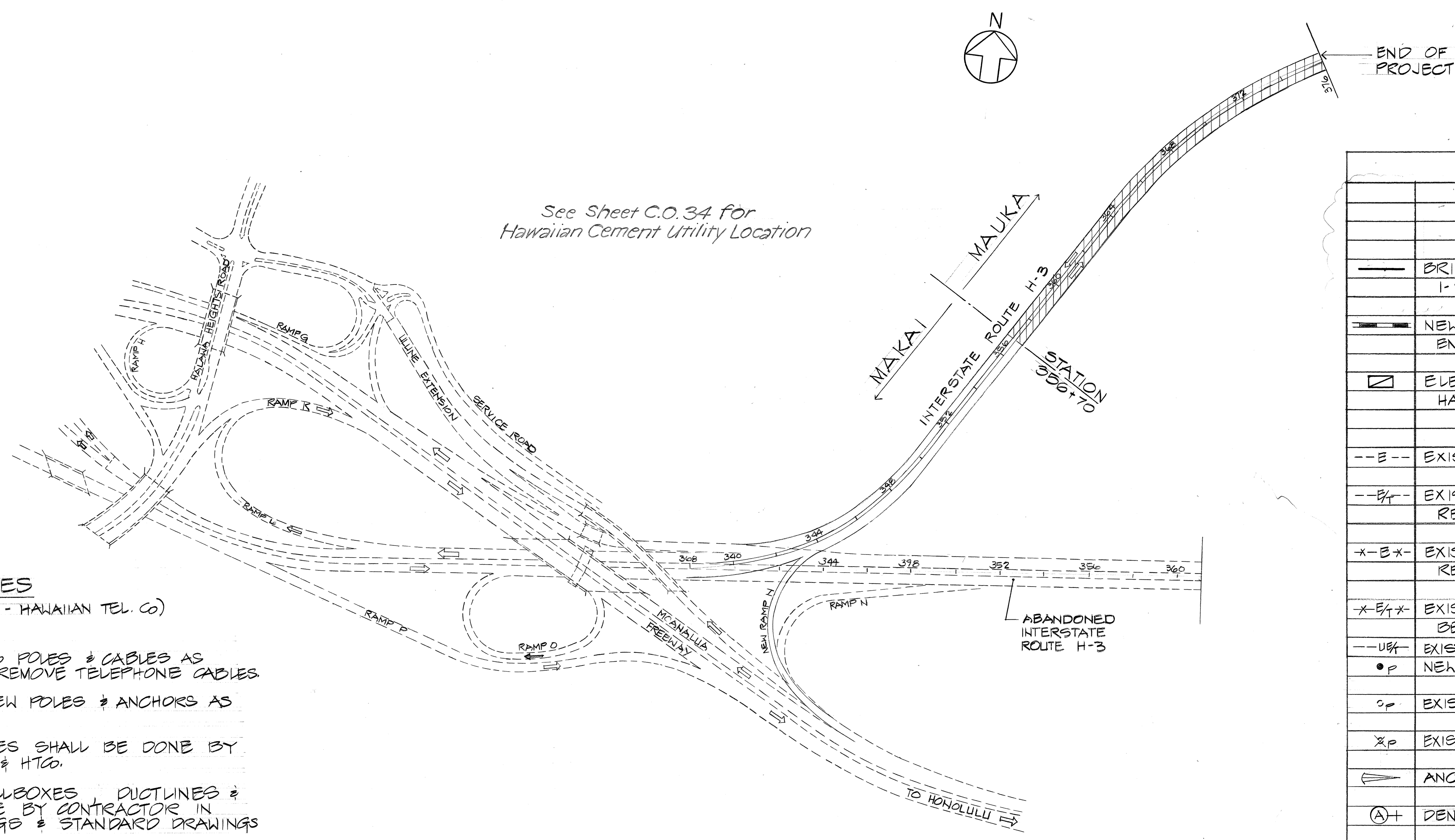


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1 (51)	1989	31	106



See Sheet C.O.34 for
Hawaiian Cement Utility Location

UTILITY NOTES

(HECO - HAWAIIAN ELEC CO; HTO - HAWAIIAN TEL CO)

- HECO SHALL REMOVE EXISTING HECO POLES & CABLES AS INDICATED ON PLANS. HTO SHALL REMOVE TELEPHONE CABLES.
- HECO SHALL FURNISH & INSTALL NEW POLES & ANCHORS AS NOTED ON PLANS.
- STAKE OUT OF PULLBOXES & DUCTLINES SHALL BE DONE BY CONTRACTOR, VERIFIED BY HECO & HTO.
- FURNISHING & INSTALLING OF PULLBOXES, DUCTLINES & CONDUIT BENDS SHALL BE DONE BY CONTRACTOR IN CONFORMANCE w/ THESE DRAWINGS & STANDARD DRAWINGS OF HECO & HTO.
- LOCATION & DEPTH OF PULLBOXES & DUCTLINES SHALL BE VERIFIED & APPROVED IN THE FIELD BY HECO & HTO PRIOR TO INSTALLATION.
- BREAKING INTO EXISTING HTO DUCTLINE SHALL BE DONE BY HTO. HOWEVER, THE CONTRACTOR IS TO EXPOSE DUCTLINE SUFFICIENTLY TO ENABLE HTO TO MAKE THE BREAK.
- THE CONTRACTOR SHALL LOCATE EXISTING BURIED UTILITY LINES IN THE VICINITY OF THE EXCAVATION AREAS PRIOR TO COMMENCING EXCAVATION. AS A MINIMUM AN ELECTRONIC MAGNETIC DEVICE FOR DETECTION OF BURIED LINES SHALL BE UTILIZED PRIOR TO EXCAVATION. TRENCHES SHALL BE EXCAVATED w/ CARE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES RESULTING FROM HIS NEGLIGENCE & SHALL BEAR COST OF REPAIRS TO THE UTILITIES. METHOD OF REPAIR SHALL BE DETERMINED BY THE STATE. CONTACT HECO & HTO PRIOR TO EXCAVATION.

LOCATION PLAN

SCALE: 1" = 300'

GRAPHIC SCALE



NOTES

- ALL WORK IN ACCORDANCE WITH SEC. 602 OF STANDARD SPECS.
- EACH CONDUIT SHALL BE CHECKED & CLEARED OF ANY OBSTRUCTIONS.
- EACH CONDUIT RUN PROVIDED FOR FUTURE USE SHALL BE PROVIDED w/ 1/8" INCH POLYOLEFIN PULL WIRE EXTENDING UNINTERRUPTED THROUGH HANDHOLES (JUNCTION BOX, PULLBOX) FOR THE ENTIRE LENGTH OF RUN.

●	FUTURE HIGHWAY LIGHTING STANDARD w/ 250W HIGH PRESSURE SODIUM LAMP LUMINAIRE MTD ON RAIL, SEE STRUCTURAL DWG.
◀	EMERGENCY TELEPHONE OUTLET (FUTURE)
□	COMMUNICATION JUNCTION BOX, 24" L x 8" W x 6" D SEE 1/E4 FOR MTG DETAIL

6/13/90	ADDED ADDITIONAL ELECTRICAL SYMBOLS & NOTES
DATE	REVISION

ELECTRICAL SYMBOLS

—	BRIDGE PARAPET RACEWAYS, 1-1/2" C LT & 1-3" C COMMUNICATION, PVC SCHED 80
—	NEW ELECTRIC AND/OR TELEPHONE CONCRETE ENCASED DUCTS
□	ELECTRIC HANDHOLE 3'x5' & TELEPHONE HANDHOLE 2'x4' GROUP
--E--	EXISTING OVERHEAD HECO LINES TO REMAIN
--E+--	EXISTING OVERHEAD HECO & HTO LINES TO REMAIN
-E-X-	EXISTING OVERHEAD HECO LINES TO BE REMOVED BY HECO.
-E+X-	EXISTING OVERHEAD HECO & HTO LINES TO BE REMOVED BY HECO & HTO
--U+--	EXISTING UNDERGROUND HECO & HTO LINES
●P	NEW HECO POLE BY HECO
○P	EXISTING HECO POLE TO REMAIN
⊗P	EXISTING HECO POLE TO BE REMOVED BY HECO
≡	ANCHOR & GUY BY HECO
(A)+	DENOTES DUCT SECTION (A)
-E-X-	ELEC CONTRACTOR TO REMOVE OVERHEAD ELEC LINES
⊗RP	ELEC CONTRACTOR TO REMOVE EXST WOOD POLE

APPROVED

W. J. Masuda 12/9/87
HAWAIIAN ELECTRIC CO. DATE
W. J. Masuda 8/30/88
HAWAIIAN TELEPHONE CO. DATE

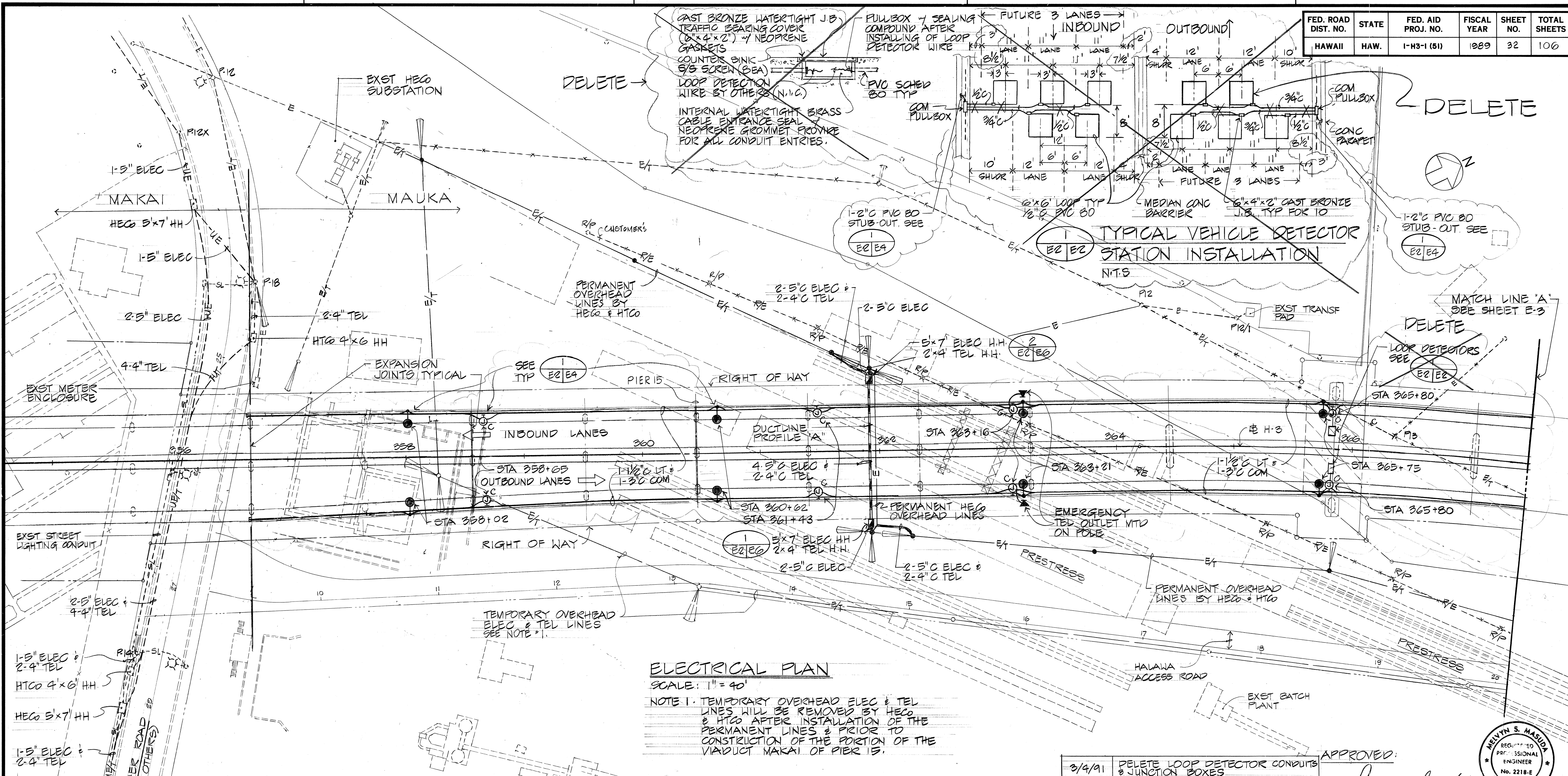


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
W. J. Masuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**LOCATION PLAN &
ELECTRICAL SYMBOLS**
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. 1-H3-1 (51)
SCALE: AS NOTED DATE:
SHEET NO. 31 OF 8 SHEETS

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1 (51)	1989	32	106



ELECTRICAL PLAN

SCALE: 1" = 40'

NOTE 1: TEMPORARY OVERHEAD ELEC & TEL LINES WILL BE REMOVED BY HECO & HTCO AFTER INSTALLATION OF THE PERMANENT LINES & PRIOR TO CONSTRUCTION OF THE PORTION OF THE VIADUCT MAKAI OF PIER 15.

ELECTRICAL							
ITEM NO.	ITEM	UNIT	QUANTITIES	ITEM NO.	ITEM	UNIT	QUANTITIES
622.503	HIGHWAY LIGHTING RACEWAY SYSTEM	LS		622.503	COMMUNICATION RACEWAY SYSTEM	LS	
	ONE 1 1/2 INCH CONDUIT ON STRUCTURE		(3620 LB)		24" x 8" x 8" PULLBOX ON STRUCTURE		(12)
	12" x 10" x 4" PULLBOX ON STRUCTURE		(14)		ONE 3 INCH CONDUIT ON STRUCTURE		(3620 LB)
	ONE 1 1/2 INCH EXPANSION/DEFLECTION FITTINGS ON STRUCTURE		(28)		ONE 3 INCH EXPANSION/DEFLECTION FITTINGS ON STRUCTURE		(28)
692.1100	REMOVAL OF EXISTING PRIVATELY OWNED POLES & CONDUCTORS	LS			LOOP DETECTION JUNCTION BOX		(10)
	WOOD POLES		(9 EA)		ONE 1/2 INCH CONDUIT ON STRUCTURE		(290 LB)
	WIRES		(9000 LB)		ONE 3/4 INCH CONDUIT ON STRUCTURE		(60 LB)

DATE	REVISION
3/4/91	DELETE LOOP DETECTOR CONDUITS & JUNCTION BOXES
11/2/90	REV LOOP DETECTOR LOCATION & J.B. REQ MTS.
10/12/90	REV LOOP DETECTOR LAYOUT & QUANTITIES
9/13/90	ADDED 1-2" STUB OUT, CHANGE ORDER QUANTITIES
6/13/90	ADDED HWY LITG STR & CONDUITS; COMMUNICATION J.B. & CONDUITS; LOOP DETECTORS
11/15/88	ADDED HALAWA ACCESS ROAD & QUANTITY SUMMARY

GRAPHIC SCALE



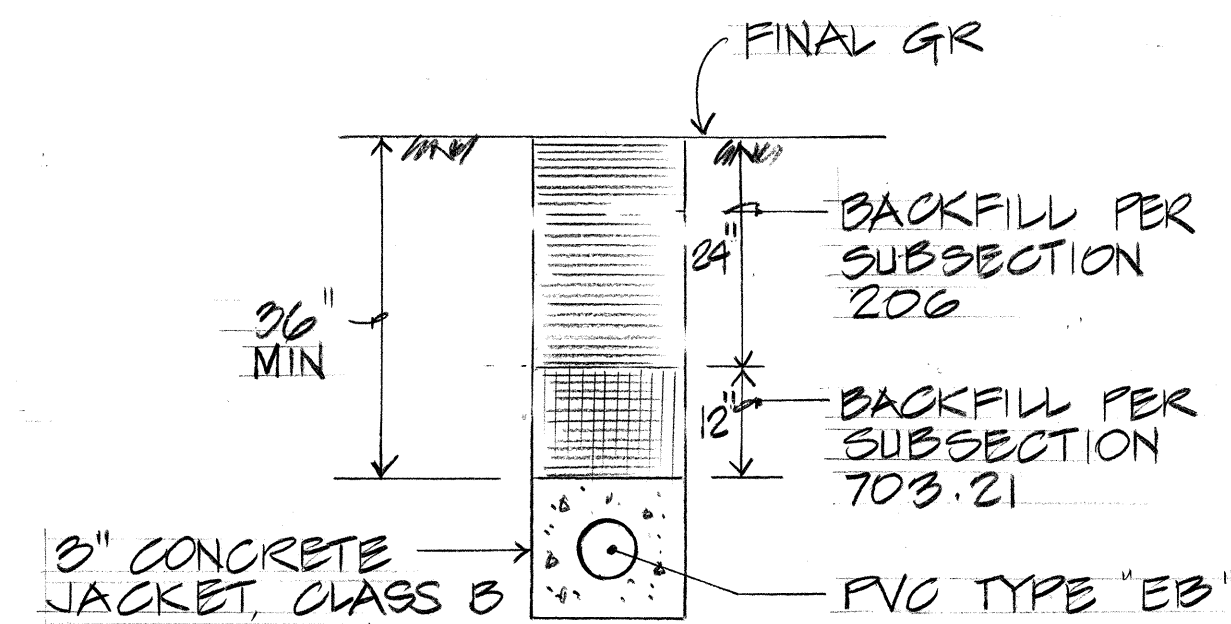
APPROVED: *[Signature]* 8/1/88
HAWAIIAN ELECTRIC CO. DATE
Mark K. Sawada 8/30/88
HAWAIIAN TELEPHONE CO. DATE *[Signature]*

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ELECTRICAL PLAN
PART 1
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. 1-H3-1 (51)
SCALE: AS NOTED DATE:
SHEET NO. E2 OF 8 SHEETS

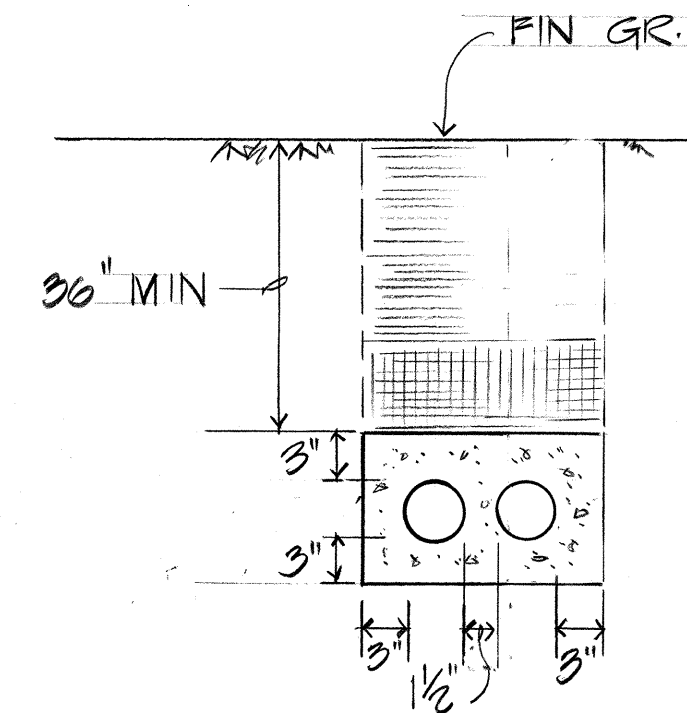
ADD.32

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

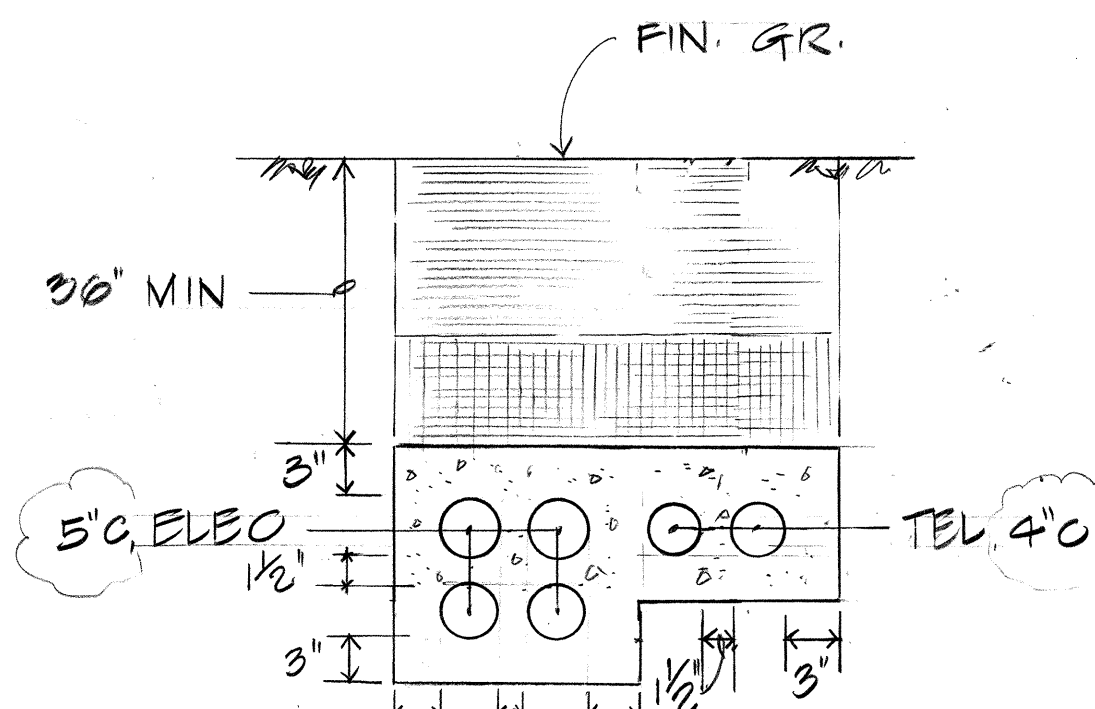
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1 (51)	1989	34	106



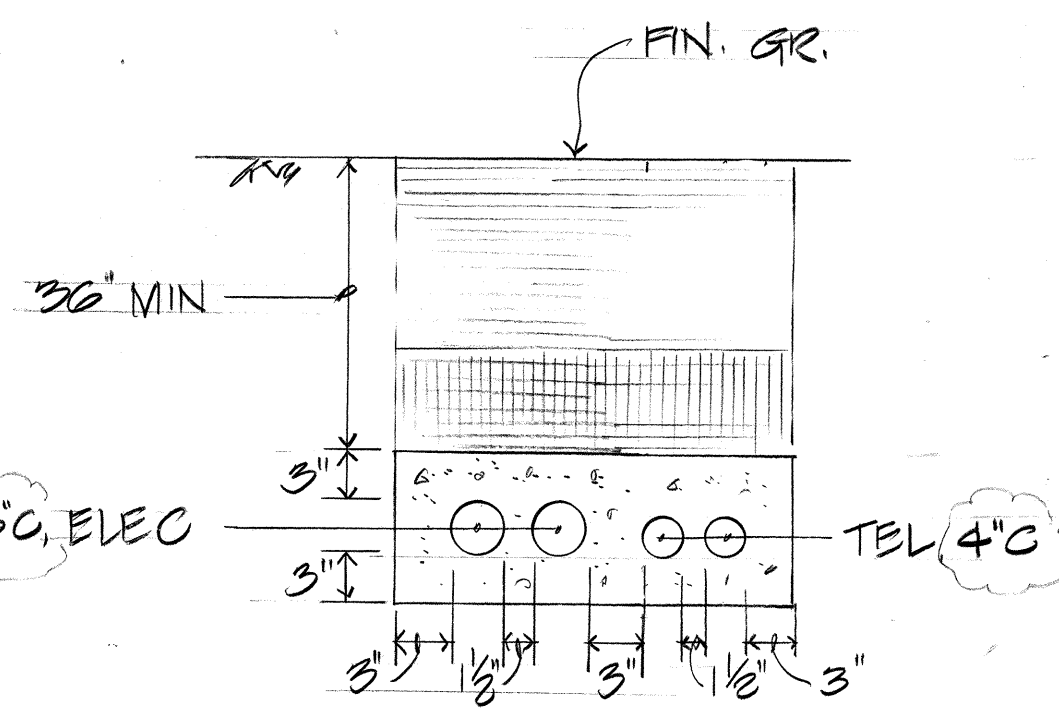
TYPICAL DUCT SECTION



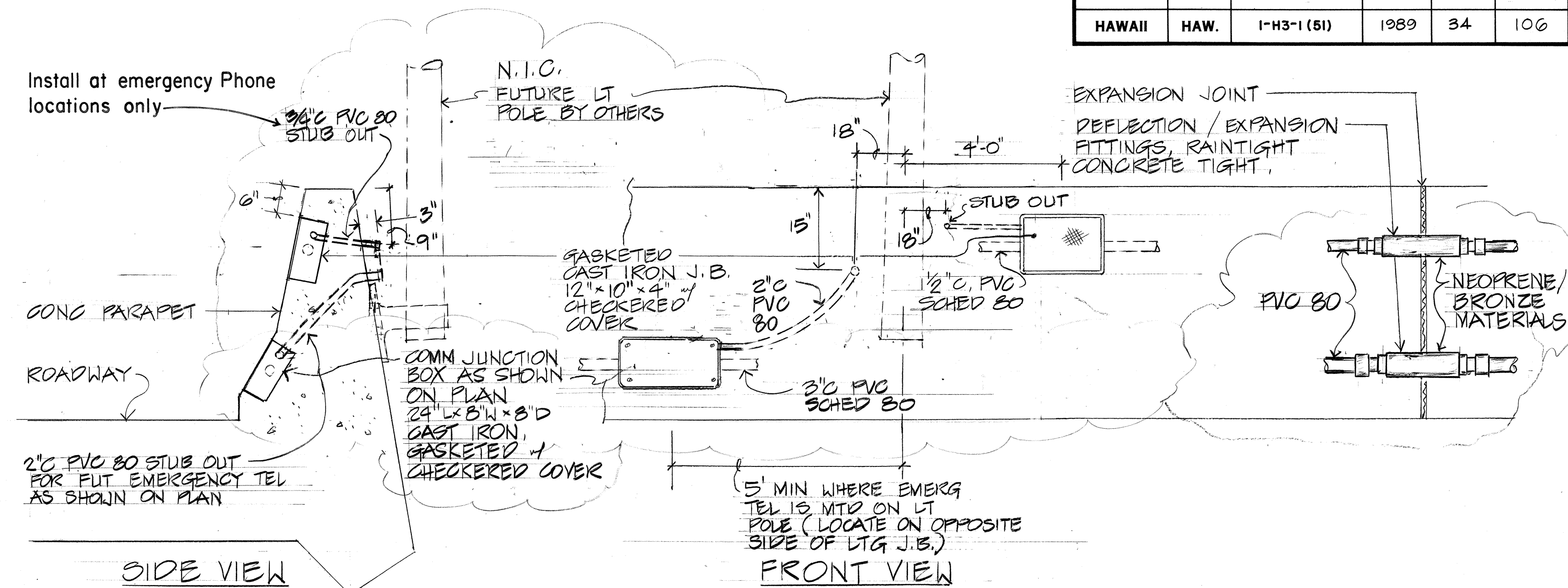
DUCT SECTION (A)
DUCT SECTION "A1" SIMILAR EXCEPT 2Hx1W.



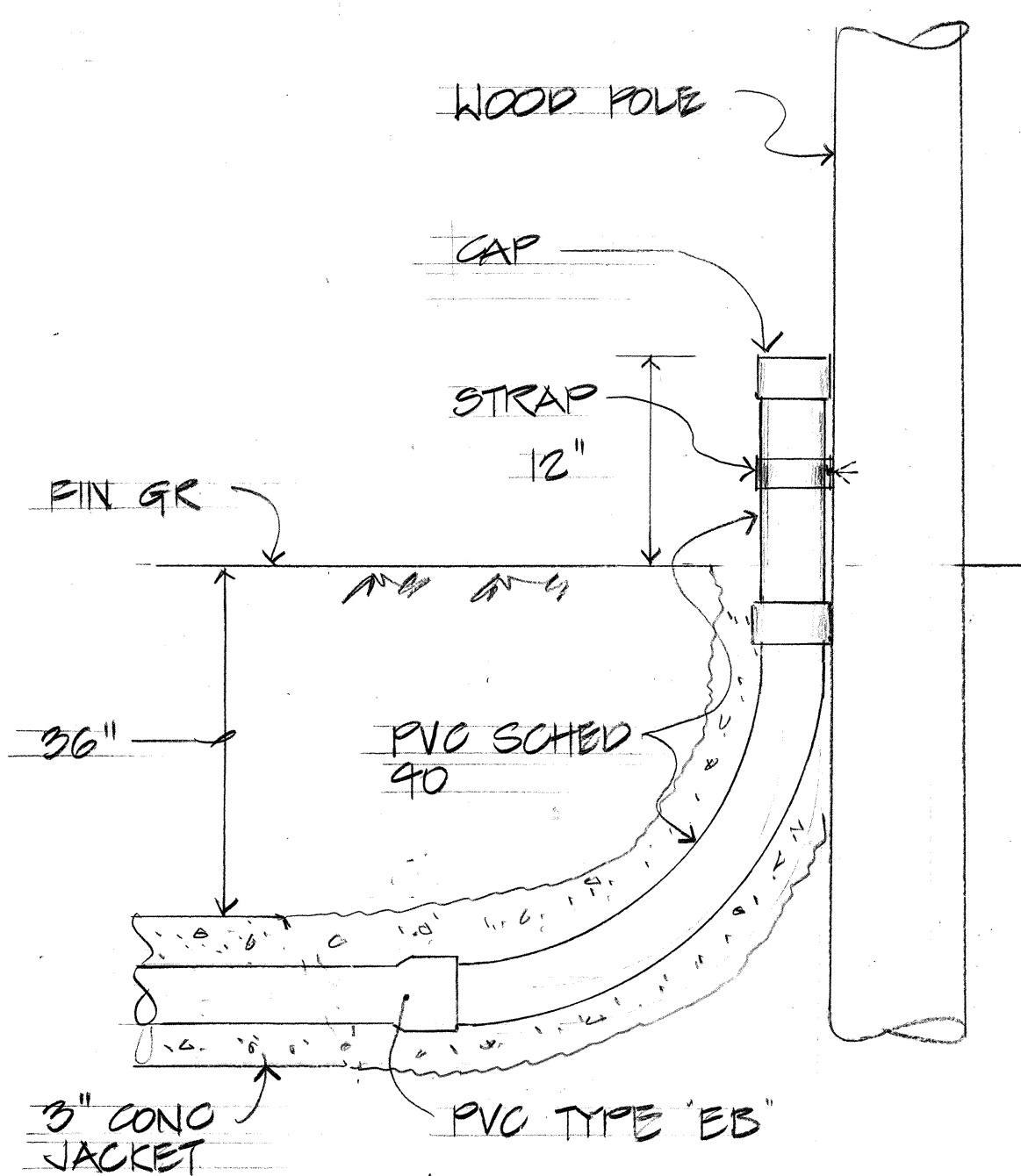
DUCT SECTION (B)
DUCT SECTION "B-1" SIMILAR w/ 4-5" ELEC ONLY.



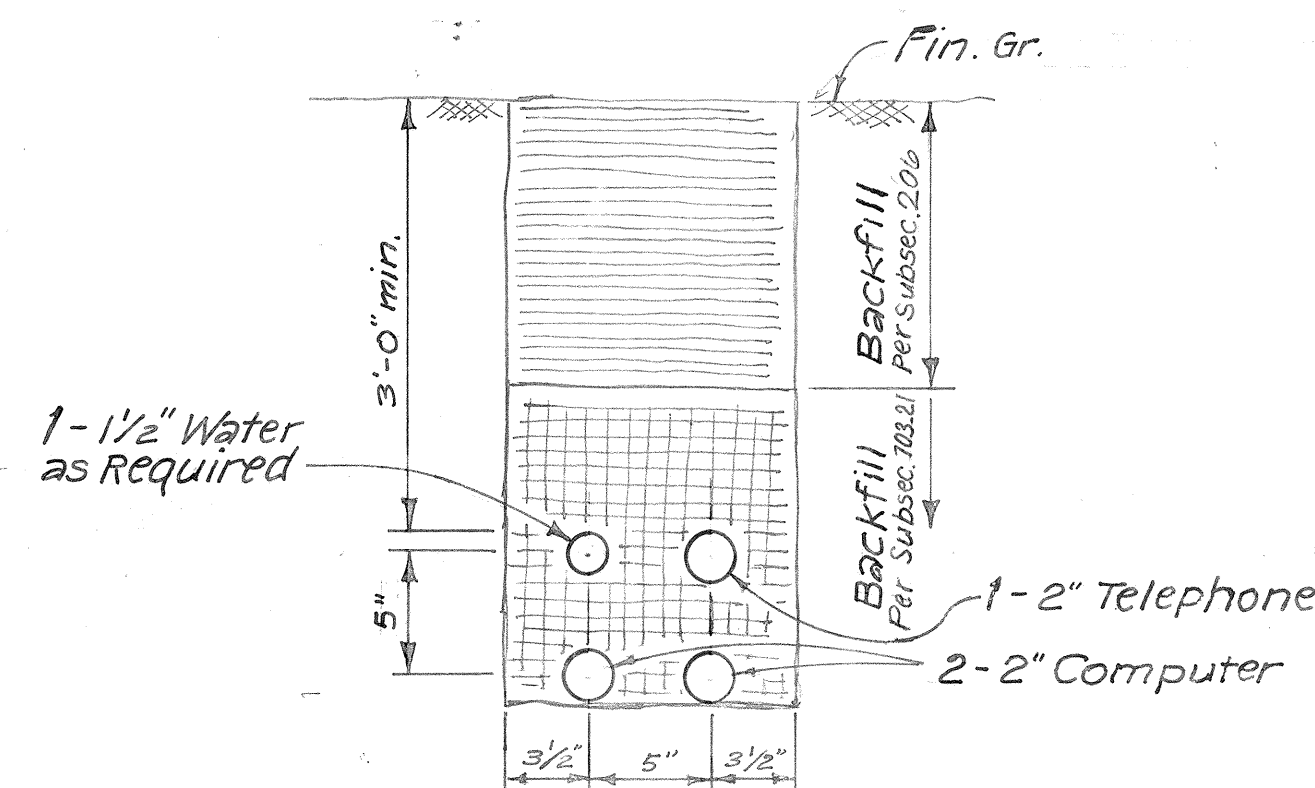
DUCT SECTION (C)



HIGHWAY LIGHTING PULLBOX DETAIL
NOT TO SCALE

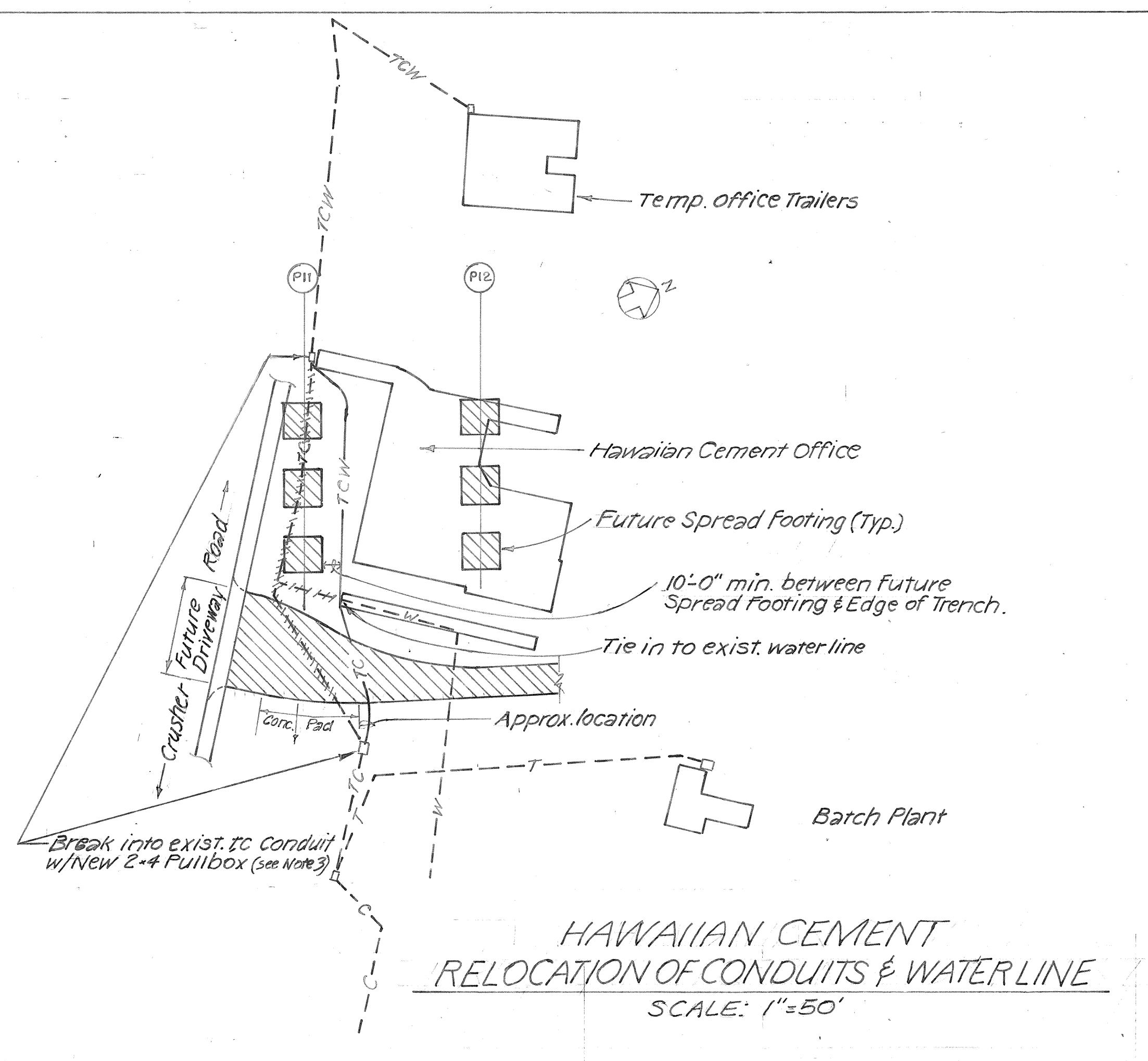


TYPICAL CONDUIT RISER DETAIL
NOT TO SCALE



TYPICAL SECTION
SCALE: 1 1/2" = 1'-0"

- NOTES:
1. Conduits shall be Schedule 80 PVC pipe.
 2. Material for new waterline shall be equal to or exceed quality of existing.
 3. Locate 2x4 pullbox to avoid vehicular traffic.



HAWAIIAN CEMENT
RELOCATION OF CONDUITS & WATERLINE
SCALE: 1" = 50'

APPROVED
12/9/87
HAWAIIAN ELECTRIC CO. DATE
8/30/88
HAWAIIAN TELEPHONE CO. DATE

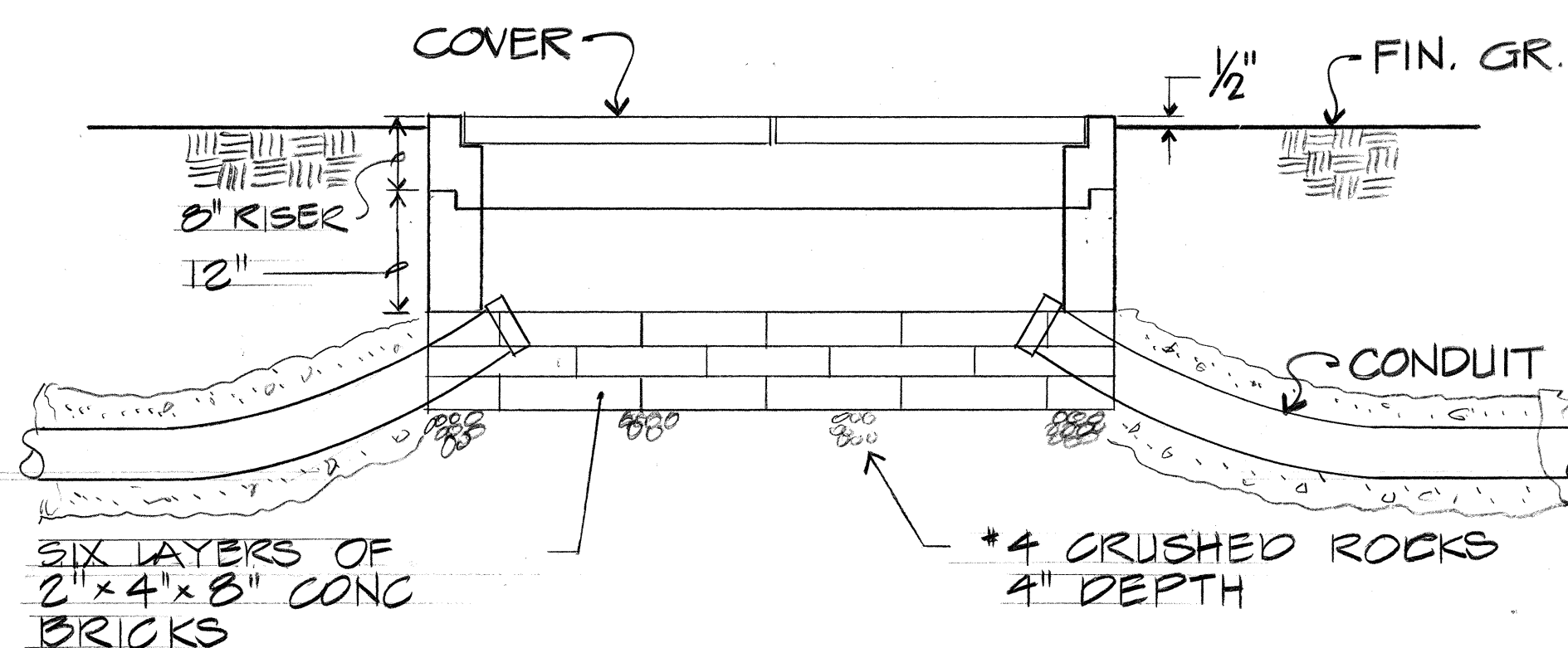


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Melvin S. Masuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ELECTRICAL DETAILS
DUCT SECTIONS & LIGHTING PULLBOX
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. 1-H3-1 (51)
SCALE: AS NOTED DATE:
SHEET NO. E4 OF 8 SHEETS

DATE	REVISION
6/12/90	REVISE DETAIL, DELETE CHART & DIAGRAM; ADD CONDUIT INSTALLATION DETAIL.

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



SPACER BAR $\frac{1}{2} \times \frac{1}{8} \times 1''$
(SEE PLAN OF
REMOVABLE CONG.
COVER OF LOCATION)

2''
 $\frac{1}{2}''$
2 1/2''
3/4''
1''
3/4''
1/8''

2 1/2' x 2 1/2' x 1/4' L FRAME FOR
REMOVABLE CONG. COVER

This diagram shows the elevation view of the removable concrete cover assembly. It features a vertical L-frame with a total height of 2 1/2 inches. The frame is composed of two parts: a top section that is 2 inches high and a bottom section that is 1/2 inch high. The top section has a width of 2 inches. The bottom section has a width of 1/2 inch. The frame is made of a material with a thickness of 1/8 inch. The frame is designed to hold a removable concrete cover in place. The cover is shown as a rectangular block with a height of 1 inch and a width of 3/4 inch. The cover is held in place by the L-frame. The diagram also shows a spacer bar with a height of 3/4 inch and a width of 1/2 inch. The spacer bar is used to support the cover. The diagram is labeled with dimensions and a note: 'SPACER BAR 1/2 x 1/8 x 1 (SEE PLAN OF REMOVABLE CONG. COVER OF LOCATION)'. Below the diagram, it says '2 1/2' x 2 1/2' x 1/4' L FRAME FOR REMOVABLE CONG. COVER'.

3/4" ϕ x 1 1/2" CADMIUM PLATED THIN SLAB INSERT.

2 1/2" x 2 1/2" x 1/4" L FRAME

2- 3/8" ϕ x 8" BARS (PART OF INSERT)

1 1/2" x 3/8" x 1/2" FILLER PLATE JACK WELDED TO ANGLE FRAME

PLASTIC PLUG FOR THREADED OPENING FURNISHED BY THE CONTRACTOR. INSERT PLUG DURING STORAGE.

CLEAN SURFACE & APPLY "PLIOBOND" ADHESIVE BET. FILLER PLATE & INSERT AFTER GALV. OF FRAME

* 3 REINF. BAR (SEE PLAN)

1 1/2"

2 1/2"

1"

3/4"

1 1/2" ϕ

3/8"

The drawing shows a rectangular slab with overall dimensions of 10' 3 3/4" by 9' 9 3/8". The slab is supported by 2" LIFTING DEVICES at the corners. The top edge has a 3" x 3 3/4" SPACER BAR. The bottom edge has a 1 3/4" SPACER BAR. The slab is reinforced with 3 #3 @ 10" STRAIGHT BAR WELDED TO ANGLE FRAME and 2 #3 @ 5" STRAIGHT BAR. The slab is filled with CONG. FILL. The slab is supported by 2 1/2" x 2 1/2" x 1/4" L FRAME WELDED CONSTRUCTION. The slab is labeled FLD. ROAD and STATE.

Diagram of a lifting device with dimensions and labels:

- Overall length: 36" (divided into 9 3/8", 10", 10", and 9 3/8")
- Overall width: 13 3/4"
- Height: 2 1/2"
- Internal width: 1" (from centerline)
- Labels:
 - APPLY LIVE V.
 - 3 #3 @ 10" STRAIGHT BAR HELDED TO ANGLE FRAME
 - 2 #3 @ 5" ± STRAIGHT BAR
 - 2 1/2" x 2 1/2" x 1/4" Z FRAME
 - LIFTING DEVICE

NOTE: GALVANIZE L FRAME OR
I FRAME, STEEL RODS & SPACER
BARS AFTER FABRICATION.

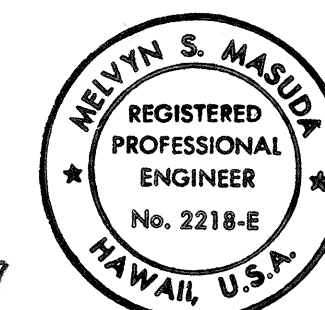
APPROVED

W. M. M. M. 12/9/87

HAWAIIAN ELECTRIC CO DATE

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

Much K. Jansaka 8/30/83 M. S. Jansaka
HAWAIIAN TELEPHONE CO. DATE



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

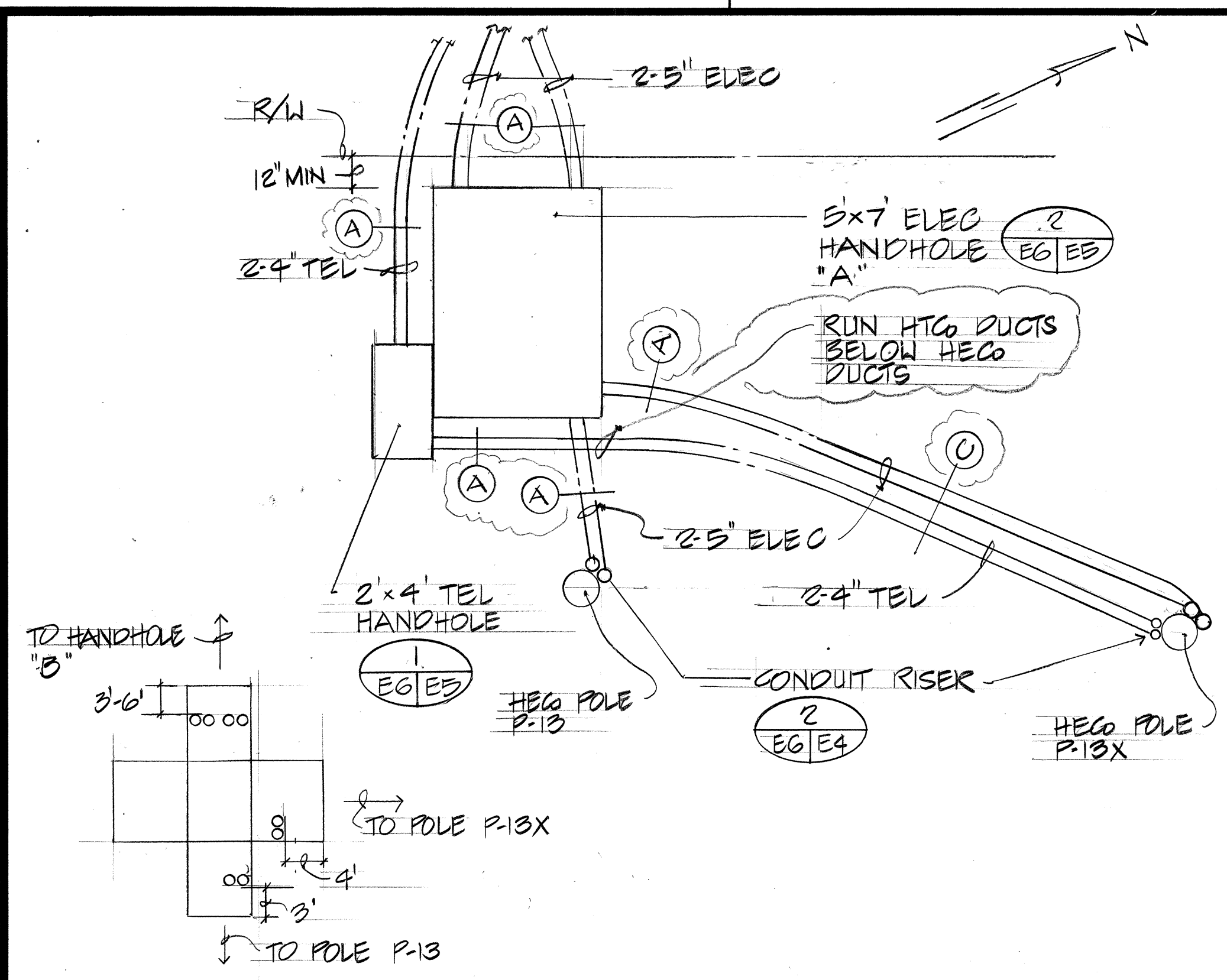
ELECTRICAL DETAILS

UTILITY PULLBOXES

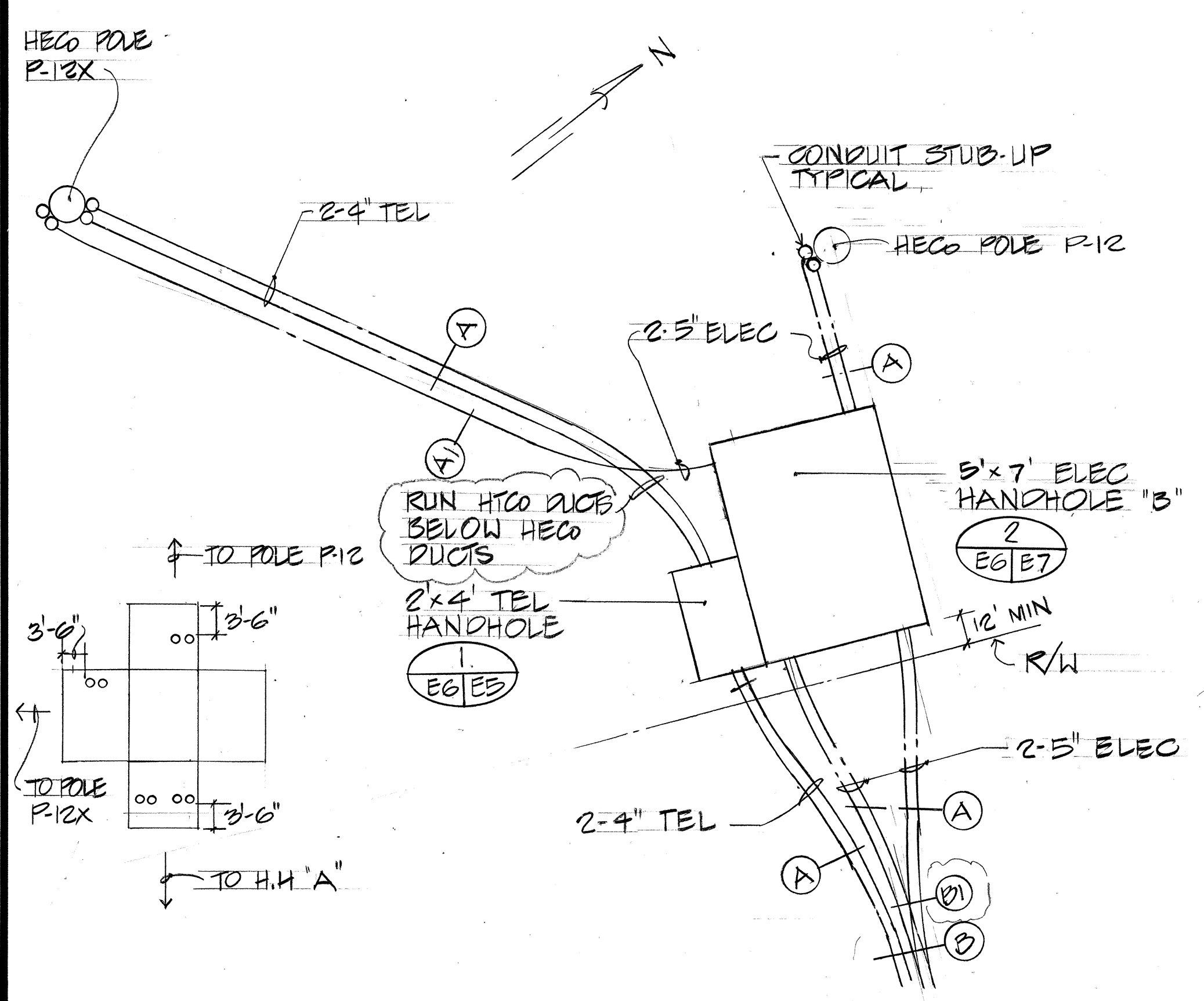
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SHEET No. 55 OF 8 SHEETS

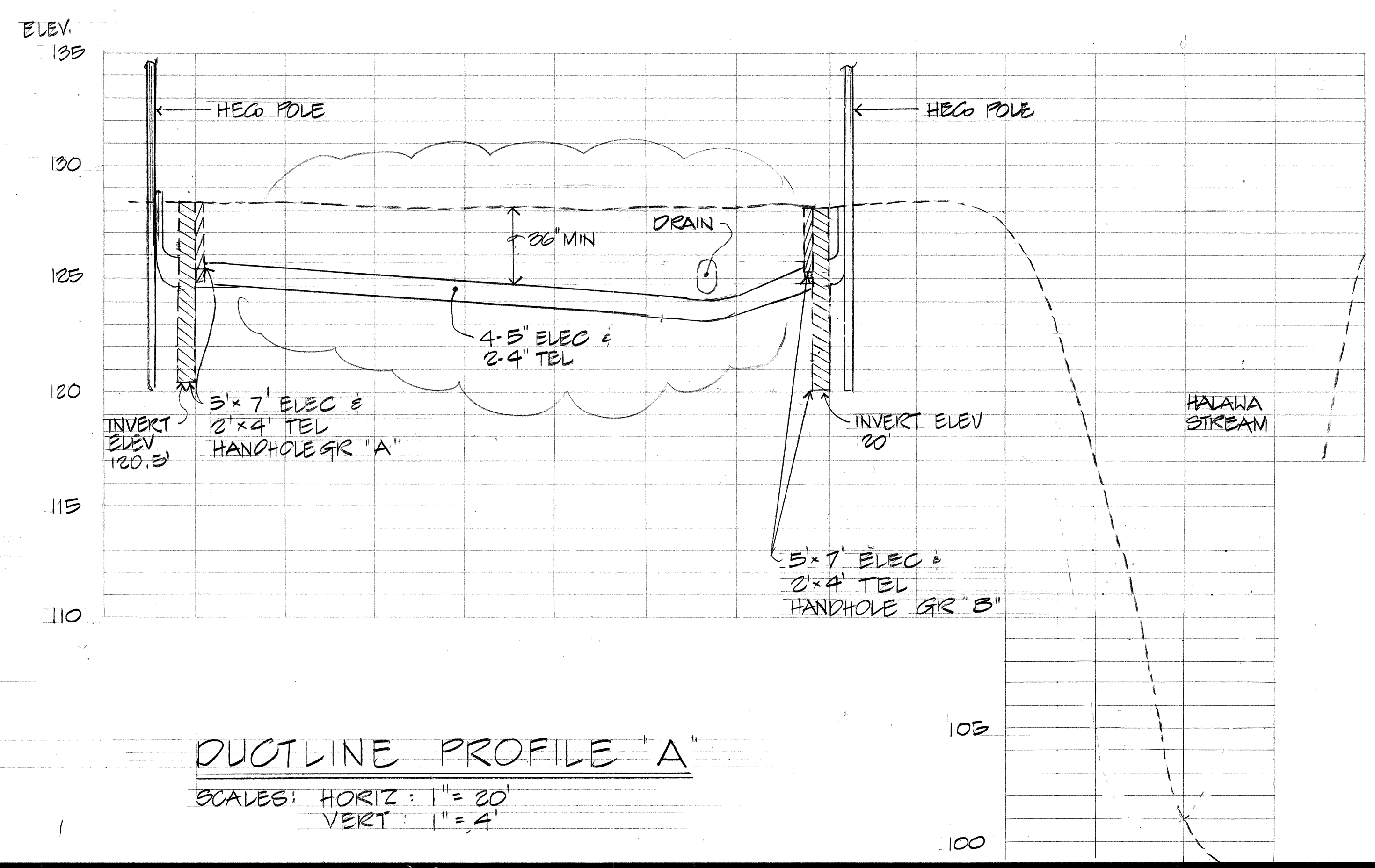
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-1 (51)	1989	36	106



1 HANDHOLE GROUP "A" PLAN
E2 EG NOT TO SCALE



2 HANDHOLE GROUP "B" PLAN
E2 EG NOT TO SCALE

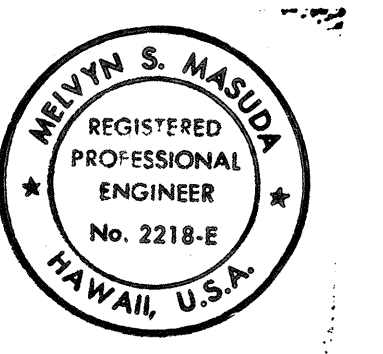


DUCTLINE PROFILE "A"
SCALES: HORIZ: 1" = 20'
VERT: 1" = 4'

7/2/90	ADDED DUCT SECT DESIGNATION FOR CLARIFICATION, REV DUCT PROFILE
DATE	REVISION

APPROVED

[Signature] 12-9-87
HAWAIIAN ELECTRIC CO. DATE
[Signature] 8/30/86
HAWAIIAN TELEPHONE CO. DATE



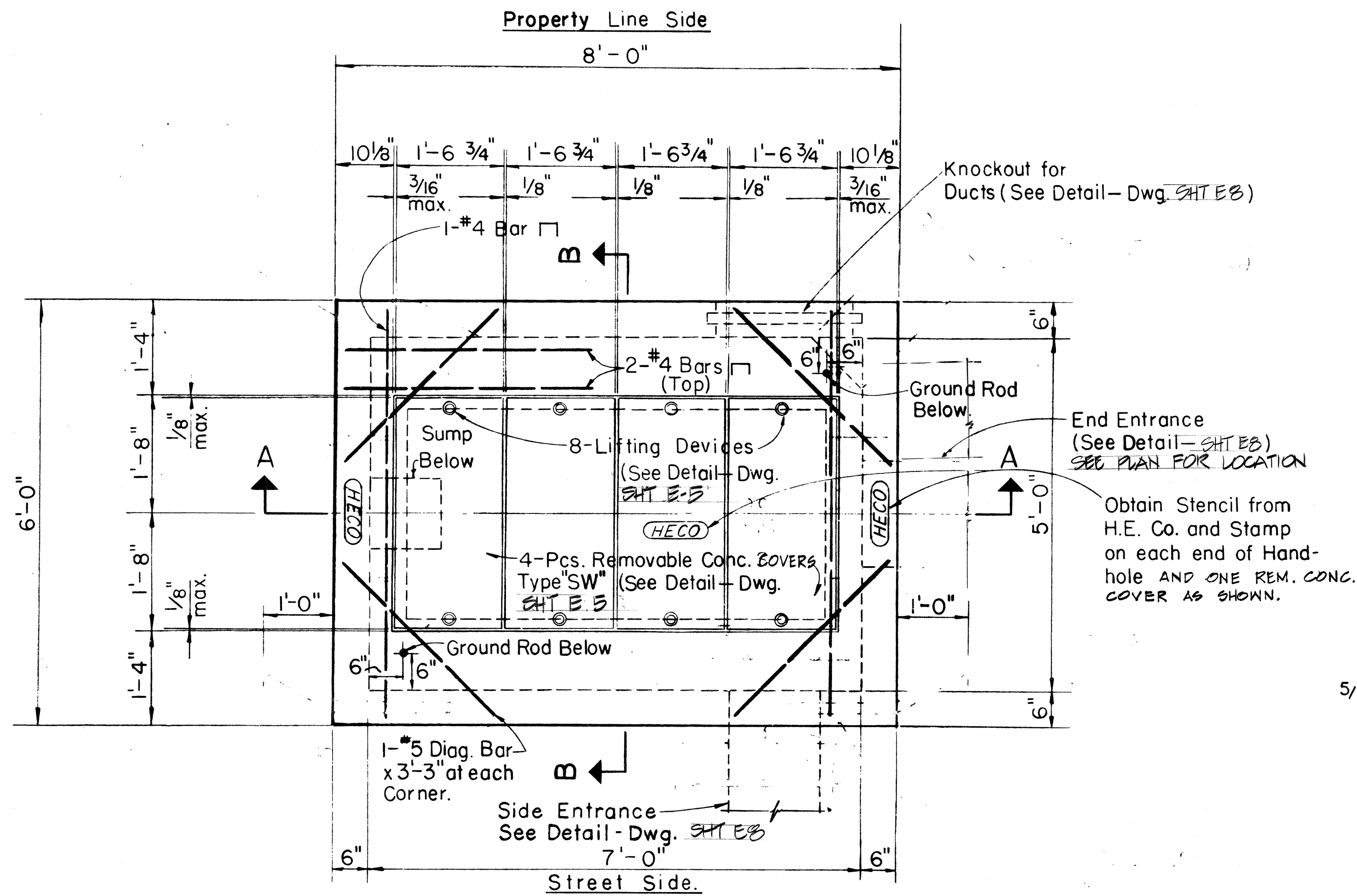
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
[Signature]

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

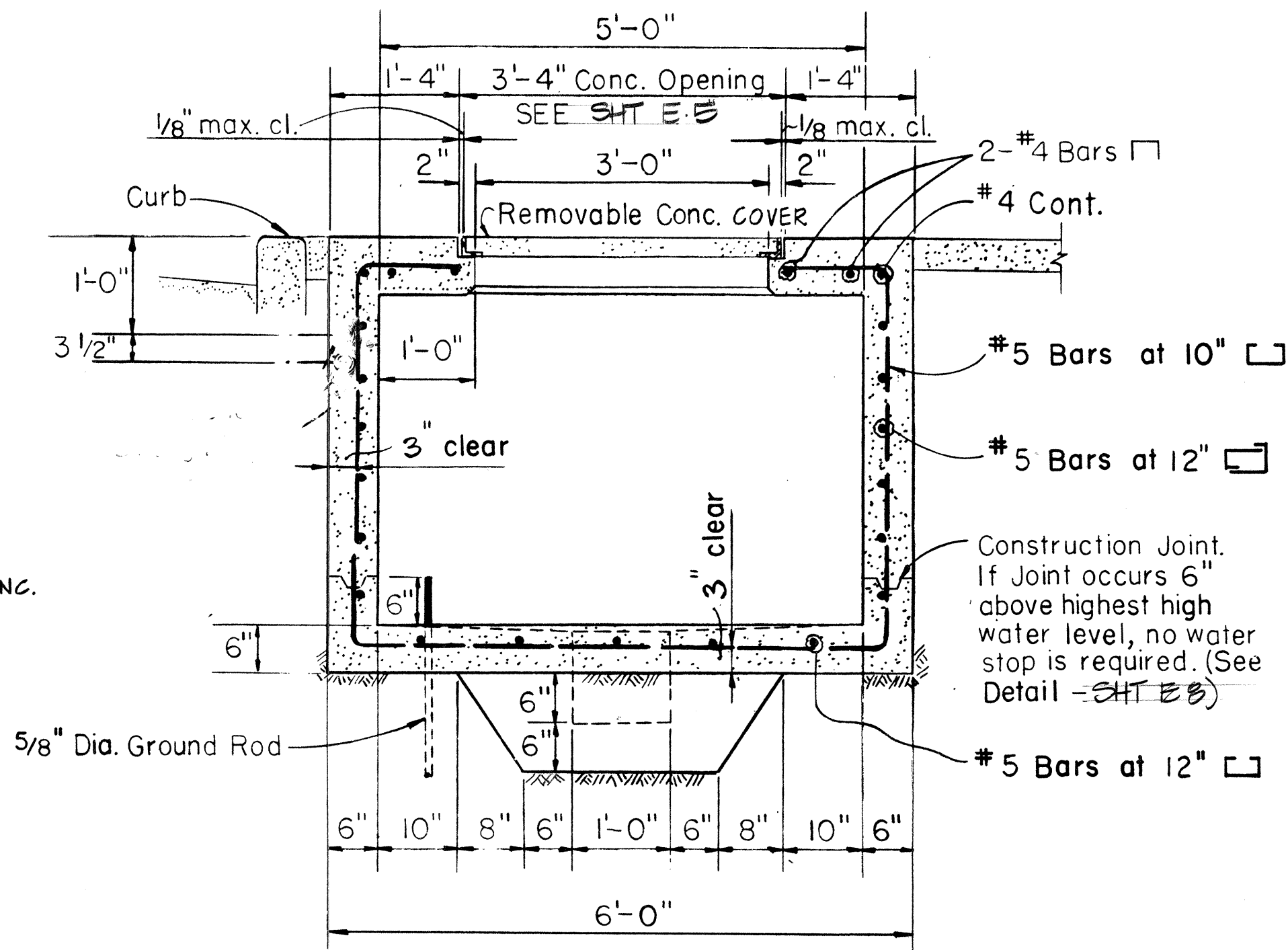
HANDHOLE GROUP PLANS
& DUCTLINE PROFILES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. 1-H3-1 (51)

SCALE: AS NOTED DATE:
SHEET NO. EG OF 8 SHEETS

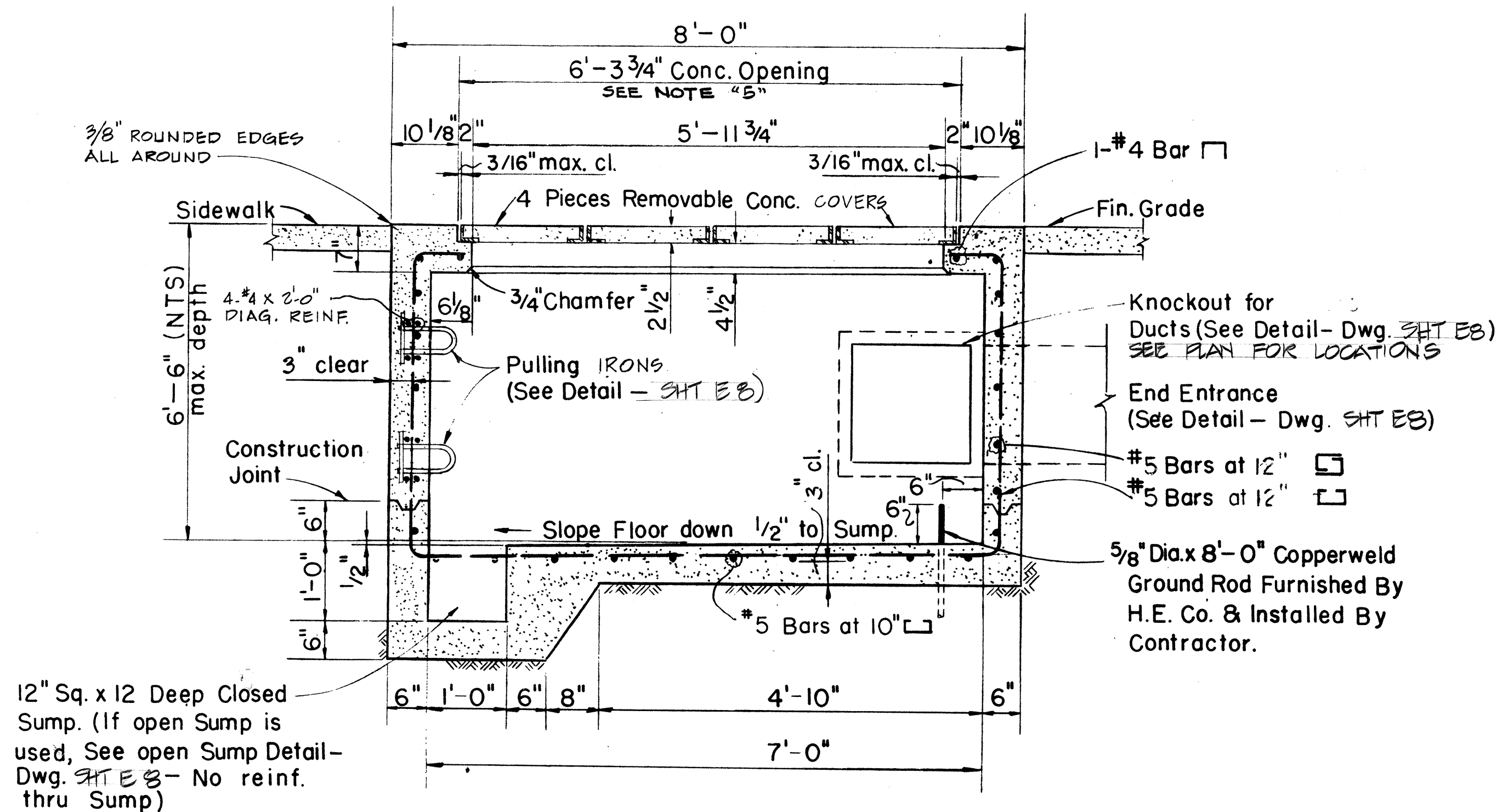
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	37	106



TOP PLAN
Scale: 3/4" = 1'-0"



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



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

REINFORCED CONCRETE QUANTITIES
QUANTITY OF MATERIALS FOR DEPTH "D"=6'-6"

Total Concrete	= 4.39 Cu Yds.
Total Reinf. Steel	= 565 Lbs.
Total Misc. Steel	= 168 Lbs.

WEIGHT PER REMOVABLE CONCRETE COVER

Concrete	= 150 Lbs.
Reinf. Steel	= 7 Lbs.
Misc. Steel	= 42 Lbs.

TOTAL = 199 Lbs.
MATERIALS FOR 6" DEPTH OF 6" THICK WALL

Concrete	= 0.24 Cu Yds.
Reinf. Steel	= 35 Lbs.

NOTE:
Handhole is Pre-casted.



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ME OR UNDER MY SUPERVISION.
R.C. KATAHARA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

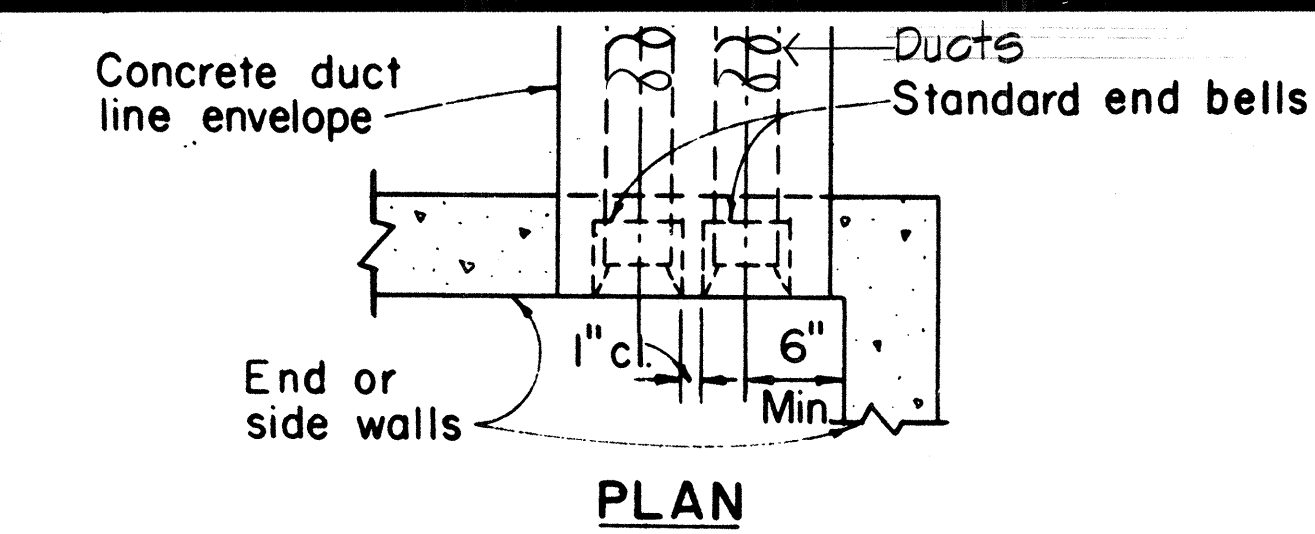
5 x 7 HANDHOLE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1 (51)

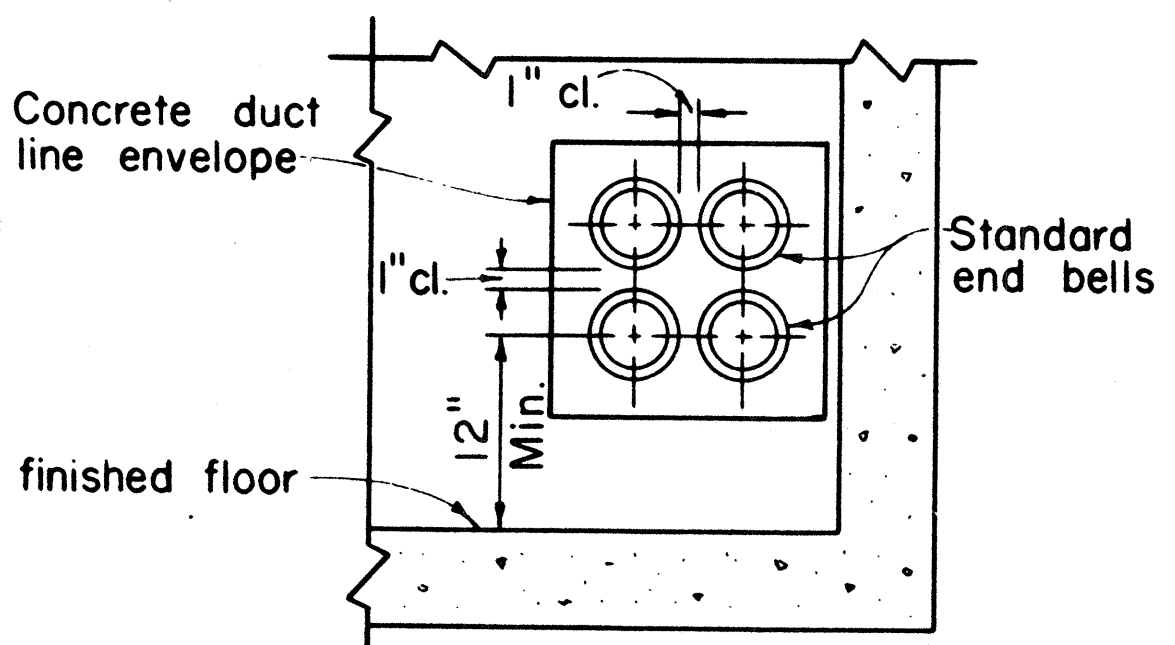
SCALE: AS NOTED DATE:

SHEET NO. E7 OF 8 SHEETS

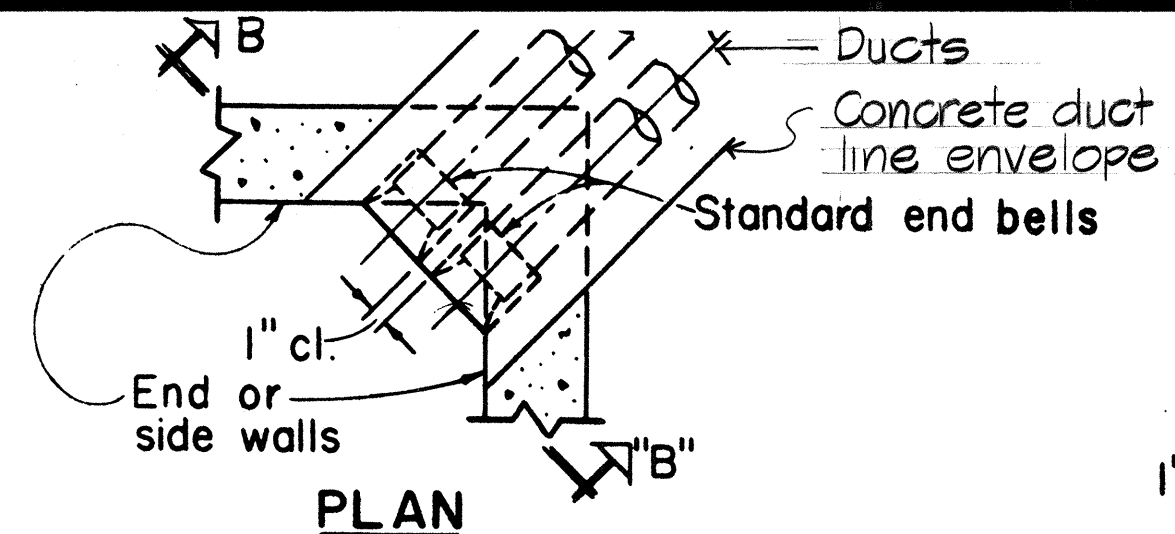
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	38	106



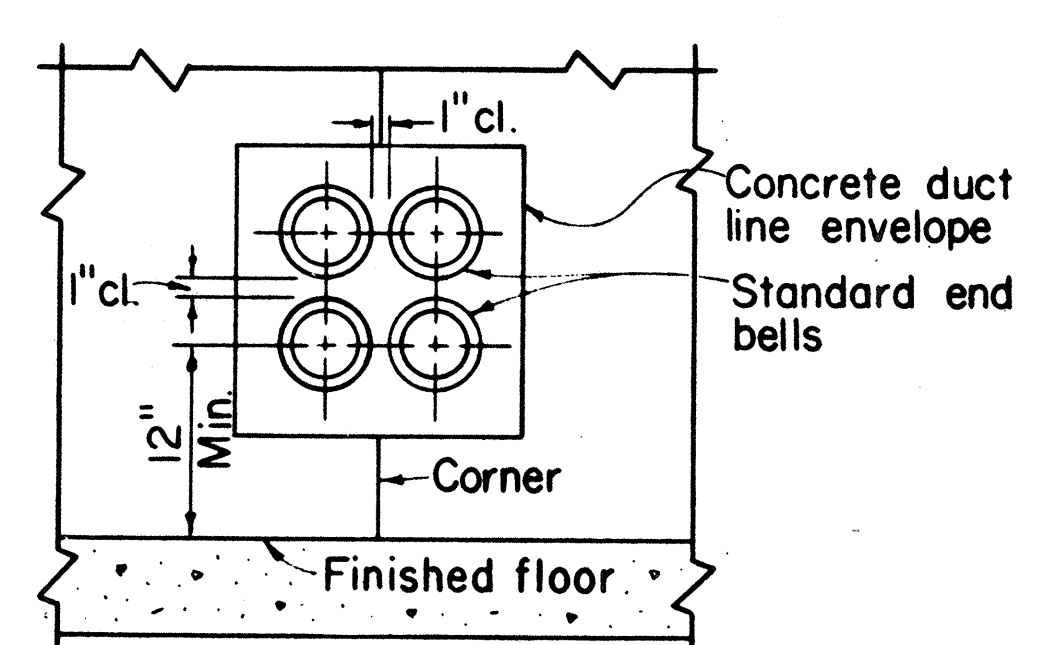
PLAN



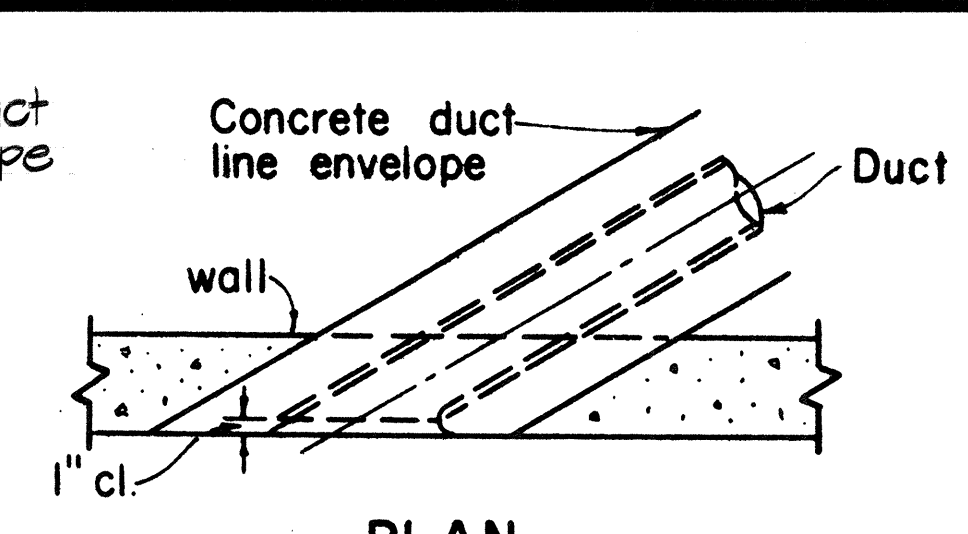
ELEVATION
END OR SIDE ENTRANCE
Scale: 1" = 1'-0"



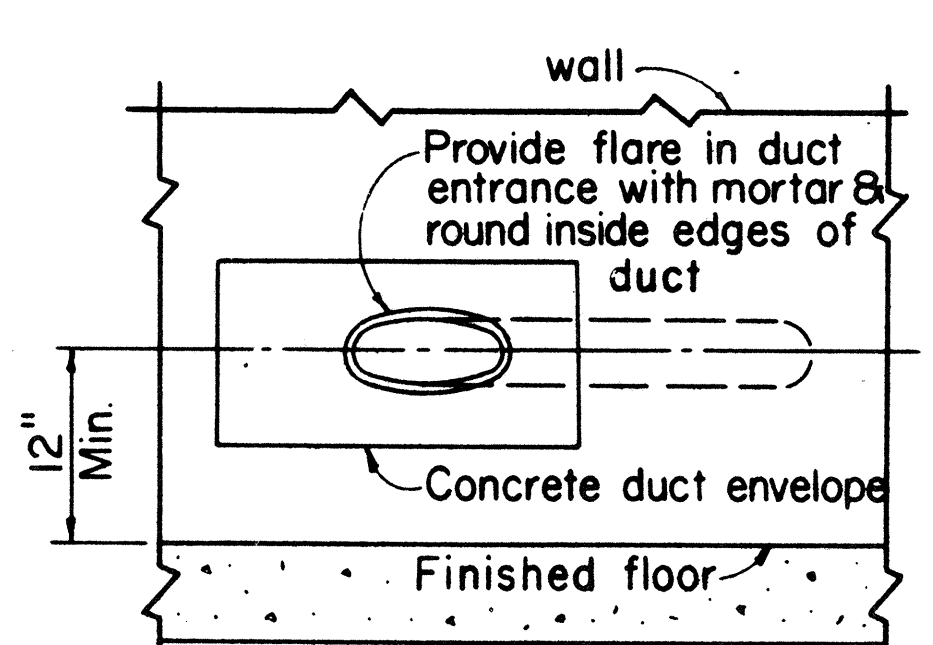
PLAN



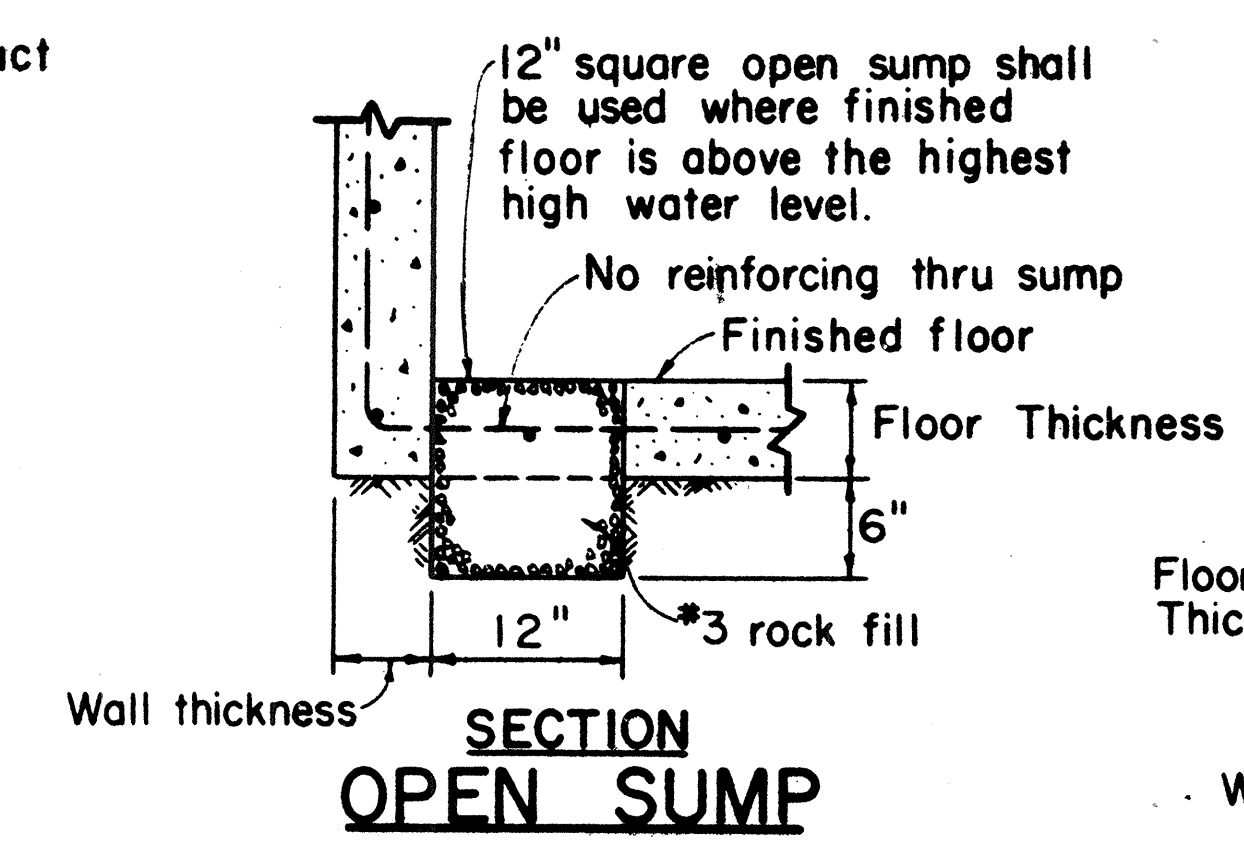
ELEVATION "B-B"
CORNER ENTRANCE
Scale: 1" = 1'-0"



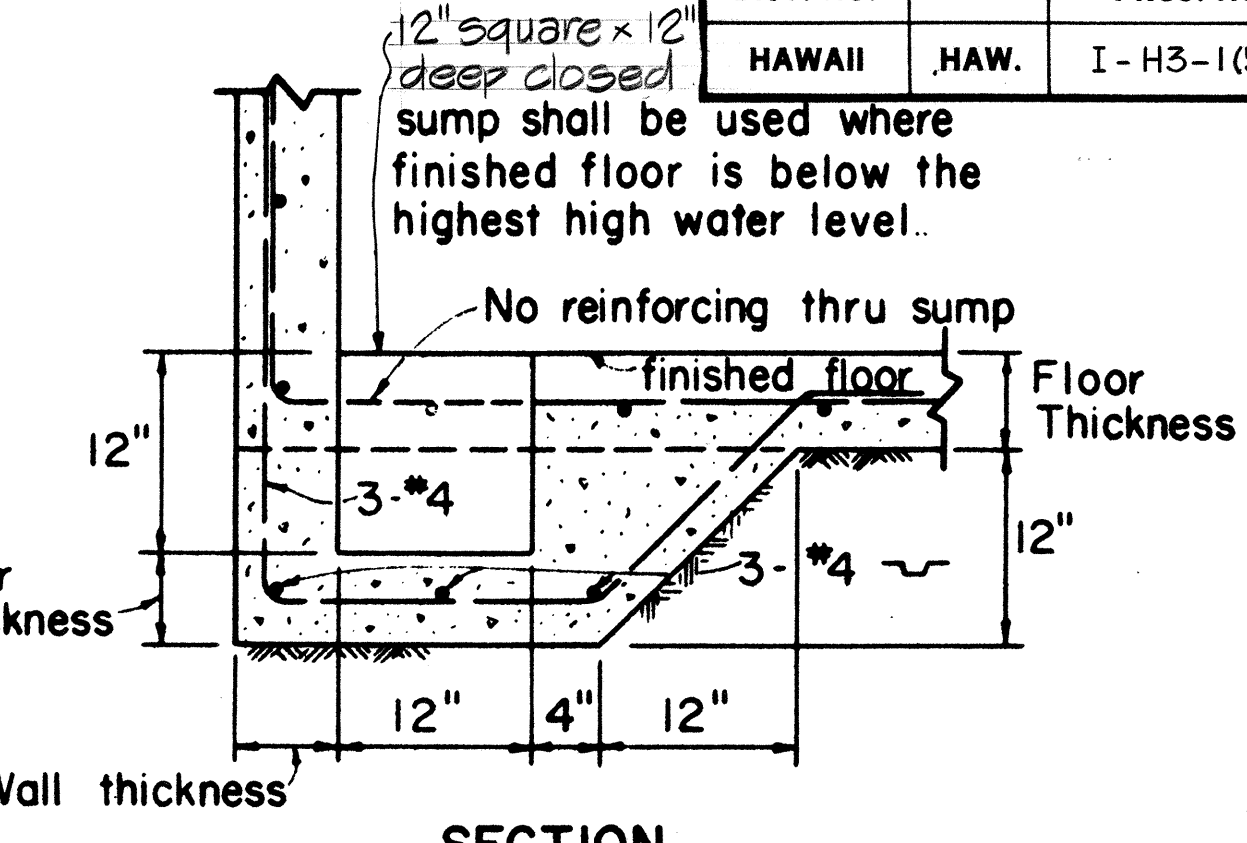
PLAN



ELEVATION
DIAGONAL ENTRANCE
Scale: 1" = 1'-0"



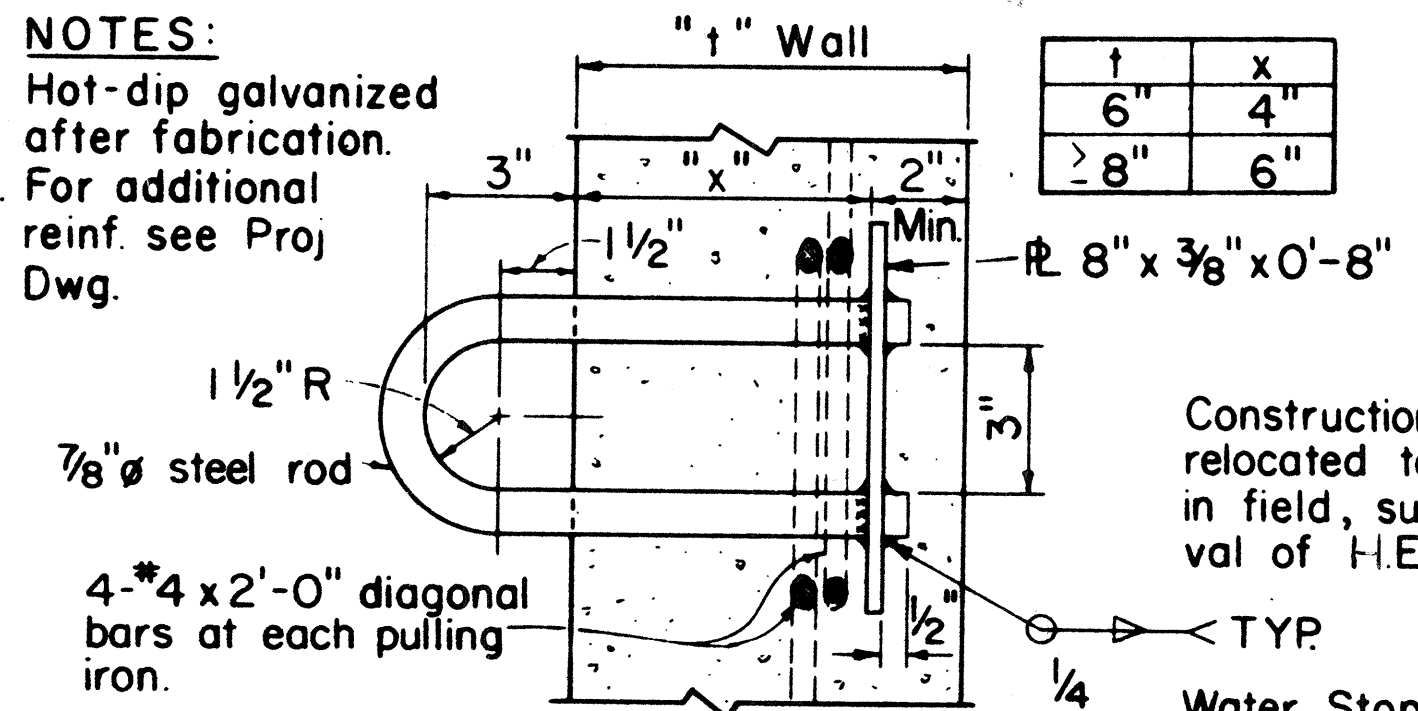
SECTION
OPEN SUMP



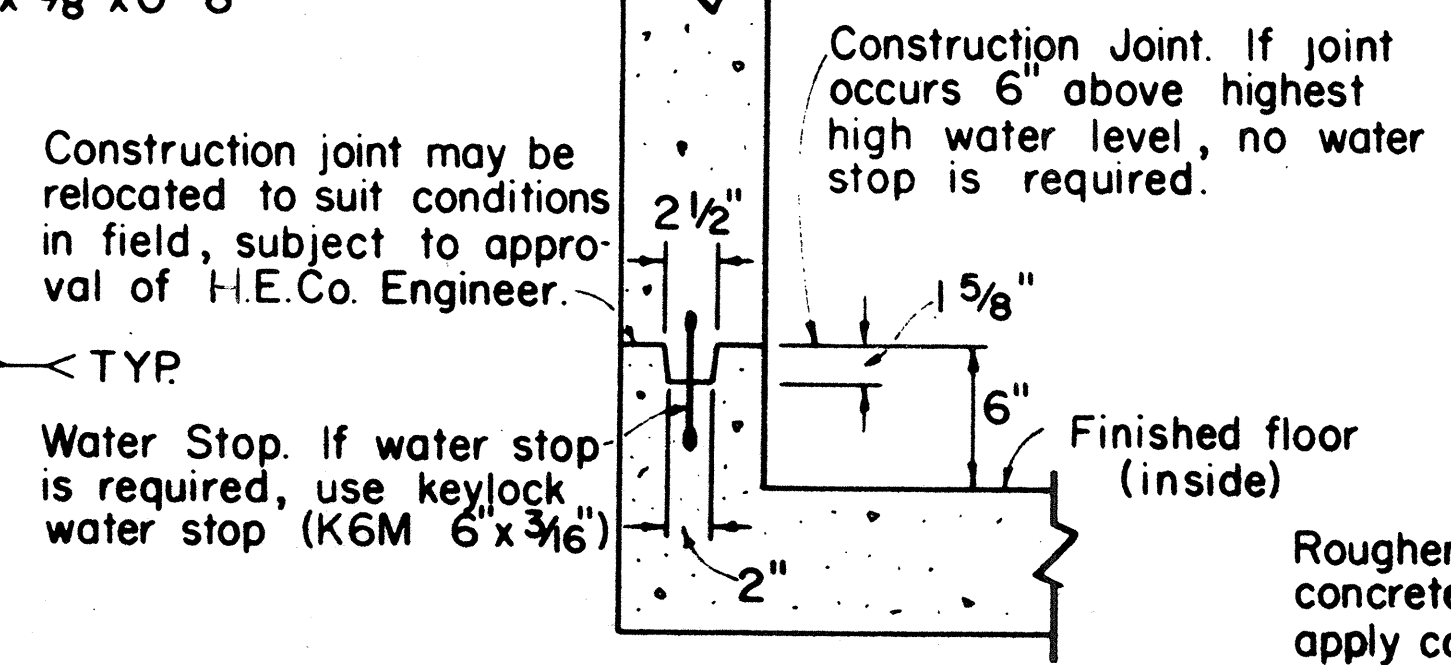
SECTION
CLOSED SUMP
Scale: 1" = 1'-0"

NOTES:

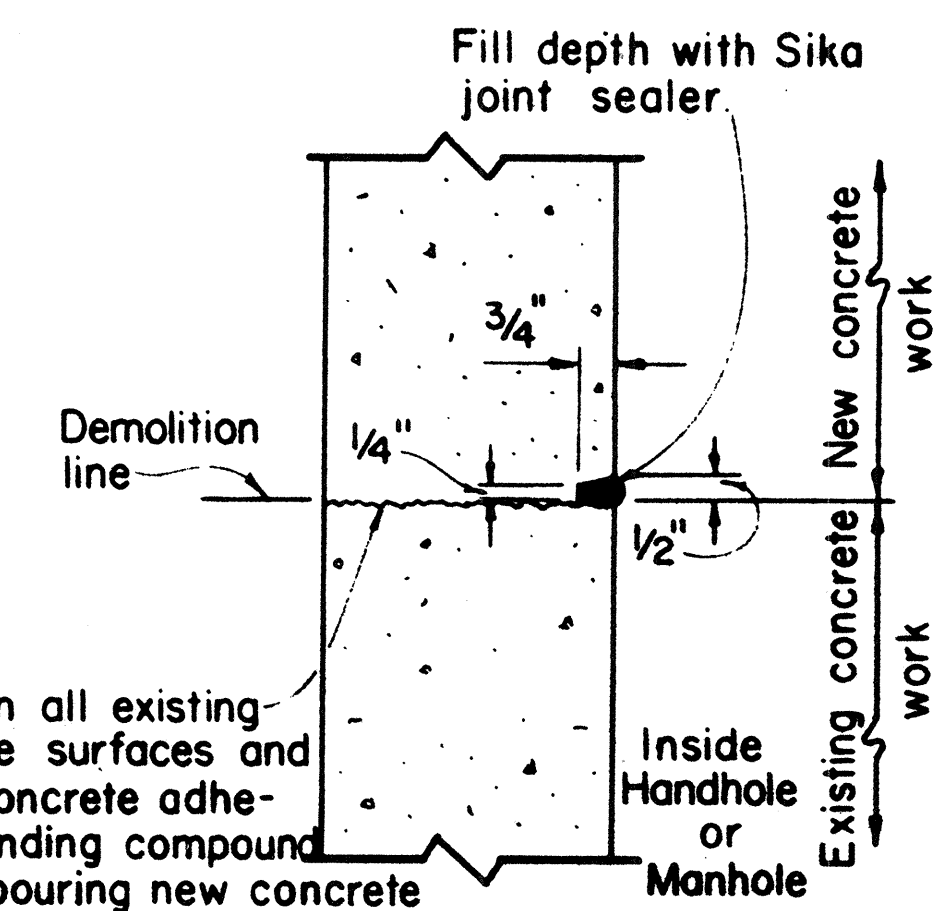
- Hot-dip galvanized after fabrication.
- For additional reinf. see Proj. Dwg.



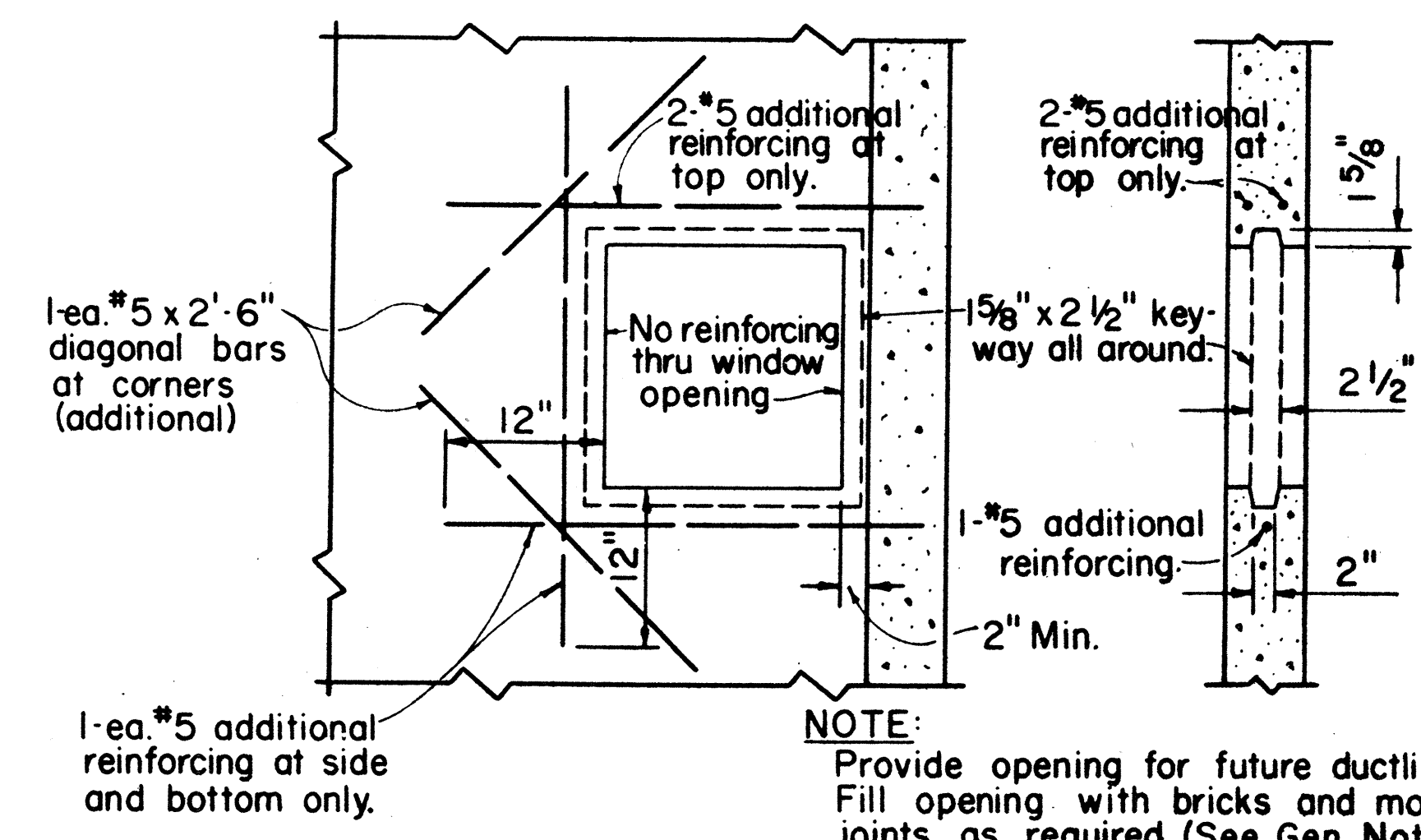
SECTION
PULLING IRON
Scale: 3" = 1'-0"



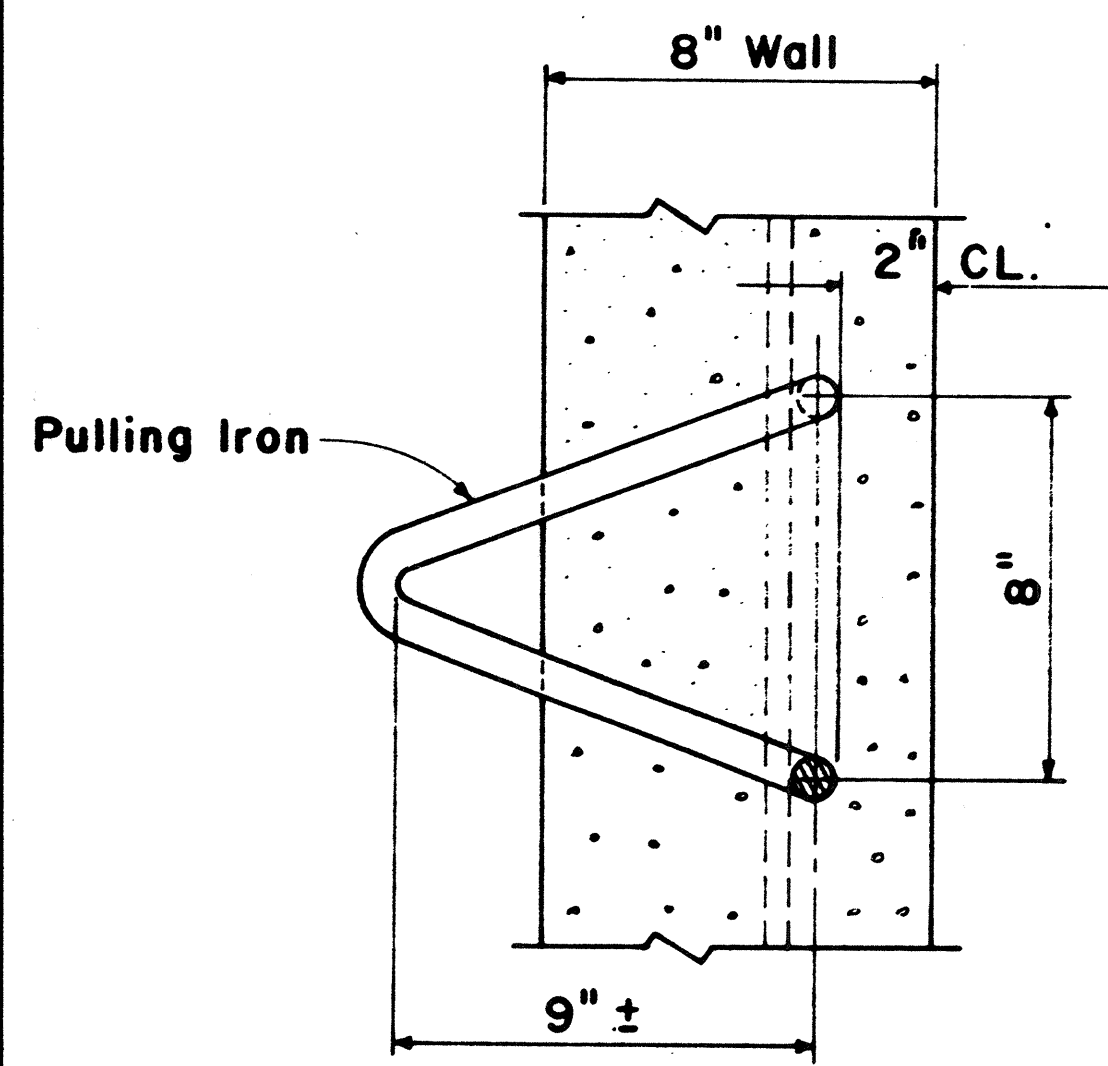
SECTION
TYPICAL CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"



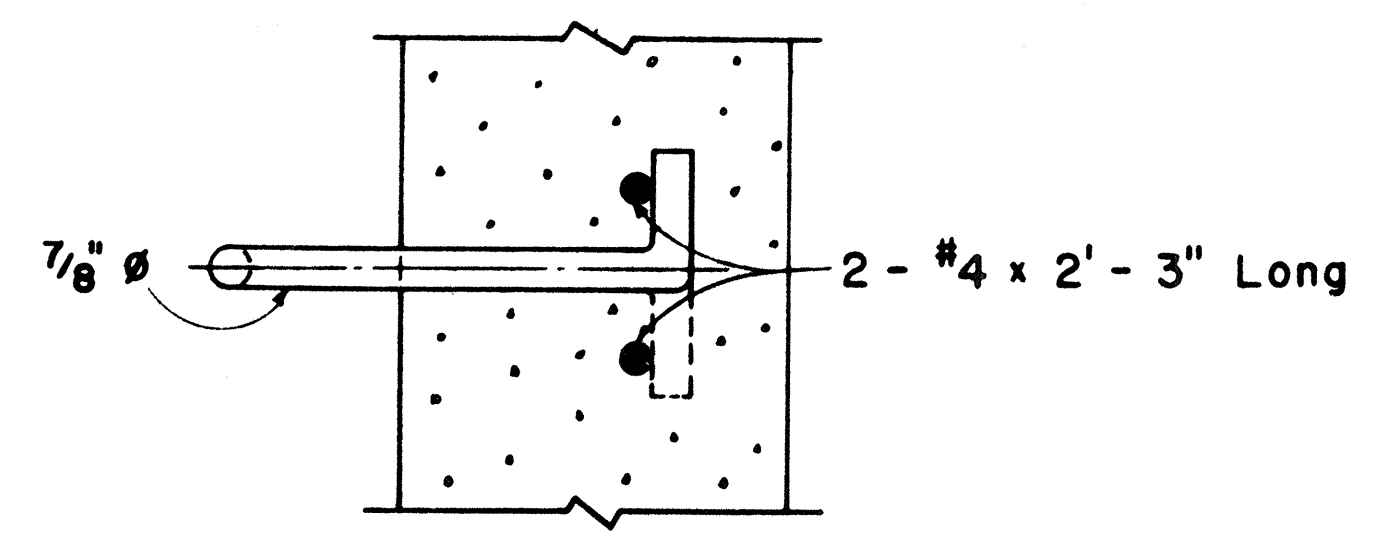
SECTION
TYPICAL COLD JOINT
Scale: 3" = 1'-0"



ELEVATION
SECTION
KNOCKOUT FOR FUTURE DUCT LINE
Scale: 1" = 1'-0"



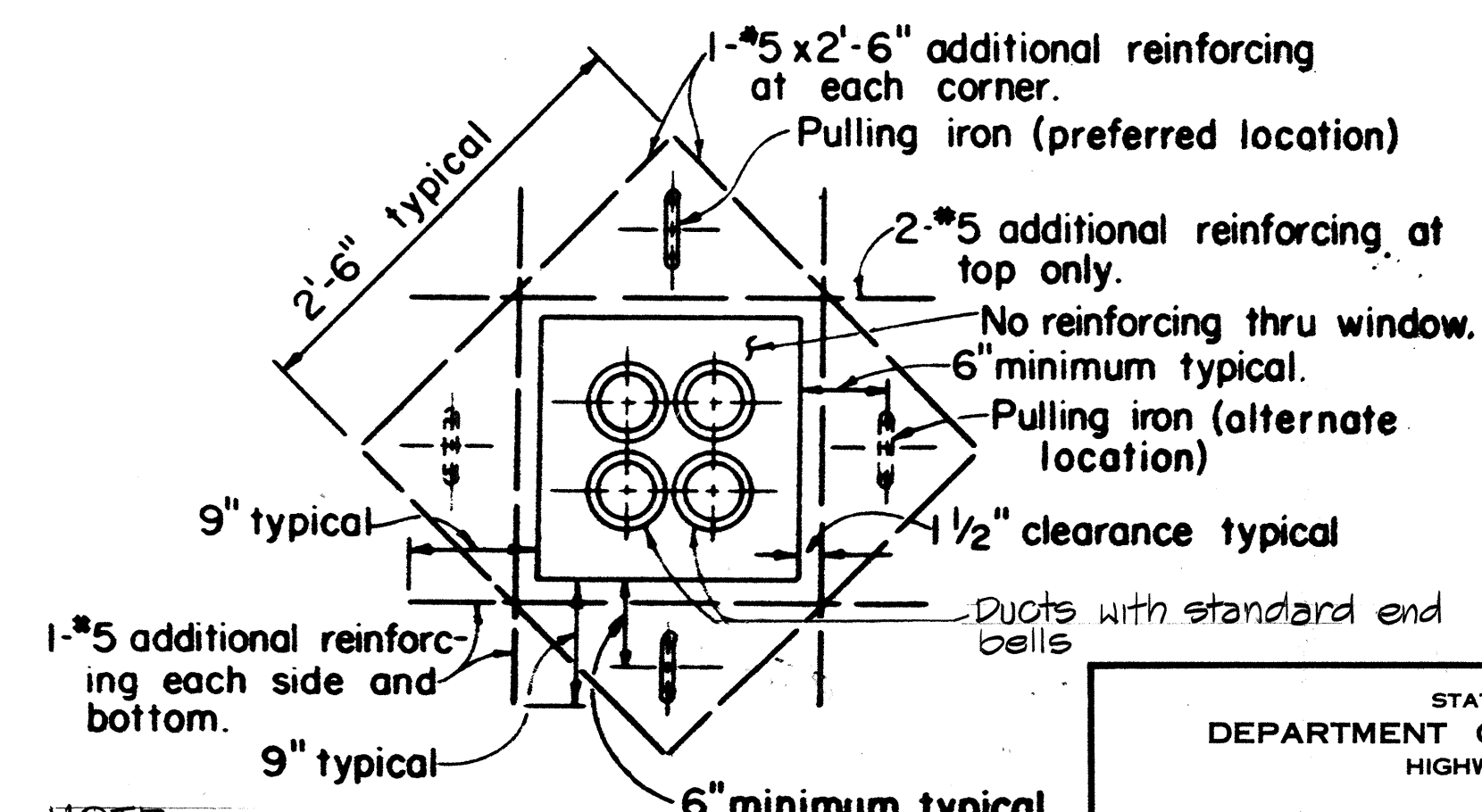
PLAN
PULLING IRON FOR 8" WALL
Scale: 3" = 1'-0"



SECTION

GENERAL NOTES FOR MANHOLES & HANDHOLES STANDARD DETAILS

- ALL WORK SHALL BE SUBJECT TO INSPECTION BY HAWAIIAN ELECTRIC AND/OR DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
- CONTRACTOR SHALL NOTIFY HAWAIIAN ELECTRIC CO., 24 HOURS BEFORE PROCEEDING WITH ANY WORK ON FACILITIES OWNED BY HAWAIIAN ELEC. CO., INC.
- DUCTS: FOR NUMBER, SIZE AND EXACT LOCATION OF DUCT ENTRANCES, REFER TO PROJECT DRAWINGS.
- PULLING IRONS: FOR NUMBER AND LOCATIONS, REFER TO PROJECT DRAWINGS.
- SEE HECO STD DWG 16688 WITH LATEST REVISIONS FOR CONSTRUCTION REQUIREMENTS.



ELEVATION
TYPICAL DUCT WINDOW
Scale: 1" = 1'-0"

APPROVED:
HAWAIIAN ELEC. CO. DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS
HANDHOLE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1 (51)

SCALE: AS NOTED DATE:
SHEET No. 38 OF 38 SHEETS