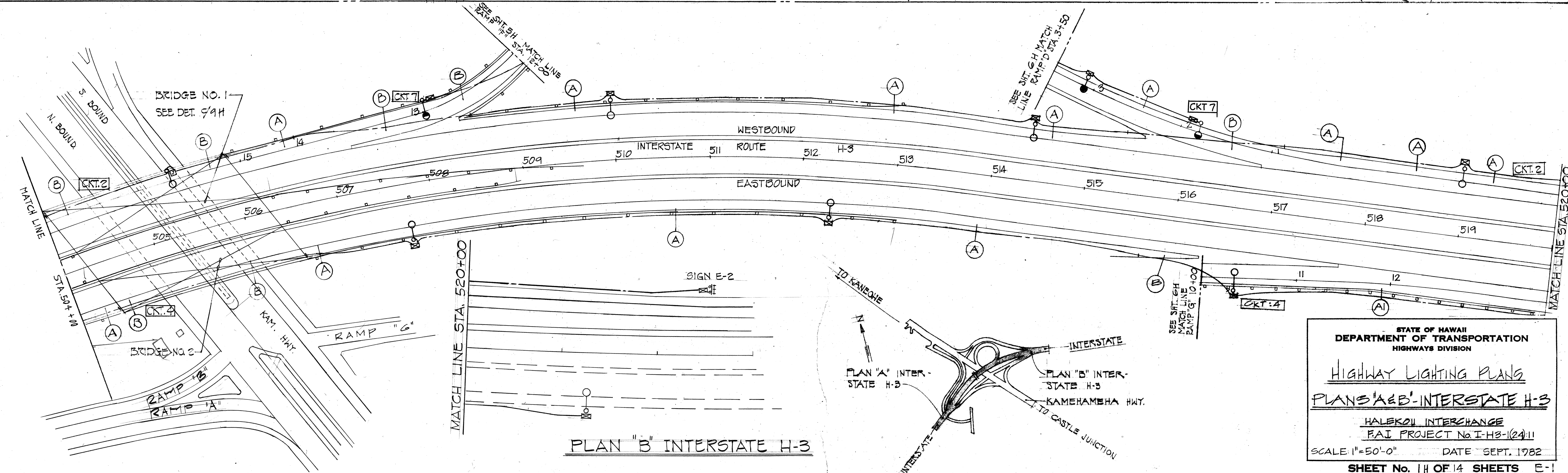
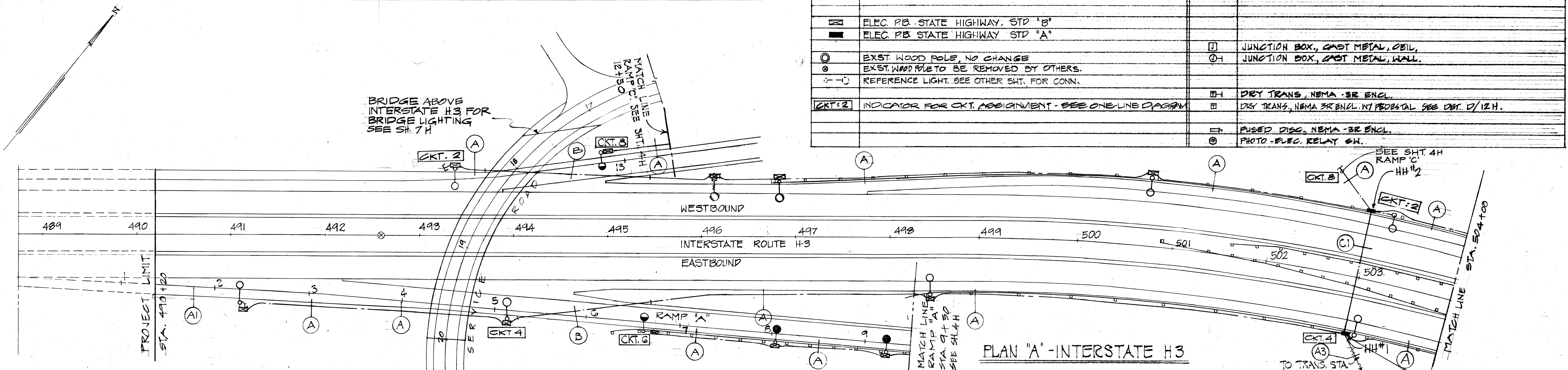


NOTES:

- GROUND ALL STEEL POLES BY BONDING W/ #10TW (GREEN) & CONNECTING TO SYSTEM NEUTRAL IN ADDITION TO GRD ROD IN PULLBOXES FOR ALL POLES.
- HWY. LIGHTING CONDUIT TO BE PVC SCHD. 40 EXCEPT AT CONCRETE STRUCTURE TO BE RIGID GALV. STEEL CONDUIT.
- HWY. LIGHTING STANDARDS BEHIND GUARDRAILS MAY BE MOUNTED ON ANCHOR BASES IN LIEU OF SLIP BASES.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-104-II	1983	155	328

ELECTRICAL		SCHEDULE	
○—○	LIGHT, 400 W HIGH PRESS. SODIUM 7' METAL POLE & BRACKET	—	CONDUIT, RIGID STEEL
○—○	LIGHT, 250W HIGH PRESS. SODIUM 7' METAL POLE & BRACKET	—	CONDUIT, 18" DEEP
○—○	LIGHT, 150W HIGH PRESS. SODIUM 7' METAL POLE & BRACKET	—	CONDUIT, STD. OUT 5'-0" & PLUG
—	LIGHT, SIGN 250W MERCURY VAPOR	—	CONDUIT, 18" 7' 3" CONC. JACKET OR CONC. EMBEDDED
—	LIGHT, 100 W HIGH PRESS. SODIUM UNDERPASS WALL MTD.	—	HECO HH STD. 10841
—	ELEC. PB. STATE HIGHWAY, STD "B"	—	
—	ELEC. PB. STATE HIGHWAY, STD "A"	—	
○	EXST. WOOD POLE, NO CHANGE	□	JUNCTION BOX, CAST METAL, OIL
○	EXST. WOOD POLE TO BE REMOVED BY OTHERS.	□	JUNCTION BOX, CAST METAL, WALL
—○—	REFERENCE LIGHT, SEE OTHER SHT. FOR CONN.	—	
—	INDICATOR FOR CKT ASSIGNMENT - SEE ONE-LINE DIAGRAM	—	
		—	DRY TRANS, NEMA -3R ENCL.
		—	DRY TRANS, NEMA 3R ENCL. MT PEDestal SEE DET. D/12 H.
		—	FUSED DISC, NEMA -3R ENCL.
		—	PHOTO-ELEC. RELAY SW.



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

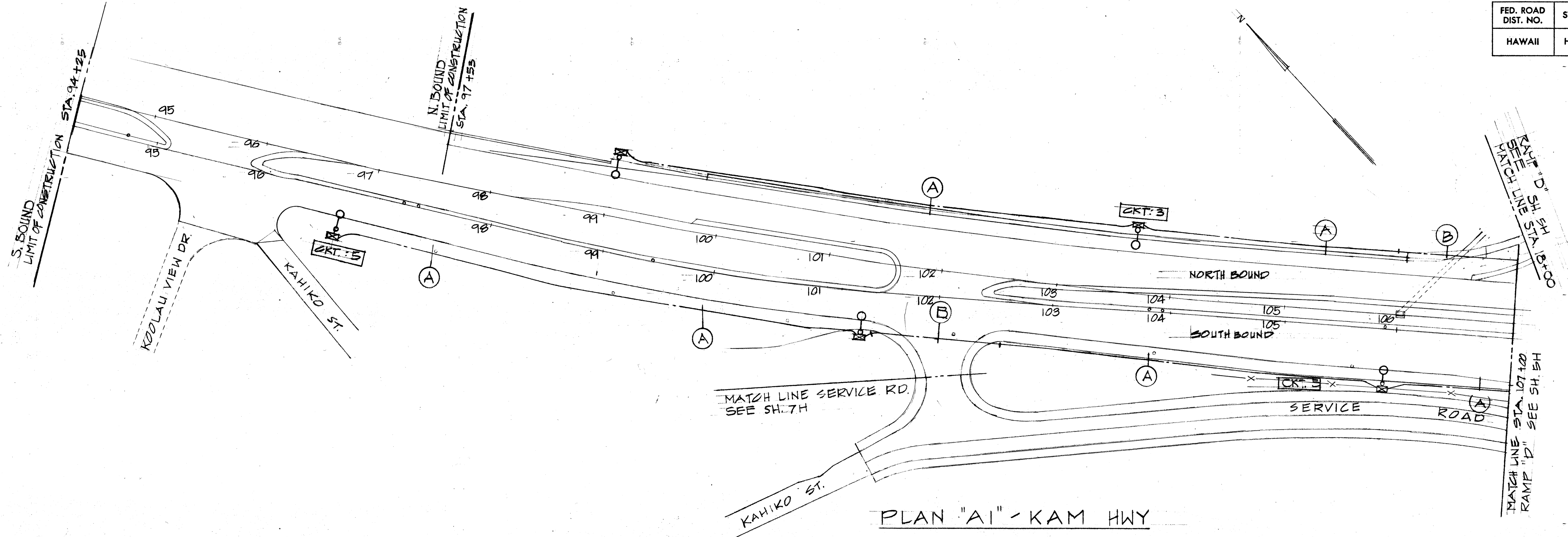
Highway Lighting Plans
PLANS 'A' & 'B' - INTERSTATE H-3

HALEKOU INTERCHANGE
FAI PROJECT No. I-H3-104-II

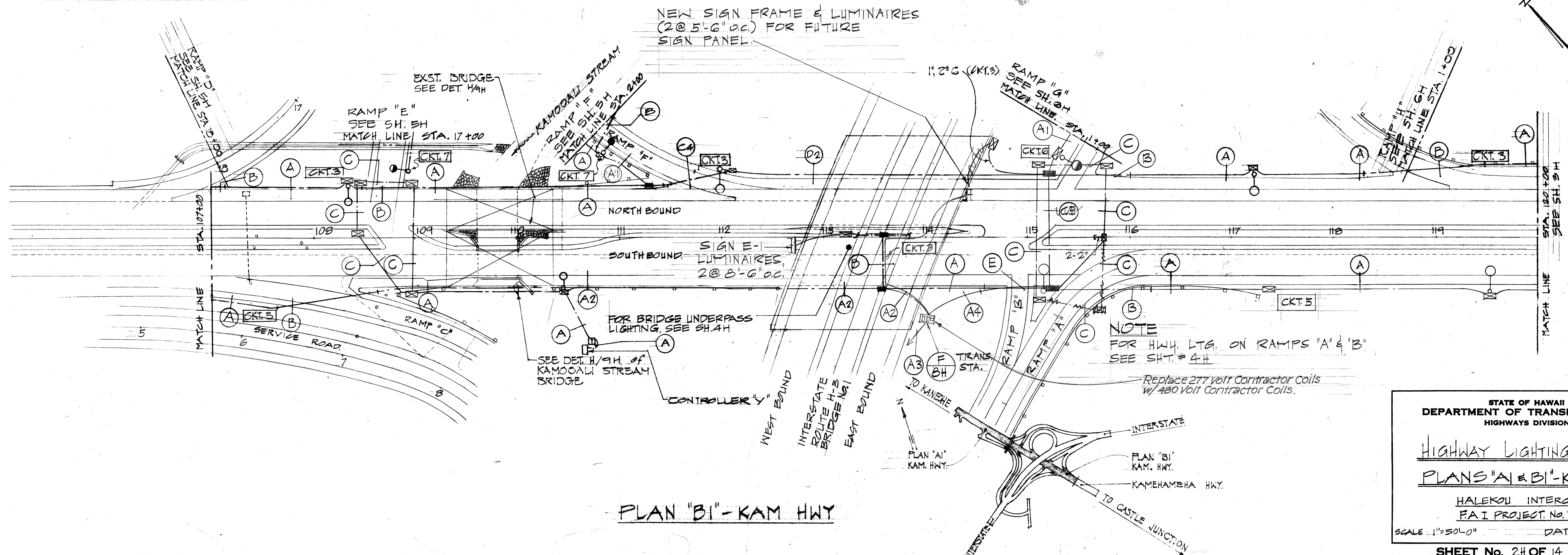
SCALE: 1"=50'-0" DATE: SEPT. 1982

SHEET No. 14 OF 14 SHEETS E-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-(24):11	1983	156	328



PLAN "A1" - KAM HWY



PLAN "B1" - KAM HWY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Highway Lighting Plans
Plans "A1" & "B1" - KAM HWY.

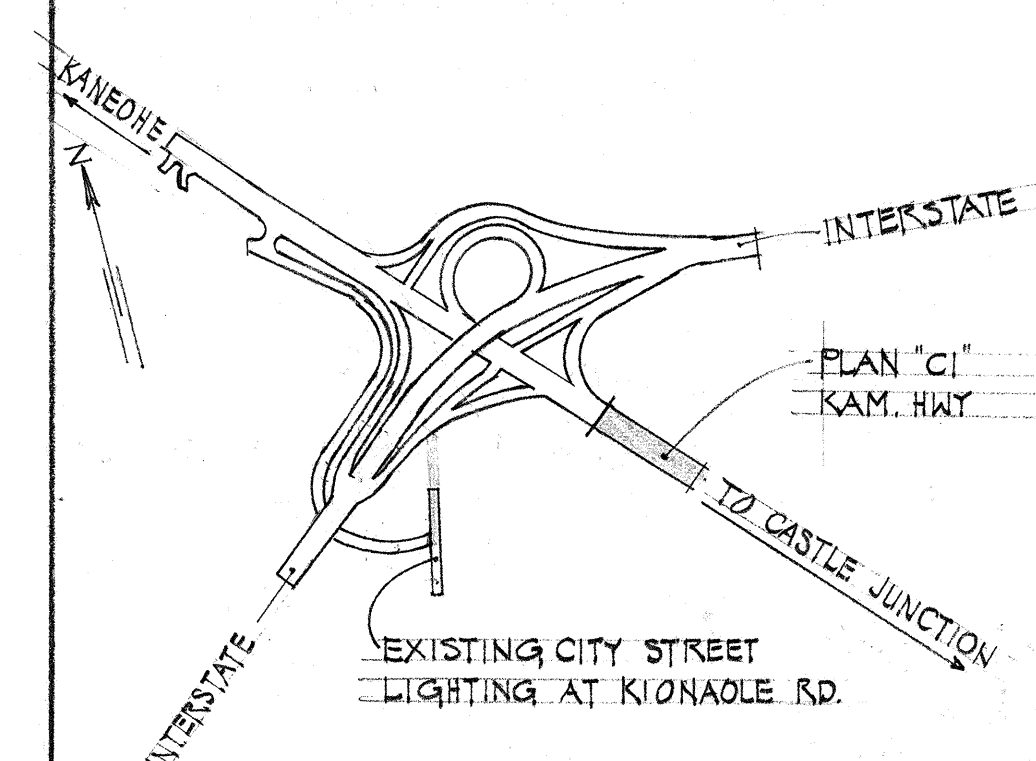
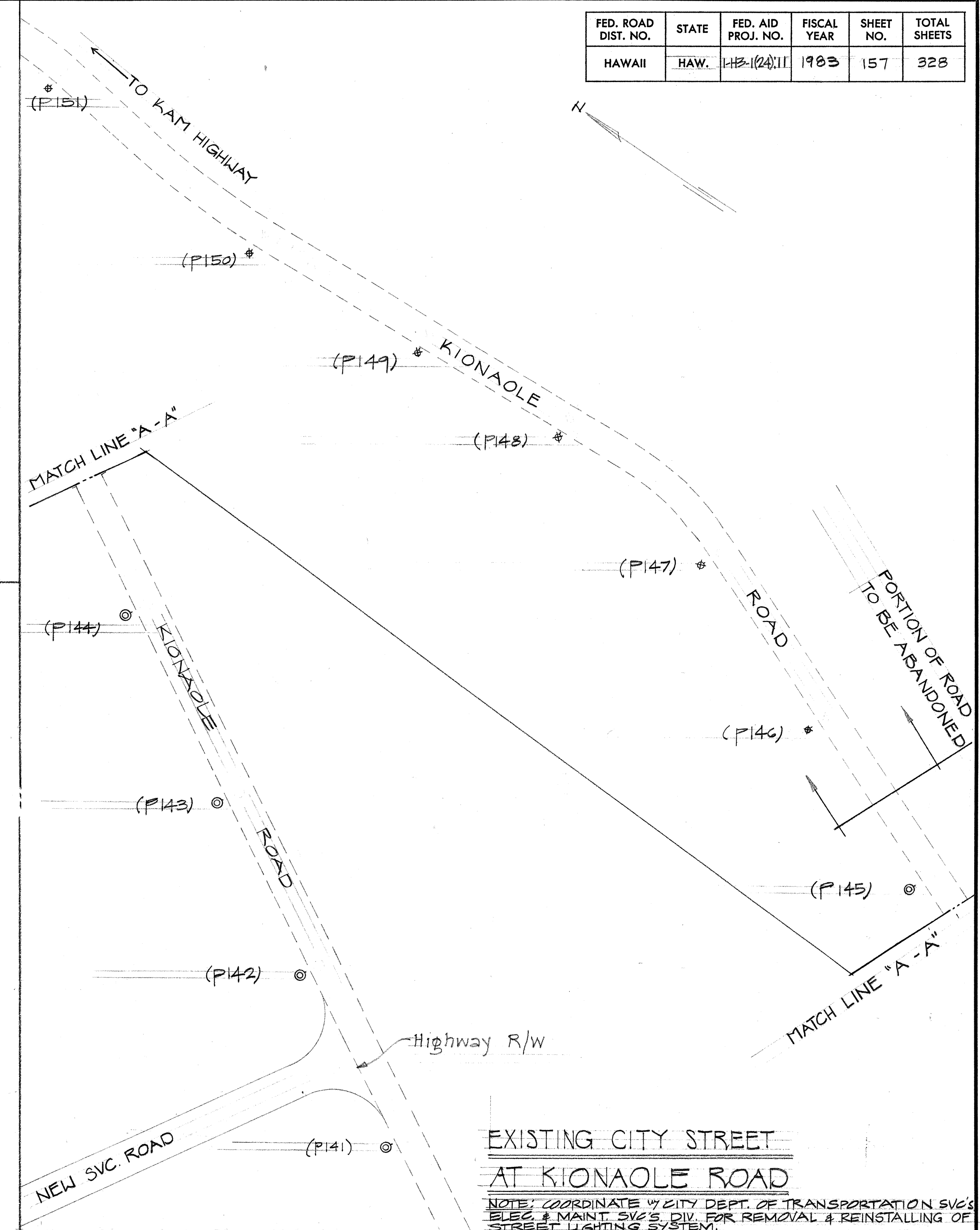
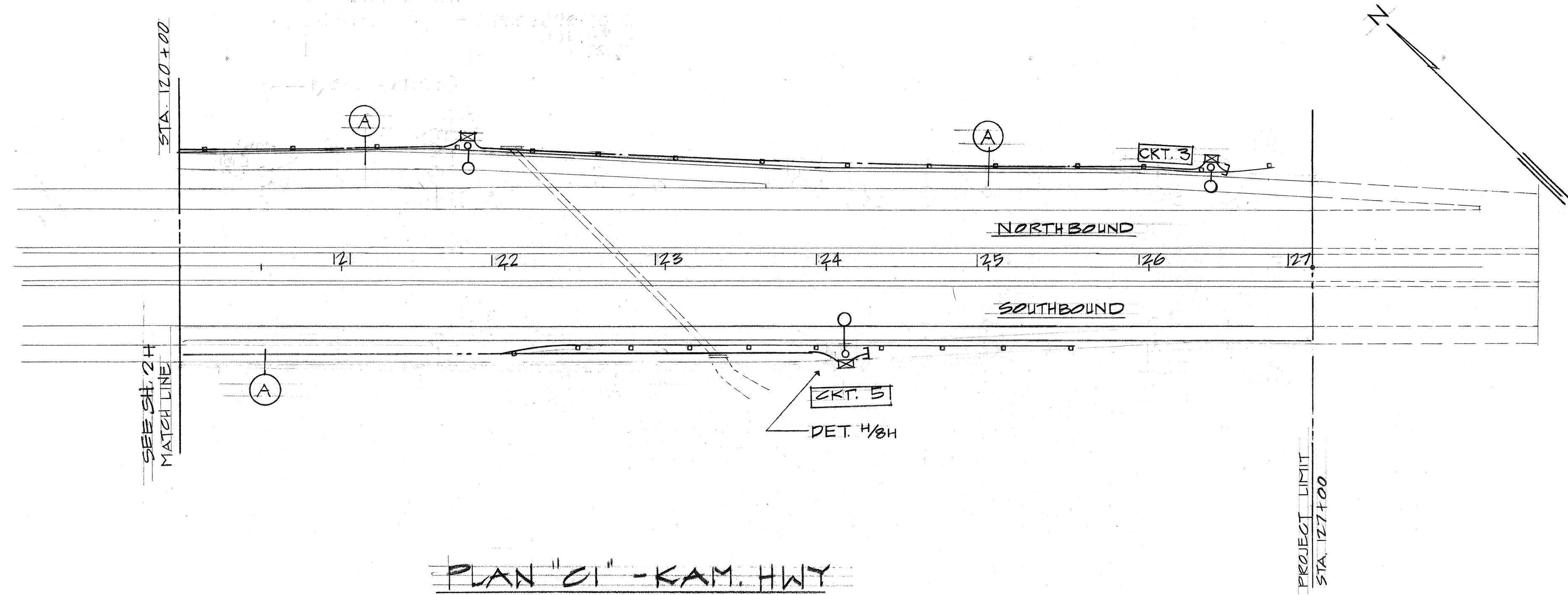
HALEKOU INTERCHANGE
FAI PROJECT No. I-H3-1(24):11

SCALE: 1"=50'-0" DATE: Sept. 1982

SHEET No. 24 OF 14 SHEETS E-2

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.	143-1(24)11	1983	157	328



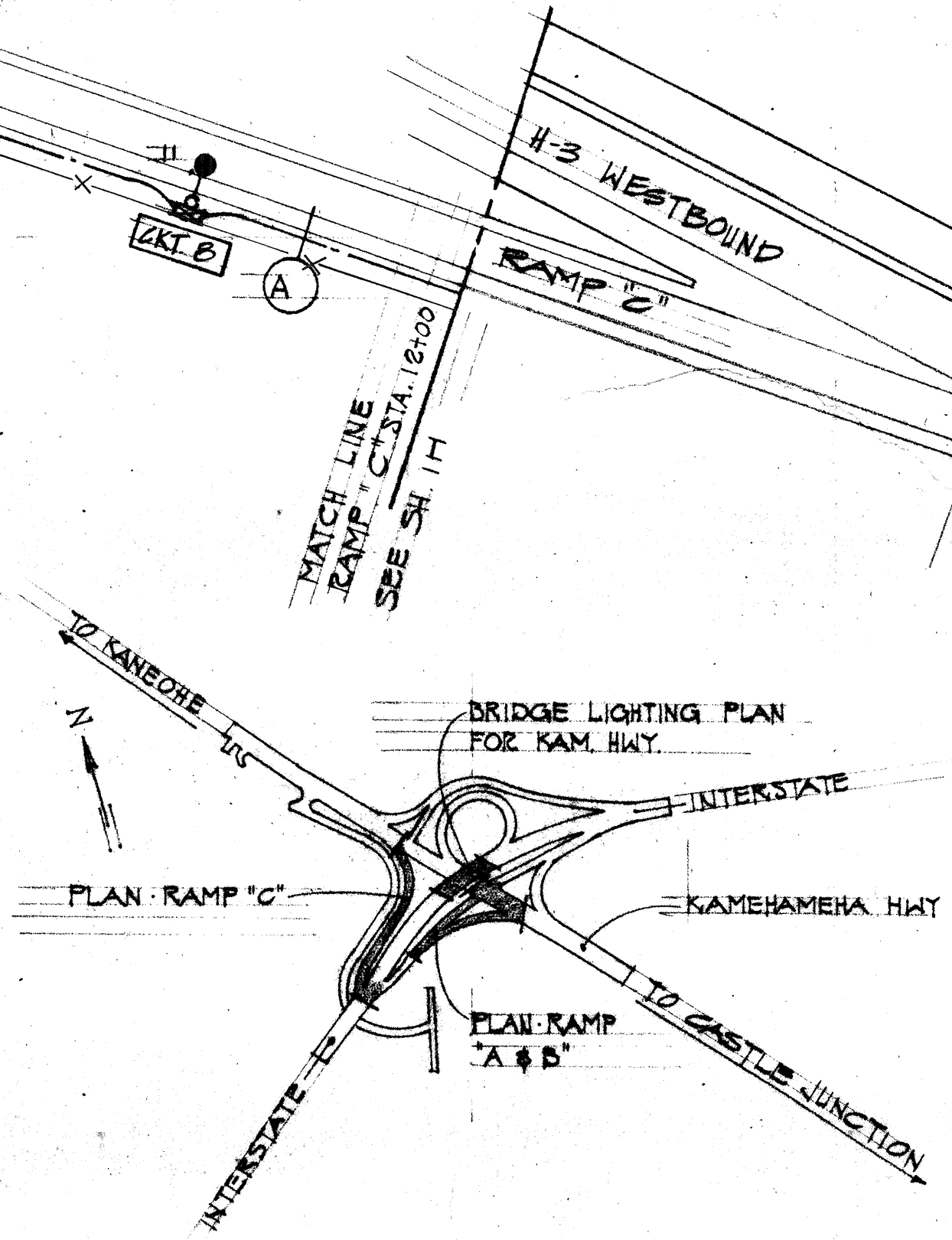
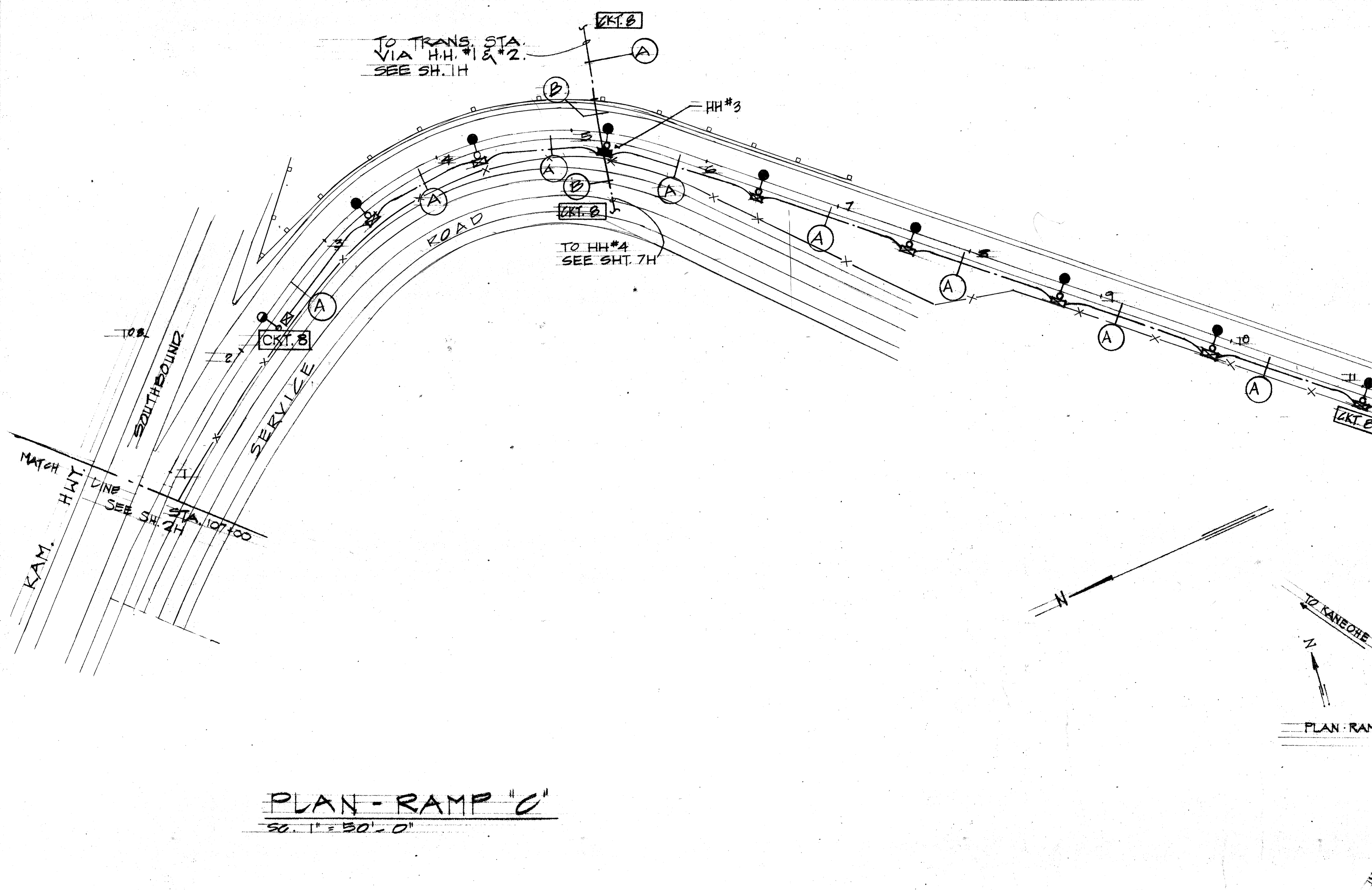
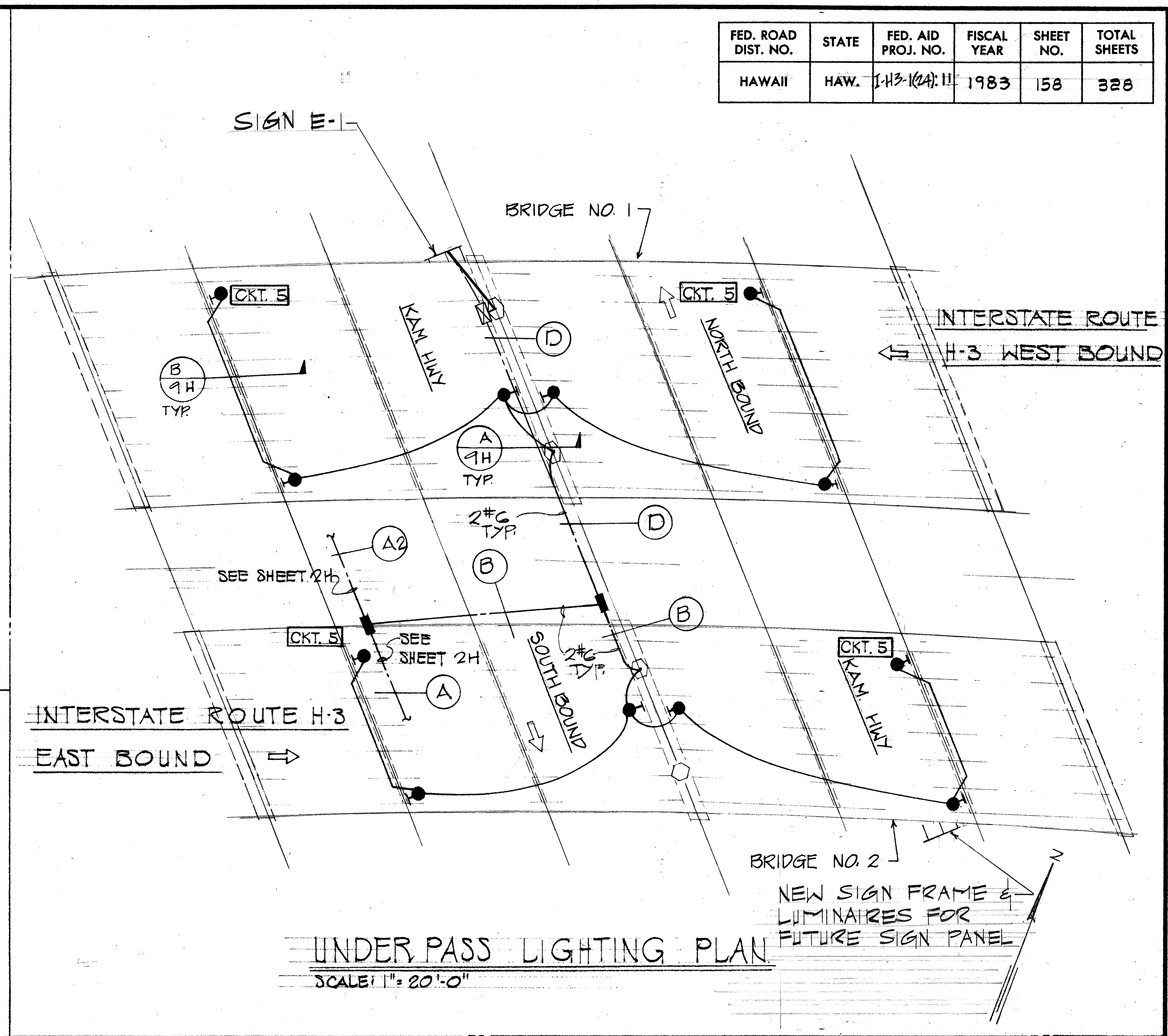
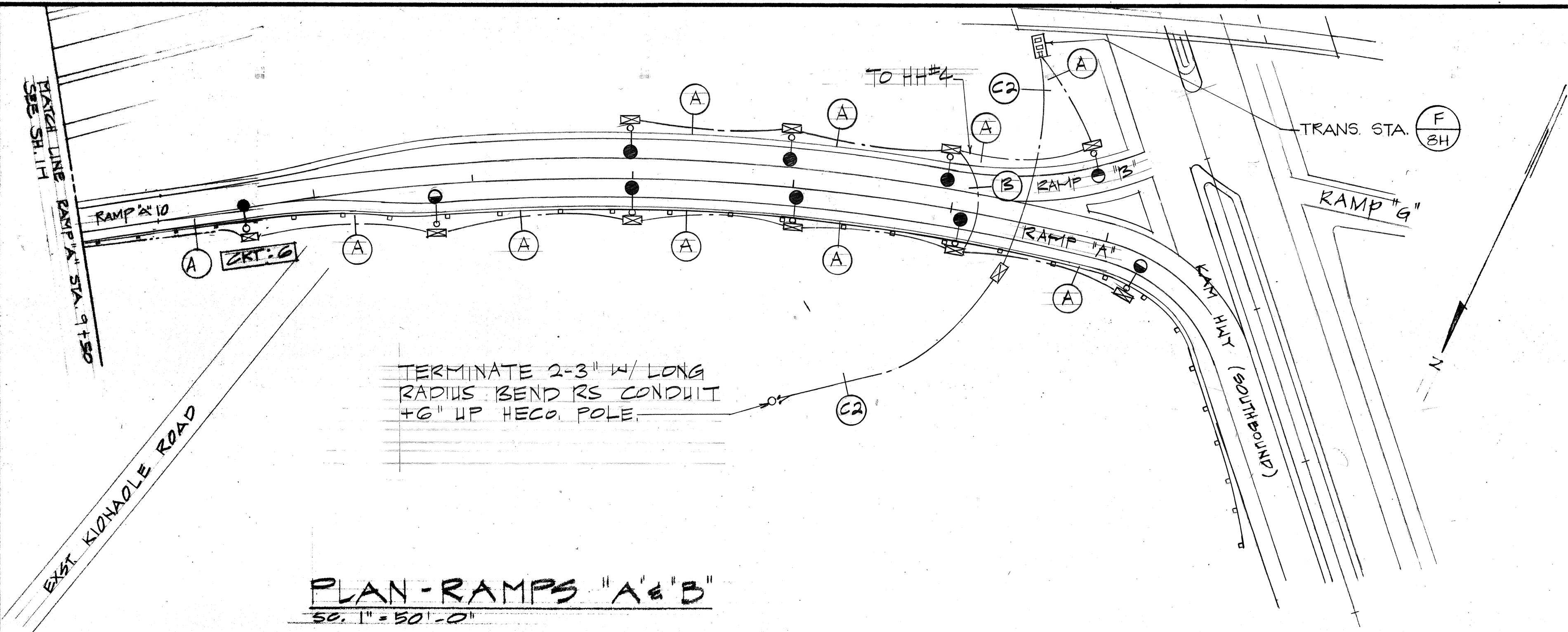
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLANS
PLAN "CI" - KAM. HWY. PLAN.
HALEKOU INTERCHANGE
FAI PROJECT NO. I-H3-1(24)-11
SCALE: 1"=50'-0" DATE: SEPT. 1982
SHEET No. 34 OF 14 SHEETS E-3

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES 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.	1-H3-1(24):11	1983	158	328



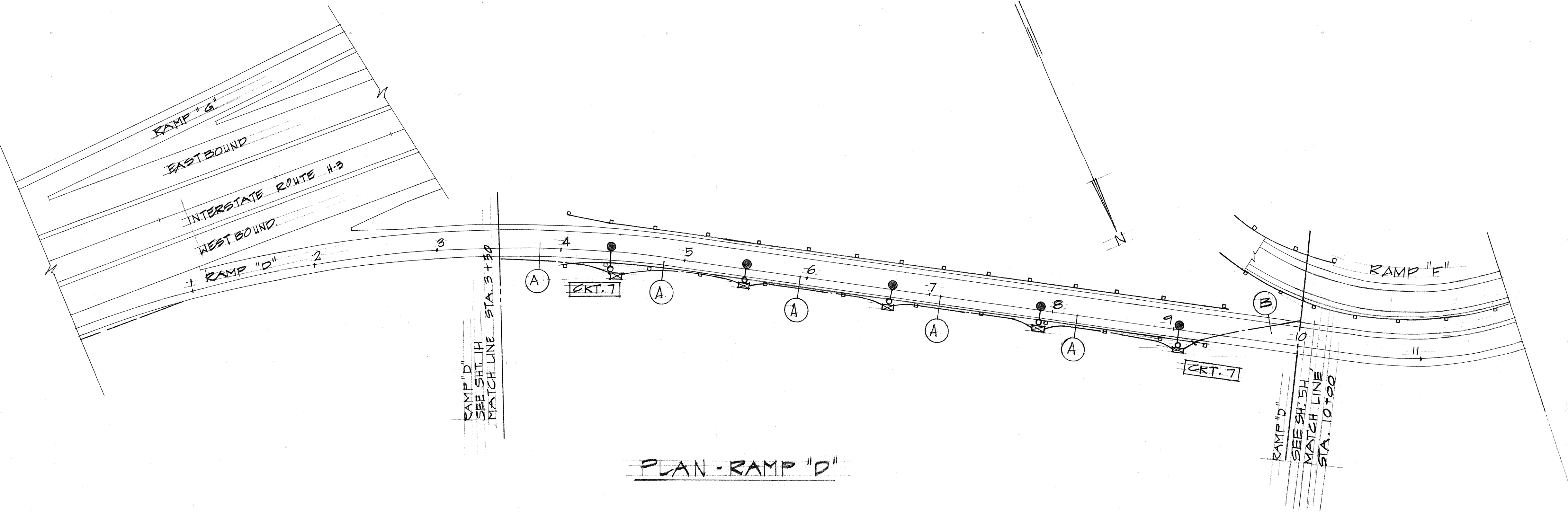
DESIGNED BY	DATE
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NOTED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

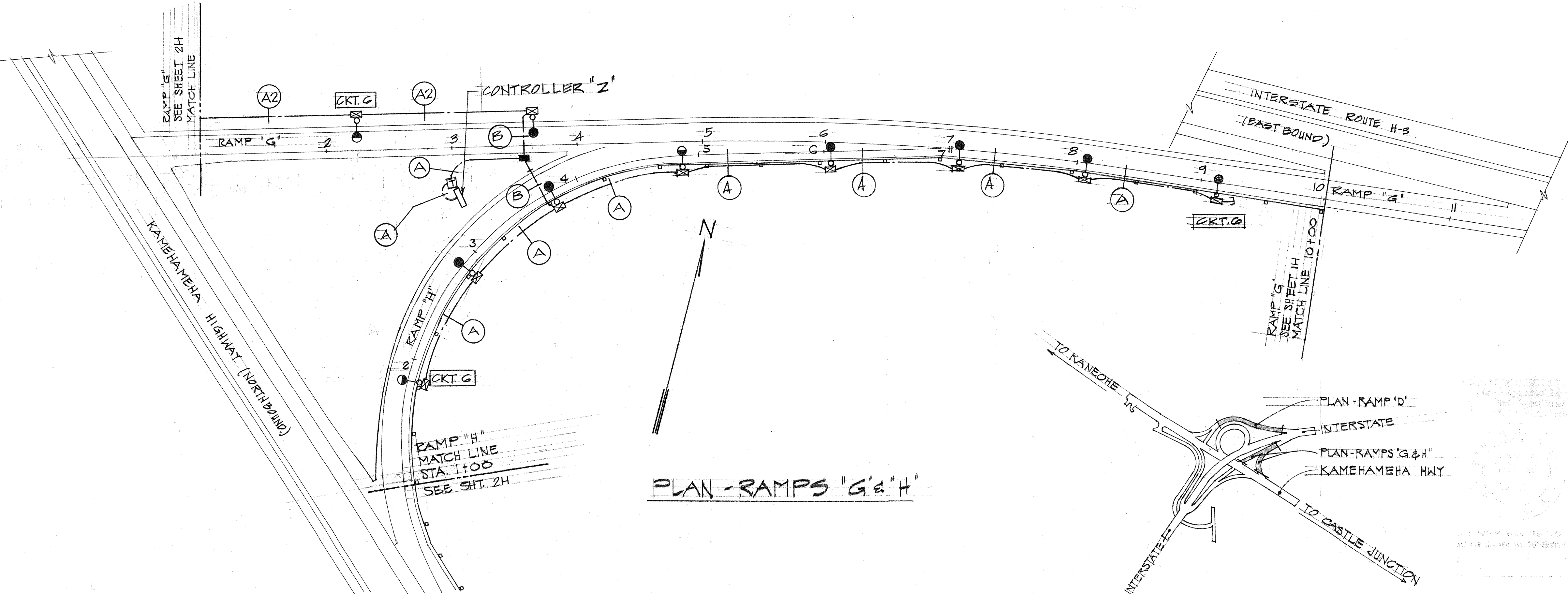
Highway Lighting Plans
PLANS - RAMP "A, B, & C"
HALEKOU INTERCHANGE
FA.I PROJECT NO. I-H3-1(24):11
SCALE: AS NOTED DATE: Sept. 1982

SHEET No. 44 OF 14 SHEETS F-4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	143-1(24)-11	1983	160	328



PLAN - RAMP "D"



PLAN - RAMPS "G" & "H"

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

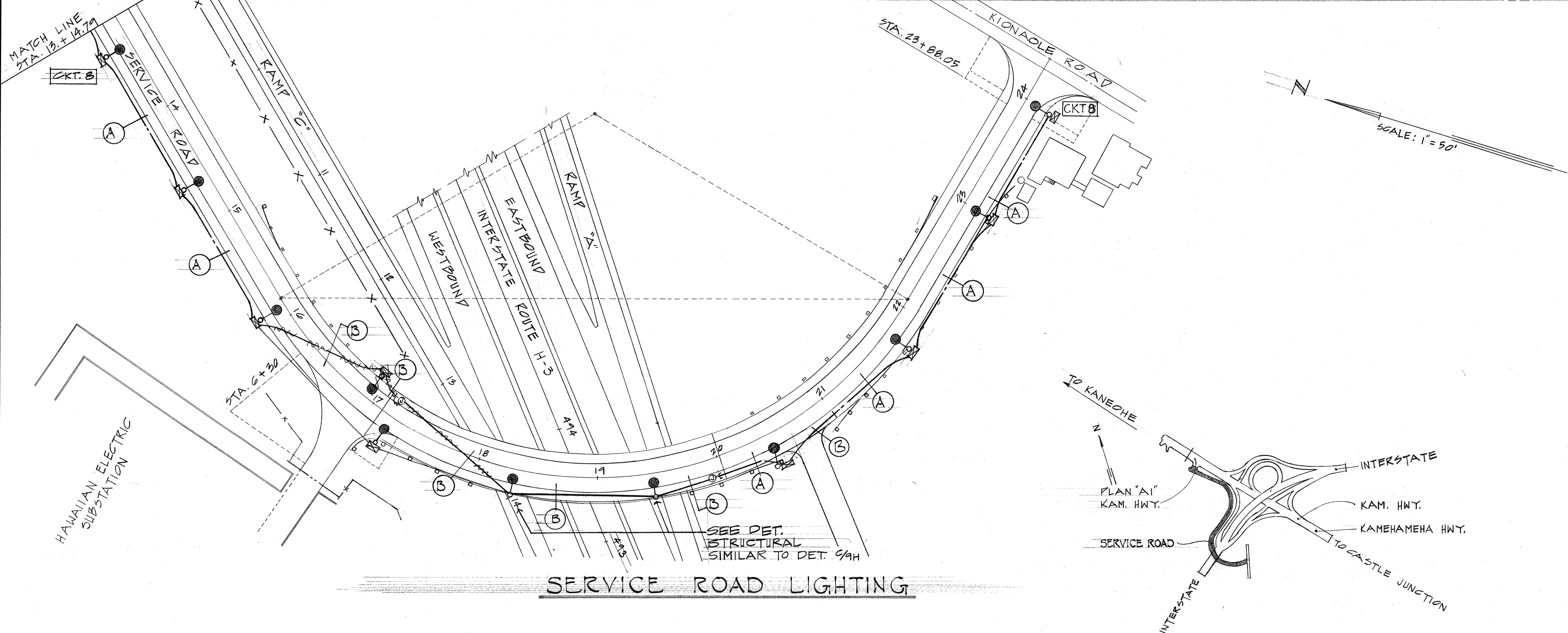
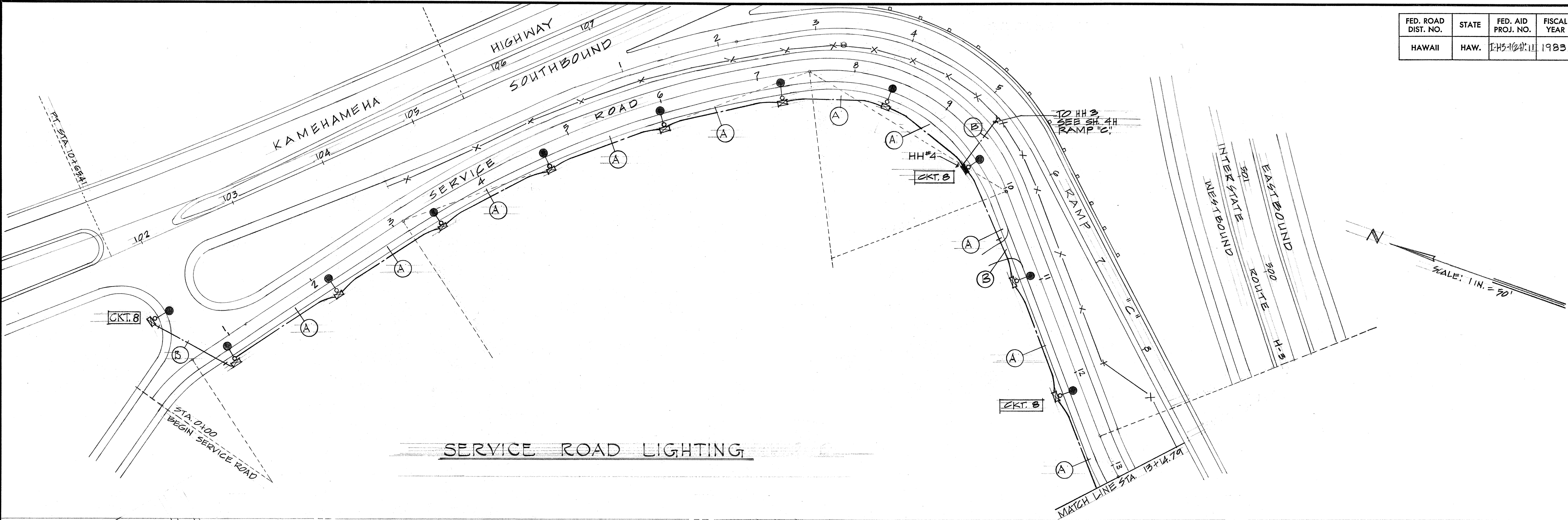
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLANS
PLANS - RAMPS "D, G & H"
HALEKOU INTERCHANGE
F.A.I. PROJECT NO. I-H-3-1(24)-11

SCALE: 1"=50'±0
DATE: Sept. 1982

SHEET No. GH OF 14 SHEETS E-G

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1(24):11	1983	161	328



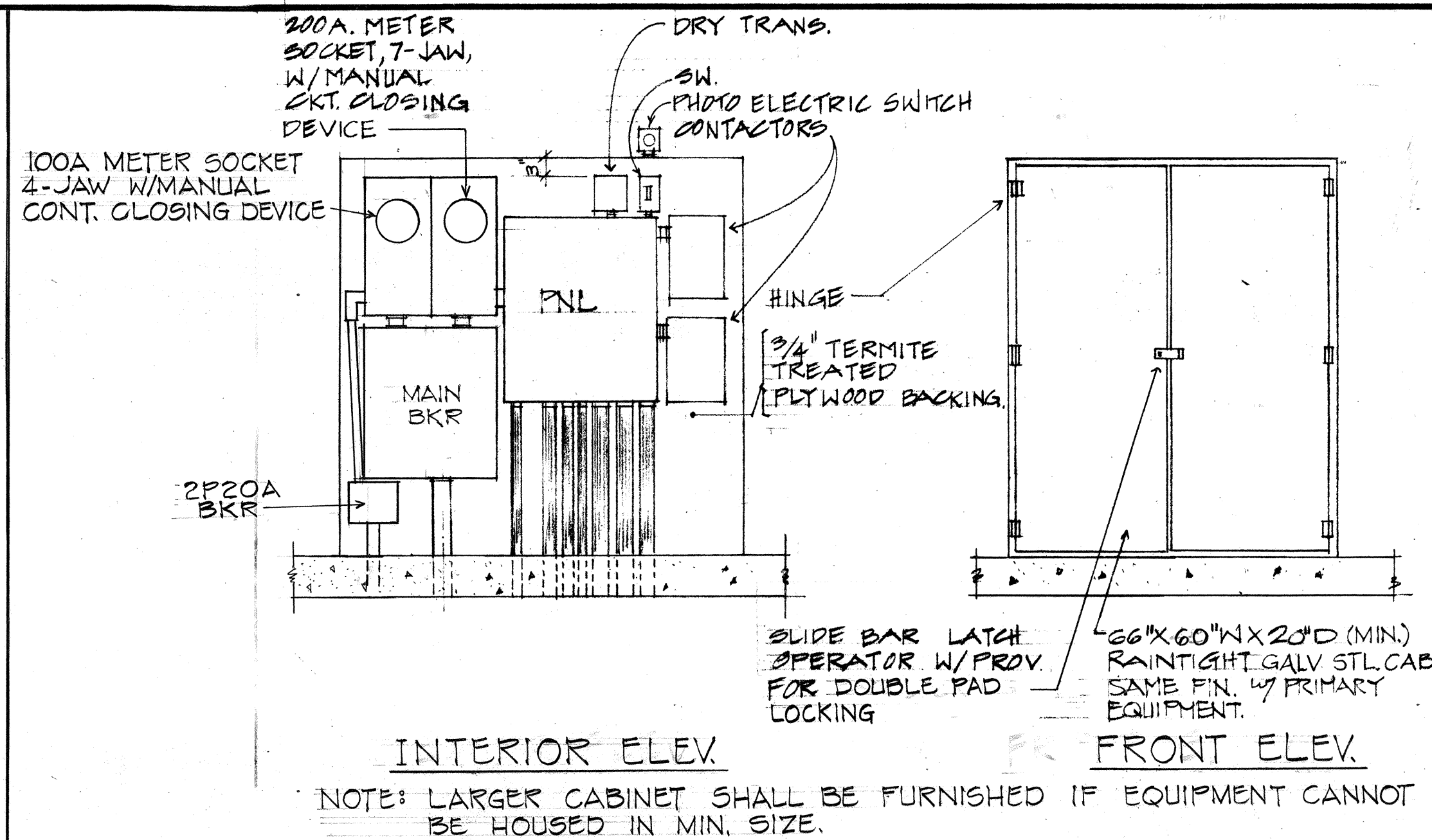
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

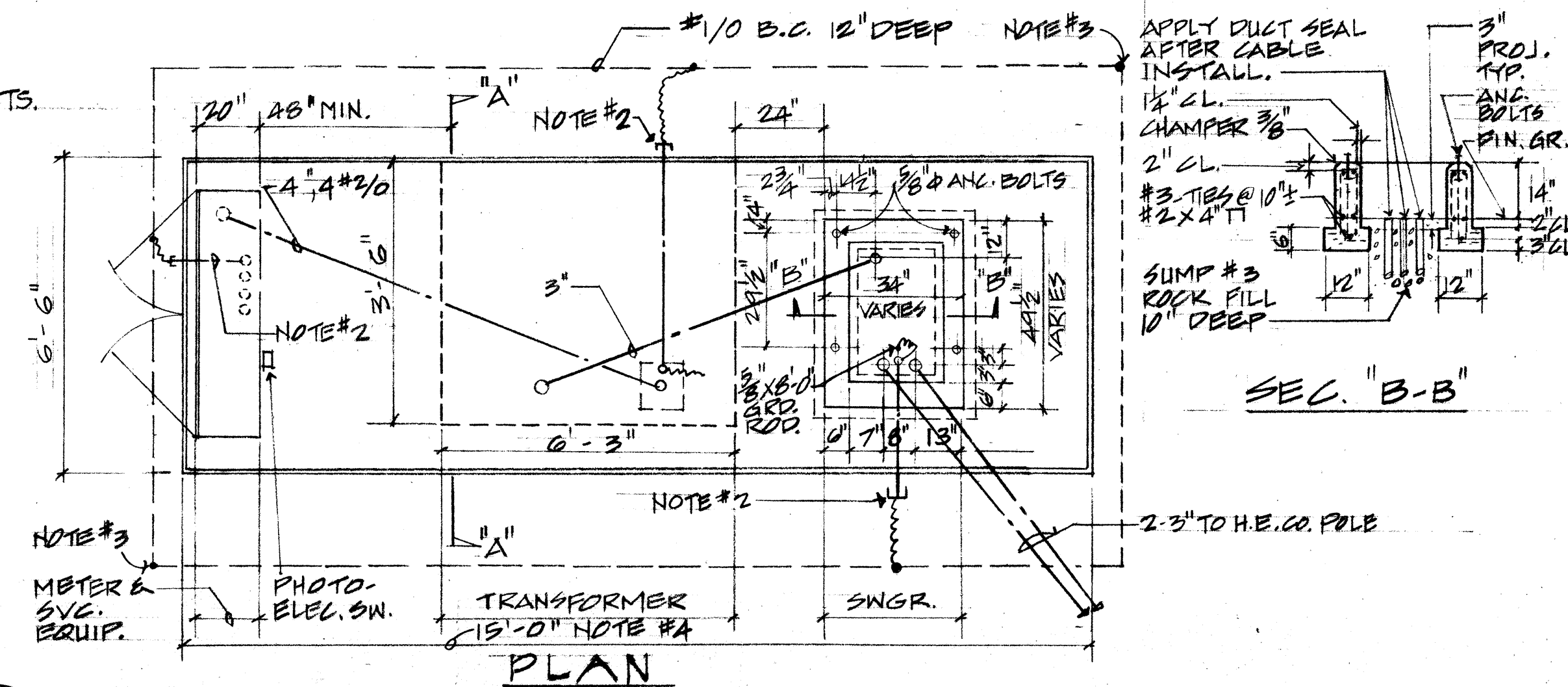
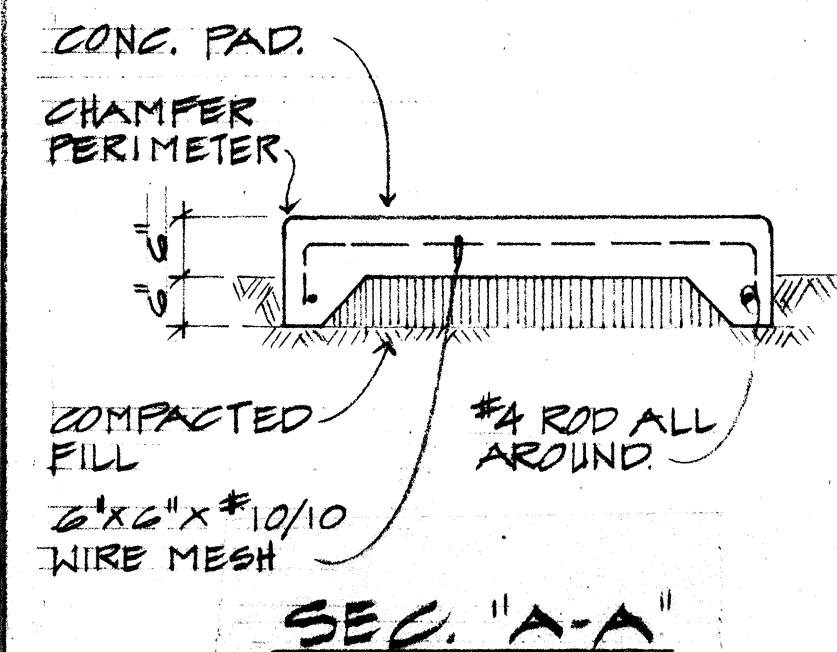
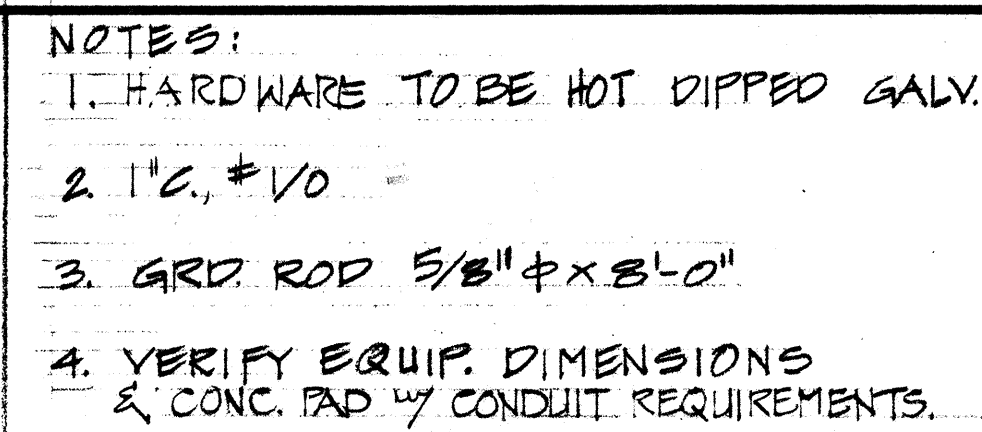
HIGHWAY LIGHTING PLANS
SERVICE ROAD LIGHTING
HALEKOLU INTERCHANGE
FAT PROJECT NO. I-H3-1(24):11
SCALE, 1"=50'-0" DATE: Sept. 1982

SHEET No. 7H OF 14 SHEETS E-7

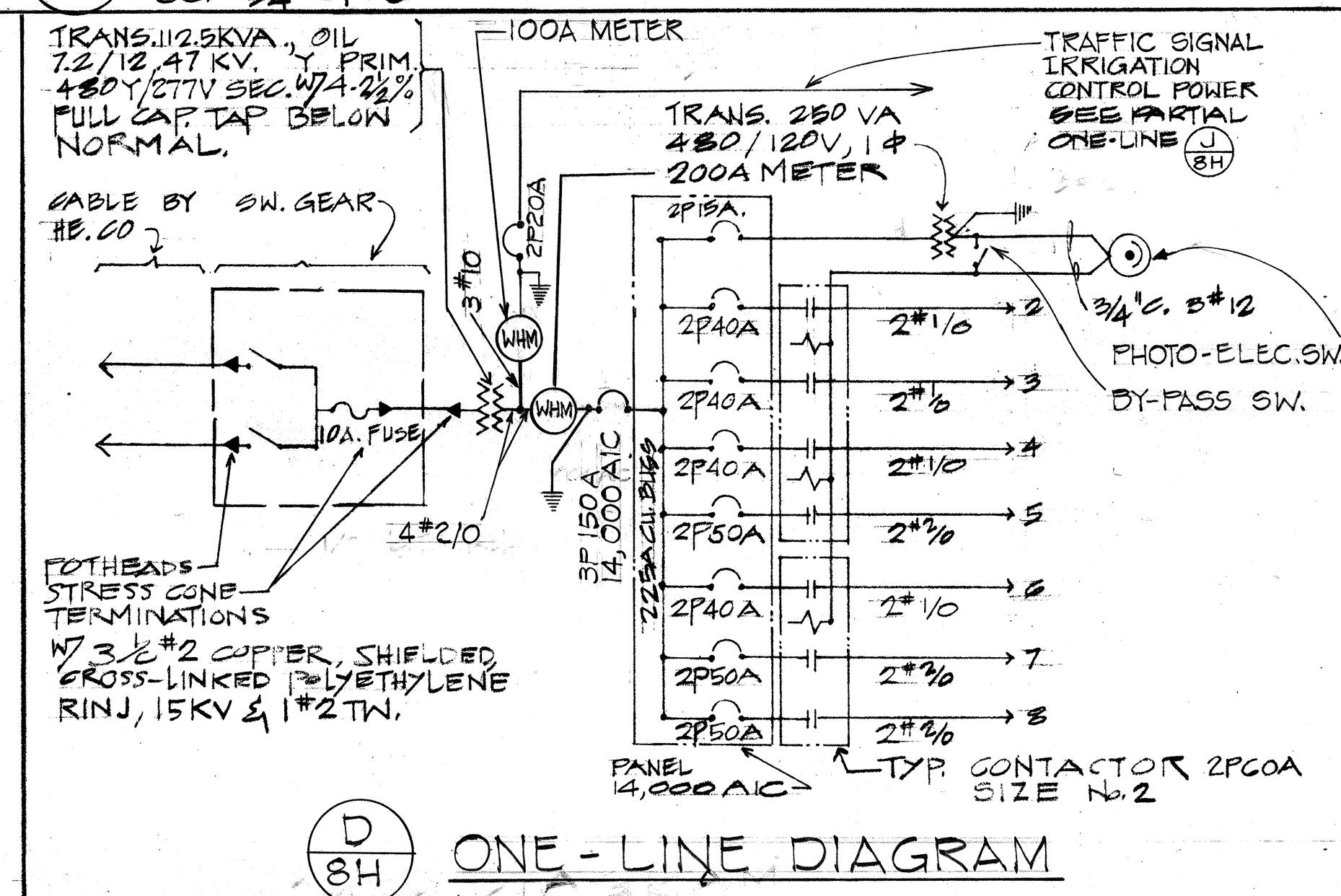
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1(24)	1983	162	328



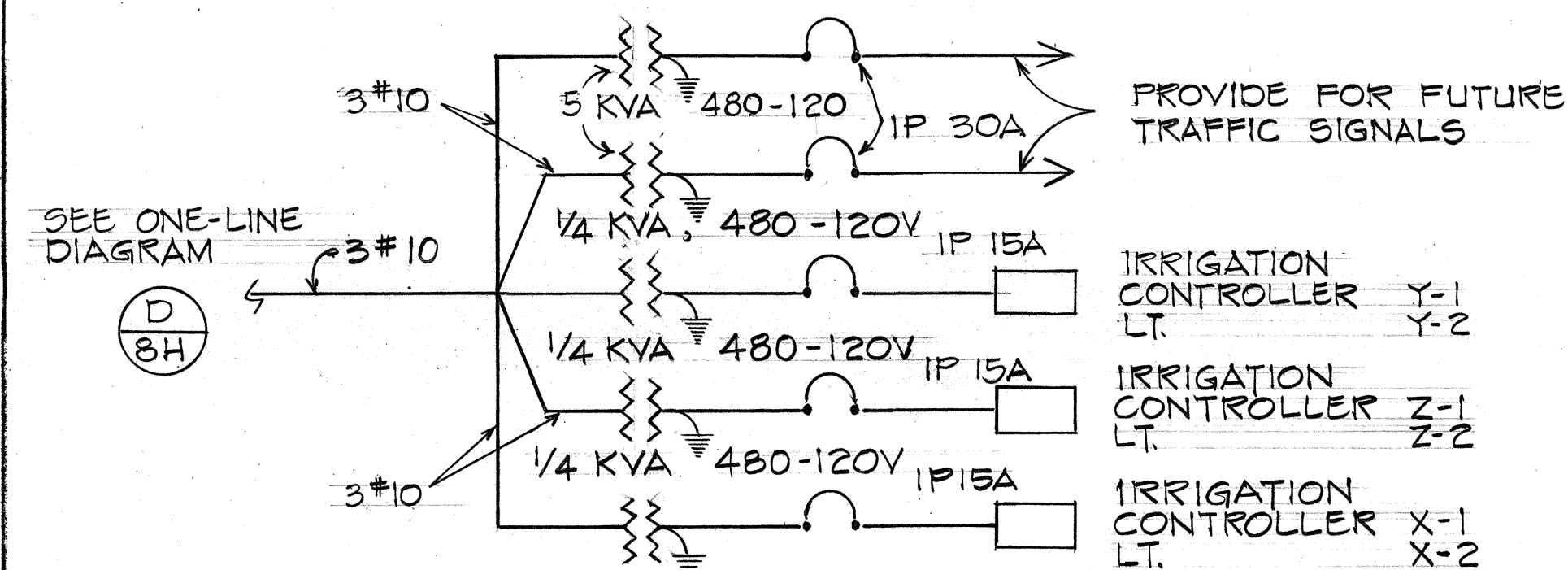
 METERING & SERVICE EQUIPMENT CAB.
5C. 34" = 1'-0"



TRANSFORMER STATION
SCALE 1/2" = 1'-0"



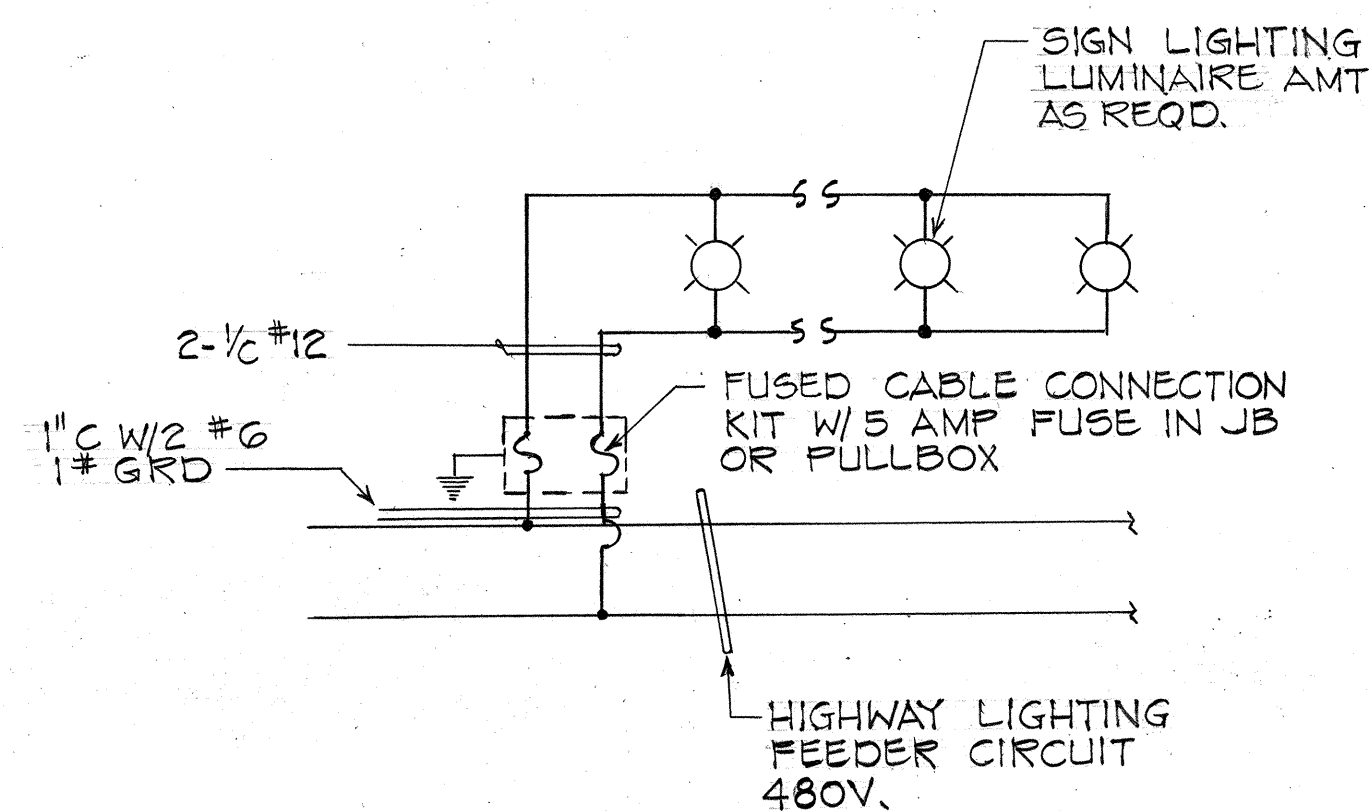
ONE-LINE DIAGRAM



TRAFFIC SIGNAL, IRRIGATION CONTROL POWER
(J) PARTIAL ONE-LINE DIAGRAM
(8H)

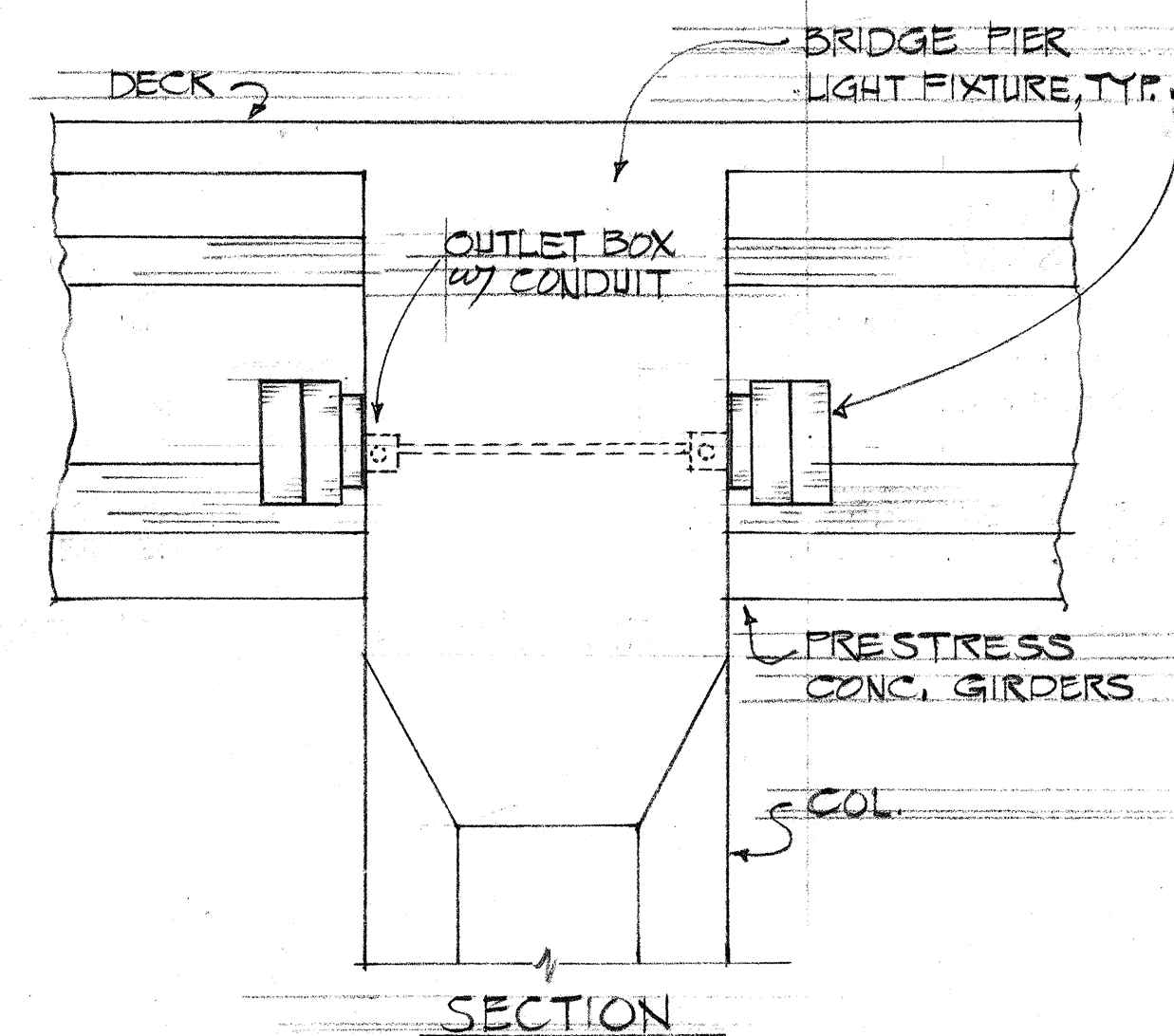
SIGN LIGHTING NOTES

1. SUPPORT CONDUITS AT $10' \pm$ MAX. INTERVALS. SUPPORT CONDUITS $3'-0"$ MAX. FROM JUNCTION BOX.
2. UNIFORMITY RATIO 3.1/1 WHEN SPACED $10'-0"$ O.C. WHEN RETROREFLECTING SIGN IS USED (1200' VIEWING DISTANCE).
3. PIPE AND STEEL PLATE ASSEMBLY SHALL BE CAPABLE OF SUPPORTING LUMINAIRE AND BALLAST WITHOUT DAMAGE AGAINST 100 MPH WINDS. BOLTS ATTACHING BALLAST TO STEEL PLATE AND STEEL PLATE TO STRUCTURE SHALL BE PER MANUFACTURE'S RECOMMENDATIONS AND SHALL SUPPORT THE LUMINAIRE, BALLAST PIPE AND STEEL PLATE ASSEMBLY WITHOUT DAMAGE AGAINST 100 MPH WINDS.
4. CONDUITS SHALL BE $3/4"$ GALVANIZED RIGID STEEL.
5. ALL EQUIPMENT SHALL BE NEMA 3R OUTDOOR TYPE.
6. SEE SHT. DT. 208 FOR ADDITIONAL DETAILS.
7. LUMINAIRE : ASSEMBLY.
PRISMATIC REFRACTOR THERMAL SHOCK RESISTANT GLASS W/RETRODISPERSING REFLECTOR FOR UNIFORM SIGN LUMINANCE.
MAIN HOUSING CAST ALUMINUM SLIPFITTER TYPE.
BALLAST BACK MOUNTED 480V REGULATOR TYPE W/HPF ABOVE 70%, RIF SUPPRESSION ON TYPE.
8. FOR EXACT LOCATIONS OF GUARDRAILS, SEE PLAN & PROFILE SHEETS.



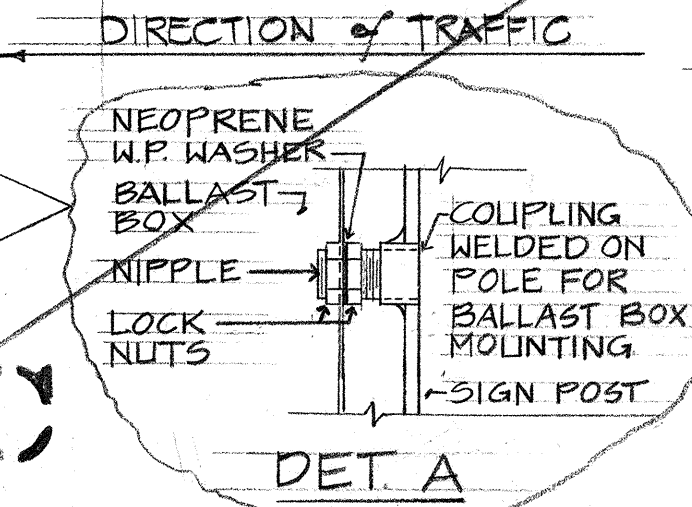
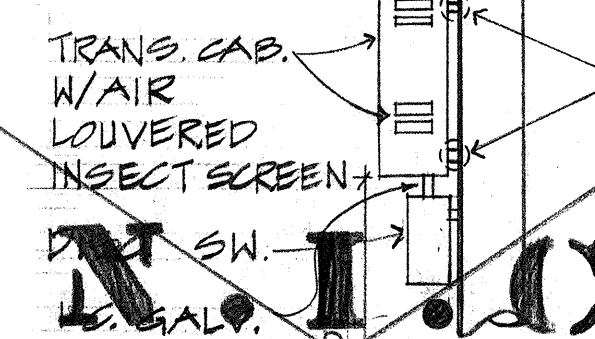
SIGN LIGHTING (E)
WIRING DIAGRAM (8H)
NO SCALE

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

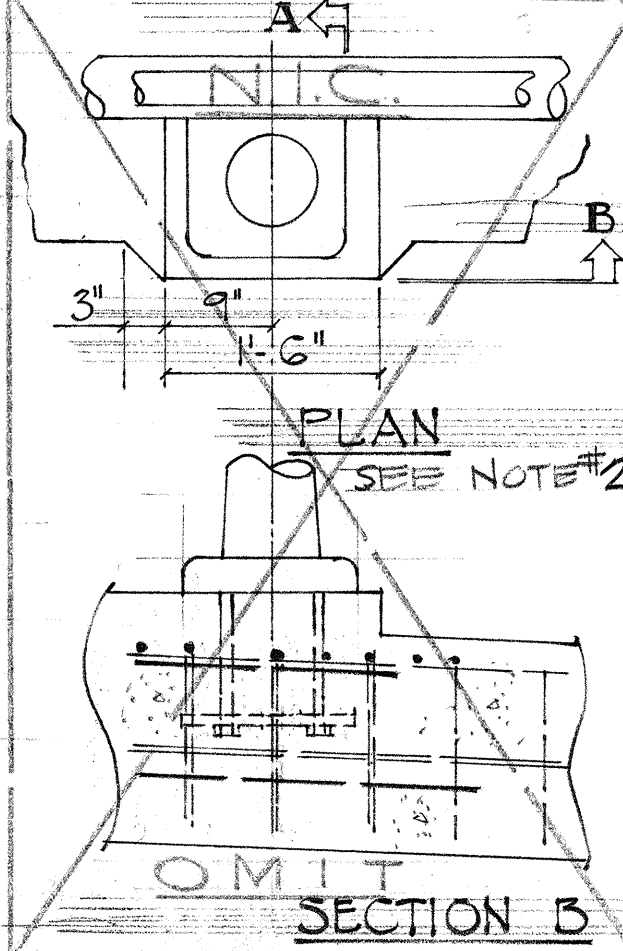


NOTES:

1. RAIN TIGHT CAB. FOR TRANS. & BALLAST 18" W x 28" L x 10" D. W/ 3/4" THK TREATED PLYWOOD MTG. TOP PIN HINGED W/ PADLOCK. * PAINT SAME COLOR AS POST (TRANS 750 VA, 480-120V).
2. CAB TO BE VERIFIED W/ EQUIP. FURNISHED.
3. ALL NEMA 3R ENCL. #8 GA ALUM. OR #16 GA STL BOX



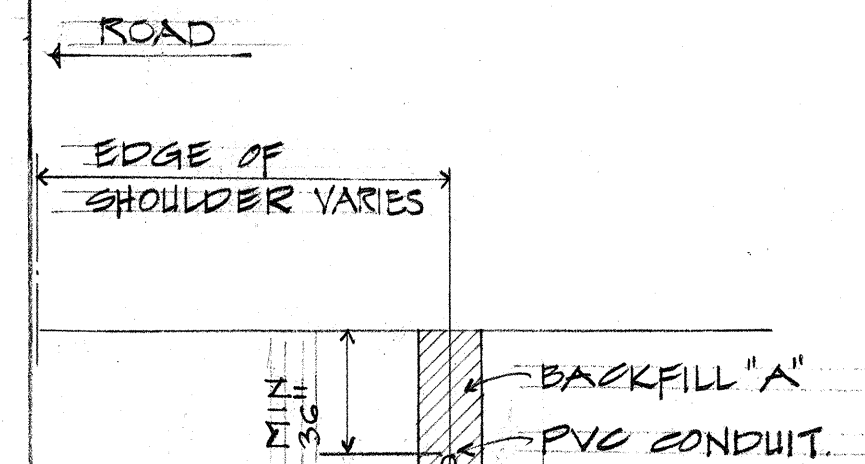
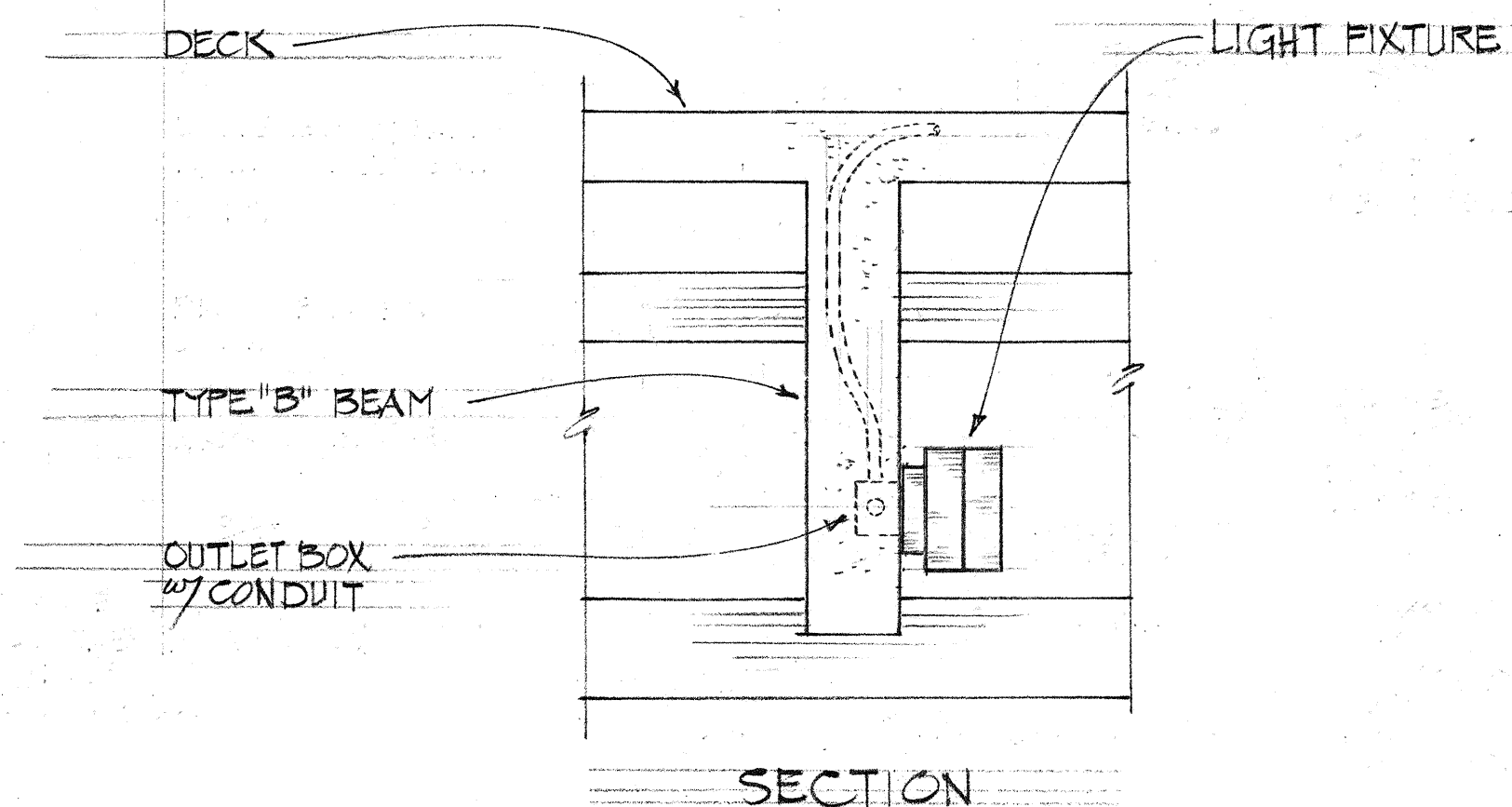
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1(24)-11	1983	163	328



A
9H
UNDERPASS FIXTURE MOUNTING at PIER
SCALE: 1/2" = 1'-0"

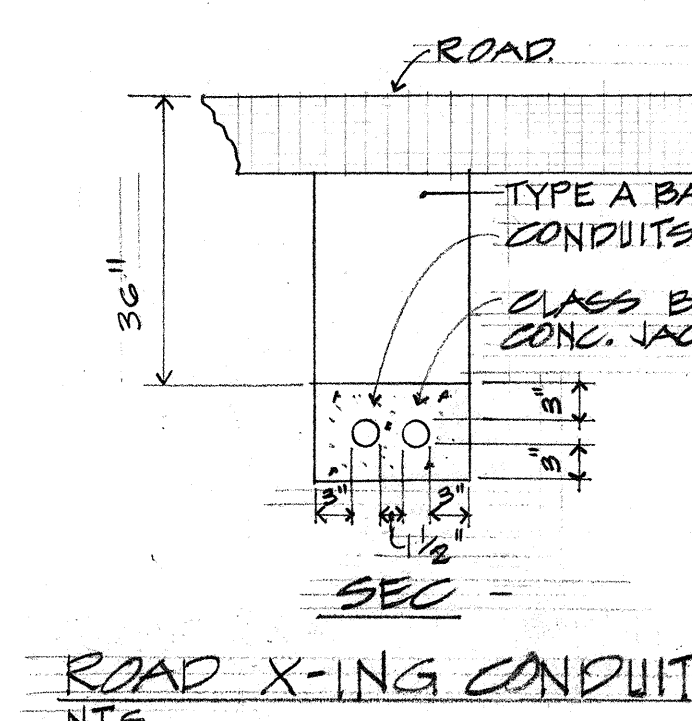
D
9H
TYPE "E" SIGN SERVICE EQUIPMENT DETAILS
N.T.S.

H
9H
STREET LIGHT at KAMOOALI STREAM BRIDGES
SCALE: 3/4" = 1'-0"

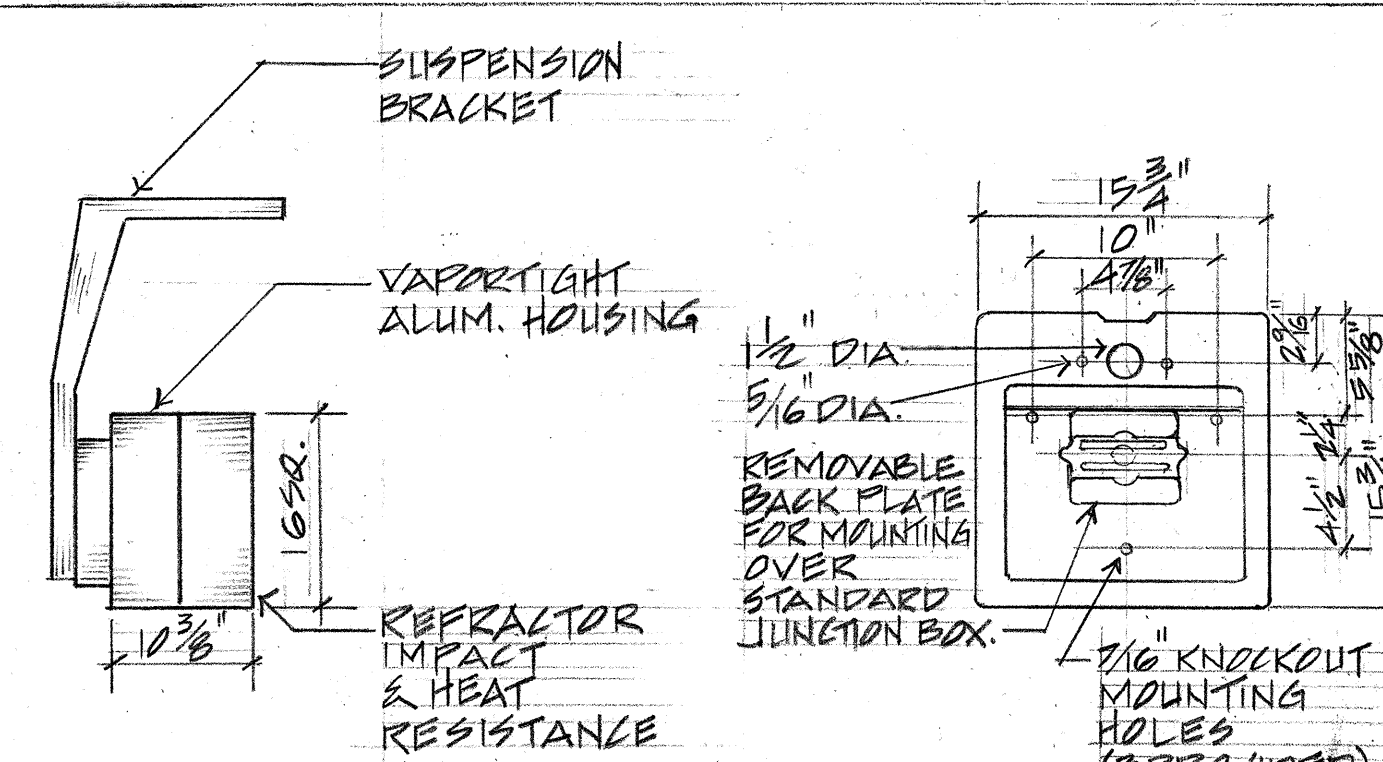
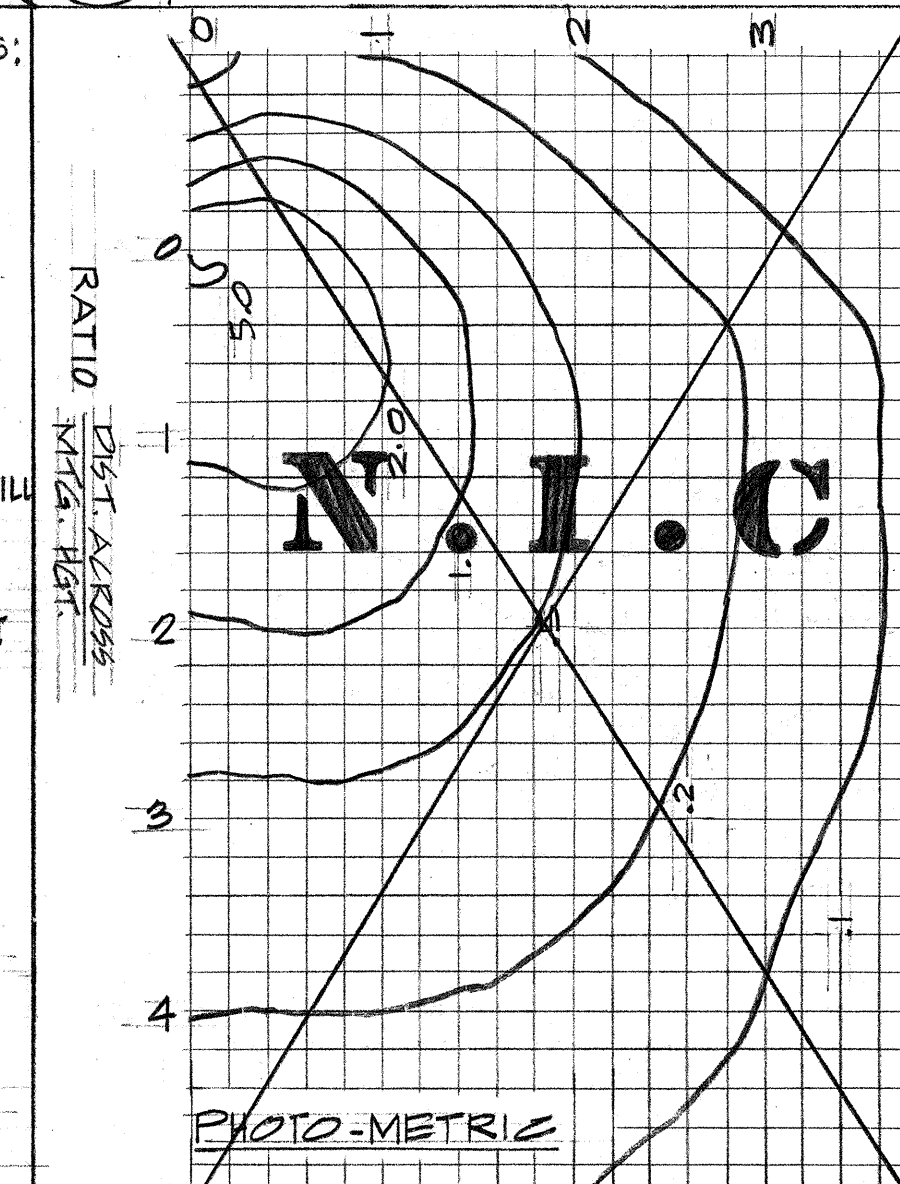


SEC. DIRECT BURIED CONDUIT N.T.S.

- NOTES:
1. BACKFILL "A" SHALL CONSIST OF SAND, EARTH OR EARTH & GRAVEL. IF EARTH & GRAVEL, THE MAX. ROCK SIZE TO BE 1" & THE MIXTURE SHALL CONTAIN NOT MORE THAN 50% BY VOL. OF ROCK.
 2. COVER SHALL BE REDUCED TO 24" MIN. BETWEEN KAM. HWY. STA. 117 & 126 AT RETAINING WALL.
 3. IN LIEU OF TRENCHING, CONTRACTOR HAS OPTION OF EMBEDDING CONDUIT IN THE RETAINING WALL.



SEC. ROAD X-ING CONDUIT N.T.S.

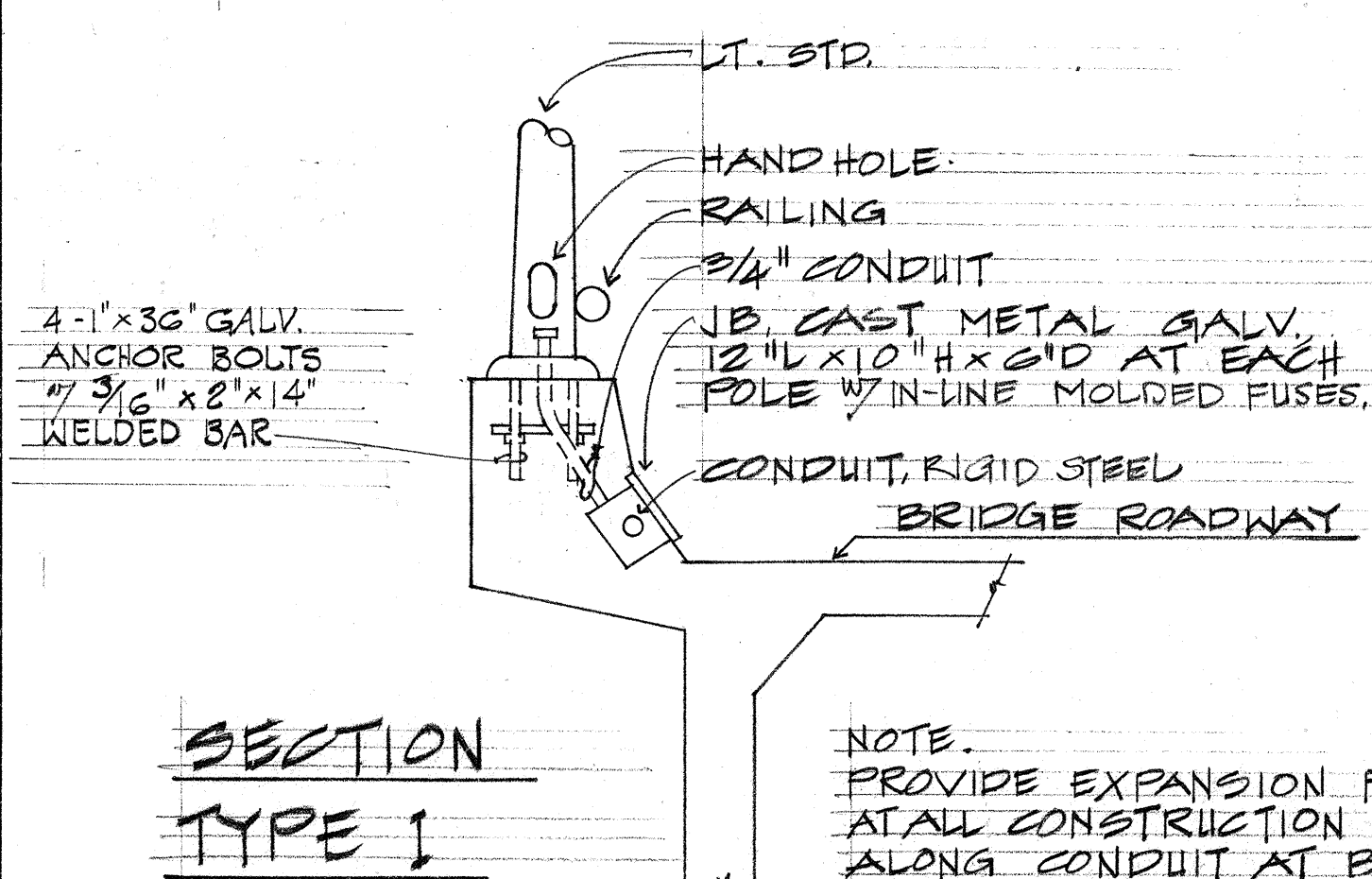


NOTE: PROVIDE IN-LINE NEOPRENE MOLDED 15A FUSE AT EACH LUMINAIRE CHAMBER

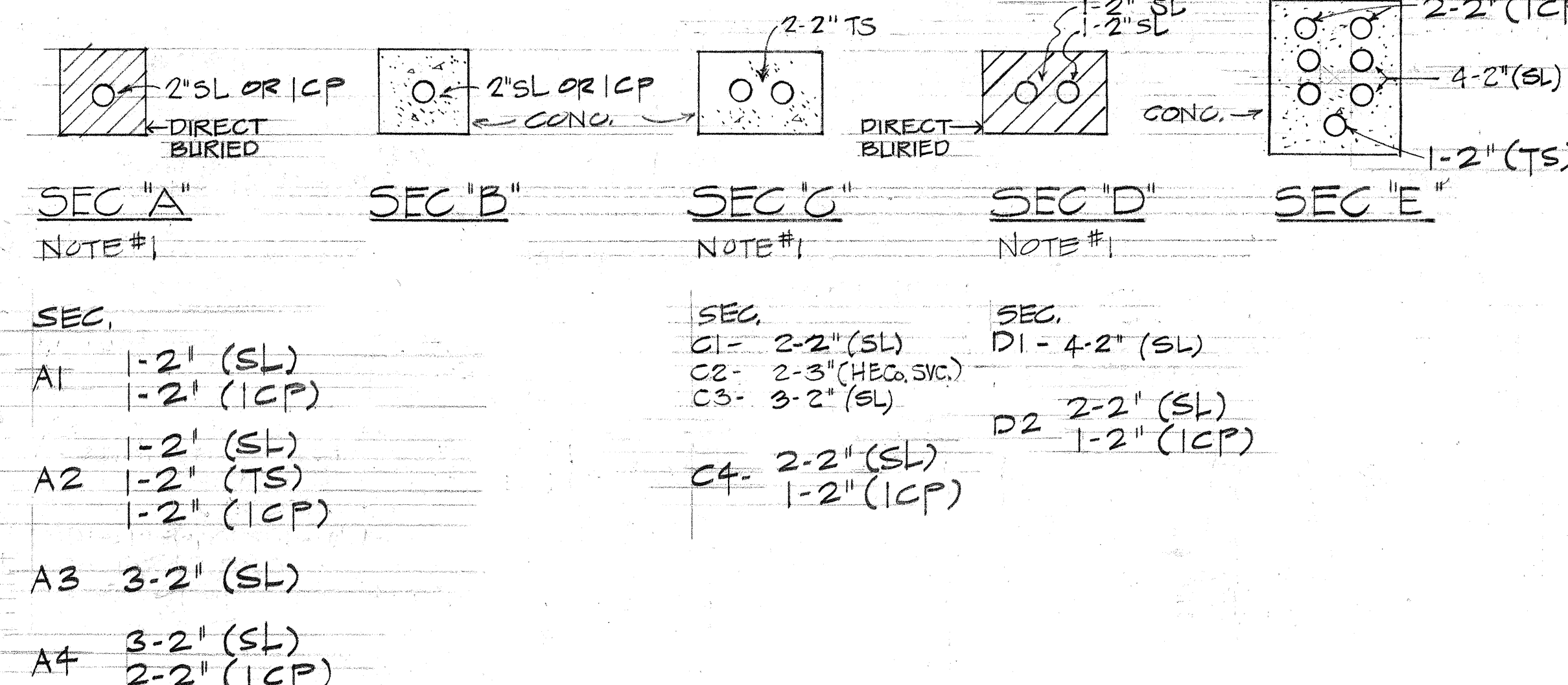
B
9H
UNDERPASS FIXTURE MOUNTING at BEAM "B"
SCALE: 3/4" = 1'-0"

E
9H
TYPICAL RACEWAY DETAILS
N.T.S.

G
9H
UNDERPASS FIXTURE DETAIL.
N.T.S.



NOTE: PROVIDE EXPANSION FITTINGS AT ALL CONSTRUCTION JOINTS ALONG CONDUIT AT BRIDGE STRUCTURE. ALL RIGID GALV. STEEL CONDUIT TO BE W/ ASPHALTIC PAINT.



LEGEND:
H.E.C. SVC. - HAWAIIAN ELECTRIC SERVICE DUCTLINE
SL - HIGHWAY LIGHTING DUCTLINE
TS - TRAFFIC SIGNAL DUCTLINE
ICP - IRRIGATION CONTROL POWER

- NOTE:
1. DUCT SEC. THE FOLLOWING DUCT SECTIONS ARE SIMILAR W/ EXCEPTIONS AS NOTED.
 2. FOR HIGHWAY LIGHT STD. AT BRIDGE RAILING, SEE STATE HWY. STD. DWG. DB-203-1 DET 5/1.

C
9H
STREET LIGHT POLE at BRIDGES No. 1 & 2
SCALE: 3/4" = 1'-0"

F
9H
DUCT SECTION DETAILS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

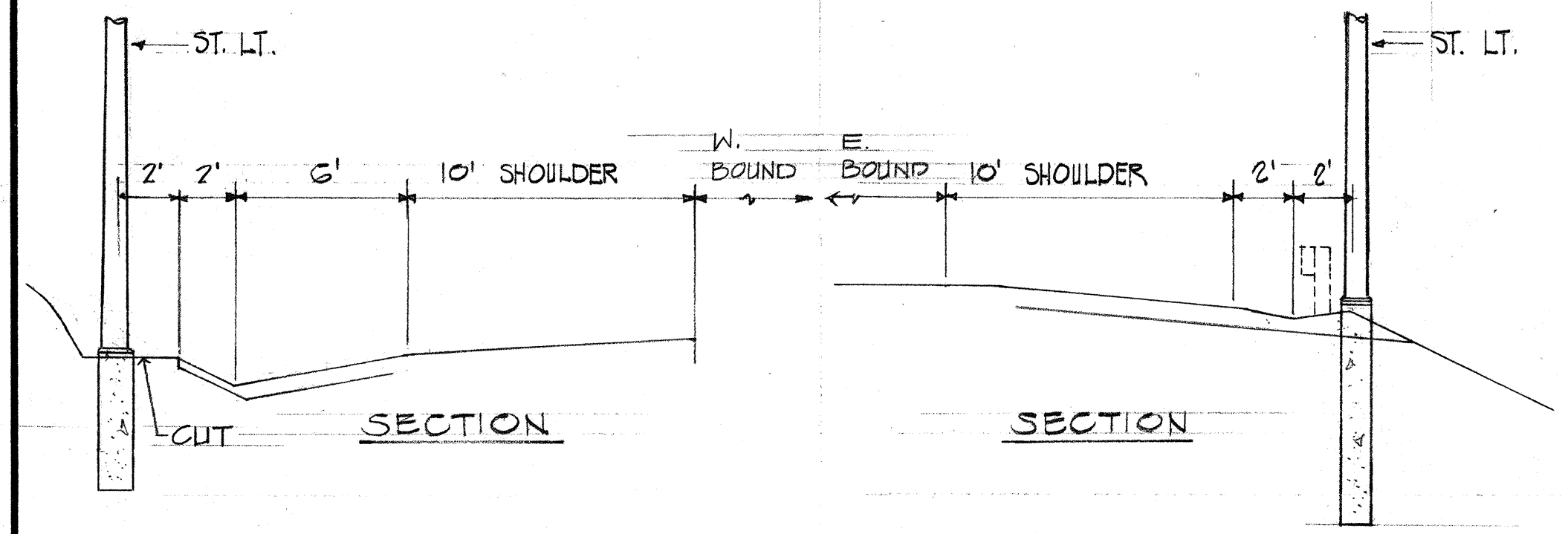
Highway Lighting Plans
ELECTRICAL DETAILS

HALEKOU INTERCHANGE
F.A.I. PROJECT NO. I-H3-1(24)-11
SCALE: AS NOTED DATE: SEPT. 1982

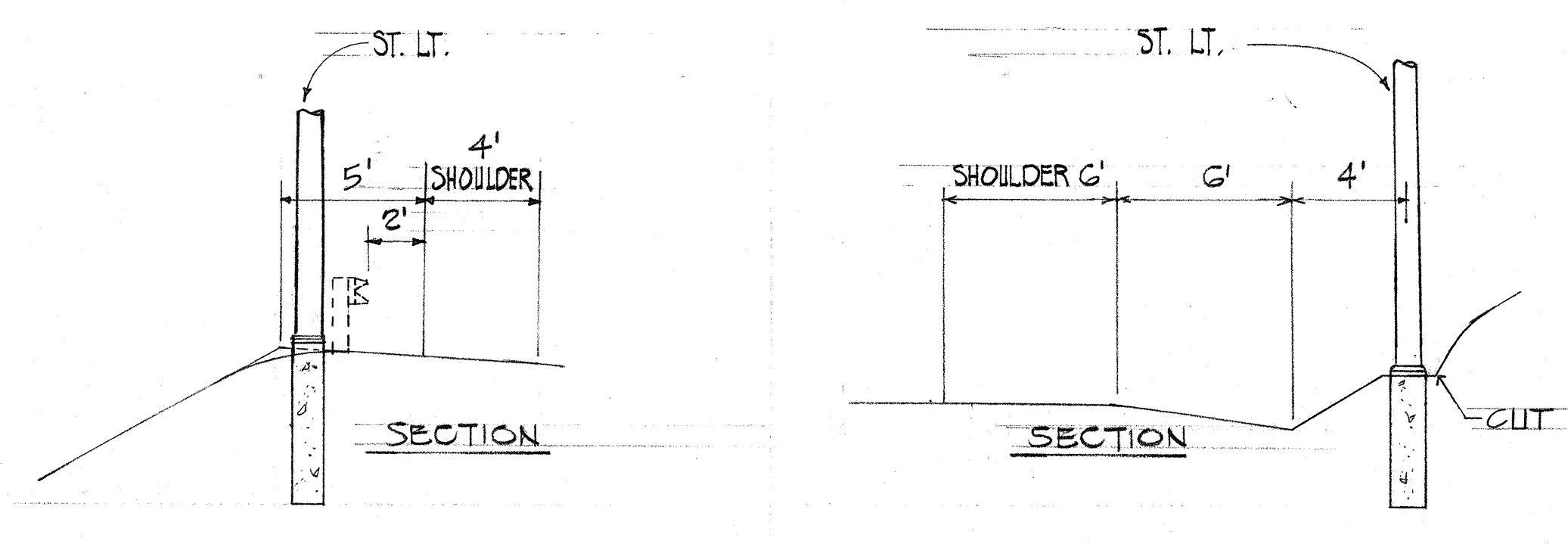
SHEET No. 9H OF 14 SHEETS E-9

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

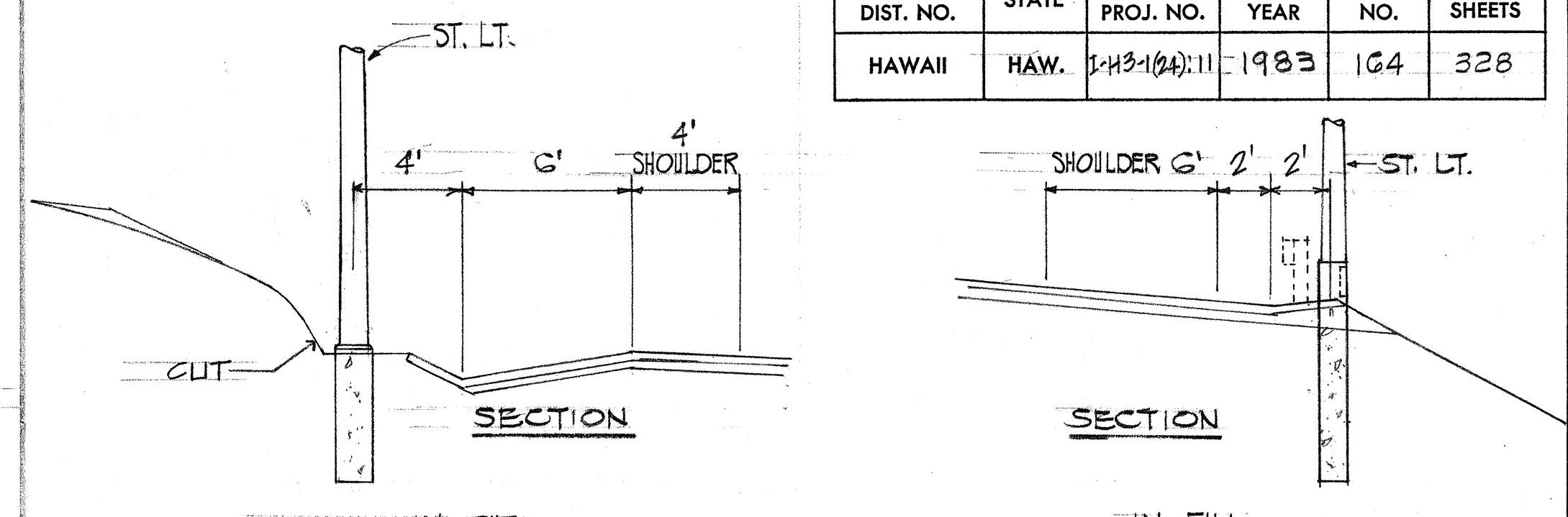
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1(24):11	1983	164	328



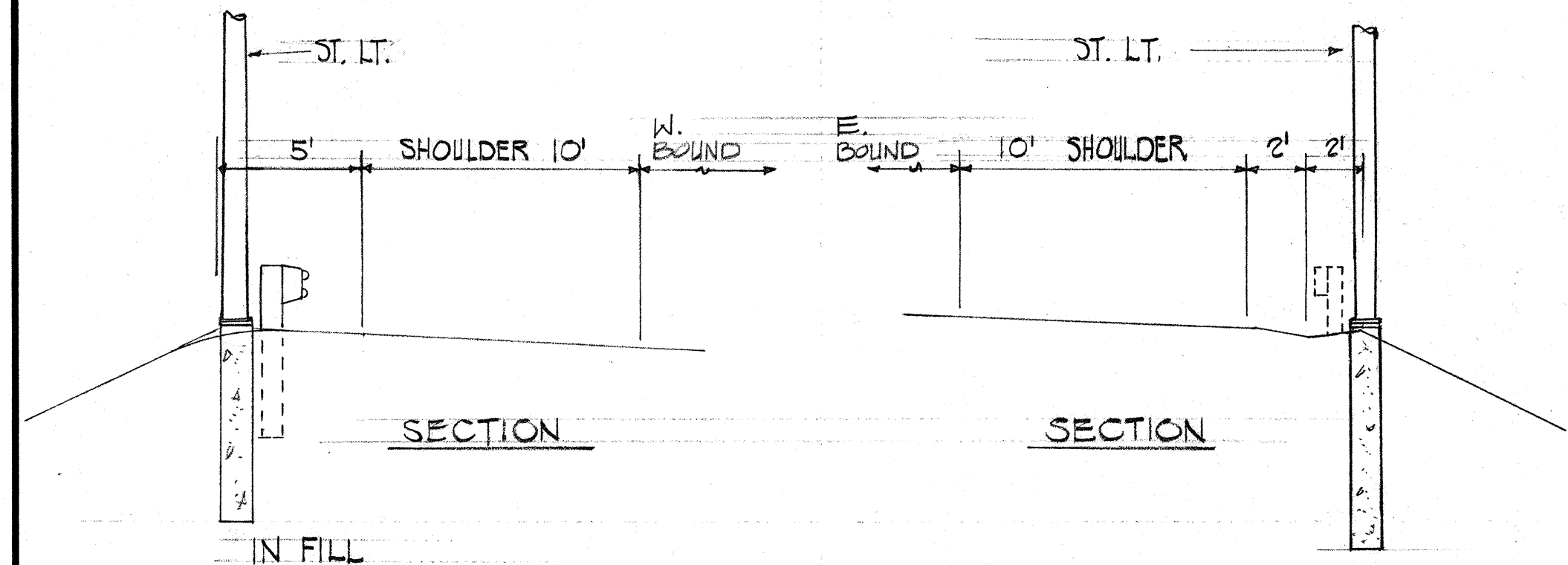
INTERSTATE ROUTE H-3



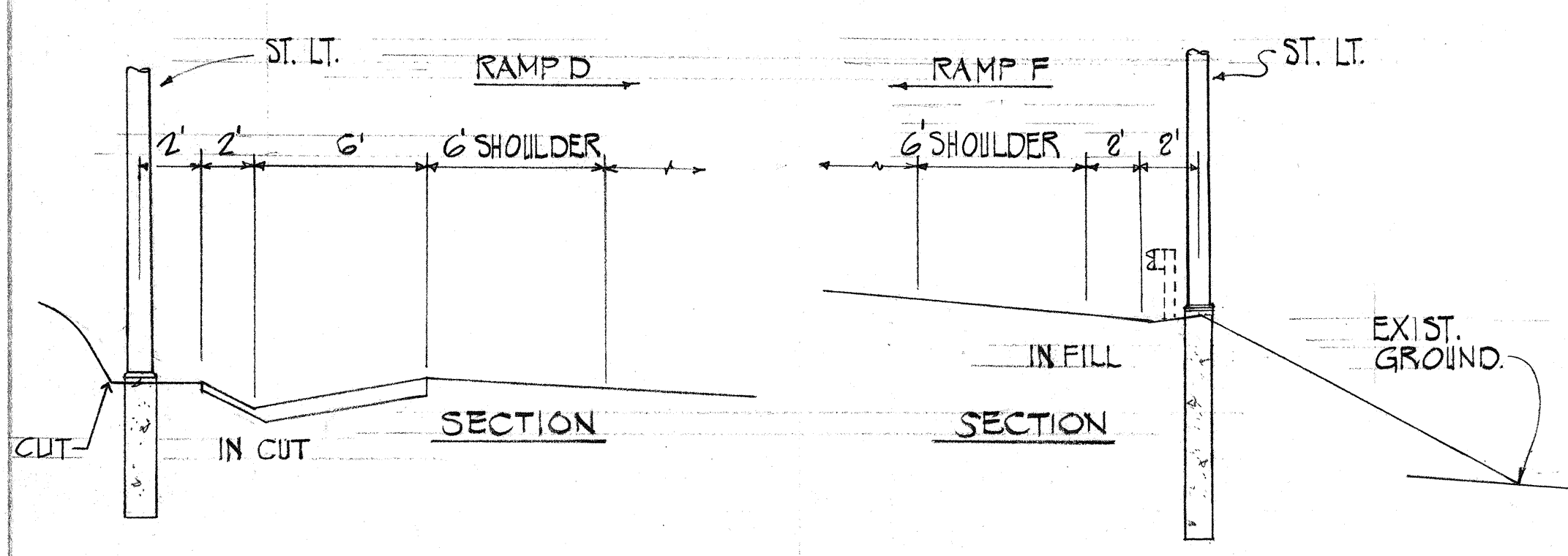
TYPICAL RAMP



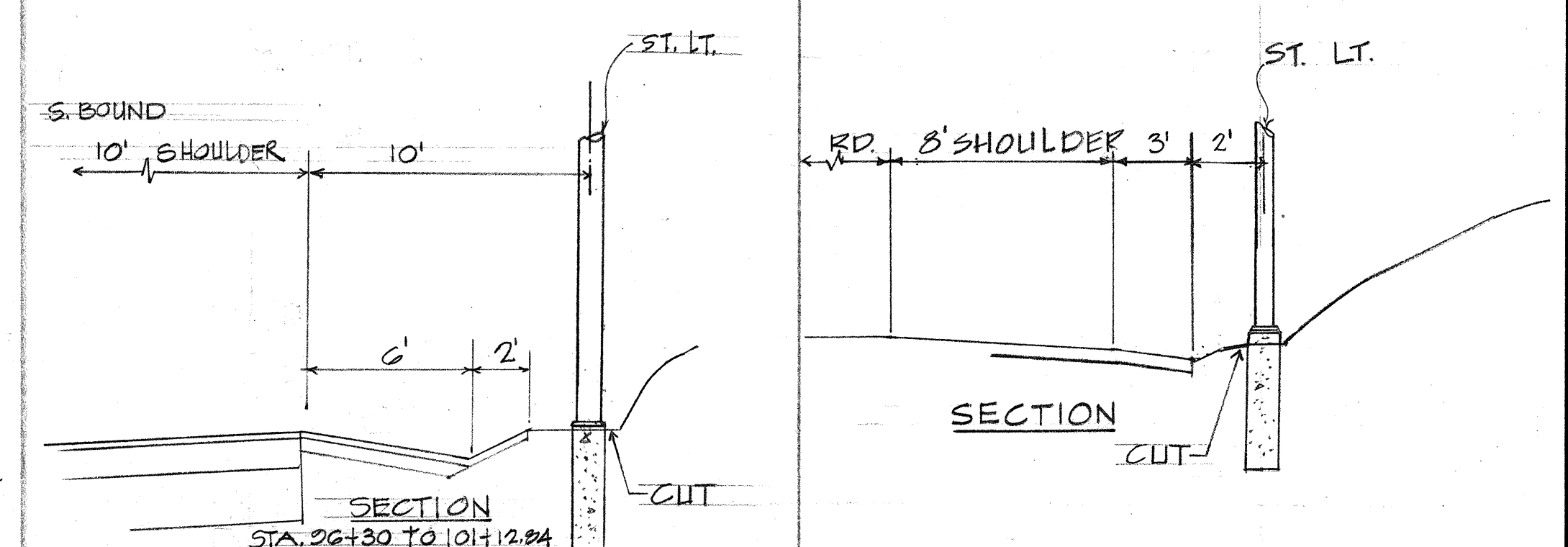
TYPICAL RAMP



INTERSTATE ROUTE H-3

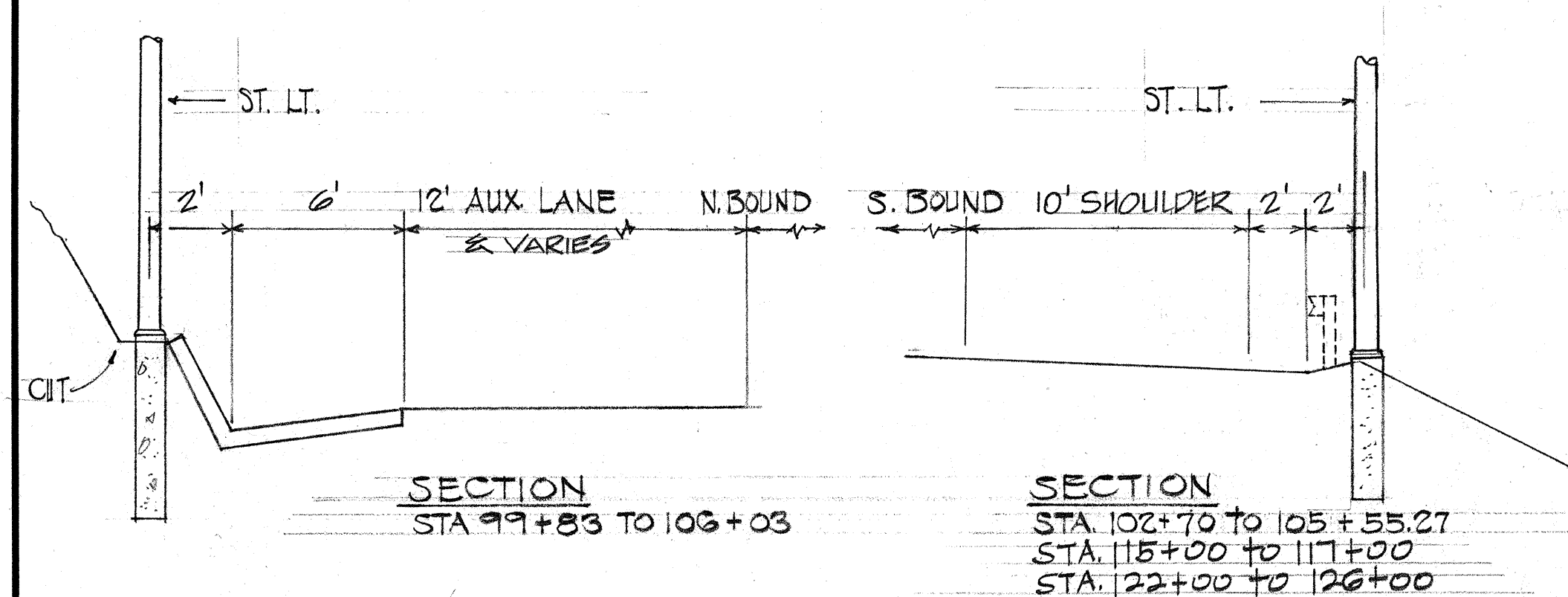


TYPICAL RAMP D & F

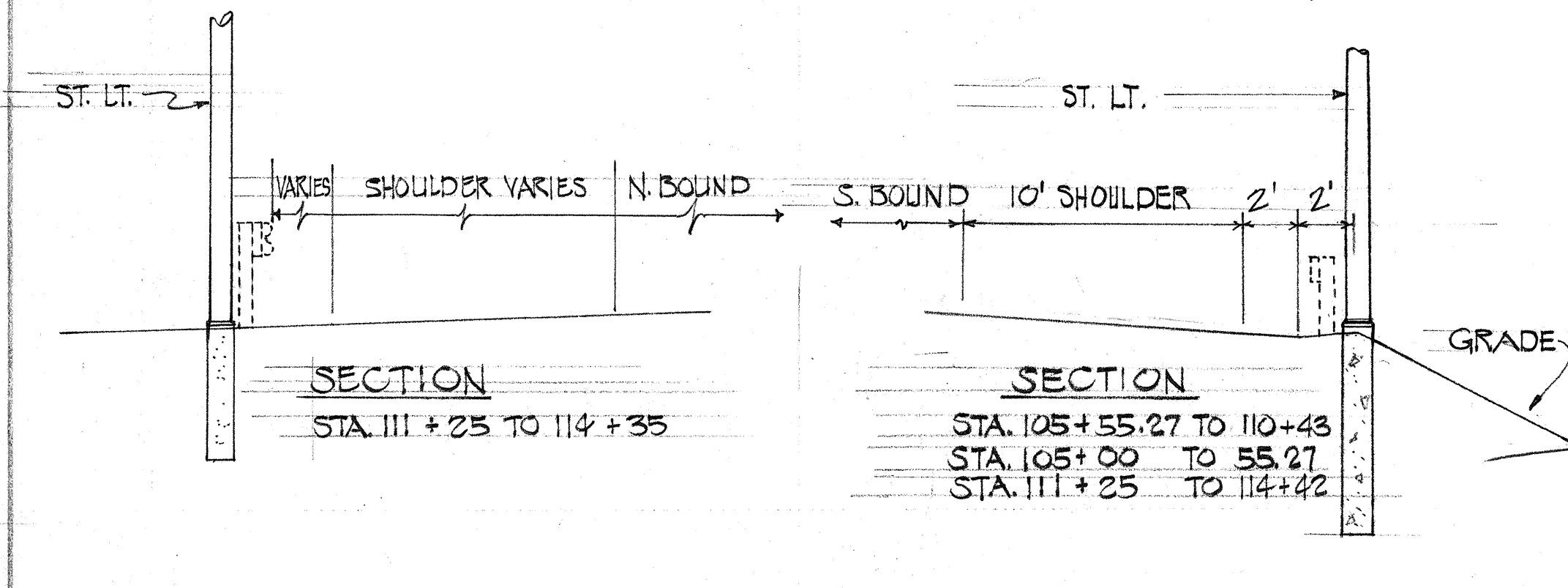


KAM HWY

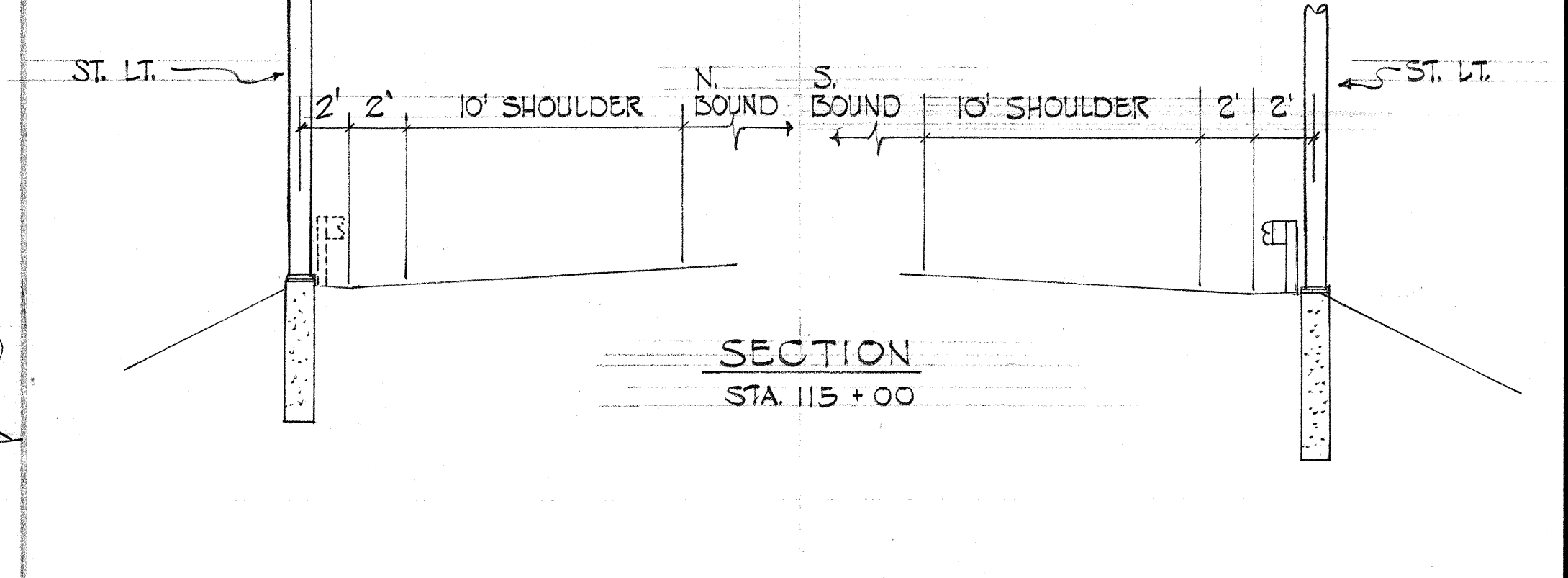
SERVICE ROAD



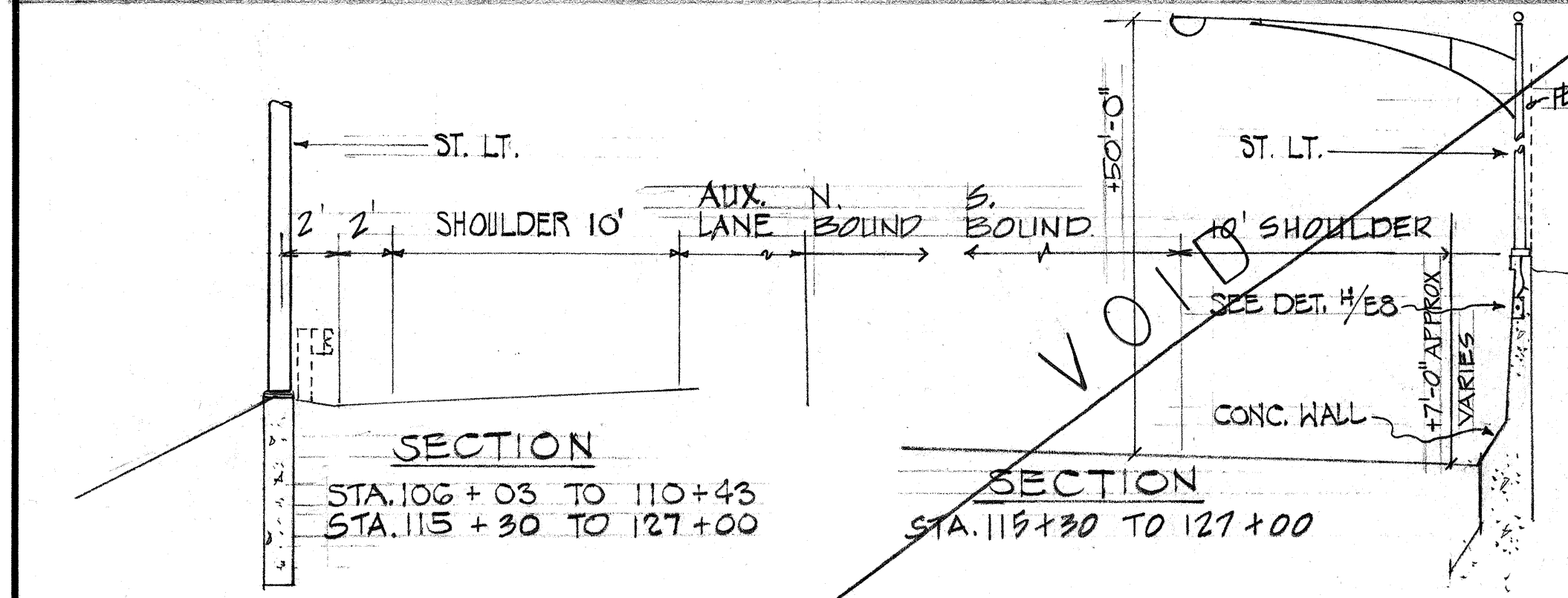
KAM HWY



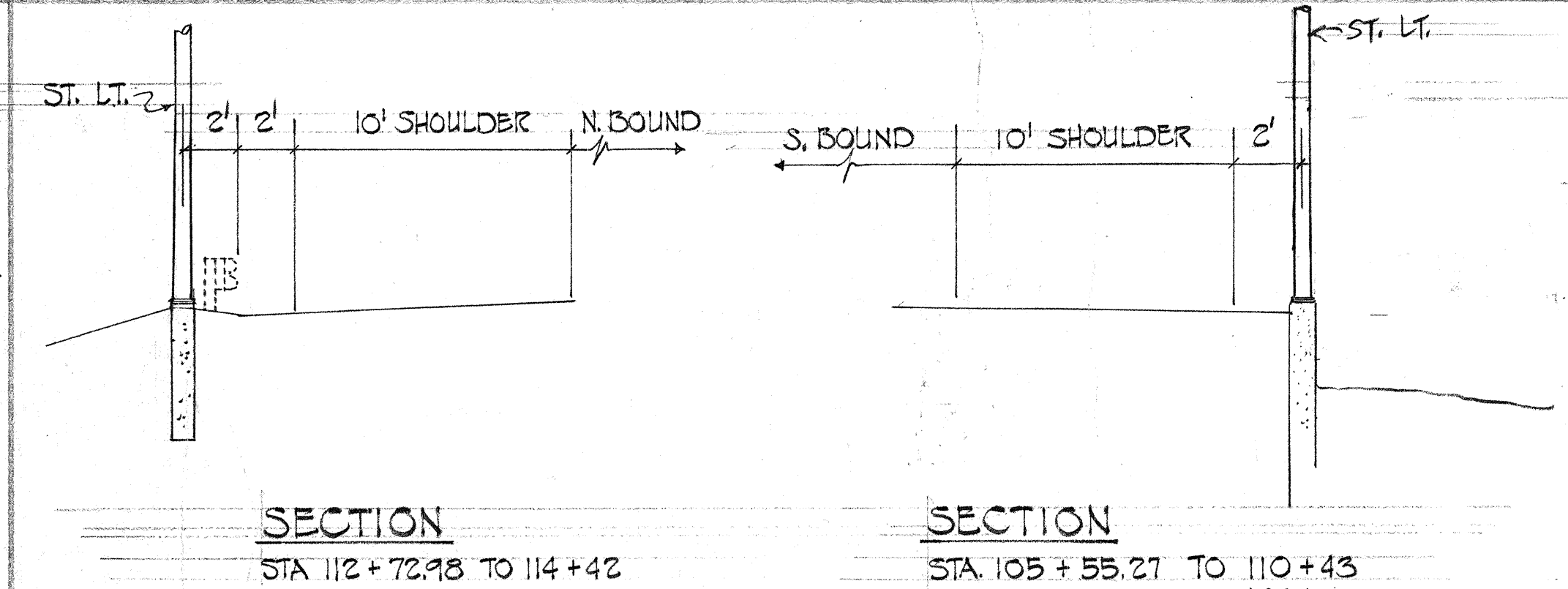
KAM HWY



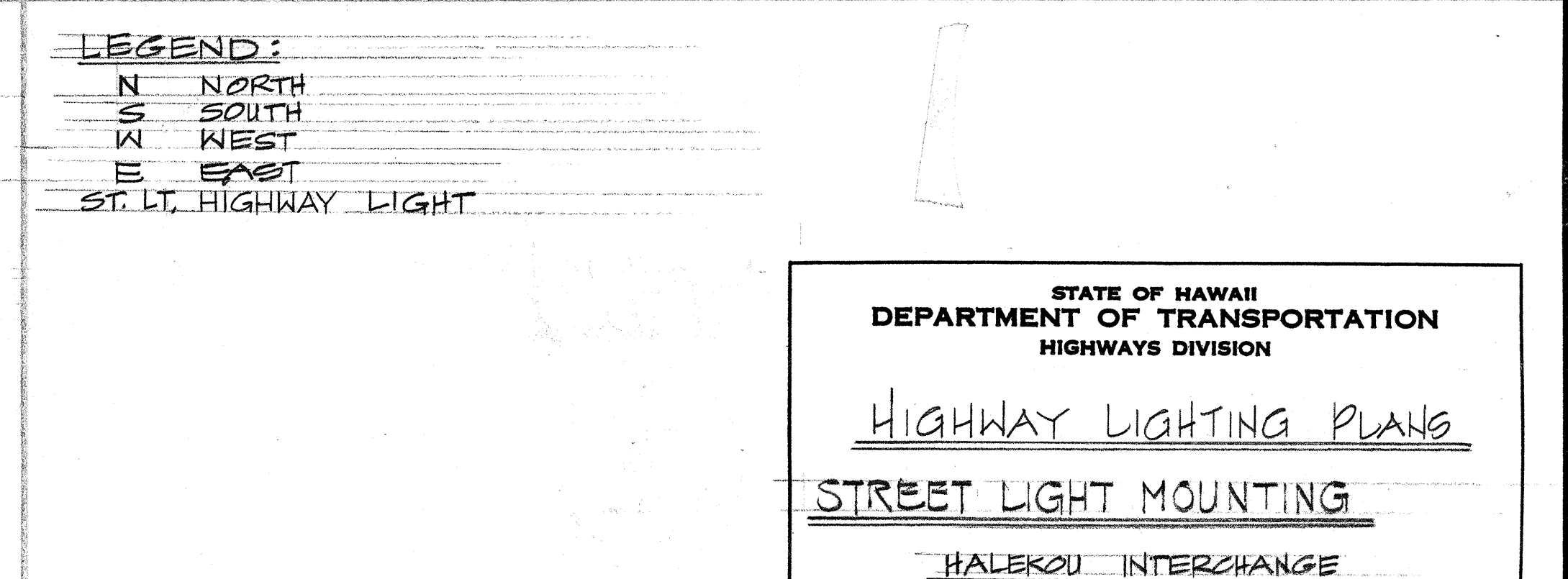
KAM HWY



KAM HWY



KAM HWY



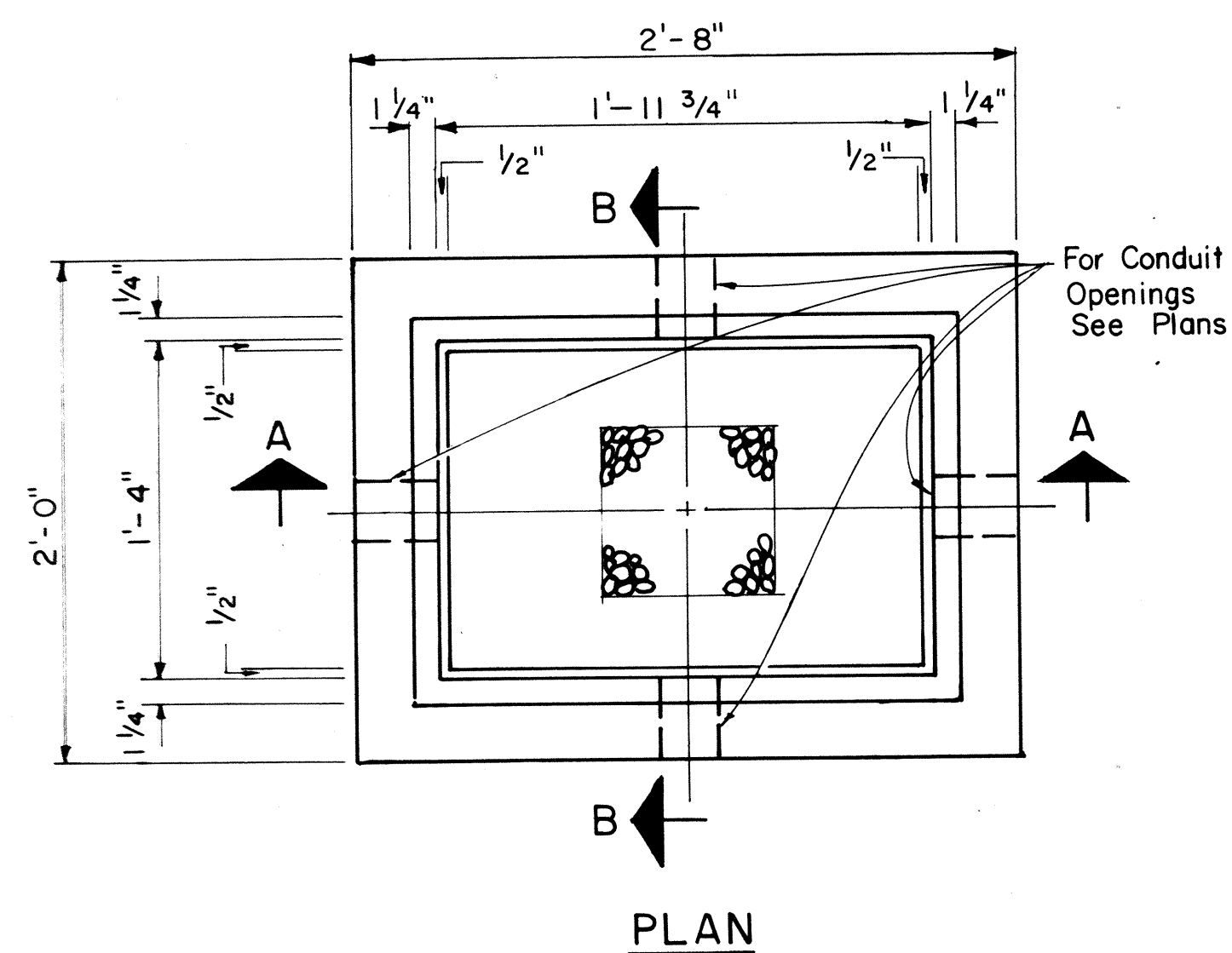
LEGEND:
N NORTH
S SOUTH
W WEST
E EAST
ST. LT. HIGHWAY LIGHT

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLANS
STREET LIGHT MOUNTING
HALEKOU INTERCHANGE
FAI PROJECT NO. I-H3-1(24):11
SCALE: NONE DATE: Sept. 1982
SHEET No. 104 OF 14 SHEETS E-10

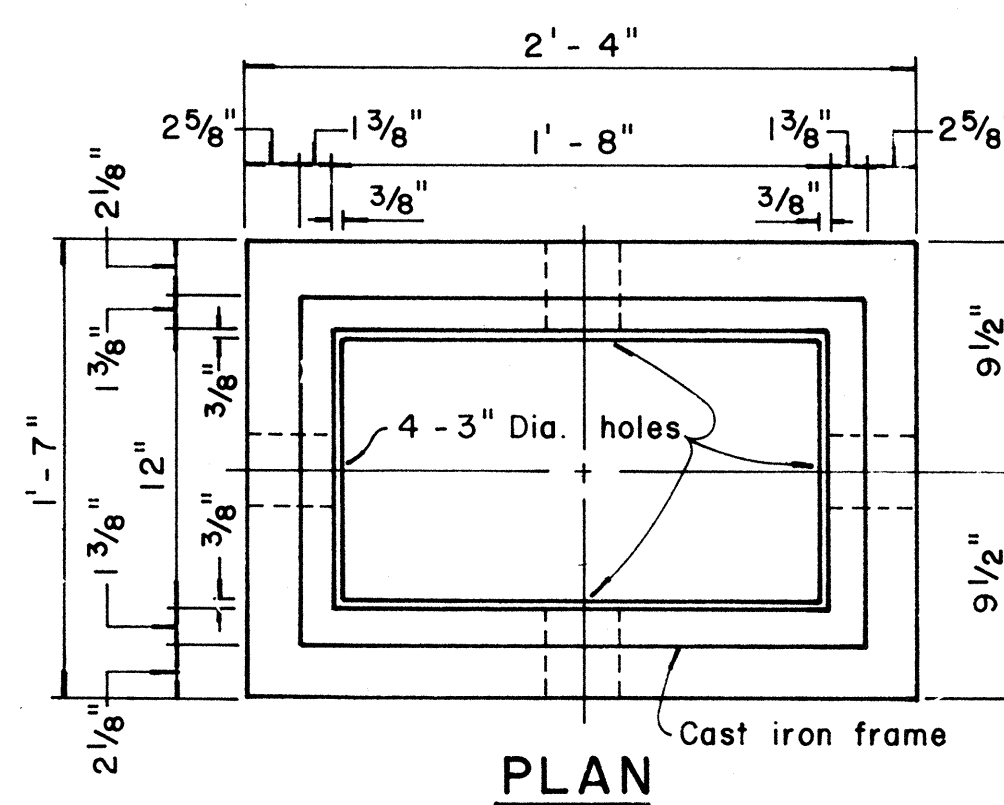
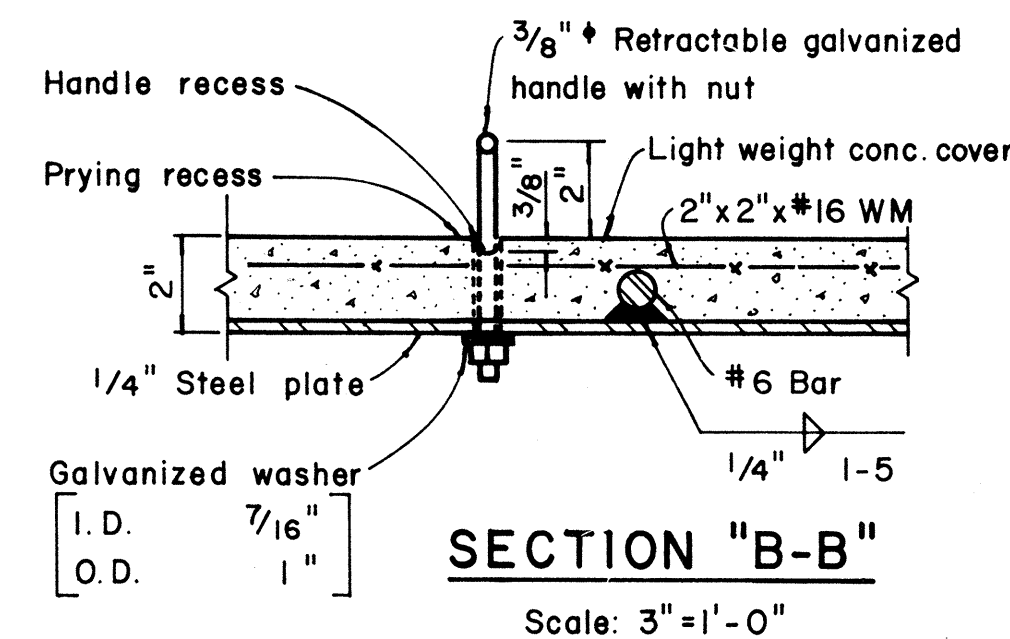
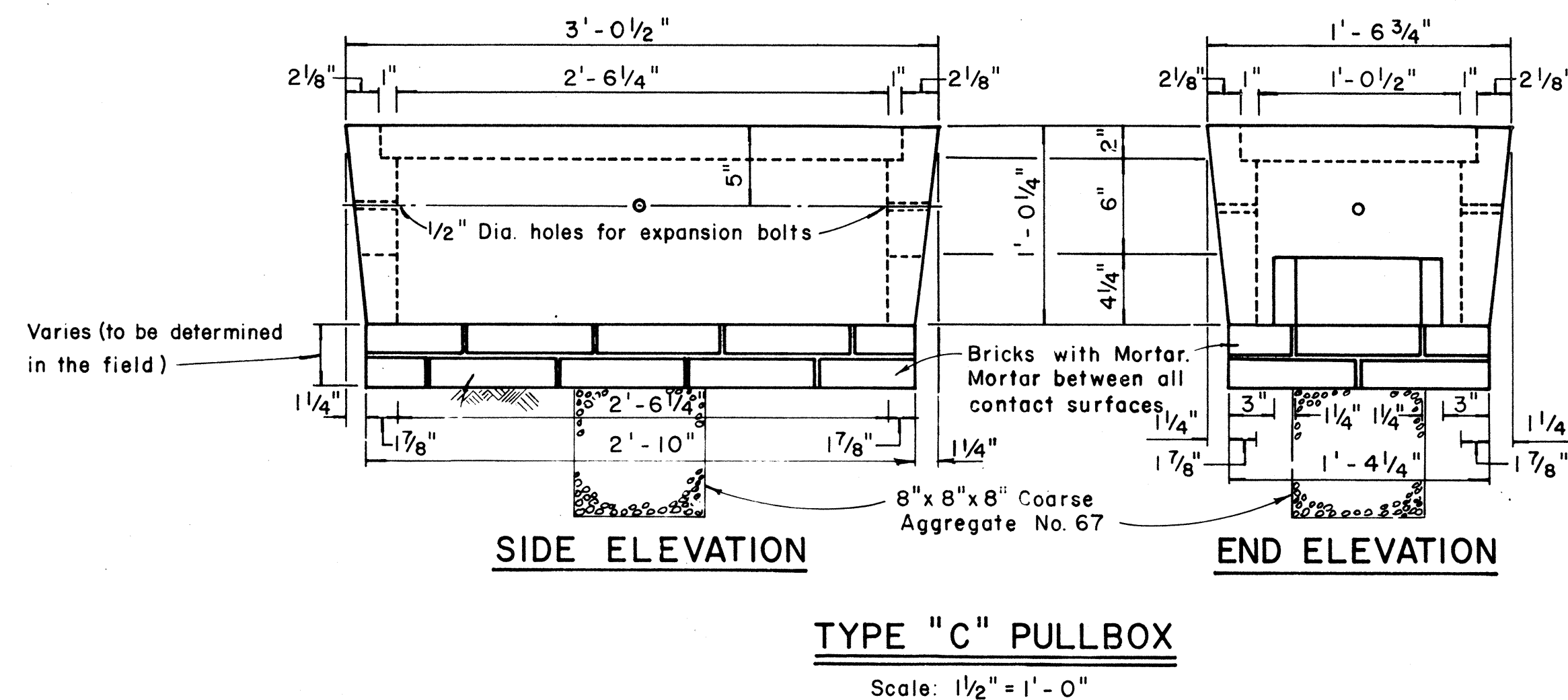
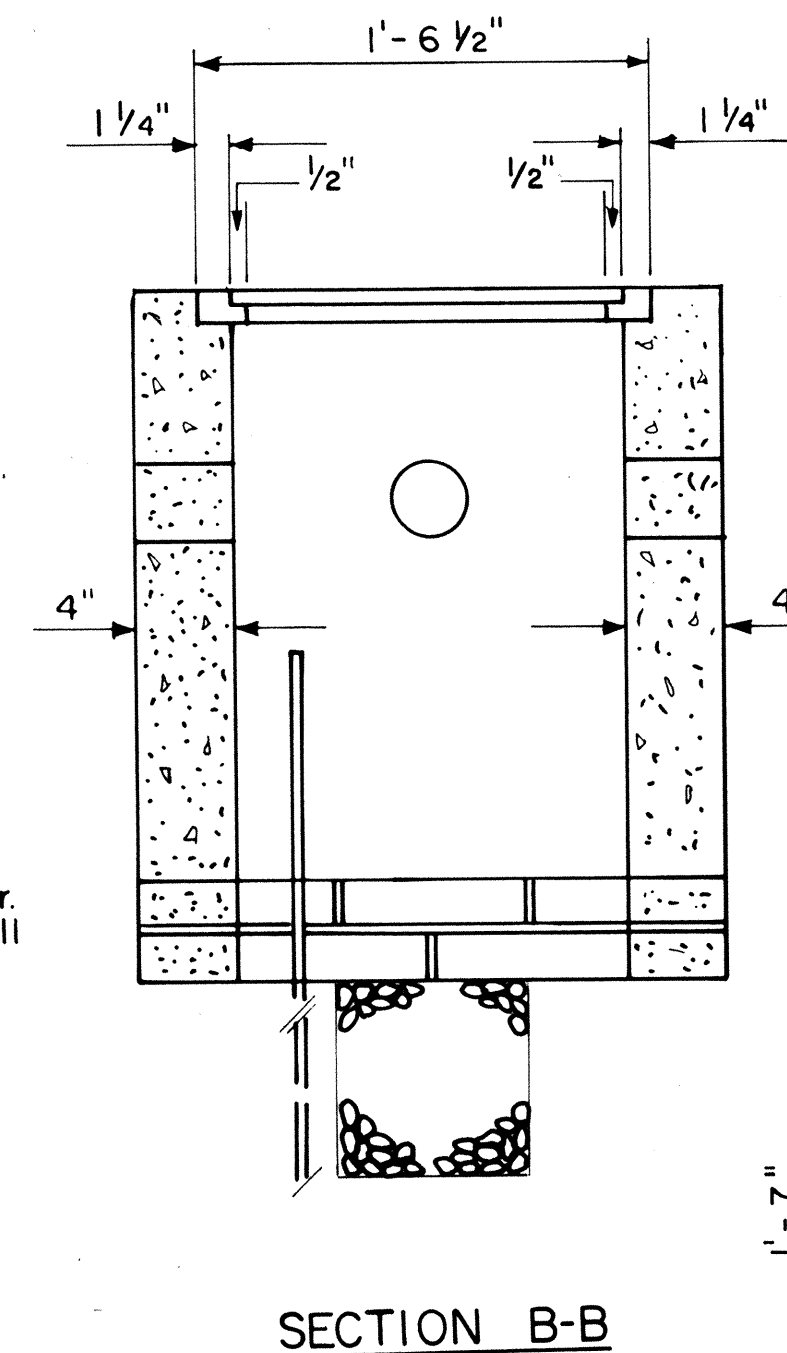
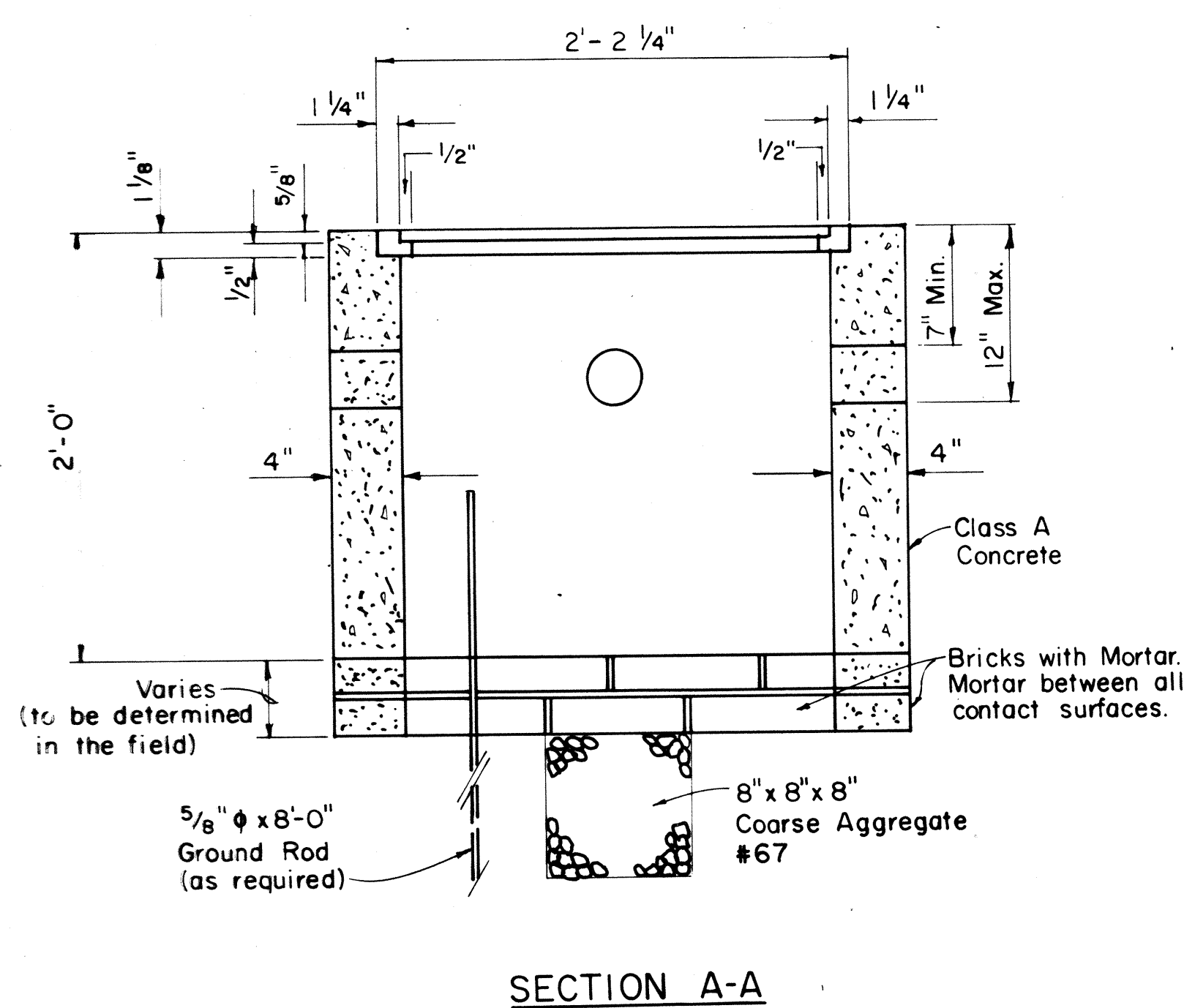
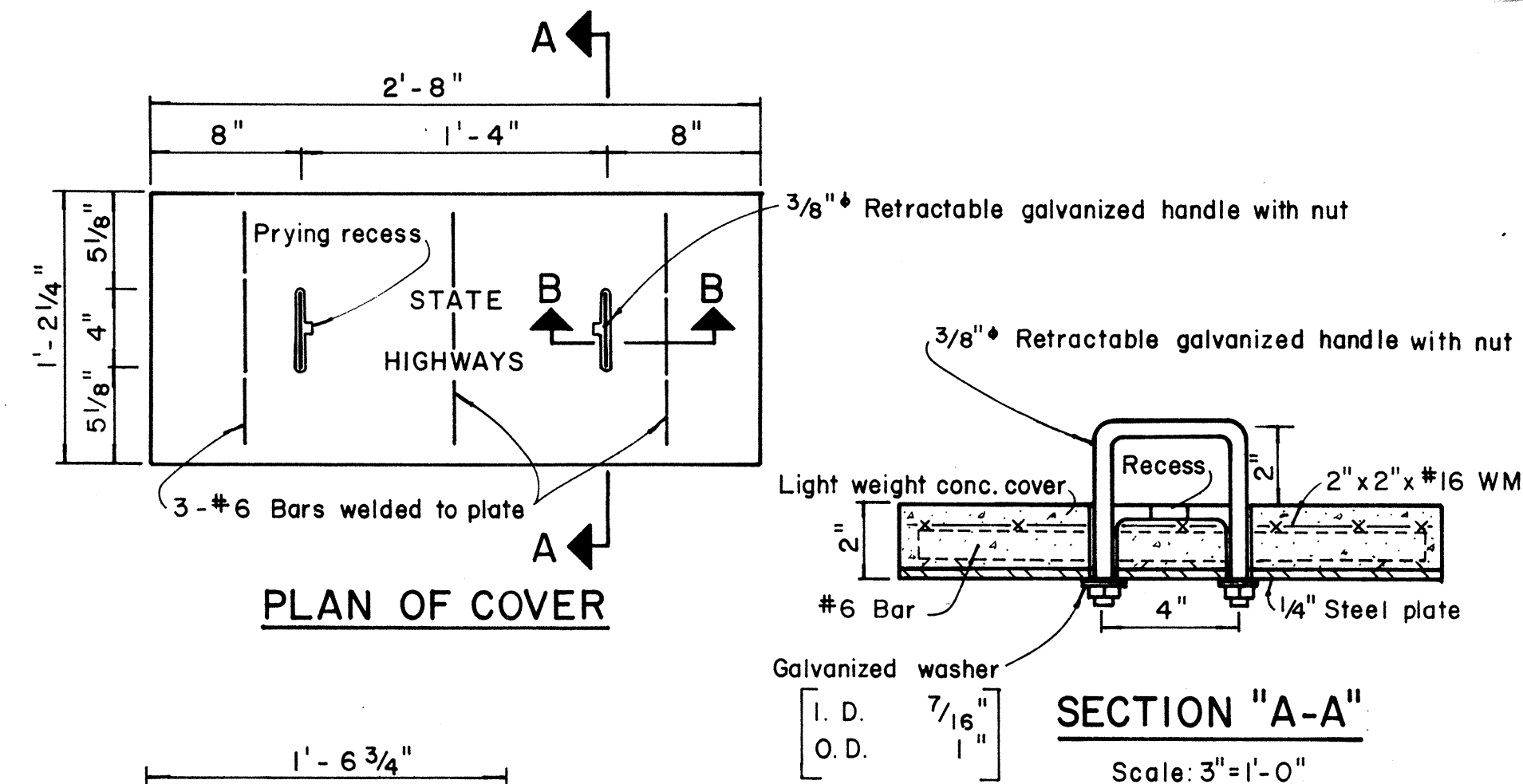
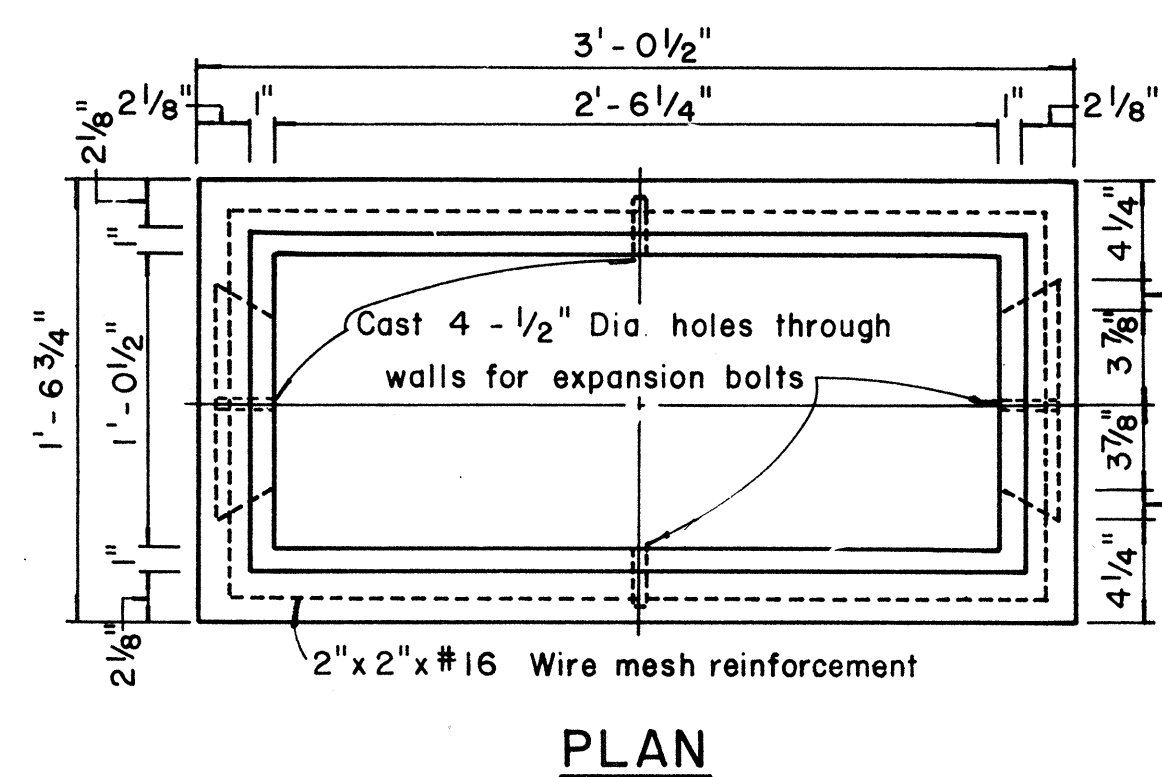
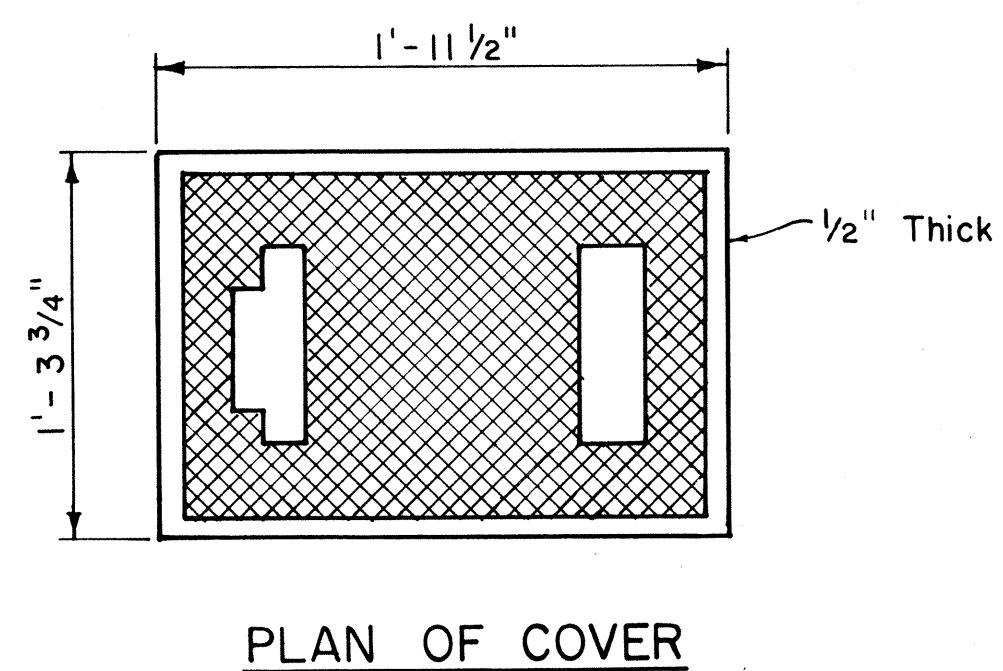
DATE	_____
DESIGNED BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-13-1(24)	1983	165	328



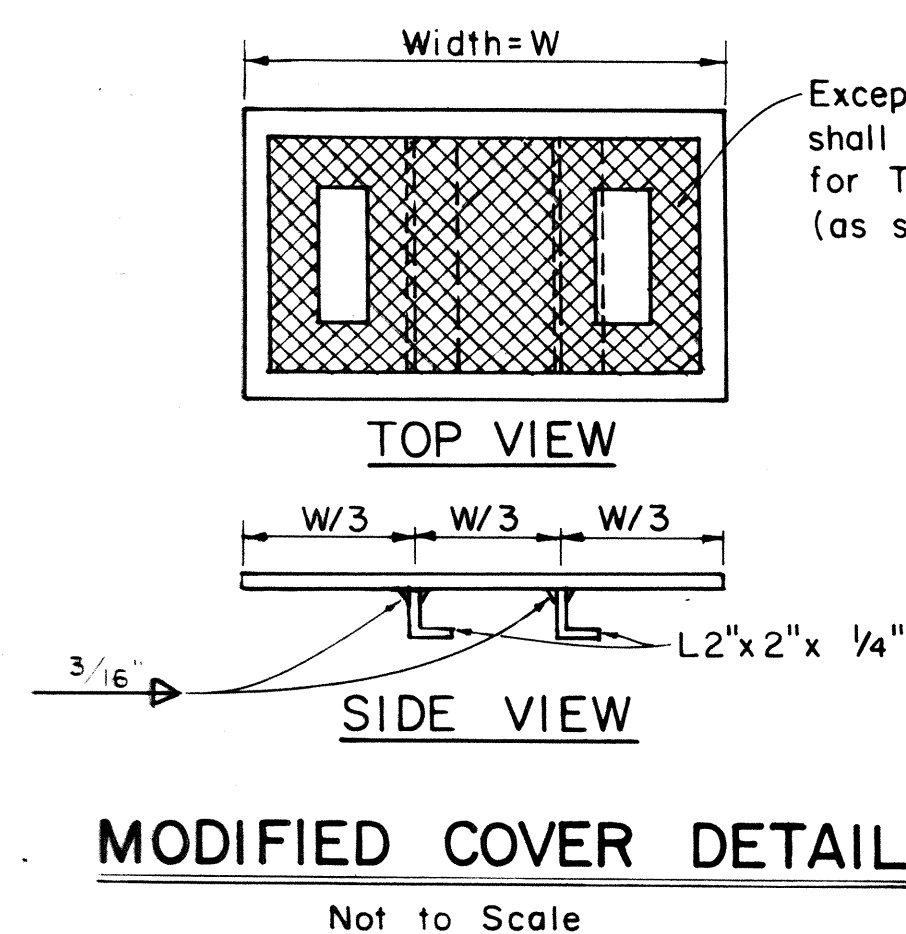
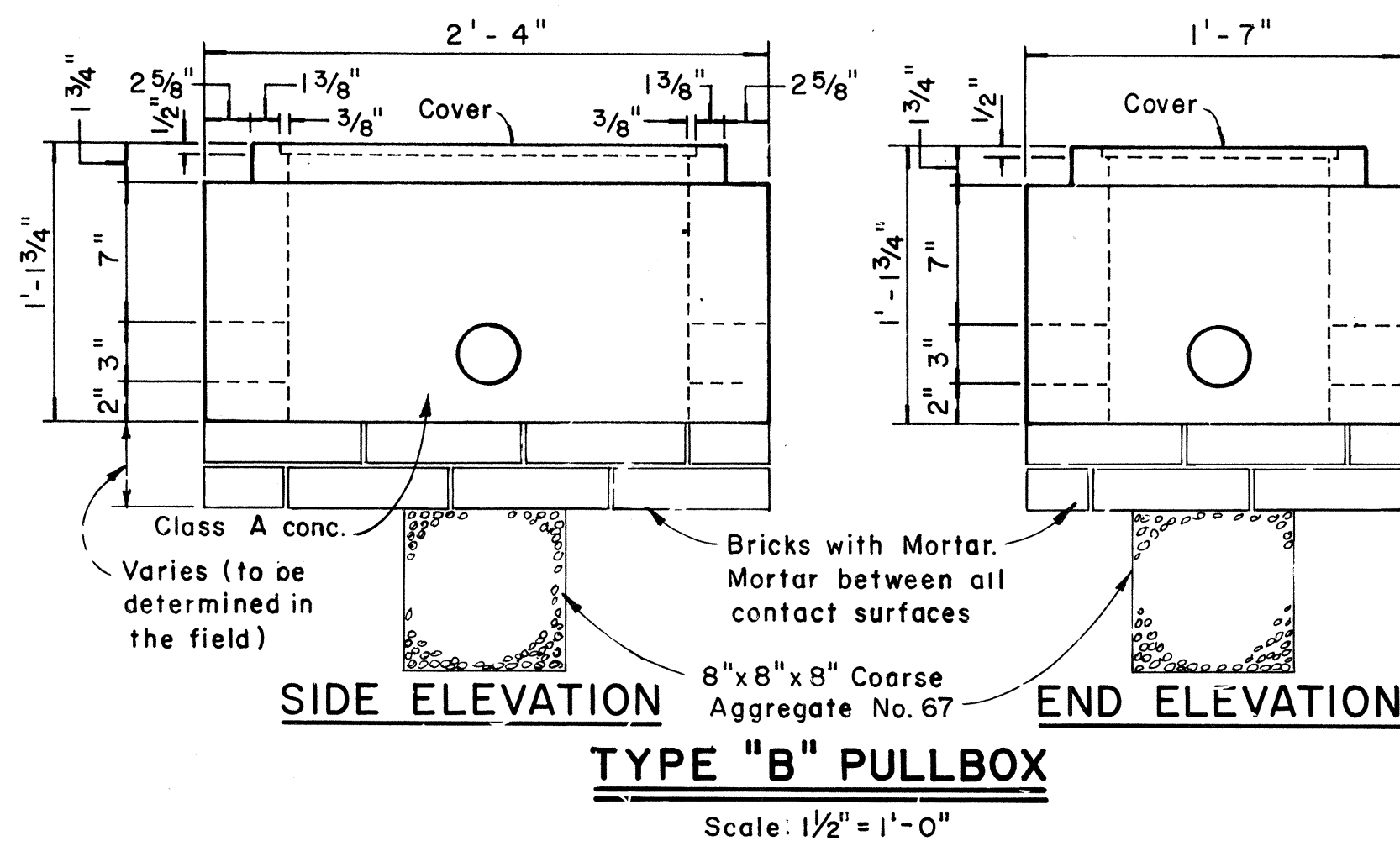
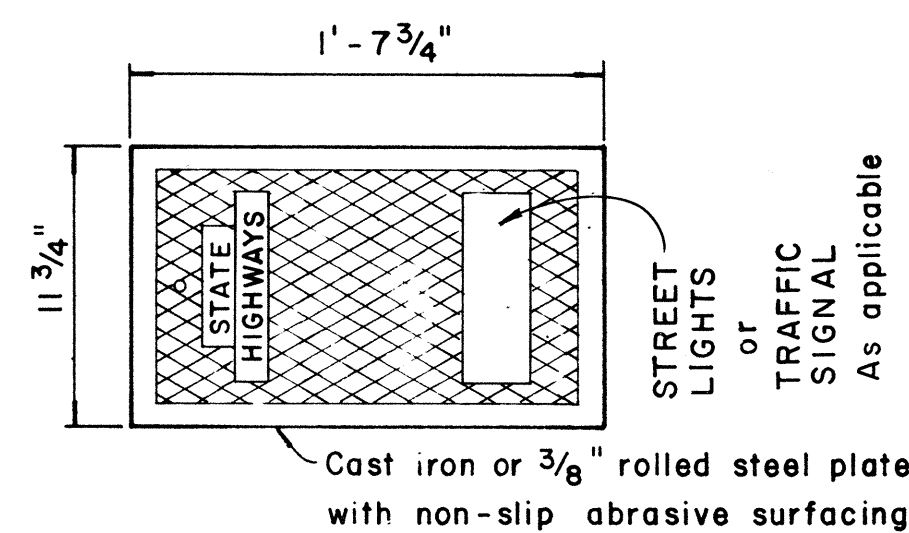
NOTE:

Except as noted, Cover Details shall conform to Type "B" Pullbox Cover.



NOTE :

Steel rim shall be welded to bottom of steel cover
if necessary so that top of cover and frame are flush



NOTE:

Hot dip galvanize after fabrication.
Modified cover shall be furnished
when called for on plans.

APPROVAL RECOMMENDED: /

TRAFFIC ENGINEER 12/29/69
DATE

APPROVED

William A. J. J. J. J. 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Revised Type B & C Pullbox details	H.T.	3-5-78
2	Revised Type "A" Pullbox & Added Modified Cover.	H.T.	1-31-80

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS

PULLBOXES

Scale as noted Date

3- SHEET No. 11 OF 4 SHEETS DT 401

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	166	328

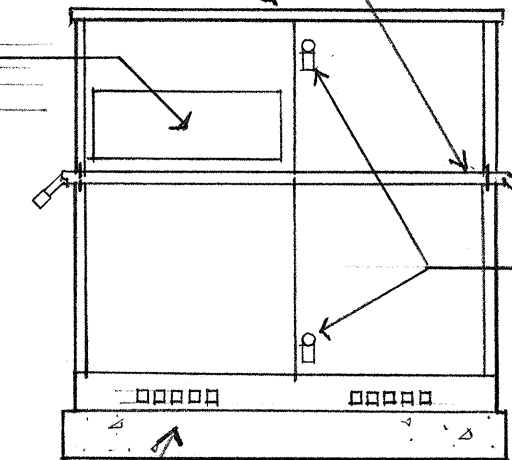
DUCT SECT.	RACEWAYS	FEEDER ASSIGNMENT FOR DUCT SECT.	REMARKS
A	1-2" PVC	IRRIGATION CONTROL PWR. WIRES	
A1	1-2" PVC	UNASSIGNED	
B	1-2" PVC W/ 3" CONG. JACKET	IRRIGATION CONTROL PWR. WIRES	
C	2-2" PVC W/ 3" CONG. JACKET		TRAFFIC SIGNAL DUCTLINE
C1	2" PVC W/ 3" CONG. JACKET 2" PVC W/ 3" CONG. JACKET	2 OR 3 6 OR 7 OR 8	
C2	2-3" PVC W/ 3" CONG. JACKET		TO H.B. CO. POLE
C3	2" PVC W/ 3" CONG. JACKET 2" PVC 2" PVC	2 4 6	
D	2" PVC 2" PVC	3 6 OR 7	
D1	2" PVC 2" PVC 2" PVC	3 3 PLUS IRRIGATION CONTROL PWR. WIRES 7	
E	2" PVC W/ 3" CONG. JACKET 2" PVC 2" PVC	3 6 7	
A2	1-2" PVC	SAME AS "A" PLUS IRRIGATION CONTROL PWR. WIRES	
C4	2" PVC W/ 3" CONG. JACKET 2" PVC	SAME AS "C1" PLUS IRRIGATION CONTROL PWR. WIRES	
C5	2" PVC W/ 3" CONG. JACKET 2" PVC 2" PVC	3 6 PLUS IRRIGATION CONTROL PWR. WIRES 7	
D2	2" PVC 2" PVC	SAME AS "D" PLUS IRRIGATION CONTROL PWR. WIRES	
D3	2" PVC 2" PVC 2" PVC	SAME AS "D1" PLUS IRRIGATION CONTROL PWR. WIRES	

PROVIDE FRONT & REAR CONT. 2" GALV. STL PIPE W/ END PADLOCK HOLES & WELDED SUPPORT 1/2" ST. BOLTS AT ENDS.

NEMA 3R ENCL.

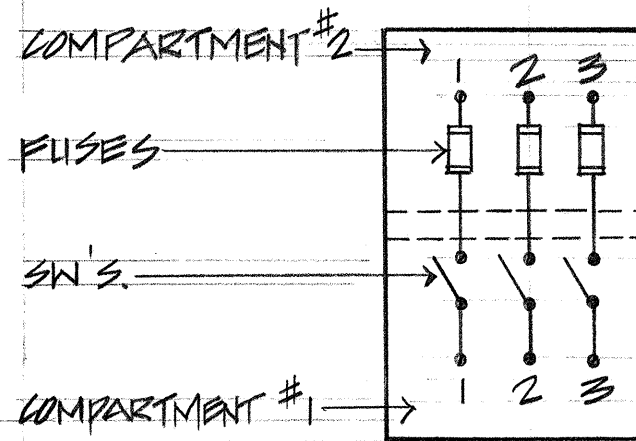
SIGN SEE DET.

(C)
12H

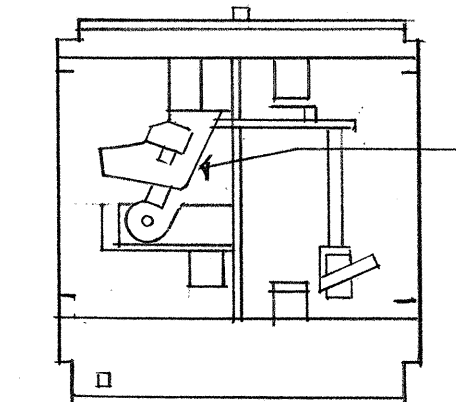


CONC. PAD

FRONT ELEV.



DIAGRAM



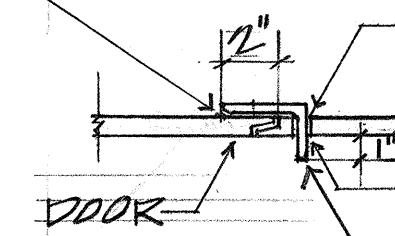
INTER. SEC.

(A)
12H

OUTDOOR SWITCHGEAR

N.T.S.

FILLET WELDED ALL AROUND



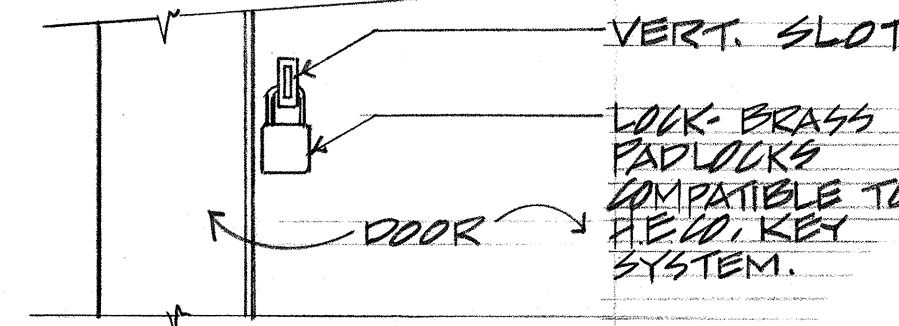
PLAN

3/8" X 1/2" VERT. SLOT

3/8" HOLE CENTERED
ROUNDED END

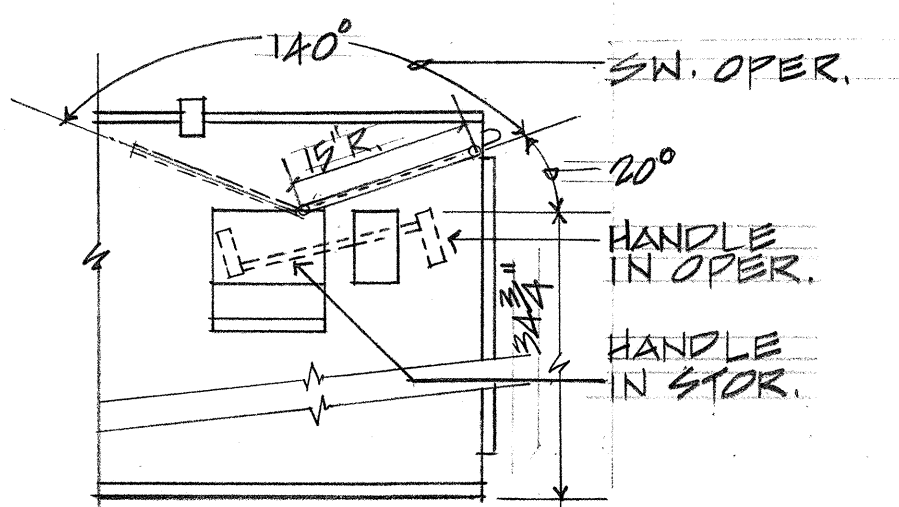
VERT. SLOT

LOCK-BRASS PADLOCKS
COMPATIBLE TO H.E.D. KEY SYSTEM.



ELEV.

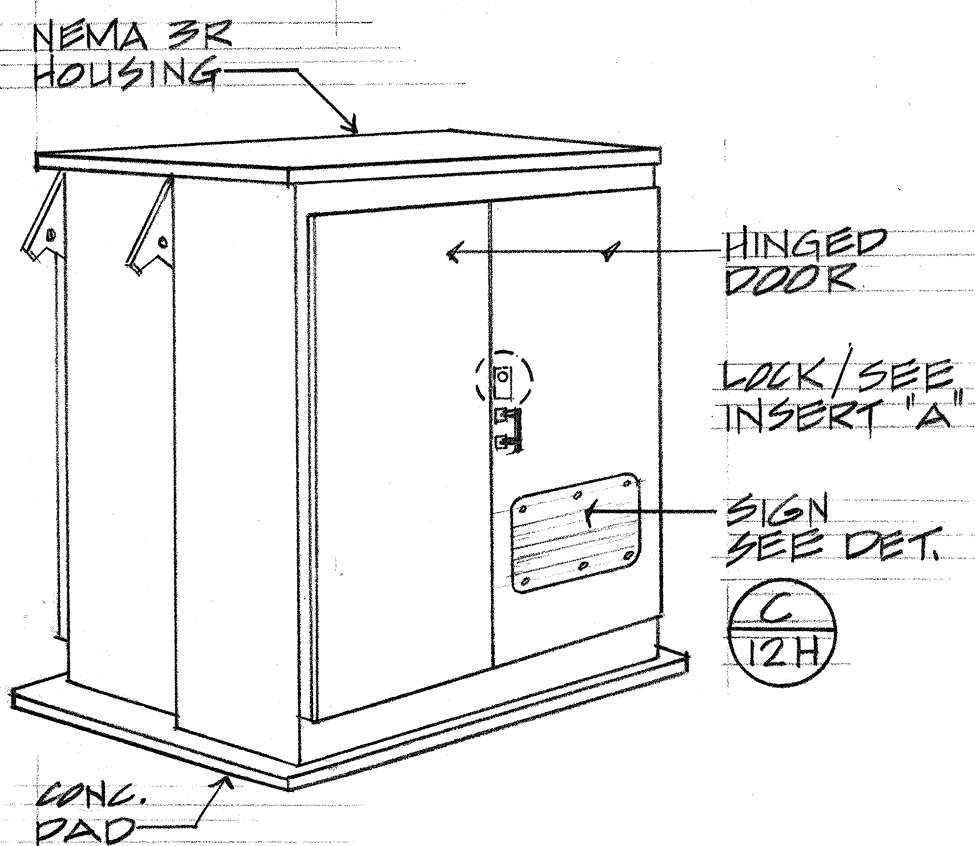
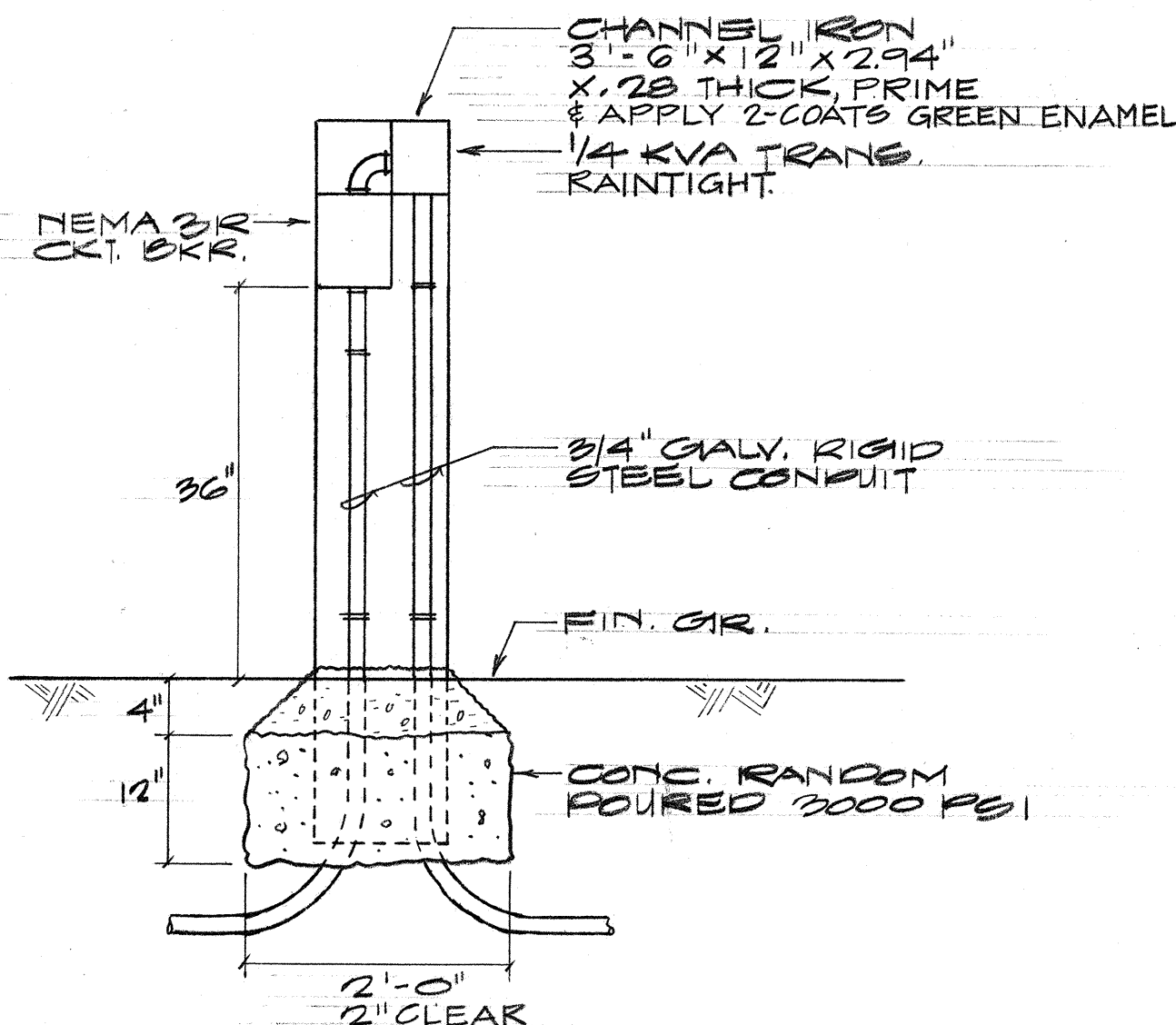
DET. "A"



SIDE VIEW

EXTER. HANDLE
GANG OPER.
SW'S.

FRONT BARRIERS
NORMAL DOOR
REMOVABLE BARRIER
UPON OPENING OF SW'S.

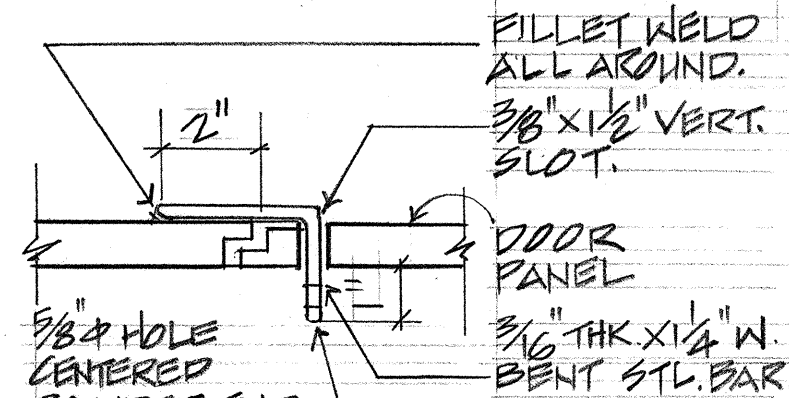


ISOMETRIC

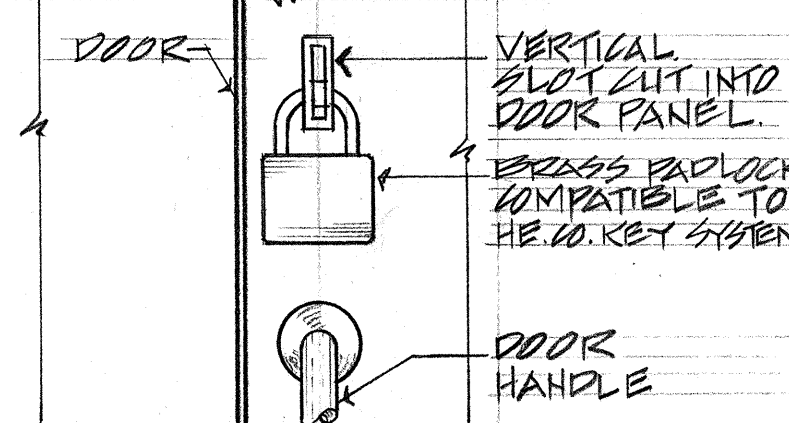
(B)
12H

TRANSFORMER STATION ENCLOSURE

N.T.S.

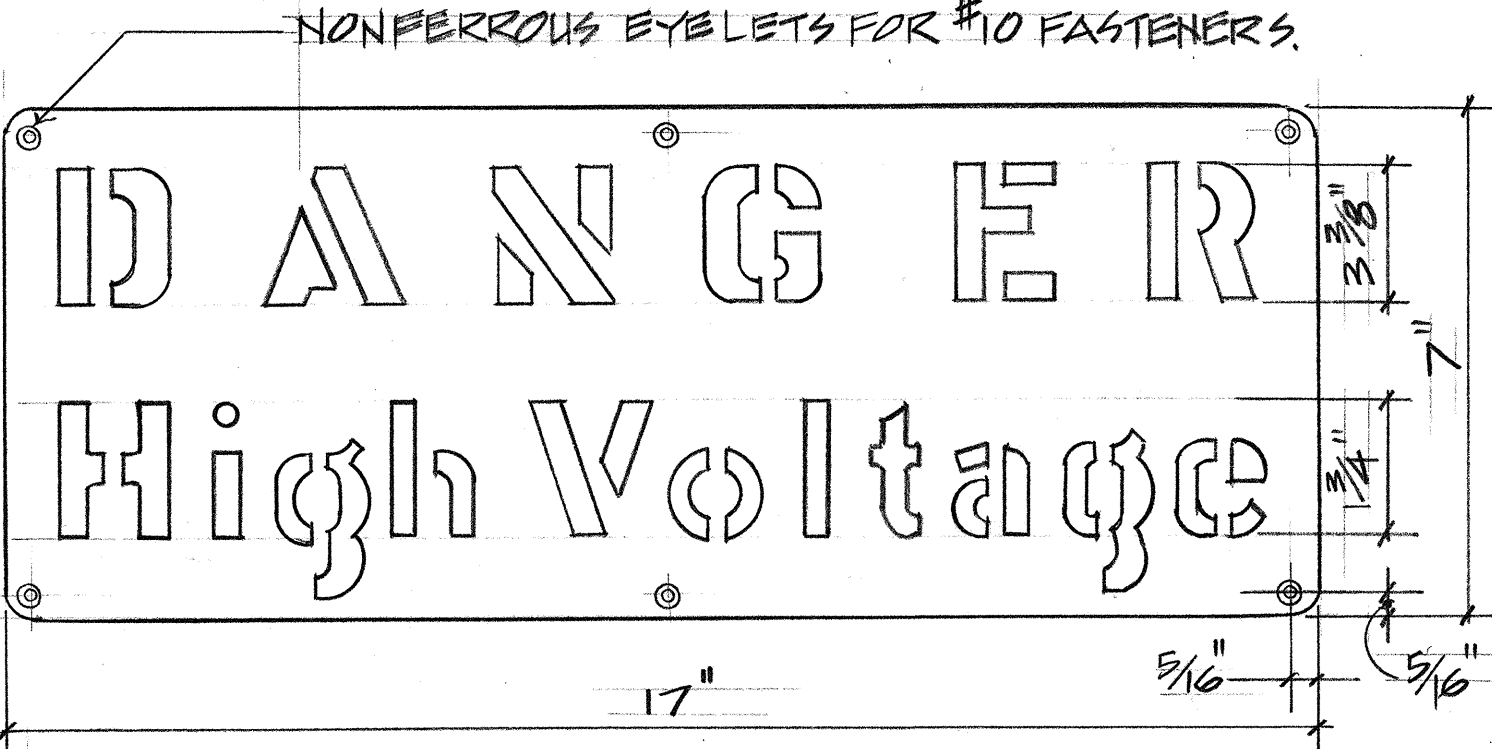


PLAN SECTION



ELEVATION

INSERT "A"



NOTES:

- #18 GAUGE VITREOUS ENAMELLING IRON 7" X 17"
- FUSE PORCELAIN CERAMIC ENAMEL BOTH SIDES. COPY ONE SIDE.
- WHITE B/G & 252 RED LETTERS.

(C)
12H

SIGN DETAIL

N.T.S.

SURVEY PLOTTED BY	DATE
ORIGINAL DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

(D)
12H

IRRIGATION SYSTEM
EQUIP. ELEVATION

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

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
MISC. ELECTRICAL DETAILS
HALEKOU INTERCHANGE F.A.I. Project No. I-H3-1(24):11 SCALE AS NOTED date: Sept. 1982 SHEET NO. 12 H OF 14 SHEETS E-12

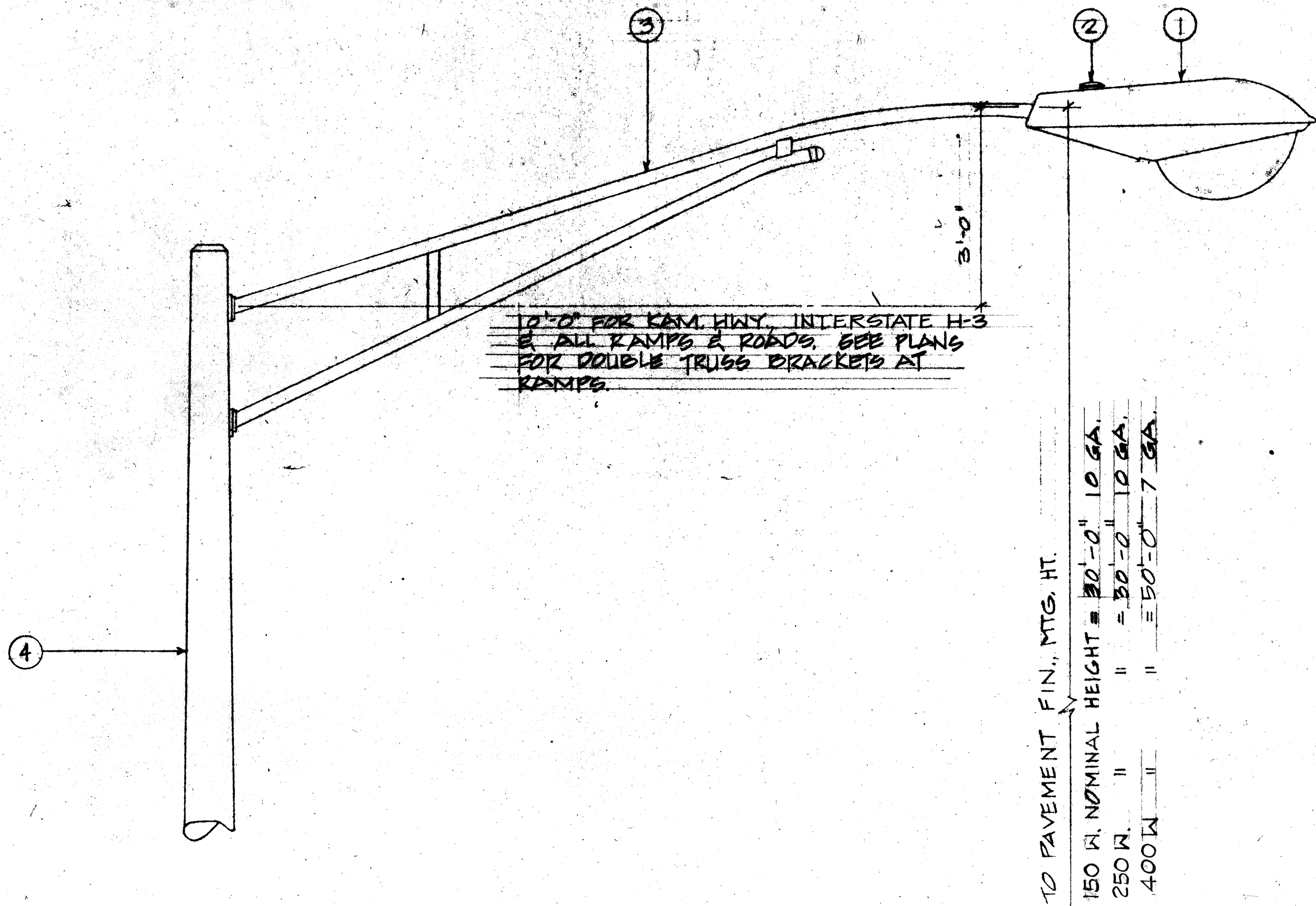
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	1H3-1(24)	1983	167	328

- MATERIAL LIST:
- HIGH PRESSURE SODIUM.
 - PHOTO ELEC. SW (MULTIPLE CKT.) N.I.C.
 - TRUSS BRACKET, GALV. STL.
 - POLE GALV. STL, 10 GA. MIN. UNLESS NOTED OTHERWISE.
 - POLE BASE, 3-BOLTS, WASHERS & NUTS.
 - POLE BASE BOLT COVER (N.I.C.)
 - GROUNDING LUGS
 - UNASSIGNED
 - 3-1" x 40" GALV. ANCHOR BOLTS.
 - GRD. ROD 5/8" x 10'-0" COPPER CLAD IN ALL PULL BOXES
 - PVC 60" D 40, 36" DEEP MIN.
 - CONC. 4" 6*3 BARS UNLESS OTHERWISE NOTED
 - WIRING ACCESS HANDHOLE, SEE DET. SH. 14H
 - SLIP BASE STD. SEE DET. SH. 14H
 - REINFORCED CONC. FOUNDATION INCLUDES 1" 10TW BONDED GRD. LUGS TO GRD. ROD, SIMILAR TO DET. "A" EXCEPT AS NOTED
 - POLE: ROUND SECTION DEPTH SHALL BE 7'-0" MIN., LOCATE LT. STD. 5' EITHER WAY.
 - UNASSIGNED
 - MULTI-CKT. PROVIDE IN-LINE NEOPRENE MOLDED PULL BOX, & MOLDED CONNECTOR FOR NEUTRAL
 - PROVIDE 1" 10TW BOND BETWEEN POLE LUG & GRD. ROD BY 6" TW STRANDED COPPER, CONTINUOUS BOND AMONG ALL NEW PULL BOXES & POLES GROUNDING VIA NEW FACEWAYS SYSTEM. FROM SVC.
 - PROVIDE 1" 10TW BOND BETWEEN POLE LUG & PULL BOX GRD. ROD.
 - SHARD RAIL
 - UNASSIGNED
 - 50' POLE, INCREASE ROUND SECTION DEPTH TO 72" INCHES.
 - ALL POLES MOUNTED ON STRUCTURE & RETAINING WALL SHALL BE ANCHOR BASE AT 4 ANCHOR BOLTS & WALL FLUSH CAST METAL UB.
 - CONTR. SHALL ADJUST POLE FOUNDATION TO MEET FIELD CONDITION FINISH GRADE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
HIGHWAY LIGHTING
HIGHWAY STANDARD DETAILS

HALEKOU INTERCHANGE
F.A.I. PROJECT No. I-H3-1(24):11

SCALE AS NOTED DATE: SEPT. 1982
SHEET NO. 13H OF 14 SHEETS E-13



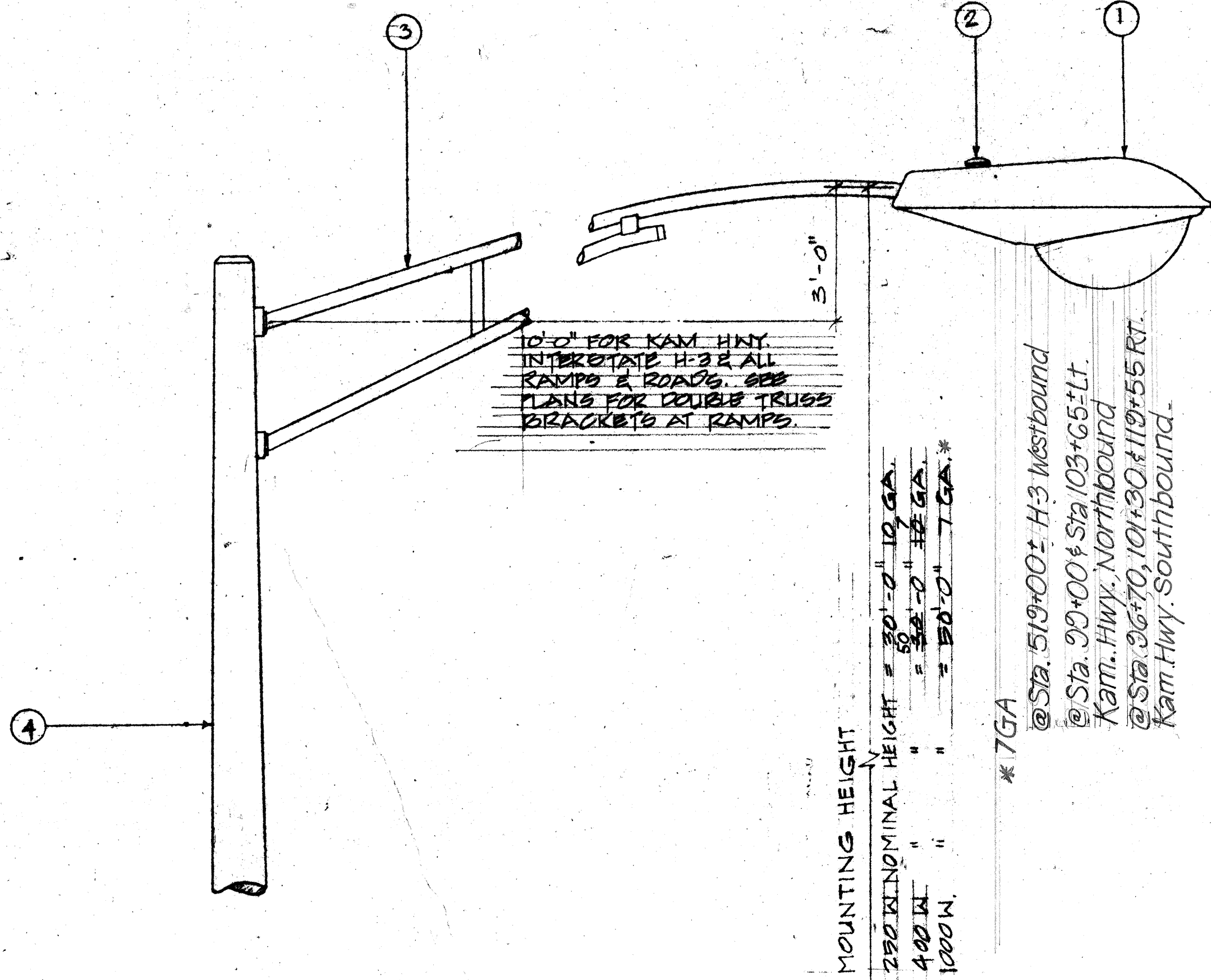
ELEVATION

SECTION

PLAN

FOUNDATION AT FILL

SEE NOTE 10
SCALE: 1/2" = 1'-0"



ELEVATION

SECTION

HIGHWAY LIGHTING STANDARD DETAIL

TYPE "B" FOR USE IN OUT SLOPE

SCALE: 1" = 1'-0"

SECTION

PLAN

HIGHWAY LIGHTING STANDARD DETAIL

TYPE "A" FOR USE IN LEVEL AREA.

SCALE: 1" = 1'-0"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE	
NOTES	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HA3-(24):11	1983	168	328

NOTES

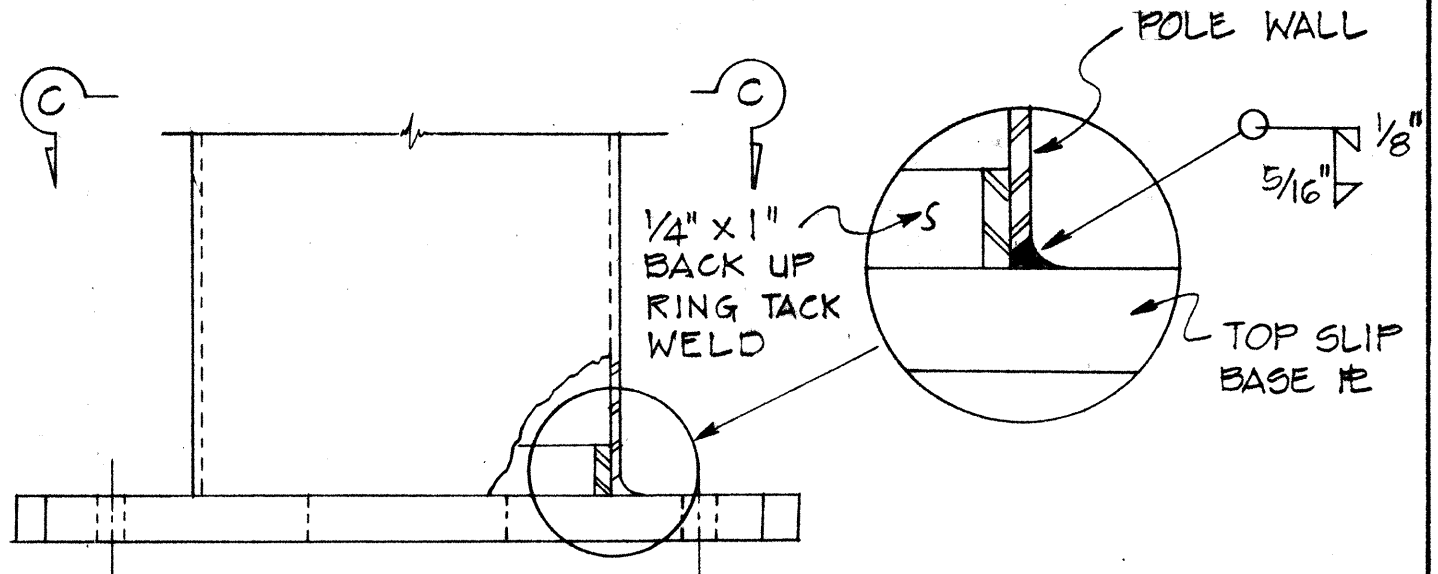
- ALL STEEL SHAFTS, P'S, MAST ARMS, BOLTS, SCREWS, NUTS & WASHERS TO BE GALV. AFTER FAB. OR MODIFICATION.
- P'S TO CONFORM TO ASTM A-36.
- CAST OPTION TO CONFORM TO ASTM A-486 CL. 30.
- TORQUE 7/8" P.H.S. SLIP BASE P. BOLTS TO 84 FT. LBS 7/8" P.H.S. ANCHOR BARS, WRENCH TIGHTEN-TORQUE REQUIREMENT WAIVED.
- FABRICATORS ELECTING LARGER THAN MIN ARM DIAMETERS MUST ADJUST DETAILS AS REQUIRED TO PERMIT SOLID SEATING OF CAP SCREWS. IN LIEU OF TORQUE REQUIREMENTS FOR H.B. BOLTS, CAP SCREWS SHALL BE TIGHTENED BY THE TURN OF NUT METHOD 1/6 TURN FROM SNUG TIGHT CONDITION. NO WASHER WILL BE REQUIRED.
- 4" x 6 1/2" HANDHOLE REINFORCED W/ #3 GA. RING 1 1/2" WIDE WELDED TO OUTSIDE OF POLE COVER OF 10 GA. P. LOCATE 90 DEGREES OF MAST ARM UNLESS SHOWN OTHERWISE.
- 28 GA. KEEPER P., PLACE ON TOP OF MIDDLE FLAT WASHER ASTM A526 125 COMMERCIAL.
- PLATE WASHER
- 3-7/8" P.H.S. BARS, THREAD G" & GALV. 10", W7 HEX, HD, NUT, LEVELING NUT & WASHER
- HEX. HD. NUT SHOWN OR AS AN ALT. DET. ANCHOR P'S MAY BE RETAINED W/ 5/16" FILLET WELDS ALL ROUND OR FORMED HEADS.
- ROUND TAPERED STEEL TUBE W/ MAX. TAPER OF 0.15"/FOOT.
- NO. 11 GAGE SHEET STEEL OF WELDABLE GRADE ACCEPTABLE IF STEEL AFTER FABRICATION HAS A MIN. YIELD STRENGTH OF 40,000 P.S.I.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

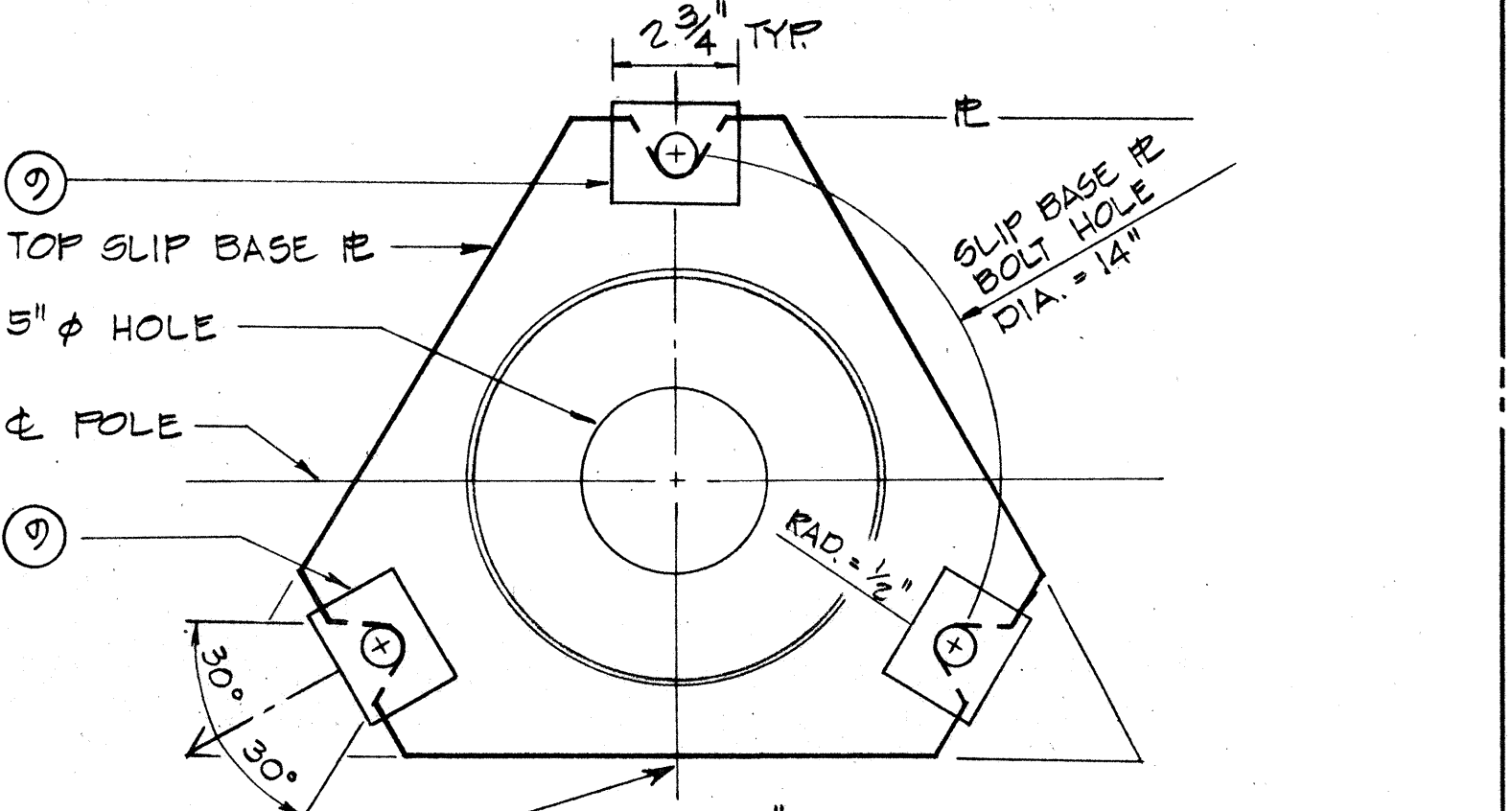
HIGHWAY LIGHTING SLIP BASE POLE

FAI Proj. No. I-H3-(24):11

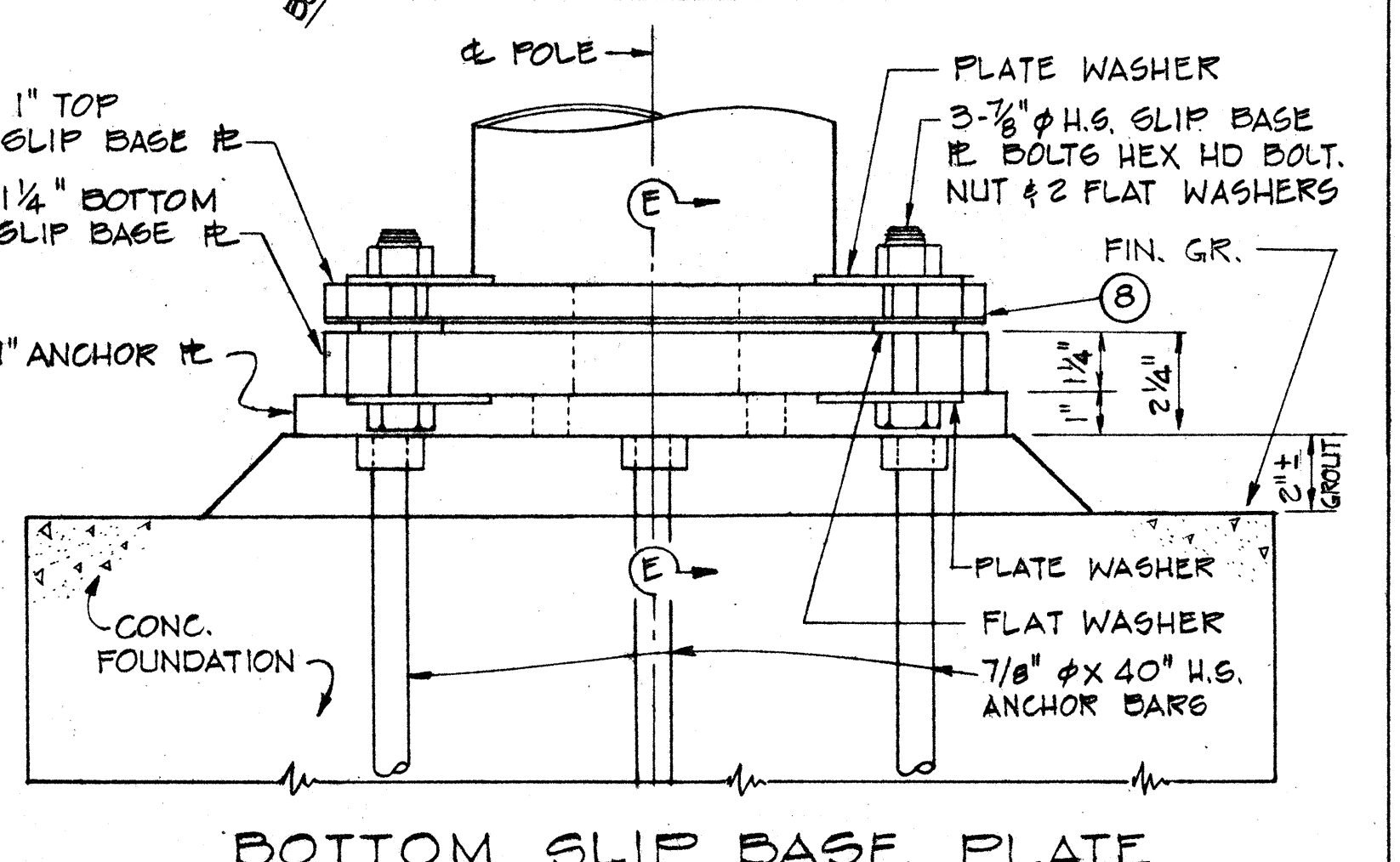
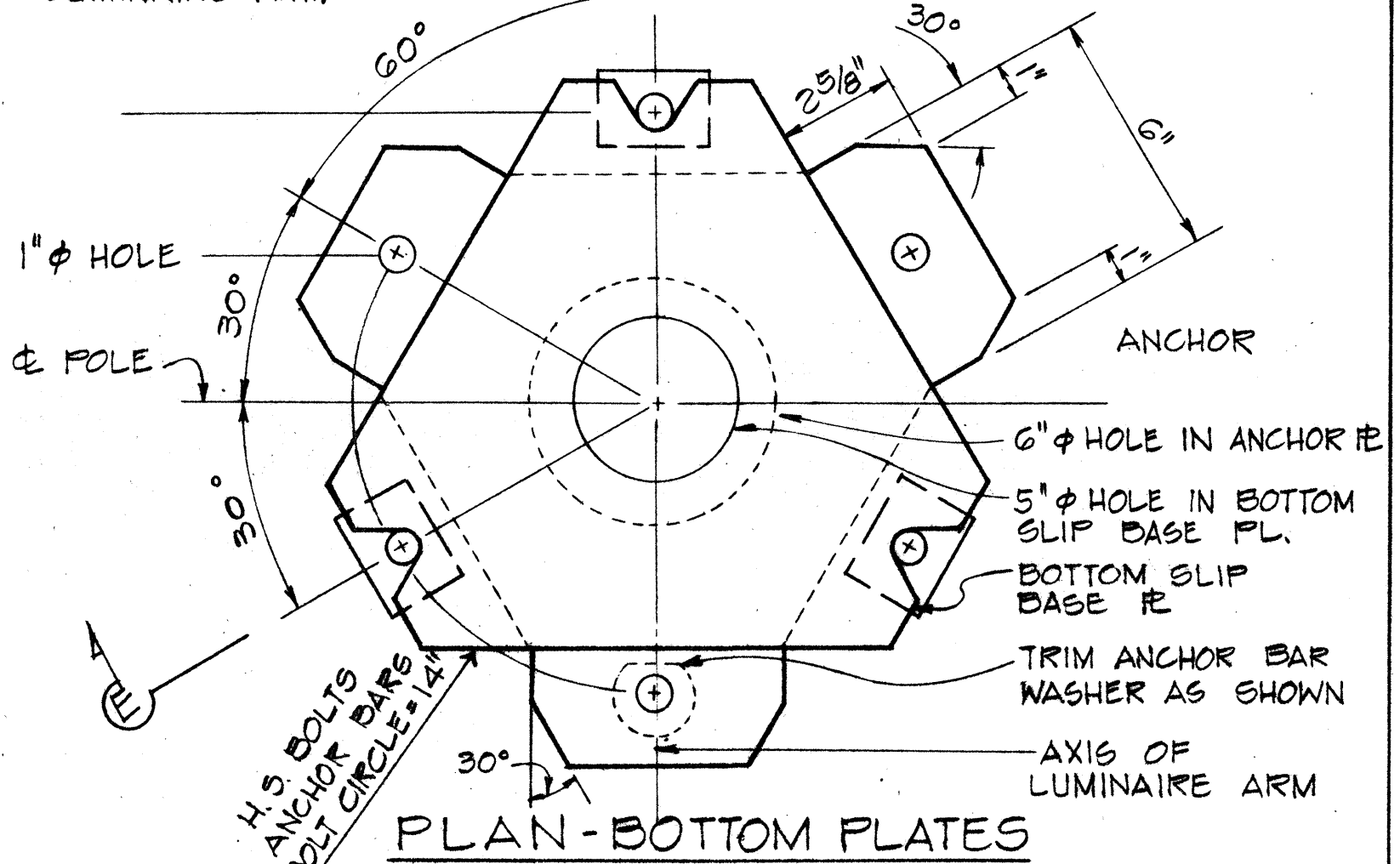
Scale: As shown Sept. 1982
SHEET No. 144 OF 14 SHEETS E-14



TOP SLIP BASE PLATE



VIEW "C-C"
TOP SLIP BASE PLATE



BOTTOM SLIP BASE PLATE

SLIP BASE DETAIL

SCALE: 3" = 1'-0"

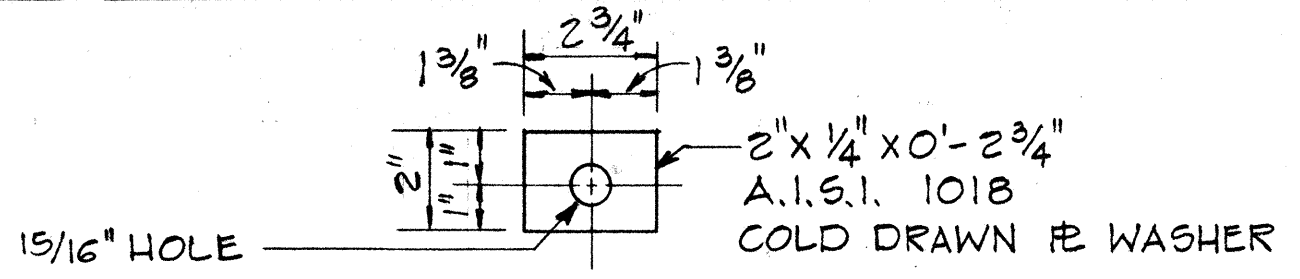
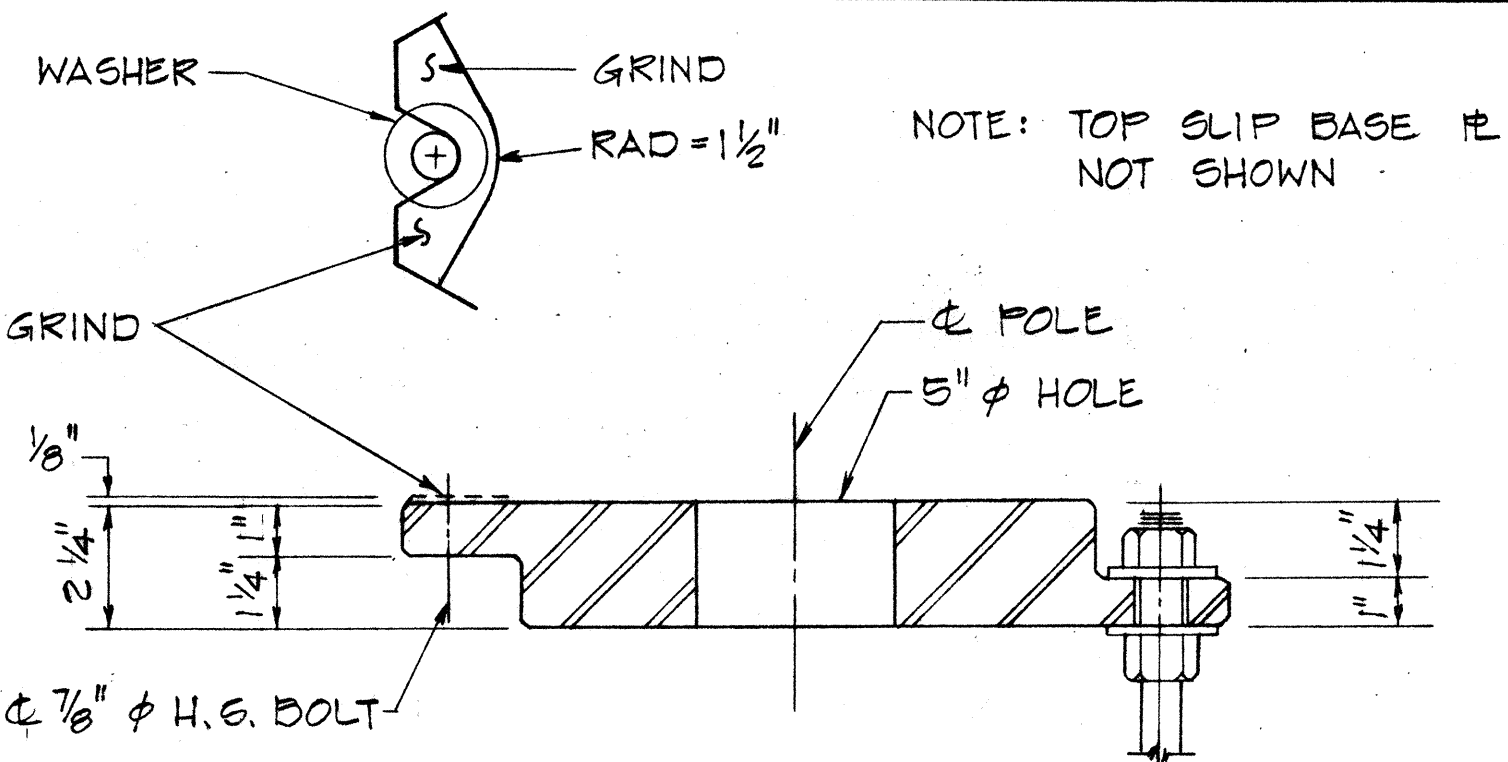
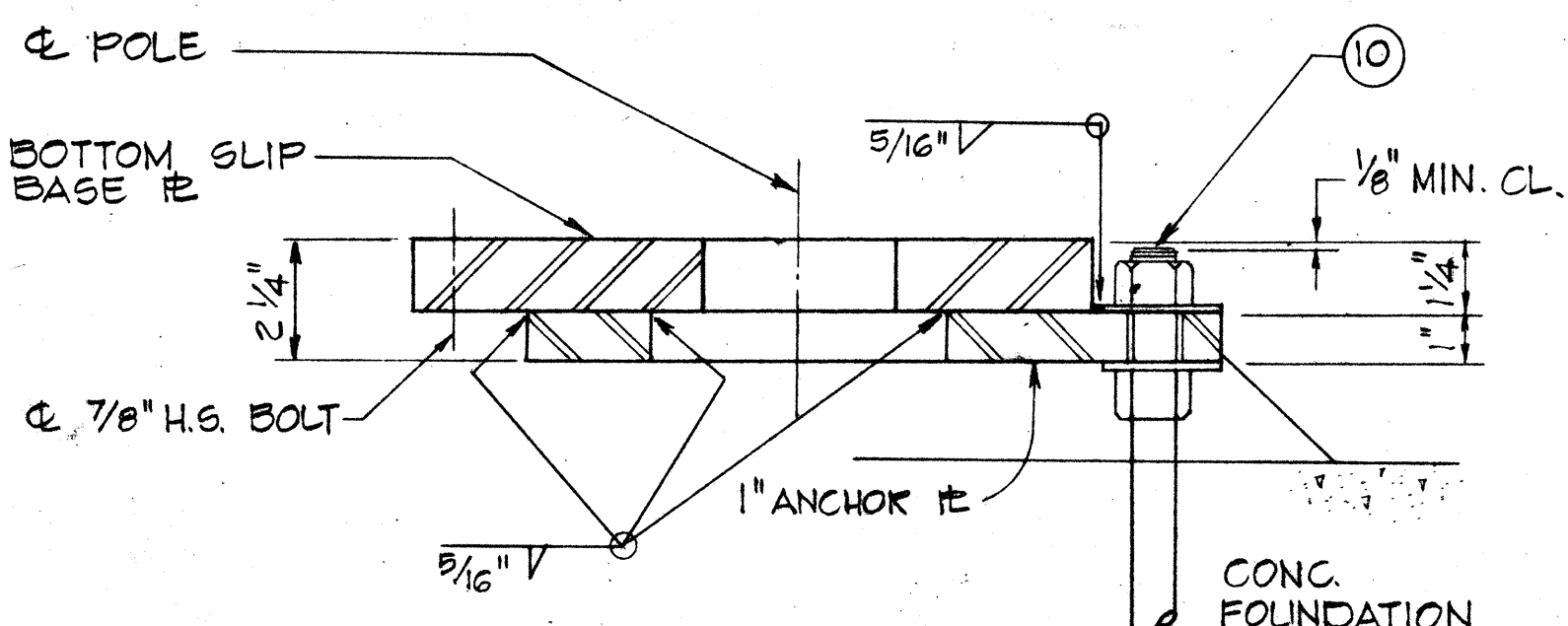


PLATE WASHER



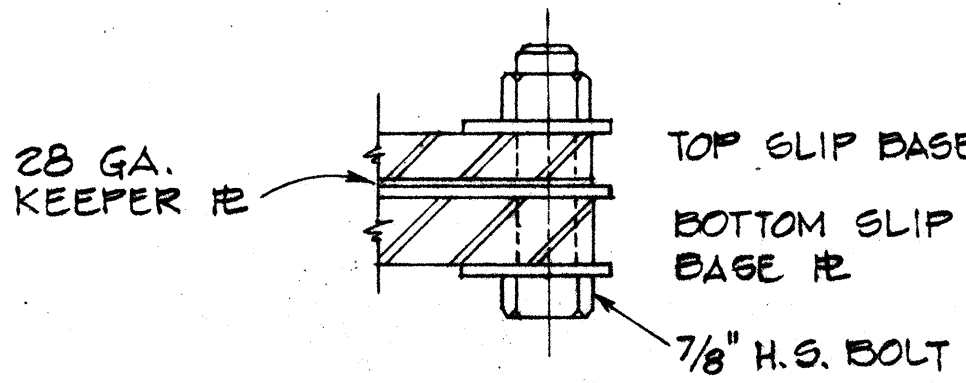
VIEW "E-E"
CAST OPTION

SCALE: 3" = 1'-0"

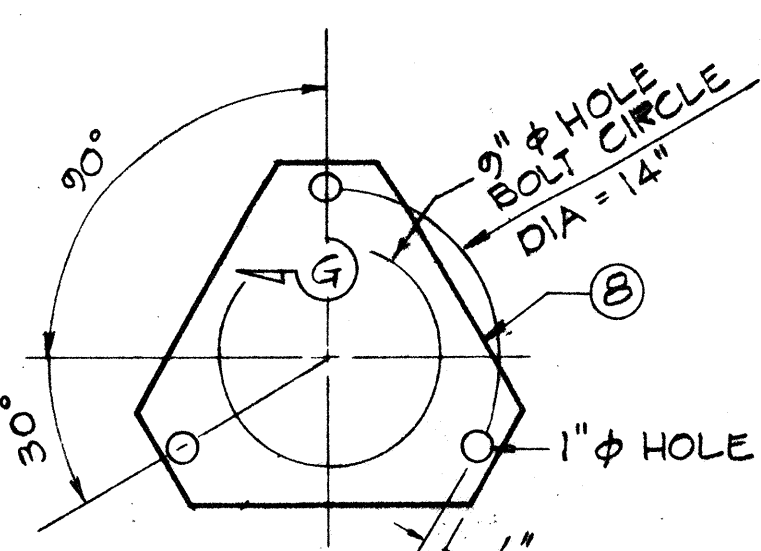


VIEW "E-E"
WELDED OPTION

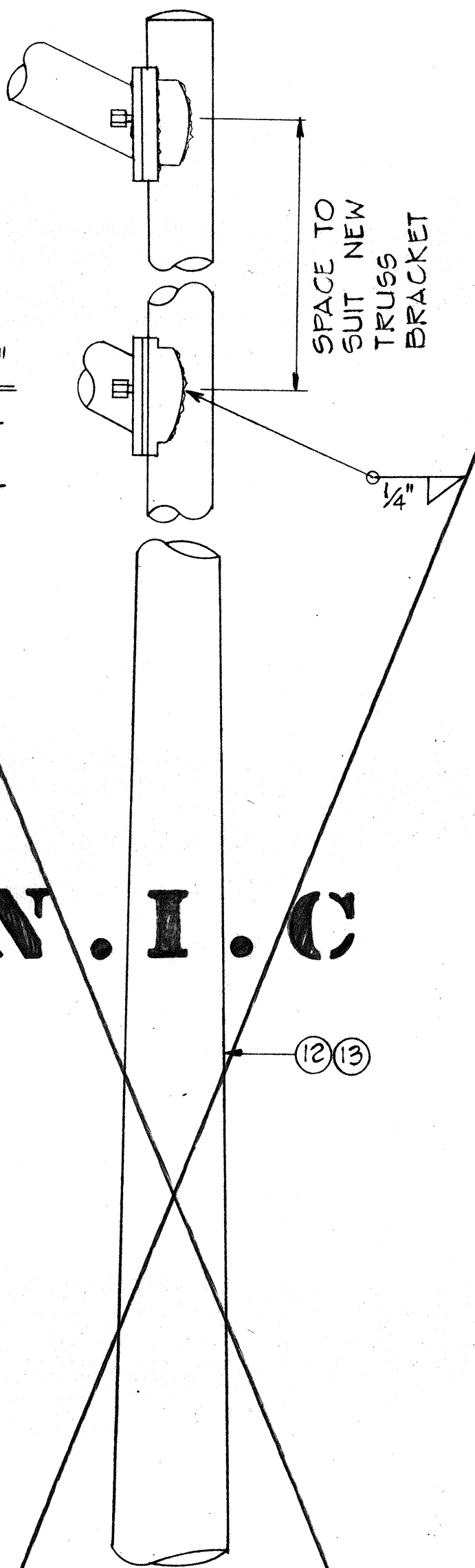
SCALE: 3" = 1'-0"



SECTION G-G

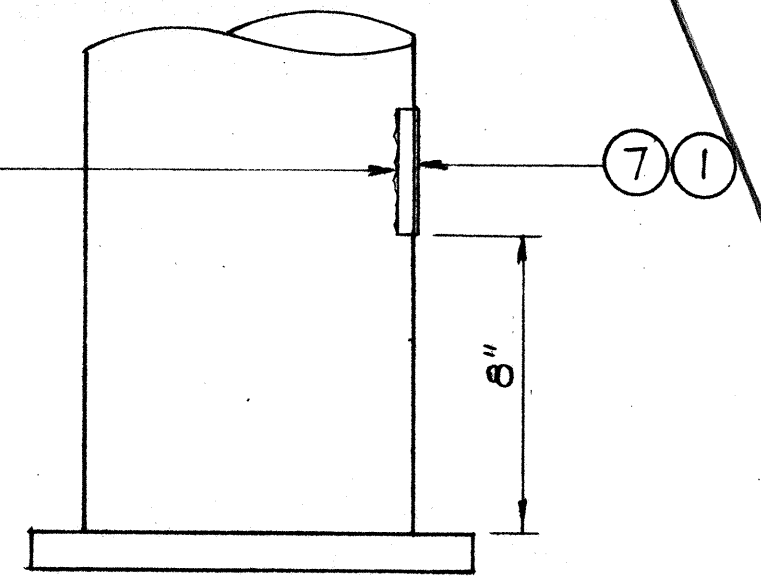


DETAIL "F"
KEEPER PLATE



DETAIL "A"

TRUSS BRACKET
2 BOLTS
ARM ATTACHMENT



DETAIL B

N.I.C

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

NOTES

- Locations of all new traffic signal equipment shall be staked out in the field by the Contractor for approval by the Engineer prior to installation.
- All new conduits under roadways or other areas subject to vehicular traffic shall be steel or PVC Schedule 80.
- Conduits under asphalt concrete roadways shall have backfill consisting of asphalt concrete mix no. V in the upper portion to match the existing asphalt concrete thickness.
- All new traffic signal controller equipment and appurtenances shall be completely wired in the cabinet and shall control the traffic signals as shown on the plans.
- All splicing of cables shall be done in the pullboxes.
- #8 B.C. = No. 8 bare copper wire.

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.
2"	Vacant

New Cond.	New Cable
2"	1-2c #14

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.
2"	1-2c #14

New Cond.	New Cable
2"	3-2c #14

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.
2"	Vacant

New Cond.	New Cable
2"	4-2c #14

New Cond.	New Cable
2"	4-2c #14 1-26c #14 1-1c #8 B.C.

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.
2"	1-26c #14 1-1c #8 B.C.
2"	6-2c #14
2"	1-24c #20
2"	1-3c #2/0

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.
2"	4-2c #14

New Cond.	New Cable
2"	1-26c #14 1-1c #8 B.C.
2"	1-26c #14 1-1c #8 B.C.
2"	6-2c #14

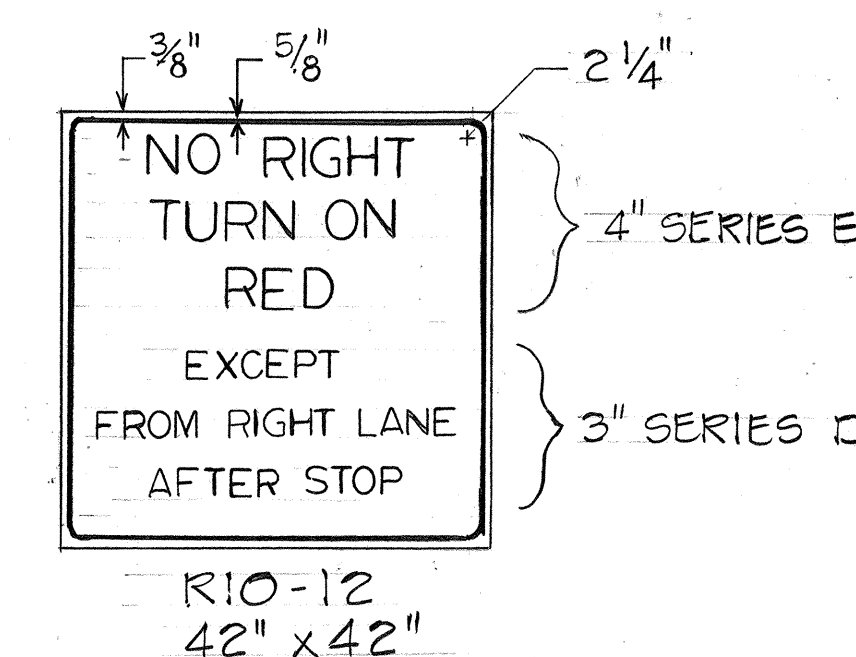
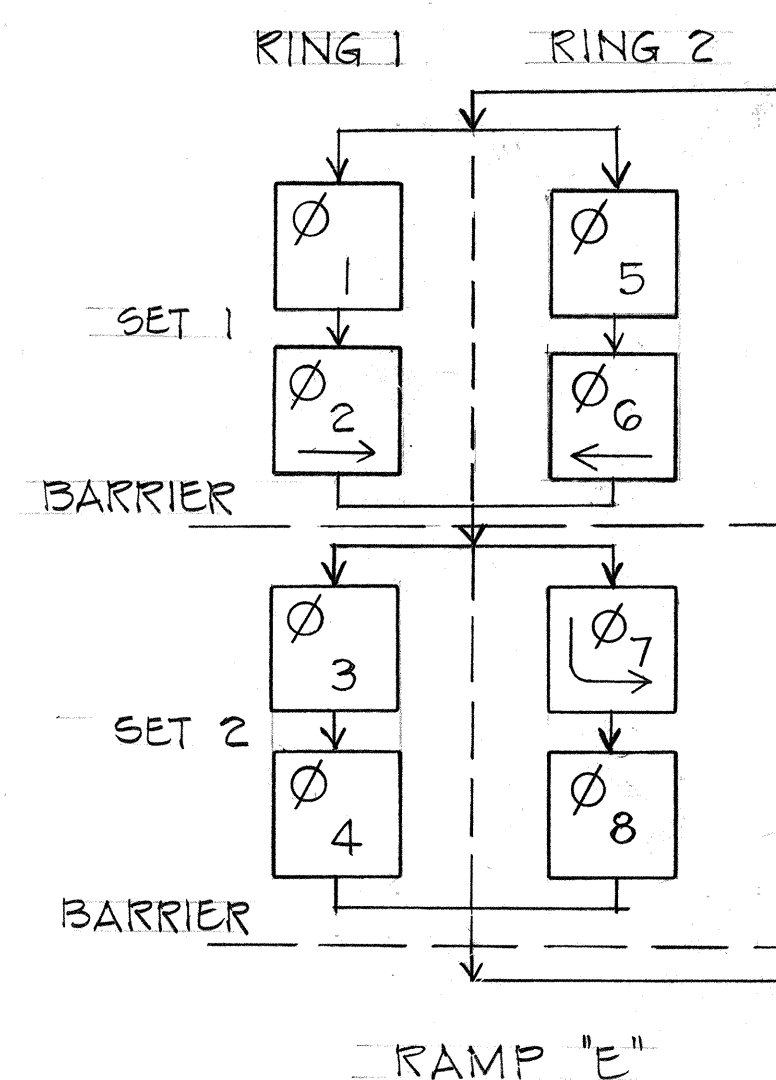
New Cond.	New Cable
2"	2-2c #14

New Cond.	New Cable
2"	1-24c #20 1-3c #2/0
2"	3-2c #14

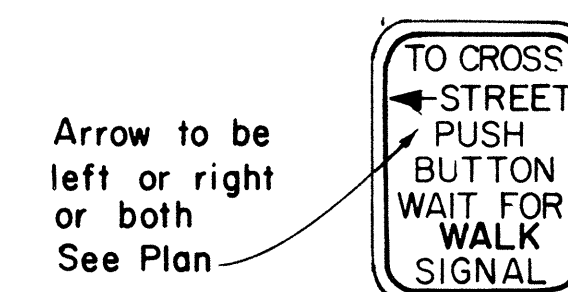
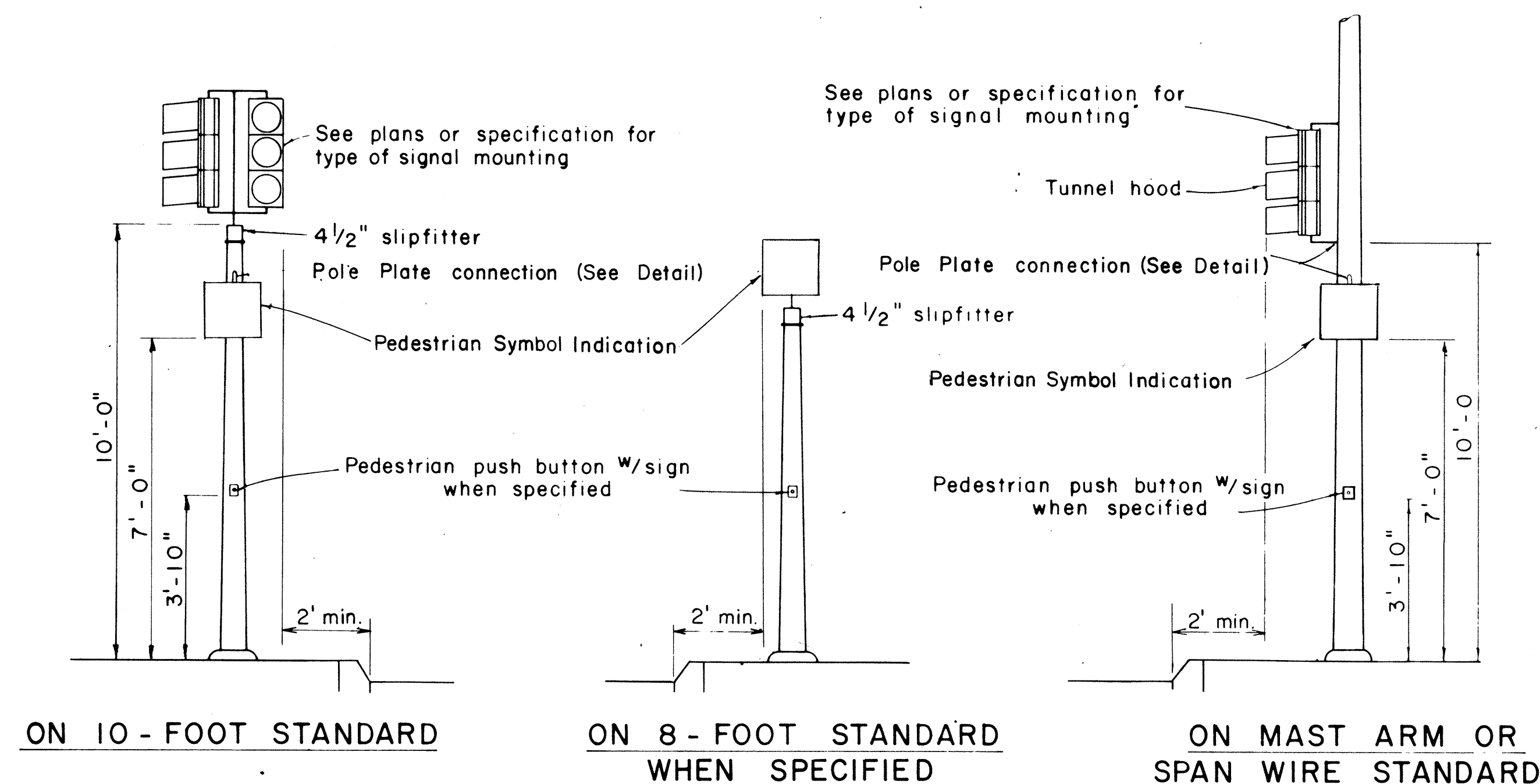
New Cond.	New Cable
2"	1-24c #20 1-3c #2/0
2"	2-2c #14

LEGEND

- New RY↑ traffic signal head
- New RY→ traffic signal head (Programmed visibility head when noted on plans)
- New RY← traffic signal head (Programmed visibility head when noted on plans)
- New Type I traffic signal standard with signal head as shown on the plans.
- New Type II traffic signal standard with signal heads and mastarm length as shown on the plans.
- New Type III traffic signal standard with signal heads, mastarm lengths, and 400 W HPS luminaire.
- New traffic signal system local controller with coordinator including 4" thick x4'-0" wide concrete slab across entire front of controller.
- New traffic signal system master controller, including 4" thick x4'-0" wide concrete slab across entire front of controller.
- New Type A Pullbox
- New Type B Pullbox
- New RYG traffic signal head



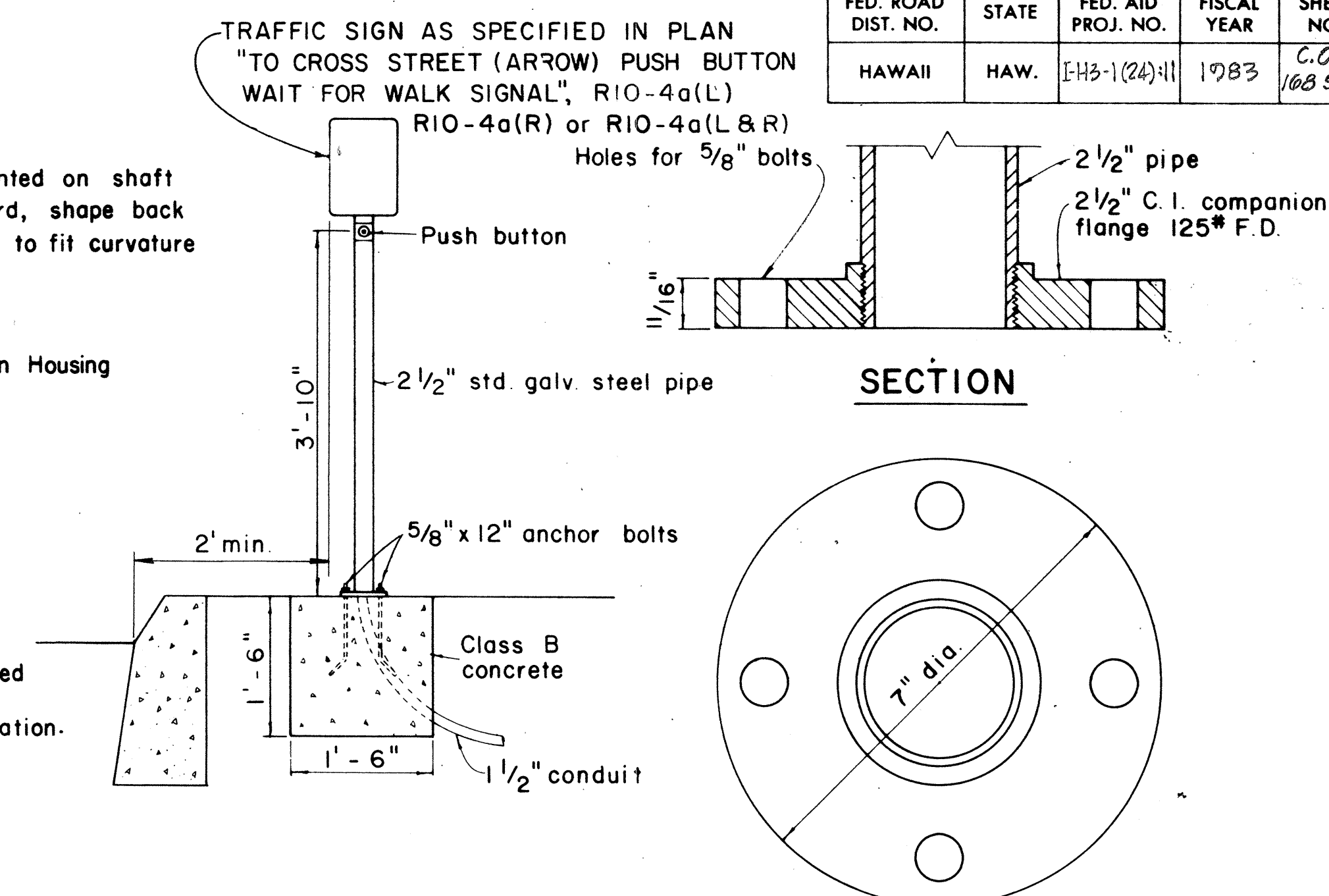
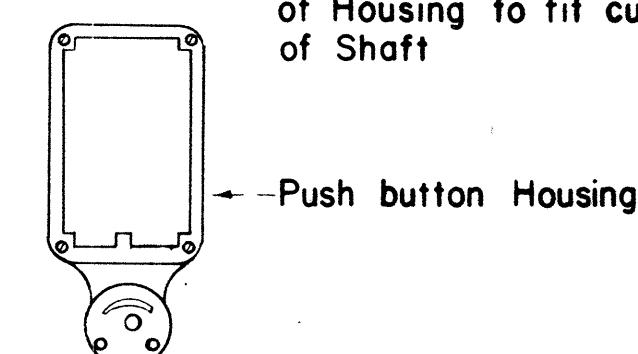
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	[H3-1(24)]	1983	C.O. 1685-3	328



RIO-4a(L) PEDESTRIAN
5" x 7" PUSH BUTTON

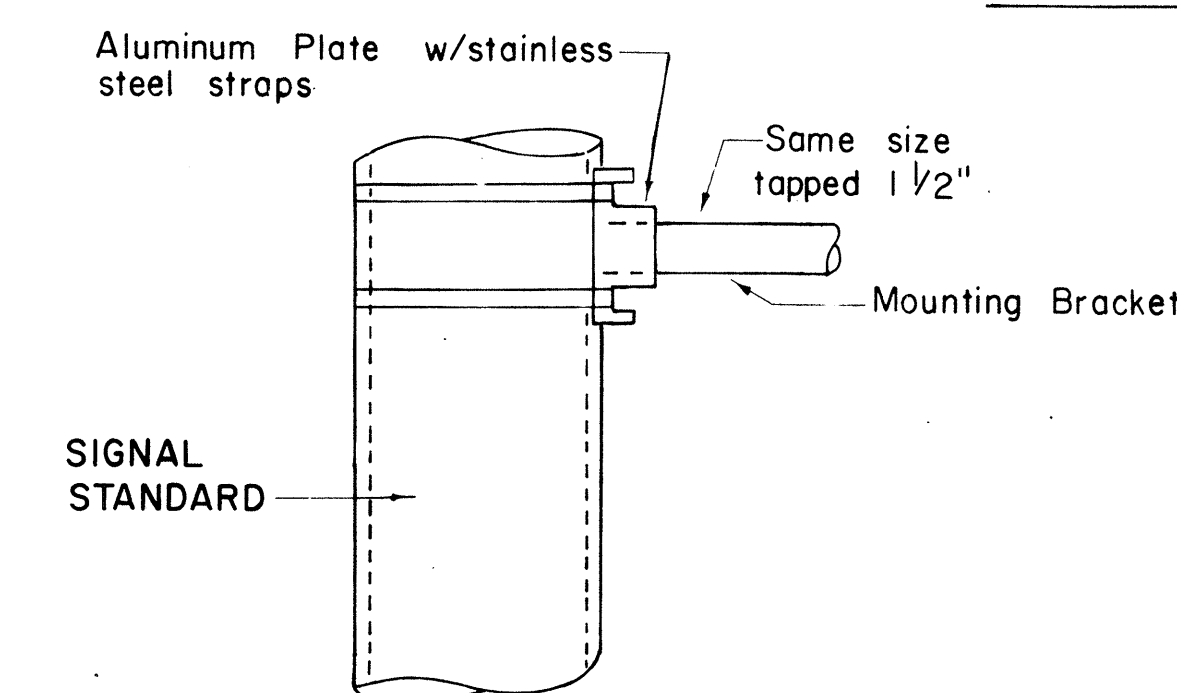
NOTE:

1. Conduits shall protrude 2" max. above finished surface of foundation.
2. Conduits shall slope away from pole foundation.

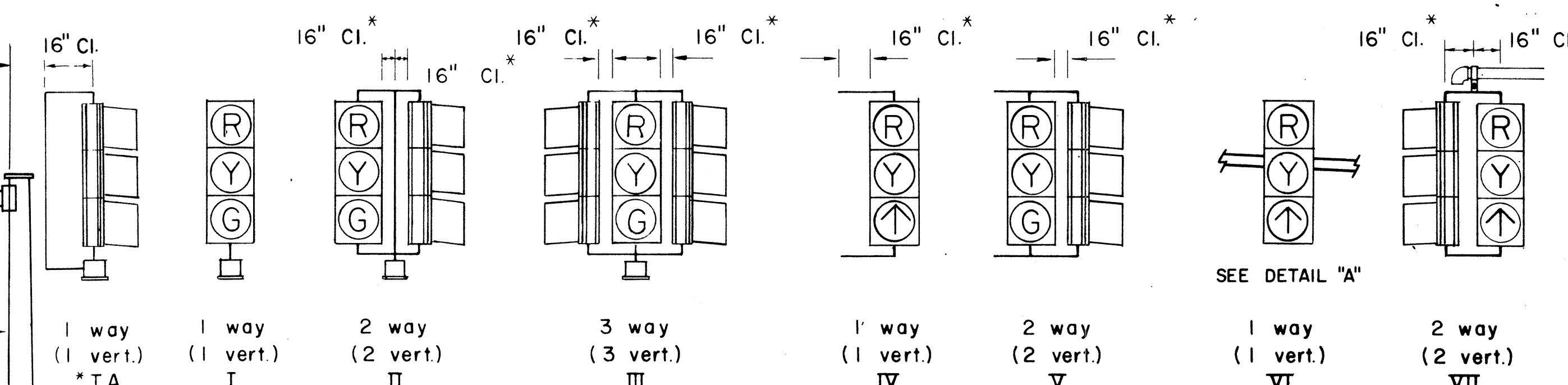
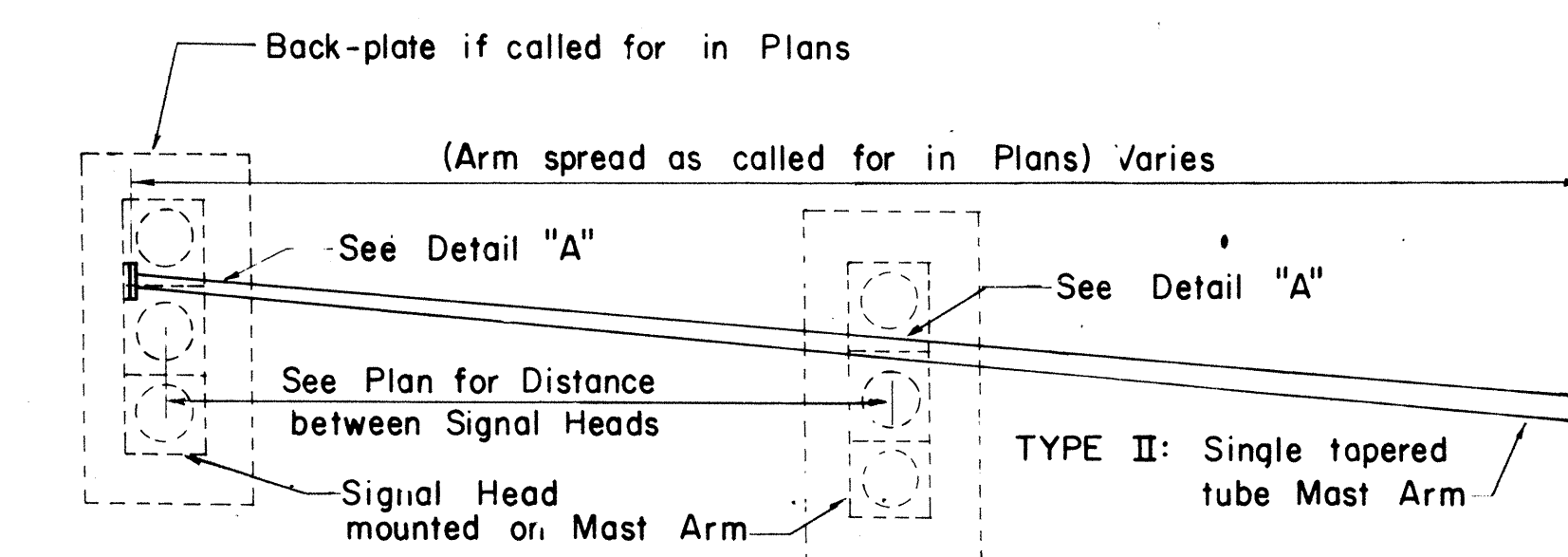


BASE DETAIL

TYPICAL EQUIPMENT MOUNTINGS



DETAIL OF POLE PLATE CONNECTIONS

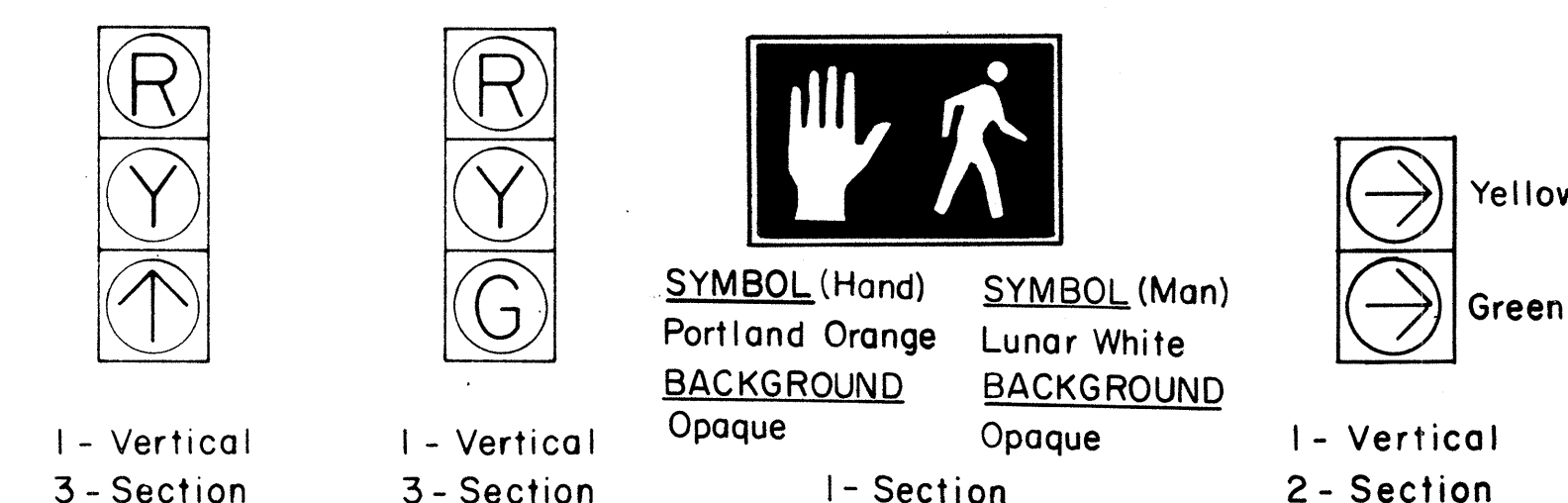


SLIPFITTER MOUNTINGS

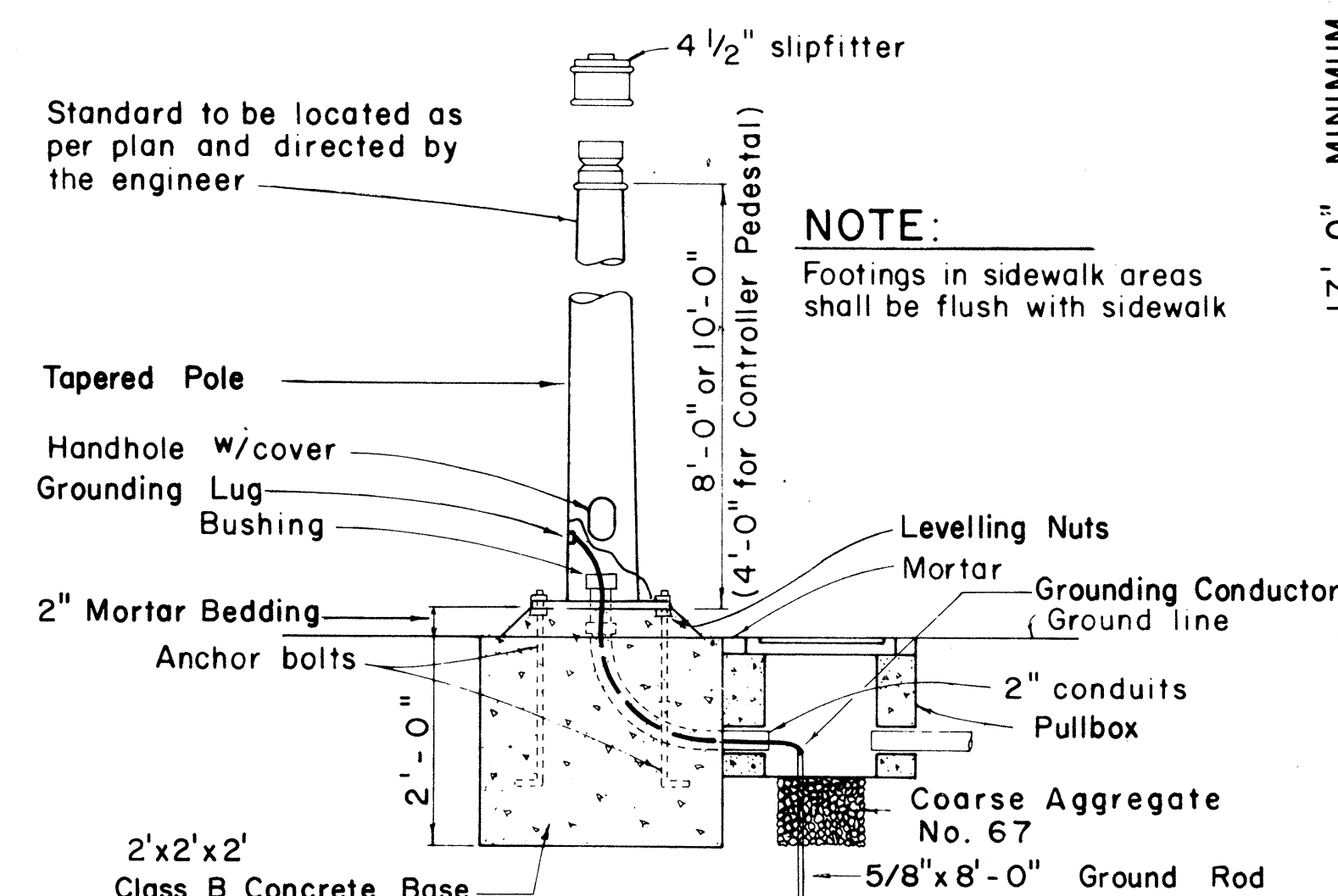
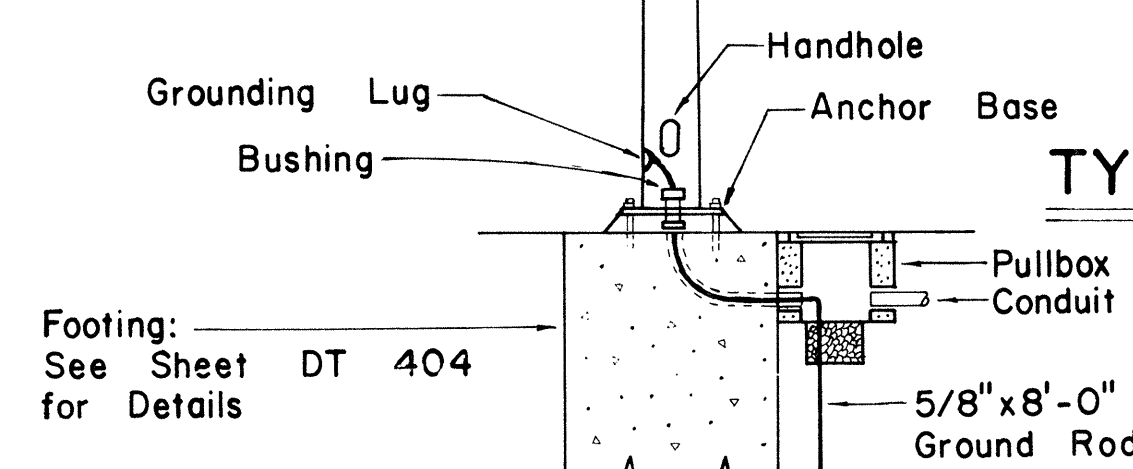
BRACKET MOUNTINGS

MASTARM MOUNTINGS

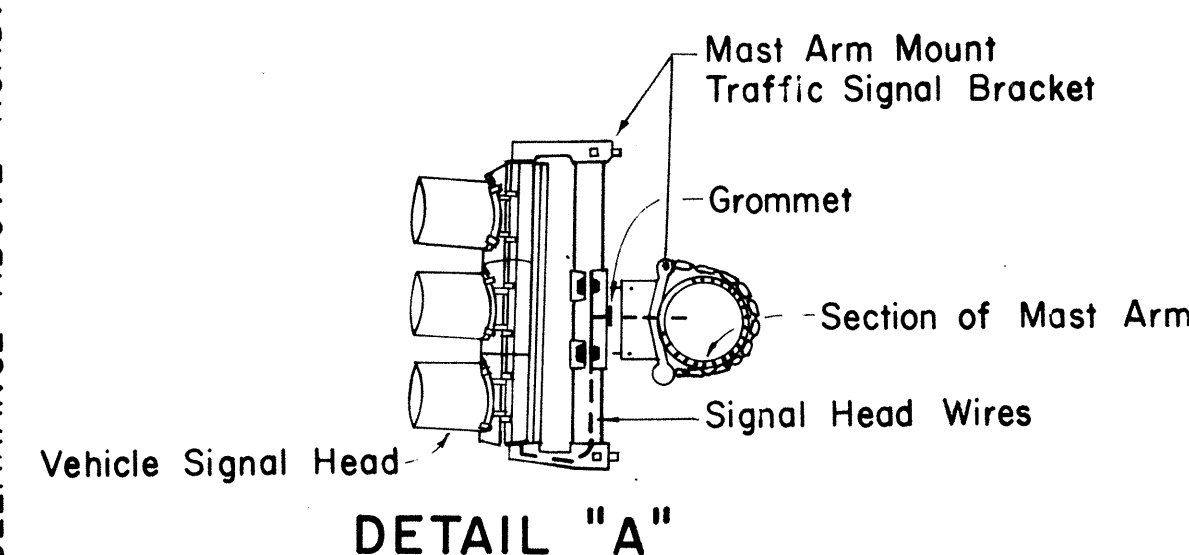
TYPICAL VEHICULAR AND PEDESTRIAN SIGNAL MOUNTINGS



TYPICAL SIGNAL ARRANGEMENTS



TYPE I SIGNAL STANDARD OR CONTROLLER PEDESTAL AND FOOTING



TYPE II MAST ARM AND STANDARD

NO	REVISION	APPROVED BY	DATE
1	Revise code nos. for Pedestrian Push Button signs.	H.T.	3/23
2	Revise Details of Traffic and Pedestrian Signals, Standards and Pedestrian Push Button and Signs.	H.T.	3/5
3	Revise signal indications.	H.T.	9/22
4	Remove Note No. 3 & Revise clearance and dimension.	H.T.	9/19
5	Revise Ped. Signal Indication	H.T.	8/6

APPROVAL RECOMMENDED:

Euchi Tana
TRAFFIC ENGINEER

12/29/63
DATE

Shulm 2 Sdali
ASSISTANT CHIEF ENGINEERING

12/30/6
DATE

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

TRAFFIC SIGNAL SYSTEM

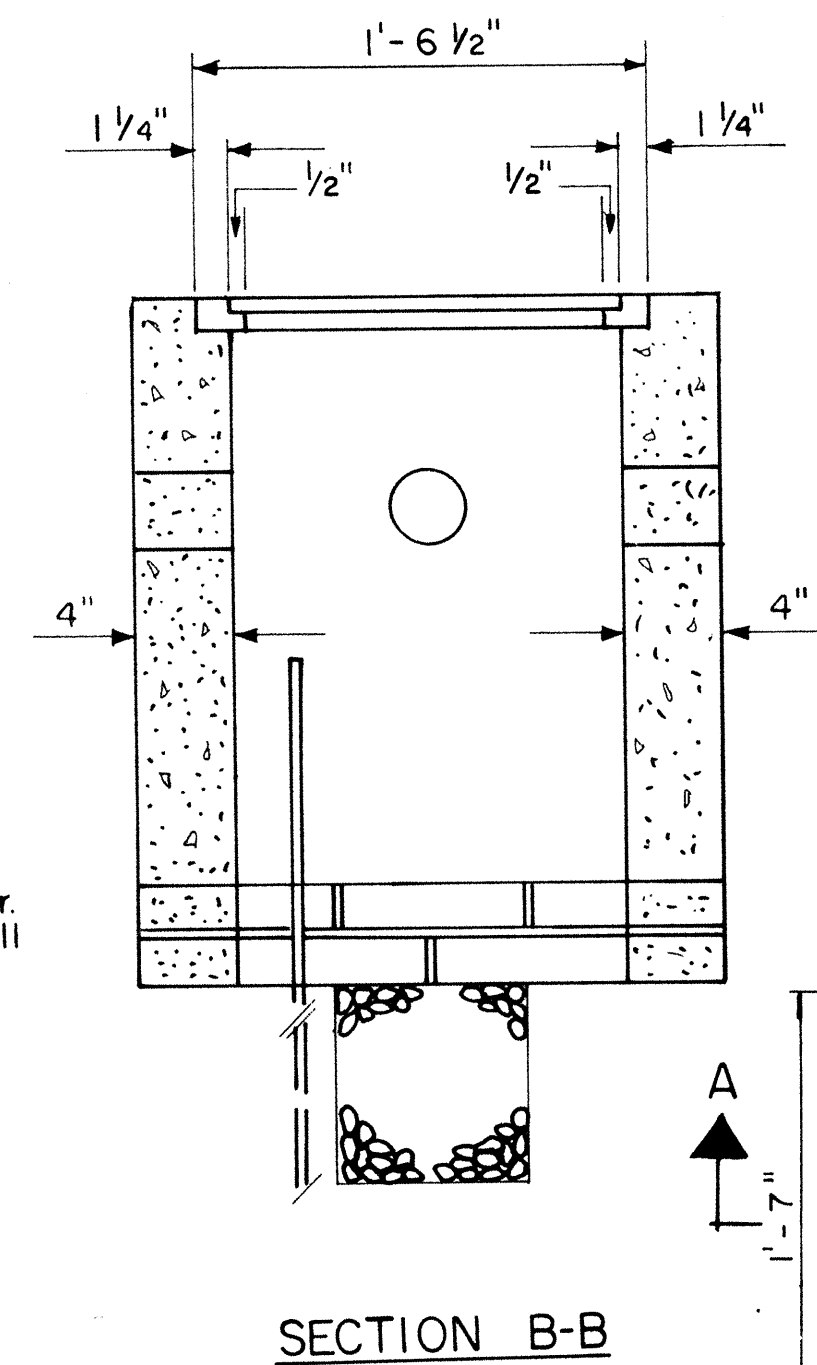
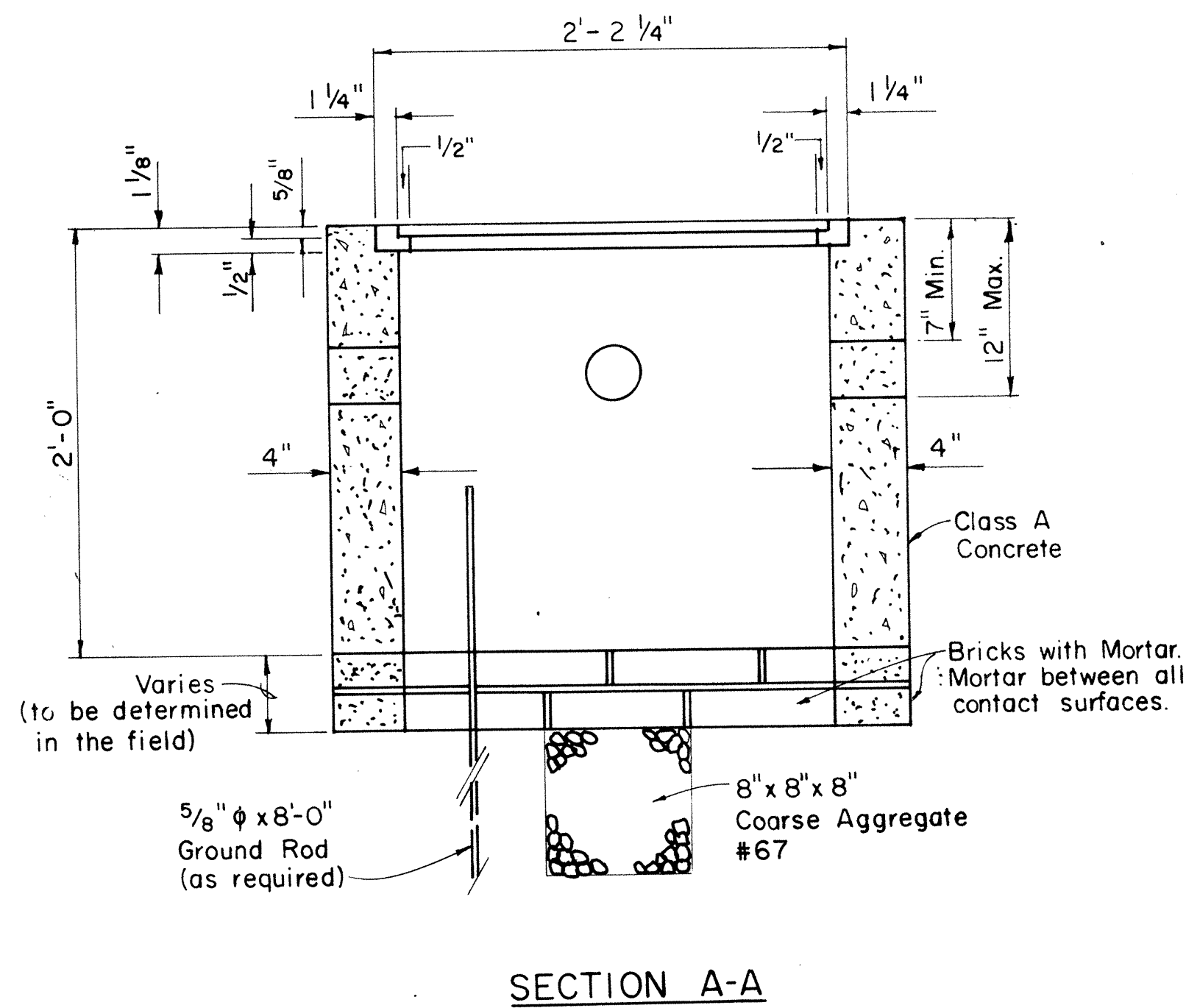
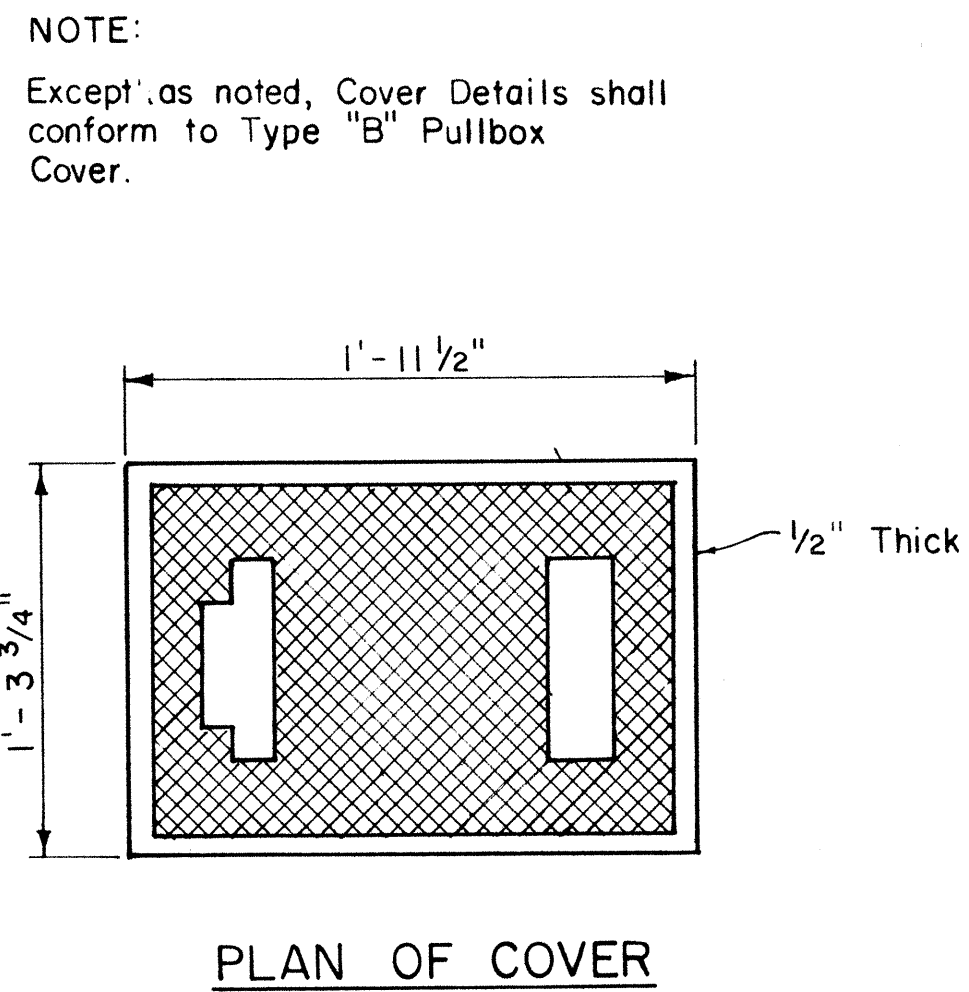
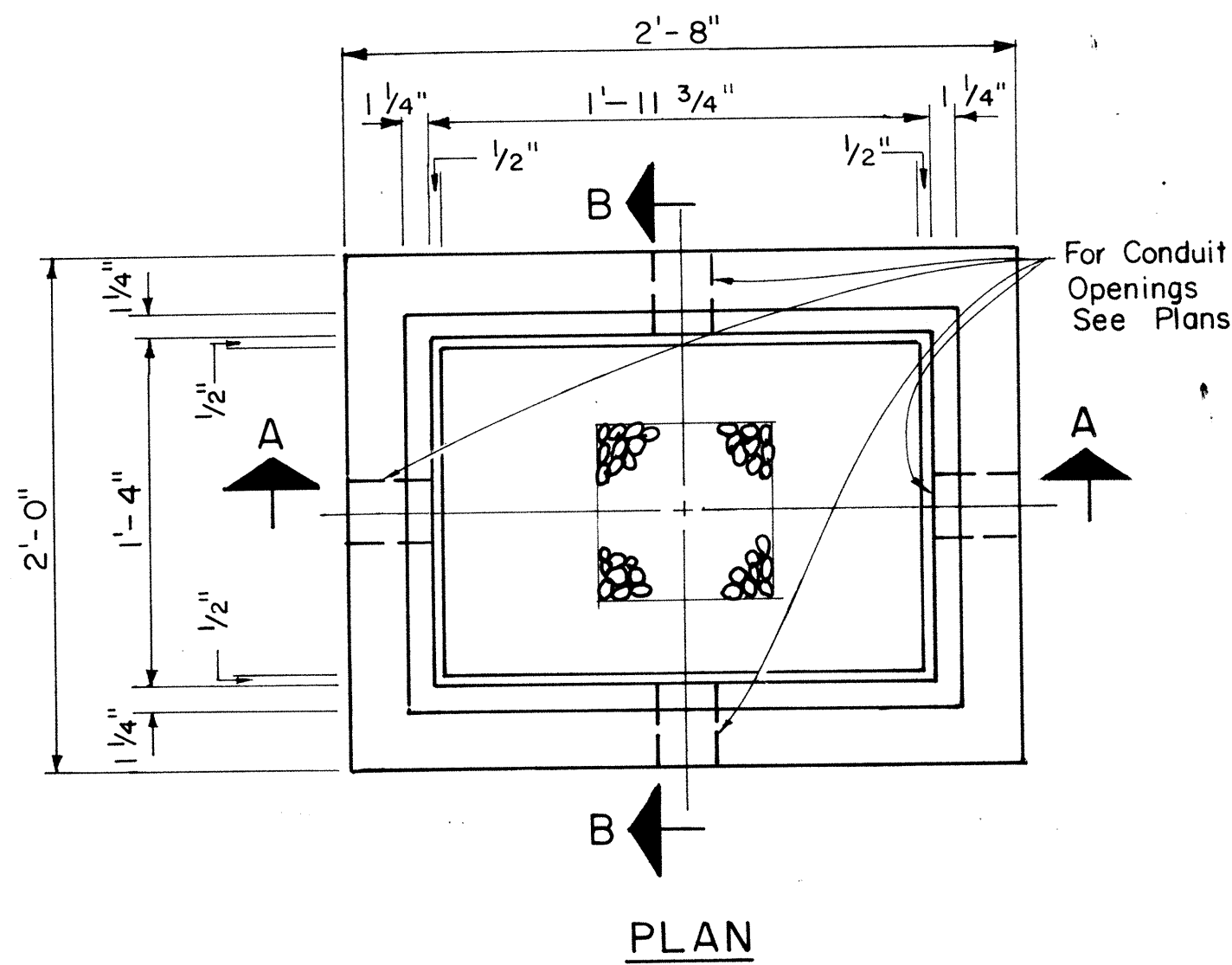
MISCELLANEOUS DETAILS

Not to Scale

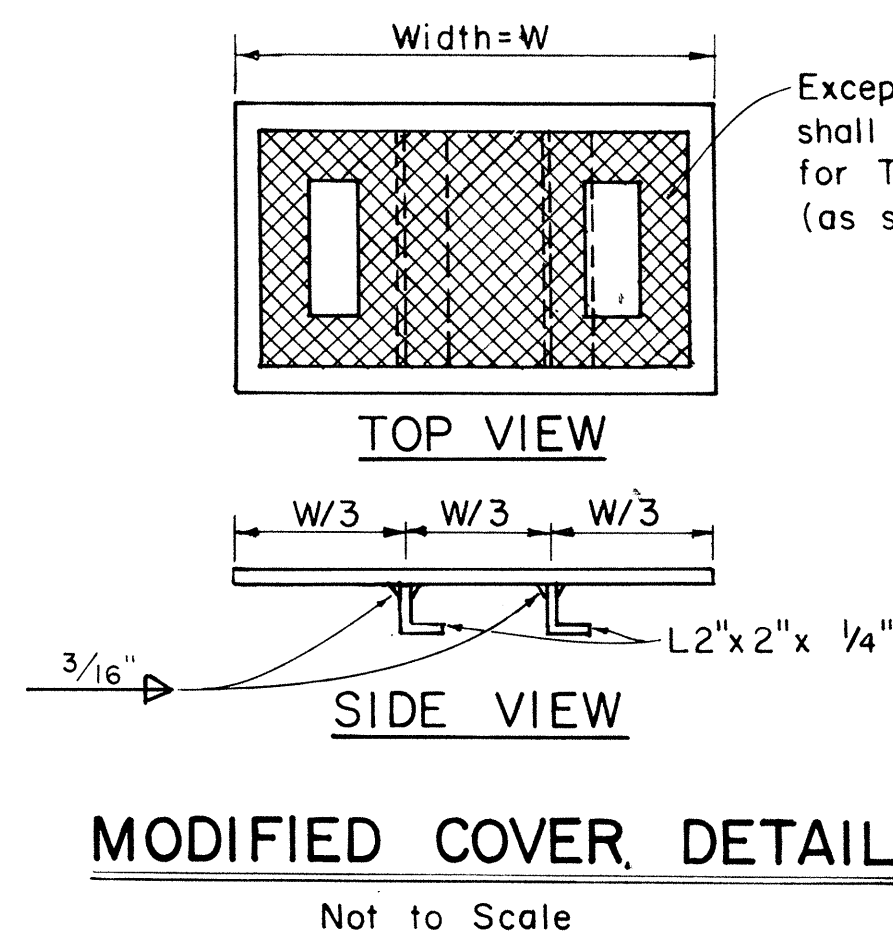
SHEET No. 3 OF 6 SHEETS DT 400

C.O. 168 S-3

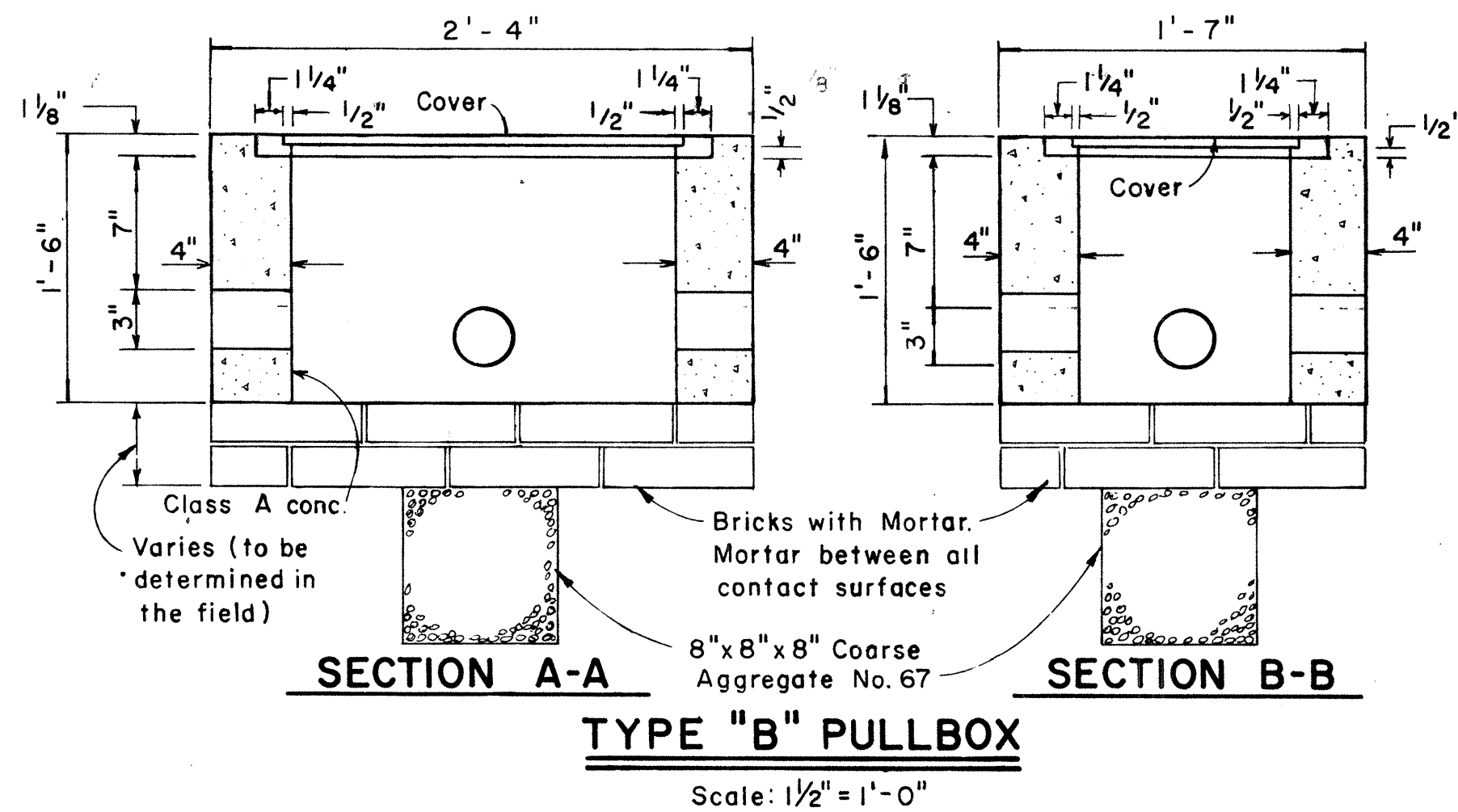
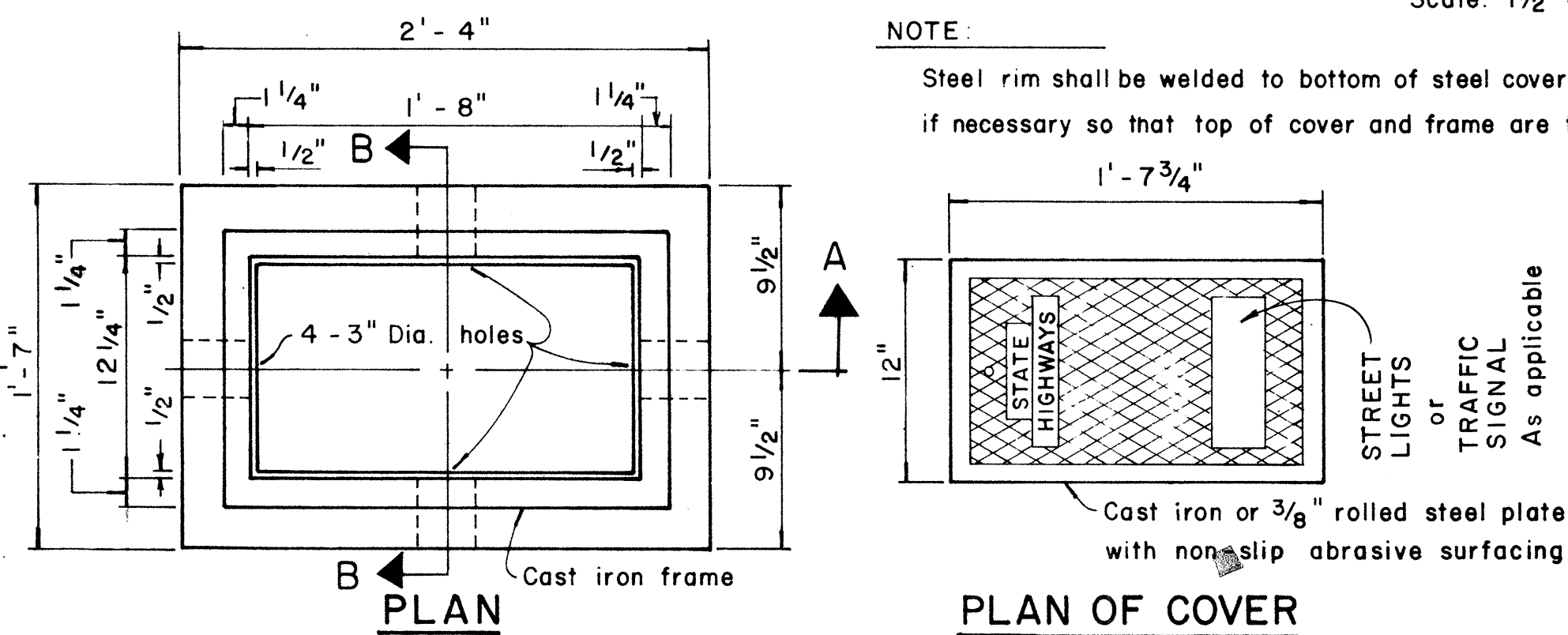
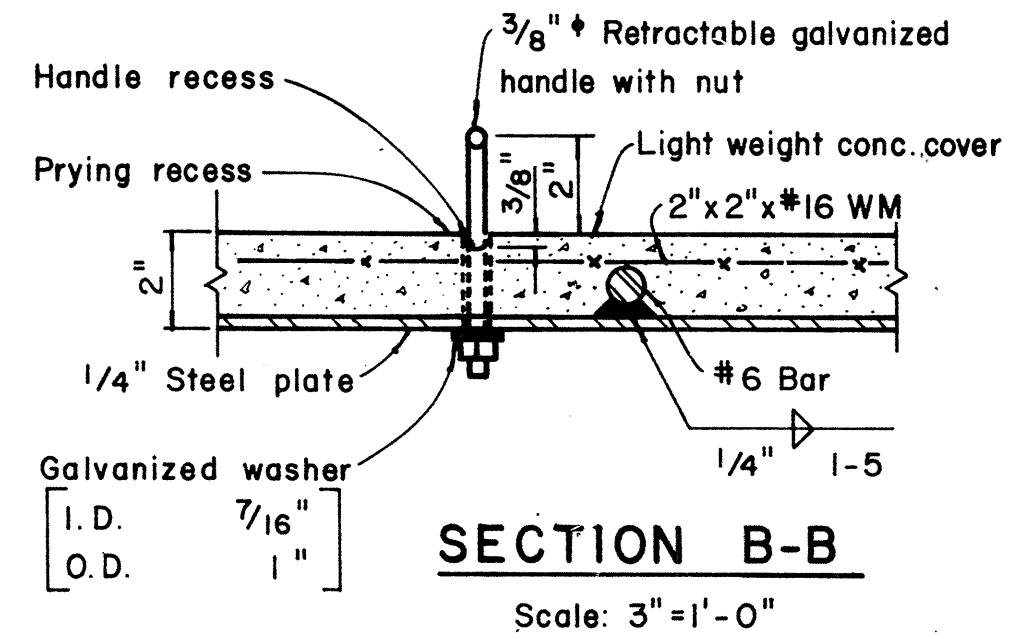
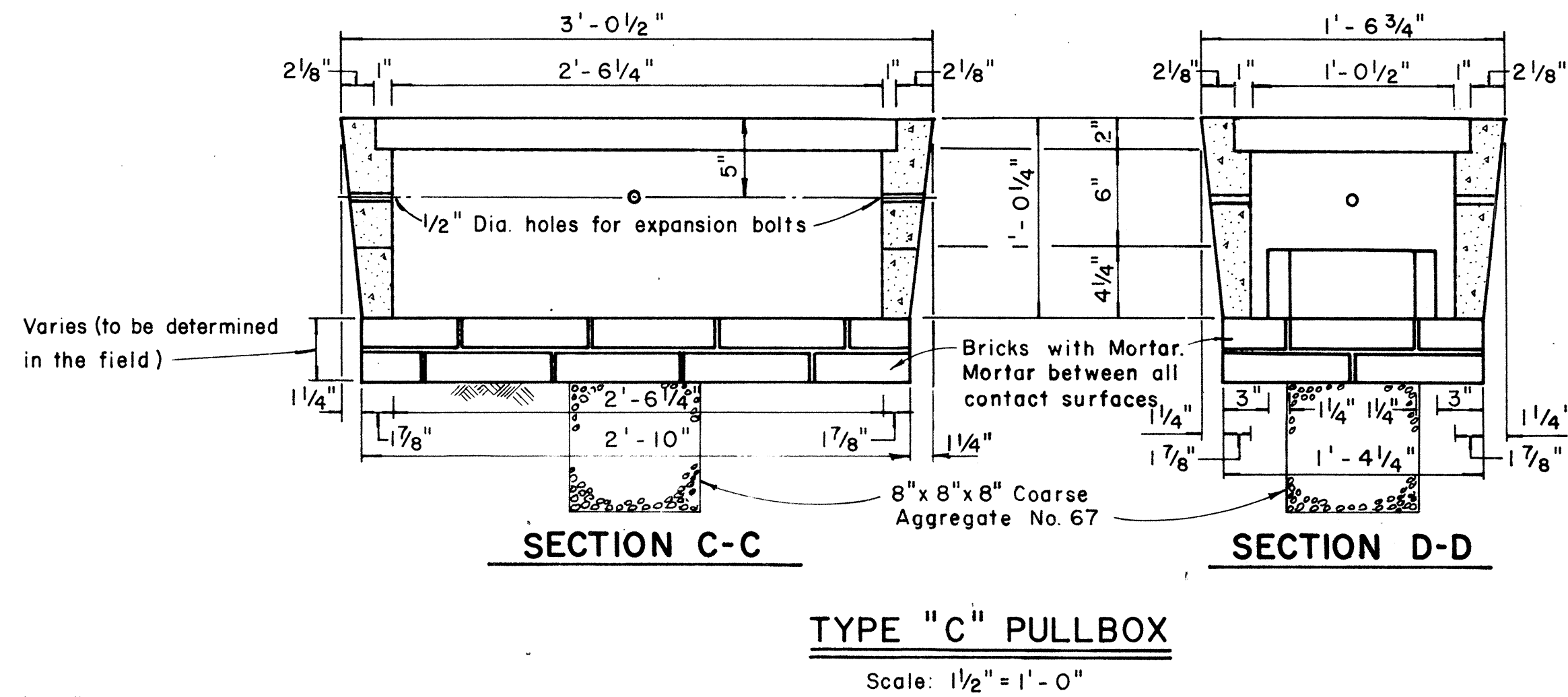
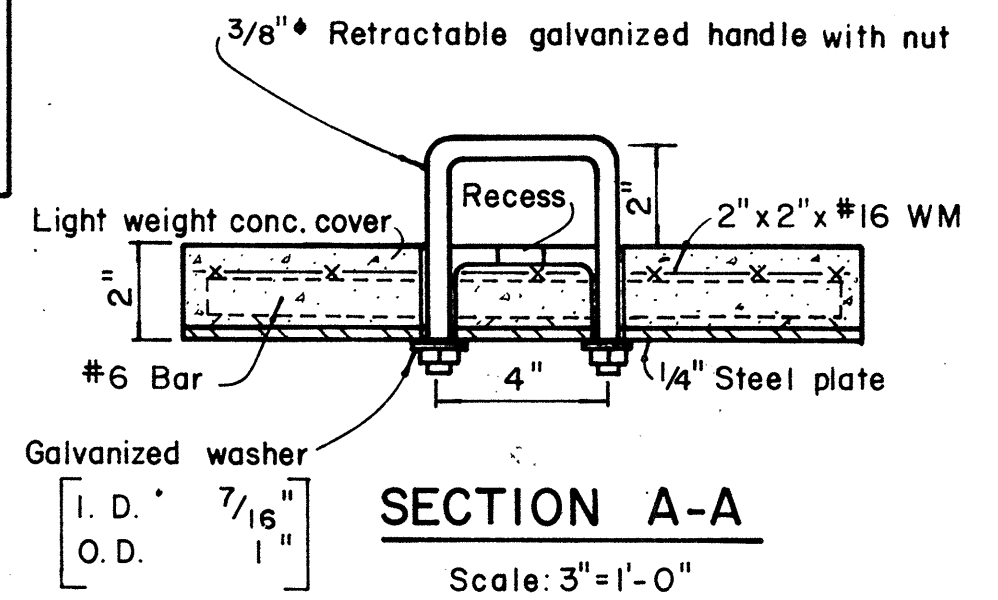
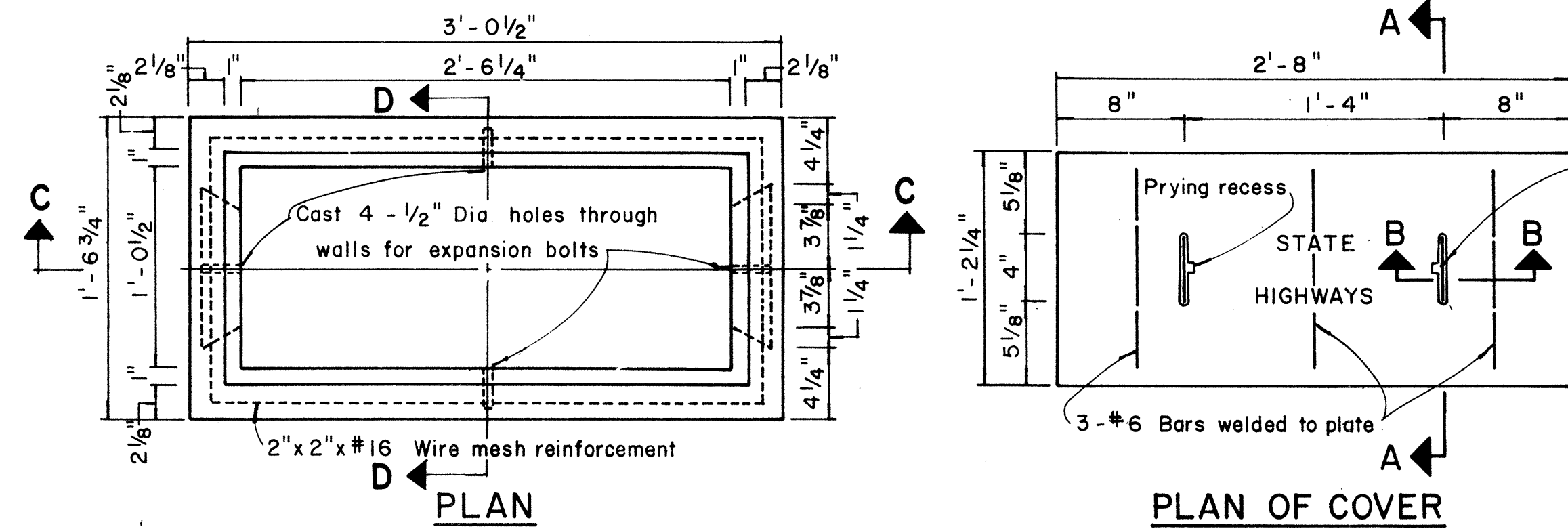
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	143-1(24)-11	1983	C.O. 168 5-4	328



TYPE "A" PULLBOX
Scale: 1/2" = 1'-0"



NOTE:
Hot dip galvanize after fabrication.
Modified cover shall be furnished when called for on plans.



APPROVAL RECOMMENDED:
TRAFFIC ENGINEER
12/29/69
DATE

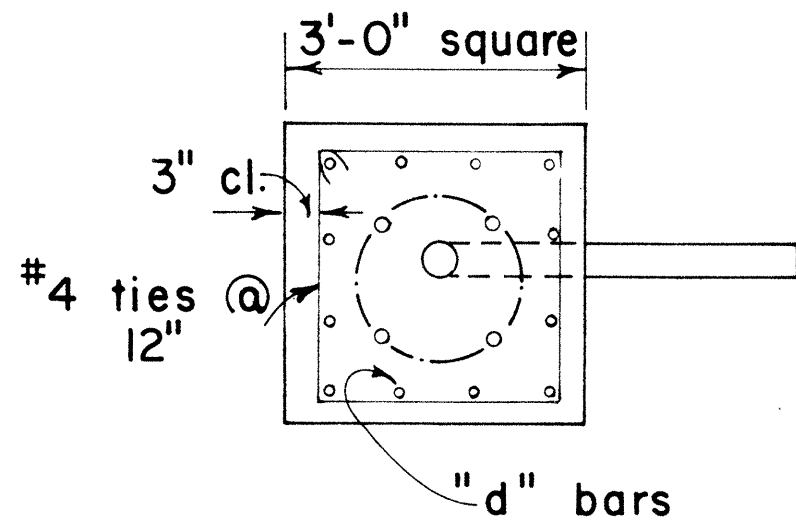
APPROVED:
ASSISTANT CHIEF, ENGINEERING
12-30-69
DATE

NO.	REVISION	APPROVED BY	DATE
1	Revised Type B & C Pullbox details	H.T.	3-5-76
2	Revised Type "A" Pullbox & Added Modified Cover.	H.T.	1-31-80
3	Revised Type B & C Pullbox details.	H.T.	2-1-83

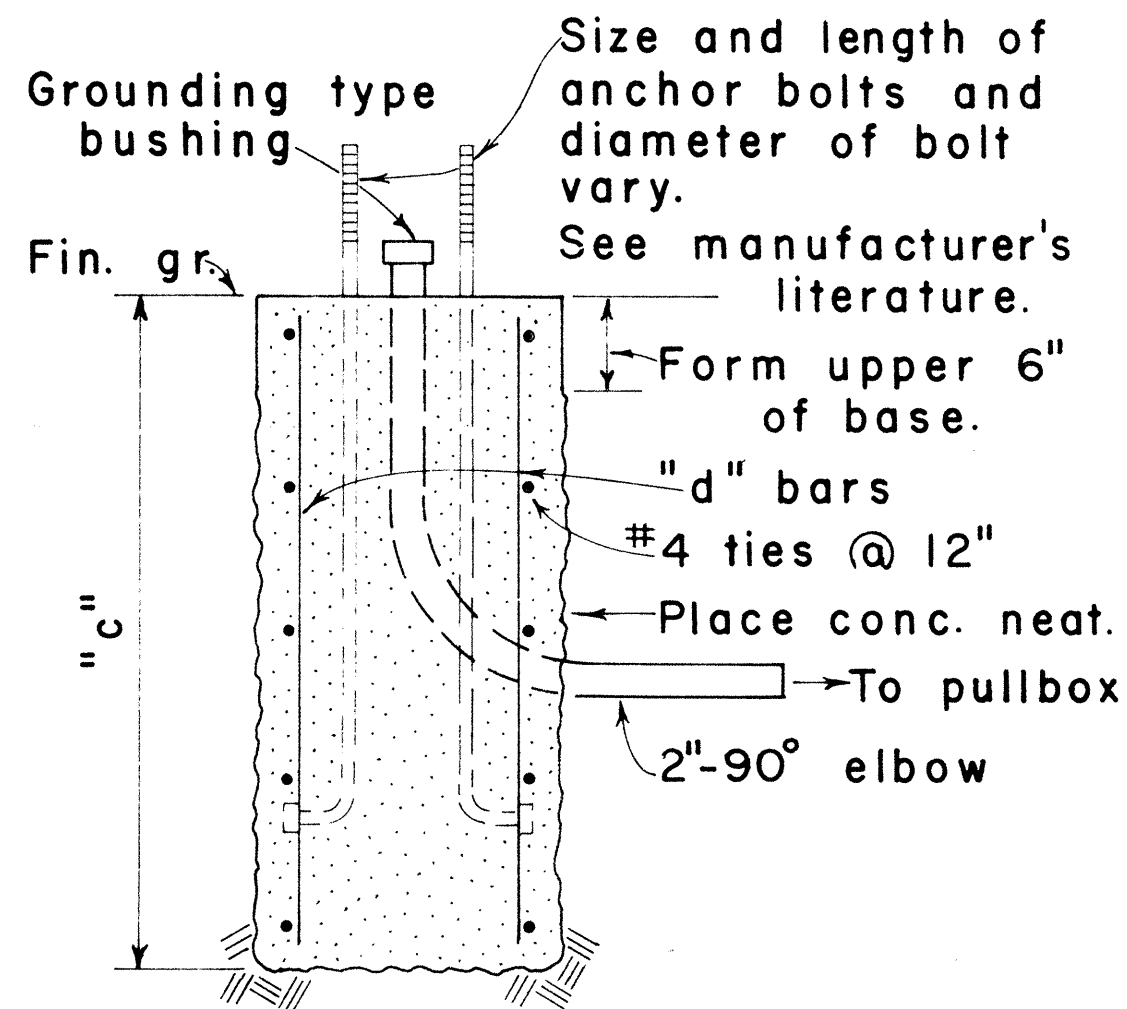
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PULLBOXES
Scale as noted Date
SHEET No. 4 OF 6 SHEETS DT 401

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-143-1(24)11	1983	C.O. 168 S-5	328



PLAN - SECTION

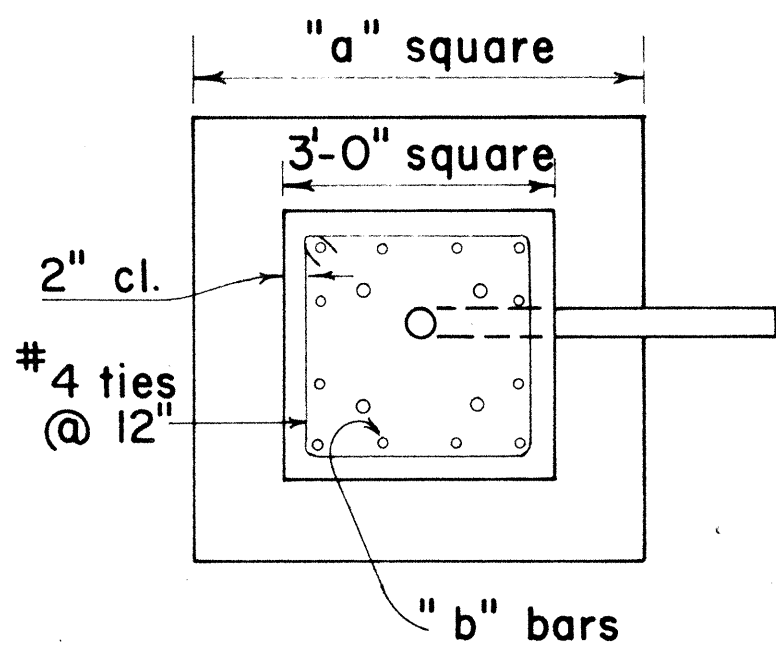


NOTE:
Concrete shall be Class B.

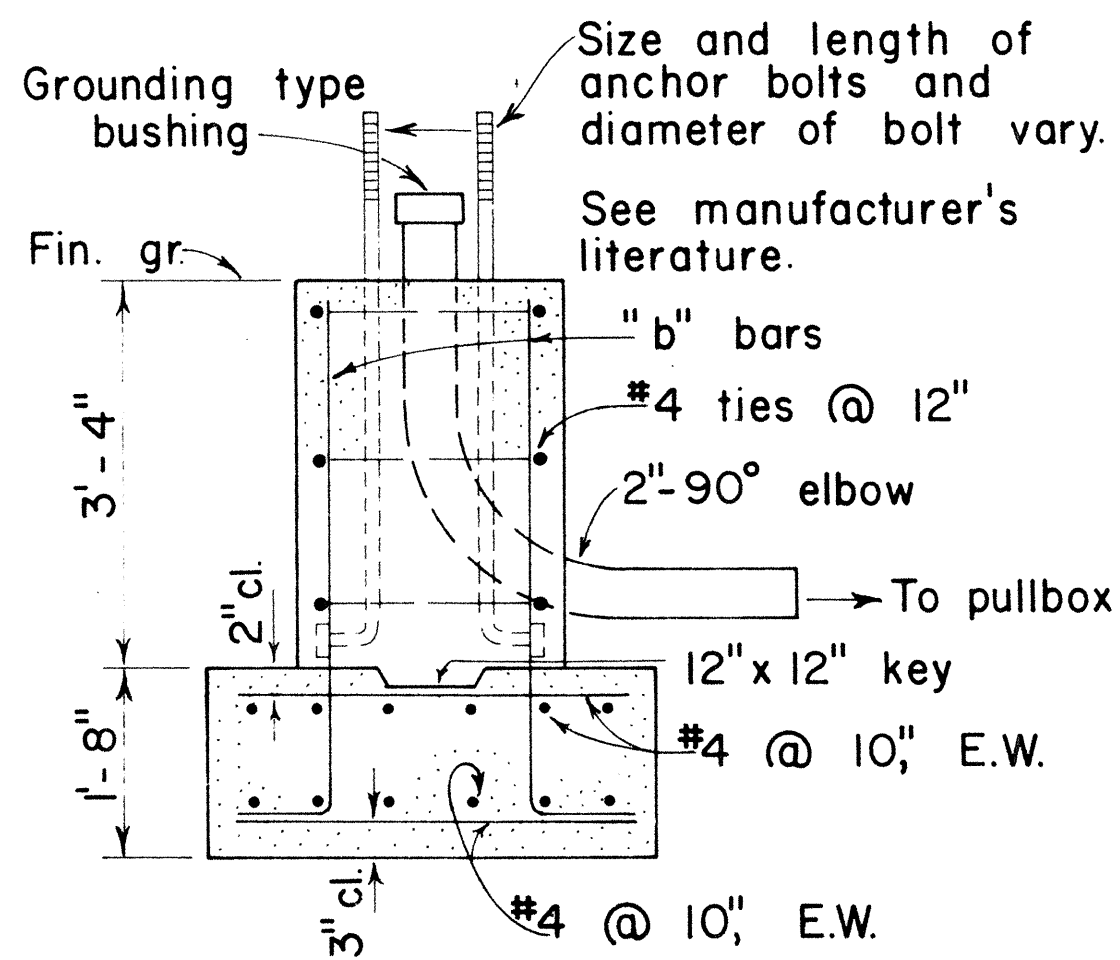
SECTION

MAST ARM LENGTH	"c"	"d" BARS
16' - 18'	5' - 0"	12 - #6
20'	5' - 6"	12 - #6
25'	6' - 0"	12 - #6
30'	6' - 6"	12 - #6
35'	7' - 0"	12 - #8
40'	8' - 0"	12 - #8

TYPE II



PLAN - SECTION



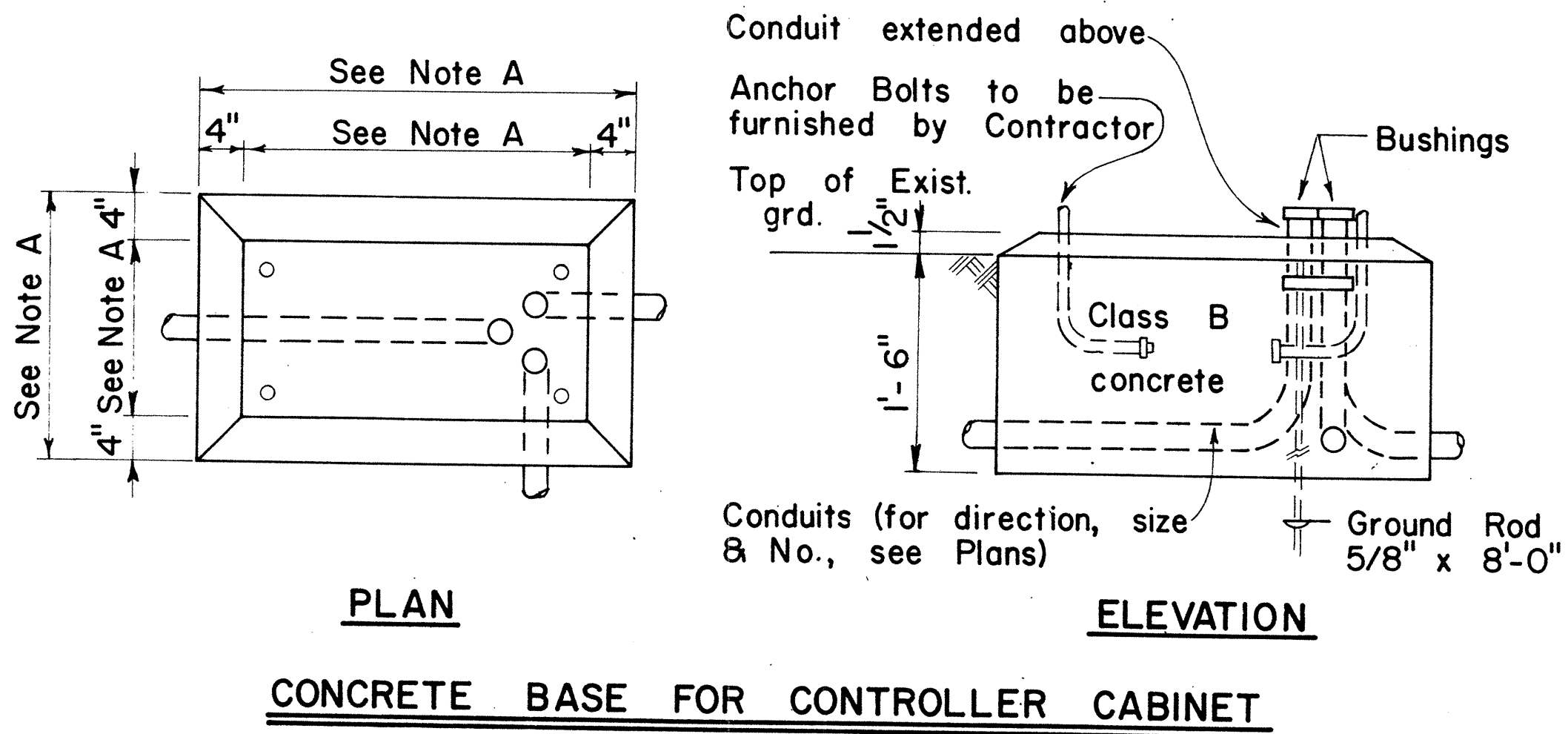
NOTE:
Concrete shall be Class B.

SECTION

MAST ARM LENGTH	"a"	"b" BARS
16' - 18'	5' - 0"	12 - #6
20'	5' - 6"	12 - #6
25'	6' - 0"	12 - #6
30'	6' - 6"	12 - #8
35'	6' - 6"	12 - #8
40'	7' - 0"	12 - #8

TYPE II A

FOOTING FOR MAST ARM STANDARD



- NOTES:
- Dimensions to be determined by the size of the Controller Cabinet to be furnished under this Contract.
 - Details of Conduits, Anchor Bolts, etc., are approximate only. Exact details shall be secured by the Contractor from Manufacturer.

APPROVAL RECOMMENDED:
Erich Tanaka 3/4/76
TRAFFIC ENGINEER DATE

APPROVED:
Hubert Z. Zafra 2-5-76
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

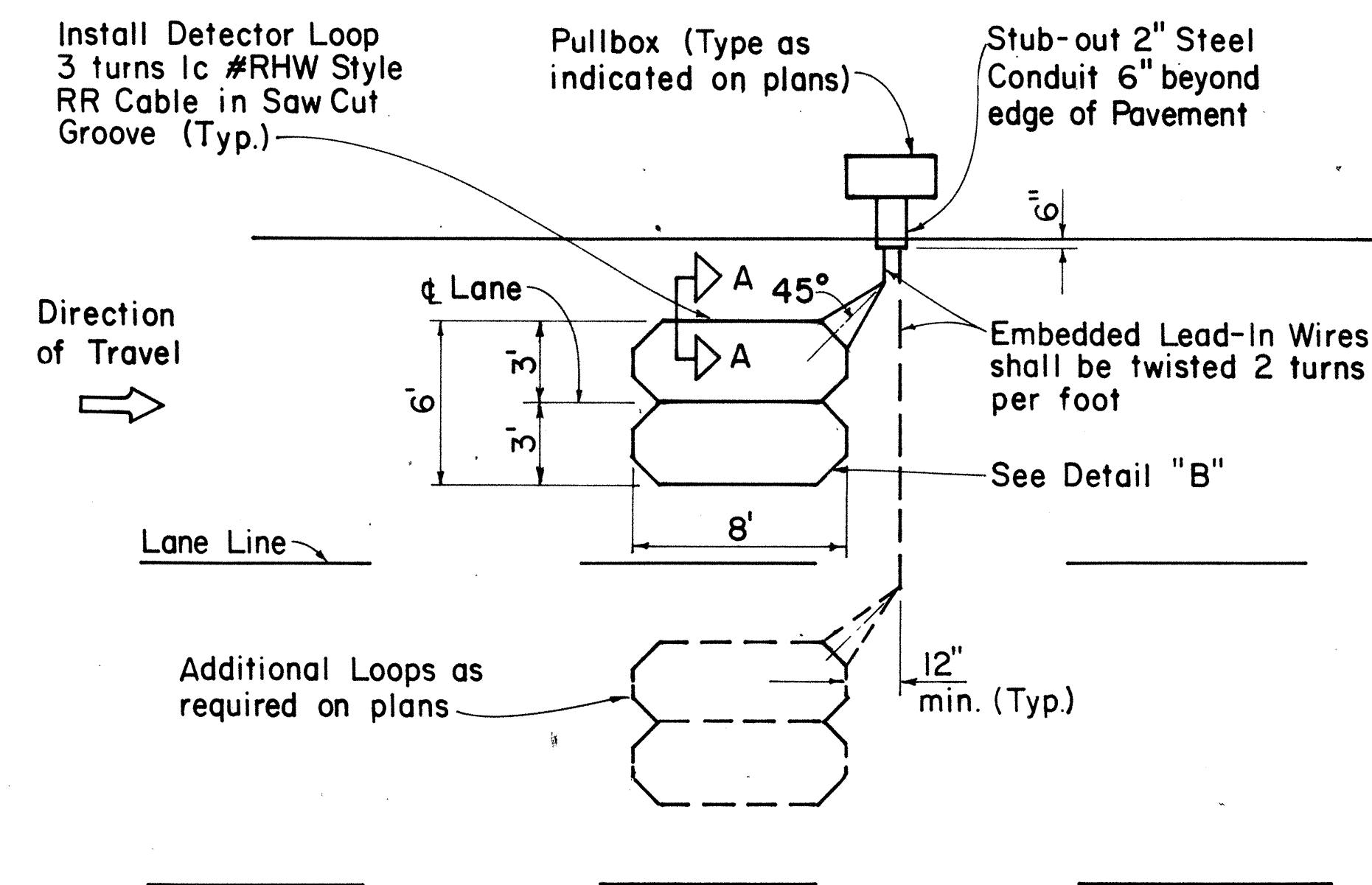
TRAFFIC SIGNAL SYSTEM
MISCELLANEOUS DETAILS

Not to Scale

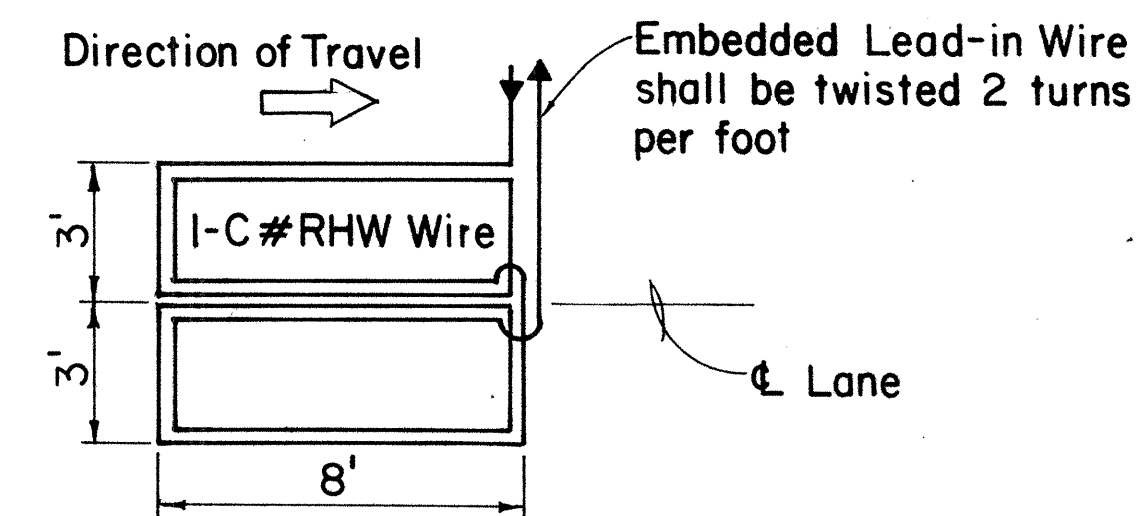
SHEET NO. 5 OF 6 SHEETS DT404

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BOOK	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	

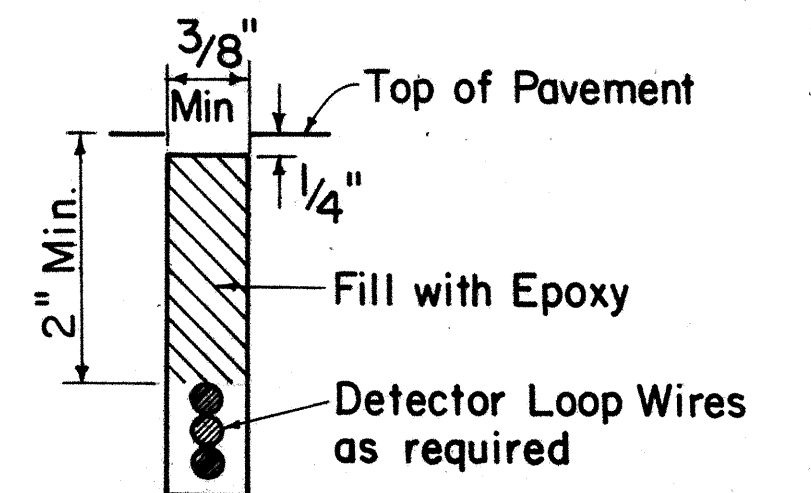
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-43-1(24)11	1983	C.O. 168 5-6	328



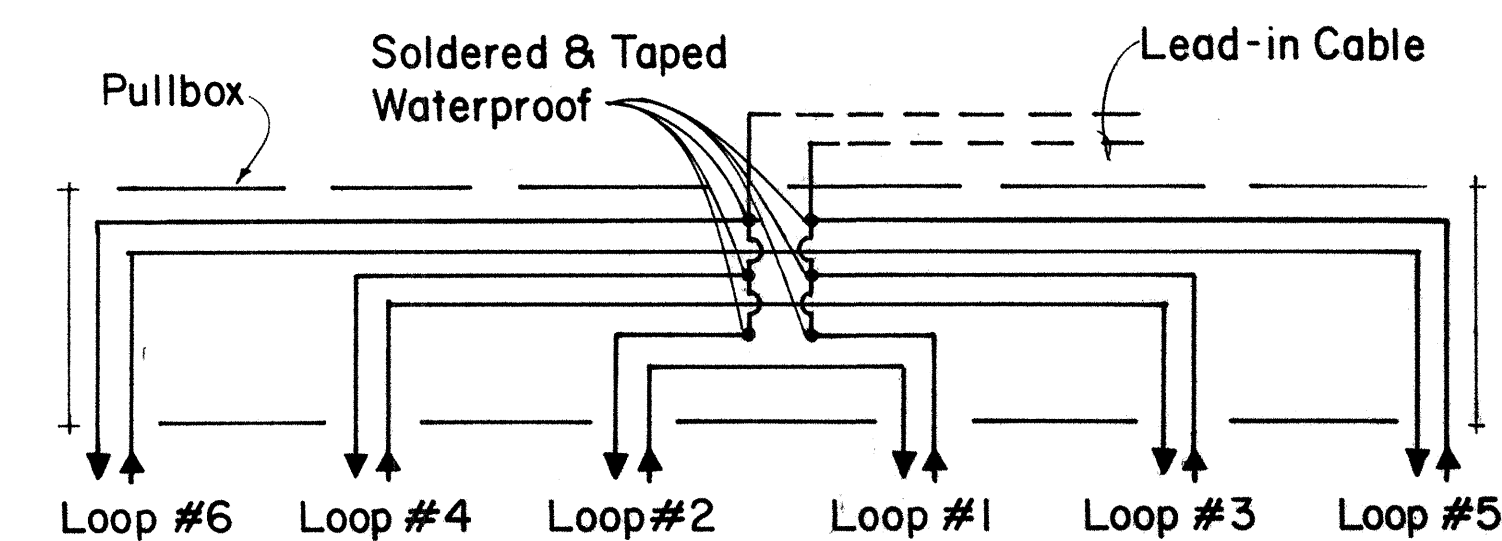
SINGLE LOOP LAYOUT



WIRING DIAGRAM



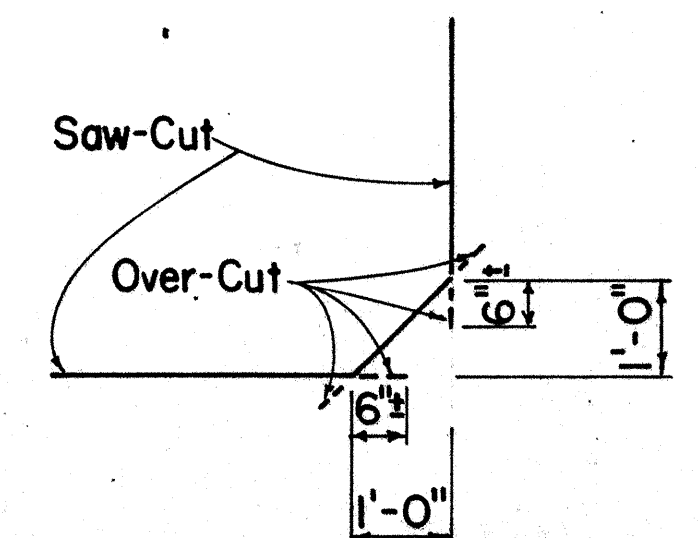
DETECTOR LOOP SAW-CUT
SECTION A-A (TYPICAL)



DETAIL "A"

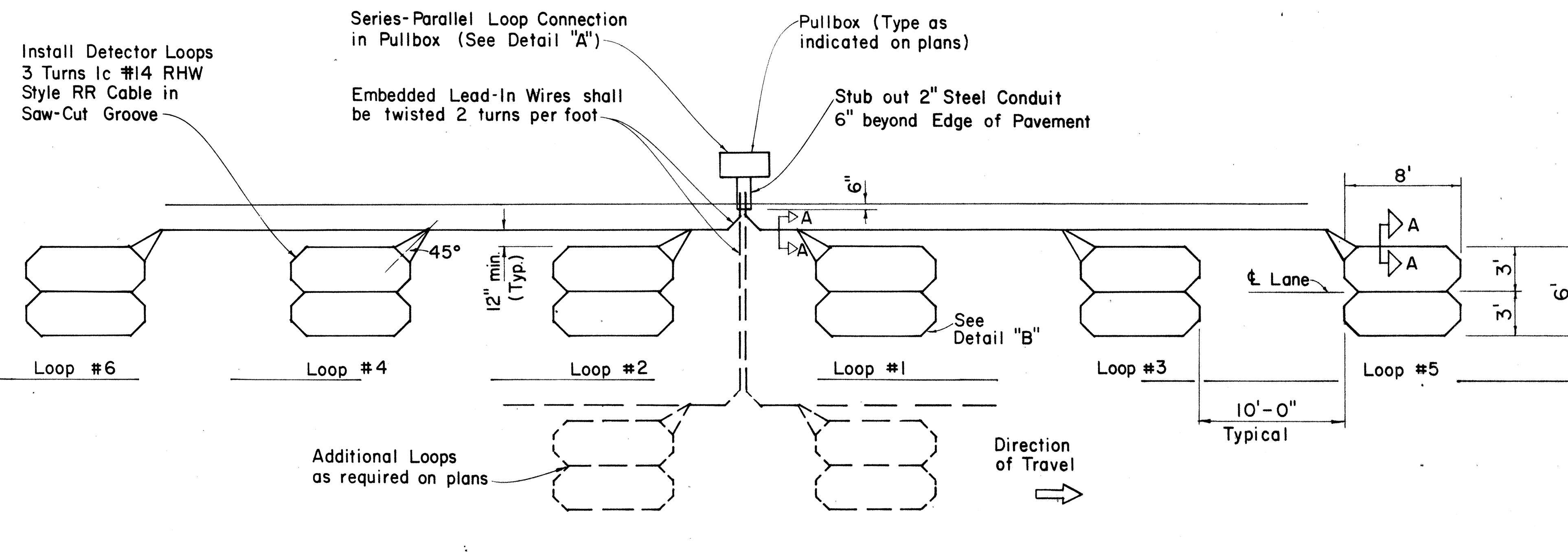
TYPICAL SERIES-PARALLEL LOOP CONNECTION

Note: Back-Fill Over-Cuts with Epoxy

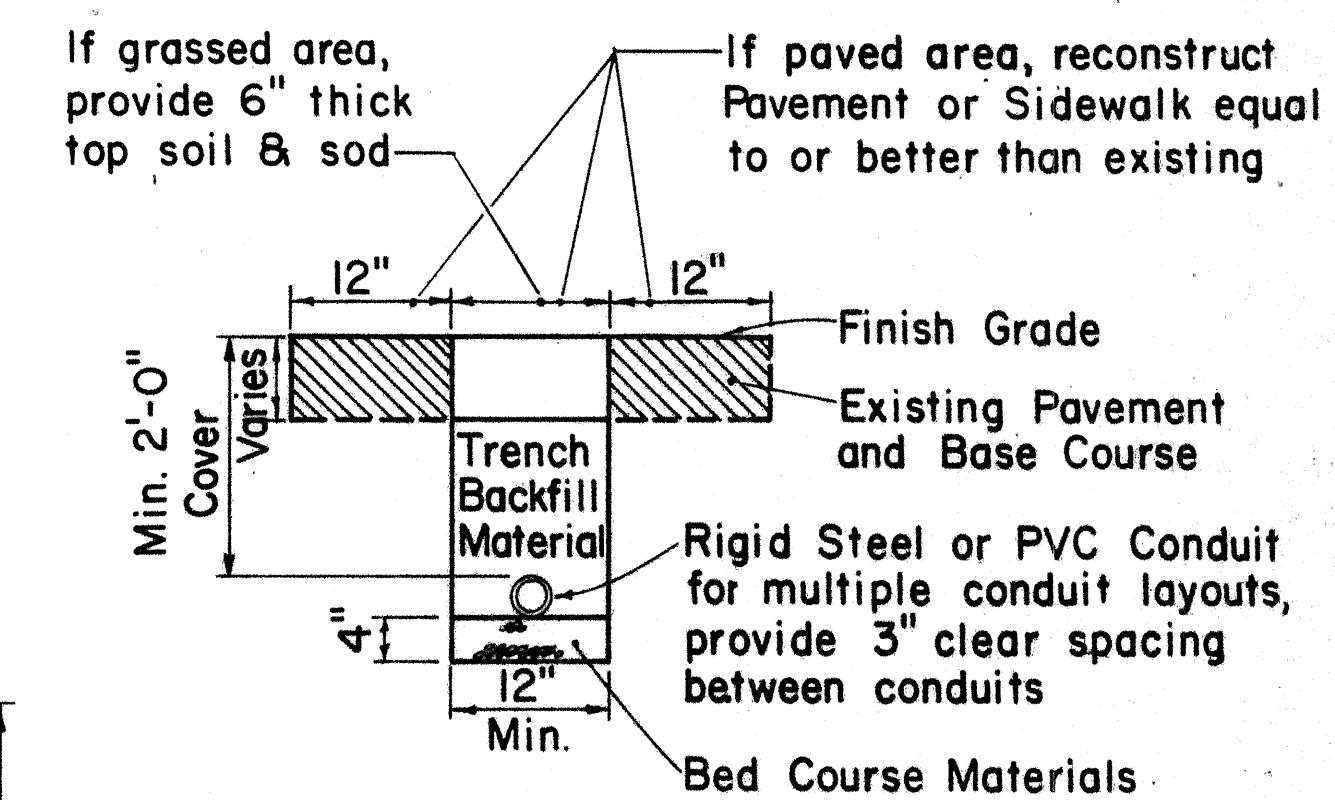


DETAIL "B"

SAW-CUT AT CORNERS



MULTIPLE LOOP LAYOUT



TYPICAL TRENCH SECTION FOR CONDUIT

NOTE:

1. All conduits under roadways shall be steel or PVC schedule 80. All other conduits shall be steel or PVC schedule 40.

APPROVAL RECOMMENDED:

Eiichi Tanaka 9/26/80
TRAFFIC ENGINEER DATE

APPROVED:

Herbert Zaleski 9/30/80
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Replaces Sht. DT 405 dated 3/5/76	H.T.	9/30/8
2	Revised Section A-A	H.T.	5/15/8

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS

LOOP DETECTORS

Not to Scale

SHEET No. 6 OF 6 SHEETS DT 405

C.O. 168 S-6

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