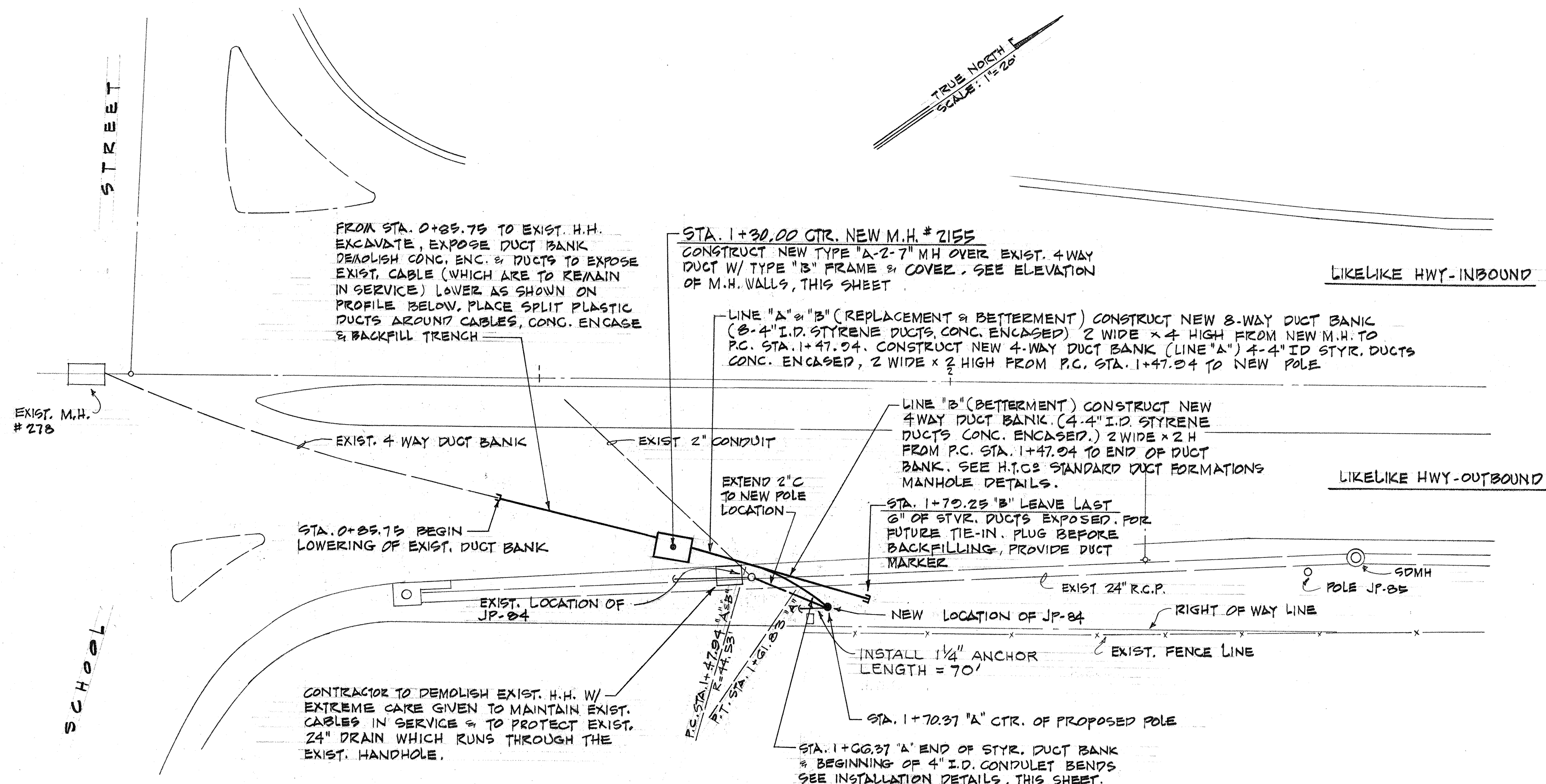
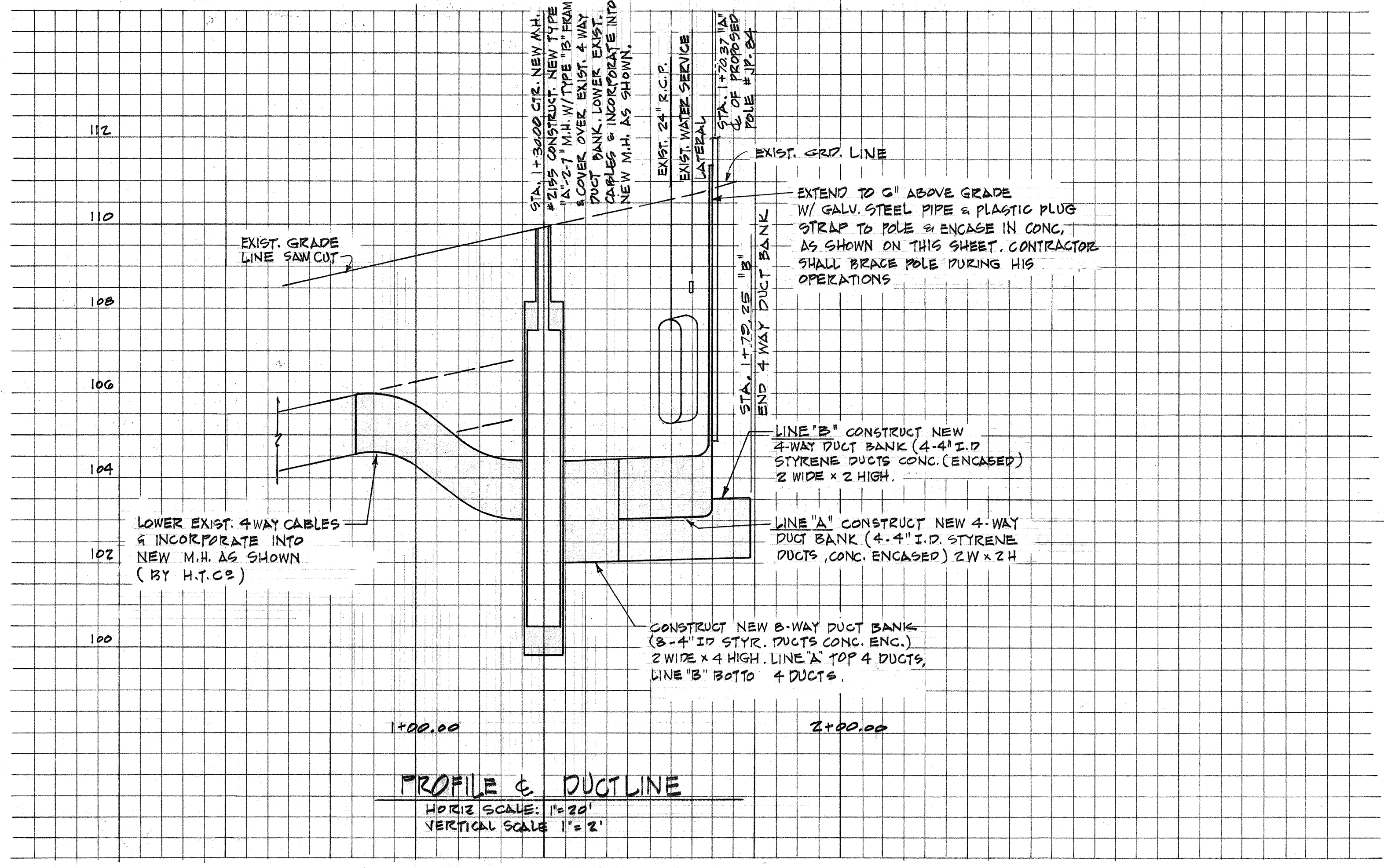


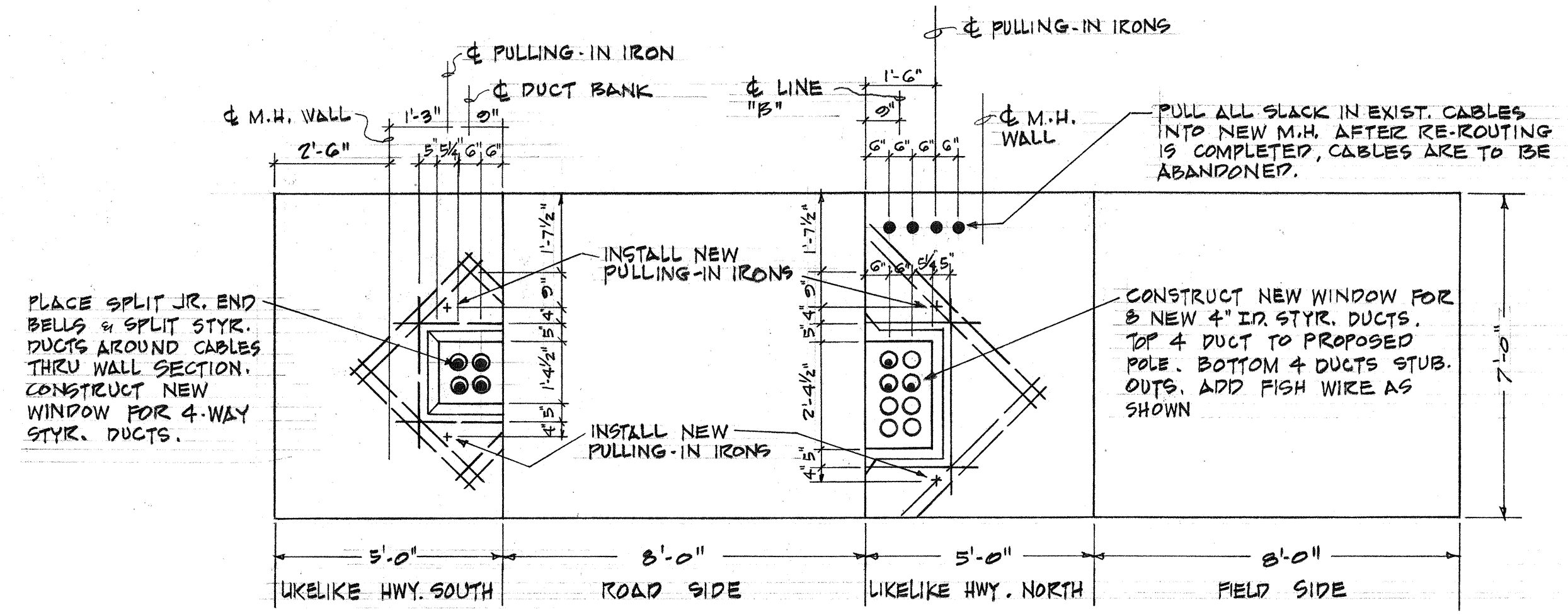


PLAN LIKELIKE HIGHWAY DUCTLINE

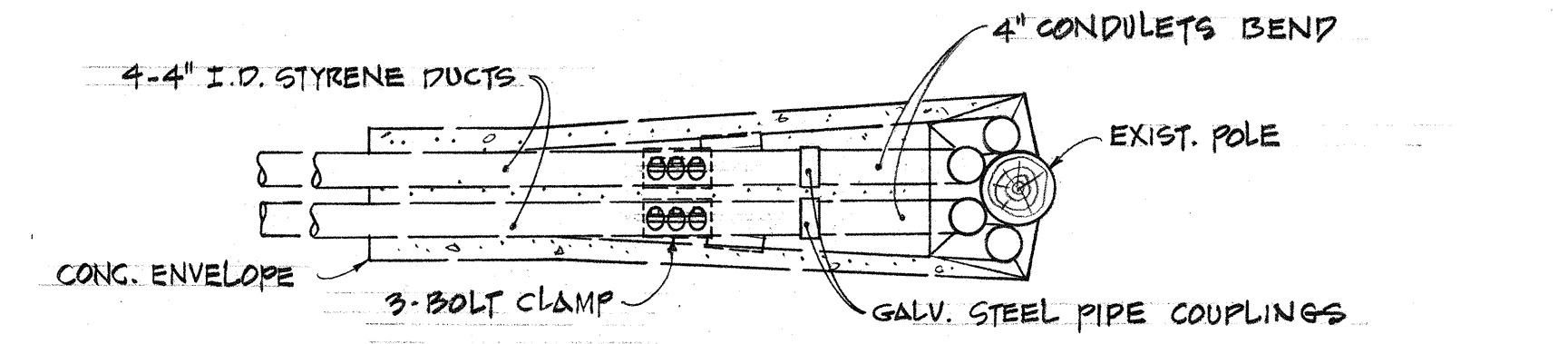


PROFILE & DUCTLINE

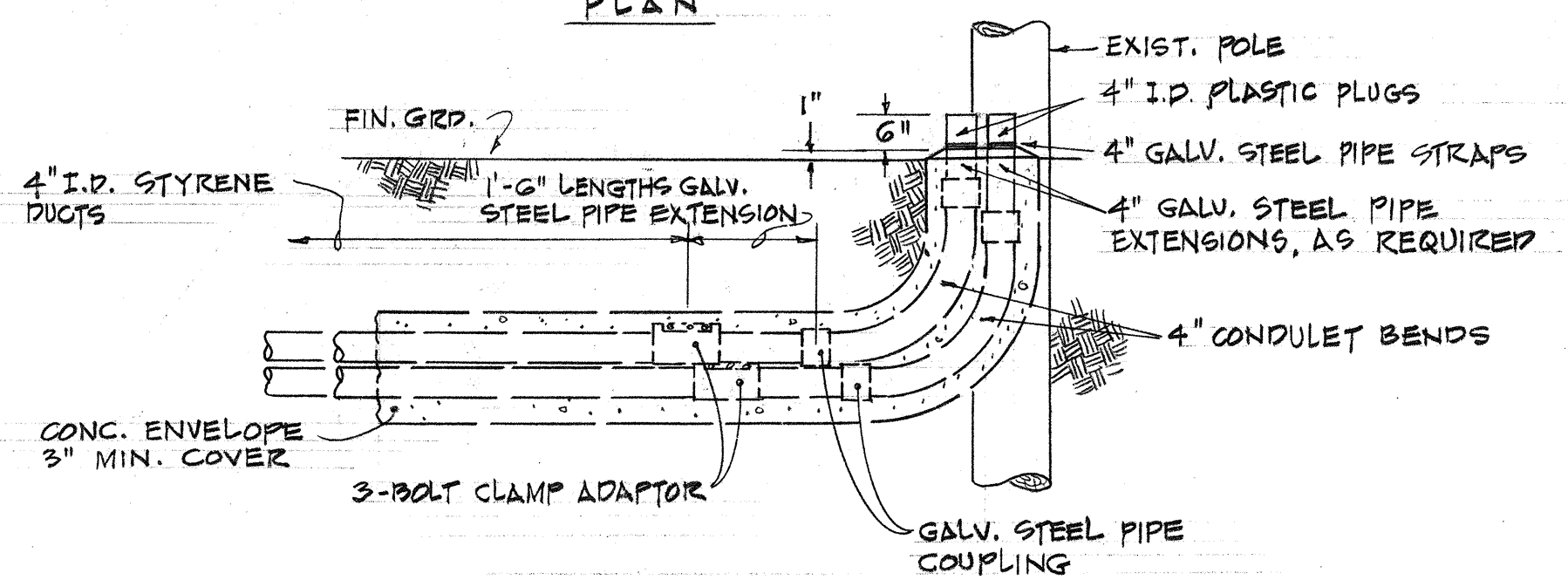
HORIZ. SCALE: 1"=20'
VERTICAL SCALE: 1"=2'



ELEVATION OF M.H. WALLS-NEW M.H. NO. 2155 (TYPE "A-2-7")
SCALE: 3/8" = 1'-0"



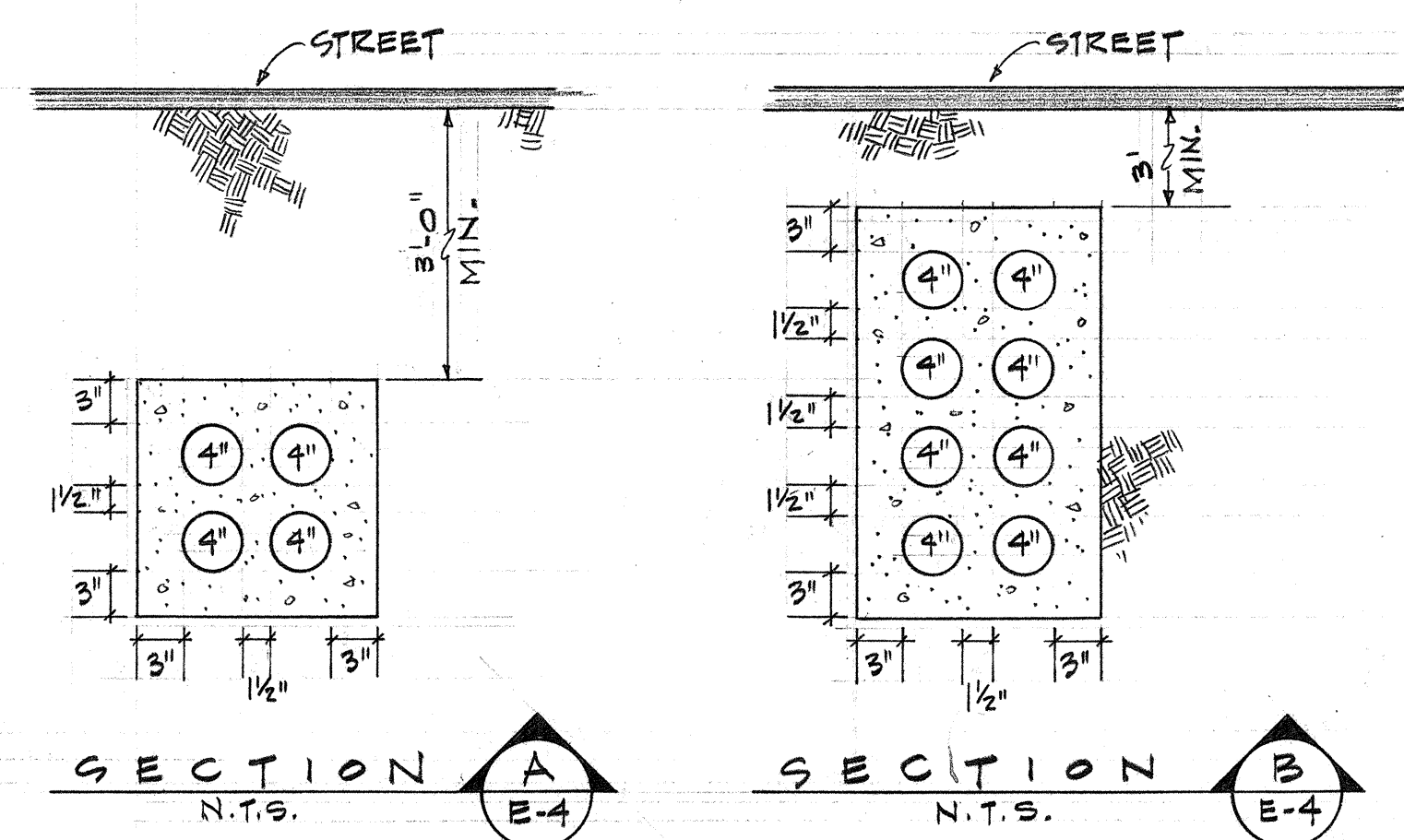
PLAN



ELEVATION

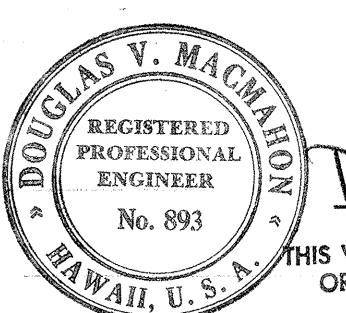
TYPICAL DUCT DETAILS AT POLE RISER

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



SECTION A
N.T.S.

SECTION B
N.T.S.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

HAWAIIAN TELE. CO. 10-14-68
DATE

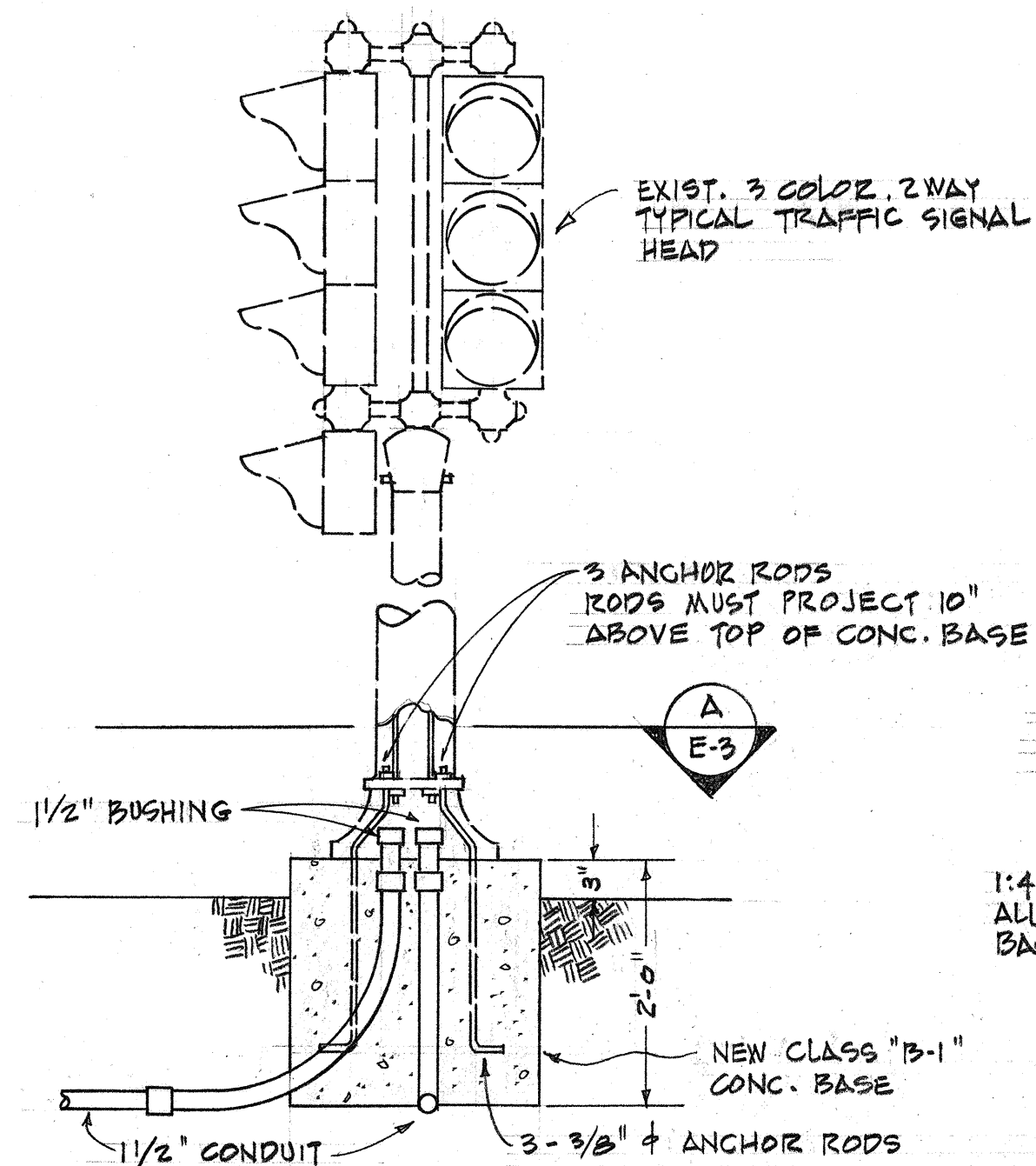
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DETAILS OF
TELEPHONE UTILITY
ADDITIONAL LANES ON LIKELIKE HIGHWAY
SCHOOL STREET TO KALIHI STREET
OAHU, HAWAII

PROJ. NO. 63A-02-68
SCALE: AS SHOWN

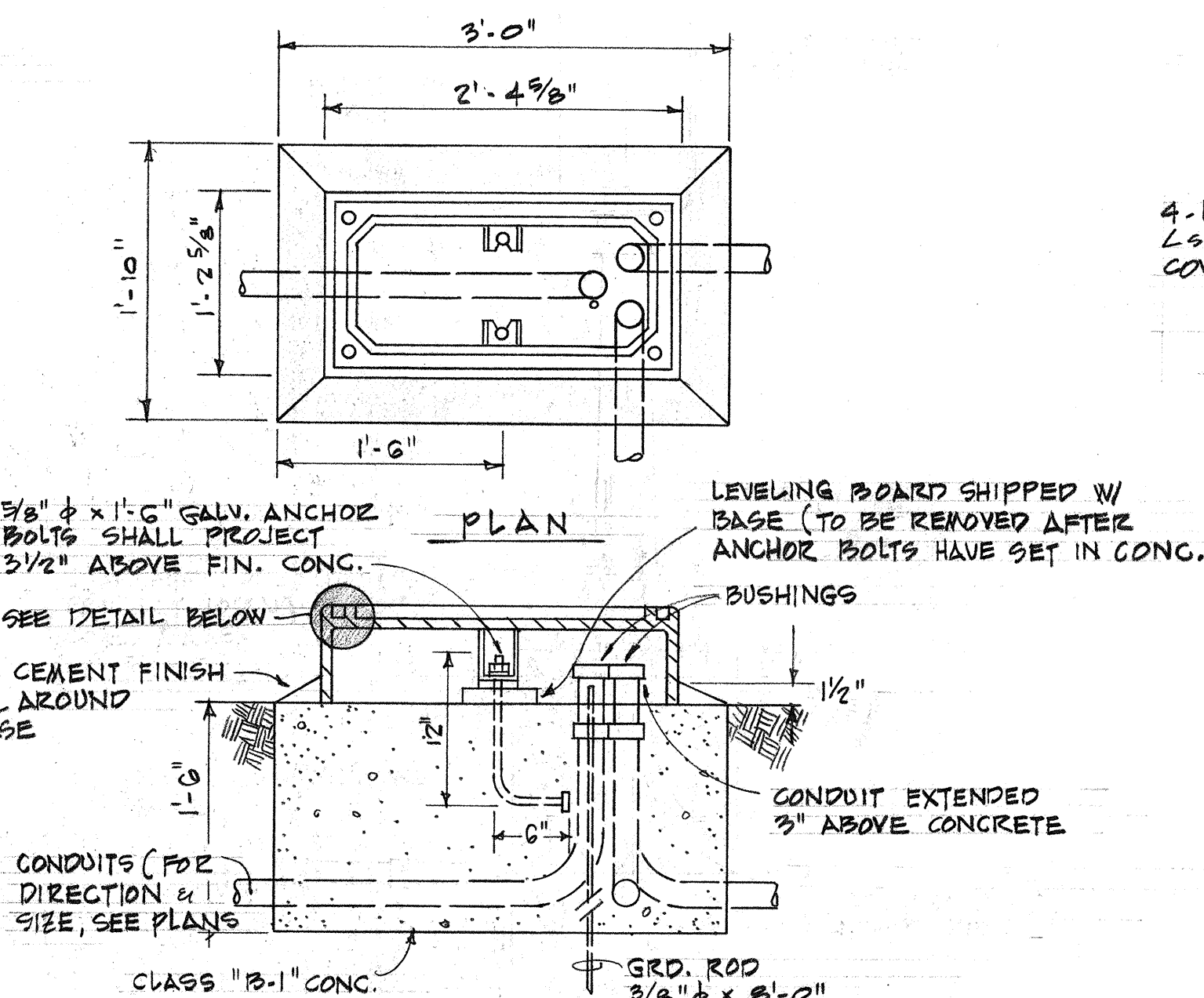
SHEET No. 1 OF 8 SHEETS

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

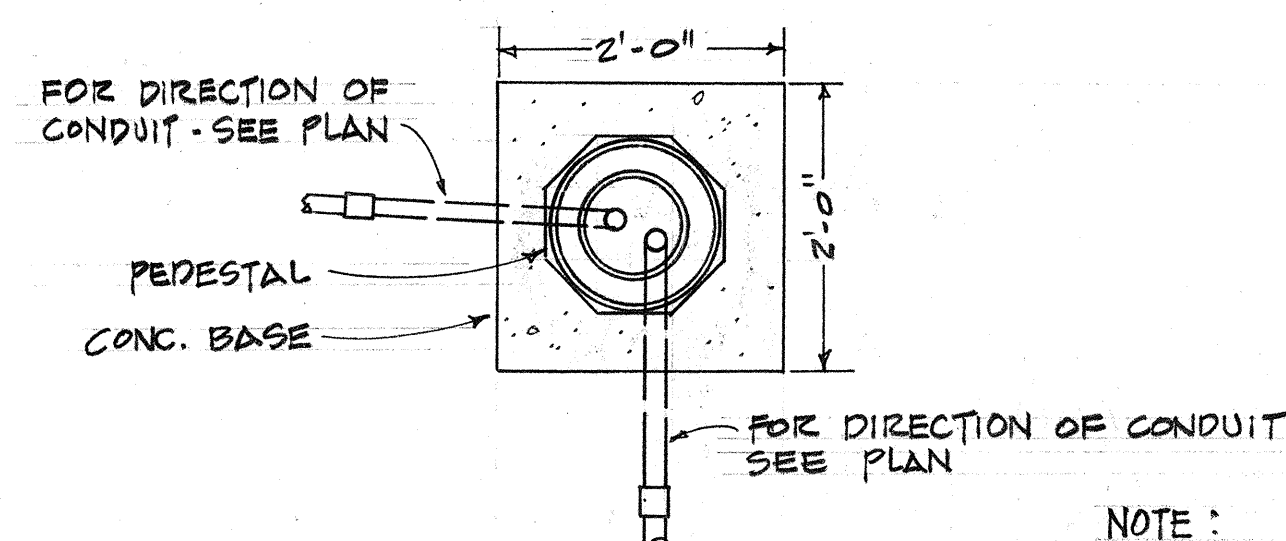
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	63A-02-68	1968	10	31



ELEVATION

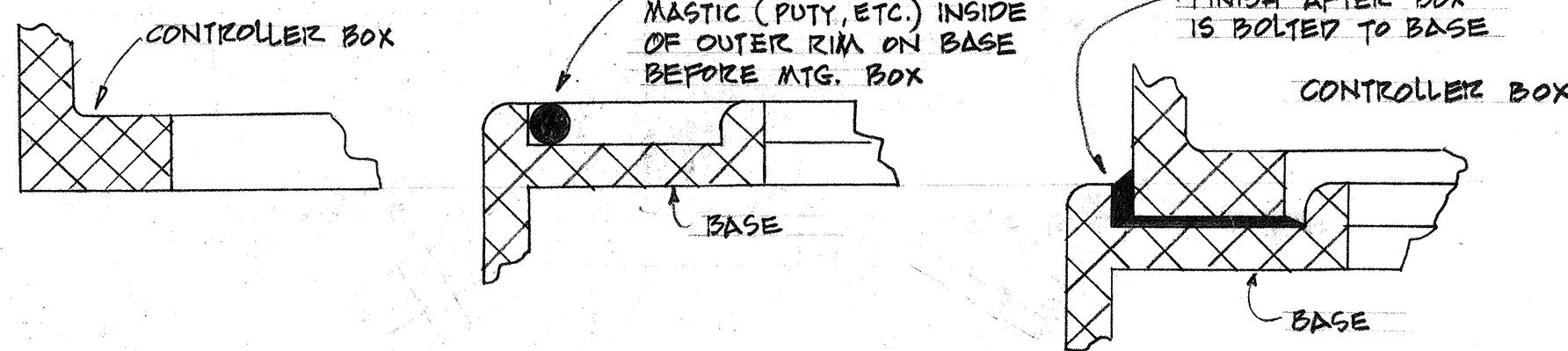


ELEVATION

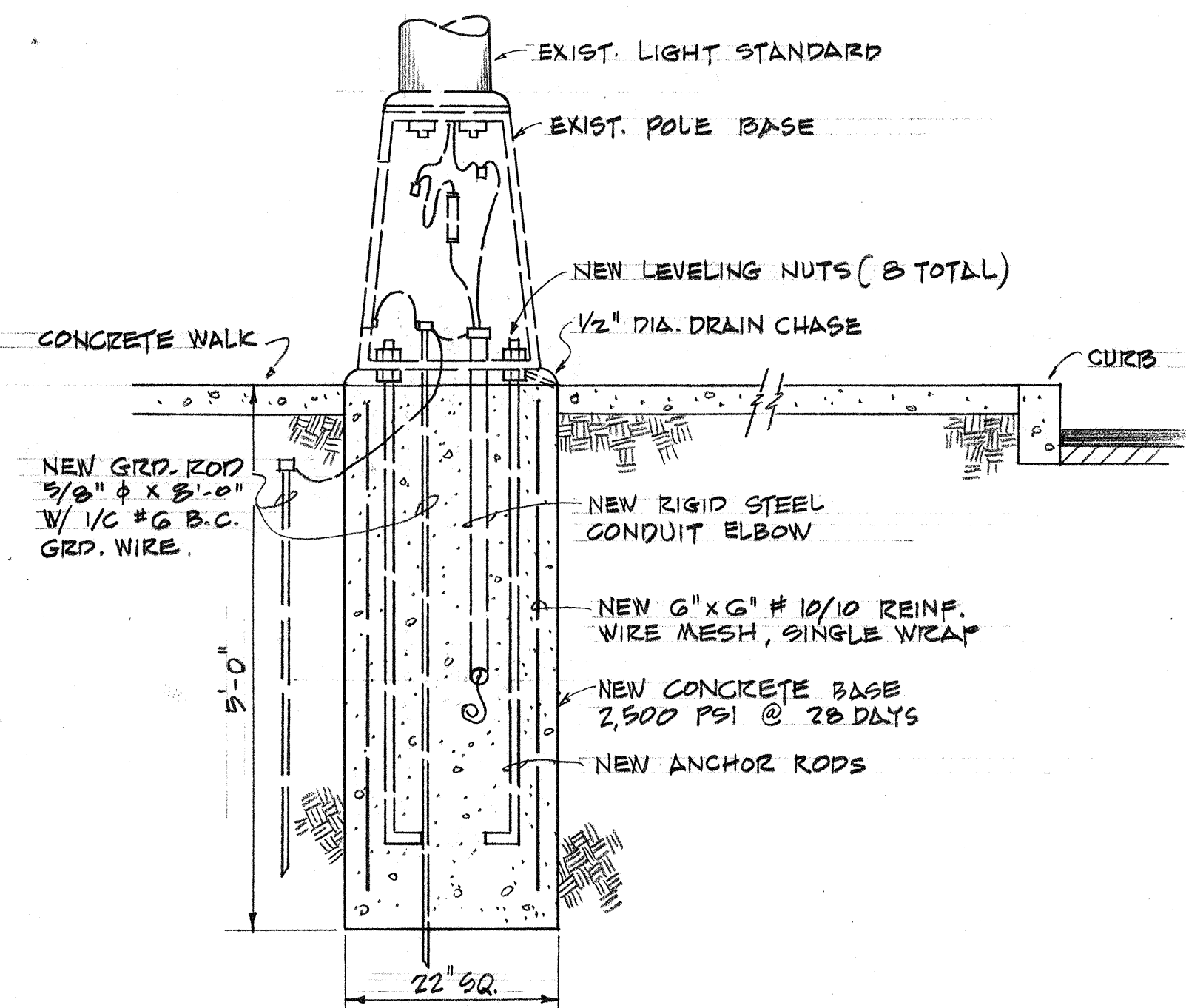


SECTION A
TRAFFIC LT. BASE

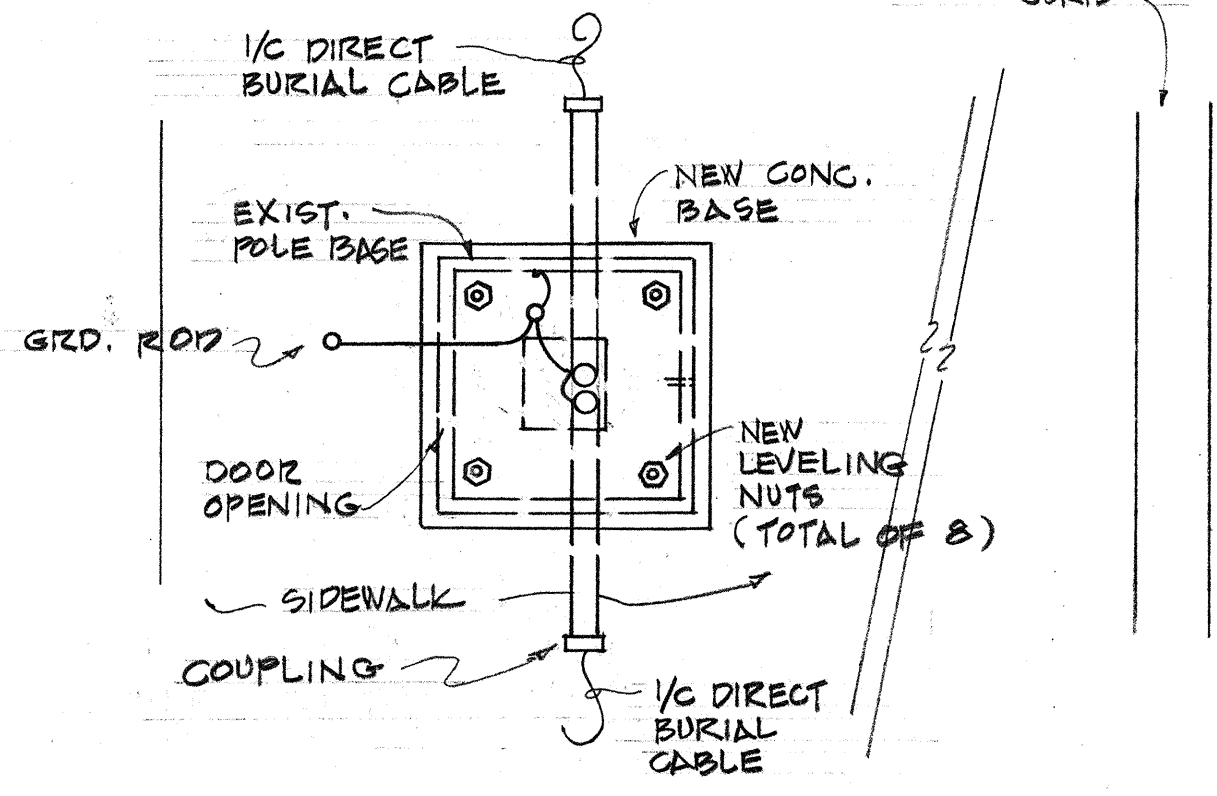
NOTE:
CONC. BASE IN SIDEWALK AREAS SHALL BE FLUSH WITH SIDEWALK. (TYPICAL)



SECTION B
TYPE "A" TRAFFIC SIGNAL CONTROLLER BASE

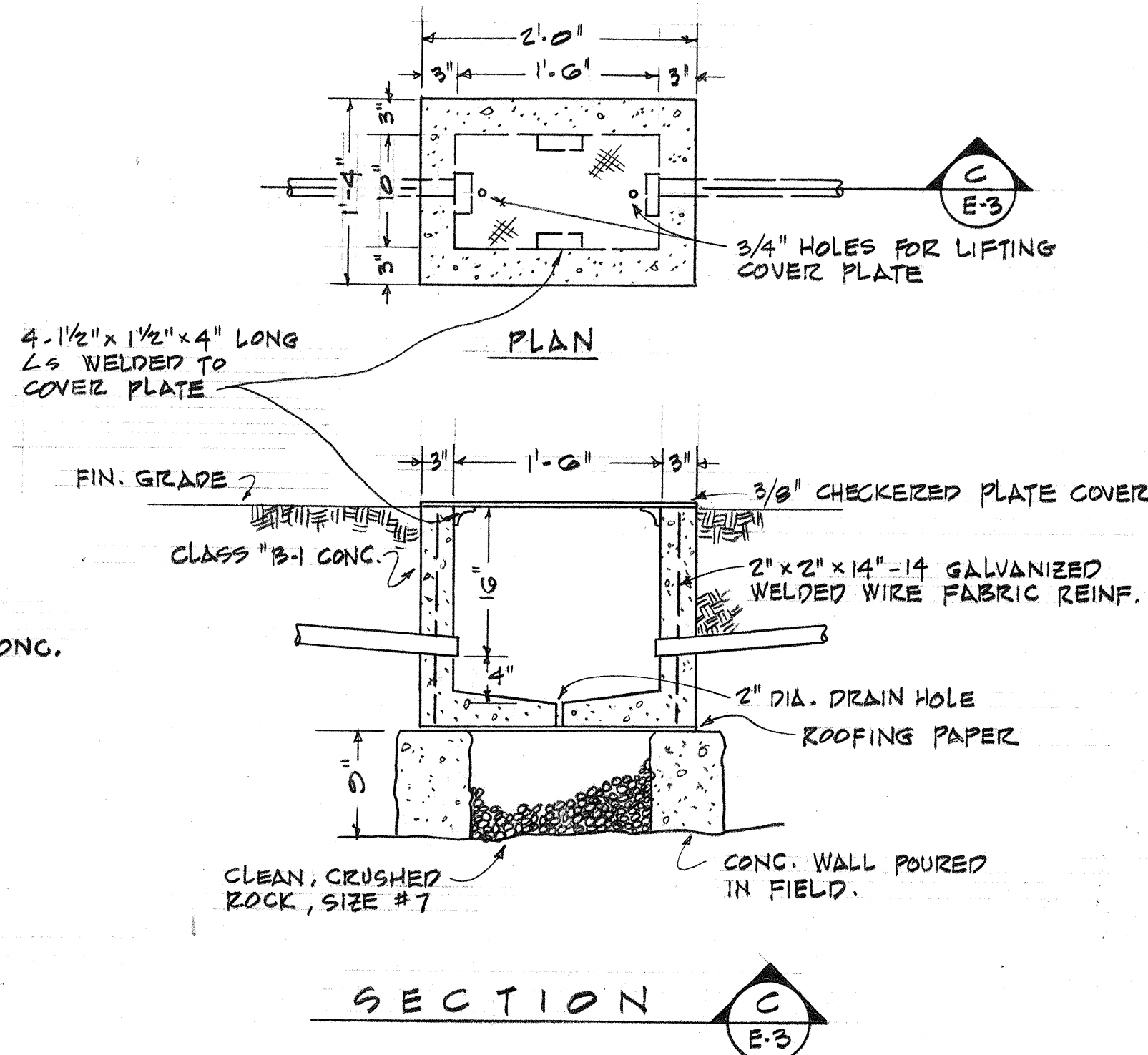


ELEVATION



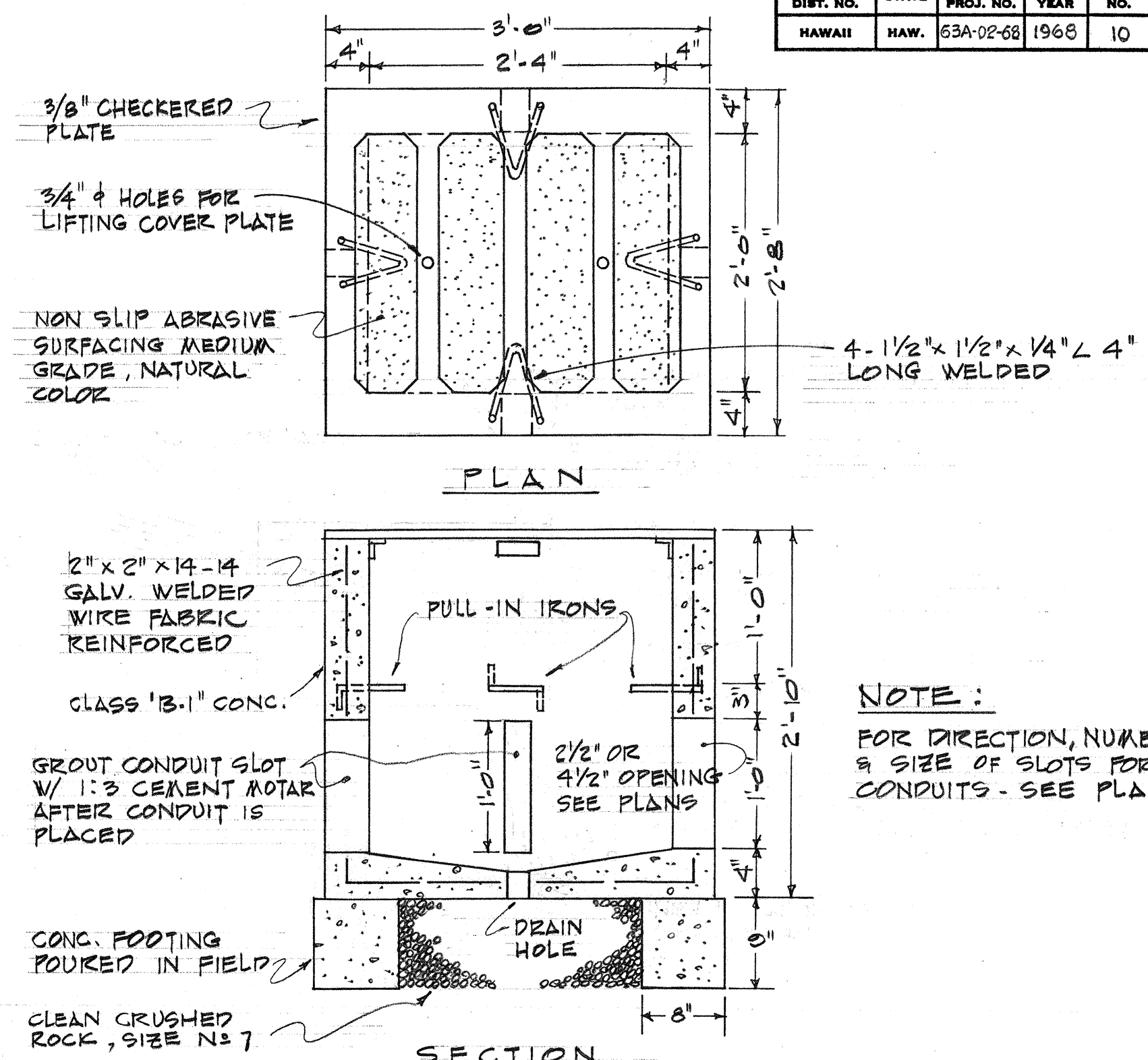
PLAN

TYPICAL CONCRETE FOUNDATION DETAIL "A"
N.T.S.



SECTION C
E-3

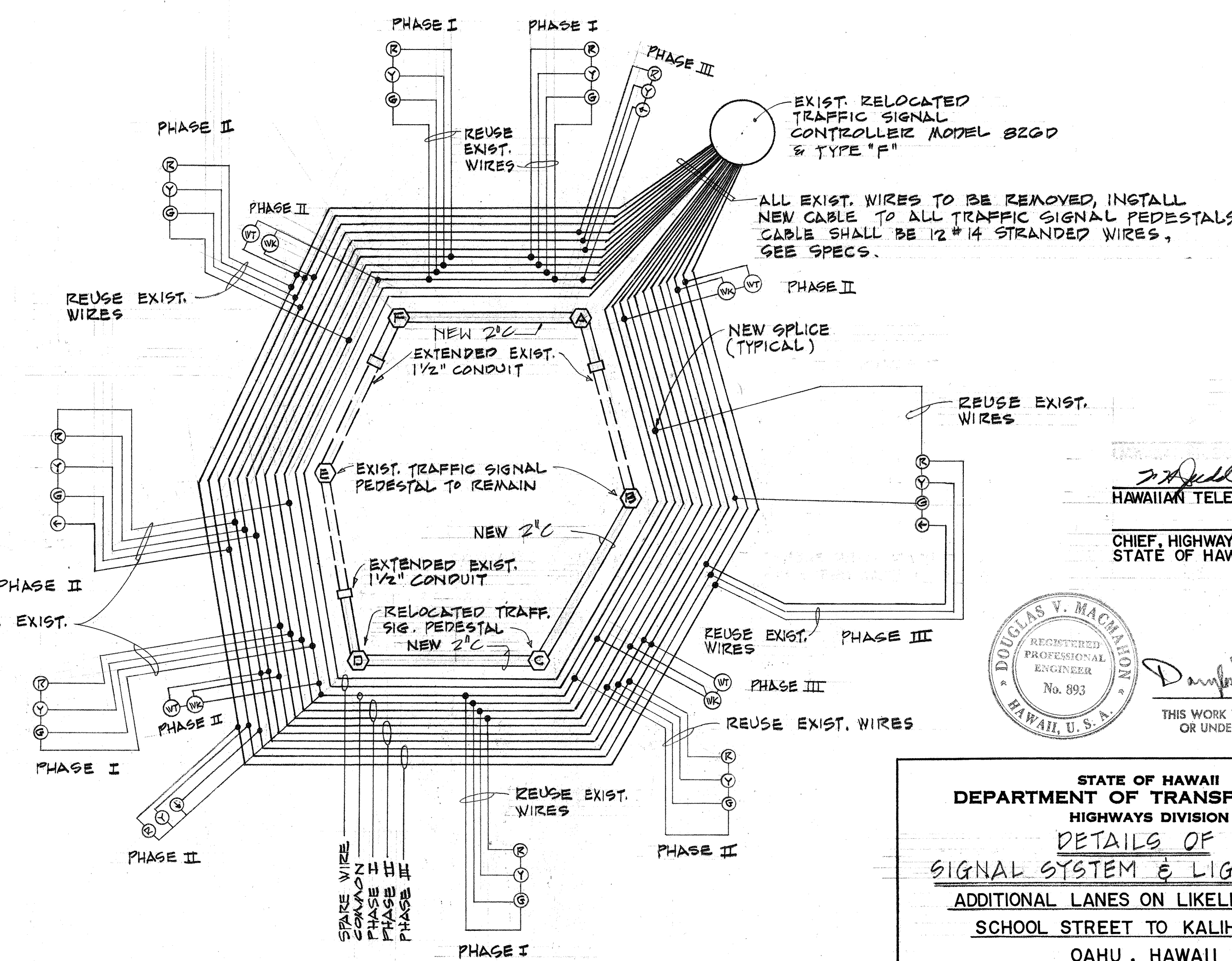
DETAIL - TYPE "B" PULL BOX
SCALE: 1"=1'-0"



SECTION

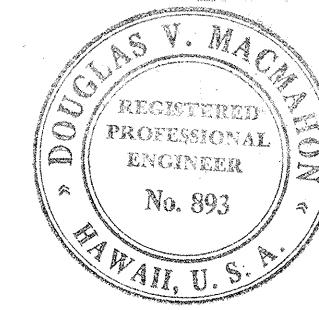
DETAIL - TYPE "A" PULL BOX
SCALE: 1"=1'-0"

NOTE:
FOR DIRECTION, NUMBER & SIZE OF SLOTS FOR CONDUITS - SEE PLANS



GEOGRAPHICAL CONDUIT WIRING DIAGRAM OF EXISTING AND NEW WIRING

APPROVED
DATE 10-14-68
HAWAIIAN TELE. CO.
CHIEF, HIGHWAYS DIV.
STATE OF HAWAII



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

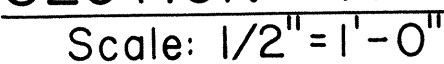
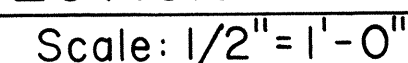
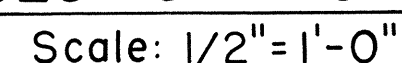
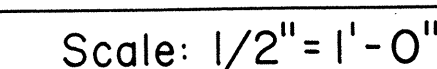
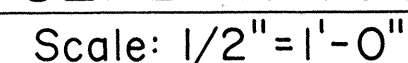
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DETAILS OF
SIGNAL SYSTEM & LIGHTING
ADDITIONAL LANES ON LIKELIKE HIGHWAY
SCHOOL STREET TO KALIHI STREET
OAHU, HAWAII

PROJ. NO. 63A-02-68
SCALE: AS SHOWN

SHEET No. 2 OF 8 SHEETS

DATE	10-14-68
SURVEY PLOTTED BY	...
ORIGINAL PLAN	...
DESIGNED BY	...
NOTED BY	...
CHECKED BY	...

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



Scale: $3/8" = 1' - 0"$

APPROVED:

Hawaiian Telephone Co., Ltd.

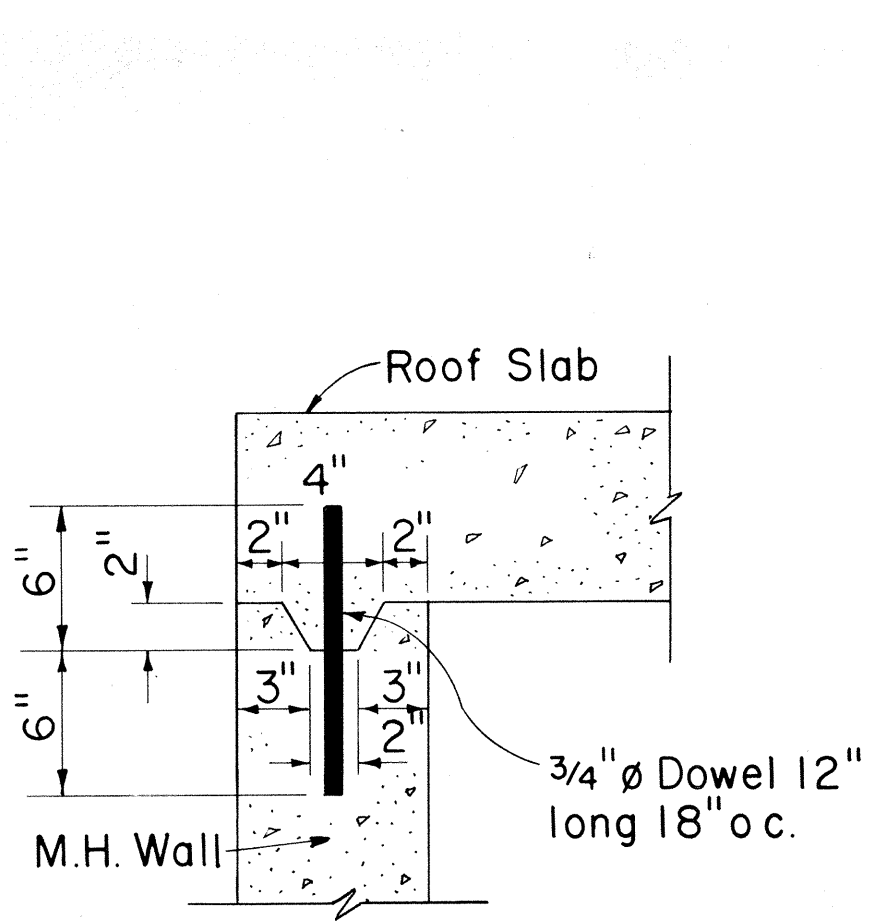
10-14-61
Date

Scale: As Noted

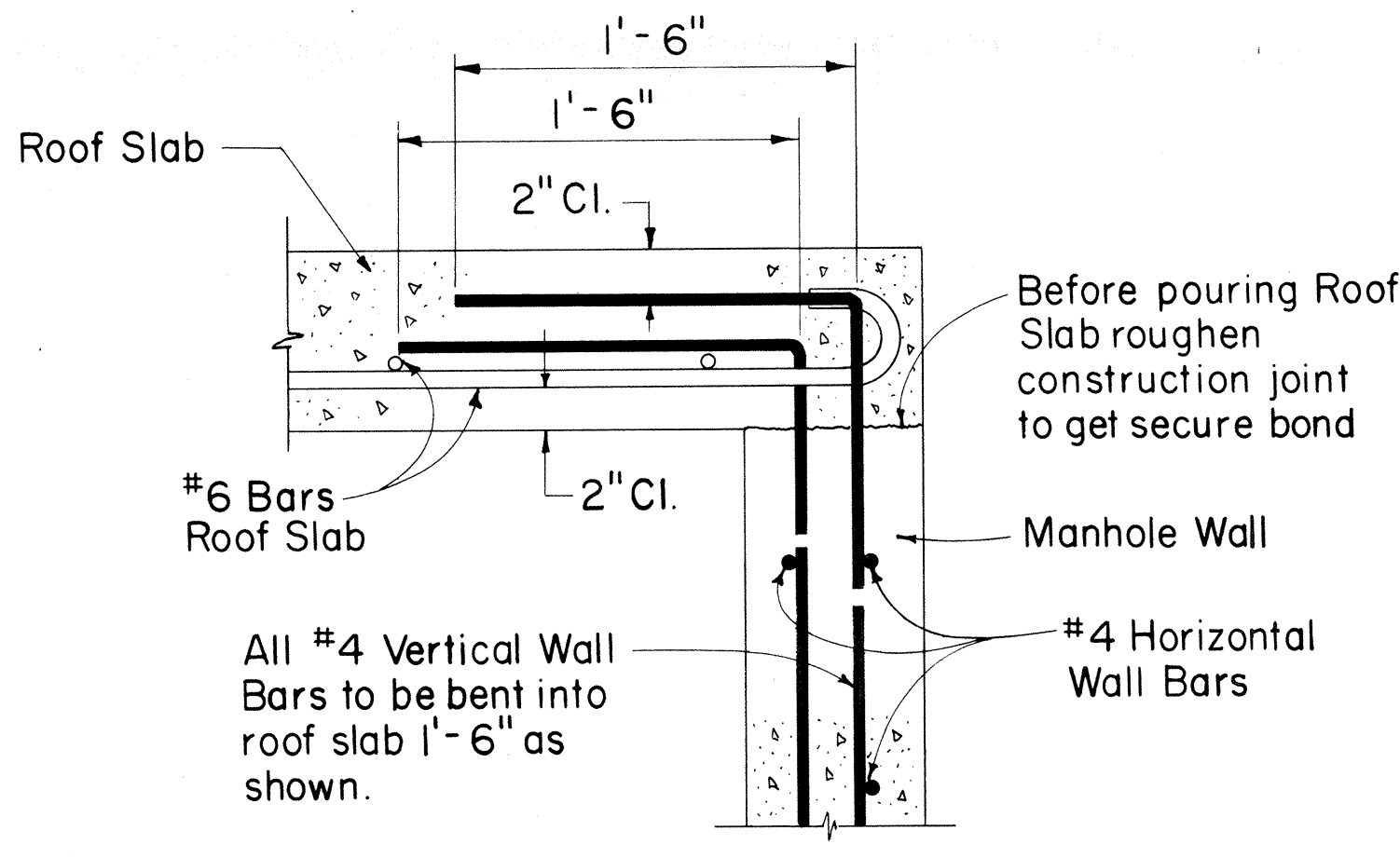
Date:

SHEET No. 3 OF 8 SHEETS

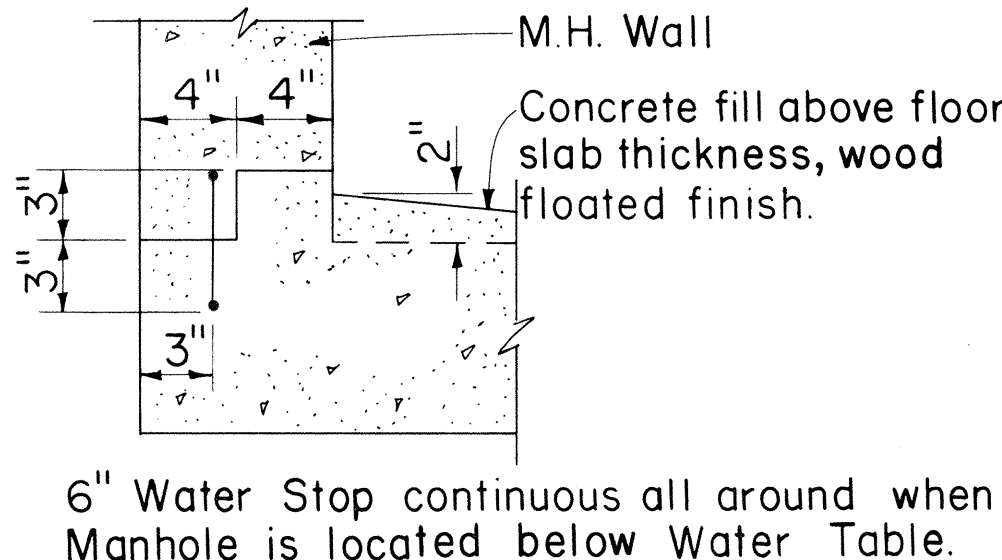
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	63A-02-68	1968	12	31



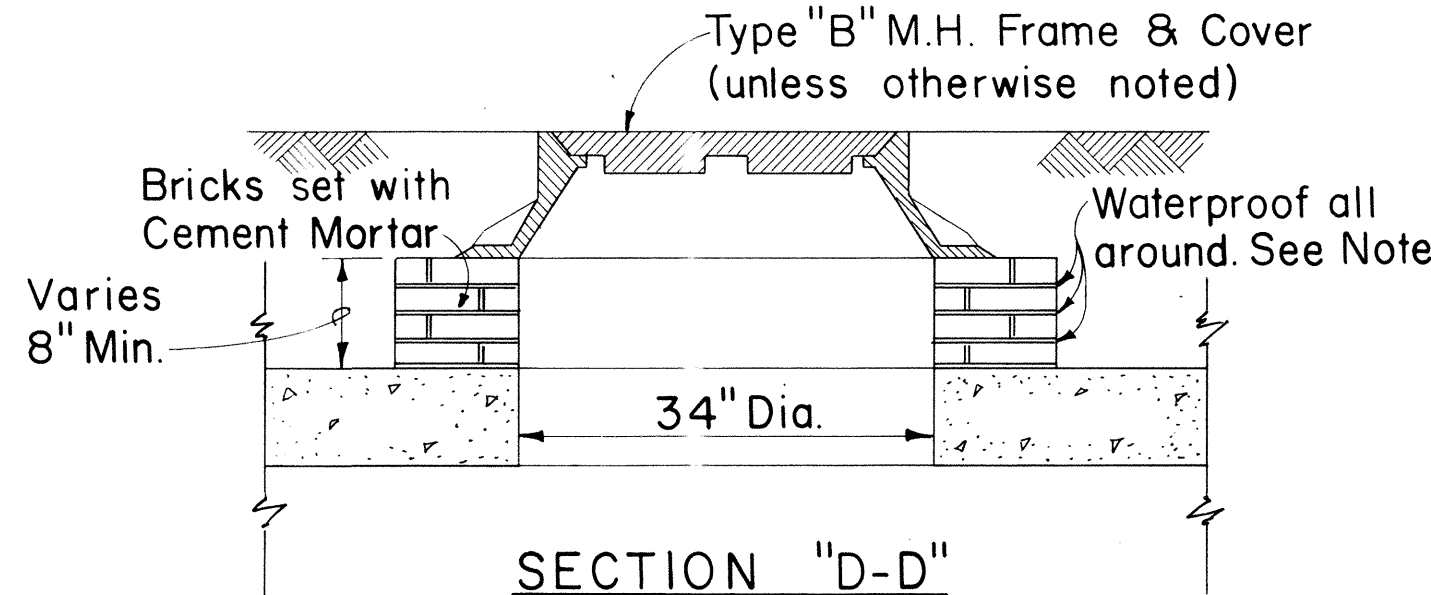
DETAIL "A"
TOP CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"
(Optional for cast-in-place construction)
Required for precast construction



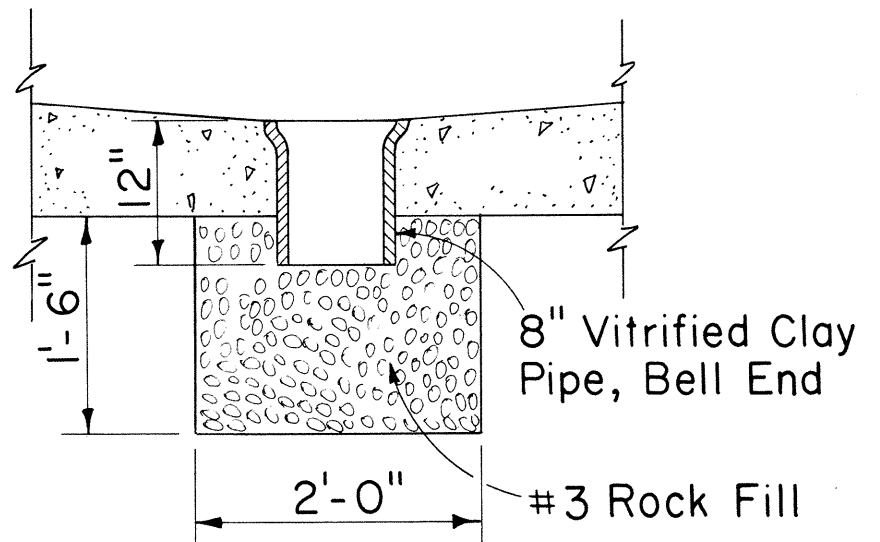
DETAIL "B"
(USED FOR CAST-IN-PLACE CONSTRUCTION)
Scale: 1 1/2" = 1'-0"



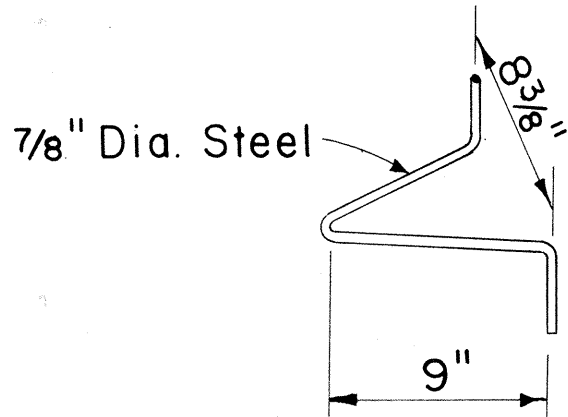
DETAIL "C"
BOTTOM CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"



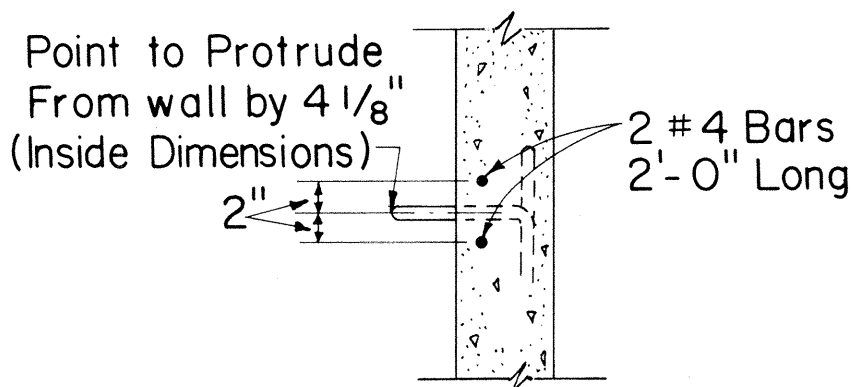
SECTION "D-D"
M.H. COVER DETAIL
Scale: 3/4" = 1'-0"



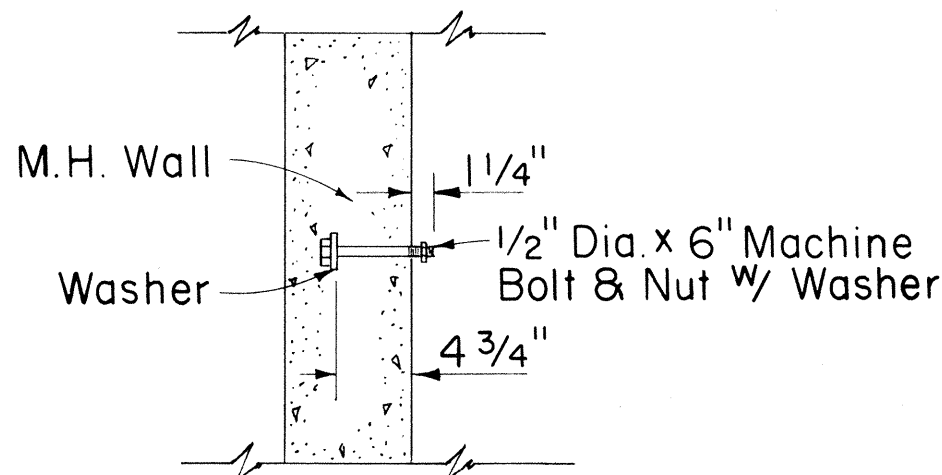
SECTION "E-E"
M.H. SUMP DETAIL
Scale: 3/4" = 1'-0"
Note: See Section "E₁-E₁" Below



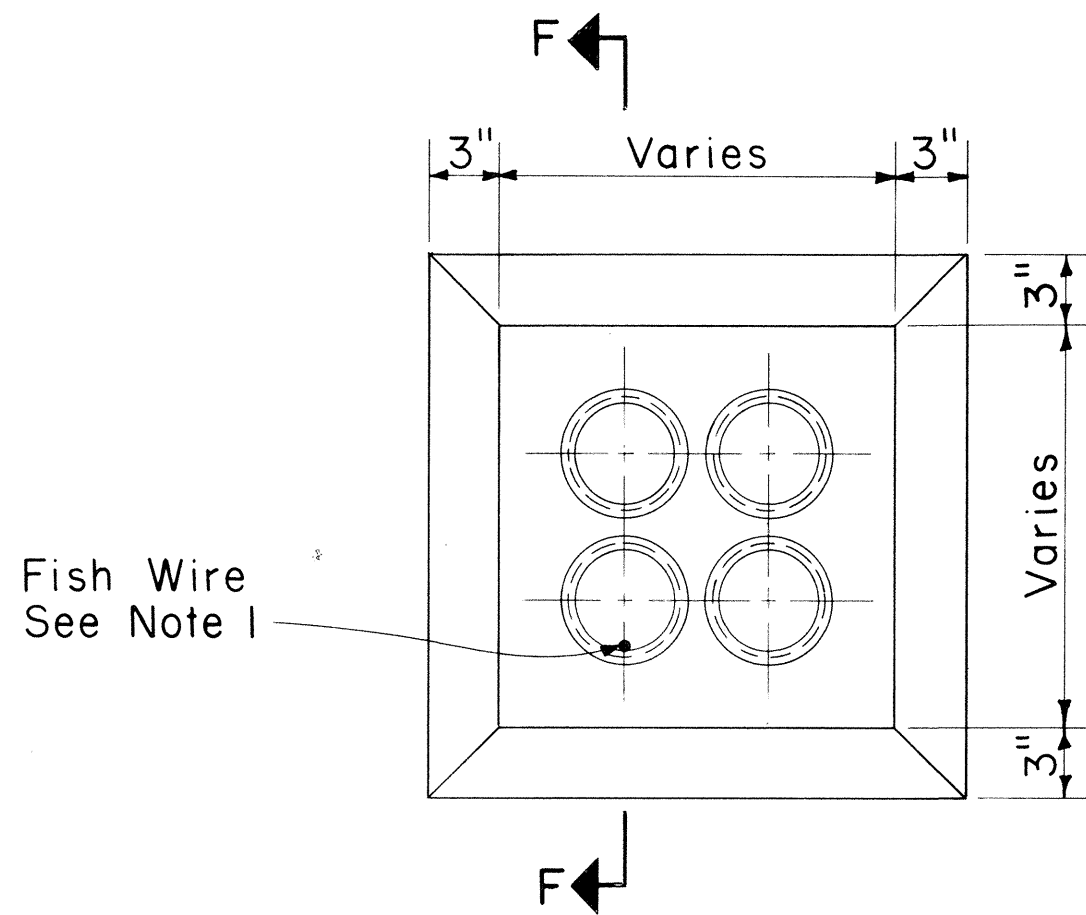
PULLING-IN IRON



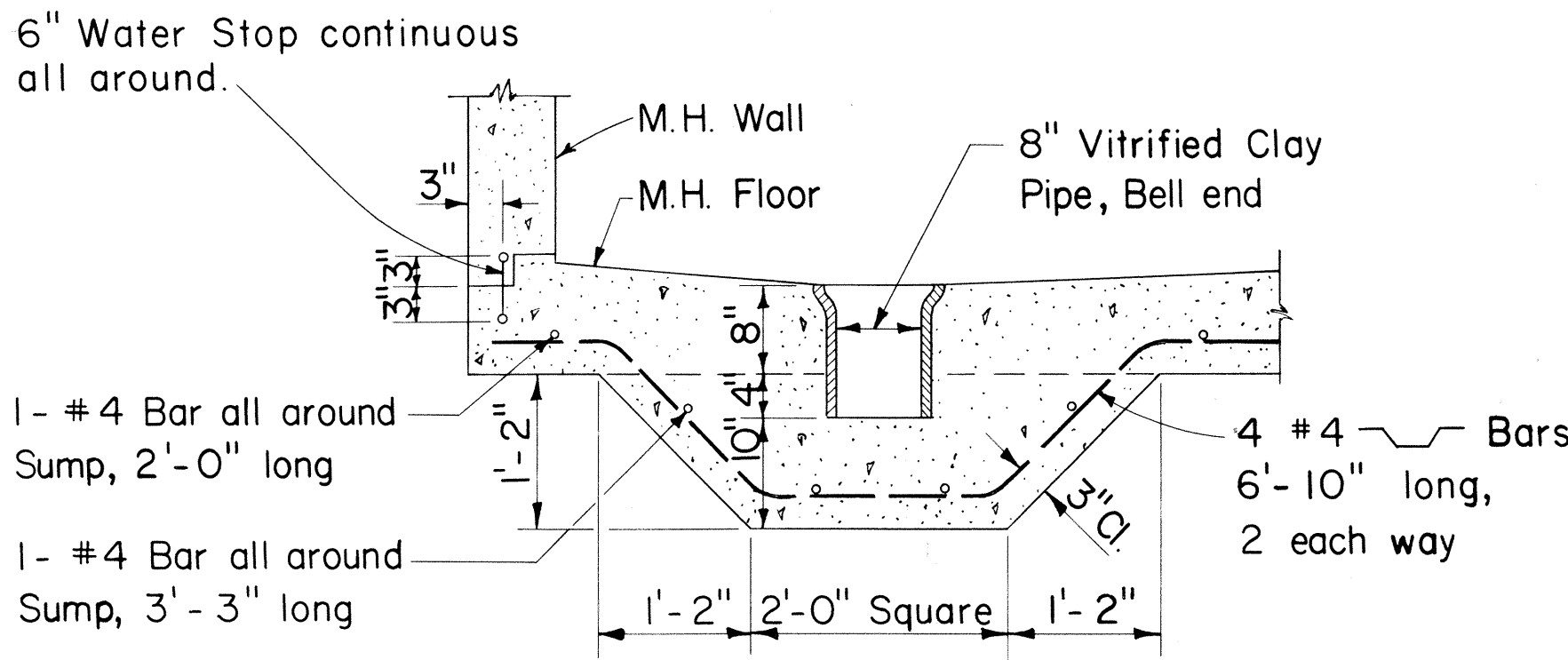
SECTIONAL VIEW OF PULLING-IN IRON
Scale: 3/4" = 1'-0"



CABLE RACK STUD BOLT DETAIL
Scale: 1" = 1'-0"



TYPICAL MANHOLE DUCT WINDOW
Scale: 1 1/2" = 1'-0"

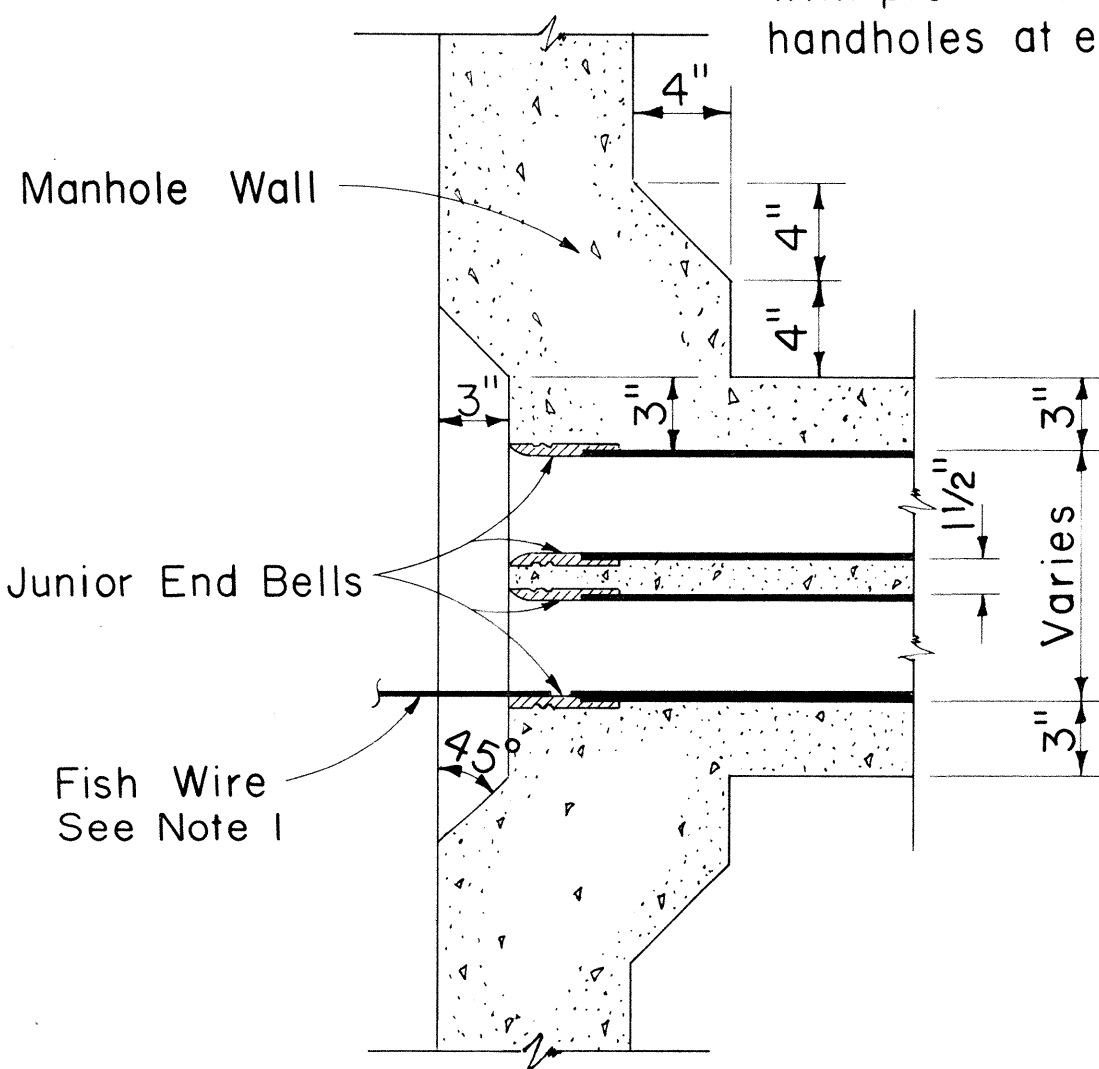


Note: Only for manholes located below water table

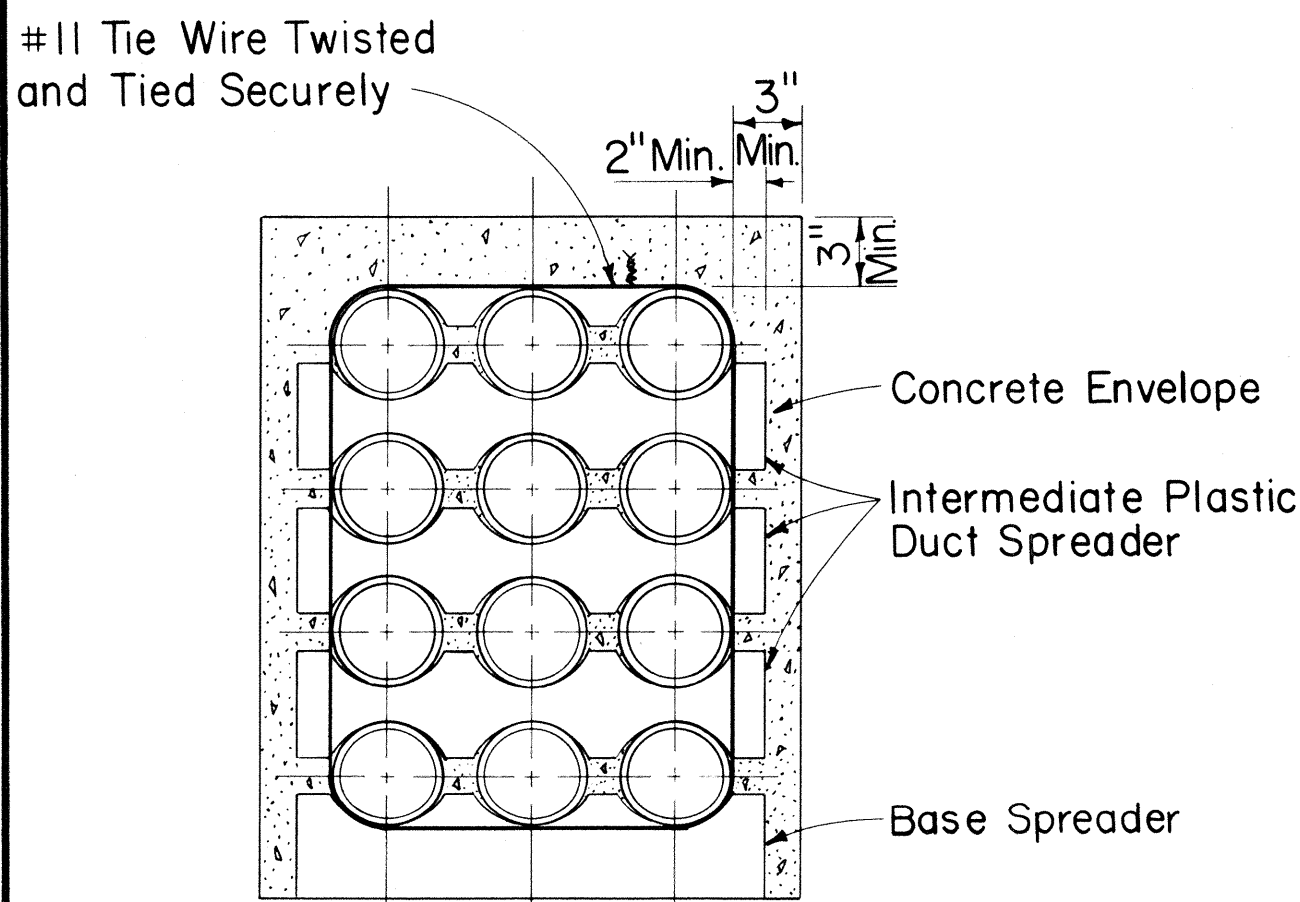
SECTION "E₁-E₁"
MANHOLE SUMP DETAIL
Scale: 3/4" = 1'-0"

NOTE

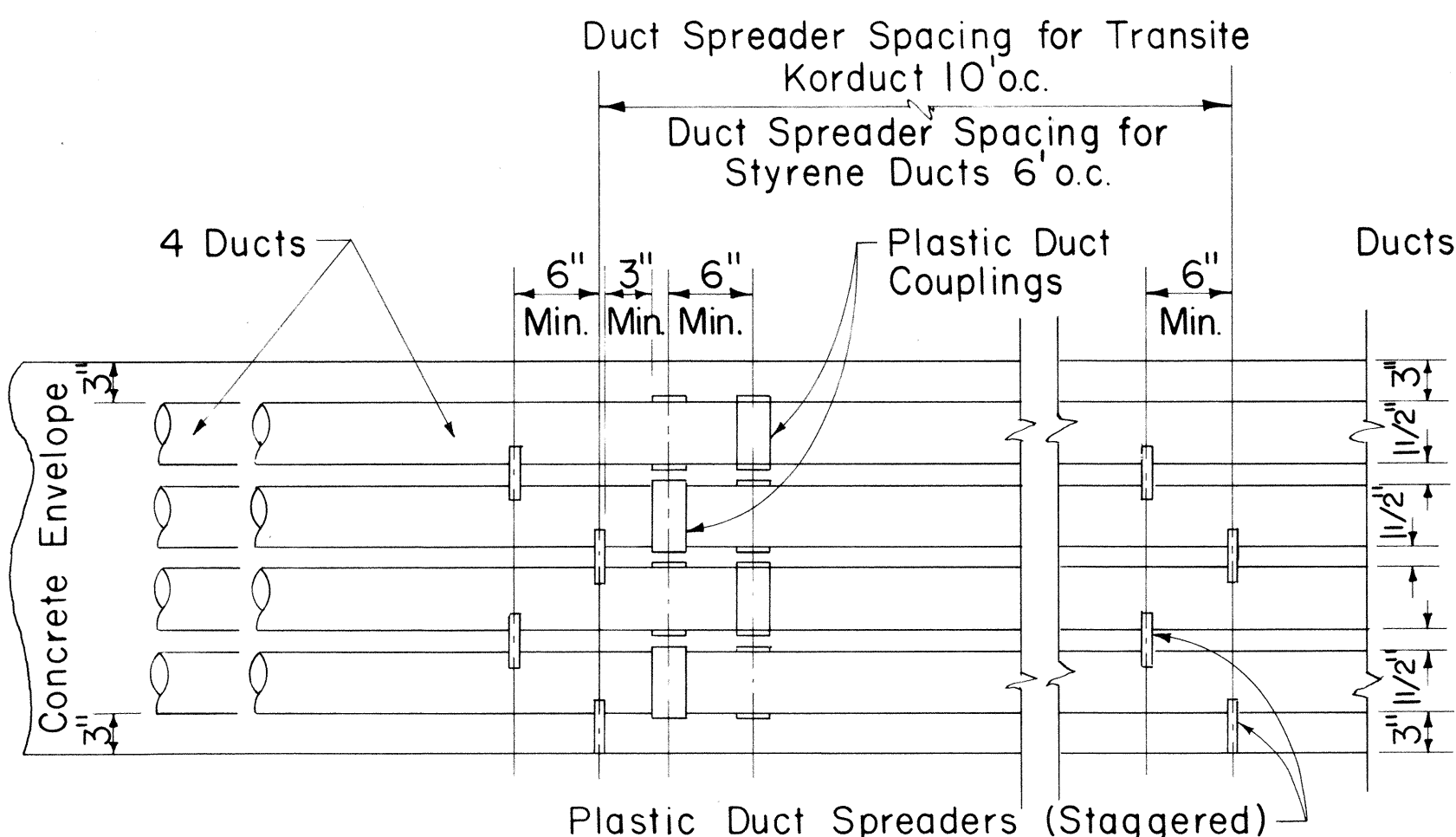
- The Contractor shall place #12 Fish Wire in designated duct throughout its entire length with protrusions of 2 feet in manholes & handholes at each end and 1 foot in pullboxes.



SECTION "F-F"
TYPICAL WINDOW DETAIL & JUNIOR END BELL
Scale: 1 1/2" = 1'-0"



SECTION SHOWING SPACERS



TYPICAL DUCT ENVELOPE ELEVATION
ARRANGEMENT OF COUPLING & PLASTIC SPACERS
Scale: 1" = 1'-0"

Supplement Sheet to Type "A-1" (Drawing Nos. 34060 & 34061), Type "A-2" (Drwg. Nos. 34062 & 34063) and Type "A-3" (Drwg. Nos. 34064 & 34065) Telephone M.H.

APPROVED:

J. D. Riddell 10-14-68
Hawaiian Telephone Co., Ltd. Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

TYPE "A" MANHOLE
AND MISCELLANEOUS
TELEPHONE DETAILS

Scale: As Noted Date:

SHEET No. 4 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	63A-02-68	1968	13	31

CREOSOTED DOUGLAS FIR & YELLOW PINE POLE DATA									
LENGTH IN FEET	CLASS	APPROX. MINIMUM DIMENSIONS (INCHES)				AVERAGE WEIGHT (LBS.)	POLE SETTING DEPTH (FT.)		BREAKING LOAD 2'-0" BELOW TOP OF POLE (LBS.)
		AT TOP		6' FROM BUTT			DOUGLAS FIR	IN SOIL	
		DIA.	CIR.	DIA.	CIR.				
25	5	6.04	19	8.26	26	525	4.5	3	1900
30	3	7.32	23	10.32	32.5	810	5	3.5	3000
	5	6.04	19	8.90	28	600	5	3.5	1900
35	2	7.96	25	12.23	37.5	1260	5	3.5	3700
	5	6.04	19	9.55	30	770	5	3.5	1900
40	3	7.32	23	11.77	37	1320	5.5	3.5	3000
45	2	7.96	25	13.20	41.5	1845	6	4	3700
	3	7.32	23	12.25	38.5	1575	6	4	3000
50	2	7.96	25	13.70	43	2150	6.5	4	3700
	3	7.32	23	12.70	40	1850	6.5	4	3000
55	1	8.59	27	15.11	47.5	2860	7	4.5	4500
	2	7.96	25	14.15	44.5	2475	7	4.5	3700
	3	7.32	23	13.20	41.5	2145	7	4.5	3000
60	1	8.59	27	15.75	49.5	3360	7	4.5	4500
	2	7.96	25	14.62	46	2820	7	4.5	3700
65	1	8.59	27	16.20	51	3835	7.5	5	4500
	2	7.96	25	15.11	47.5	3250	7.5	5	3700
70	1	8.59	27	16.70	52.5	4340	7.5	5	4500
	2	7.96	25	15.60	49	3640	7.5	5	3700
75	1	8.59	27	17.20	54	4800	8	5.5	4500
	2	7.96	25	16.05	50.5	4050	8	5.5	3700
80	1	8.59	27	17.50	55	5240	8	6	4500
	2	7.96	25	16.40	51.5	4400	8	6	3700
85	1	8.59	27	18.00	56.5	5780	8.5	6.5	4500
	2	7.96	25	16.88	53	4930	8.5	6.5	3700
90	1	8.59	27	18.30	57.5	6300	8.5	6.5	4500
	2	7.96	25	17.20	54	5400	8.5	6.5	3700

NOTE:

The ultimate fiber stress for creosoted Southern Yellow Pine & Douglas Fir is 7,400 Lbs. per square inch.

Weights are for untreated poles. Add 5% as estimate of added weight of creosote treatment.

REFERENCES:

American Standards Association 05.4-1941, 05.6-1945.
Standard Handbook for Electrical Engineers, Eighth Edition
H. E. Co. Specification for Poles.

WOOD POLE DATA

APPROVED:

HAWAIIAN ELECTRIC Co., Inc. DATE

HAWAIIAN TELEPHONE Co. DATE

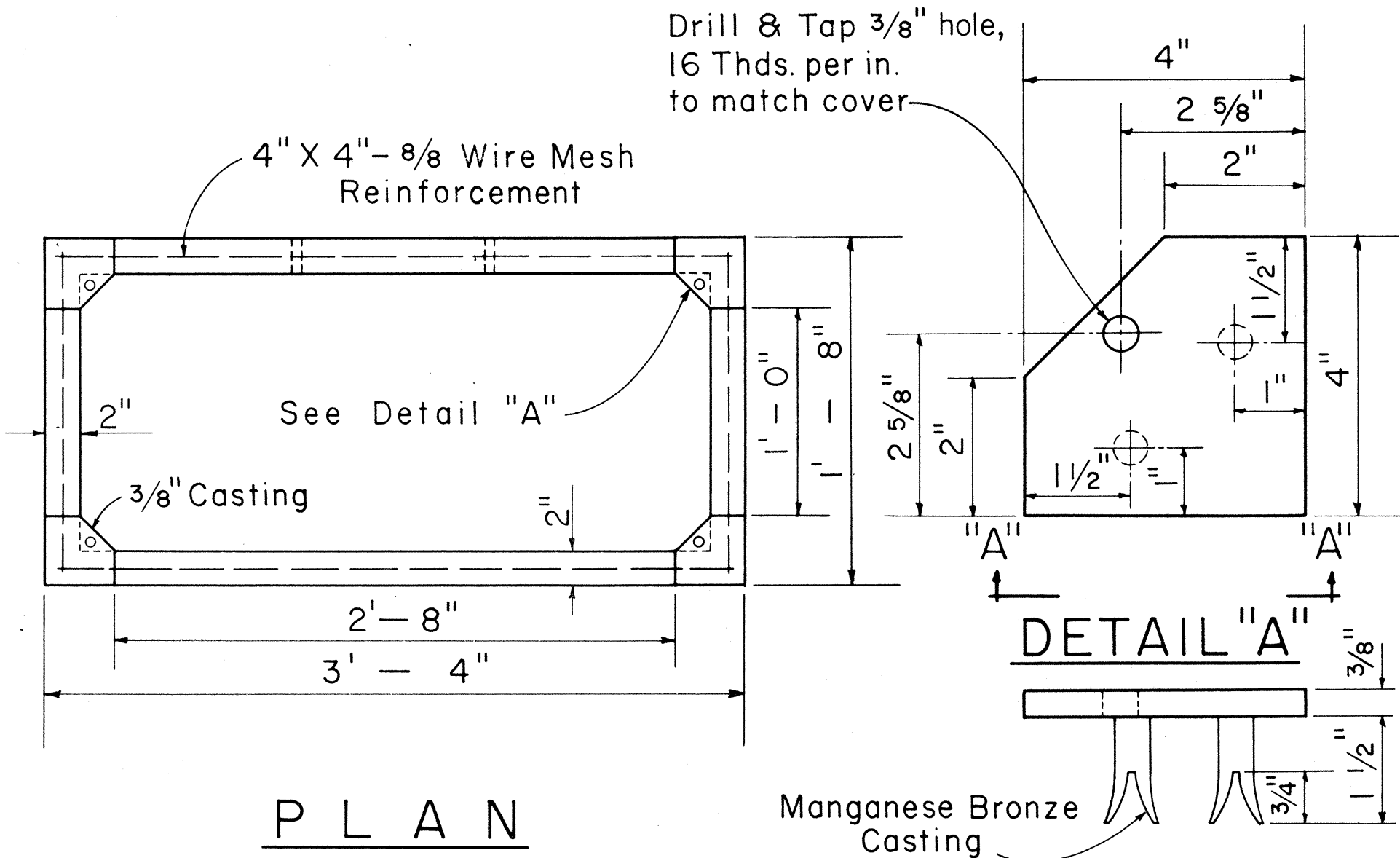
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
H. E. Co. AND H. T. Co.
SERVICE BOX DETAILS
AND WOOD POLE DATA

Scales: As Noted

Date

SHEET NO. 5 OF 8 SHEETS



DETAIL "A"

SECTION "A-A"

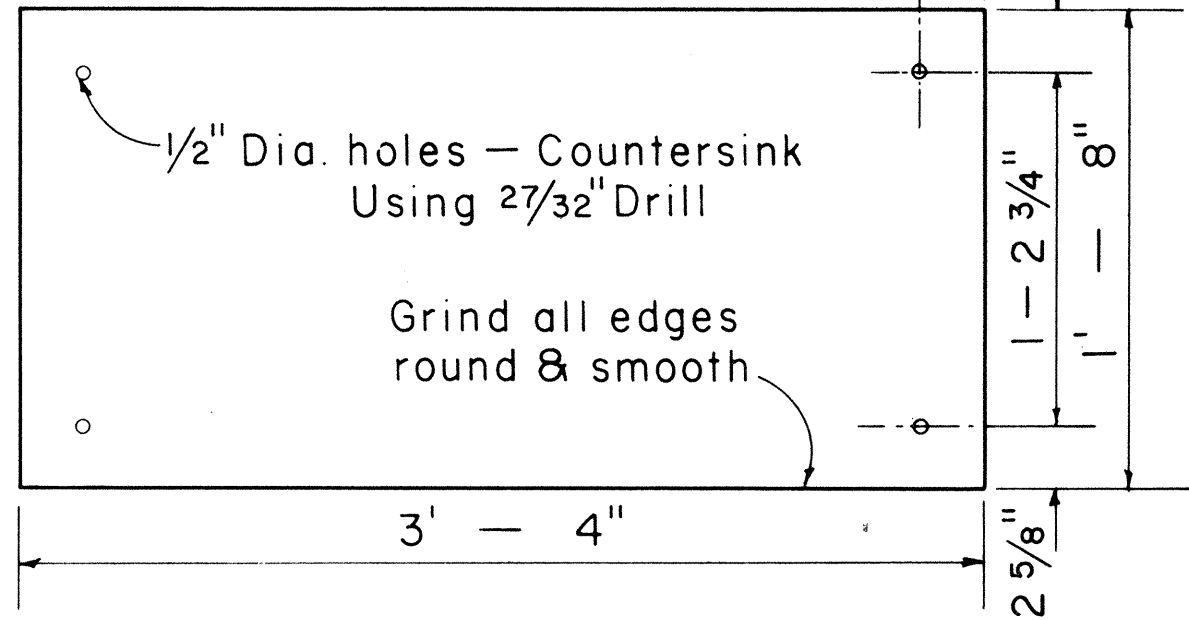
PLAN

SIDE VIEW

END VIEW

NOTES:

Use 3/8" Plate for driveways.
Concrete Box 225 Lbs.
1/4" Checker Plate 62 Lbs.
Secure cover with 3/8" x 1" flat head brass machine screws.



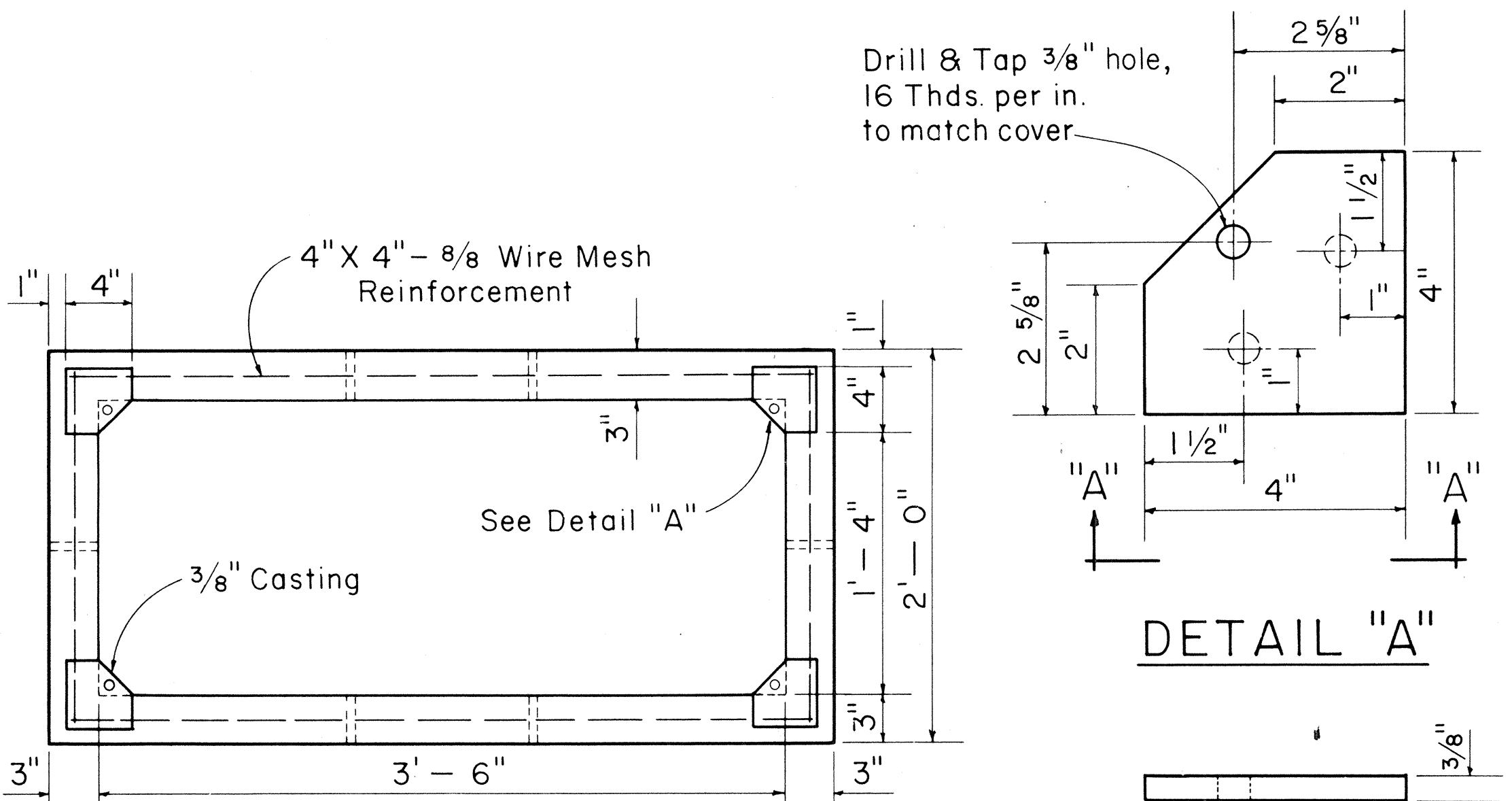
1/4" CHECKER PLATE COVER

(Hot dip galvanize checkered plate after drilling, countersinking, and grinding edge)

1'-4" X 3'-0" CONCRETE SERVICE BOX

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

OII250



DETAIL "A"

SECTION "A-A"

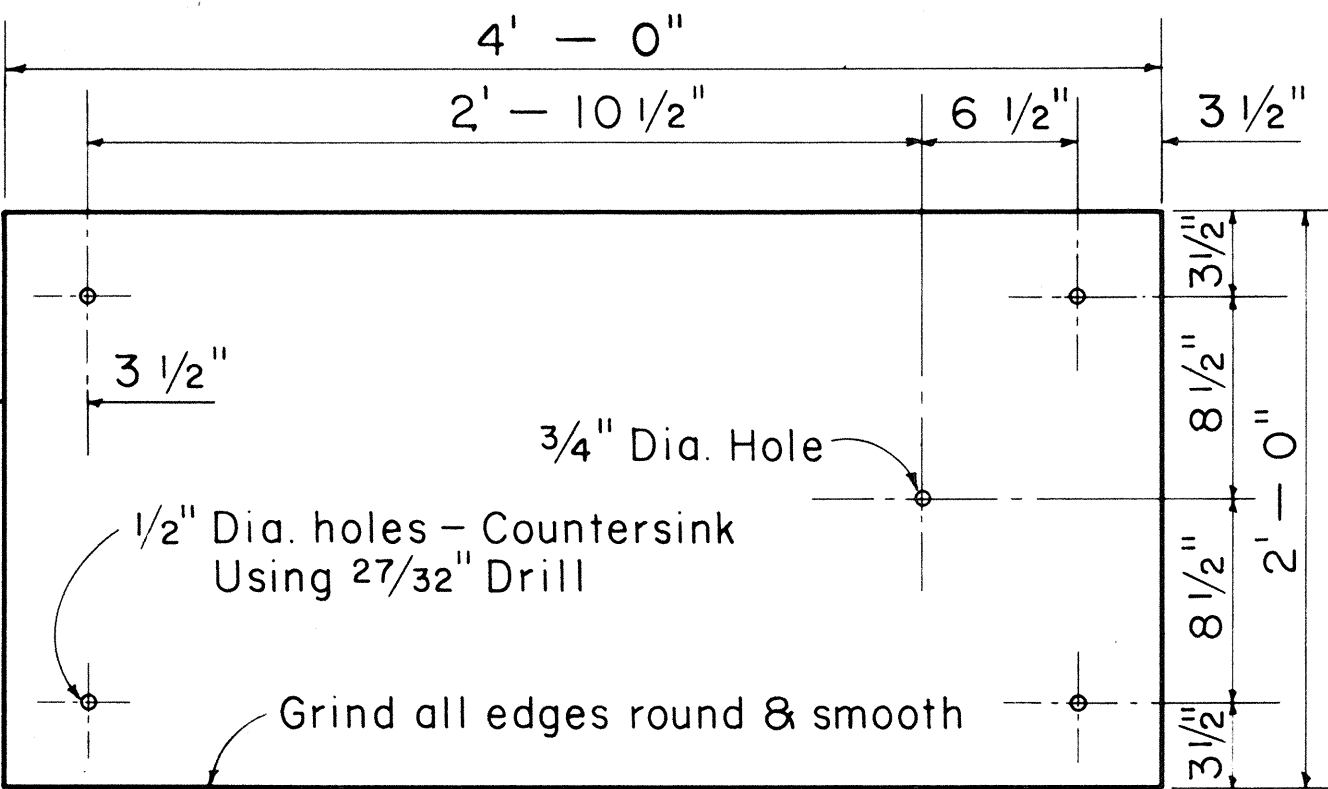
PLAN

SIDE VIEW

END VIEW

NOTES:

Use 3/8" Plate for driveway.
Concrete Box 575 Lbs.
1/4" Checker Plate 130 Lbs.
Secure cover with 3/8" x 1" flat head brass machine screws.



1/4" CHECKER PLATE COVER

(Hot dip galvanize checkered plate after drilling, countersinking, and grinding edge)

1'-6" X 3'-6" CONCRETE SERVICE BOX

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

OII255

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	63A-02-68	1968	14	31

FOR 25', & 30' POLES WITH 8'-0" ANCHOR RODS				
"A"	"B"	"C"		"D" = ("A" + "B")
LEAD-ANCHOR ROD TO CL OF POLE	ANCHOR ROD TO CL OF HOLE	VERTICAL DEPTH 18" D.M.	24" D.M.	TOTAL DISTANCE POLE TO HOLE
5'-0"	1'-8"	7'-1"	7'-4"	6'-8"
10'-0"	3'-0"	6'-7"	7'-0"	13'-0"
15'-0"	4'-0"	6'-1"	6'-6"	19'-0"
20'-0"	4'-8"	5'-6"	5'-10"	24'-8"
25'-0"	5'-2"	4'-11"	5'-4"	30'-2"
FOR 35' THRU 70' POLES WITH 8'-0" ANCHOR RODS				
5'-0"	1'-0"	7'-3"	7'-4"	6'-0"
10'-0"	1'-11"	7'-1"	7'-3"	11'-11"
15'-0"	2'-8"	6'-9"	7'-1"	17'-8"
20'-0"	3'-3"	6'-6"	6'-10"	23'-3"
25'-0"	3'-10"	6'-2"	6'-7"	28'-10"
FOR 40' THRU 70' POLES WITH 1 1/4" x 10'-0" ANCHOR RODS				
5'-0"	1'-7"		9'-4"	6'-7"
10'-0"	3'-0"		9'-0"	13'-0"
15'-0"	4'-2"		8'-6"	19'-2"
20'-0"	5'-3"		7'-11"	25'-3"
25'-0"	6'-2"		7'-3"	31'-2"

D. M. = Deadman

TABLE 2 ANCHOR ROD - ANCHOR SLUG - SQUARE WASHER COMBINATION						
H.E. CODE NO.	ANCHOR ROD	WORKING TENSION 1/2 ULT (LBS.)	H.E. CONC. CODE NO.	CONC. (IN.)	H.E. CODE NO.	WASHER SIZE
617	5/8" x 8'-0" Steel	8,000	518	18	2320	4" x 4" x 3/16"
615	5/8" x 8'-0" Cu Cov Stl	9,250	518	18	**	3" x 3" x 1/8"
618	3/4" x 8'-0" Steel	11,500	518	18	2330	6" x 6" x 3/8"
619	1" x 8'-0" Steel	18,000	524	24	2331	6" x 6" x 1/2"
616	1" x 8'-0" Cu Cov Stl	22,500	524	24	**	4" x 4" x 3/16"
613	1 1/4" x 10'-0" Steel	29,000	524	24	2330	6" x 6" x 3/8"

** Use bronze square washers included in anchor rod assembly on copper covered steel (Cu Cov Stl) anchor rods.

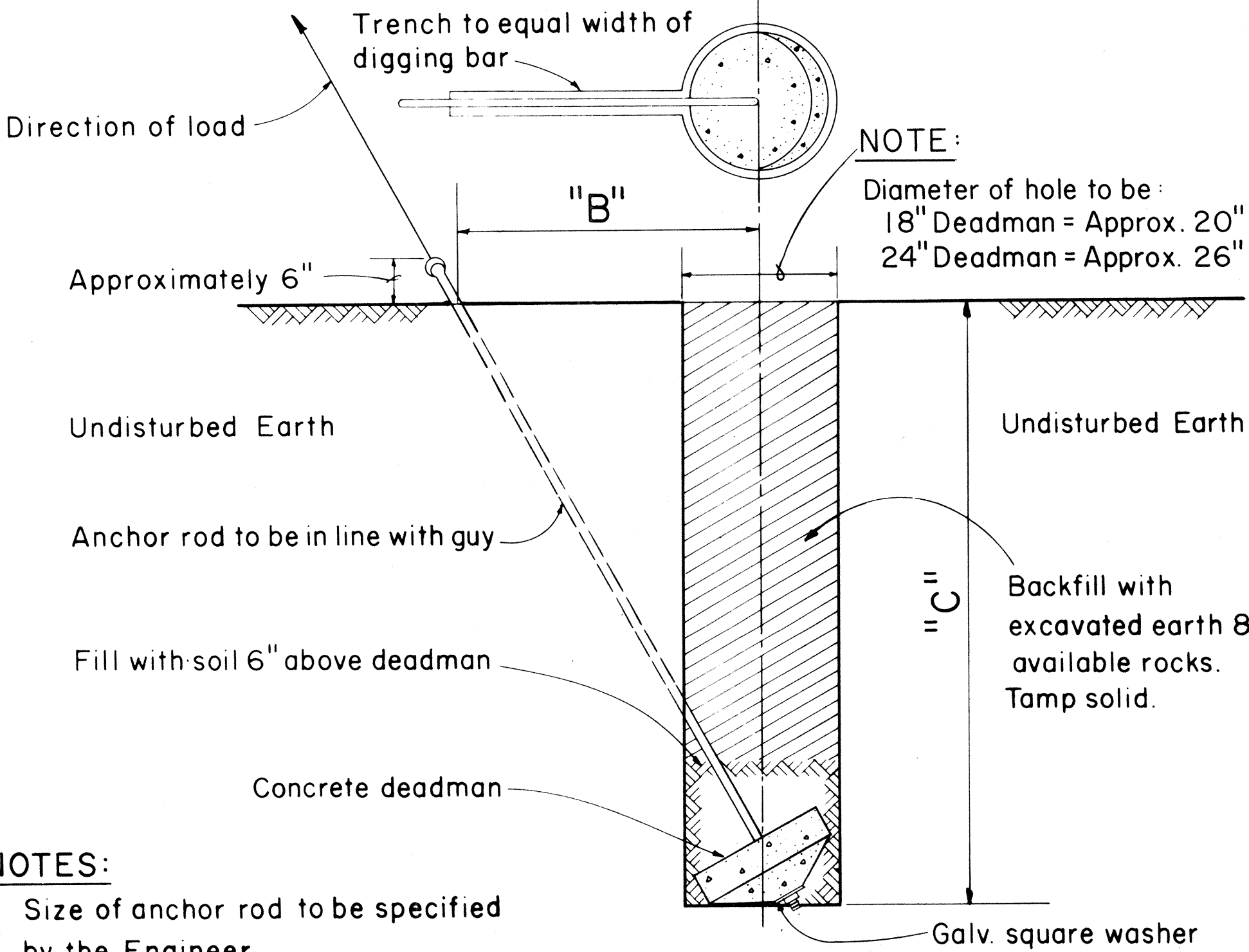
ANCHORING DATA

APPROVED:

HAWAIIAN ELECTRIC Co., Inc. DATE

HAWAIIAN TELEPHONE Co. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
H.E. Co. AND H.T. Co.
ANCHOR DETAILS AND
ANCHORING DATA
Scales: As Noted
Date

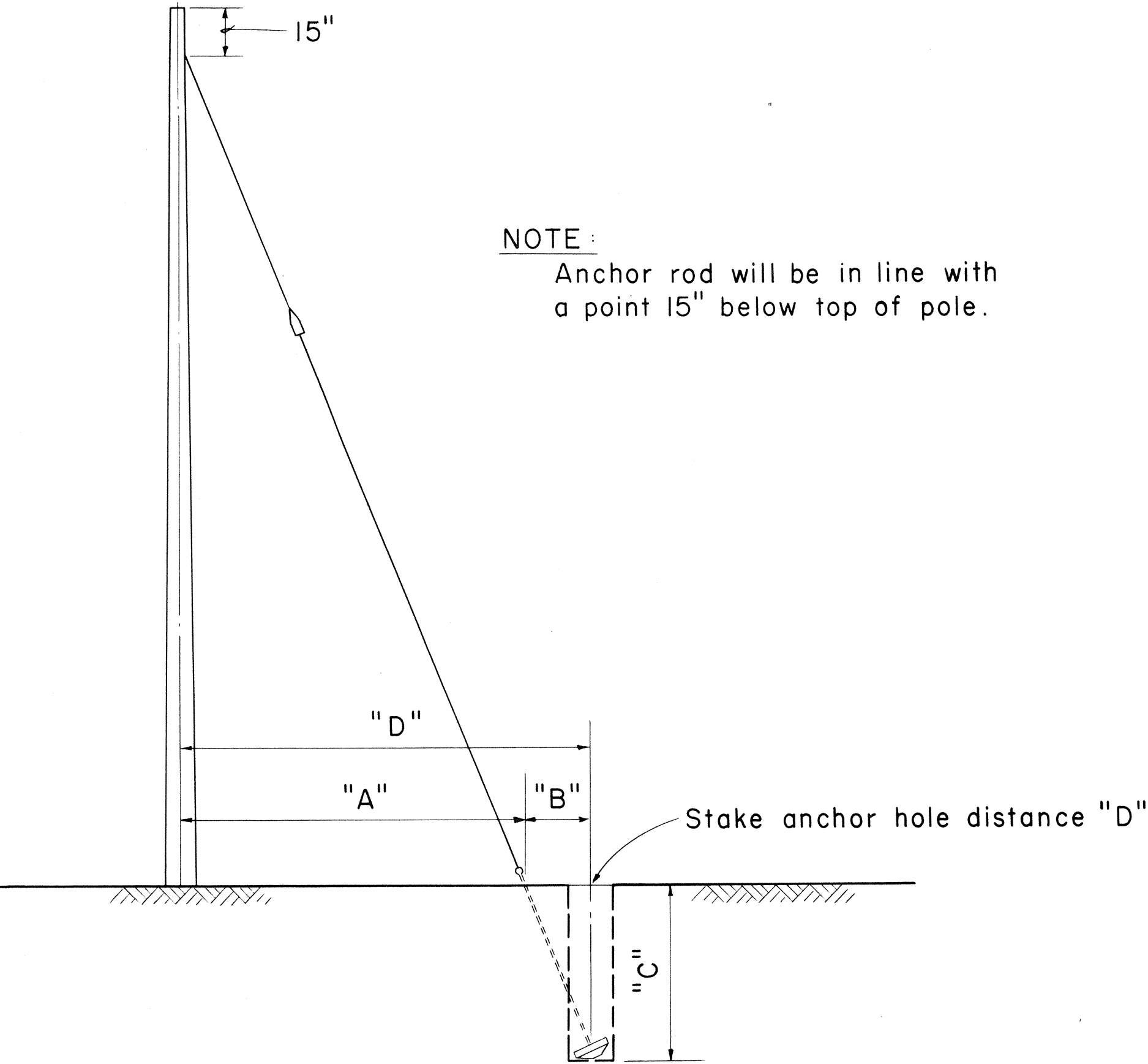


NOTES:

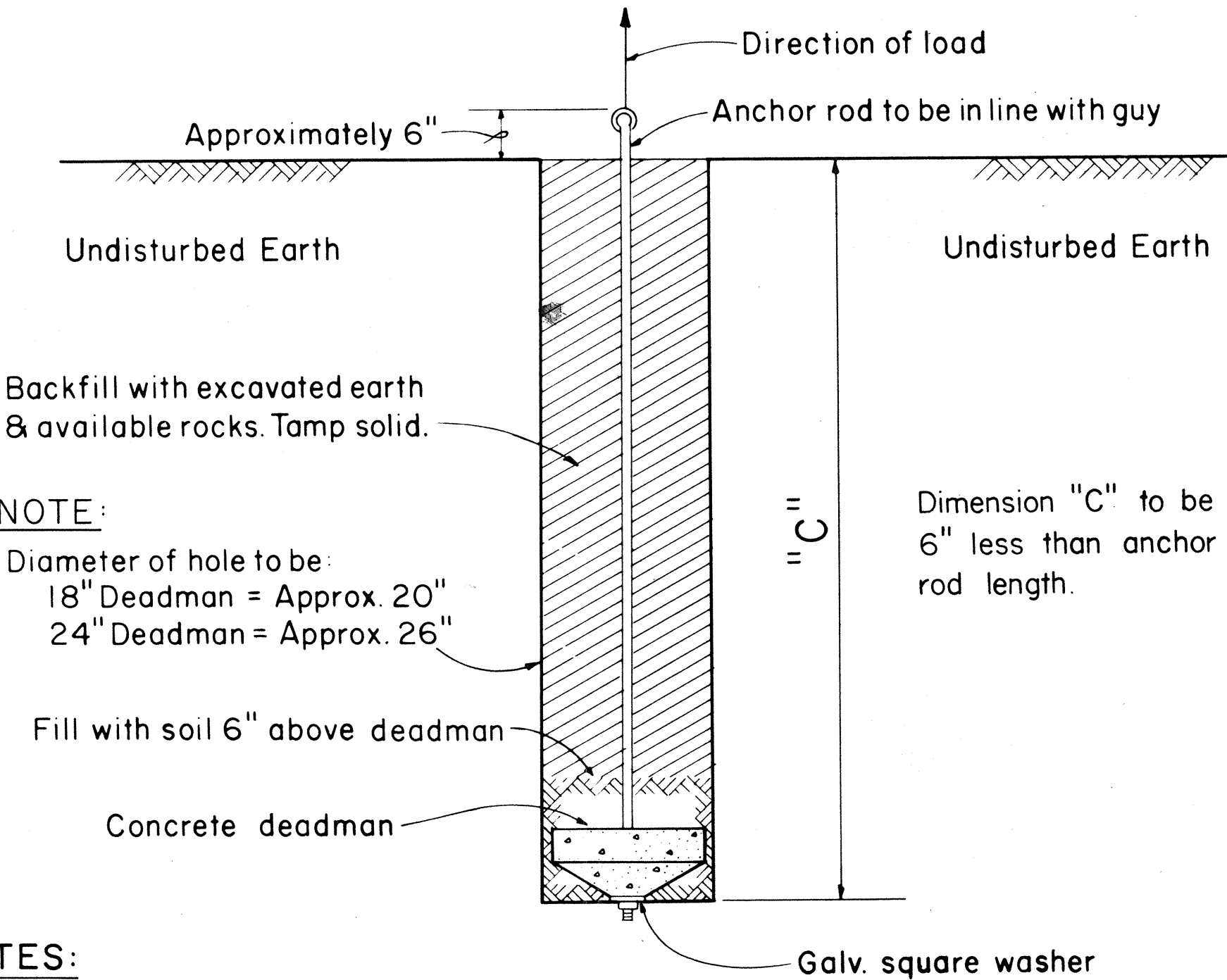
- Size of anchor rod to be specified by the Engineer
- Use Anchoring Data.

GUY ANCHOR DEADMAN

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



Not to Scale



NOTE:

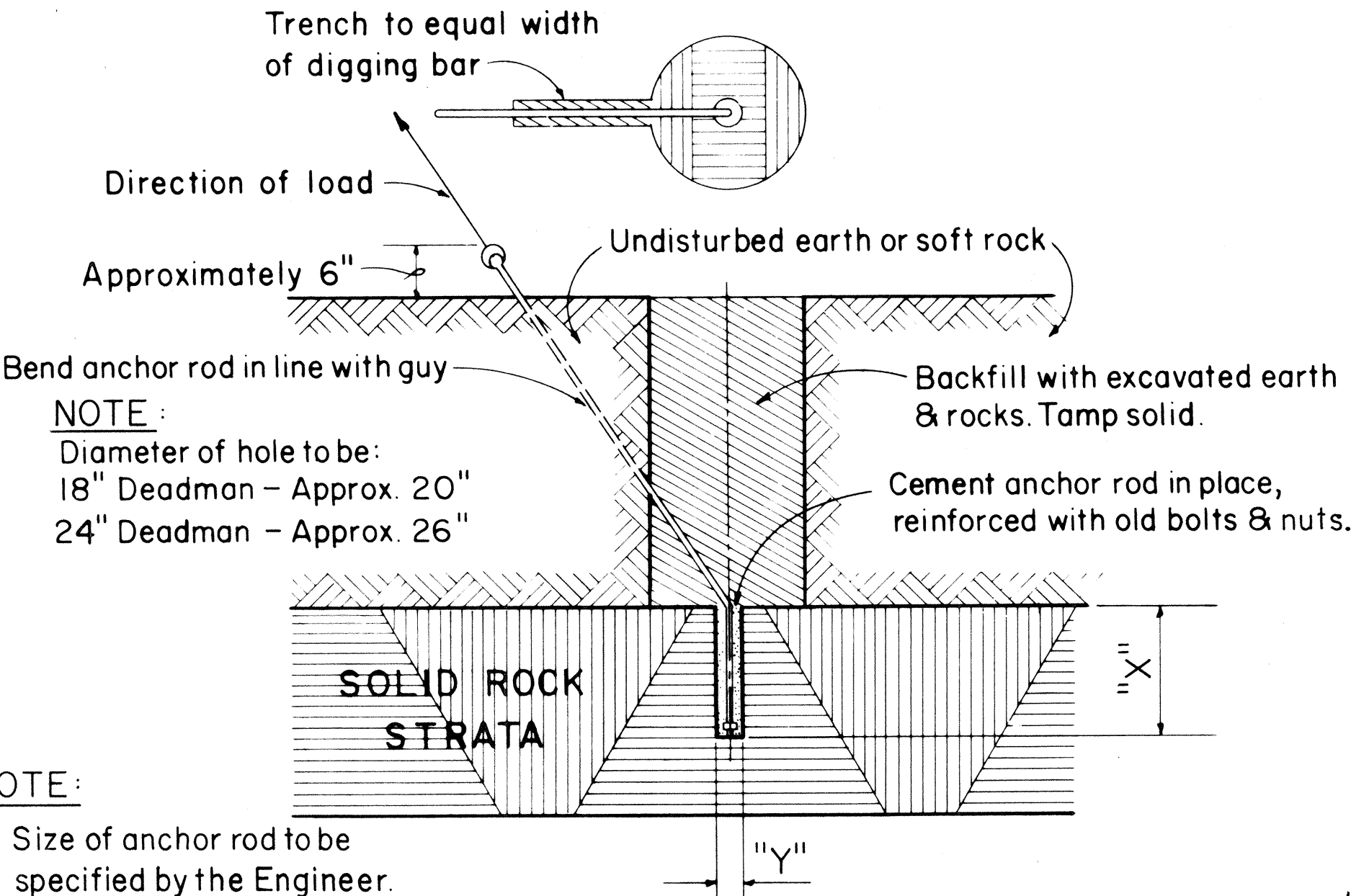
Diameter of hole to be:
18" Deadman = Approx. 20"
24" Deadman = Approx. 26"

NOTES:

- Size of anchor rod to be specified by the Engineer.
- Use Anchoring Data.

SIDE - WALK ANCHOR

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



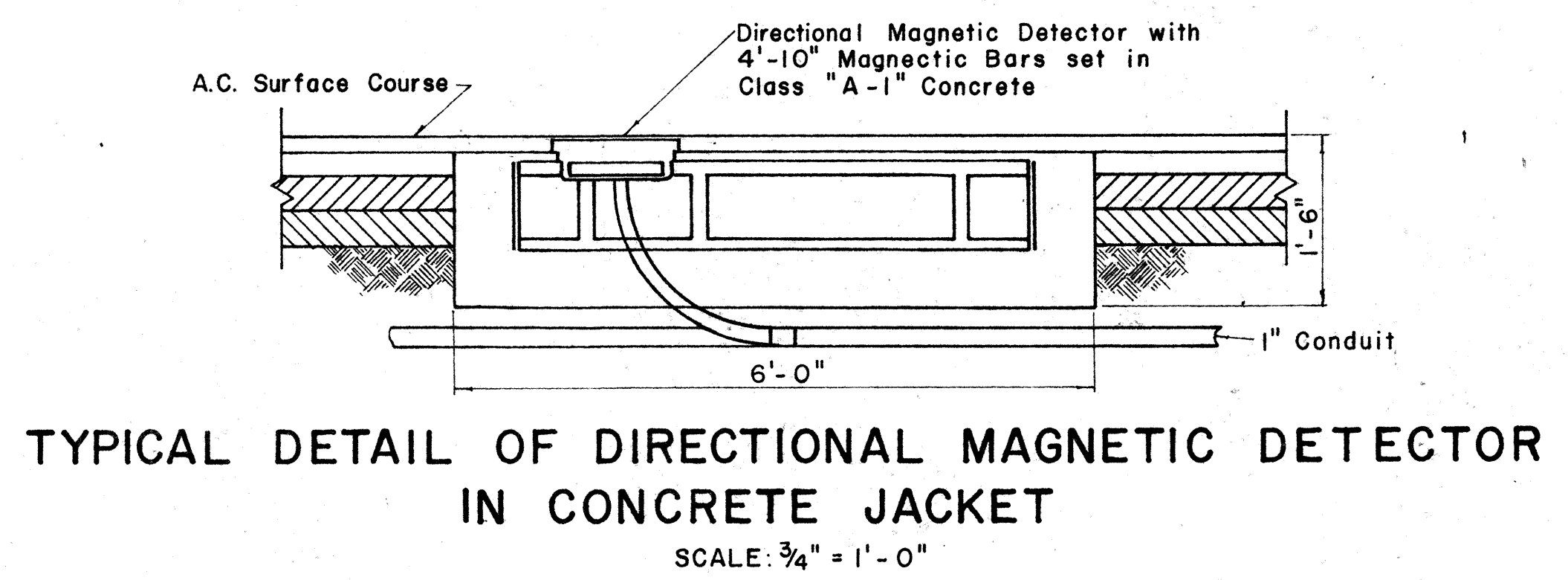
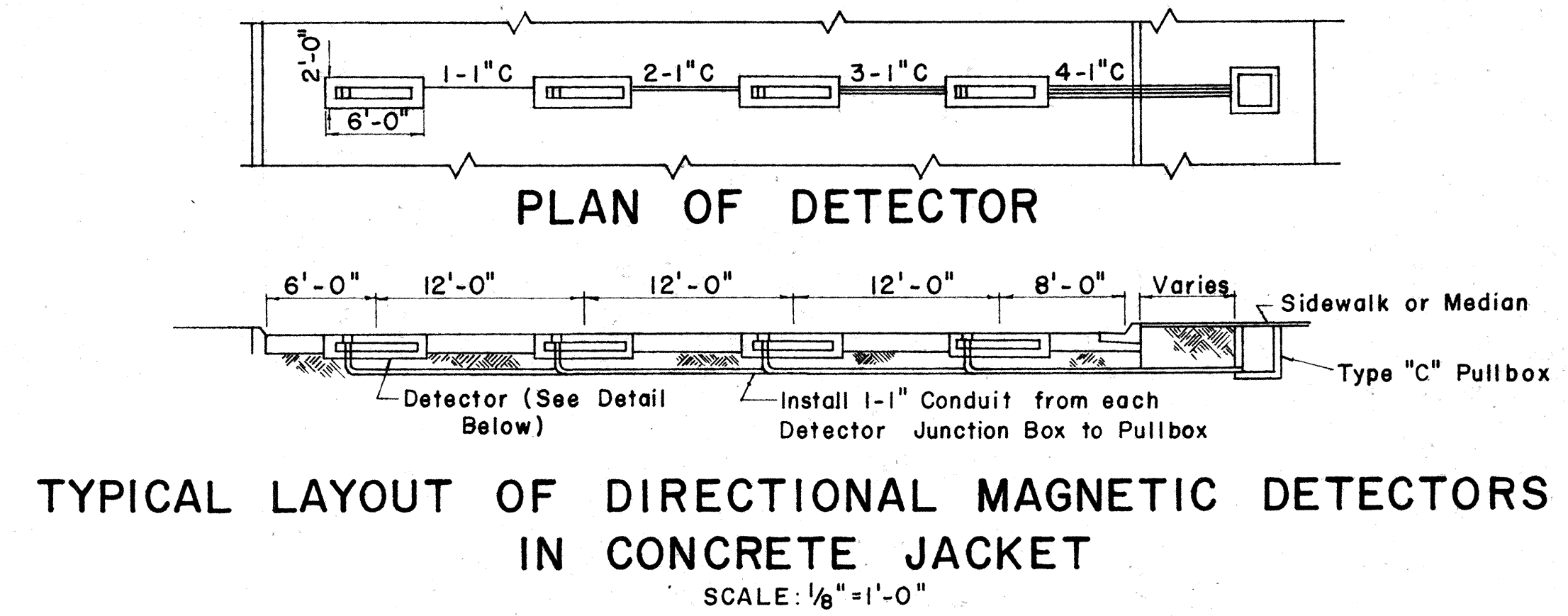
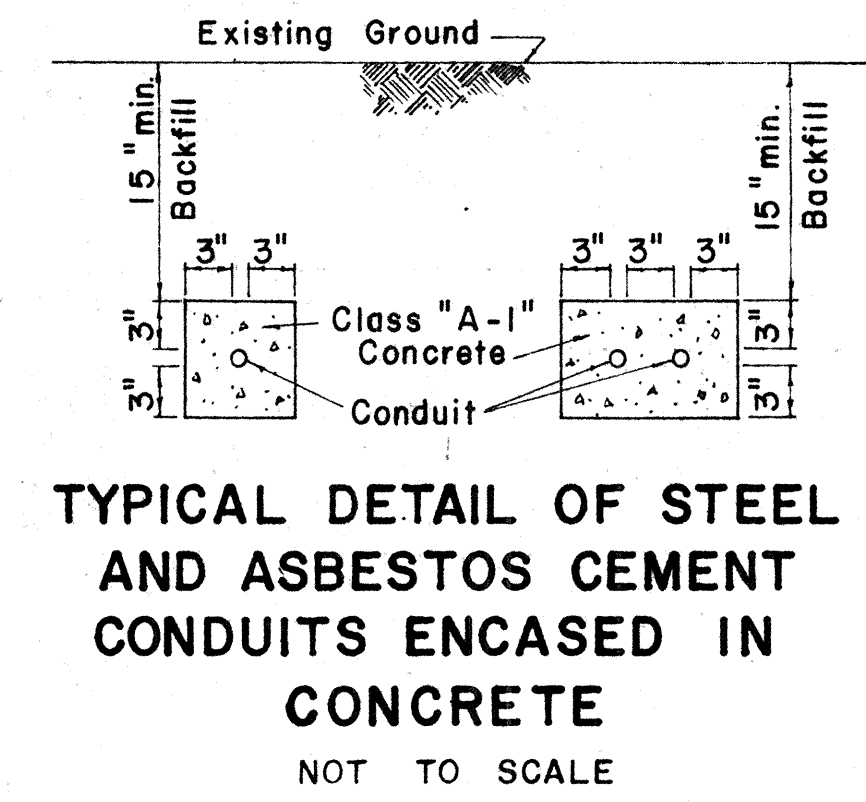
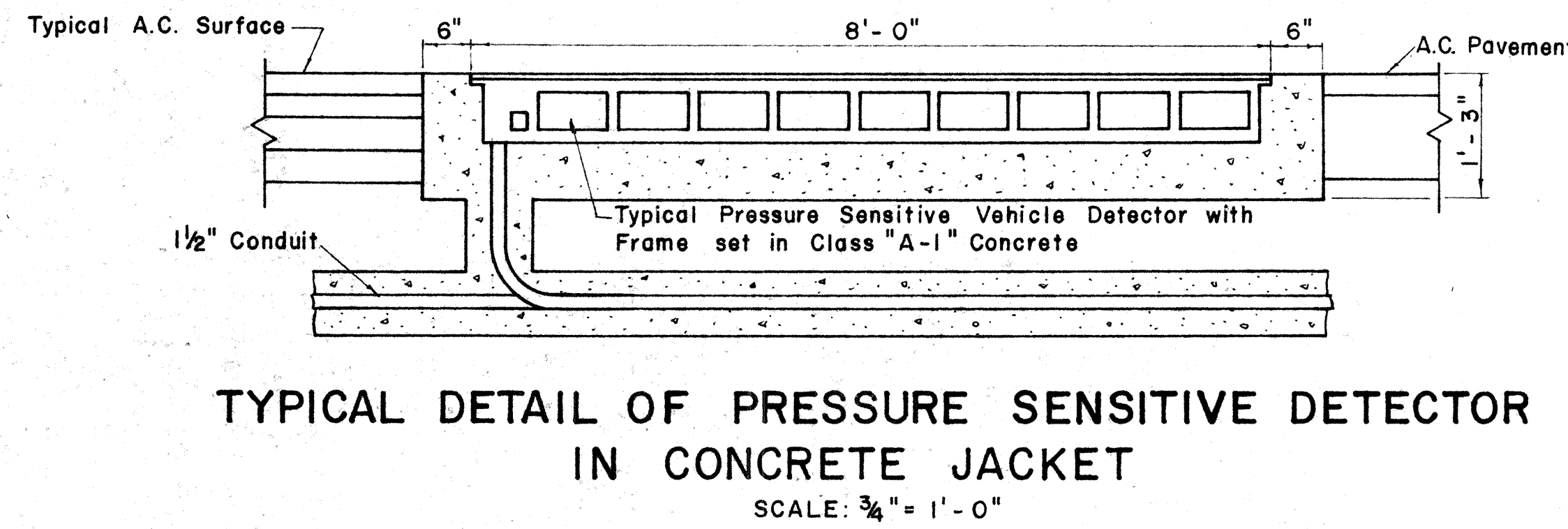
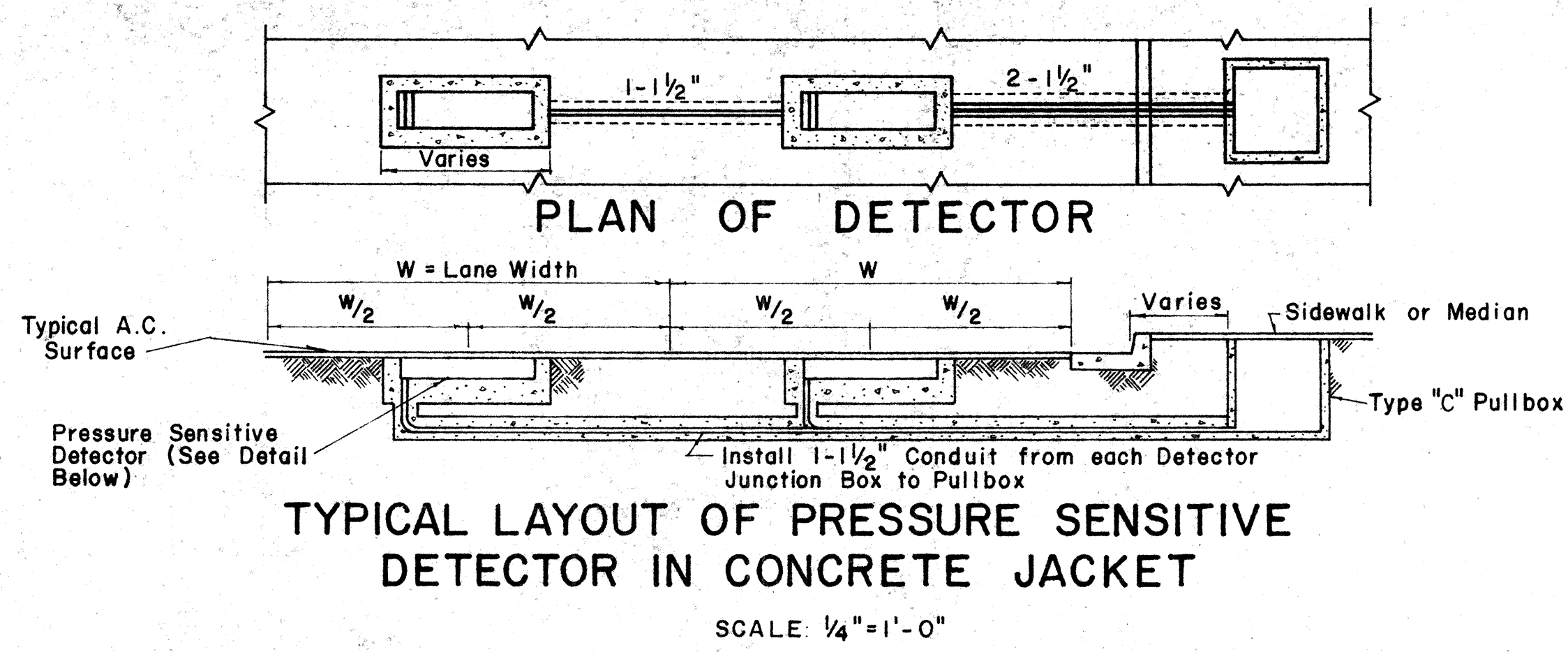
NOTE:

- Size of anchor rod to be specified by the Engineer.
- "X" Should not be less than 24". If "X" is less than 24" complete hole & install anchor.
- "Y" 5/8" Anchor rod drill 2" hole
3/4" Anchor rod drill 2" hole
1" Anchor rod drill 2 1/2" hole
1 1/4" Anchor rod drill 3" hole
- Use Anchoring Data.

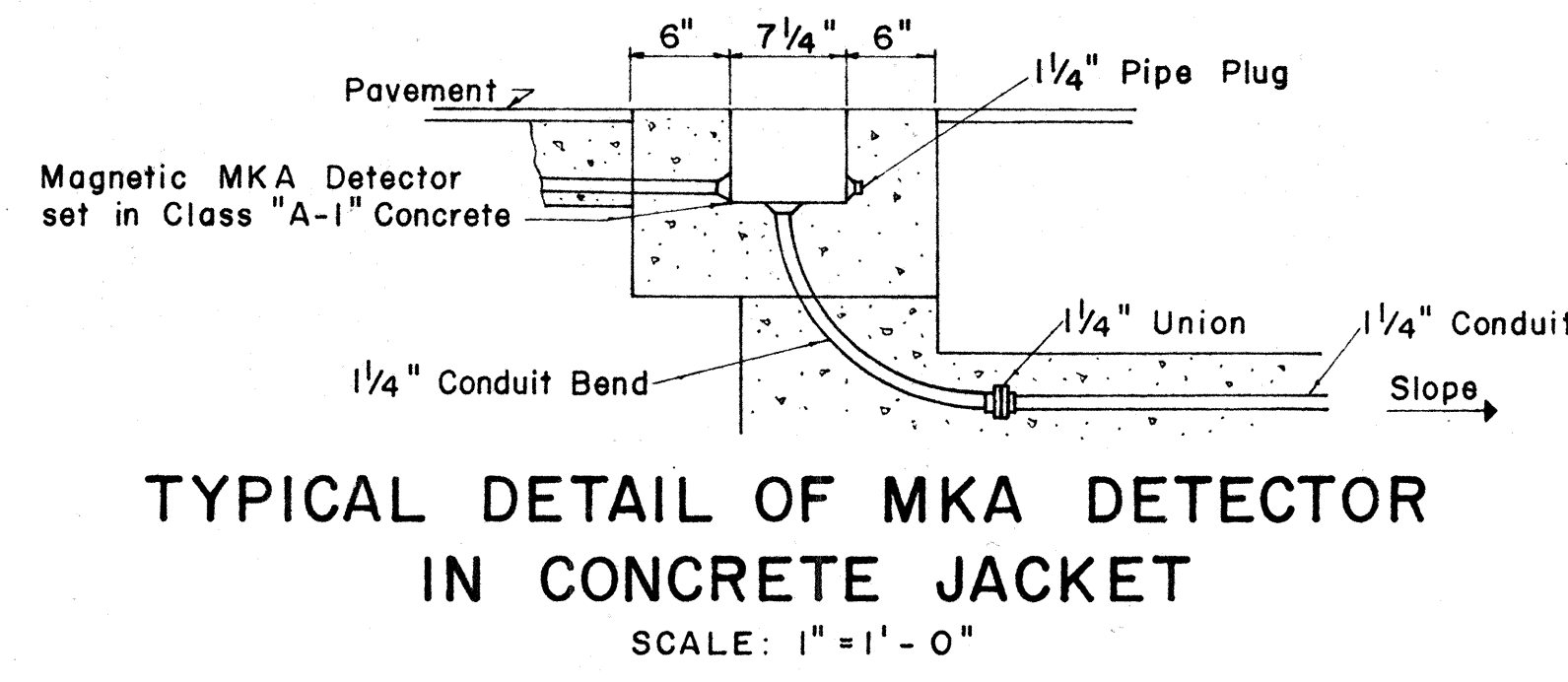
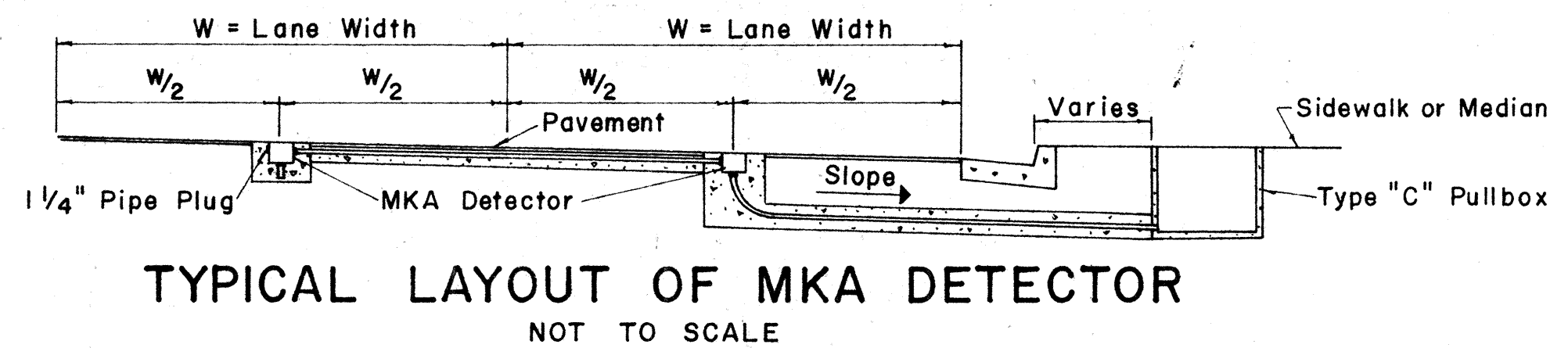
ROCK ANCHOR

Not to Scale

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	33A-02-G8	1968	16	31



NOTE: Class "A-1" Concrete shall be used for Concrete Block



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**MISCELLANEOUS DETAILS
VEHICLE DETECTORS
&
CONDUITS**

SCALE AS NOTED

SHEET No. 8 OF 8 SHEETS