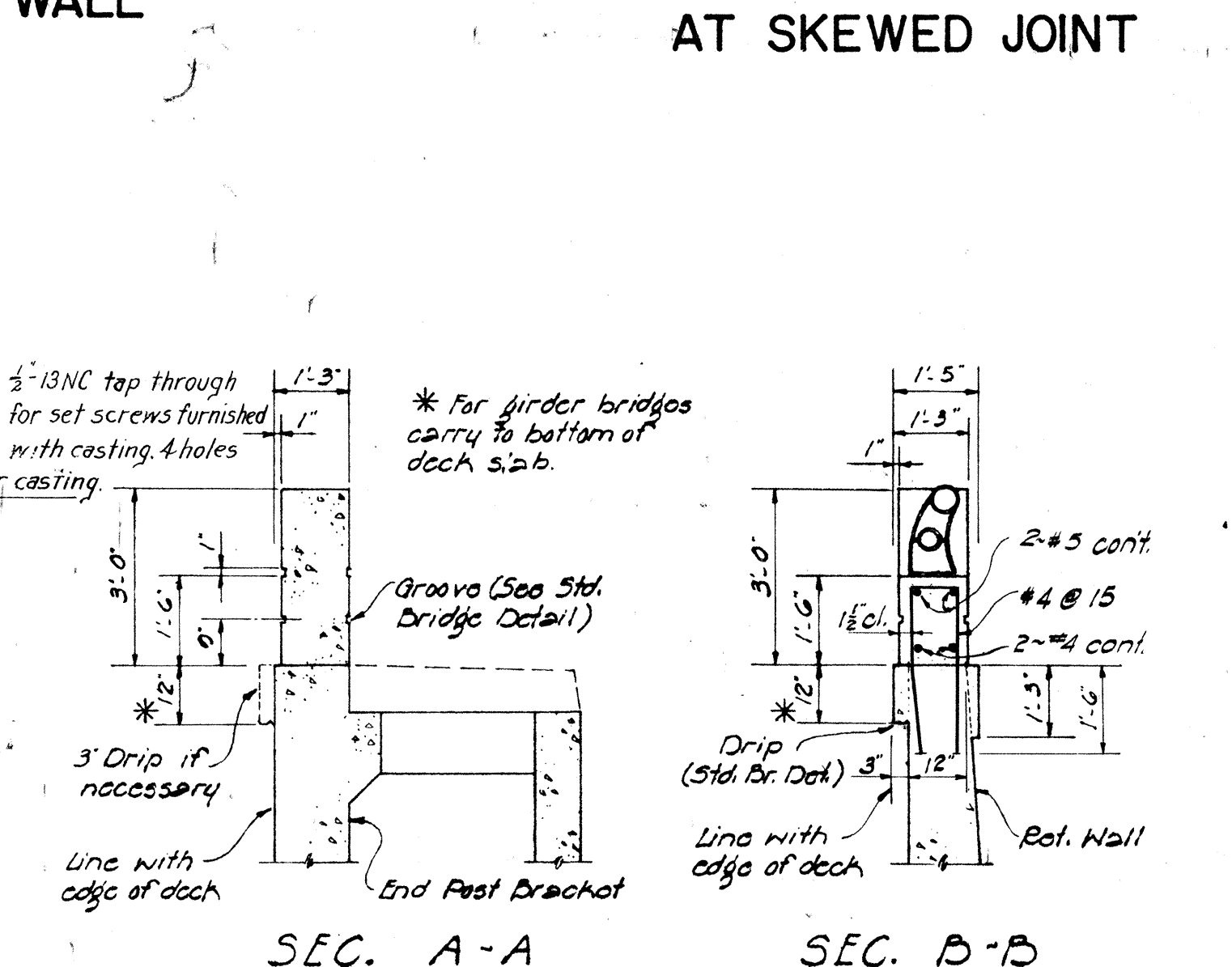
TREATMENT OF RAILING AT SKEWED JOINT
Scale: 3/8" = 1'-0"



TYPICAL SECTION
Scale - 1/2" = 1'-0"



RAIL POST DETAIL
Scale - 3/8" = 1'-0"



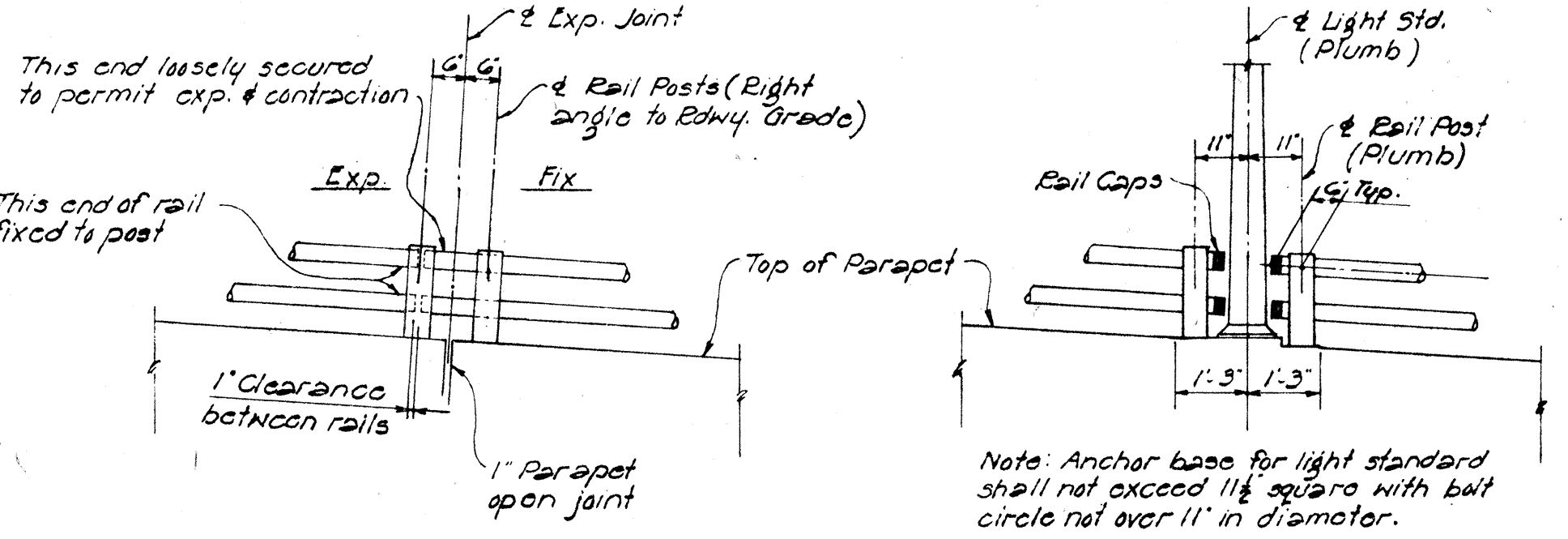
SECTIONS
Scale - 3/8" = 1'-0"

GENERAL NOTE
Except where detailed otherwise in the plans, all details on this sheet govern.
Aluminum railing, concrete parapet & end post to receive "Class 2 Surface Finish."

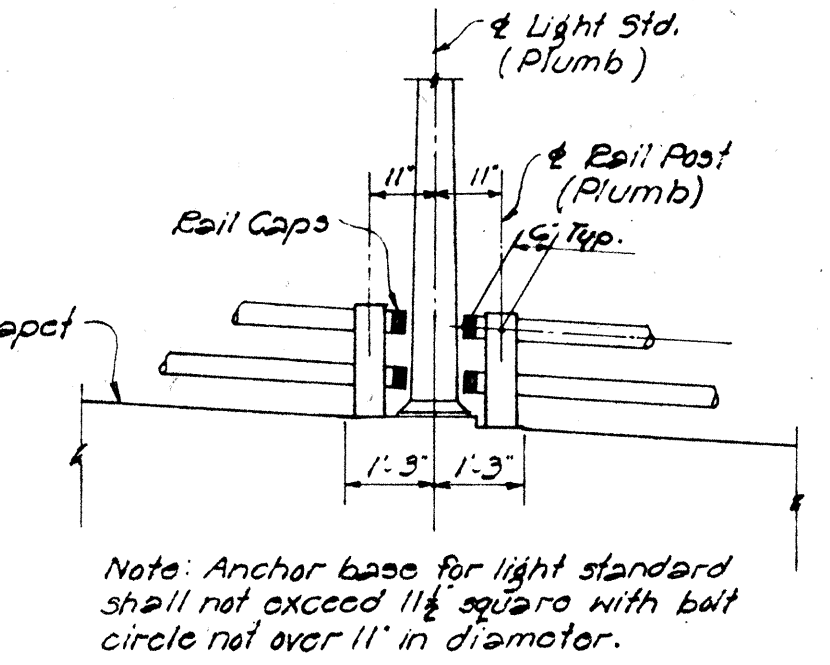
SPECIFICATION FOR ALUMINUM RAILING*

ITEM	DESCRIPTION	ALLOY	UNIT WT.
Top Rail	Al Alloy Drawn Or Extruded Tube 4" o.d. x 1/8" thick wall.	6061 - TC	1.70 #/ft.
Def. Rail	Al Alloy Drawn Or Extruded Tube 3 1/2" o.d. x 1/8" thick wall.	6061 - TC	1.56 #/ft.
*Rail Post	Permanent Mold Casting See Rail Post Detail	Post A-35G-T6 Def. Sc. 2024-T4	16.0 #/sq. ft.
Rail Cap	See Rail Cap Detail	Cap 35G-T6	Top - .415 #/sq. Def. - .340 #/sq.
Bolts	See Anchor Bolt Detail Provide Helicon Nut and Plain Washer	Bolt 2024-T4 Nut 2024-T4 Wash. 2024-T4	

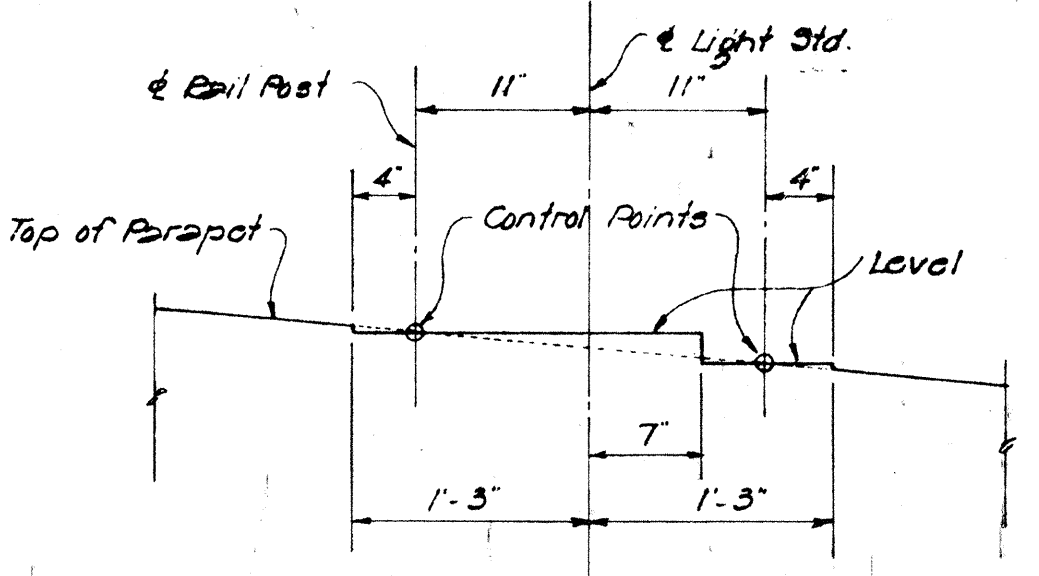
* Rail Post Finish: Front, top and rear faces of post shall receive a standard scratch brush finish, to be approved by the Engineer.
+ All materials for Aluminum Railing to be anodized. See Special Provisions.



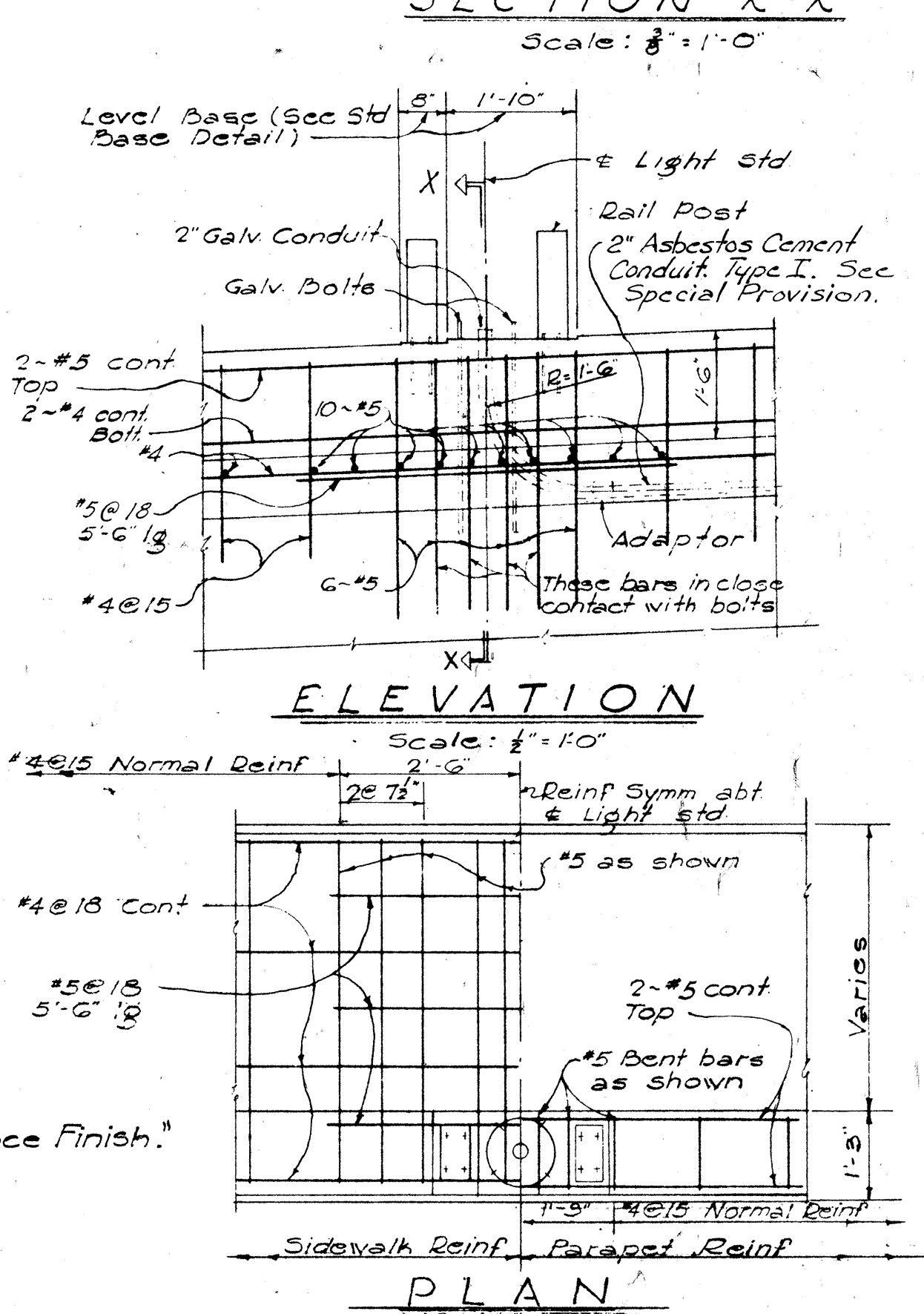
TREATMENT OF RAILING AT EXP. JOINT
Scale - 3/8" = 1'-0"



TREATMENT OF RAILING AT LIGHT STD.
Scale - 3/8" = 1'-0"



LIGHT STD. BASE DETAIL
Scale - 1" = 1'-0"



LIGHT STD. BASE REINF. DETAIL
Scale - 3/8" = 1'-0"

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

STANDARD DETAILS

ALUMINUM RAILING

PROJ. NO. B-72-01-63

SCALE AS NOTED

APPROVED _____ DATE Aug 26, 1960
STATE HIGHWAY ENGINEER

DESIGNED BY: J. J. J. J. J.
CHECKED BY: J. J. J. J. J.
DATE: J. J. J. J. J.