

QUANTITY SHEET - E

ITEMS	AS PER PLANS										AS CONSTRUCTED																		
	SHEET NOS.		TYPICAL CROSS SECTION		CONSTRUCTION SEQUENCE		REMOVALS		PLANS		UTILITIES		LANDSCAPE DEVELOPMENT PLAN		SHEET NOS.		TYPICAL CROSS SECTION		CONSTRUCTION SEQUENCE		REMOVALS		PLANS		UTILITIES		LANDSCAPE DEVELOPMENT PLAN		
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21-23	24	25	26	27	28	29	30	31-33	
Removing Trees 8" x 18" Dia	45	Each				4	19	22																					
Removing Trees 19" x 36" Dia	8	Each					2	6																					
Removing Stumps 19" x 36" Dia	1	Each						1																					
Removing Pavement	11,424	Sq Yd				2,113	6,092	3,219																					
Removing Curb	583	Lin Ft				200		383																					
Removing Sidewalk	4,527	Sq Yd	40			693	1,941	1,853																					
Removing Masonry & Concrete Structures	600	Cu Yd	40			49	241	270																					
Basement Cleanout	11,892	Cu Yd	1,000			1,294	5,249	4,349																					
Removing Track Encasement	1,687	Cu Yd				269	907	511																					
Removing Fence	112	Lin Ft				112																							
Removing Drainage Structures	1	Each				1																							
Abandoning Drainage Structures	26	Each				3	16	7																					
Removing Underground Storage Tanks	1	Each				1																							
Earth Excavation	15,233	Cu Yd																											
Embankment (C.I.P.) Granular Material Class II	1,038	Cu Yd																											
Aggregate Base Concrete (4" in Place)	21,920	Sq Yd																											
Subgrade Undercutting Type II	500	Cu Yd	500																										
Removing Bituminous Surface	1,339	Sq Yd																											
Adjusting Water Shutoffs	10	Each																											
Bituminous Approaches	158	Ton																											
Bituminous Concrete Curb	149	Lin Ft																											
Concrete Pavement (Reinf.) - 9" Uniform with Int. Curb	20,333	Sq Yd																											
Concrete Pavement - Nonreinforced - 6"	38	Sq Yd																											
Concrete Pavement - Nonreinforced - 8"	93	Sq Yd	20																										
Concrete Pavement - Nonreinforced - 9"	318	Sq Yd																											
Temporary Concrete Pavement - Nonreinforced - 7"	227	Sq Yd	122																										
Concrete Base Course - (Reinf.) - 3" with Integral Curb	21	Sq Yd																											
Cement	3	Ton	3																										
Removing Pavement (Repair)	5	Sq Yd	5																										
Concrete Pavement Repair, 10', Nonreinforced	5	Sq Yd	5																										
12" Sewer C-76-III Trench Detail 8	388	Lin Ft																											
12" Sewer C-76-III Trench Detail 9	1,038	Lin Ft																											
12" Sewer Taps	10	Each																											
Catch Basin "A"	14	Each																											
Catch Basin "B"	34	Each																											
Catch Basin "L"	1	Each																											
Catch Basin 18" x 12" Special "Y"	1	Each																											
Manhole - Standard	9	Each																											
Manhole - Drop	6	Each																											
Sewer Cleanout - 12" x 12" x 12"	100	Lin Ft	100																										
Adjusting Drainage Structure Covers	8	Each																											
Reconstructing Drainage Structures	7	Each																											
Cleaning Existing Storm Drainage Structures - 4"	10	Each																											
12" Sewer Trap	32	Each																											
Concrete Curb Detail "X"	304	Lin Ft	50																										
Concrete Curb Detail "Y"	84	Lin Ft	50																										
4" Concrete Sidewalk	4,887	Sq Ft	360																										
6" Concrete Sidewalk	2,886	Sq Ft																											
Sidewalk Ramp - Type 1	1,152	Sq Ft																											
Sidewalk Ramp - Type 3	1,920	Sq Ft																											
Barrier Type II, Lighted Furnished	135	Each																											
Lighted Arrow, Type A, Furnished	3	Each																											
Lighted Arrow, Type A, Operated	3	Each																											







# LEGEND

T-

## UNDERGROUND PLAN

- EXISTING DIRECT BURIAL OR PARKWAY CABLE
- ABANDON DIRECT BURIAL OR PARKWAY CABLE
- INSTALL DIRECT BURIAL OR PARKWAY CABLE (NO. & SIZE AS INDICATED)
- INSTALL DIRECT BURIAL CONDUIT (1-3" SHOWN)
- EXISTING SINGLE P.L.D. DUCT RUN
- EXISTING P.L.D. DUCT RUN (4-3" SHOWN)
- ABANDON EXISTING P.L.D. DUCT RUN (2-3" SHOWN)
- BUILD ENCASED CONDUIT (4-4" SHOWN)
- GALVANIZED STEEL CONDUIT, JACKING-BORING (2-3" SHOWN)
- EXISTING P.L.D. HANDHOLE
- EXISTING P.L.D. MANHOLE
- BUILD ROUND HANDHOLE
- BUILD TYPE "D" HANDHOLE
- BUILD NEW MANHOLE (2-WAY)
- BUILD NEW MANHOLE (3-WAY)
- BUILD NEW MANHOLE (CORNER)
- BUILD NEW MANHOLE (4-WAY)
- BUILD TRAFFIC SIGNAL CONTROLLER FDN.
- BUILD T.S. MAST ARM STANDARD FDN.
- BUILD T.S. PEDESTAL FDN.
- INSTALL 30 FT. STEEL STRAIN POLE ON NEW FDN.
- EXISTING FIRE OR POLICE CALL BOX
- INSTALL NEW FIRE OR POLICE CALL BOX (EXCEPT AS OTHERWISE INDICATED)
- INSTALL SALVAGED FIRE OR POLICE CALL BOX (EXCEPT AS OTHERWISE INDICATED)
- INSTALL MULT. ST. LTG. CONTROL CABINET ON NEW FDN.
- EXISTING U.G.-FED ST. LTG. UNIT
- EXISTING U.G.-FED ST. LTG. UNIT WITH DBL. ARM
- FUTURE U.G.-FED ST. LTG. UNIT
- REMOVE U.G.-FED ST. LTG. UNIT & FOUNDATION (EXCEPT AS OTHERWISE NOTED)
- INSTALL SALVAGED U.G.-FED ST. LTG. UNIT ON NEW FDN.
- INDICATES TRAFFIC SIGNAL CONTACT ON ST. LTG. STD.
- INDICATES WITHOUT LUMINAIRE
- INSTALL CODE (IT ST. LTG. UNIT ON NEW FDN)
- INSTALL ONE 400W TYPE III RECTANGULAR SODIUM VAPOR LUMINAIRE (240V) & ONE SALVAGED 400W TYPE III RECTANGULAR SODIUM VAPOR LUMINAIRE (240V)
- INSTALL CODE 009-00 ST. LTG. STD., UNIVERSAL TRANSFORMER BASE, 6 FT. CLAMP-ON BRACKET ARM (3'-0" RISE) & 400W TYPE III MERCURY VAPOR LUMINAIRE WITH SERIES COIL ON NEW FOUNDATION.

## OVERHEAD PLAN

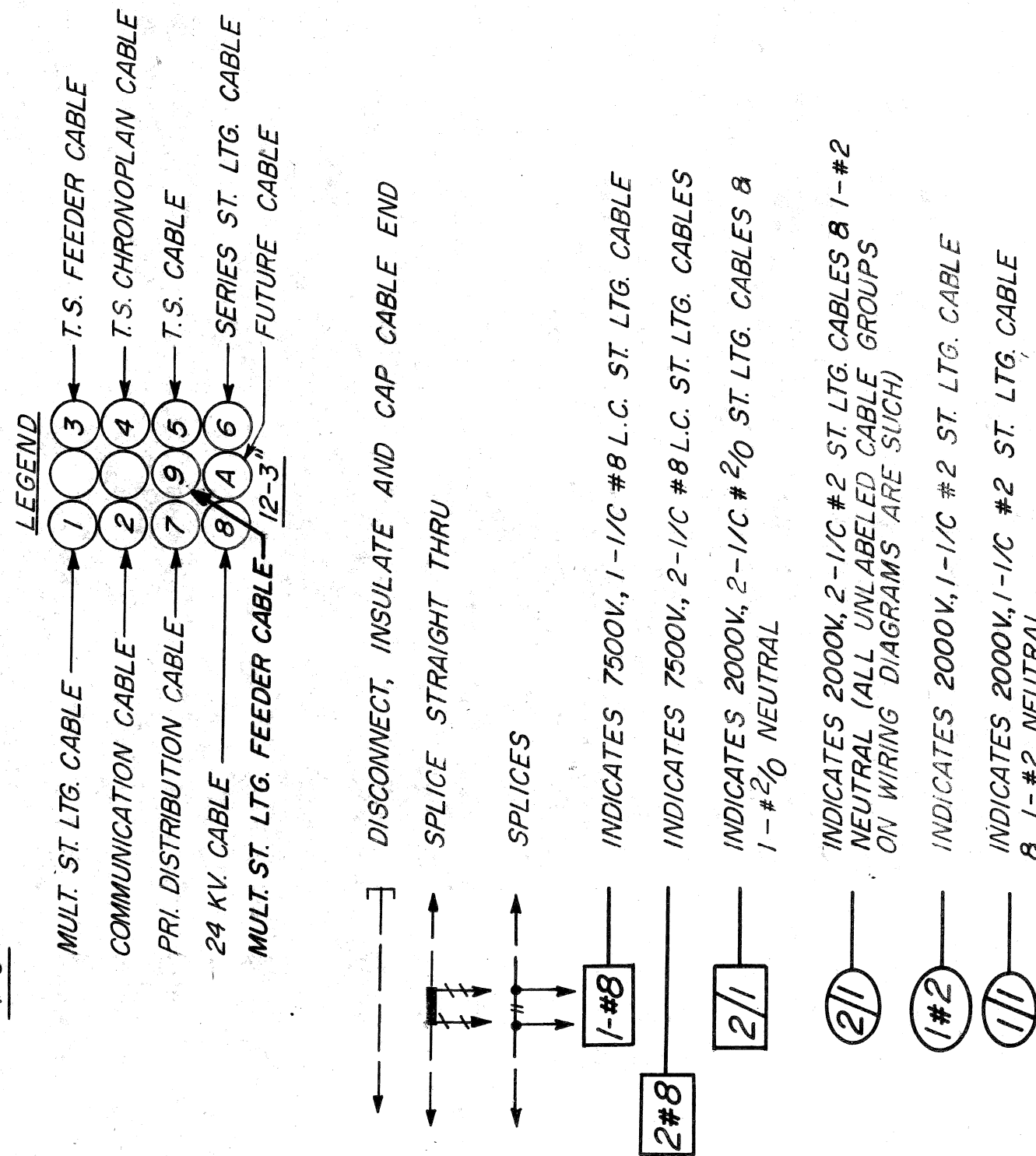
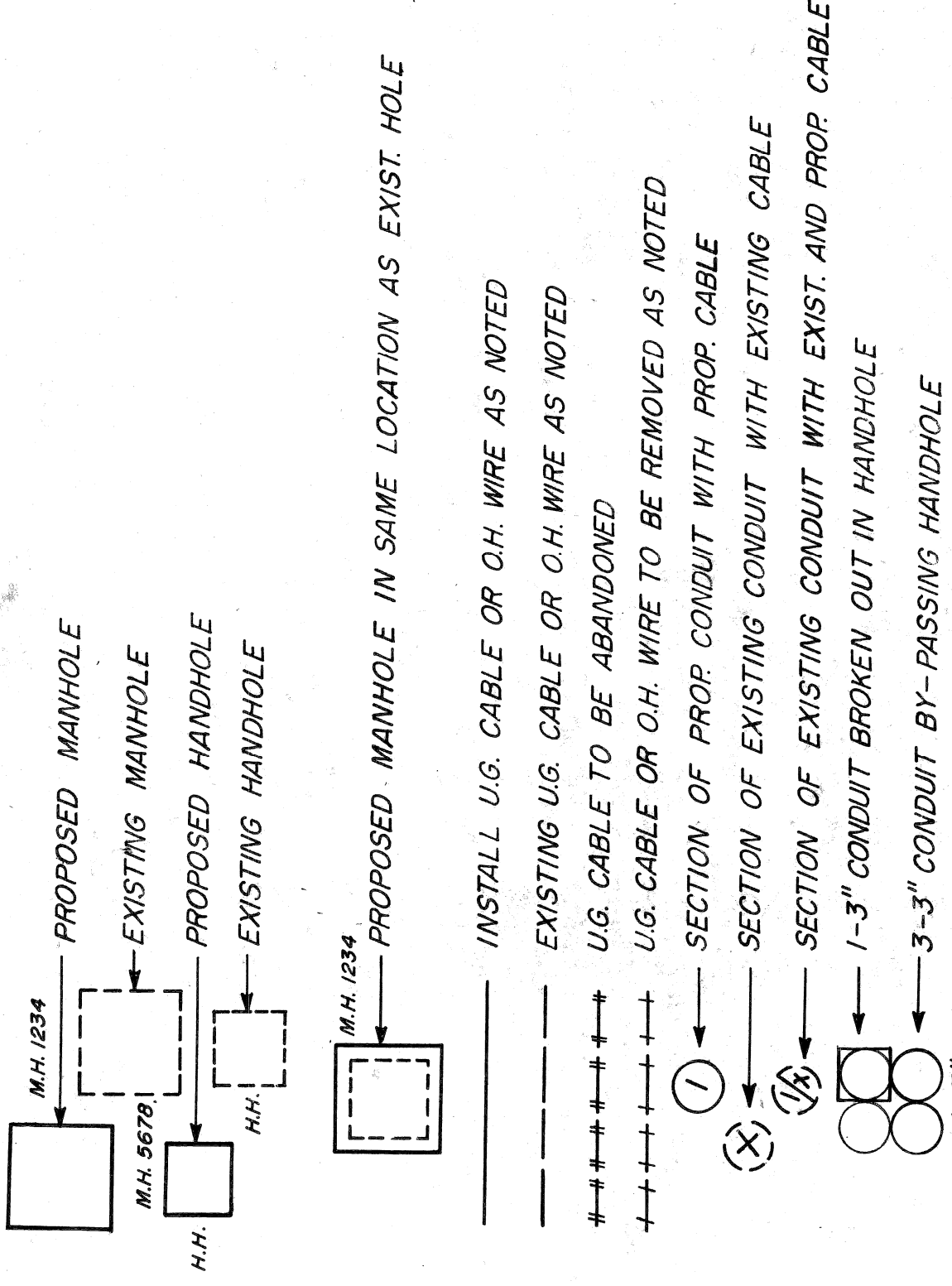
- EXISTING WOOD POLE (D.E. CO. POLE SHOWN)
- REMOVE WOOD POLE (P.L.D. POLE SHOWN)
- REPLACE WOOD POLE (HEIGHT & CLASS AS INDICATED)
- INSTALL 35 FT. CLASS 4 WOOD POLE (EXCEPT WHERE OTHERWISE NOTED) (USE SALVAGED POLE WHERE INDICATED)
- EXISTING OVERHEAD ST. LTG. UNIT
- REMOVE OVERHEAD ST. LTG. UNIT
- INSTALL 8 FT BRACKET ARM & 400 W TYPE III RECTANGULAR SODIUM VAPOR LUMINAIRE (240V) (EXCEPT AS OTHERWISE NOTED)
- INSTALL NEW 100W MERCURY VAPOR LUMINAIRE FOR ALLEY LTG. WITH NEW SERIES COIL & NEW 6 FT. BRACKET ARM (USE SALVAGED UNIT WHERE INDICATED)
- INSTALL NEW 250 W MERCURY VAPOR LUMINAIRE, TYPE I, (2-WAY OR 4-WAY AS SHOWN) FOR RESIDENTIAL LTG. WITH NEW SERIES COIL & NEW JOET BRACKET ARM (EXCEPT WHERE OTHERWISE NOTED) (USE SALVAGED UNIT WHERE INDICATED)
- EXISTING OVERHEAD LINE (2-#6 OF STANTON-24 SHOWN)
- REMOVE OVERHEAD LINE (3-#2 OF STANTON-662 SHOWN)
- INSTALL OVERHEAD LINE (2-#6 OF STANTON-24 SHOWN)
- INSTALL & LATER REMOVE OVERHEAD LINE (3-#6 MULT. SHOWN)
- INSTALL GUY & ANCHOR (1/2" GUY SHOWN)
- REMOVE GUY & ANCHOR
- INSTALL POLE GUY (1/2" GUY SHOWN)
- INSTALL ARM GUY (3/8" GUY AS SHOWN)
- REMOVE GUY (TYPE AS INDICATED)
- MATERIAL TO BE INSTALLED
- MATERIAL TO BE REMOVED
- MAKE WOOD POLE SELF-SUPPORTING IN CRUSHED STONE
- PHASES OF P.L.D. DISTRIBUTION WIRES OR EQUIPMENT
- D.E. CO. DISTRIBUTION WIRE
- D.E. CO. SECONDARY WIRE
- CABLE POLE
- INSTALL SUSPENSION INSULATOR
- P.L.D. DISTRIBUTION WIRE
- P.L.D. SECONDARY WIRE
- P.L.D. SERIES ST. LTG. WIRE
- P.L.D. MULTIPLE STREET LIGHTING WIRE

## GENERAL

- PROPERTY LINE
- EXISTING FACE OF CURB WHEN NEW STREET CONST.
- PROPOSED FACE OF CURB WHEN NEW STREET CONST. OR EXISTING FACE OF CURB WHEN NO STREET CONST.
- FUTURE PAVEMENT
- SEWER LINE, MANHOLE & CATCH BASIN
- DETROIT EDISON COMPANY U.G. LINE & MANHOLE
- MICH. BELL TEL. COMPANY U.G. LINE & MANHOLE
- WATERMAIN & GATEWELL
- MICH. CONSOLIDATED GAS CO. U.G. LINE & WELL (OTHER UTILITIES SHOWN SIMILAR)

## DIAGRAMS & CONDUIT ALLOCATION

(U.G.-FED STD. SYMBOLS SAME AS UNDERGROUND LEGEND OF THIS SHEET.)



## TRAFFIC SIGNAL PLAN

- INSTALL 3-SECTION TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL 3-SECTION TRAFFIC SIGNAL WITH SALVAGED HEADS (2-WAY SHOWN)
- REMOVE 3-SECTION TRAFFIC SIGNAL (3-WAY SHOWN)
- EXISTING 3-SECTION TRAFFIC SIGNAL (4-WAY SHOWN)
- INSTALL 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (2-WAY SHOWN)
- INSTALL 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL WITH SALVAGED HEAD (1-WAY SHOWN)
- REMOVE 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- EXISTING 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL JUNCTION BOX
- INSTALL SALVAGED JUNCTION BOX
- REMOVE JUNCTION BOX
- EXISTING JUNCTION BOX
- INSTALL OVERHEAD PLASTIC JACKETED CABLE
- EXISTING OVERHEAD PLASTIC JACKETED CABLE
- REMOVE OVERHEAD PLASTIC JACKETED CABLE
- INSTALL TRAFFIC SIGNAL CONTROLLER (NEW OR SALVAGED AS INDICATED) ON NEW FDN.
- INSTALL CANTILEVER TYPE TRAFFIC SIGNAL MAST ARM STANDARD & MAST ARM ON NEW FOUNDATION (EXCEPT AS OTHERWISE INDICATED)
- INSTALL 8 FT TRAFFIC SIGNAL PEDESTAL ON NEW FOUNDATION (EXCEPT AS OTHERWISE INDICATED)
- INSTALL STEEL STRAIN POLE ON NEW FDN.
- EXISTING TRAFFIC SIGNAL CONTROLLER
- EXISTING MAST ARM STANDARD
- EXISTING PEDESTAL
- EXISTING STEEL SHAFT POLE
- BACK-OUT LAMPS & HOOD SIGNALS (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT).
- REMOVE HOOD & INSTALL LAMPS (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT).
- POLE CONTACT HEIGHT OF T.S. SPAN WIRE
- LOW CONTACT HEIGHT OF SPAN WIRE T.S. TO SPAN WIRE
- INDICATES TYPE OF SIDEWALK RAMP TO BE CONSTRUCTED.

DRWG NO	PLAN INDEX
1	LEGEND
2	SUB-TITLE
3 THRU 8	GENERAL INFORMATION
9	GENERAL PLAN
10	MULT. ST. LTG. WIRING DIAGRAMS
11	MISC. WIRING DIAGRAMS
12 & 13	SERIES ST. LTG. WIRING DIAGRAMS
14 & 15	T.S. AT M.L. KING BLVD. & ROSA PARKS BLVD.
16 & 17	T.S. AT M.L. KING BLVD., TRUMBULL & GRAND RIVER
18 THRU 41	QUANTITY SHEETS
	DETAILS

M.L. KING JR. BLVD. RECONSTRUCTION  
WABASH AVE TO LINCOLN AVE.

CITY OF DETROIT  
CITY ENGINEERING DEPARTMENT

PLAN PREPARED BY  
CONSULTING ENGINEERING ASSOCIATES INC.  
ENGINEERING CONSULTANTS  
16580 WYOMING DETROIT, MICH. 48221

PUBLIC LIGHTING  
COMMISSION  
CITY OF DETROIT

FILE NO. 51-0585  
SHEET NO. 31 OF 71  
DATE AUG 1984

SHEET \_\_\_\_\_ OF \_\_\_\_\_ SHEETS  
JOB NO. \_\_\_\_\_  
ASSIGNMENT \_\_\_\_\_  
NO. \_\_\_\_\_  
DATE \_\_\_\_\_

LEGEND









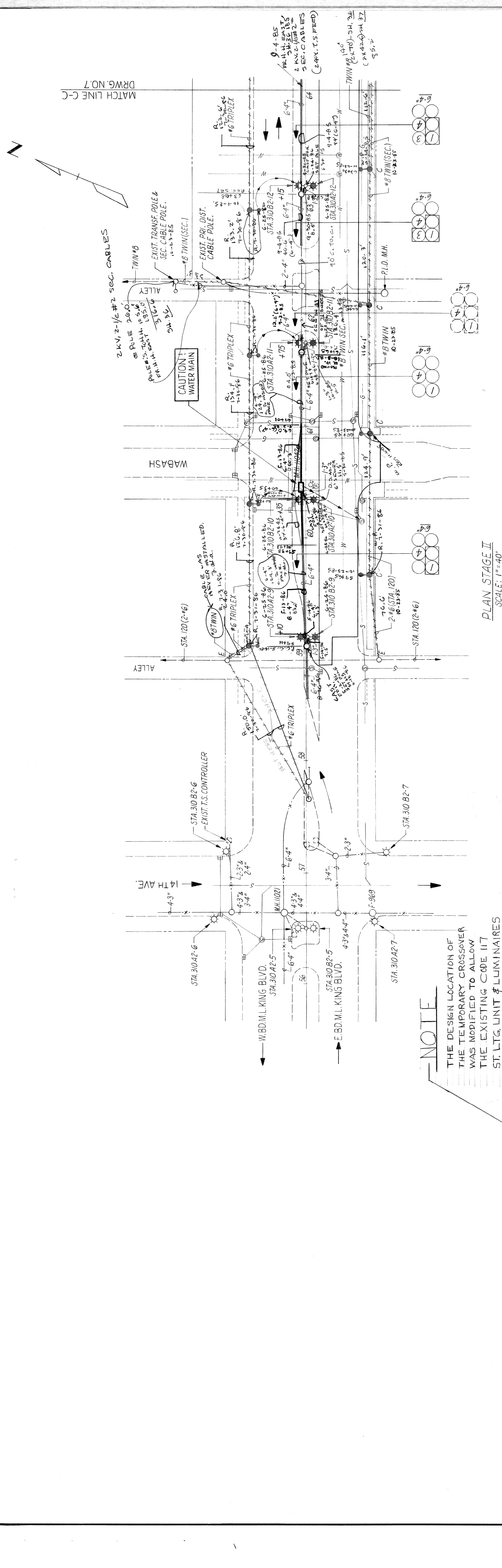








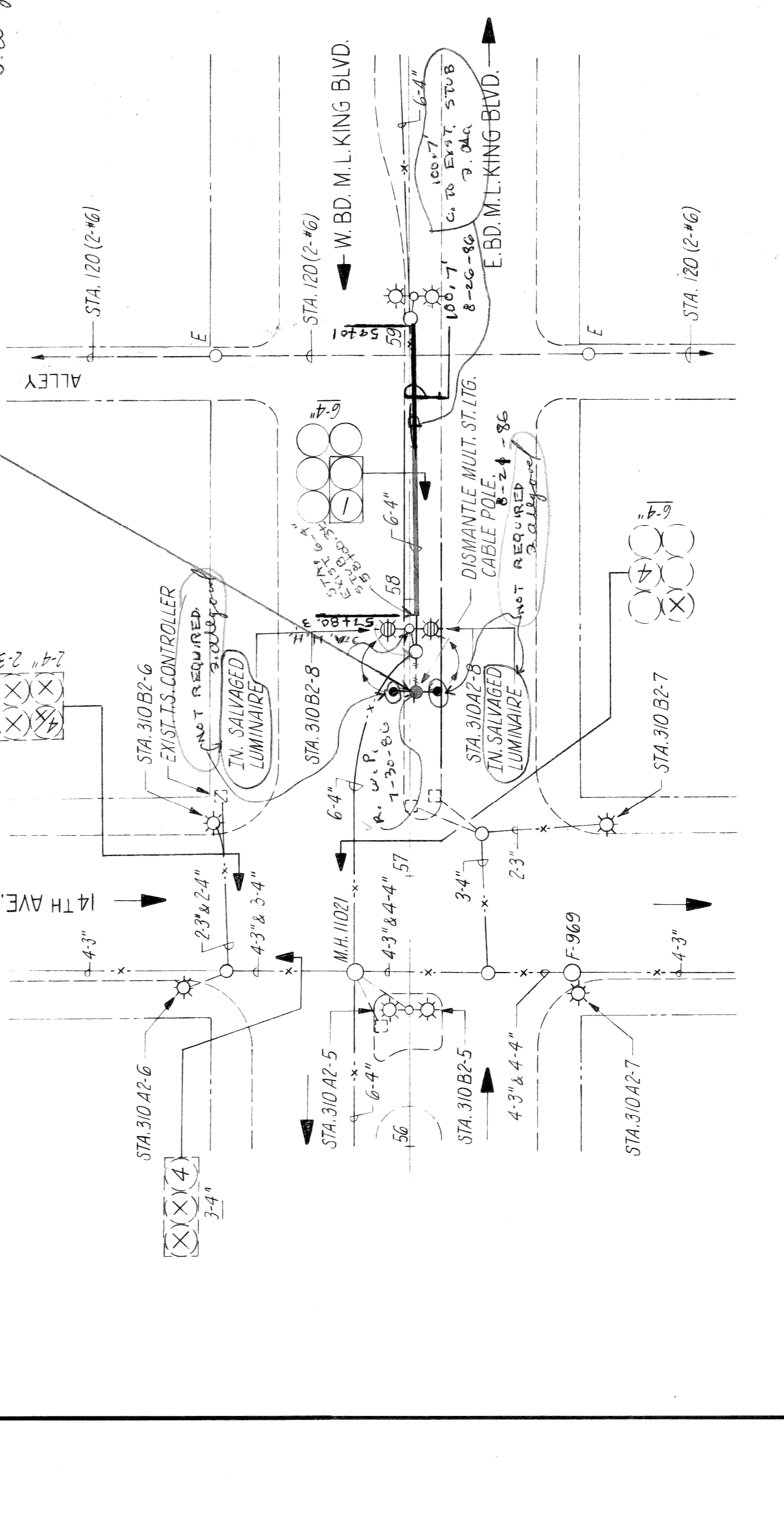




PLAN STAGE II  
SCALE: 1"=40'

**NOTE**

THE DESIGN LOCATION OF THE TEMPORARY CROSSOVER WAS MODIFIED TO ALLOW THE EXISTING CODE IIT ST. LIT. UNIT & LUMINAIRES TO REMAIN IN PLACE.



PLAN STAGE II B & FINAL STAGE  
SCALE: 1"=40'

LIST OF MATERIAL	ITEM	QUANTITIES
1-3" ENCASED CONDUIT	28.5	40 LIN.FT.
6-4" ENCASED CONDUIT	568.1	517 LIN.FT.
ROUND HANDHOLE		3 EACH
TWO-WAY MANHOLE		1 EACH
CODE IIT U.G. FED. ST. LIT. UNIT ON NEW FDN.		4 EACH
SALVAGED U.G. FED. ST. LIT. UNIT ON NEW FDN.		1 EACH
400 W. SODIUM IAPOR LUMINAIRE (RECTANGULAR)		5 EACH
INSTALL SALVAGED 400 W. S.V. LUMINAIRE (RECTANGULAR)		5 EACH
REMOVE 2-1/2" ST. LIT. CABLES & 1-#2 NEUTRAL		40 LIN.FT.
2KV, 1-1/2" ST. LIT. CABLE	1.1	8 LIN.FT.
2KV, 1-1/2" ST. LIT. CABLES & 1-#2 NEUTRAL	63.6	608 LIN.FT.
2KV, 4-1/2" ST. LIT. CABLES & 1-#2 NEUTRAL	3.5	40 LIN.FT.
2KV, 2-1/2" ST. LIT. CABLES & 1-#2 NEUTRAL	3.16	317 LIN.FT.
CHROMIUM PLAN. CABLE, 1/2" DIA., PLASTIC JACKETED, 6 PR., SHIELDED	8.9	865 LIN.FT.
REMOVE #8 TWIN	5.4	517 LIN.FT.
REMOVE 2-1/2" O.H. LINE	2.0	210 LIN.FT.
REMOVE #6 TRIPLEX	6.9	625 LIN.FT.
REMOVE WOOD POLE	9	9 EACH
DISMANTLE MULT. ST. LIT. CABLE POLE	1	1 EACH
REMOVE O.H. ST. LIT. UNIT	8	80 EACH
6" SEWER LIGHTING	11.5	110 LIN.FT.
6" SEWER TAP	0	1 EACH

DATE	DESCRIPTION	CHKD. BY	FILE NO.
			51-0585
			SHEET NO.
			36 OF 71
			DATE
			AUG 1984
CITY OF DETROIT			CITY OF DETROIT
CITY ENGINEERING DEPARTMENT			DEPARTMENT
GENERAL PLAN			FILE NO.
M.L. KING JR. BLVD. RECONSTRUCTION			CEA 1098
WABASH AVE. TO LINCOLN AVE			6 OF 41
SHEET NO. OF SHEETS			6 OF 41
JOB NO.	ASSIGNMENT	DATE	FILE NO.
			CEA 1098
CITY OF DETROIT			CONSULTING ENGINEERING ASSOCIATES INC.
CITY ENGINEERING DEPARTMENT			ENGINEERING CONSULTANTS
			16580 WYOMING DETROIT, MICH. 48221
			DRAWG. NO.
			6 OF 41
			CEA 1098
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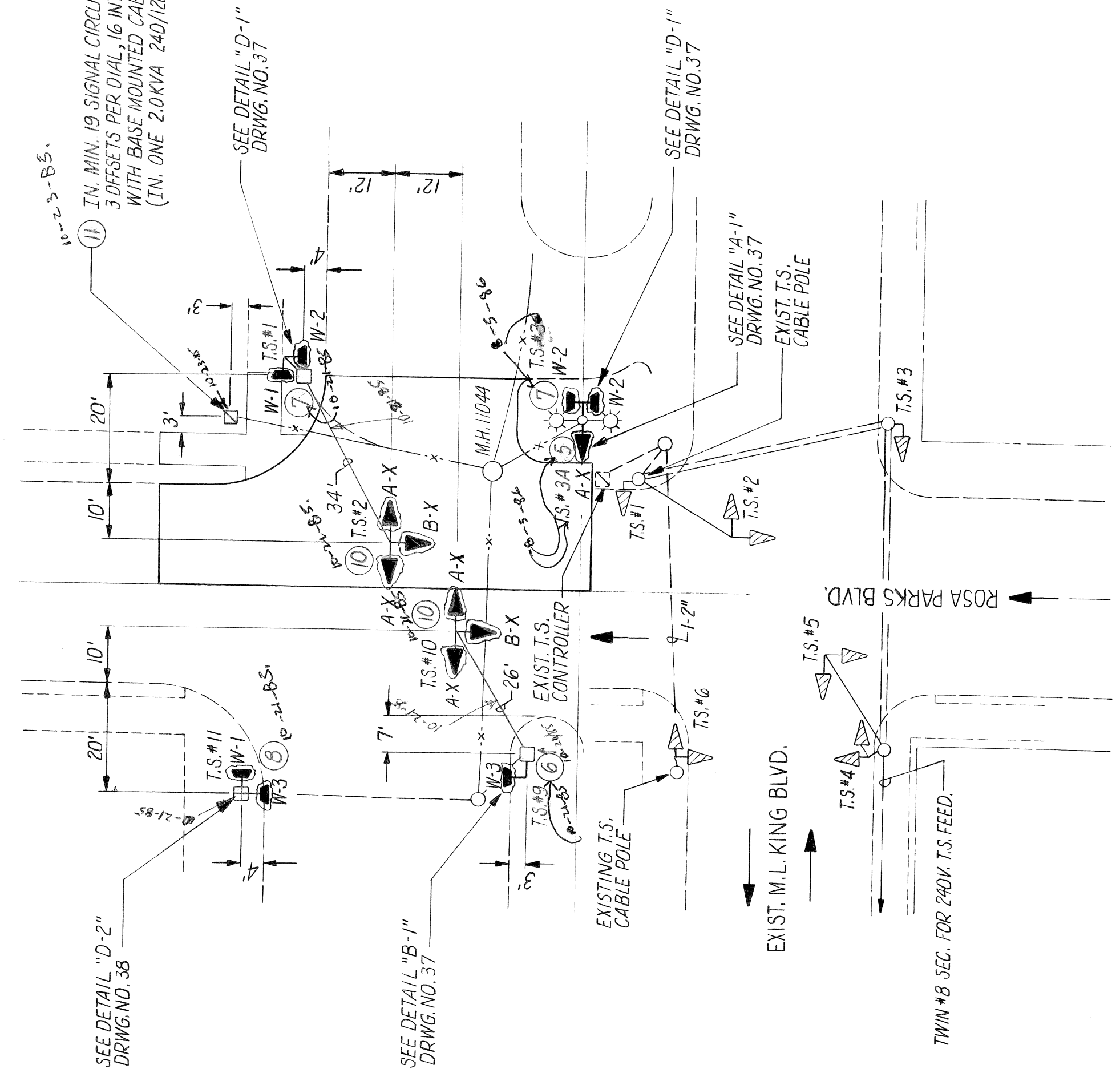
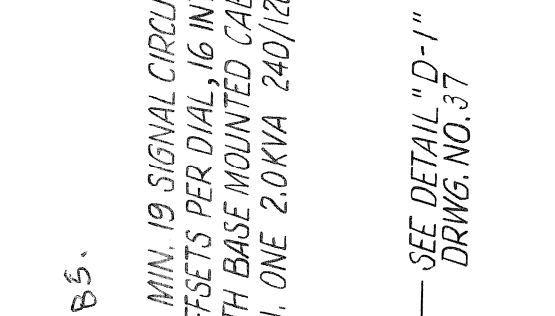
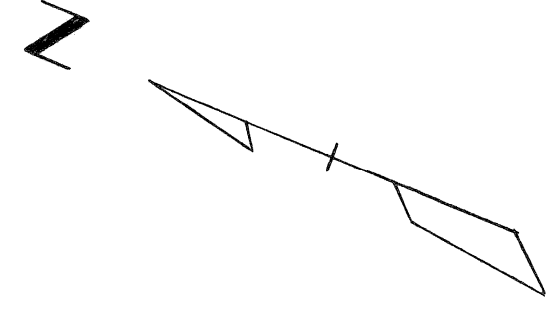




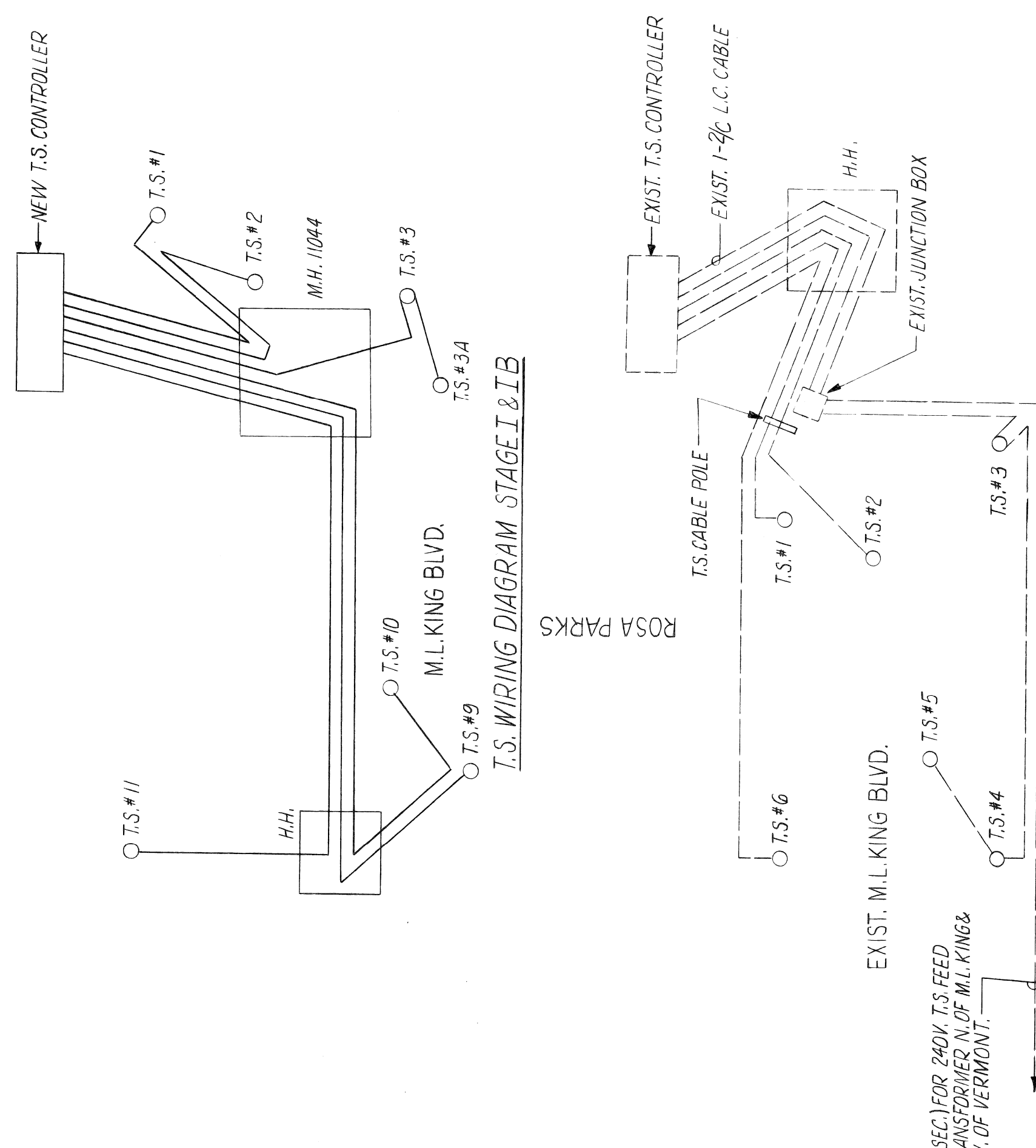




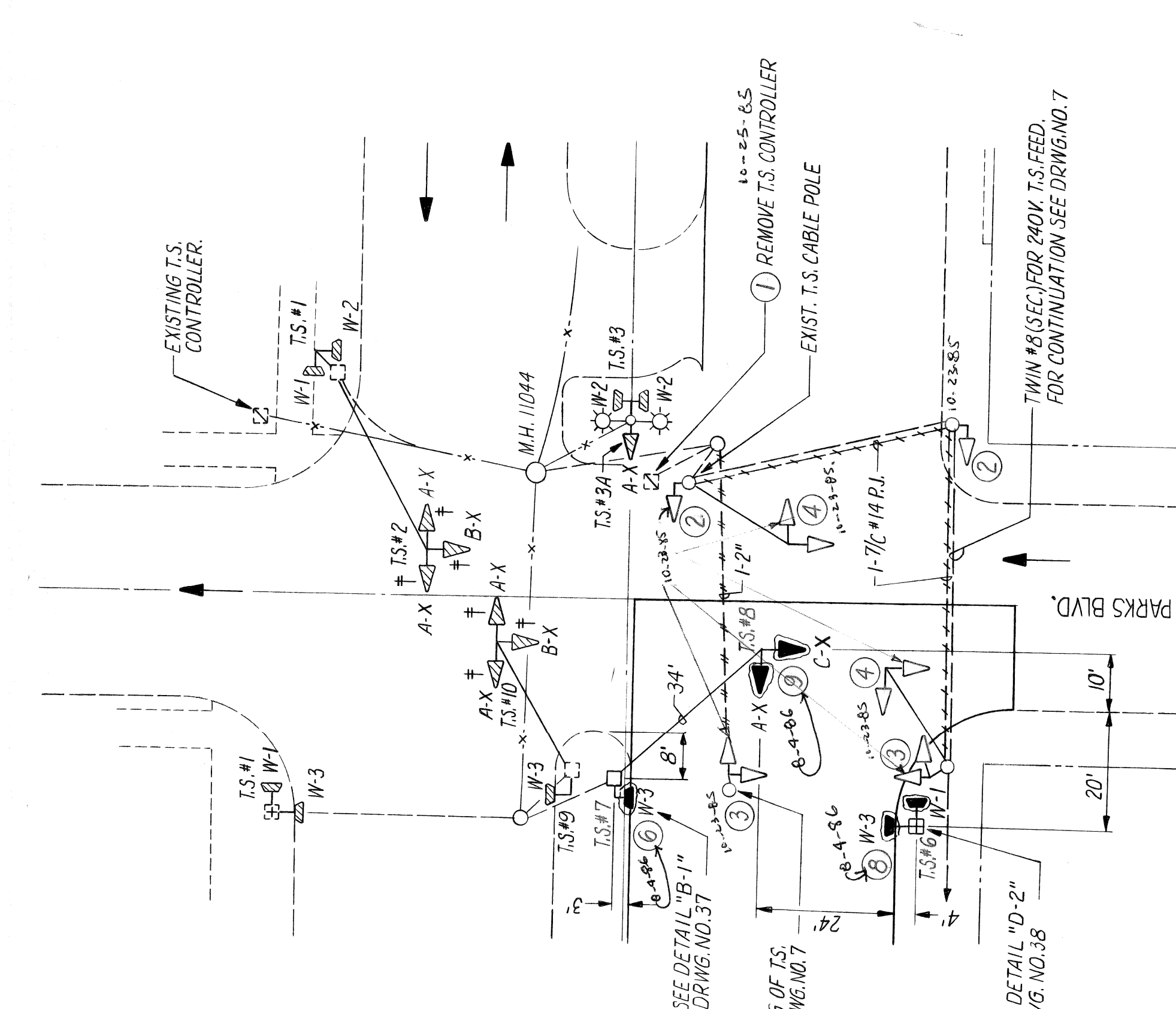




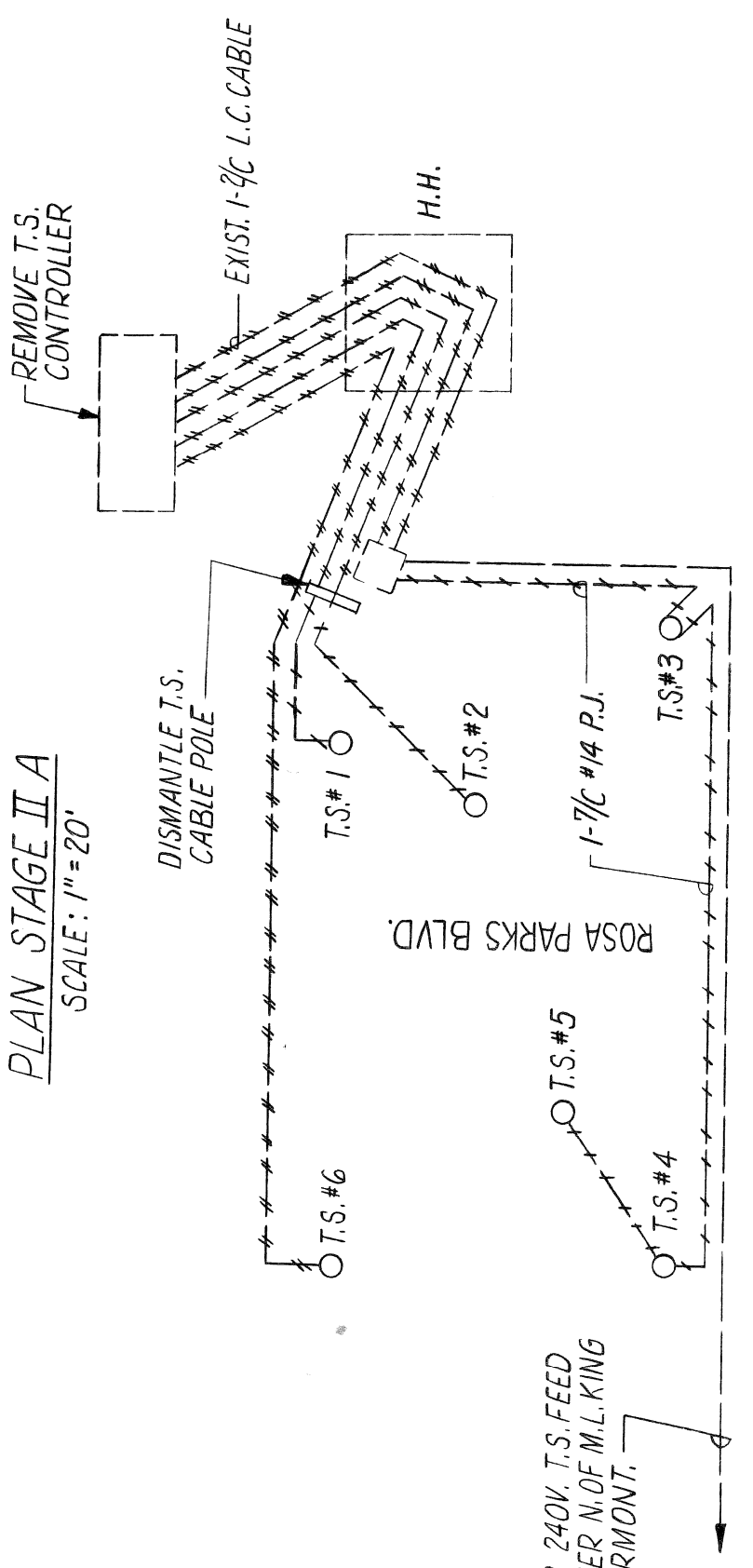
PLAN STAGE I & I B  
SCALE: 1"=20'



T.S. WIRING DIAGRAM STAGE I & I B

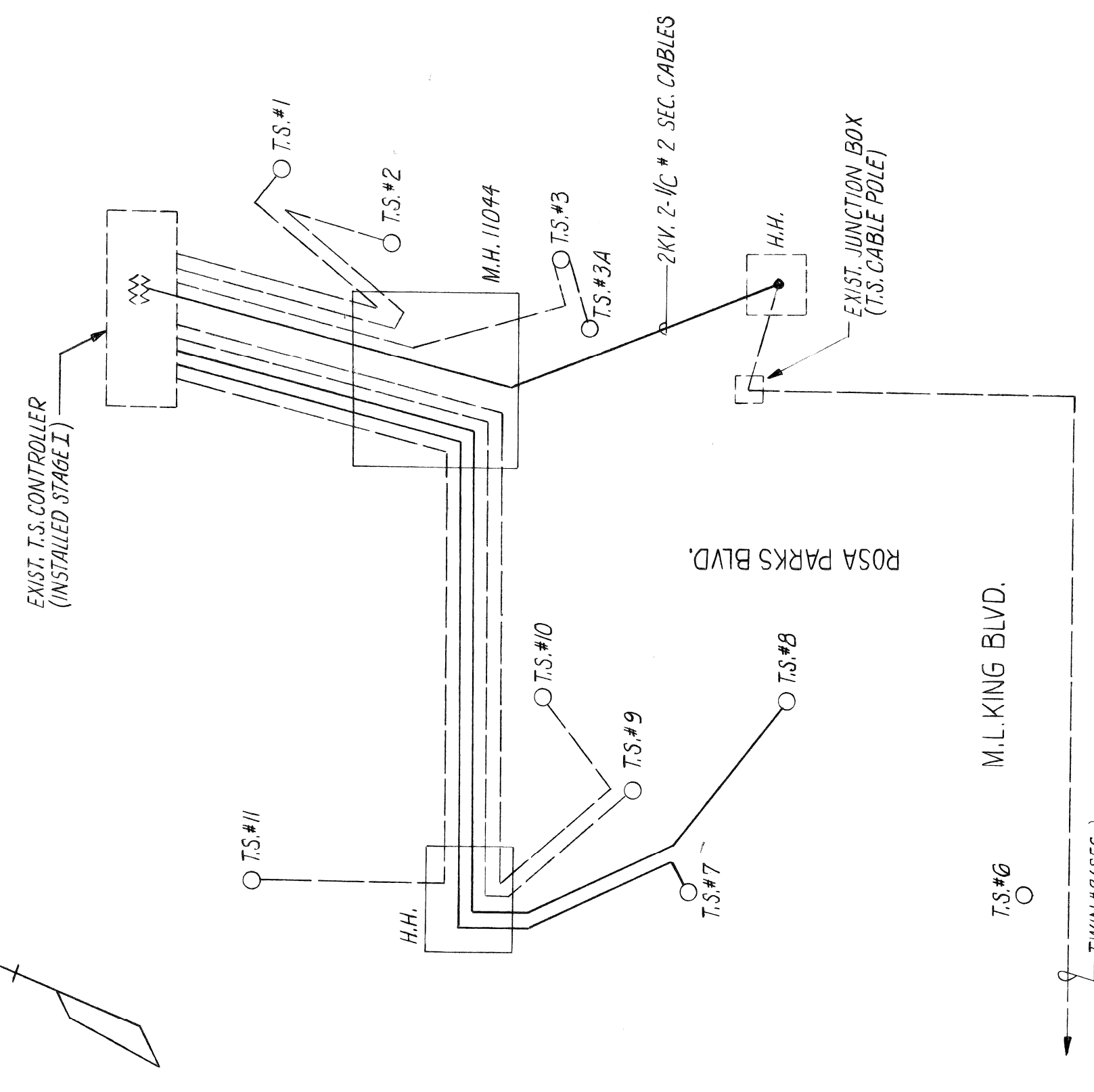


PLAN STAGE II A  
SCALE: 1"=20'



T.S. REMOVAL WIRING DIAGRAM

ALL 3-SECTION TRAFFIC SIGNALS  
ON THIS SHEET SHALL BE ALUMINUM.



T.S. WIRING DIAGRAM STAGE II A

LIST OF MATERIAL	ITEM	QUANTITIES
1	REMOVE T.S. CONTROLLER, CABINET & PEDESTAL	1 EACH
2	REMOVE 1-WAY BRACKET ARM T.S.	2 EACH
3	REMOVE 2-WAY BRACKET ARM T.S.	2 EACH
4	REMOVE 2-WAY MAST ARM T.S. & MAST ARM	2 EACH
5	1-WAY BRACKET ARM T.S.	1 EACH
6	1-WAY PEDESTRIAN BRACKET ARM T.S.	2 EACH
7	2-WAY PEDESTRIAN T.S. ON BFT. PEDESTAL ON NEW FDN.	2 EACH
8	2-WAY MAST ARM T.S., MAST ARM & STD. ON NEW FDN.	1 EACH
9	3-WAY MAST ARM T.S., MAST ARM & STD. ON NEW FDN.	2 EACH
10	T.S. CONTROLLER WITH BASE MOUNTED CABINET ON NEW FDN.	1 EACH

DATE	DESCRIPTION	CHKD. BY

M.L. KING JR. BLVD. RECONSTRUCTION  
WABASH AVE. TO LINCOLN AVE.  
T.S. AT ROSA PARK & M.L. KING BLVD.

SHEET	OF	SHEETS

CITY OF DETROIT  
CITY ENGINEERING DEPARTMENT

PLAN PREPARED BY  
CONSULTING ENGINEERING ASSOCIATES INC.  
ENGINEERING CONSULTANTS  
16580 WYOMING DETROIT, MICH. 48221

CHECKED BY  
APPROVED BY

PUBLIC LIGHTING  
DEPARTMENT  
CITY OF DETROIT

FILE NO.  
51-0585  
SHEET NO.  
42 OF 71  
DATE  
AUG 1984

DRAWN BY  
CEA  
CHECKED BY  
APPROVED BY  
DATE  
AUG 1984

DRWG. NO.  
12 OF 41  
FILE NO.  
CEA 1098















BID-ITEM	UNIT	2	3	4	5	6	7	8	12	13	14	15	TOTAL
CONDUIT REPAIR- UNDER PAVEMENT	EACH	2											2
CONDUIT REPAIR- UNDER SIDEWALK OR DIRT	EACH	2											2
1-3" ENCASED CONDUIT	LIN.FT.		15	80	175	40	140	105					555
2-3" ENCASED CONDUIT	LIN.FT.		15	15	360	50	35						460
4-3" ENCASED CONDUIT	LIN.FT.				65								65
2-4" ENCASED CONDUIT	LIN.FT.		110	100			85	10					305
3-4" ENCASED CONDUIT	LIN.FT.				10								10
6-4" ENCASED CONDUIT	LIN.FT.		85	145	435	515	945	405					2530
2-4" & 1-3" ENCASED CONDUIT	LIN.FT.			40									40
6-4" & 1-3" ENCASED CONDUIT	LIN.FT.			30									30
ROUND HANDHOLE	EACH				4	3	5	2					14
TYPE "D" HANDHOLE	EACH			1	2		1						5
TWO-WAY MANHOLE	EACH			2	2	1	2	1					8
REMOVE HANDHOLE	EACH												1
ABANDON HANDHOLE	EACH												1
MULTI ST. LTG. CONTROL CABINET ON NEW FDN.	EACH							1					1
CODE 117 U.G.-FED. ST. LTG. UNIT ON NEW FDN.	EACH				3	4	8	3					19
CODE 009-00 ST. LTG. STD. WITH TRANSFORMER BASE ON NEW FDN.	EACH				2								2
6FT. CLAMP-ON BRACKET ARM (3'-0" RISE)	EACH				4								4
SALVAGED U.G.-FED. ST. LTG. UNIT ON NEW FDN.	EACH				1								2
REMOVE U.G.-FED. ST. LTG. UNIT	EACH				6								7
REMOVE FOUNDATION	EACH				9		2						13
REMOVE CALL BOX & PEDESTAL	EACH						1						1
30 FT. STEEL STRAIN POLE ON NEW FDN.	EACH							3					9
2 FT. CLAMP-ON BRACKET	EACH												1
400 W. SODIUM VAPOR LUMINAIRE (RECTANGULAR)	EACH		3	10	9	5	8	4					39
400 W. MERCURY VAPOR LUMINAIRE WITH SERIES COIL	EACH				6								6
INSTALL SALVAGED 400 W. SODIUM VAPOR LUMINAIRE (RECTANGULAR)	EACH		2			5	9	4					20
REMOVE CLAMP-ON BRACKET	EACH												1
INSTALL SALVAGED CLAMP-ON BRACKET	EACH												1
8 FT. BRACKET ARM	EACH		5	9	5								19
REMOVE LUMINAIRE	EACH		2										3
REMOVE STEEL POLE	EACH				1								2
REMOVE 2-1/2" ST. LTG. CABLES & 1-#2 NEUTRAL	LIN.FT.		10			40							50
REMOVE 1-1/2" L.C. ST. LTG. CABLE	LIN.FT.				255								255
REMOVE 2-1/2" L.C. ST. LTG. CABLES	LIN.FT.				1285								1285
600, 1-7/8" P.J. CABLE FOR CHRONOPLAN	LIN.FT.				410								410
CHRONOPLAN CABLE, 16 GA., PLASTIC JACKETED, 6 PR., SHIELDED	LIN.FT.					865	490						1355
2KV, 2-1/2" SECONDARY CABLES	LIN.FT.			80		770	560						1410
2KV, 1-1/2" SECONDARY CABLES	LIN.FT.				315	535							850
2KV, 1-1/2" ST. LTG. CABLE	LIN.FT.				20								20
2KV, 2-1/2" ST. LTG. CABLES & 1-#2 NEUTRAL	LIN.FT.		40		640	1165	880						2725
2KV, 4-1/2" ST. LTG. CABLES & 1-#2 NEUTRAL	LIN.FT.				40	160	65						265
2KV, 2-1/2" ST. LTG. CABLES & 1-#2/0 NEUTRAL	LIN.FT.						370	85					455
7500V, 1-1/2" L.C. ST. LTG. CABLE	LIN.FT.				255								255
7500V, 2-1/2" L.C. ST. LTG. CABLES	LIN.FT.				1610								1610
6" SEWER (LIGHTING)	LIN.FT.			20		60	130	200					410
6" SEWER TAP	EACH					1	3	1					5
REMOVE WOOD POLE	EACH		2	4	1	9	23	10					49
REMOVE O.H. ST. LTG. UNIT	EACH		1	1	10	20	9						42
DISMANTLE MULT. ST. LTG. CABLE POLE	EACH												1
DISMANTLE T.S. CABLE POLE	EACH						2						2
REMOVE # 8 TWIN	LIN.FT.		115	880		585	1670	1560					4810
REMOVE 1-#6 O.H. LINE	LIN.FT.			1040									1040
REMOVE 2-#6 O.H. LINE	LIN.FT.		130	130	540	210	960	470					2440
REMOVE # 6 TRIPLEX	LIN.FT.					675	1160	385					2220

**M.L. KING JR. BLVD. RECONSTRUCTION**  
**WABASH AVE. TO LINCOLN AVE.**  
**QUANTITY SHEET**

DATE: \_\_\_\_\_ CHD. BY: \_\_\_\_\_

SHEET \_\_\_\_\_ OF \_\_\_\_\_ SHEETS

JOB NO. \_\_\_\_\_

ASSIGNMENT NO. \_\_\_\_\_

DATE \_\_\_\_\_

CITY OF DETROIT  
 CITY ENGINEERING DEPARTMENT

DRAWN: **CEA**  
 CHECKED: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_  
 DATE: **AUG 1984**

PLAN PREPARED BY:  
 CONSULTING ENGINEERING ASSOCIATES INC.  
 ENGINEERING CONSULTANTS  
 16580 WYOMING DETROIT, MICH., 48221  
 DRWG. NO. **16 OF 41** FILE NO. **CEA 1098**

CHECKED BY: \_\_\_\_\_ APPROVED BY: \_\_\_\_\_

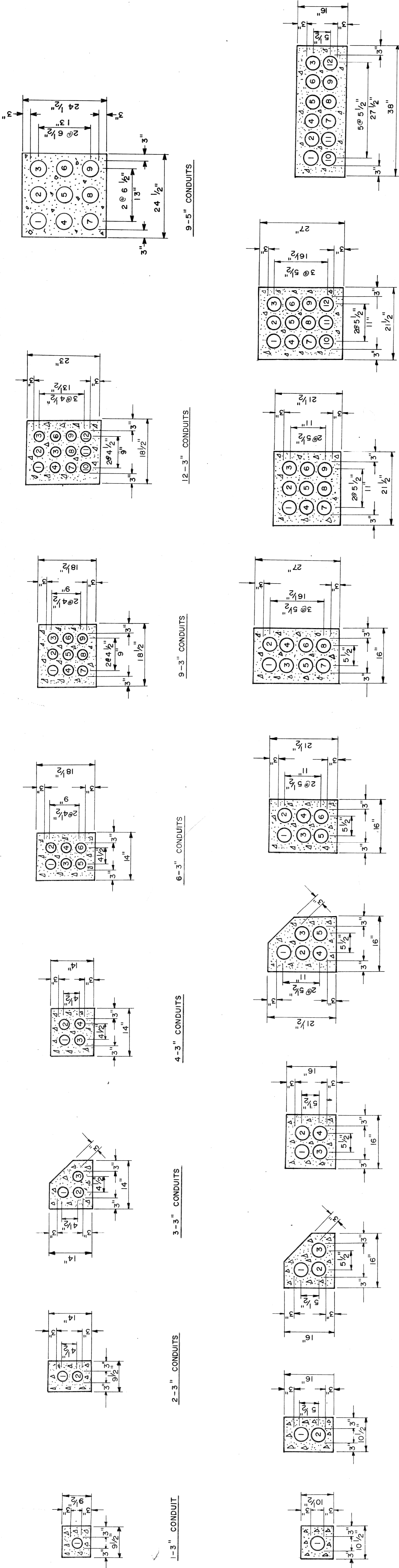
PUBLIC LIGHTING  
 COMMISSION  
 CITY OF DETROIT

FILE NO. **51-0585**  
 SHEET NO. **46 OF 71**  
 DATE **AUG 1984**

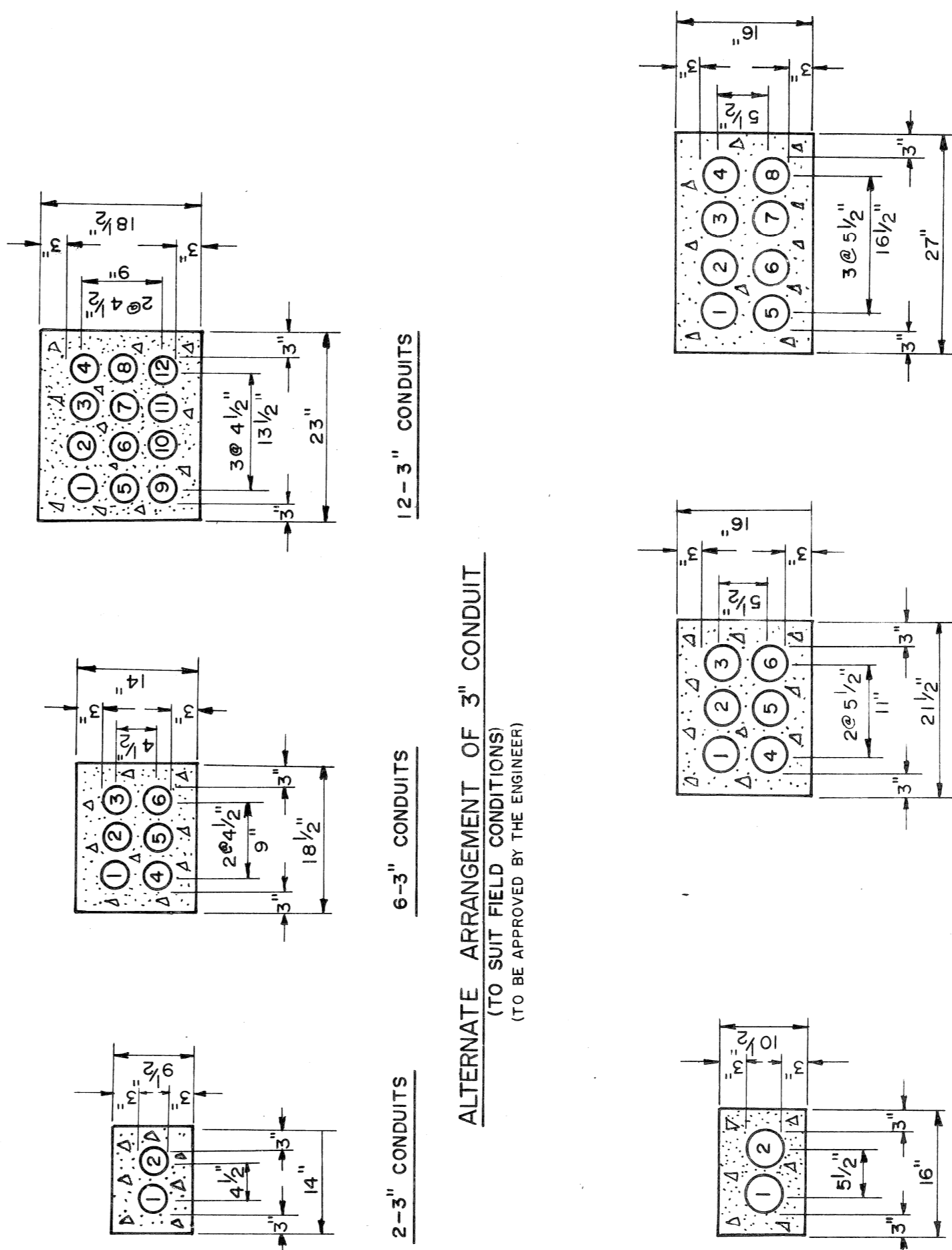






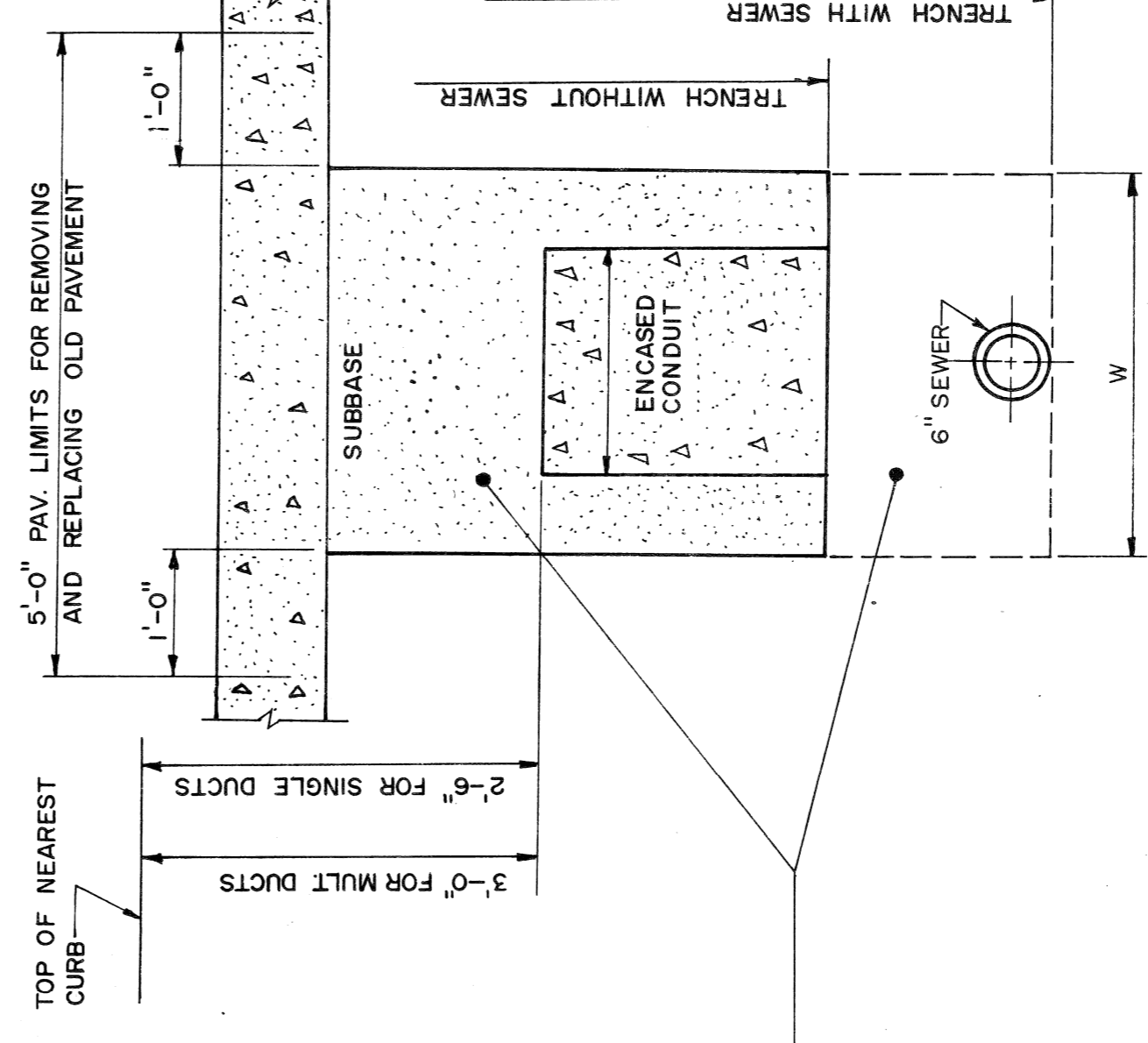


1-3" CONDUIT  
 2-3" CONDUITS  
 3-3" CONDUITS  
 4-3" CONDUITS  
 6-3" CONDUITS  
 9-3" CONDUITS  
 12-3" CONDUITS  
 1-4" CONDUIT  
 2-4" CONDUITS  
 3-4" CONDUITS  
 4-4" CONDUITS  
 5-4" CONDUITS  
 6-4" CONDUITS  
 8-4" CONDUITS  
 9-4" CONDUITS  
 12-4" CONDUITS  
 12-4" CONDUITS IN BRIDGE APPROACH



2-3" CONDUITS  
 3-3" CONDUITS  
 6-3" CONDUITS  
 12-3" CONDUITS  
 ALTERNATE ARRANGEMENT OF 3" CONDUIT  
 (TO SUIT FIELD CONDITIONS)  
 (TO BE APPROVED BY THE ENGINEER)

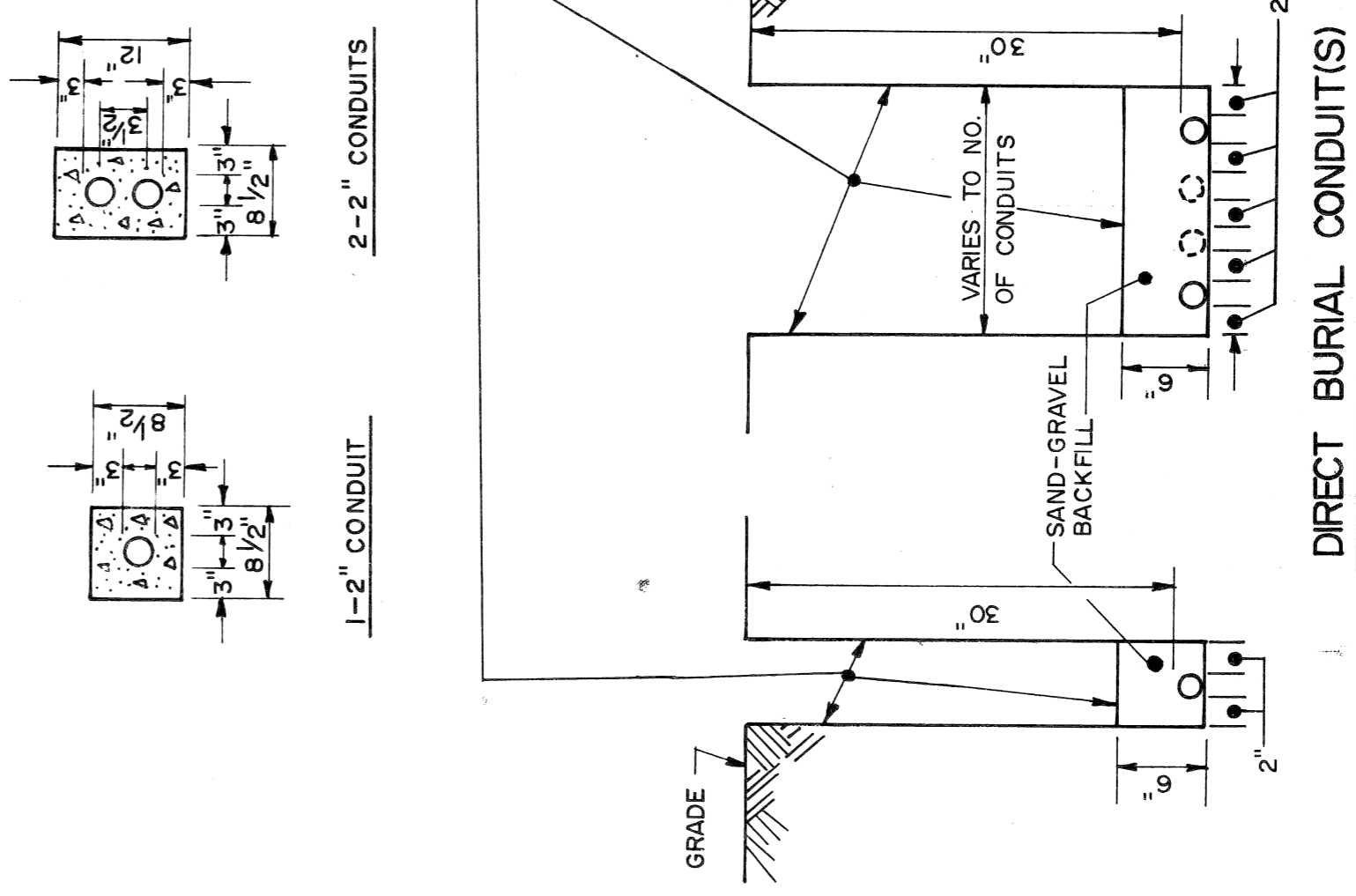
CONCRETE ENCASED CONDUIT SECTIONS



TYPICAL SECTION OF TRENCH  
 M.F.S.

NOTE:  
 PREFERRED TRENCH WIDTH "W"  
 NOT WIDER THAN CONDUIT  
 ENCASEMENT WIDTH "D"

BACK FILL WITH  
 GRADE "A" MATERIAL  
 ACCORDING TO CITY  
 OF DETROIT SPECIFICATION



DIRECT BURIAL CONDUITS

DATE	DESCRIPTION	CHKD BY

M. L. KING JR. BLVD. RECONSTRUCTION  
 WABASH AVE TO LINCOLN AVE.  
 MISC. ENCASED CONDUIT SECTIONS  
 DETAILS

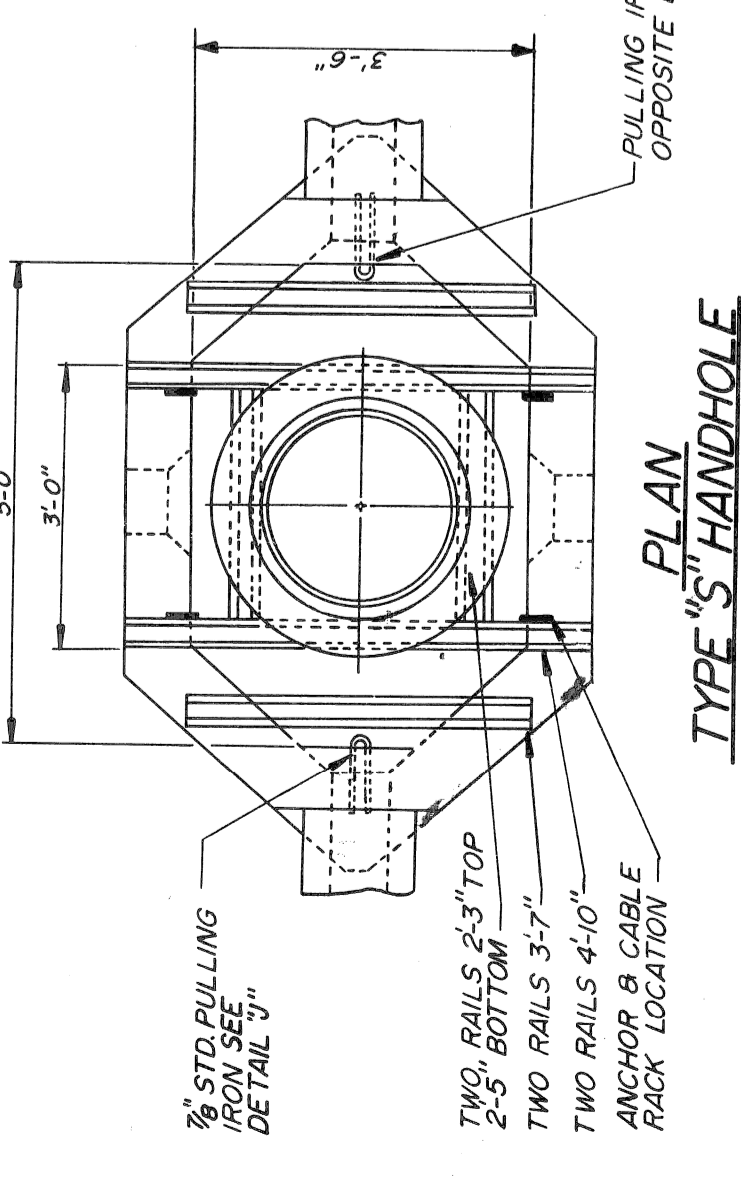
SHEET	OF	SHEETS
JOB	NO.	ASSIGNMENT
NO.	NO.	NO.
DATE	DATE	DATE

CITY OF DETROIT  
 CITY ENGINEERING DEPARTMENT

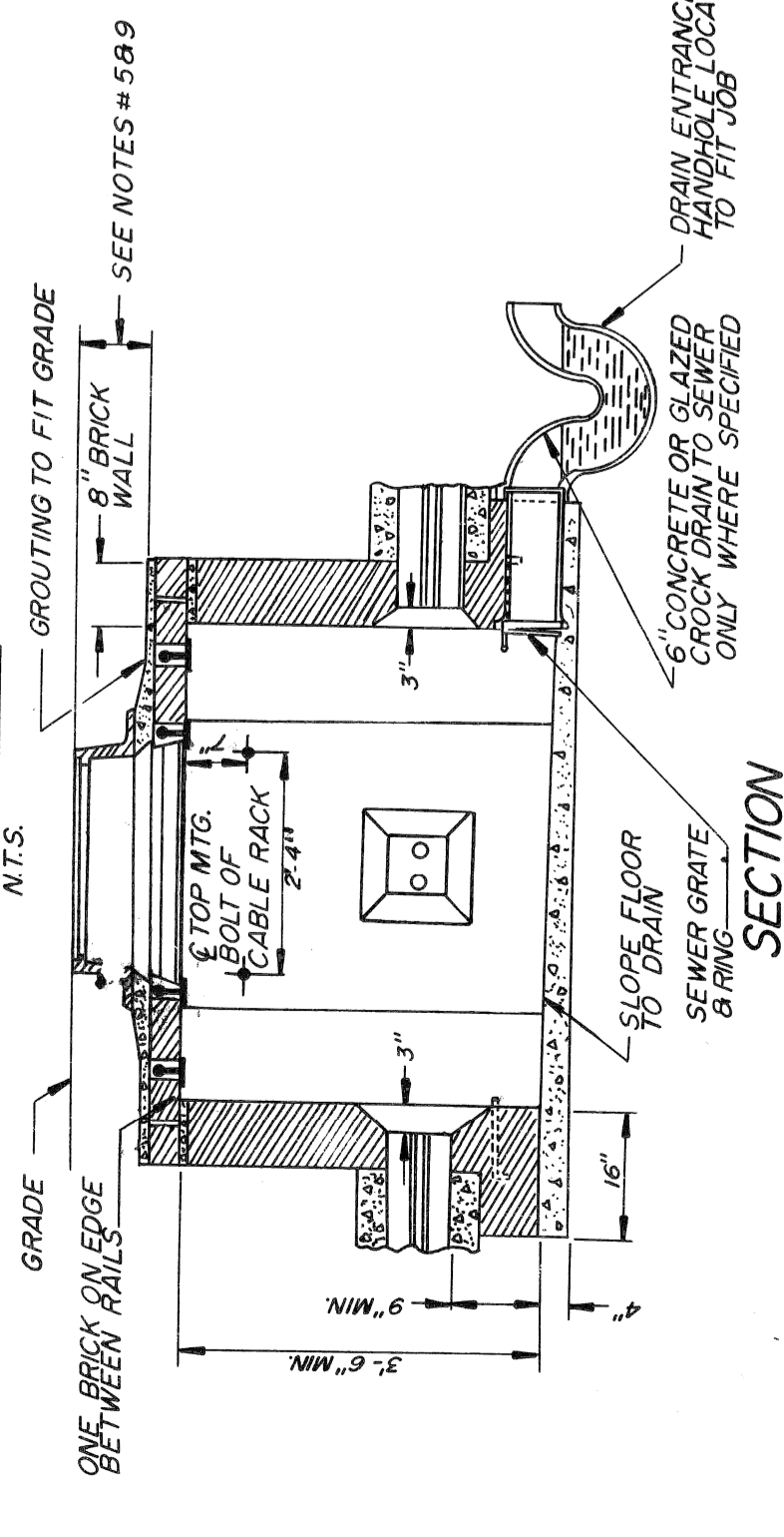
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 CHECKED BY: *gp*  
 APPROVED BY: *gp*  
 DATE: AUG 1984  
 FILE NO. 18 OF 41  
 CEA 1098

PLAN PREPARED BY:  
 CONSULTING ENGINEERING ASSOCIATES INC.  
 ENGINEERING CONSULTANTS  
 16580 WYOMING, DETROIT, MICH., 48221  
 FILE NO. 48 OF 71  
 PUBLIC LIGHTING COMMISSION  
 CITY OF DETROIT

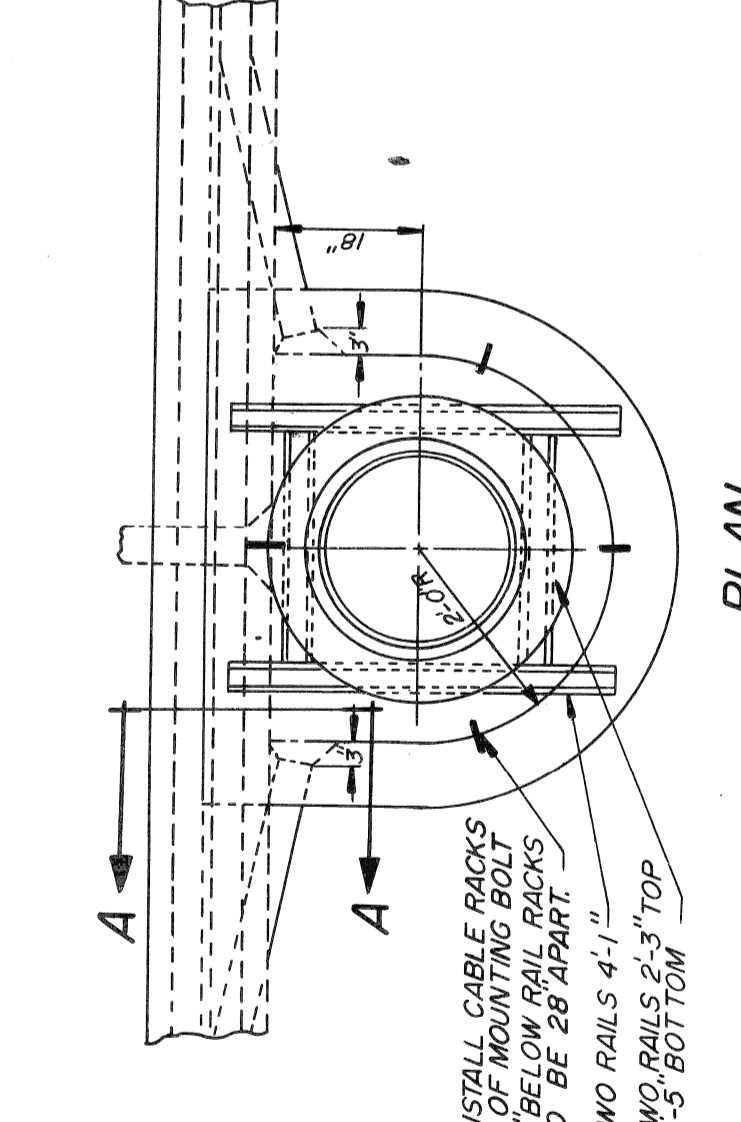




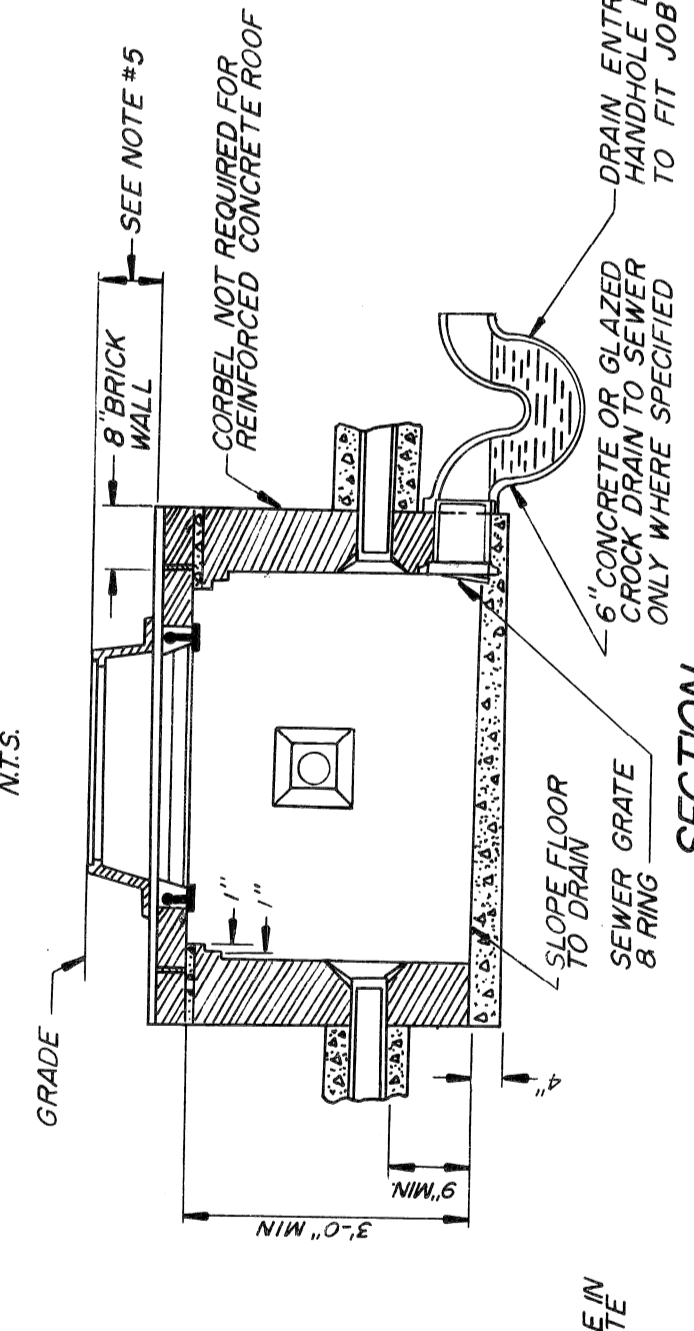
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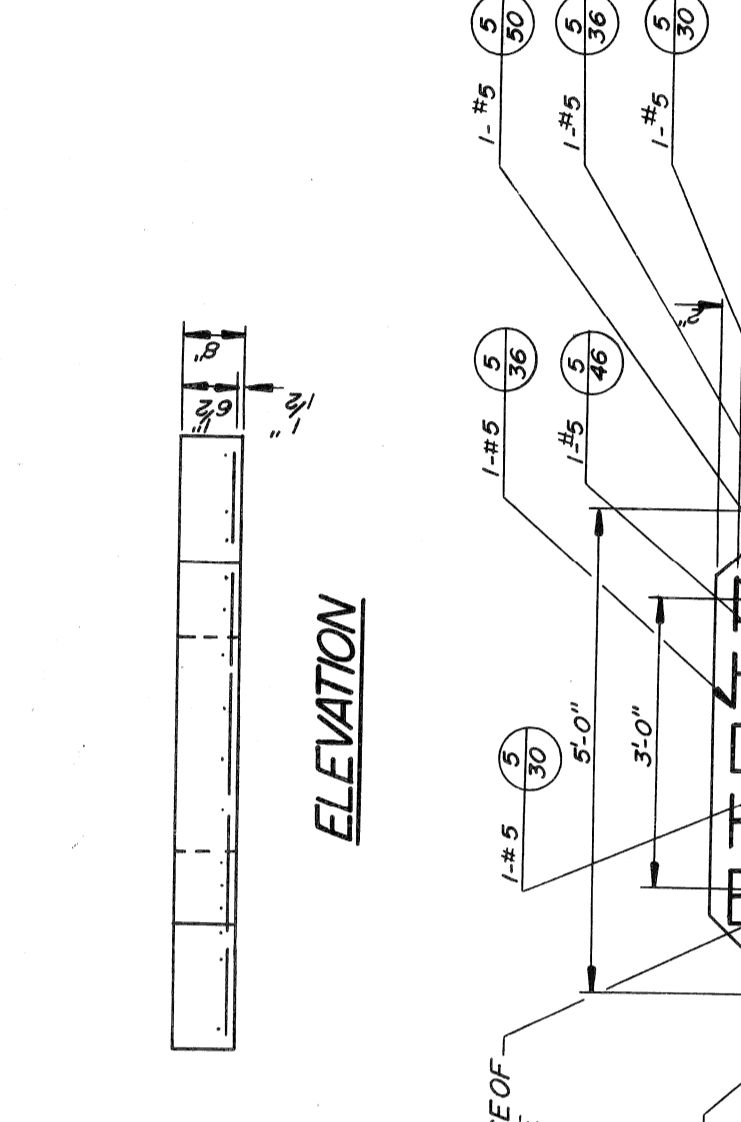
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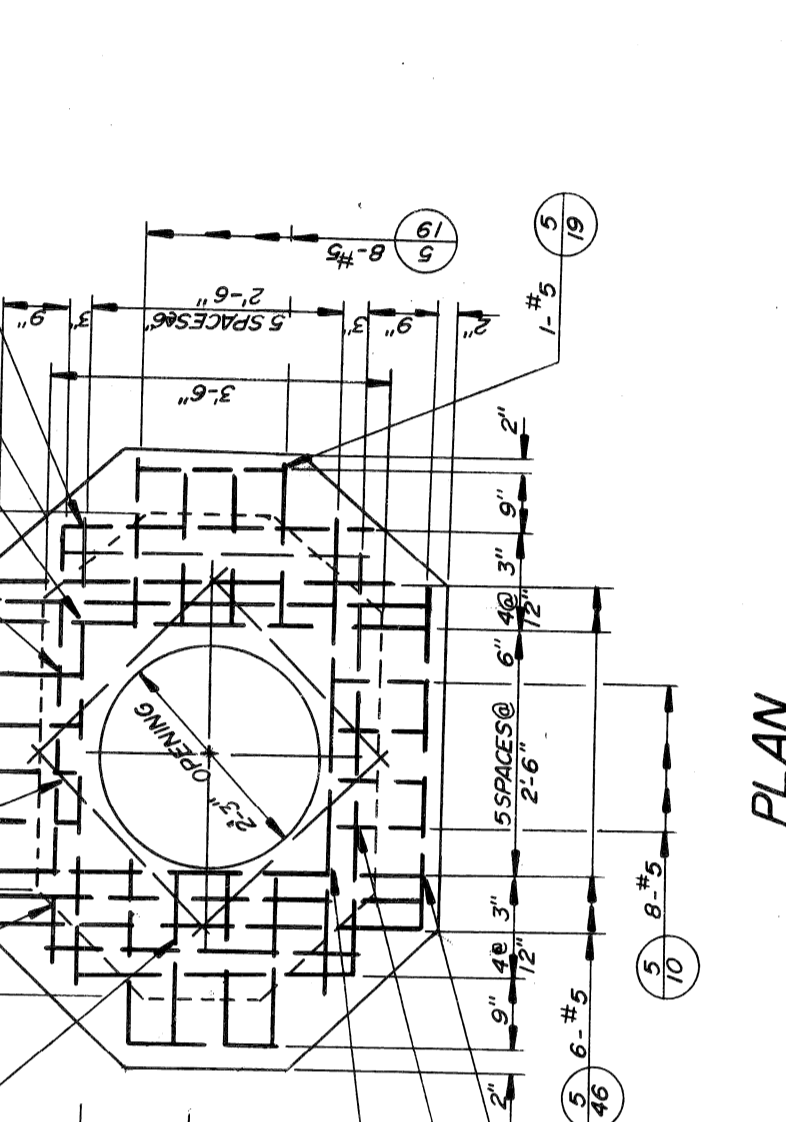
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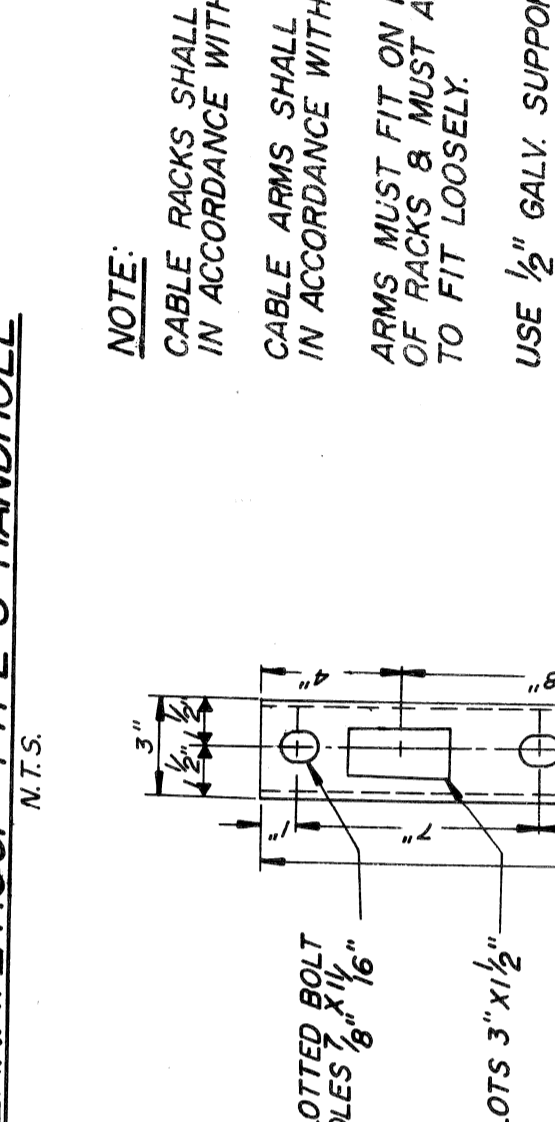
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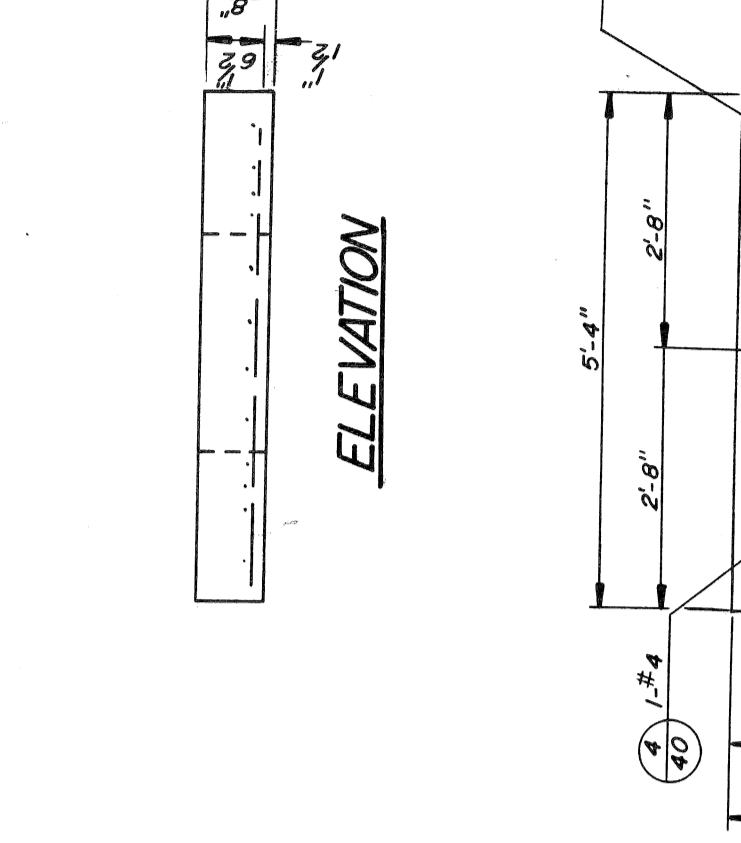
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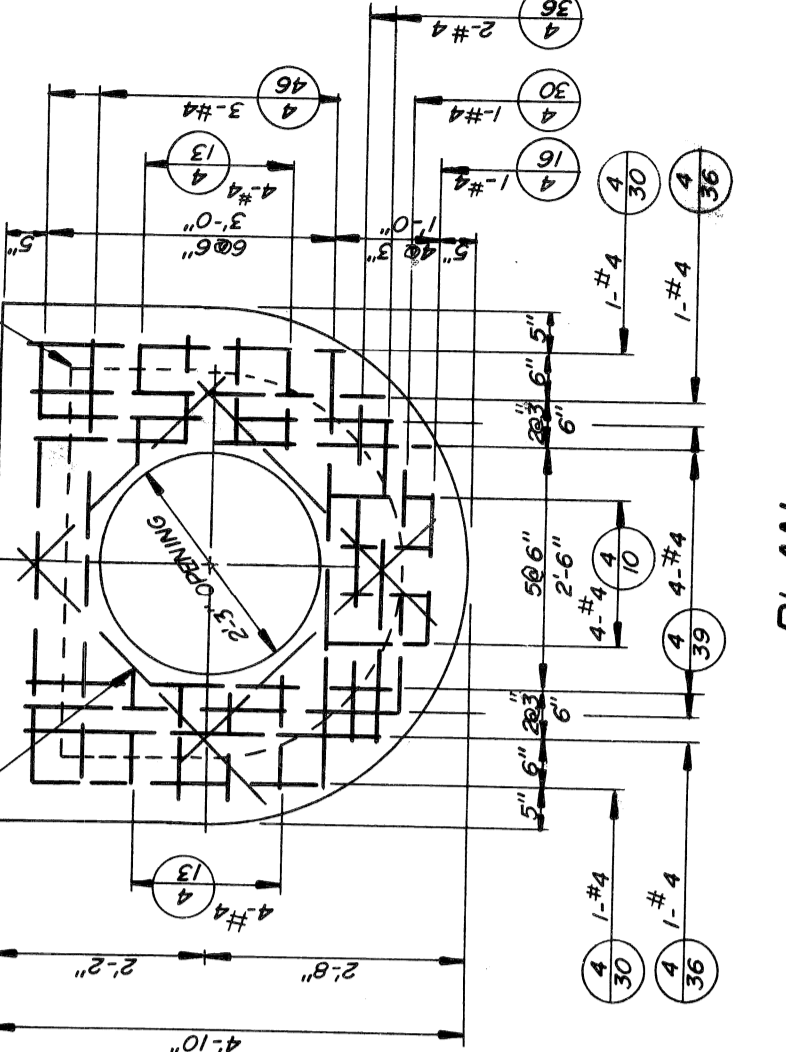
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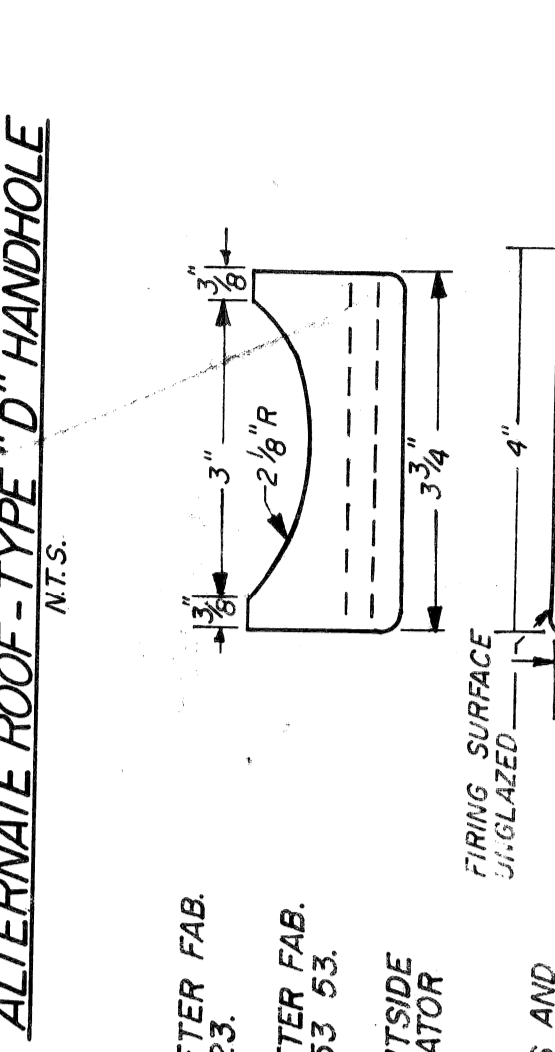
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N.T.S.



ELEVATION



PLAN TYPE "D" HANDHOLE  
N.T.S.



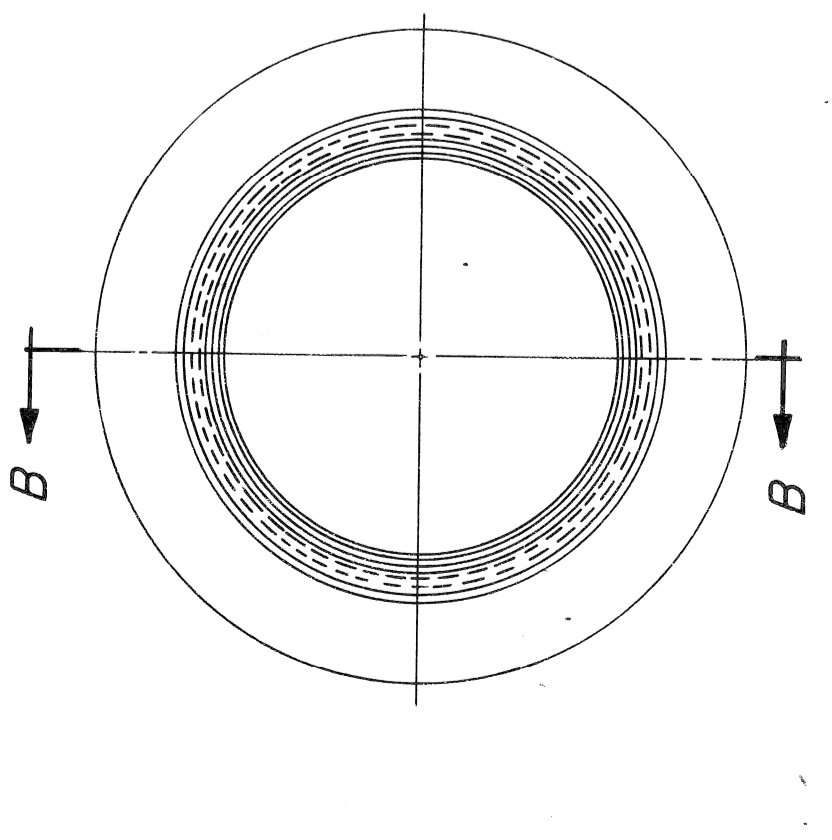
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TYPE "D" HANDHOLE TABLE FOR #4 BARS

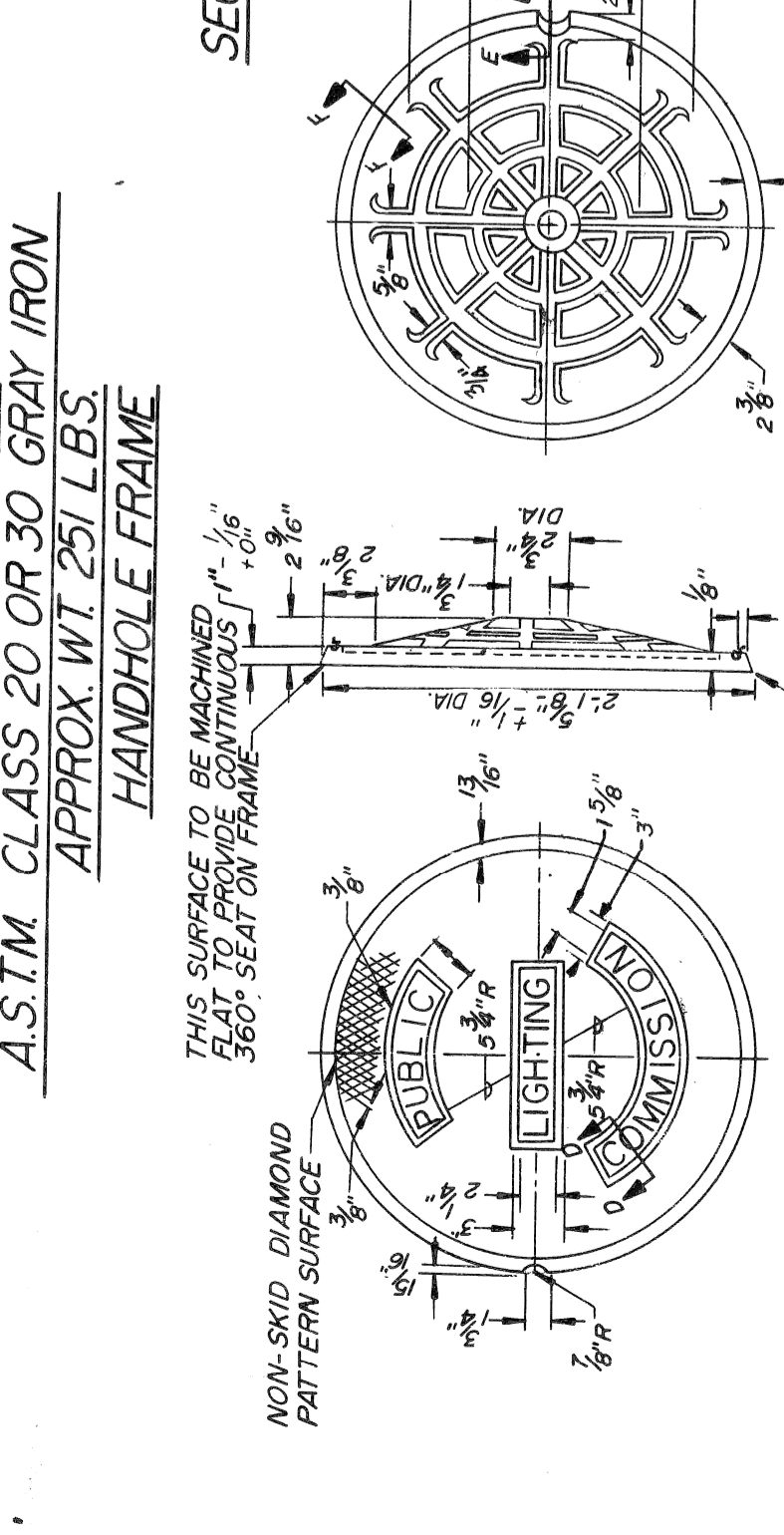
MARK	INSIDE LENGTH
4-20	4
4-24	4
4-30	4
4-36	4
4-42	4
4-48	4
4-54	4
4-60	4
4-66	4
4-72	4

TYPE "S" HANDHOLE TABLE FOR #4 BARS

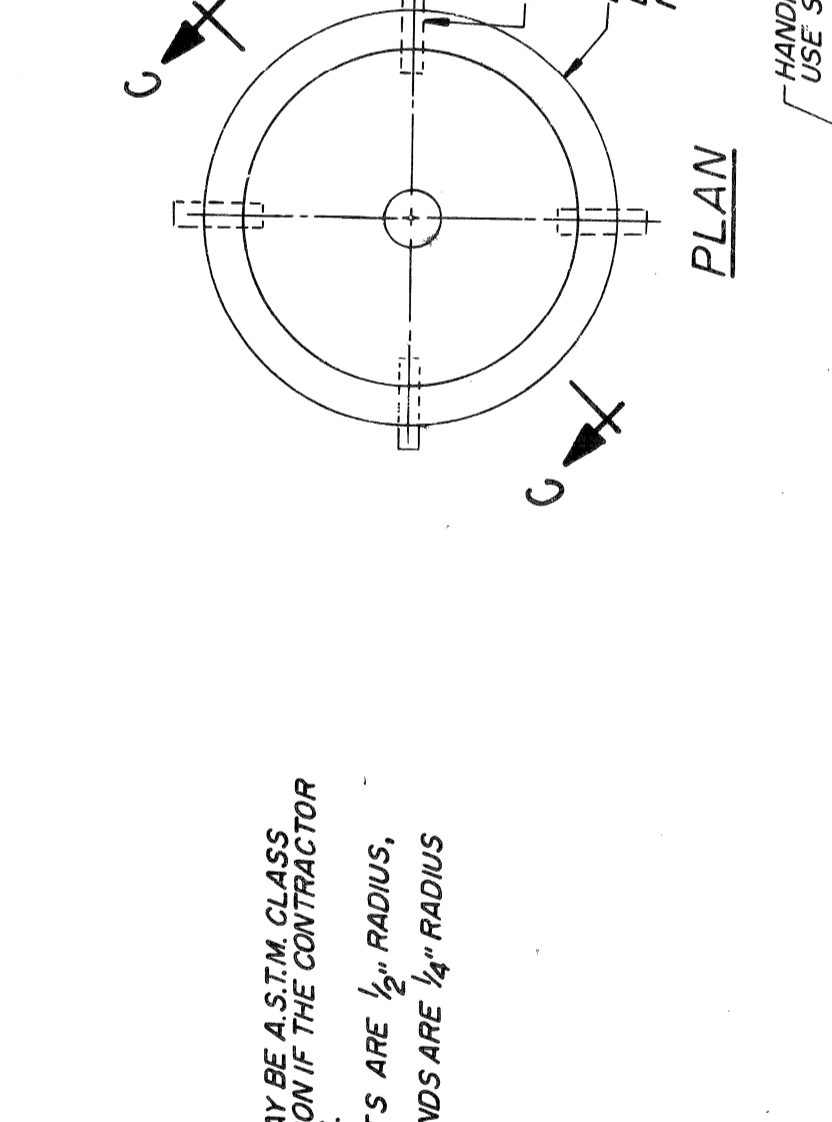
MARK	INSIDE LENGTH
5-20	5
5-24	5
5-30	5
5-36	5
5-42	5
5-48	5
5-54	5
5-60	5
5-66	5
5-72	5



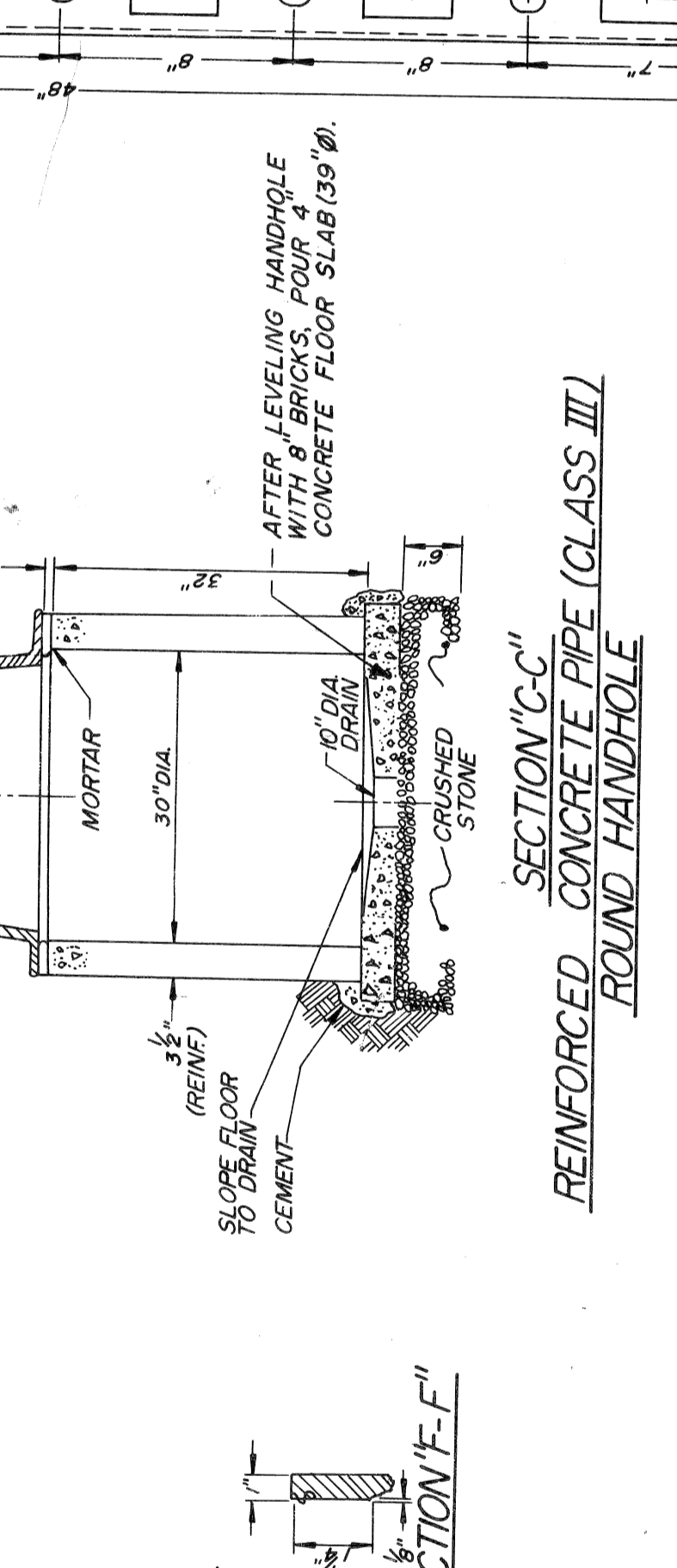
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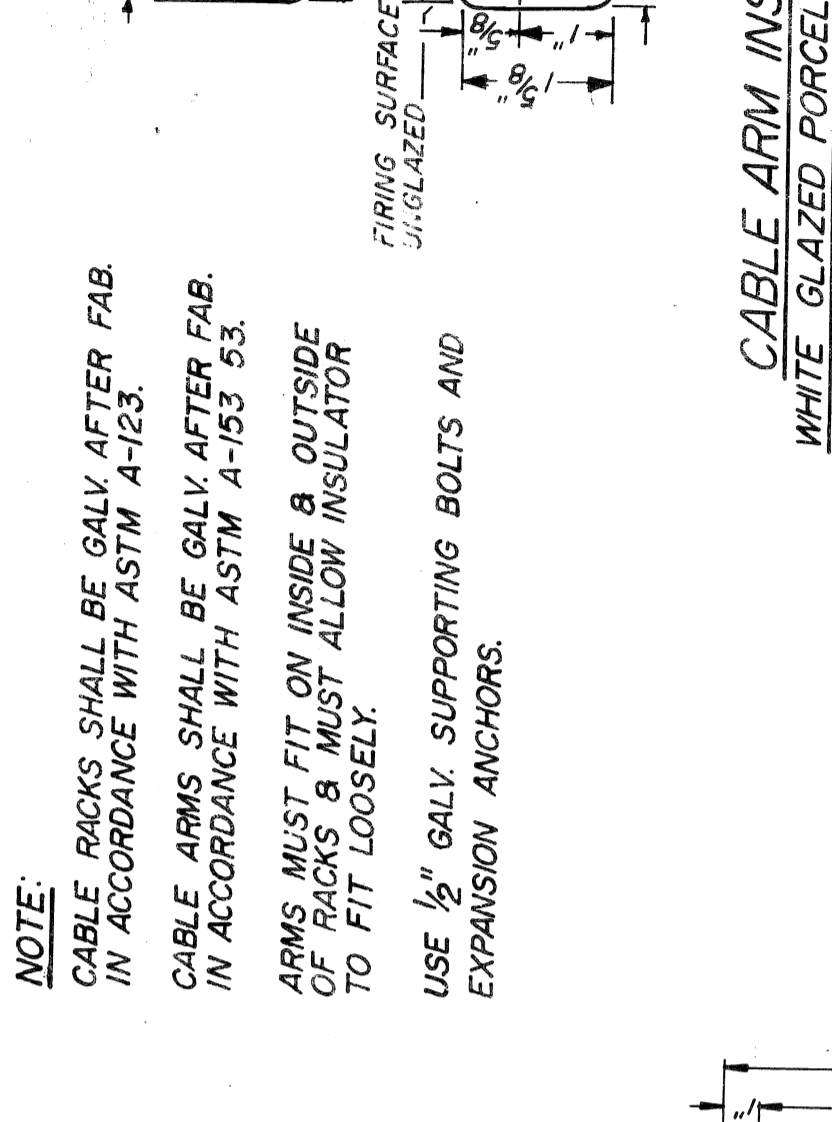
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N.T.S.



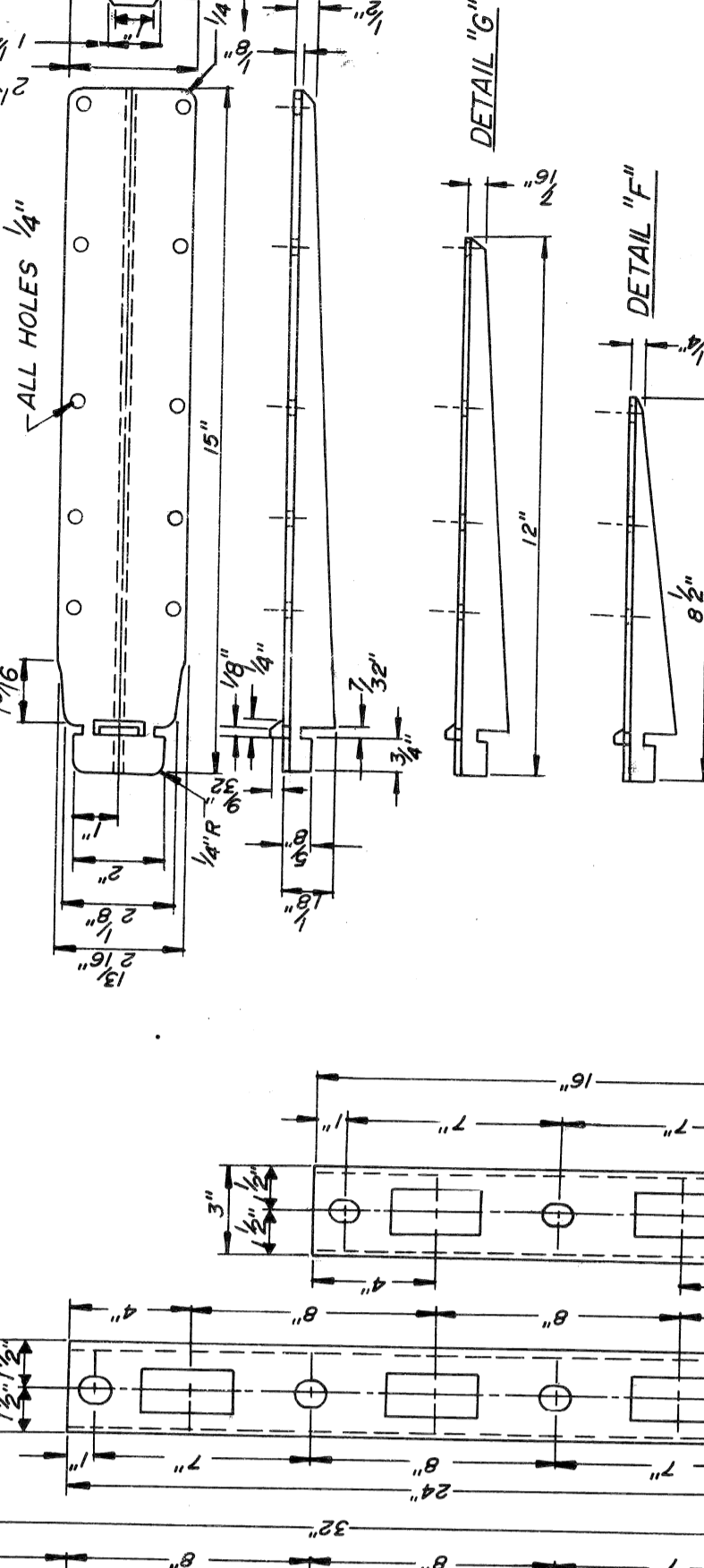
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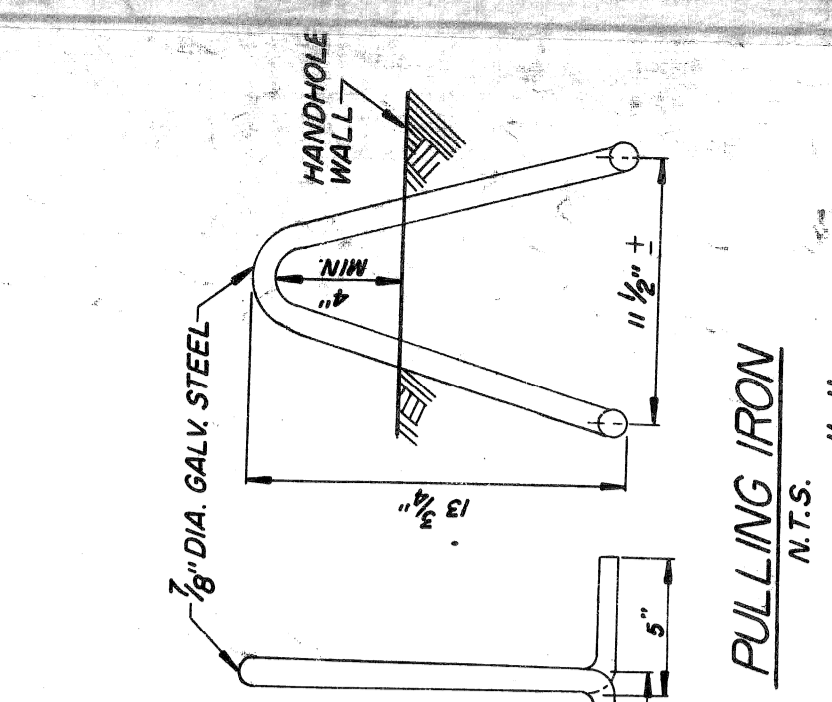
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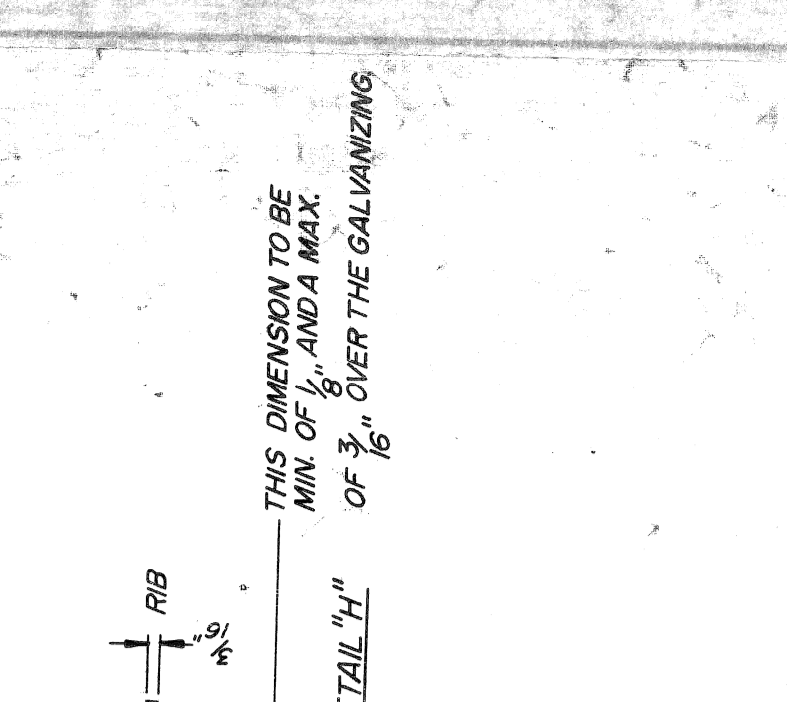
PLAN TYPE "S" HANDHOLE  
N.T.S.



SECTION TYPE "S" HANDHOLE  
N.T.S.



PLAN TYPE "D" HANDHOLE  
N.T.S.



SECTION TYPE "D" HANDHOLE  
N.T.S.

SECTION "D-D"  
A.S.T.M. CLASS 30 GRAY IRON  
APPROX. WT. 145 LBS.  
STREET TYPE COVER  
TO BE USED IN STREETS & DRIVES

SECTION "C-C"  
REINFORCED CONCRETE PIPE (CLASS III)  
ROUND HANDHOLE

SECTION "E-E"  
PLC. PATTERN NO. 1A  
A.S.T.M. CLASS 20 OR 30 GRAY IRON  
APPROX. WT. 251 LBS.  
HANDHOLE FRAME

SECTION "F-F"  
CABLE RACKS  
3" STD. A/E CHANNEL  
N.T.S.

SECTION "G-G"  
CABLE RACKS, CABLE ARMS, AND CABLE ARM INSULATORS  
N.T.S.

DATE	DESCRIPTION	SHEET	OF	SHEETS
		14		

M.L. KING JR. BLVD. RECONSTRUCTION  
WABASH AVE. TO LINCOLN AVE.  
HANDHOLE DETAILS

CITY OF DETROIT  
CITY ENGINEERING DEPARTMENT

DRAWN BY CEA  
CHECKED BY [Signature]  
APPROVED BY [Signature]  
DATE AUG. 1984

CONSULTING ENGINEERING ASSOCIATES INC.  
1650 WYOMING DETROIT, MICH 48221  
DRWG. NO. 19 OF 41  
CEA P.L.C. 1098

FILE NO. 51-0585  
SHEET NO. 49 OF 71  
DATE AUG 1984

PUBLIC LIGHTING COMMISSION  
CITY OF DETROIT

NOTE:  
1. FRAMES MAY BE A.S.T.M. CLASS 30 GRAY IRON IF THE CONTRACTOR SO ELECTS.  
2. ALL FILLETS ARE 1/4" RADIUS.  
3. ALL ROUNDS ARE 1/4" RADIUS.

NOTE:  
CABLE RACKS SHALL BE GALV. AFTER FAB. IN ACCORDANCE WITH ASTM A-123.  
CABLE ARMS SHALL BE GALV. AFTER FAB. IN ACCORDANCE WITH ASTM A-153 53.  
ARMS MUST FIT ON INSIDE OF RACKS & MUST ALLOW INSULATOR TO FIT LOOSELY.  
USE 1/2" GALV. SUPPORTING BOLTS AND EXPANSION ANCHORS.

NOTE:  
THIS DIMENSION TO BE MIN. OF 1/8" AND A MAX. OF 3/16" OVER THE GALVANIZING

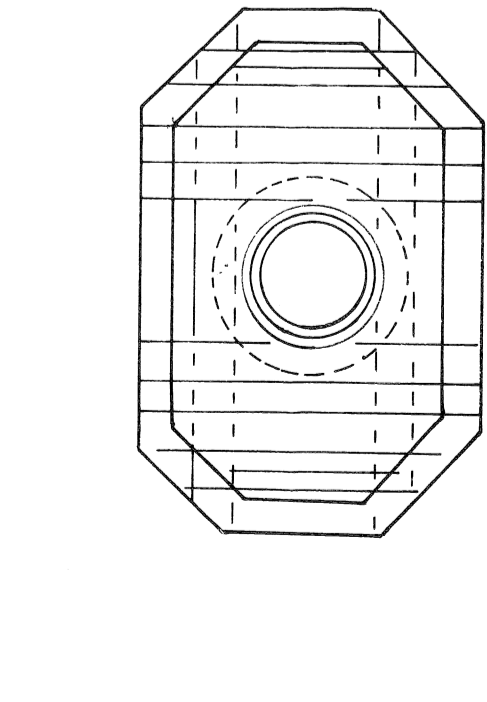
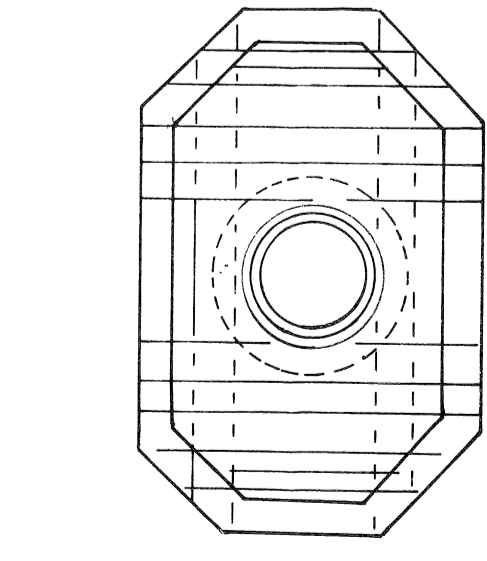
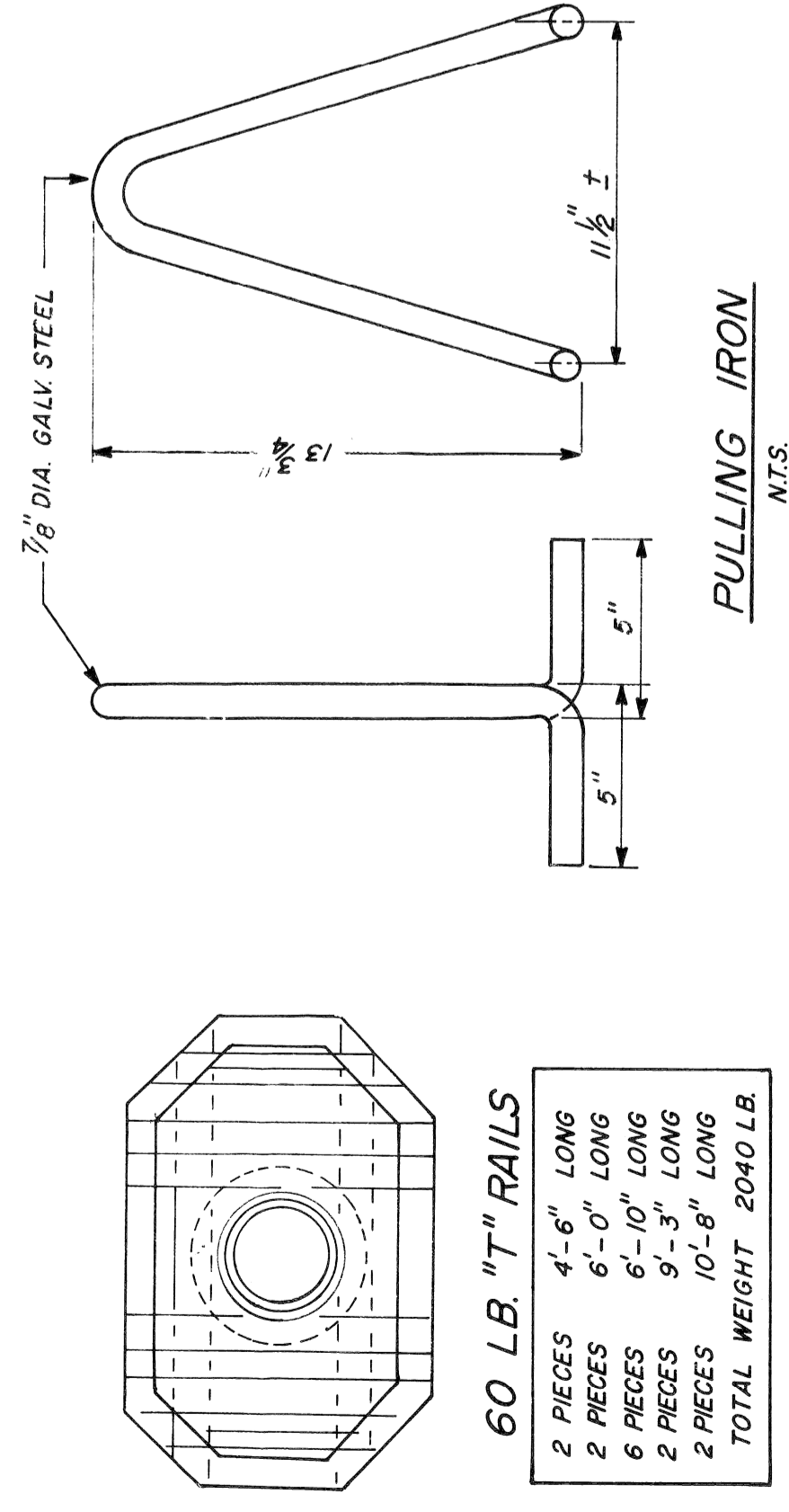
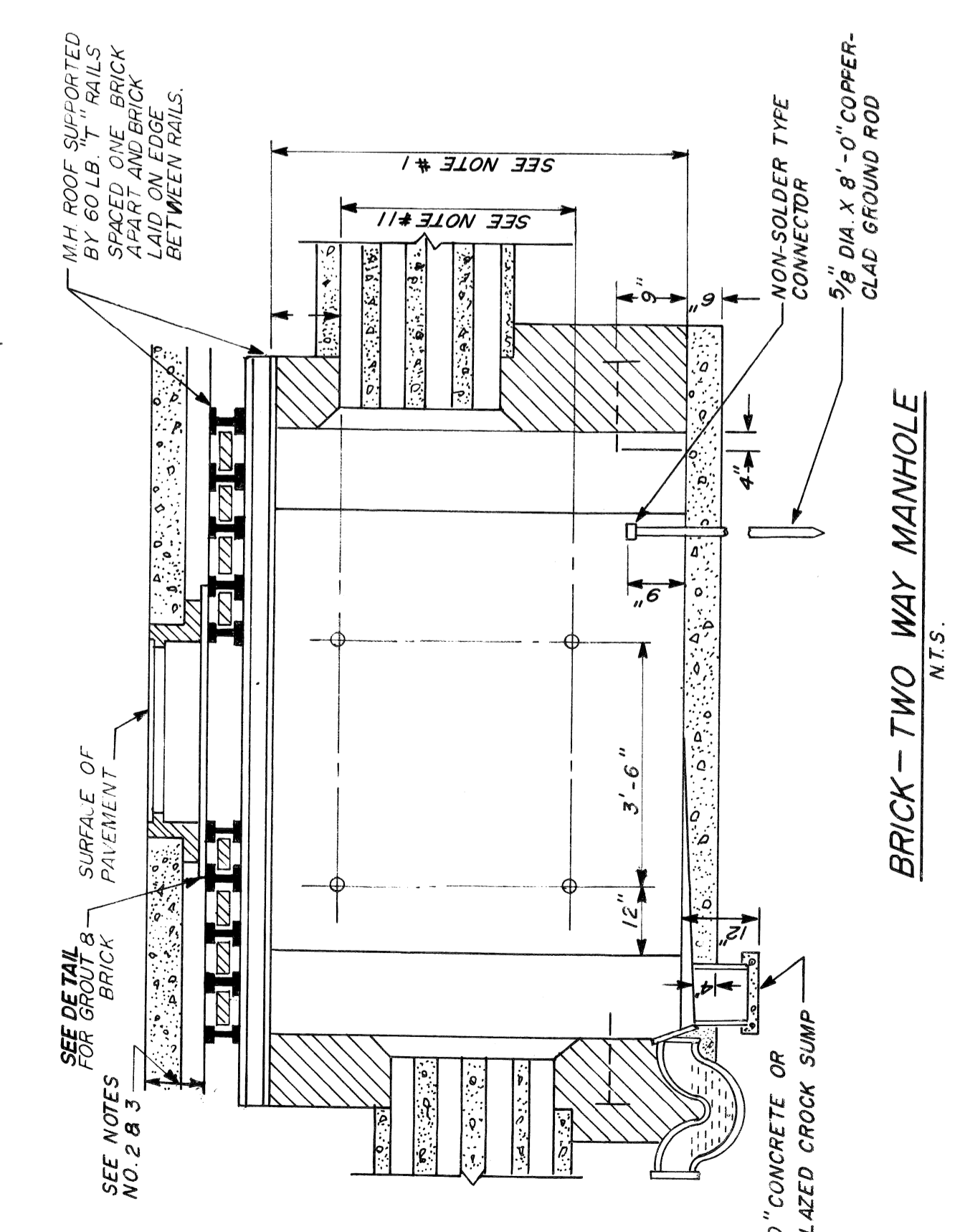
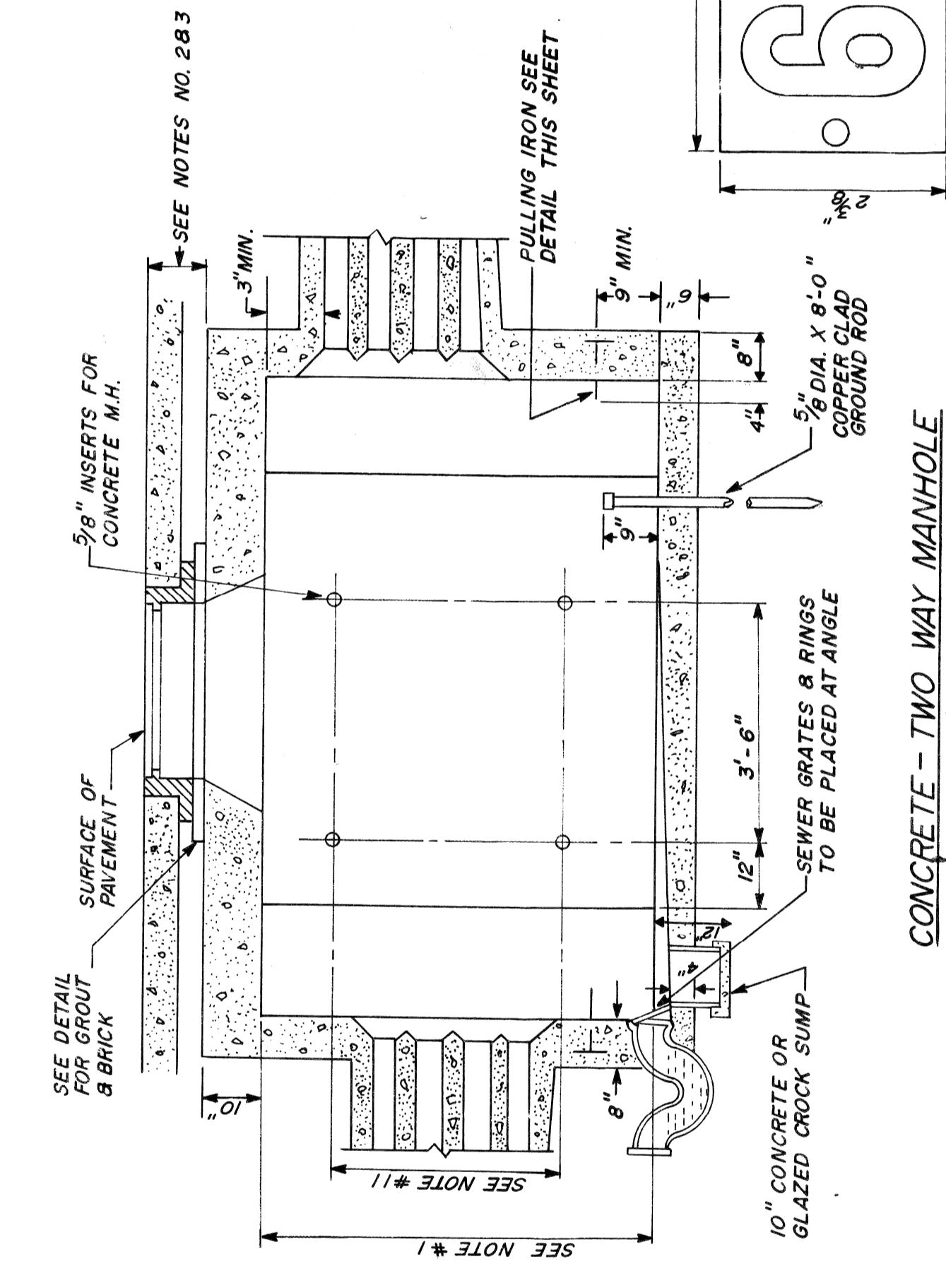
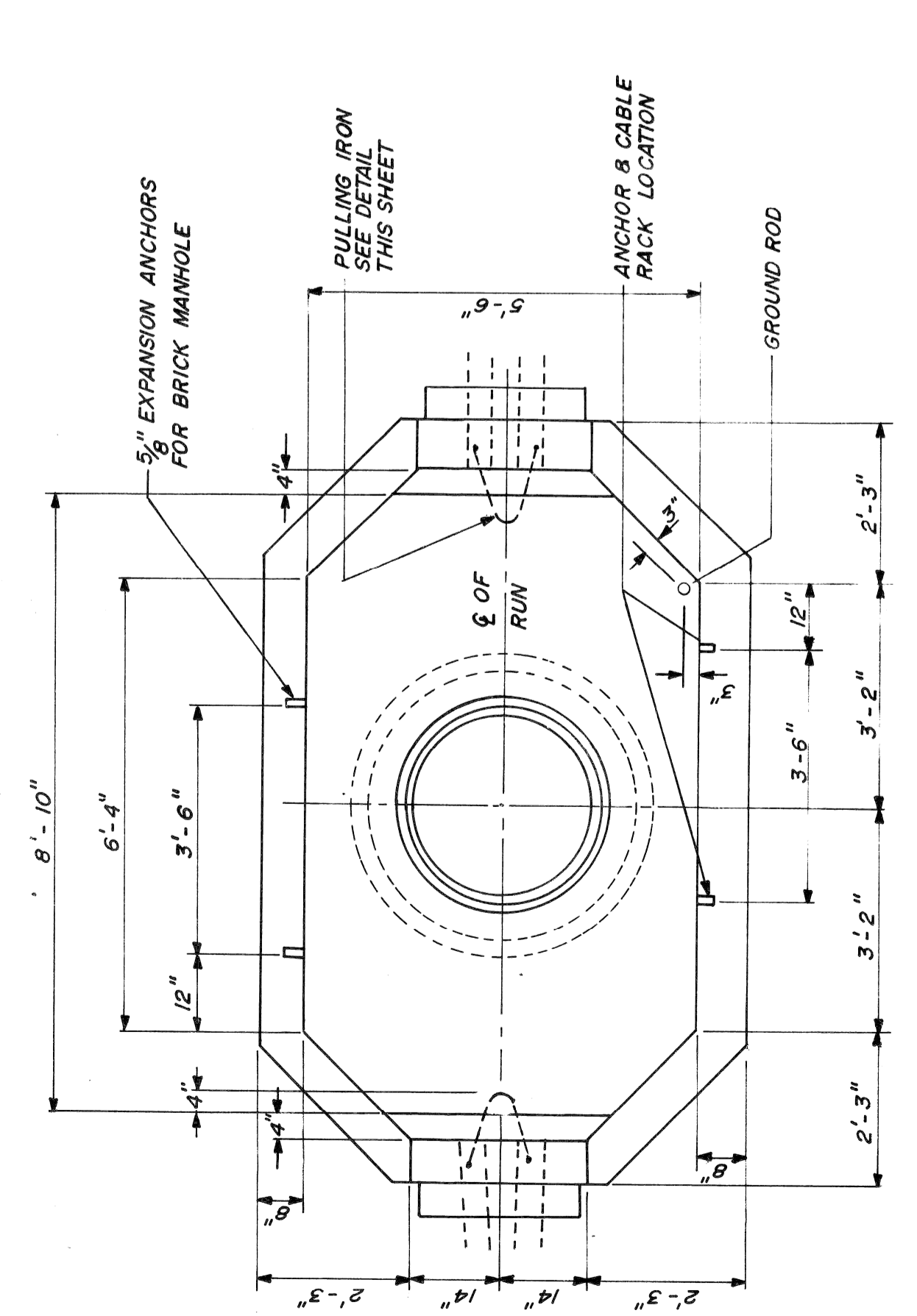
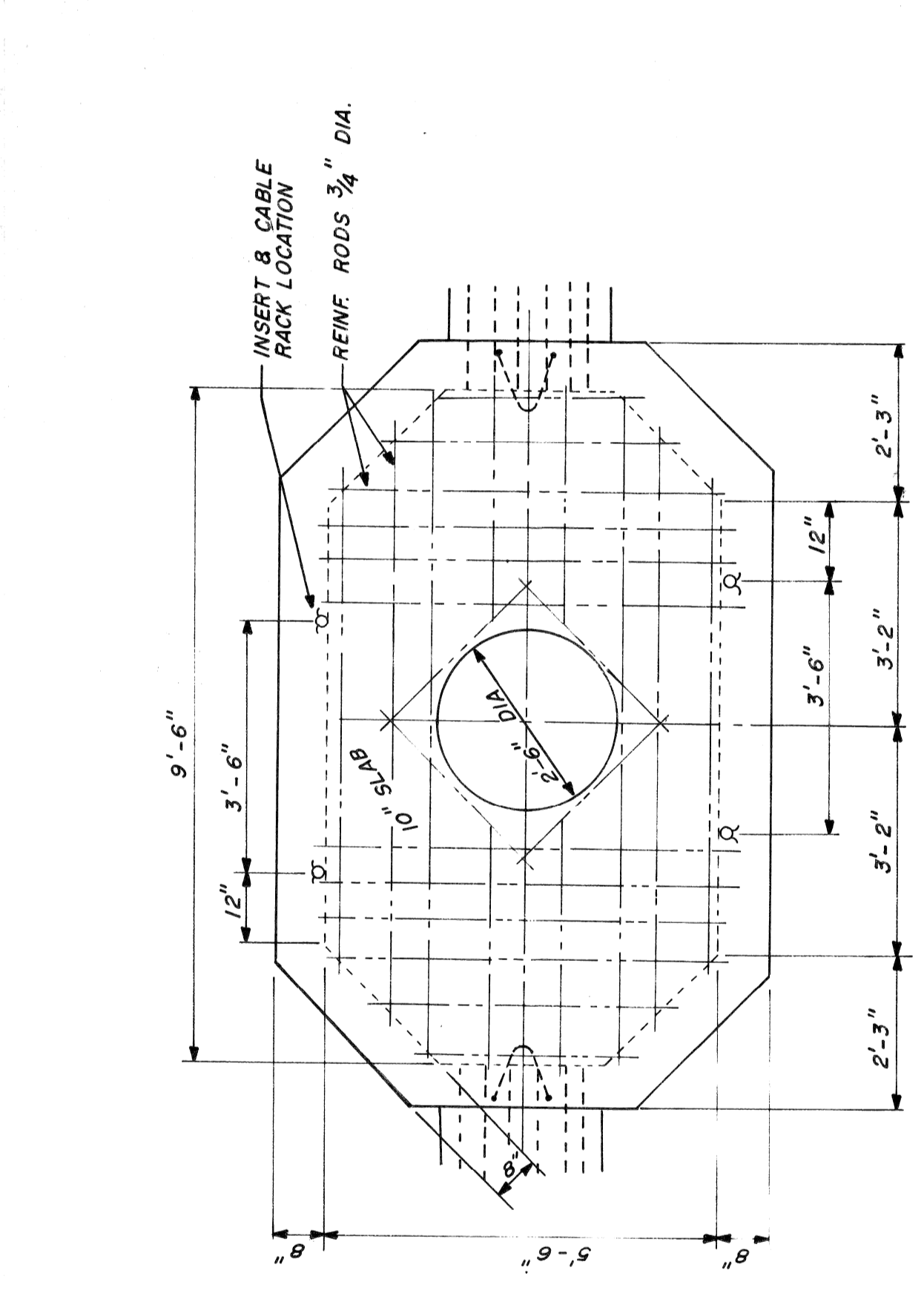
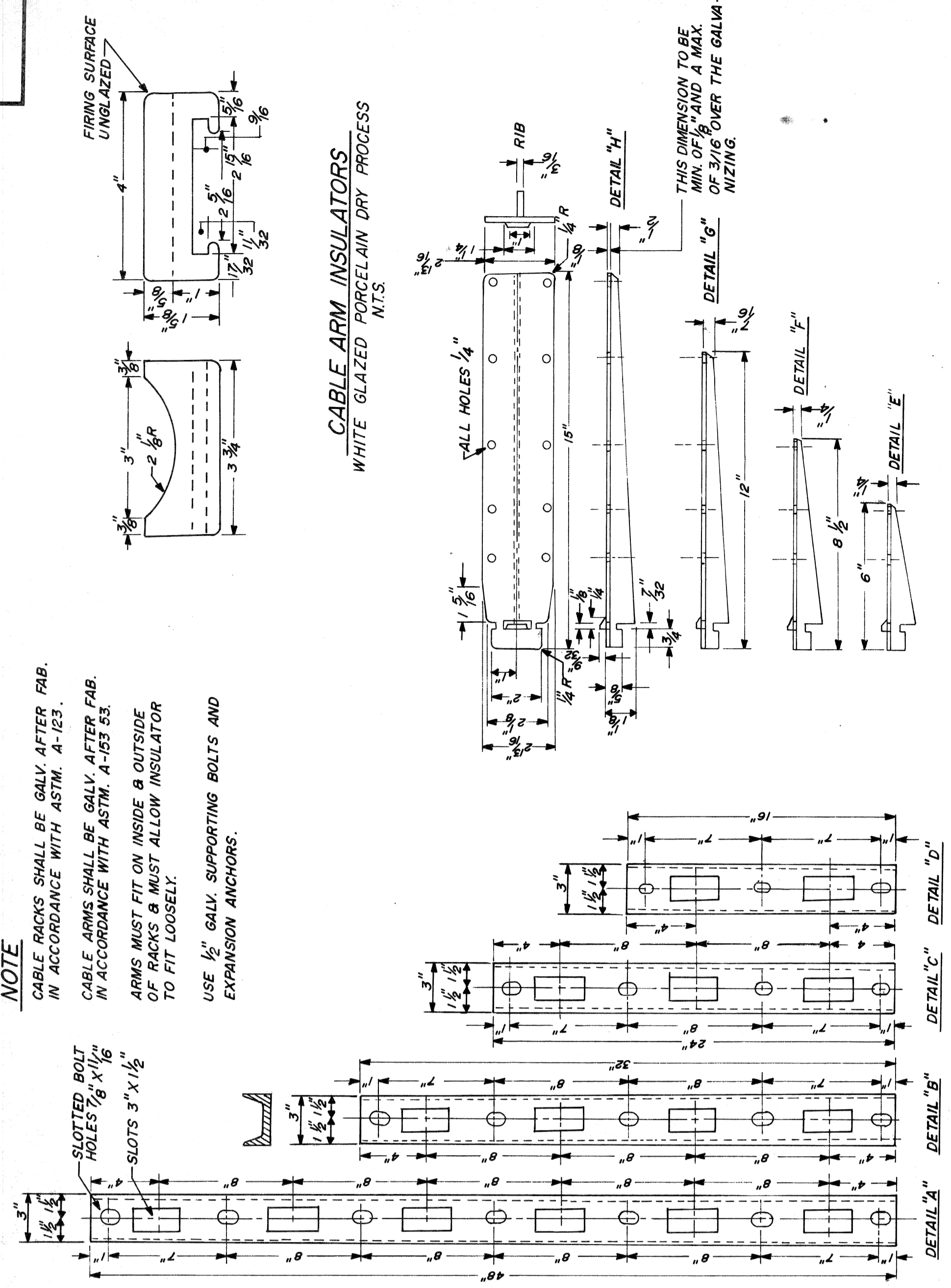
NOTES:  
1. DUCT ENTRANCE TO BE BUILT AS REQUIRED.  
2. ALL RAILS TO BE 60# YD. OR HEAVIER.  
3. CABLE PULLING IRONS TO BE GALVANIZED.  
4. CABLE RACKS AND ARMS TO BE GALVANIZED.  
5. IN PAVEMENT PROVIDE AT LEAST 3" BETWEEN EXISTING GRADE IS HIGHER THAN PROP. FUTURE GRADE INSTALL BRICK RING OR GROUT (AS REQ'D) UNDER FRAME TO ALLOW FOR FUTURE FRAME ADJUSTMENT.

NOTES:  
6. BAR NUMBERS DENOTE THE SIZE OF BAR REQUIRED IN ACCORDANCE WITH CURRENT USAGE SPECIFIED BY THE CONCRETE REINFORCING STEEL INSTITUTE.  
7. EXCAVATION LIMITS FOR PUBLIC LIGHTING DEPARTMENT HANDHOLES SHALL BE ON VERTICAL PLANES OF THE FOOTING OUTLINE.  
8. INSTALL ANCHORS & CABLE RACKS AS SHOWN.  
9. WHERE HANDHOLES ARE LOCATED BACK OF CURBS ROOF MUST BE BUILT 18" BELOW CURB GRADE TO PROVIDE FOR FUTURE WIDENING.

NOTE:  
AFTER LEVELING HANDHOLE WITH 8" BRICKS POUR CONCRETE FLOOR SLAB (35' Ø).  
AFTER LEVELING HANDHOLE WITH 8" BRICKS POUR CONCRETE FLOOR SLAB (35' Ø).



**NOTE**  
 CABLE RACKS SHALL BE GALV. AFTER FAB. IN ACCORDANCE WITH ASTM. A-123.  
 CABLE ARMS SHALL BE GALV. AFTER FAB. IN ACCORDANCE WITH ASTM. A-153 53.  
 ARMS MUST FIT ON INSIDE & OUTSIDE OF RACKS & MUST ALLOW INSULATOR TO FIT LOOSELY.  
 USE 1/2" GALV. SUPPORTING BOLTS AND EXPANSION ANCHORS.



- NOTES:**
- THIS DIMENSION NORMALLY 6'-0". SEE SPECIFICATIONS FOR UNUSUAL CONDITIONS.
  - WHERE M.H.'S ARE LOCATED BACK OF CURBS, TOP OF M.H. ROOF MUST BE BUILT 26" BELOW CURB GRADE TO PROVIDE FOR FUTURE PAVEMENT.
  - IN EXISTING PAVEMENT, PROVIDE AT LEAST 8" BETWEEN TOP OF ROOF AND BASE OF PAVEMENT.
  - BOLTS, RACKS & PULLING IRONS TO BE HOT-DIP GALV.
  - OF RAILS UNDER M.H. FRAME FLANGE TO BE APPROX. 18" FROM E'S OF FRAMES.
  - M.H. NUMBER TO BE INSTALLED ON MANHOLE WALL IN CONSPICUOUS PLACE.
  - MOUNTING HEIGHT FOR LOWER BOLTS OF CABLE RACK SHALL BE THE AVERAGE HEIGHT OF THE BOTTOM OF THE LOWEST DUCTS IN MAIN CONDUITS. INSTALL RACKS ON ALL WALLS.
  - 8" THICK BRICK CHIMNEYS WHERE SPECIFIED SHALL BE INCIDENTAL TO APPLICABLE M.H. ITEM PLANES ON THE FOOTING OUTLINE.
  - EXCAVATION LIMITS FOR PUBLIC LIGHTING DEPARTMENT MANHOLES SHALL BE ON VERTICAL PLANS ON THE FOOTING OUTLINE.
  - 1/2" PLASTER OUTSIDE WALLS OF BRICK MANHOLES.
  - SPACING OF INSERTS AS REQUIRED TO ACCOMMODATE CABLE RACK.



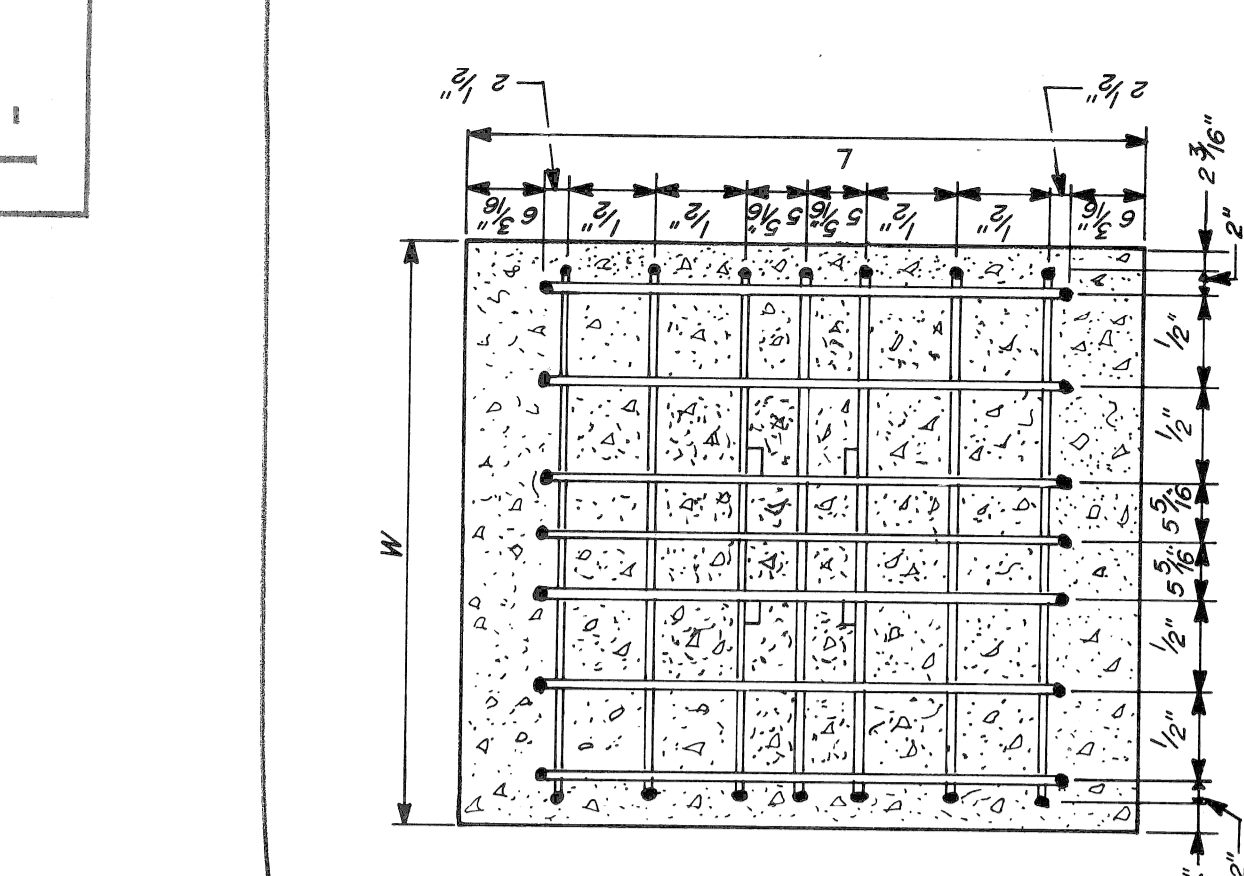




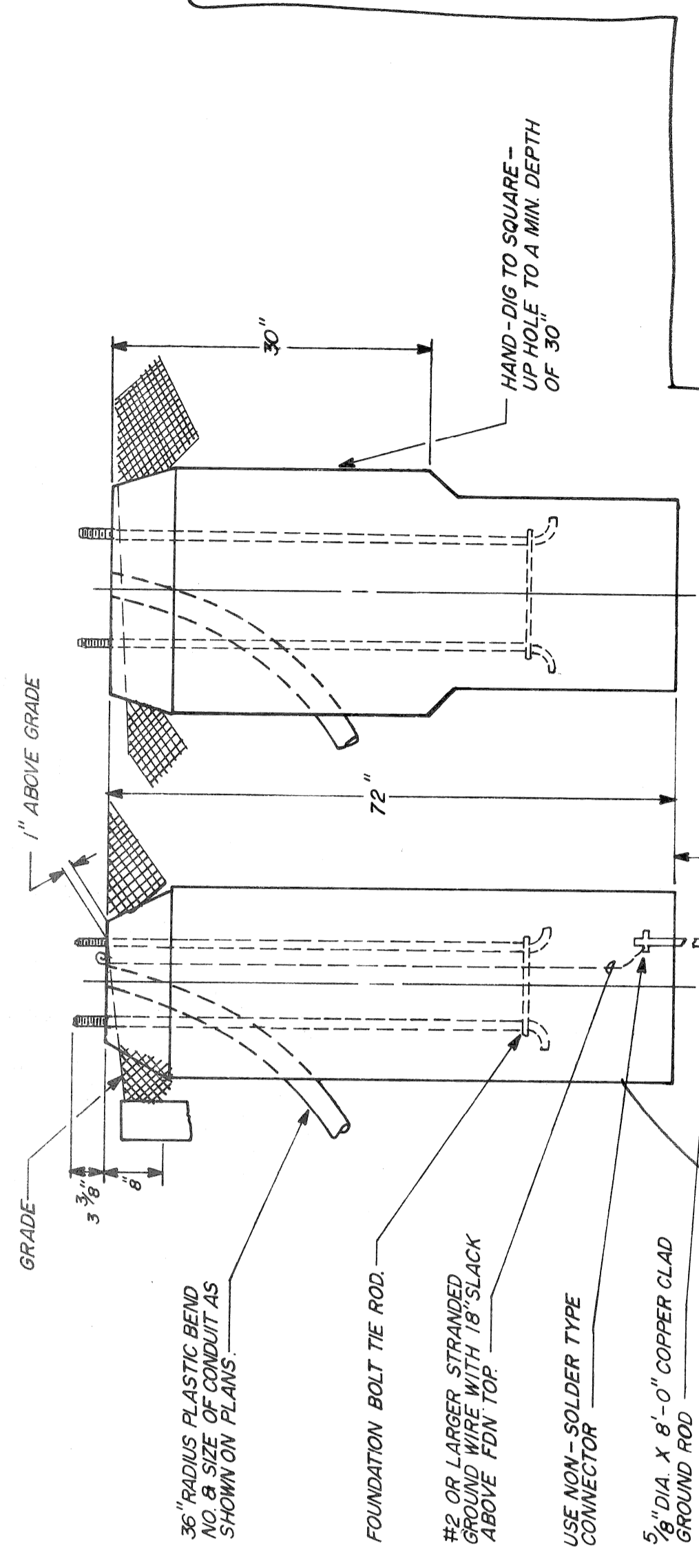




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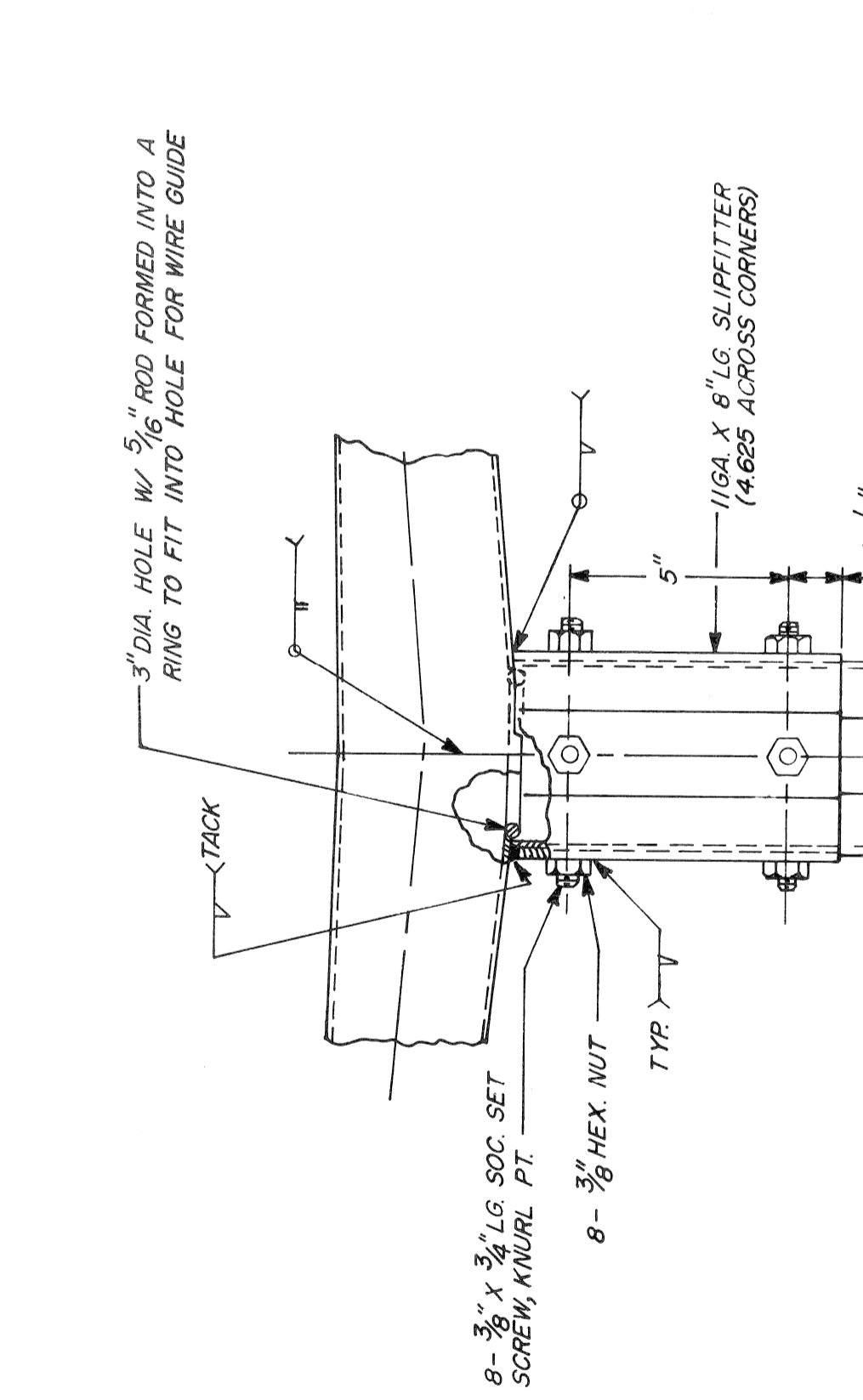


SECTION AT D-D

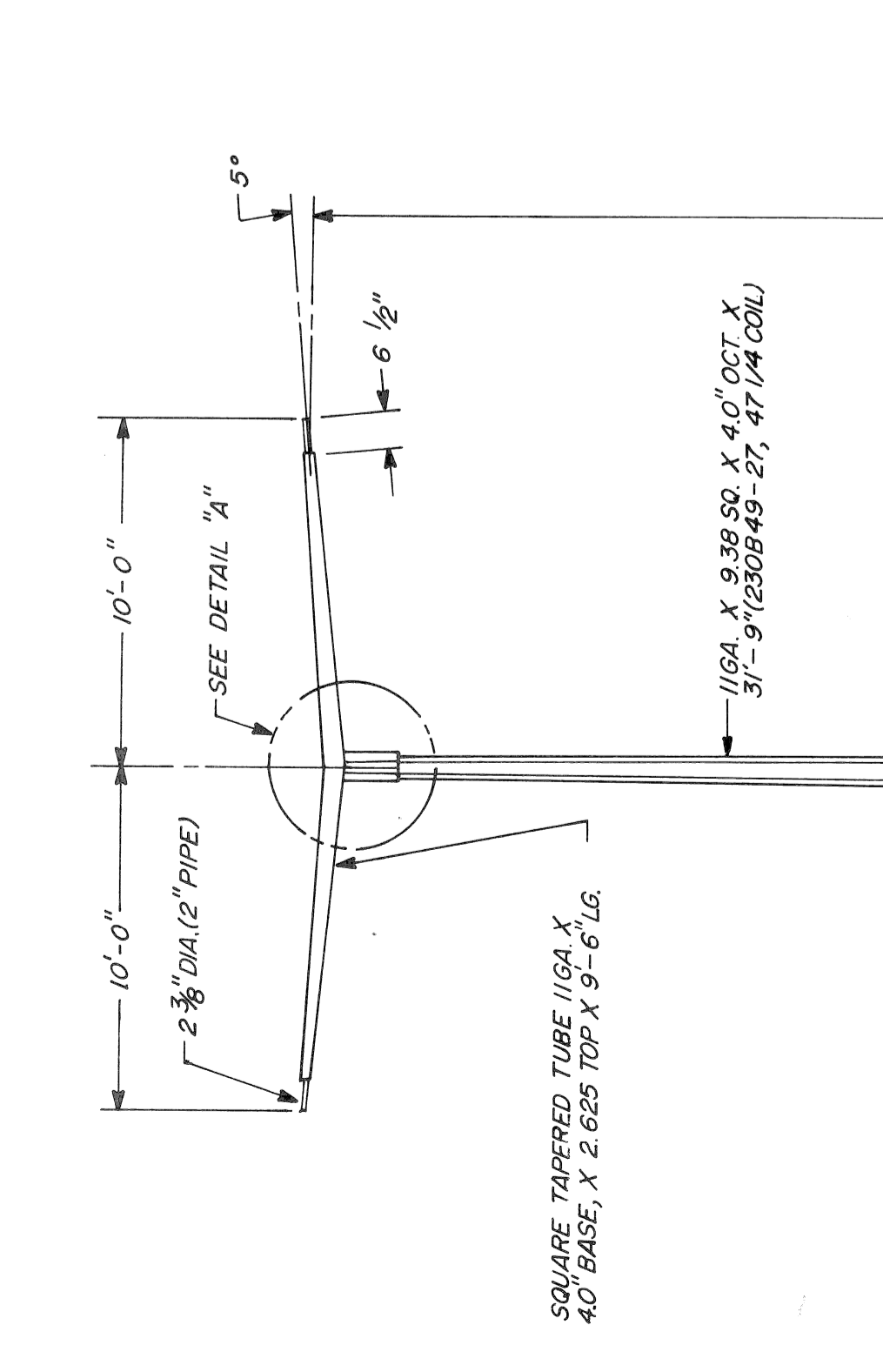


SECTION B-B  
ANCHOR BASE STD. FOUNDATION  
N.T.S.

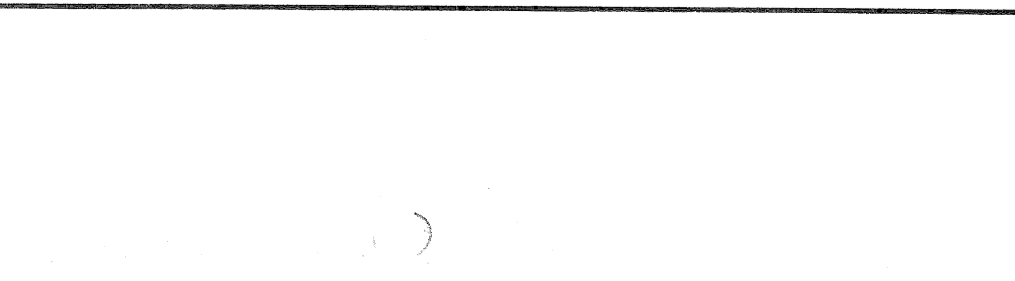
L	W	T
5'-0"	4'-3"	1'-0"
4'-6"	3'-6"	1'-6"



SECTION A-A

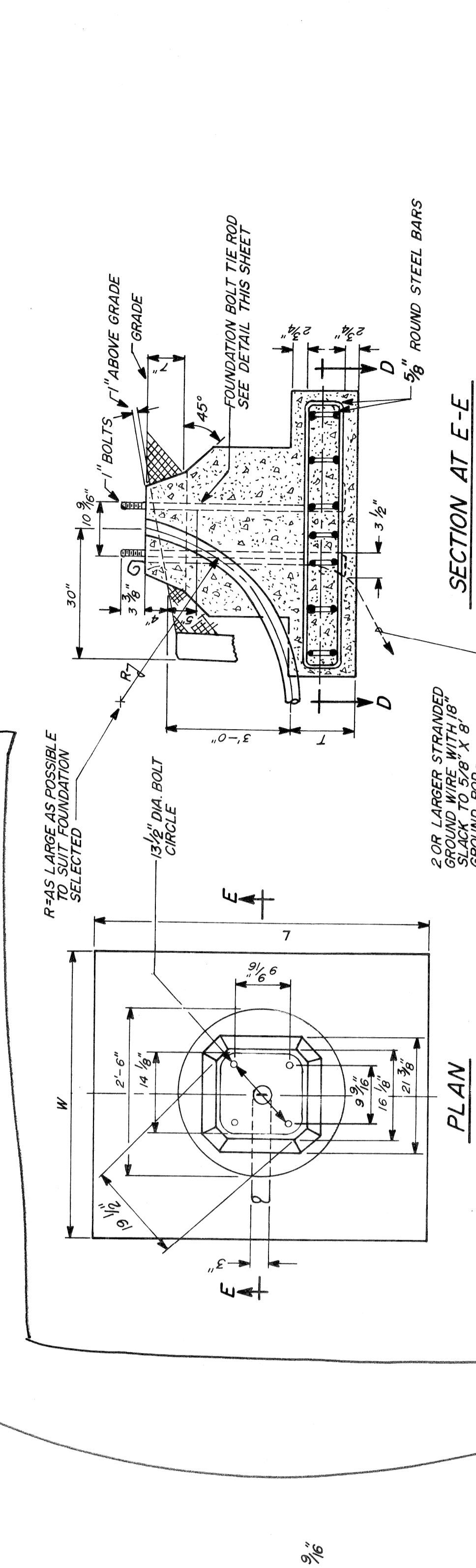


SECTION 4-4

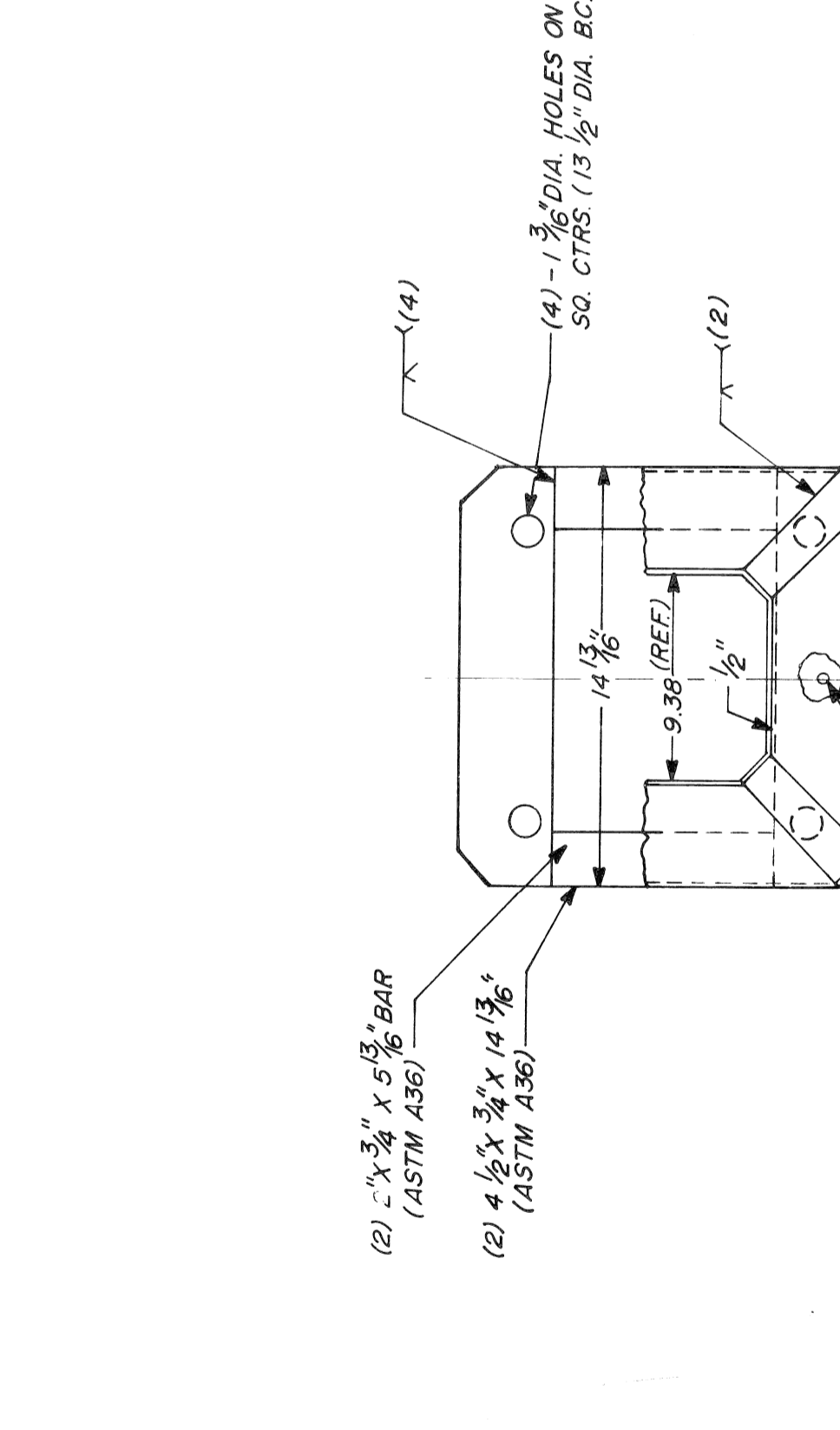


DETAIL 'A' (ARM ATTACHMENT)

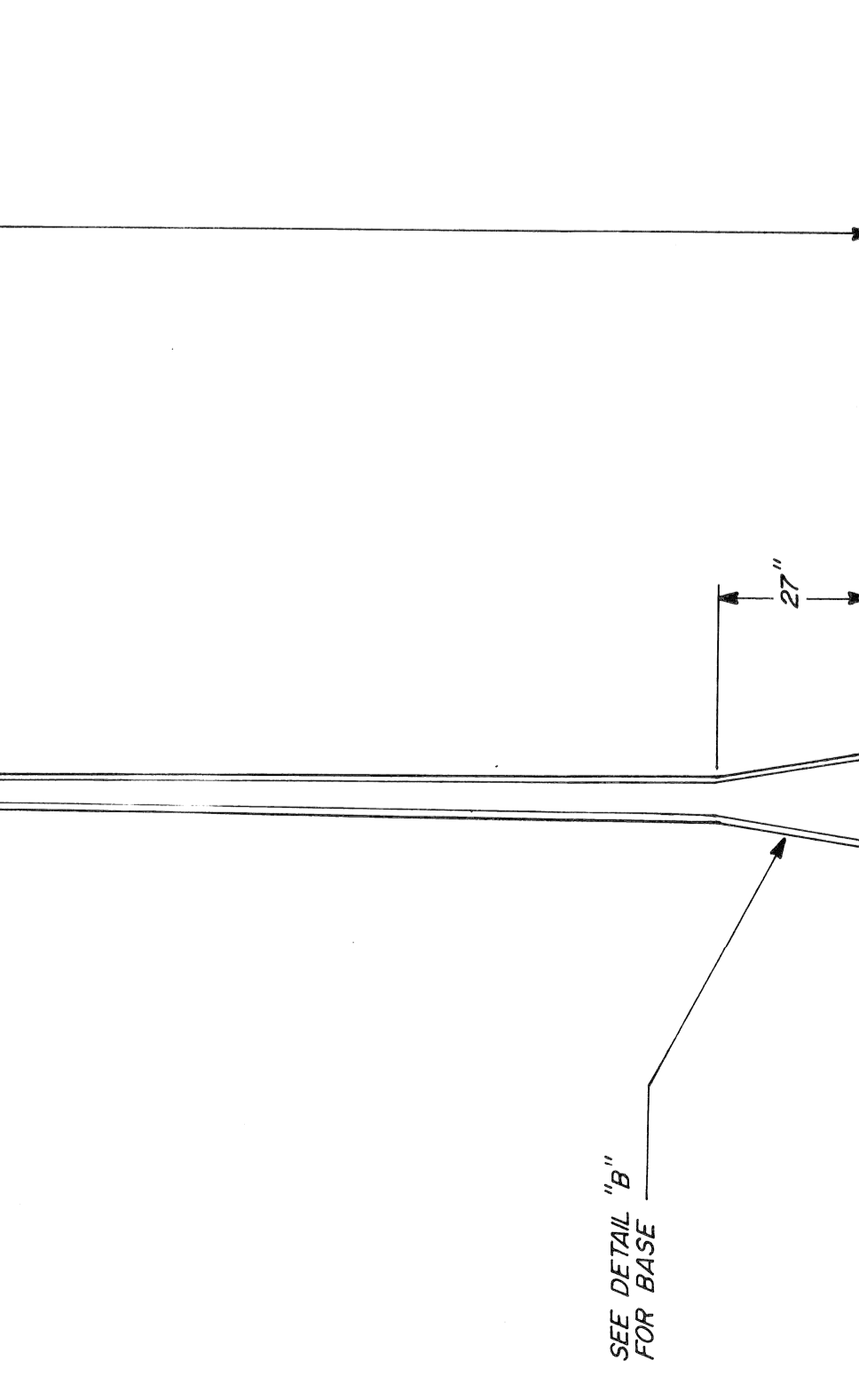
NOTE:  
1. MATERIAL - HIGH STRENGTH, LOW ALLOY STEEL 50,000 PSI.  
MIN. YIELD, 70,000 PSI. MIN. TENSILE.  
2. FINISH - PRIME PAINT



SECTION AT E-E



PLAN

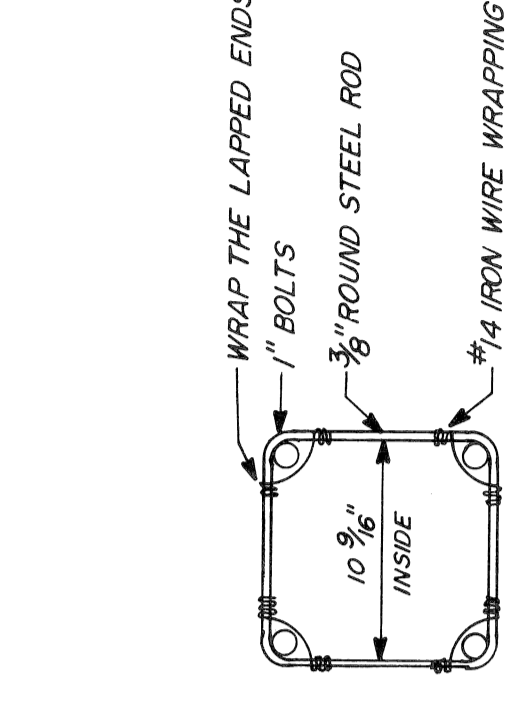


DETAIL 'B' (BASE)

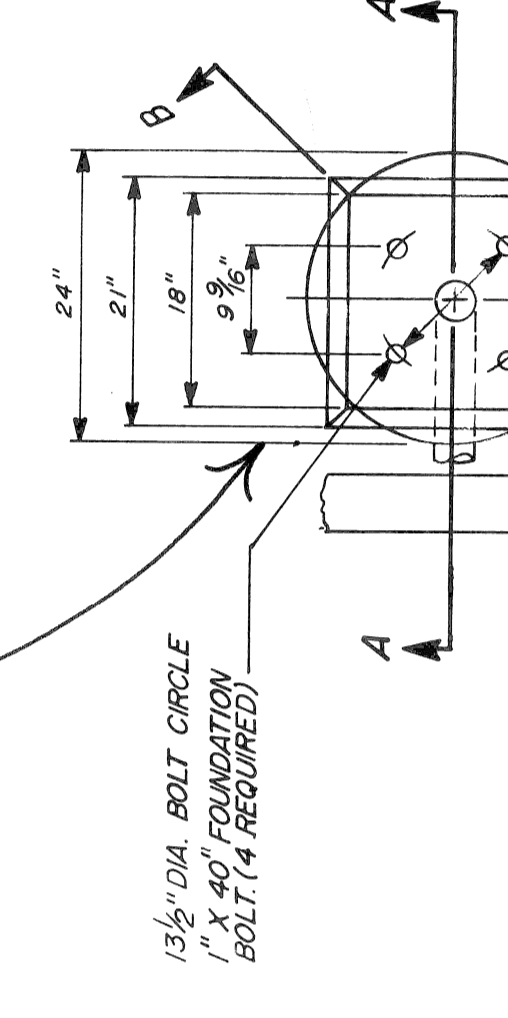
NOTE:  
1. MATERIAL - EXCEPT AS NOTED, HIGH STRENGTH, LOW ALLOY STEEL, 50,000 PSI. MIN. YIELD, 70,000 PSI. MIN. TENSILE.  
2. FINISH - TO MATCH POLE.

SPECIAL FOUNDATION

N.T.S.  
THERE SHALL BE NO EXTRA PAYMENT FOR SPECIAL FDN.  
TO BE PAID FOR AS A NORMAL ST. LG. STD. FDN. INSTALLATION



FOUNDATION BOLT TIE ROD



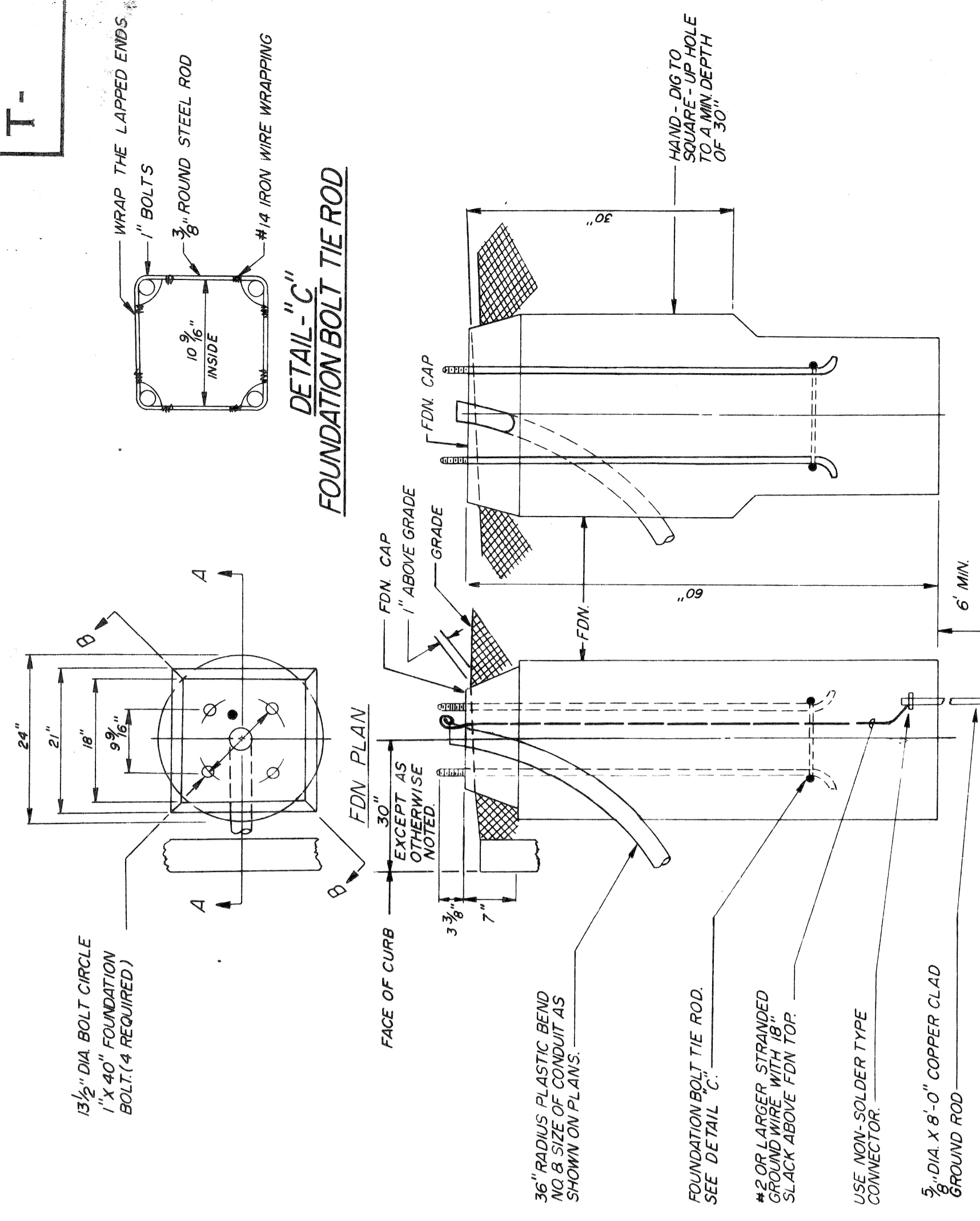
PLAN

NOTE: (FOUNDATION BOLTS)  
1. MATERIAL - HIGH STRENGTH STEEL 105,000 PSI MIN. YIELD.  
ASTM A1576, OR 65K (MODIFIED STRESS RELIEVED ROD).  
2. HOT DIP GALVANIZE PER ASTM A153  
3. THREAD TO BE CLASS 24 PER AMERICAN STD. B1.1  
AFTER GALVANIZING.  
4. ALL BOLTS ROLLED THREAD.

M.L. KING JR. BLVD. RECONSTRUCTION WABASH AVE. TO LINCOLN AVE. CODE 117 U.G. FED ST. LG. UNIT		CITY OF DETROIT CITY ENGINEERING DEPARTMENT		DRAWN BY: CEA CHECKED BY: [Signature] APPROVED BY: [Signature] DATE: AUG 1984	PLAN PREPARED BY: CONSULTING ENGINEERING ASSOCIATES INC. ENGINEERING CONSULTANTS 16580 WYOMING DETROIT, MICH. 48221 FILE NO. CEA 1098 DRWG NO. 23 OF 41	PUBLIC LIGHTING COMMISSION CITY OF DETROIT	FILE NO. 51-0585 SHEET NO. 53 OF 71 DATE: AUG 1984
DATE	DESCRIPTION	SHEET	OF	SHEETS	JOB NO.	ASSIGNMENT NO.	DATE

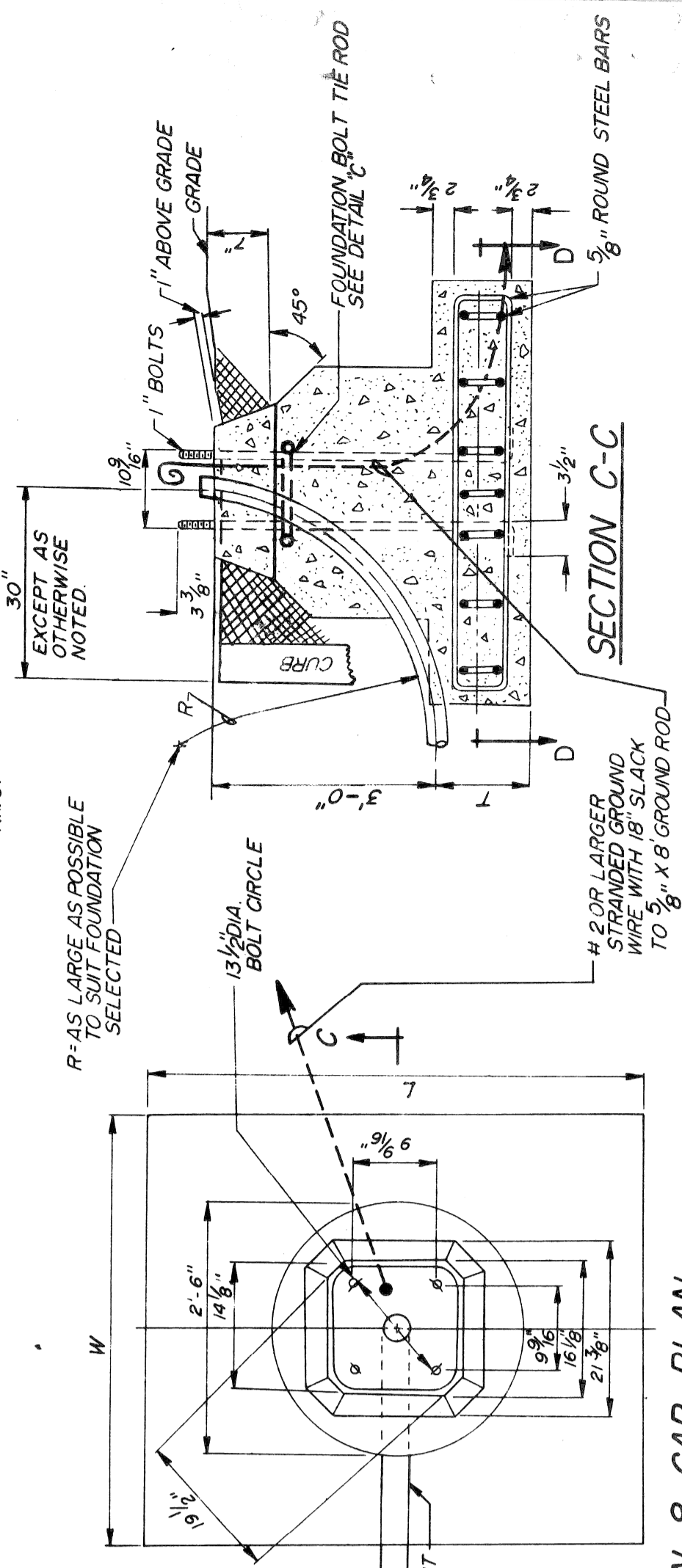


T-



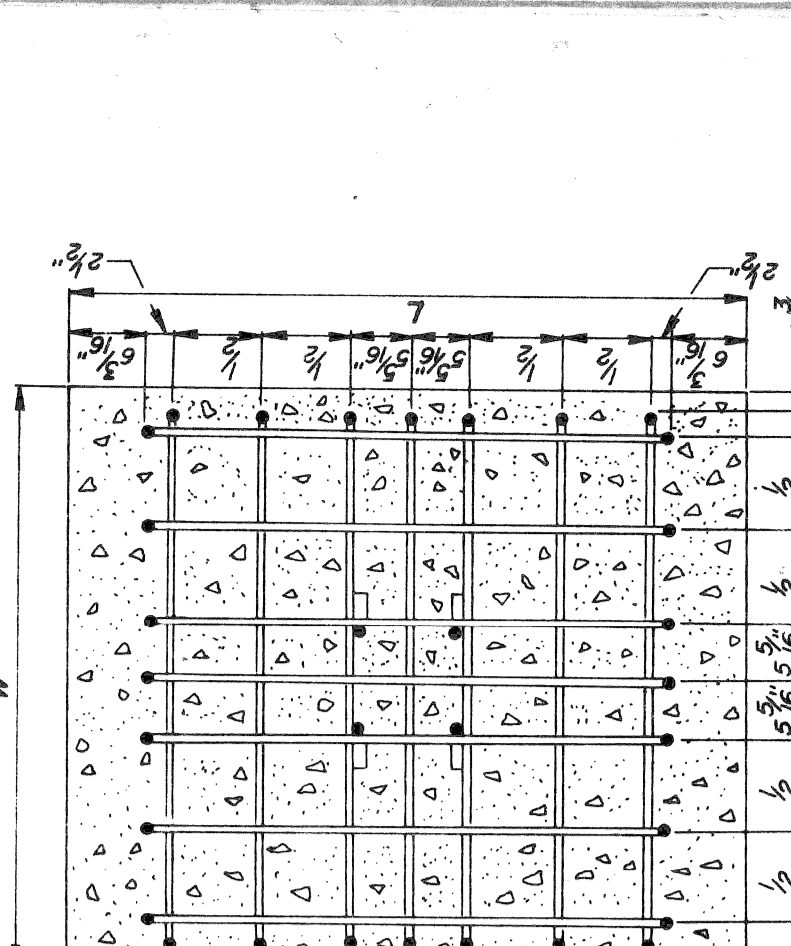
**DETAIL - C-C**  
FOUNDATION BOLT TIE ROD

**ANCHOR BASE STD. FOUNDATION**  
NTS.



**FDN & CAP PLAN**

**SECTION C-C**

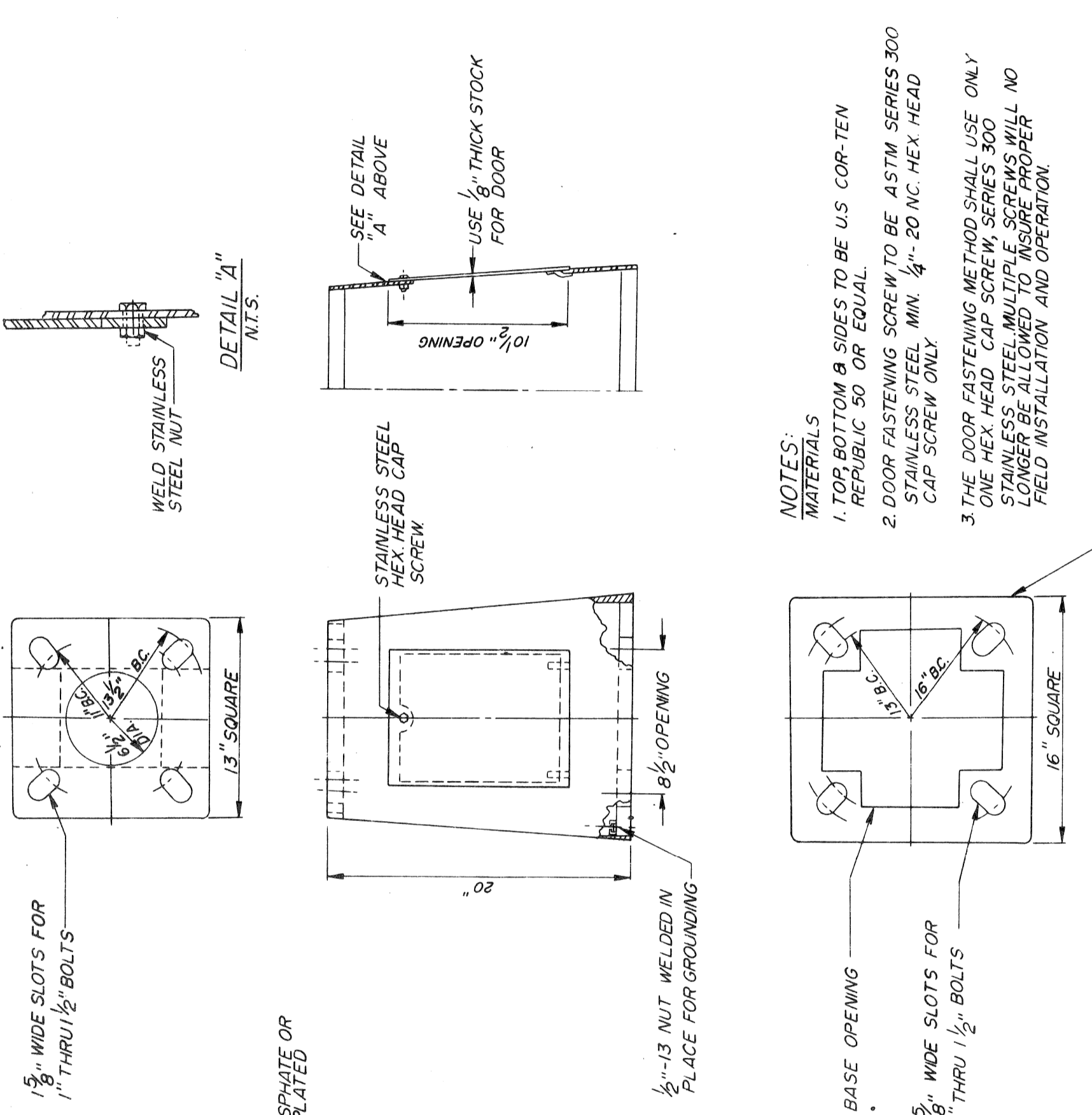


**SECTION AT "D-D"**

L	W	T
5'-0"	4'-3"	1'-0"
4'-6"	3'-5"	1'-6"

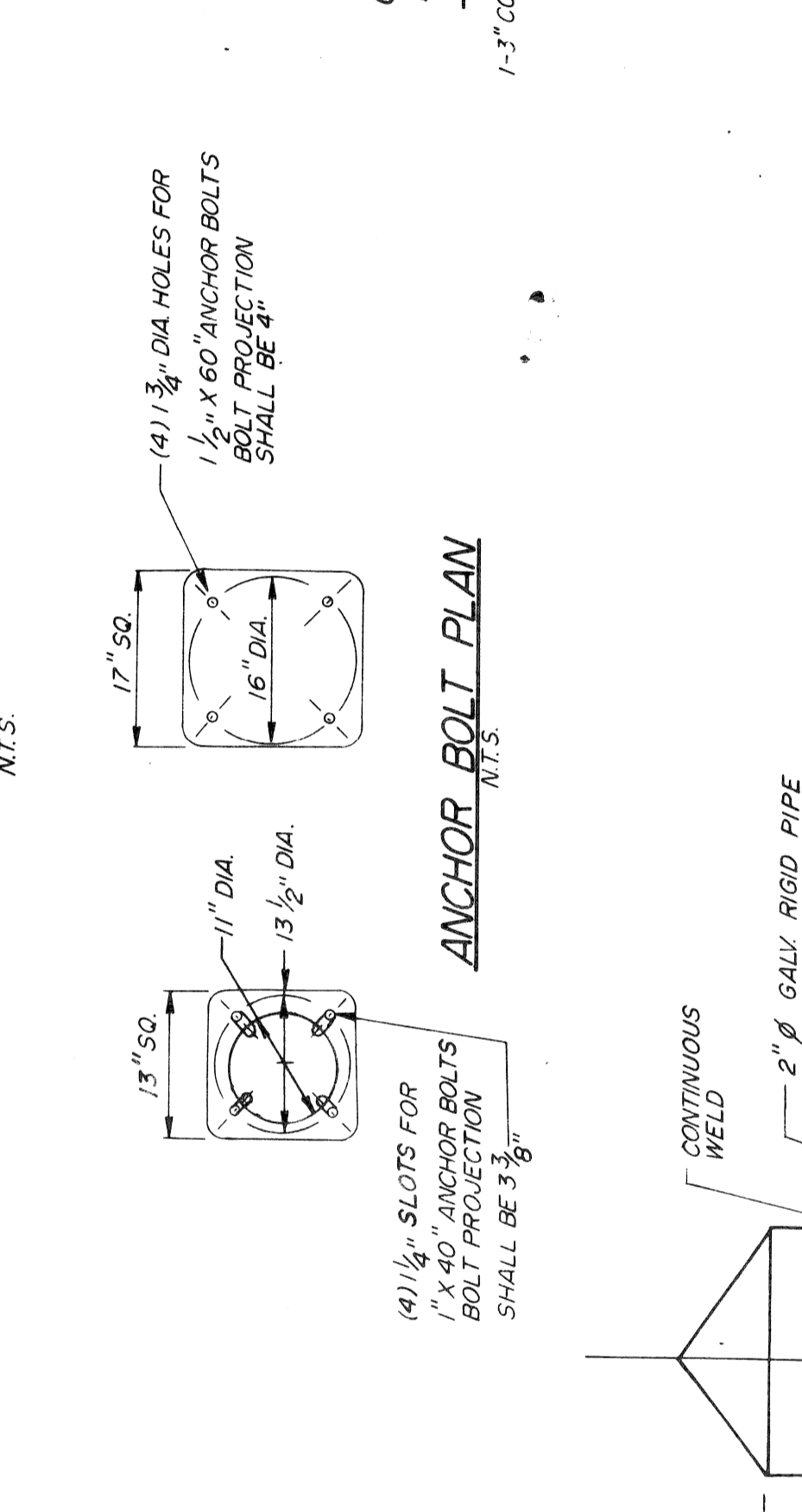
**SPECIAL FOUNDATION**  
NTS.

THERE SHALL BE NO EXTRA PAYMENT FOR SPECIAL FDN.  
(TO BE PAID FOR AS A NORMAL ST. LG. STD. FDN. INSTALLATION.)



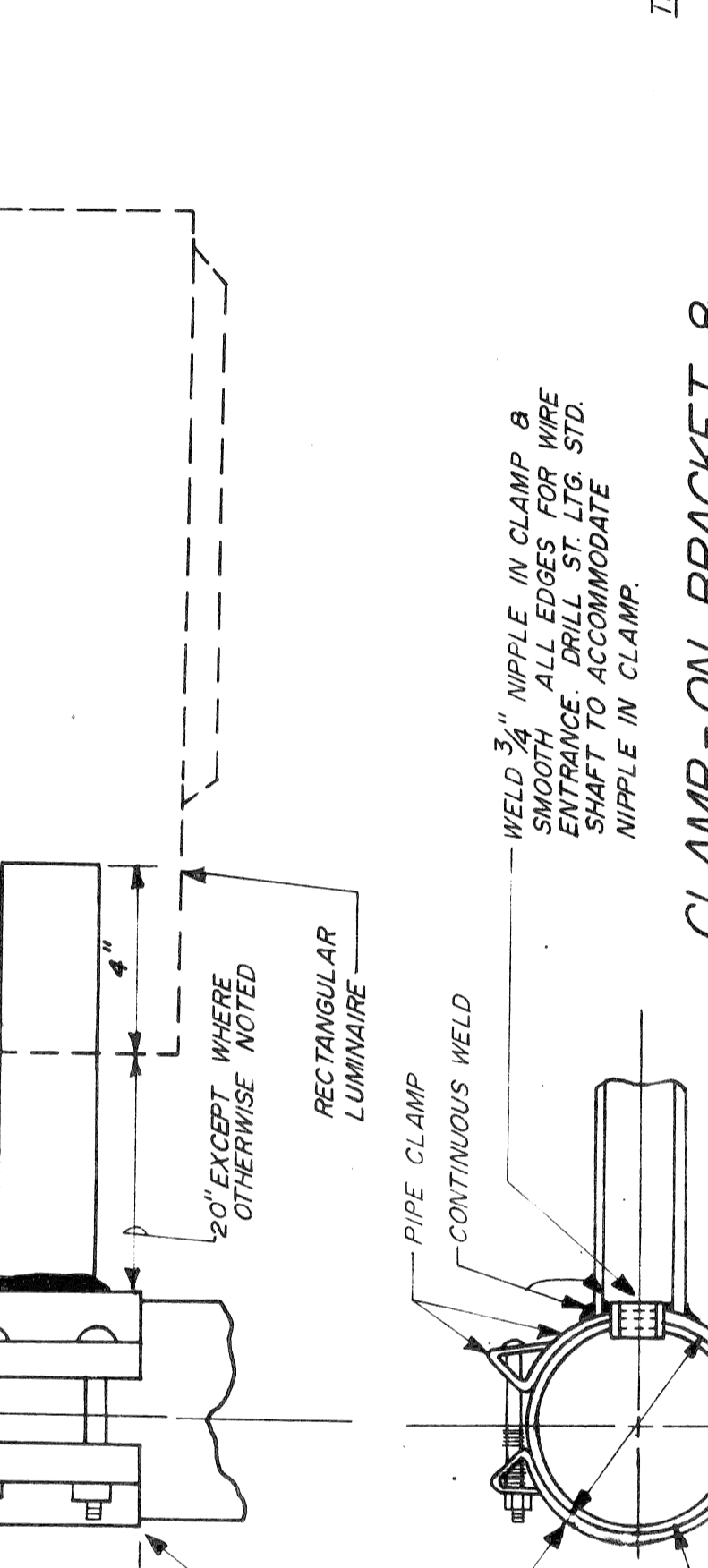
**HANDHOLE COVER DETAIL**  
NTS.

**P.L.D. UNIVERSAL STEEL TRANSFORMER BASE**  
NTS.

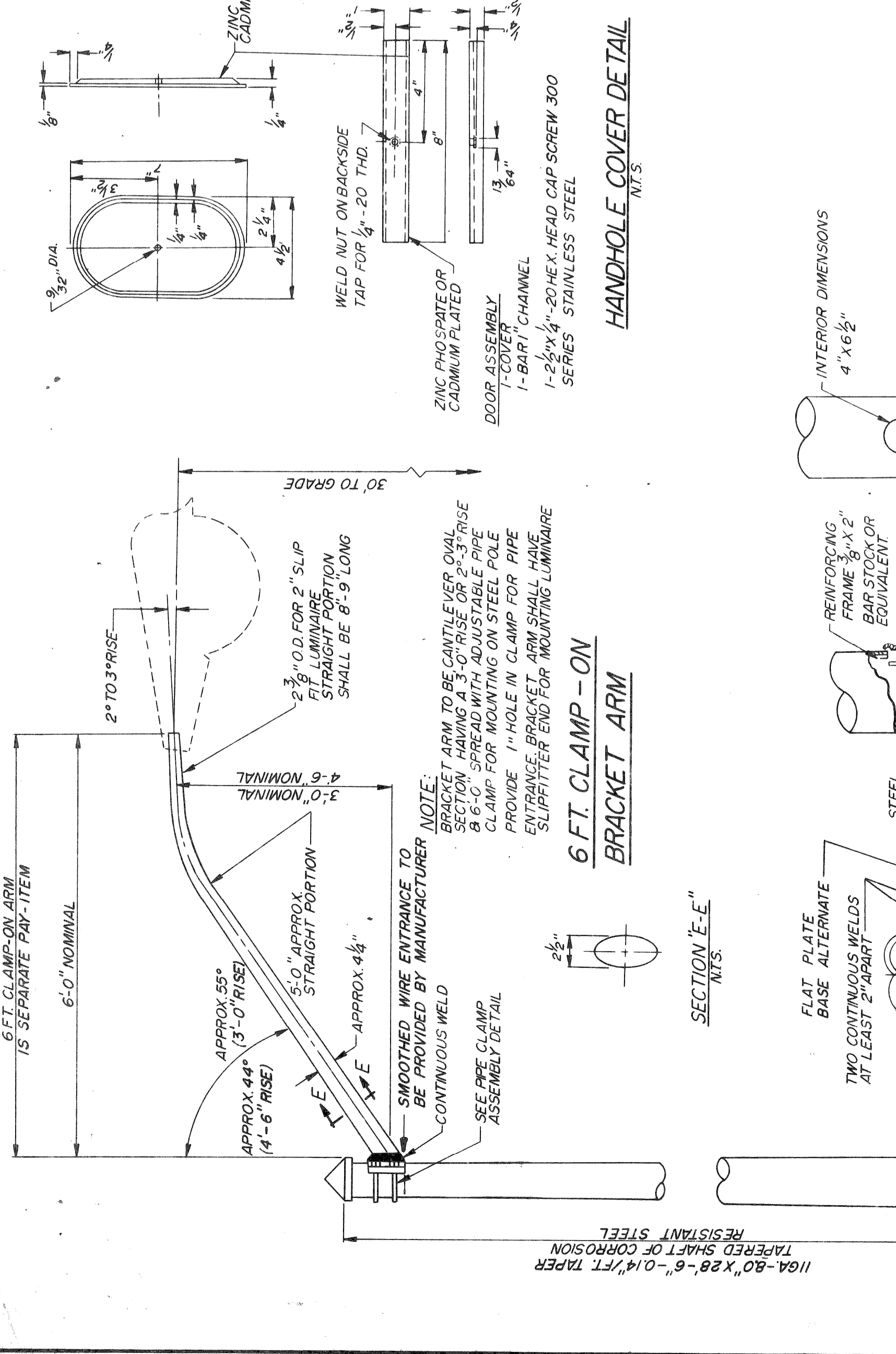


**ANCHOR BOLT PLAN**  
NTS.

**CLAMP-ON BRACKET & RECTANGULAR LUMINAIRE**  
NTS.

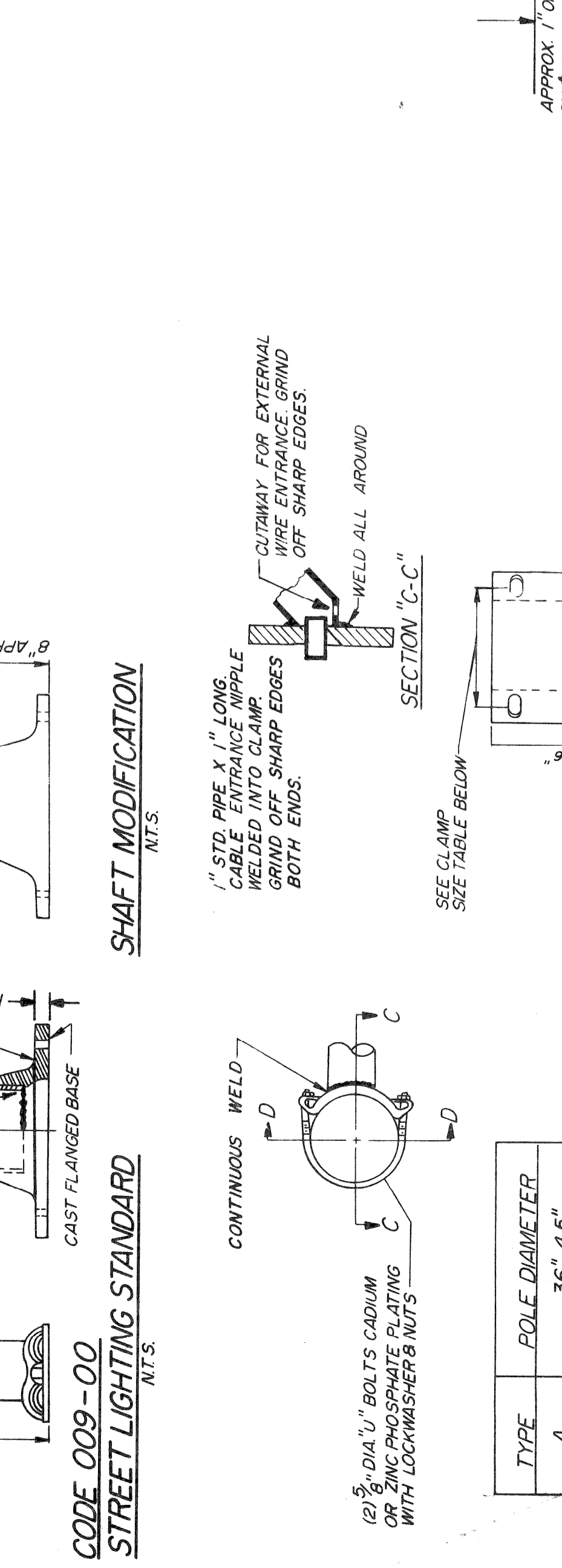


**CLAMP ASSEMBLY DETAILS**  
NTS.



**BRACKET ARM**  
NTS.

**SHAFT MODIFICATION**  
NTS.



**STREET LIGHTING STANDARD**  
NTS.

**CLAMP SIZE TABLE**

STD CODE NO	SHAFT LENGTH	SHAFT DEFLECTION	MINIMUM LOAD	ANCHOR BOLT CIRCLE Ø	ANCHOR BOLT Ø	HAND-TOE LUMINAIRE MOUNTING HEIGHT	BRACKET FITTERS REQ'D	BRACKET LENGTH
009-00	28'-6"	2.9"	880 #	13 1/2"	1" X 40"	4' X 6 1/2"		6'

**CLAMP ASSEMBLY DETAILS**  
NOTE: ENTIRE BRACKET ASSEMBLY, EXCEPT MOUNTING HARDWARE, TO BE HOT DIP GALVANIZED.

**CLAMP SIZE TABLE**

TYPE	POLE DIAMETER
A	36"-45"
B	61"-69"
C	75"-85"

**CLAMP ASSEMBLY DETAILS**  
NOTE: SHAFT DEFLECTION MEASURED IN INCHES AT TOP SHALL NOT BE GREATER THAN 2.9" FOR A HORIZONTAL LOAD OF 100 LBS APPLIED 18 INCHES BELOW TOP OF SHAFT.

**SHAFT LOADING**  
SHAFTS SHALL WITHSTAND AT THE GUARANTEED MINIMUM YIELD STRENGTH OF THE SHAFT MATERIAL THE LOADS SHOWN IN THIS TABLE. THE LOAD SHALL BE APPLIED IN A SINGLE HORIZONTAL DIRECTION ANYWHERE AROUND THE CIRCUMFERENCE OF SHAFT 18 INCHES FROM THE TOP.







VOLT ITEM NO.	RATING	USE	DESCRIPTION	CONDUCTOR	INSULATION	SHIELD OVER	INSULATED	CONDUCTORS	JACKET	LEAD SHEATH	COVERING	STEEL TAPE ARMOR	COVERING OVER STEEL TAPE	COVERING OVER
1	ASTM B1	LINE WIRE	#4/0-#2/0AWG M.H.D. UNCOATED 7/STR. COPPER	ASTM B2, B8							0.063 INCH BLACK NEOPRENE			
2	ASTM B1	LINE WIRE	#4/0-#2/0AWG M.H.D. UNCOATED 7/STR. COPPER	ASTM B2, B8							0.063 INCH BLACK NEOPRENE			
3	ASTM B1	LINE WIRE	#2 AWG, H.D. UNCOATED SOLID COPPER	ASTM B1							0.047 INCH BLACK POLYETHYLENE			
4	ASTM B1	LINE WIRE	#2 AWG, H.D. UNCOATED SOLID COPPER	ASTM B1							0.047 INCH BLACK POLYETHYLENE			
5	ASTM B2, B8	OVERHEAD	#4/0-#2/0AWG M.H.D. UNCOATED 7/STR. COPPER	ASTM B2, B8							0.063 INCH BLACK POLYETHYLENE			
6	2000 V	SPECIAL EVENT FEEDER, MULT ST LTG.	ALL MULTIPLE STREET LIGHTING, TRAFFIC SIGNAL SECONDARY AND SPECIAL EVENT CABLES INSTALLED IN CONDUIT SHALL BE AS PER THE FOLLOWING: CONDUCTORS COATED, STRANDED COPPER CONDUCTOR PER ASTM B-8 AND B-189 INSULATION: MEETS OR EXCEEDS ALL REQUIREMENTS OF INTERIM STANDARD #1 TO IPCEA S-68-516 NEMA WC 8 (MARCH 1971) FOR ETHYLENE PROPYLENE RUBBER INSULATION AND ASTM D 2802-70 AND UL STANDARD 44 JACKET: EXCEEDS ALL REQUIREMENTS OF IPCEA S-19-81, (5TH EDITION) SECTION 413.84 FOR HEAVY DUTY CHLOROSULFONATED-POLYETHYLENE LISTED BY UNDERWRITERS LABORATORIES, INC. AS TYPE RHH OR RHW. RED - A CIRCUIT BLACK - B CIRCUIT WHITE - NEUTRAL											
7	2000 V	TRAFFIC SIG SECONDARY	NOTE: PRIOR TO PLACING ORDER FOR PURCHASE OF THIS CABLE, A SAMPLE LENGTH OF CABLE MUST FIRST BE SUBMITTED TO P.L.D. FOR THEIR APPROVAL OF INSULATION AND JACKET CHARACTERISTICS.											
8	2000 V	RECEPTACLE, BRACKET & LAMP POST WIRE	#8AWG, 1/C UNCOATED SOFT 7/STR. COPPER ASTM B8 PIMENED RED D OR WHITE AS 75° C. BLACK, 0.062 INCH											
9	600 V	BRACKET & LAMP POST WIRE	#8AWG, 1/C UNCOATED SOFT 7/STR. COPPER ASTM B8 PIMENED RED D OR WHITE AS 75° C. BLACK, 0.062 INCH											
10	600 V	2/C AERIAL SERVICE	2/C #8AWG, UNCOATED SOFT 7/STR. COPPER ASTM B8 CONSTRUCTION FIGURE 8 60° C. BLACK, 0.062 INCH											
11	5000 V BELTED	DISTRIBUTION CABLES	3/C #2/0 AWG SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.085 INCH OVERALL 0.045 INCH BELTED							0.095 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
12	5000 V BELTED	DISTRIBUTION CABLES	3/C #2 AWG SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.085 INCH OVERALL 0.045 INCH BELTED							0.085 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
13	5000 V BELTED	DISTRIBUTION CABLES	3/C #2 AWG SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.085 INCH OVERALL 0.045 INCH BELTED							0.085 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
14	7000 V BELTED	DISTRIBUTION CABLES	3/C #2/0 AWG SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.100 INCH OVERALL 0.050 INCH BELTED							0.090 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
15	7000 V BELTED	DISTRIBUTION CABLES	3/C #2 AWG SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.100 INCH OVERALL 0.050 INCH BELTED							0.090 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
16	7000 V BELTED	DISTRIBUTION CABLES	3/C #2 AWG SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.100 INCH OVERALL 0.050 INCH BELTED							0.090 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
17	7500 V	IN DUCT LTG. CABLE, SERIES ST.	1/C #8 AWG, SOLID SOFT COPPER UNCOATED PER CONDUCTOR ASTM B3 HIGH MOLECULAR NATURAL OVER 60° C. BLACK 0.085 INCH								0.063 INCH PURE COMMERCIALLY			
18	7500 V	IN DUCT LTG. CABLE, SERIES ST. DIRECT BURIAL	1/C #8 AWG, SOLID SOFT COPPER UNCOATED PER CONDUCTOR ASTM B3 HIGH MOLECULAR NATURAL OVER 60° C. BLACK 0.085 INCH								0.063 INCH PURE COMMERCIALLY			
19	24000 V SHIELDED	TRANSMISSION CABLES	2/C #50MCM SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.230 INCH OVERALL 0.115 INCH SHIELDED							0.110 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
20	24000 V SHIELDED	TRANSMISSION CABLES	2/C #50MCM SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.230 INCH OVERALL 0.115 INCH SHIELDED							0.110 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
21	24000 V SHIELDED	TRANSMISSION CABLES	3/C #2/0 AWG SECTOR SOFT COPPER UNCOATED PER CONDUCTOR AIEC OIL VISCOSITY 1,000 SUS AT 100° C PER CONDUCTOR	0.245 INCH OVERALL 0.122 INCH SHIELDED							0.100 INCH LEAD COPPER BEARING LIGHT STABILIZED POLYETHYLENE OVER LEAD SHEATH			
22	—	CONDUCTOR MULTI-	#14 AWG, SOLID SOFT COPPER UNCOATED PER CONDUCTOR ASTM B3 AS RECD.											
23	—	CONDUCTOR MULTI-	#14 AWG, SOLID SOFT COPPER UNCOATED PER CONDUCTOR ASTM B3 AS RECD.											
24	7500 V	ST LTG. IN DUCT	8/C #8 AWG, TINNED COPPER ASTM B 33 WHITE PAPER FOR IDENTIFICATION ALL CONDUCTORS CABLED WITH PARAFFINED JUTE (OUTSIDE FILLER). CENTRAL CONDUCTOR HAS ADDITIONAL 0.170 INCH VARNISHED CAMBRIC TAPE REMAINING 7 CONDUCTORS EACH 0.094 INCH BELT OF OIL SATURATED PAPER OVERALL 0.115 INCH COPPER BEARING LEAD BENEATH OVERALL.											
25	—	OVERHEAD FLEXIBLE TRAINER WIRE (UNSHIELDED)	1/C #2 AWG, 8 H STRANDED COPPER ASTM B173 SPECIAL CONSTRUCTION * BANDER TAPE OVER SHIELDED INSULATOR CONDUCTORS AND FILERS TO BE COPPER OR BRONZE TAPE INTER-CALATED WITH PAPER TAPE OR (2) METALLIZED PAPER TAPES											

ACCORDING TO SPECIFICATIONS



**1. DISTRIBUTION AND TRANSMISSION CABLES**

ALL TRANSMISSION CABLES, (24KV, ITEMS 11-16 INCLUSIVE) ARE FOR CIRCUITS WITH GROUNDED NEUTRAL, AND SHALL CONFORM STRICTLY WITH THE LATEST REVISION OF THE A.E.C. SPECIFICATION FOR IMPREGATED PAPER INSULATED, LEAD COVERED SOLID TYPE CABLE, 9TH EDITION, DATED APRIL 1934, AND CONSTRUCTION OPTIONS AS NOTED IN SHEET 1.

ALL DISTRIBUTION CABLES, (7.5KV, ITEMS 17-21 INCLUSIVE) ARE FOR CIRCUITS WITH UNGROUNDED NEUTRAL AND SHALL ALSO CONFORM WITH THE ABOVE SPECIFICATION, WITH CONSTRUCTION OPTIONS AS NOTED IN TABLE 1.

**2. OVERHEAD LINE WIRE**

OVERHEAD LINE WIRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF ASA C.8.3.4 (NEOPRENE COVERING) OR THE LATEST REVISION OF ASA C.8.35 (POLYETHYLENE COVERING).

**3. 8/C, #8AWG, STREET LIGHTING CABLE, 7500 V.**

THIS IS A SPECIAL CONSTRUCTION AND SHALL BE MADE STRICTLY IN ACCORDANCE WITH THE DESCRIPTION IN TABLE 1.

**4. OTHER RUBBER OR THERMOPLASTIC INSULATED CABLES, LEADED & NON-LEADED**

WIRE SIZE, INSULATION TYPE AND NOMINAL THICKNESSES, OTHER CONSTRUCTION FEATURES SHALL BE AS SHOWN IN TABLE 1, AND APPLICABLE REFERENCE SPECIFICATIONS SHOWN BELOW.

**INSULATIONS**

THE MINIMUM INSULATION THICKNESS OF ANY OF THESE CABLES SHALL BE LESS THAN 90% OF THE NOMINAL THICKNESS SHOWN ON TABLE 1.

THE PHYSICAL AND AGING PROPERTIES OF THERMOPLASTIC AND RUBBER INSULATIONS SHALL BE AS FOLLOWS:

**CONDUCTORS**

ALL CONDUCTORS SHALL BE COPPER, COMPLYING WITH THE LATEST REVISIONS OF ASTM SPECIFICATIONS, AS FOLLOWS:

SOFT OR ANNEALED, BARE COPPER WIRE  
 ASTM B5  
 ASTM B2  
 ASTM B1

HARD DRAWN COPPER WIRE  
 ASTM B8  
 ASTM B73  
 ASTM B33  
 ASTM B189

CONCENTRIC-LAY-STRANDED COPPER CONDUCTORS, COATED OR UNCOATED, AS REQUIRED.  
 HARD, MEDIUM HARD OR SOFT, COATED OR UNCOATED, AS REQUIRED.

ROPE-LAY-STRANDED, SOFT, COPPER CONDUCTORS, COATED OR UNCOATED, AS REQUIRED.

SOFT, SOLID COPPER CONDUCTORS, TINNED

SOFT, SOLID COPPER CONDUCTORS, LEAD OR LEAD ALLOY COATED

TEST	POLYVINYL-CHLORIDE 60°C	POLYVINYL-CHLORIDE 75°C	HIGH MOLECULAR WEIGHT NATURAL POLYETHYLENE	SYNTHETIC RUBBER 75°C HEAT & MOISTURE RESISTANT	OZONE RESISTING BUTYL RUBBER
ORIGINAL	TENSILE STRENGTH PSI ELONGATION AT RUPTURE, PERCENT	2300, MIN. 250, MIN.	1400, MIN. 350, MIN.	700, MIN. 300, MIN. AND 1/2" SET, MAX.	600, MIN. 350, MIN. AND 1/2" SET, MAX.
AIR OVEN TEST, TIME & TEMP. AS NOTED	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	65, MIN. 168 HRS., 100±1°C 85, MIN. 168 HRS., 120±1°C	75, MIN. 48 HRS., 100±1°C 75, MIN. 48 HRS., 100±1°C	— —	60, MIN. 168 HRS., 100±1°C 60, MIN. 168 HRS., 100±1°C
OXYGEN PRESSURE TEST	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	— —	— —	50, MIN. 168 HRS., 80±1°C 50, MIN. 168 HRS., 80±1°C	— —
AIR PRESSURE HEAT TEST	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	— —	— —	50, MIN. 20 HRS., 127±1°C 50, MIN. 20 HRS., 127±1°C	— —
HEAT DISTORTION 121±1°C	% OF ORIGINAL	50, MAX.	—	—	—
OIL IMMERSION 4 HRS., 70±1°C	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	85, MIN. 85, MIN.	— —	— —	— —
HEAT SHOCK 121±1°C	—	NO CRACKS	—	—	—
COLD BEND	—	NO CRACKS -30±1°C	—	—	—
INSULATION RESISTANCE CONSTANT AT 15.6°C	—	1,000 MIN.	—	4,000 MIN.	20,000 MIN.
FLAME RESISTING PROPERTIES	ELECTRIC CONSTANT ELECTRIC-1 DAY % CAPACITANCE INCREASE	SECT. 6.5 IPCEA S-61-402 10, MAX.	SECT. 6.5 IPCEA S-61-402 10, MAX.	SECT. 6.5 IPCEA S-61-402 5, MAX.	SECT. 6.5 IPCEA S-61-402 5, MAX.
ACCELERATED WATER ABSORPTION REQUIREMENT	OR GRAVIMETRIC METHOD	1-14 DAYS-10, MAX. 7-14 DAYS-5, MAX. 50±1°C	1-14 DAYS-10, MAX. 7-14 DAYS-5, MAX. 75±1°C	1-14 DAYS 10.0 MAX. 7-14 DAYS 4.0 MAX. 75±1°C	1-14 DAYS 5.0, MAX. 7-14 DAYS 3.0, MAX. 75±1°C
TEST IN ACCORDANCE WITH LATEST REVISION OF	MILLIGRAMS PER SQ. INCH MAX.	20 IPCEA S-61-402 (EXCEPTIONS ARE NOTED ABOVE)	20 IPCEA S-61-402 (EXCEPTIONS ARE NOTED ABOVE)	20 MILLIGRAMS PER SQ. INCH, MAX. (EXCEPTIONS ARE NOTED ABOVE)	15 MILLIGRAMS PER SQ. INCH, MAX. IPCEA S-19-81

**JACKETS**

THE MINIMUM JACKET THICKNESS SHALL NOT BE LESS THAN 80% OF THE NOMINAL THICKNESS SHOWN ON TABLE 1.

TEST	NEOPRENE BLACK HEAVY DUTY	NEOPRENE BLACK GENERAL PURPOSE	POLYVINYL-CHLORIDE, BLACK	HEAT & LIGHT STABILIZED BLACK POLYETHYLENE COVERG OVER LEAD SHEATH
ORIGINAL	TENSILE STRENGTH PSI ELONGATION AT RUPTURE, %	1800, MIN. 300, MIN. 8 3/8" MAX. SET	1500, MIN. 100, MIN.	1400, MIN. 350, MIN.
AIR OVEN TEST TIME & TEMP. AS NOTED	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	— —	85, MIN. 120 HRS., 100±1°C 60, MIN. 120 HRS., 100±1°C	75, MIN. 75, MIN.
OXYGEN PRESSURE TEST 168 HRS. 80±1°C	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	50, MIN. 50, MIN.	— —	— —
AIR PRESSURE HEAT TEST 20 HRS. 127±1°C	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	50, MIN. 50, MIN.	— —	— —
OIL IMMERSION TEST, TIME & TEMP. AS NOTED	TENSILE STRENGTH % OF ORIGINAL ELONGATION % OF ORIGINAL	60, MIN. 18 HRS. 121±1°C 60, MIN. 18 HRS. 121±1°C	60, MIN. 4 HRS. 70±1°C 60, MIN. 4 HRS. 70±1°C	— —
HEAT DISTORTION, PERCENT OF UNWAGED VALUE	—	—	—	25, MAX. 90±1°C
HEAT SHOCK 121±1°C	—	—	—	—
COLD BEND TEST -35±1°C	—	—	—	—
ENVIRONMENTAL CRACKING	—	—	—	—
LIGHT ABSORPTIVITY	—	—	—	—
TEST IN ACCORDANCE WITH LATEST REVISION OF	IPCEA S-19-81	IPCEA S-61-402	IPCEA S-61-402	IPCEA INTERIM SPECIFICATION P. 101 SEPT. 1959

FOR #6 AWG AND LARGER, USING BUFFED DIE-CUT SPECIMENS, THE FOLLOWING VALUES SHALL APPLY:

\* ELONGATION AFTER AIR OVEN TEST 45% MIN.

\*\* ELONGATION AFTER AIR OVEN TEST 50% MIN.

† TENSILE STRENGTH AFTER OIL IMMERSION 80% MIN.

‡ ELONGATION AFTER OIL IMMERSION 60% MIN.

**M.L. KING JR. BLVD. RECONSTRUCTION**  
**WABASH AVE. TO LINCOLN AVE.**  
 CABLE & WIRE SPECIFICATIONS  
 DETAILS

SHEET \_\_\_\_\_ OF \_\_\_\_\_ SHEETS  
 JOB NO. \_\_\_\_\_  
 ASSIGNMENT NO. \_\_\_\_\_  
 DATE \_\_\_\_\_

**CITY OF DETROIT**  
 CITY ENGINEERING DEPARTMENT

PLAN PREPARED BY  
 CONSULTING ENGINEERING ASSOCIATES INC.  
 ENGINEERING CONSULTANTS  
 16560 WYOMING DETROIT, MICH 48221  
 DRAWING NO. \_\_\_\_\_ FILE NO. \_\_\_\_\_

CHECKED BY \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_  
 DATE \_\_\_\_\_

**PUBLIC LIGHTING COMMISSION**  
 CITY OF DETROIT

FILE NO. 51-0585  
 SHEET NO. 57 OF 71  
 DATE AUG 1984



CERTIFIED TEST REPORTS

SHIPMENTS OF WIRE AND CABLE SHALL NOT BE CONSIDERED COMPLETE UNTIL CERTIFIED TEST REPORTS ARE RECEIVED AND APPROVED. TEST REPORTS FOR THE VARIOUS ITEMS OF WIRE AND CABLE SHOWN ON SHEET 1 SHALL CONTAIN THE FOLLOWING TEST RESULTS:

- ITEMS 1 - 5 INCLUSIVE - OVERHEAD LINE WIRE
1. CONDUCTOR CONTINUITY, RESISTANCE, TENSILE STRENGTH AND ELONGATION TESTS.
2. COVERING THICKNESS, PHYSICAL AND AGING TESTS.
3. WEIGHT OF FINISHED WIRE.

ALL TESTS IN ACCORDANCE WITH THE LATEST REVISION OF ASA 8.24 (NEOPRENE COVERING) OR ASA 8.35 (POLYETHYLENE COVERING.)

- ITEMS 6 - 10 INCLUSIVE.
1. CONDUCTOR CONTINUITY, RESISTANCE, TENSILE STRENGTH AND ELONGATION TESTS IN ACCORDANCE WITH THE LATEST REVISIONS OF ASTM B 8, B 33 OR B 189.
2. THE PHYSICAL AND OTHER TESTS FOR THE SPECIFIED INSULATION SHOWN ON SHEET-2.
3. INSULATION THICKNESS MEASUREMENTS.

THE ALTERNATING-CURRENT VOLTAGE TEST IN ACCORDANCE WITH THE LATEST REVISION OF IPCEA S-61-402.

- INSULATION RESISTANCE TEST. INSULATION RESISTANCE CONSTANT AS SHOWN ON SHEET-2.
6. (CABLE ITEM 8 ONLY) MINIMUM, MAXIMUM AND AVERAGE LEAD THICKNESS MEASUREMENTS. SHALL ALSO BE INCLUDED.
7. (CABLE ITEM 10 ONLY) A RIP TEST SHALL ALSO BE INCLUDED AS FOLLOWS:

A SIX-FOOT SAMPLE OF THE COMPLETED 2 CONDUCTOR WIRE WITH CLEANLY CUT ENDS SHALL BE SUBJECTED TO A TEMPERATURE OF -10°F. FOR ONE HOUR. WHILE STILL COLD, NO INSULATED CONDUCTORS SHALL BE SEPARATED AT ONE END FOR A DISTANCE OF APPROXIMATELY 18 INCHES. THE WIRE SHALL BE SUBJECTED TO A STRETCH OF APPROXIMATELY 33 INCHES IN ONE SECOND OR LESS. THERE SHALL BE NO DAMAGE TO THE INSULATION.

- ITEMS 11 - 16 INCLUSIVE. - DISTRIBUTION, CABLES UNDER 10 KV RATING
1. CONDUCTOR RESISTANCE.
2. SHEATH THICKNESS MEASUREMENTS.
3. HIGH VOLTAGE TEST.
4. MECHANICAL INTEGRITY TEST.
5. BENDING TEST.

SPARK TEST ON COVERING OVER LEAD SHEATH ON EACH LENGTH IF COVERING IS SPECIFIED.

ALL TESTS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF "SOLID TYPE IMPREGNATED-PAPER-INSULATED LEAD COVERED CABLE SPECIFICATIONS", PUBLISHED BY THE ASSOCIATION OF EDISON ILLUMINATING COMPANIES.

- ITEMS 17 - 18 INCLUSIVE - SERIES STREET LIGHTING CABLE
1. CONDUCTOR RESISTANCE AND CONTINUITY, IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-33.
2. THE PHYSICAL AND OTHER TESTS FOR HIGH MOLECULAR WEIGHT POLYETHYLENE INSULATION AS SHOWN ON SHEET-2.

THE PHYSICAL AND OTHER TESTS FOR 60°C. POLYVINYL-CHLORIDE INSULATION AS SHOWN ON SHEET-2.

THE FOLLOWING TESTS SHALL ALSO BE MADE AND REPORTED:
HIGH VOLTAGE TEST - AFTER NOT LESS THAN SIX (6) HOURS IMMERSION IN WATER AT 60°F. AND WHILE STILL IMMERSED, EACH REEL OF INSULATED CABLE WITHOUT LEAD, SHALL WITHSTAND A 60 CYCLE POTENTIAL OF 30,000 VOLTS FOR A PERIOD OF FIVE (5) MINUTES.

INSULATION RESISTANCE TEST - THE INSULATION RESISTANCE SHALL NOT BE LESS THAN 25,000 MEGOHMS PER THOUSAND FEET AT 60°F. THIS TEST SHALL BE CONDUCTED UPON COMPLETION OF THE HIGH VOLTAGE TEST.

SHORT-TIME DIELECTRIC STRENGTH TEST - A TEN (10) FT. SAMPLE OF THE FINISHED CABLE WITH ONLY THE LEAD REMOVED, AFTER TWELVE (12) HOURS SUBMERSION IN WATER AND WHILE STILL IMMERSED, SHALL WITHSTAND A VOLTAGE TEST OF 60,000 VOLTS 60 CYCLE A.C. FOR FIVE (5) MINUTES. ON COMPLETION OF THIS TEST, THE VOLTAGE WILL BE GRADUALLY RAISED TO 75,000 VOLTS 60 CYCLE A.C. WITHIN THE NEXT FIVE (5) MINUTES. THE INSULATION IS PUNCTURED. THIS VOLTAGE SHALL BE RECORDED AND SHALL BE NOT LESS THAN 72,000 VOLTS.

EXTERNAL CORONA TEST - THIS TEST SHALL BE CONDUCTED ON ONE (1) SAMPLE PER 10,000 FT. OF COMPLETED CABLE EIGHTEEN (18) INCHES LONG WITHOUT ONLY THE LEAD SHEATH REMOVED, AFTER WHICH IT SHALL BE WIPED WITH A CLEAN DRY CLOTH. THESE SAMPLES SHALL BE BENT AND MAINTAINED IN A U-SHAPE HAVING A BENDING DIAMETER EQUAL TO FIVE TIMES THE INSULATED CABLE DIAMETER. THESE SAMPLES SHALL THEN BE PLACED IN A VERTICAL POSITION ON A FLAT METAL PROTECTIVE PLATE. THE SAMPLES SHALL BE GRADUALLY APPLIED WITH A CORONA LEVEL TEST APPARATUS OF THE FILTER-CORONA TYPE, MAINTAINING SUFFICIENT AMPLIFICATION TO INDICATE THE EXISTENCE OF CORONA DISCHARGE. THE VOLTAGE SHALL BE RAISED UNTIL CORONA IS INDICATED, AND SHALL NOT BE LESS THAN 8,200 VOLTS RMS.

THE VOLTAGE SHALL THEN BE RAISED TO 25,000 VOLTS AND MAINTAINED FOR SIX (6) HOURS WITHOUT FAILURE OF THE INSULATION. THE VOLTAGE SHALL THEN BE RAISED IN 10% STEPS AT TEN (10) MINUTE INTERVALS UNTIL FAILURE OF THE INSULATION OR FLASHOVER OCCURS.

THESE VOLTAGES SHALL BE RECORDED AND REPORTED.

INTERNAL-CORONA LEVEL-LEVEL LENGTH OF COMPLETED CABLE SHALL BE TESTED IN ACCORDANCE WITH SECTION 13.1 OF THE STANDARD S-61-402, EXCEPT THAT THE MINIMUM CORONA LEVEL SHALL BE 8,200 VOLTS.

- ITEMS 19 - 21 INCLUSIVE - TRANSMISSION CABLES.
1. CONDUCTOR RESISTANCE.
2. SHEATH THICKNESS MEASUREMENT.
3. HIGH VOLTAGE TEST.
4. MECHANICAL INTEGRITY TEST.
5. BENDING TEST.
6. IONIZATION TEST.
7. DIELECTRIC STRENGTH TEST.
8. SHORT-TIME DIELECTRIC STRENGTH TEST.
9. CAPACITY AND POWER FACTOR TEST.
10. SPARK TEST ON COVERING OVER LEAD SHEATH ON EACH LENGTH.

ONE TEST PER ORDER OR THERE IS A QUANTITY LIMITATION OF 25,000 FT. ON THESE TESTS PER AIC POWER FACTOR TEST.

ALL TESTS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF "SOLID-TYPE IMPREGNATED-PAPER-INSULATED LEAD COVERED CABLE SPECIFICATIONS", PUBLISHED BY THE ASSOCIATION OF EDISON ILLUMINATING COMPANIES.

- ITEMS 22 - 23 INCLUSIVE - MULTI-CONDUCTOR TRAFFIC SIGNAL CABLE
1. INDIVIDUAL CONDUCTOR RESISTANCE IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B 33.
2. INSULATION THICKNESS MEASUREMENTS.
3. INSULATION PHYSICAL AND OTHER TESTS FOR 60°C. POLYVINYLCHLORIDE AS SHOWN ON SHEET-2.
4. ALTERNATING CURRENT VOLTAGE TEST.
5. INSULATION PHYSICAL AND OTHER TESTS SHOWN ON SHEET-2.

(CABLE ITEM 23 ONLY) SHEATH THICKNESS MEASUREMENTS.
a. POLYVINYLCHLORIDE JACKET PHYSICAL AND OTHER TESTS SHOWN ON SHEET-2.
b. JACKET THICKNESS MEASUREMENTS.

(CABLE ITEM 22 ONLY) LEAD SHEATH THICKNESS MEASUREMENTS.
TESTS NO. 4-7 INCLUSIVE SHALL BE MADE IN ACCORDANCE WITH THE LATEST REVISION OF IPCEA S-61-402 EXCEPT THAT THE INSULATION RESISTANCE CONSTANT SHALL BE 1000 AT 15.6°C.

- ITEM 24 - 8/C SERIES STREET LIGHTING CABLE
1. CONDUCTOR CONTINUITY AND RESISTANCE IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-33.
2. LEAD SHEATH THICKNESS MEASUREMENTS.
3. A HIGH VOLTAGE TEST CONSISTING OF 22,500 VOLTS, 60 CYCLES AC FOR A DURATION OF 5 MINUTES, BETWEEN CONDUCTORS AND FROM EACH CONDUCTOR TO THE LEAD SHEATH.

FLEXIBLE OVERHEAD TRAINER WIRE
1. CONDUCTOR RESISTANCE, TENSILE STRENGTH AND ELONGATION IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-173.
2. INSULATION PHYSICAL AND OTHER TESTS SHOWN ON SHEET-2.
3. ADDITIONAL INSULATION TESTS IN ACCORDANCE WITH THE LATEST REVISION OF IPCEA S-19-8 AS FOLLOWS:

- a. ALTERNATING-CURRENT VOLTAGE TEST.
b. INSULATION RESISTANCE TEST.
c. SHORT-TIME DIELECTRIC STRENGTH TEST.
d. COLD-BENDING AND LONG-TIME DIELECTRIC STRENGTH TEST.
e. CAPACITY AND POWER FACTOR TEST.
f. OZONE RESISTANCE TEST.
g. PHYSICAL AND OTHER TESTS ON THE NEOPRENE JACKET (GENERAL PURPOSE OR HEAVY DUTY), AS SHOWN ON SHEET-2.
h. JACKET THICKNESS MEASUREMENTS.

ITEM 25 - SUPERVISORY CONTROL CABLE (MULTI-CONDUCTOR)
1. CONDUCTOR RESISTANCE, TENSILE STRENGTH AND ELONGATION, IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-33.
2. INSULATION PHYSICAL FOR 60°C. PVC INSULATION AND OTHER TESTS SHOWN ON SHEET 2.
3. INSULATION RESISTANCE TESTS.
4. VOLTAGE TESTS PER IPCEA S-61-402.
5. INSULATION THICKNESS.
6. LEAD SHEATH THICKNESS.
7. THICKNESS OF COVERING OVER LEAD SHEATH.
8. SPARK TEST ON COVER OVER LEAD SHEATH ON EACH LENGTH.

MULTI-PAIR COMMUNICATION CABLES (Maximum Mutual Capacitance = 90 nf per mile) (ALSO FOR TRAFFIC SIGNAL CHRONOPLAN) AND SUPERVISORY

Table with columns: ITEM NO., USE AND RATING, CONDUCTOR, INSULATION (b), TAPE OVER INSULATED CONDUCTORS, INNER BELT, SHIELD OVER TAPE OR BELT, JACKET OR SHEATH, COVERING OVER SHEATH. Rows 27-30.

TEST REPORTS

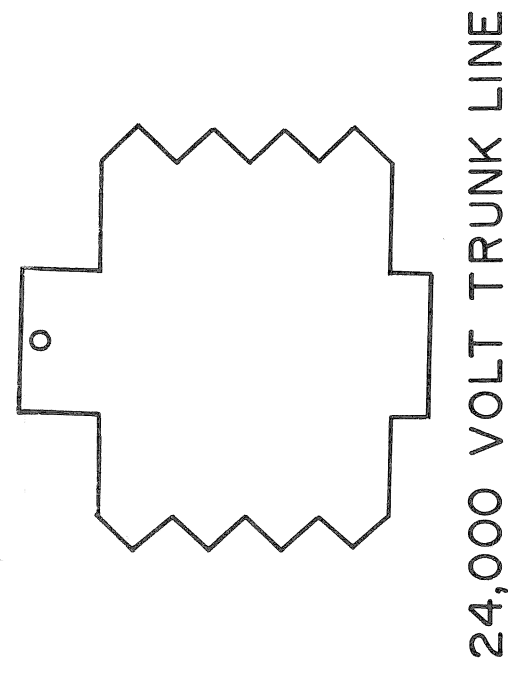
SHIPMENTS OF WIRE AND CABLE SHALL NOT BE CONSIDERED COMPLETE UNTIL CERTIFIED TEST REPORTS ARE RECEIVED AND APPROVED. TEST REPORTS FOR THE VARIOUS ITEMS ABOVE SHALL SHOW COMPLIANCE WITH CITED SPECIFICATIONS, LISTING TEST RESULTS, AS WELL AS THE FOLLOWING TESTS:

- 1. CONDUCTOR RESISTANCE OF EACH LENGTH OF EACH CONDUCTOR IN OHMS PER 1000 FT.
2. CERTIFICATION OF MUTUAL CAPACITANCE OF ALL CABLES AND OF NON-INDUCED EFFECT OF FLOODING COMPOUND ON ITEM 27.

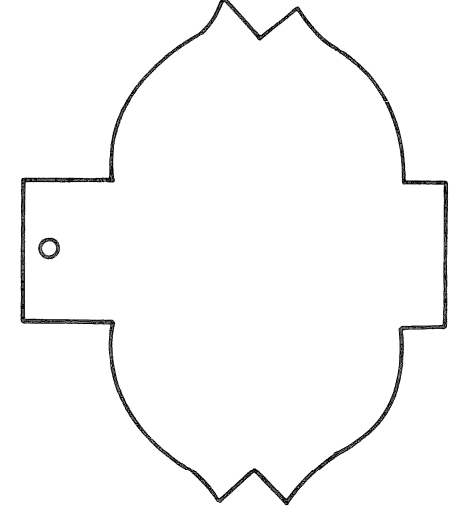
(a) FIGURE 8 CONSTRUCTION. MESSENGER SHALL BE 7 STRAND BHS GALVANIZED, CLASS A, 1/4-IN. NOMINAL DIAM (ASTM A 475) AND SHALL BE FULLY FLOODED.
(b) COLOR CODED PER FEDERAL SPECIFICATION J-C-III.
(c) NOMINAL THICKNESS, INCHES.

Project information block including: M.L. KING JR. BLVD. RECONSTRUCTION, WABASH AVE. TO LINCOLN AVE. CABLE & WIRE SPECIFICATIONS, CITY OF DETROIT, CITY ENGINEERING DEPARTMENT, PUBLIC LIGHTING COMMISSION, CITY OF DETROIT, AUG 1984, 28 OF 41, CEA 1098, AUG 1984, 28 OF 41, CEA 1098, AUG 1984, 28 OF 41, CEA 1098.

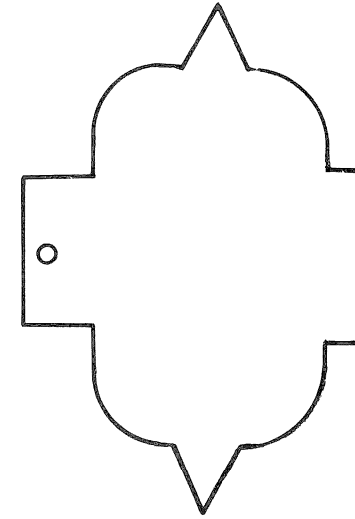




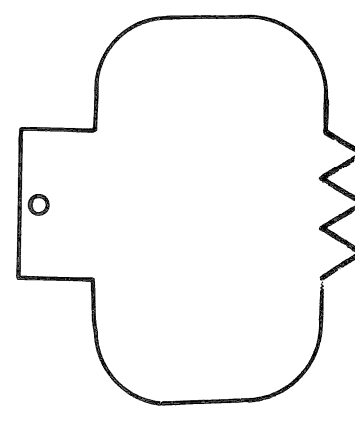
24,000 VOLT TRUNK LINE



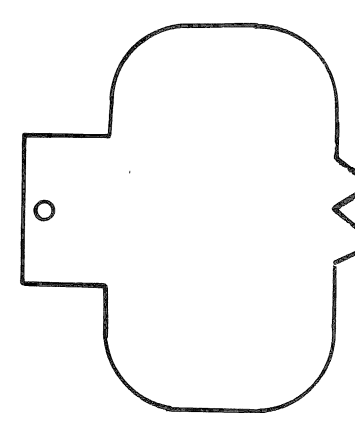
24,000 VOLT FEEDER



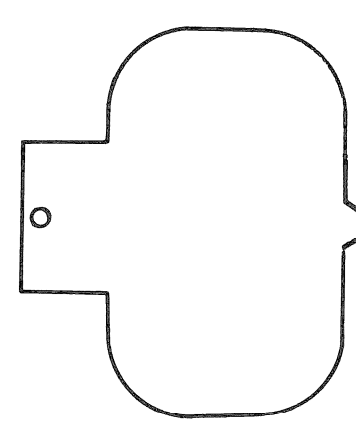
13200 VOLT FEEDER



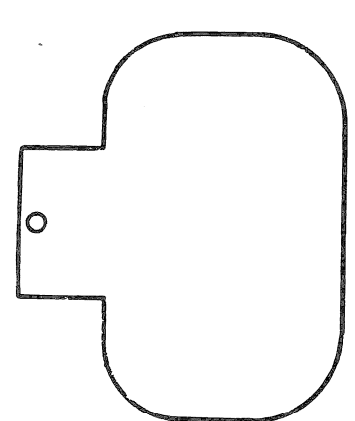
7200 VOLT FEEDER



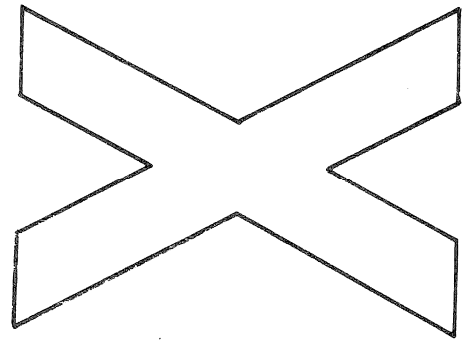
4800 & 5500 VOLT FEEDER



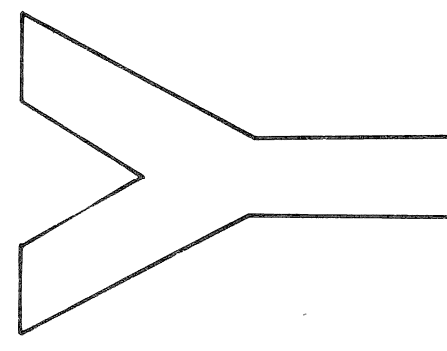
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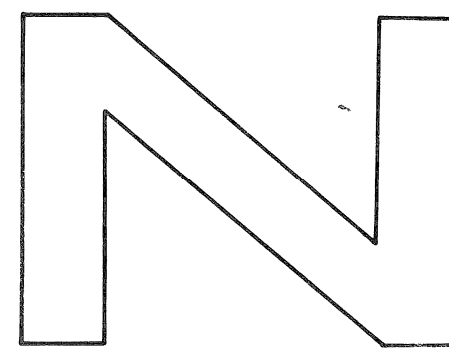
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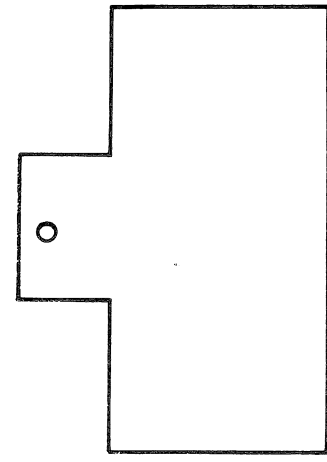
O.H. LINE PHASE TAG



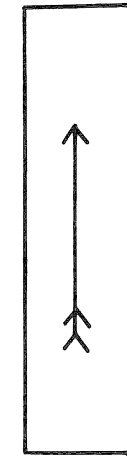
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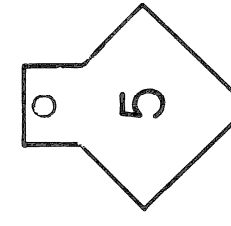
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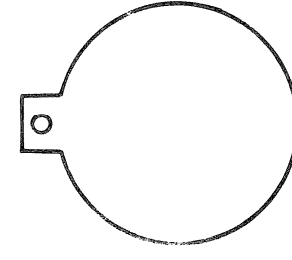
SUPERVISORY CONTROL



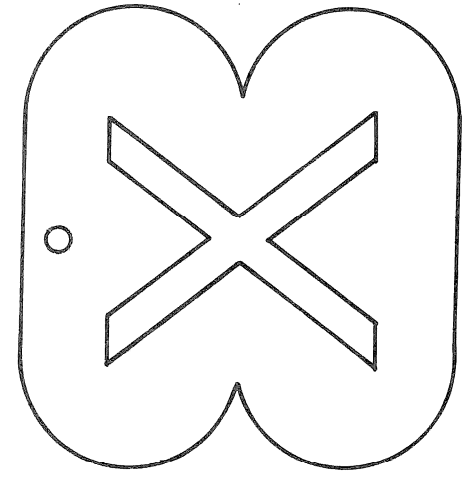
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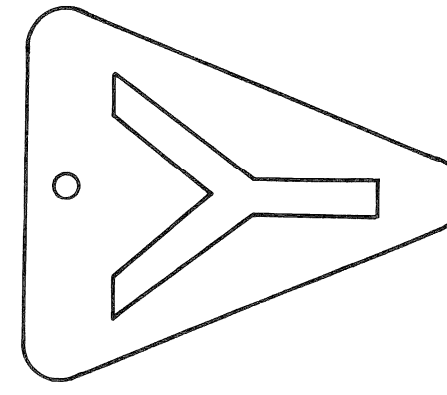
ST. LTG. COND. NO. (FROM 8/C CABLE)



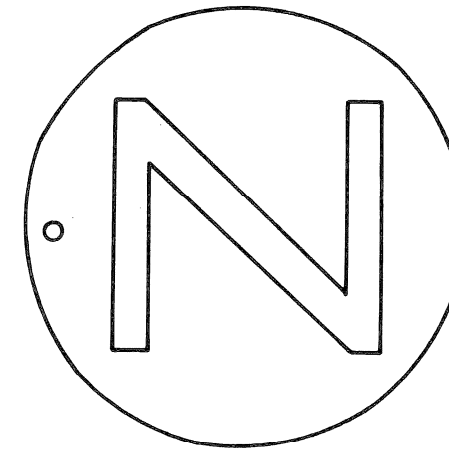
ST. LTG. CIRC. NUMBER



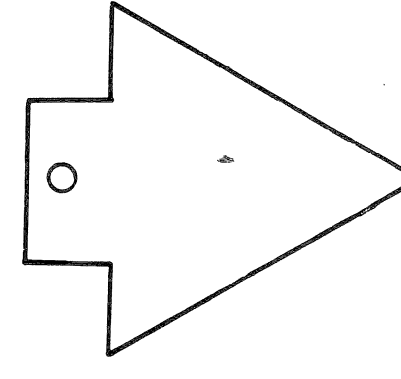
O.H. LINE OR POTHEAD PHASE TAG



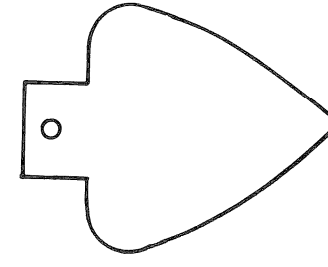
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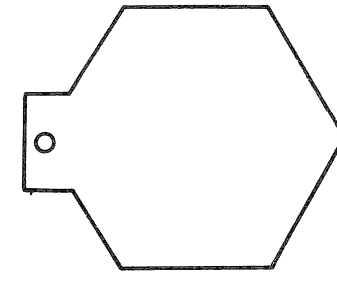
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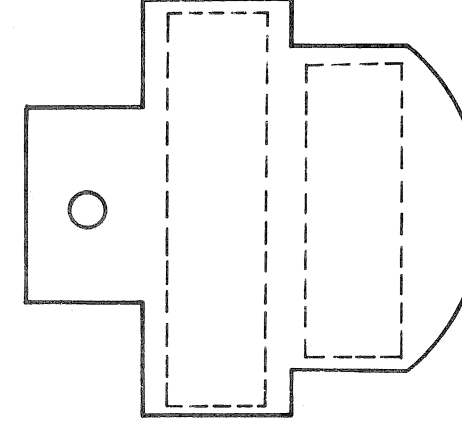
DEAD CABLE



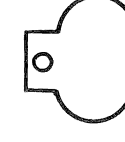
8 COND. CABLE



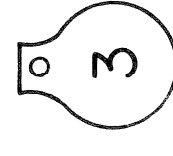
MULTIPLE LTG. CONTROL



MULTIPLE STREET LIGHTING  
ALL VOLTAGES



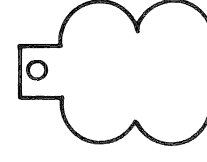
MULTIPLE INC. LTG.



TRAFFIC SIGNALS



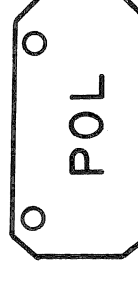
SECONDARY POWER TO SAFETY  
ISLANDS & TRAFFIC SIGNALS



TRAFFIC SIGNAL CHRONOLIZER

SUBSTATION NAMES ON IDENTIFICATION TAGS SHALL BE SPELLED AS FOLLOWS

- B.I.
- BUTZL.
- CNFLD.
- CONNR.
- CUSTR.
- GRNFD.
- HUDSN.
- J. CAMP.
- JOY RD.
- LA BEL.
- LTHRP.
- LUDDN.
- MAPLE.
- MCRDY.
- MTRSE.
- PAL. P.K.
- PHILP.
- PORTR.
- RUSSL.
- STNTN.
- STONE.
- TRNTY.
- TWNSD.
- TURNR.
- VERNR.
- WALTN.
- WARRN.
- WD. TER.



COMMUNICATION

**NOTE:**

LEAD CABLE IDENTIFICATION TAGS WILL BE FURNISHED TO CONTRACTOR BY P.L.D. CABLE TAG MARKINGS SUCH AS SUBSTATION OR CABLE MARKINGS WILL BE AS SHOWN ON PLANS OR WILL BE FURNISHED BY P.L.D.

IDENTIFICATION TAGS  
MATERIAL LEAD

DATE	DESCRIPTION	CHKD. BY

**M.L. KING JR. BLVD. RECONSTRUCTION**  
**WABASH AVE. TO LINCOLN AVE.**  
 CABLE TAGS DETAILS

SHEET \_\_\_\_\_ OF \_\_\_\_\_ SHEETS  
 JOB NO. \_\_\_\_\_  
 ASSIGNMENT NO. \_\_\_\_\_  
 DATE \_\_\_\_\_

**CITY OF DETROIT**  
 CITY ENGINEERING DEPARTMENT

DRAWN: **CEA**  
 CHECKED: *[Signature]*  
 APPROVED: *[Signature]*  
 DATE: **AUG 1984**

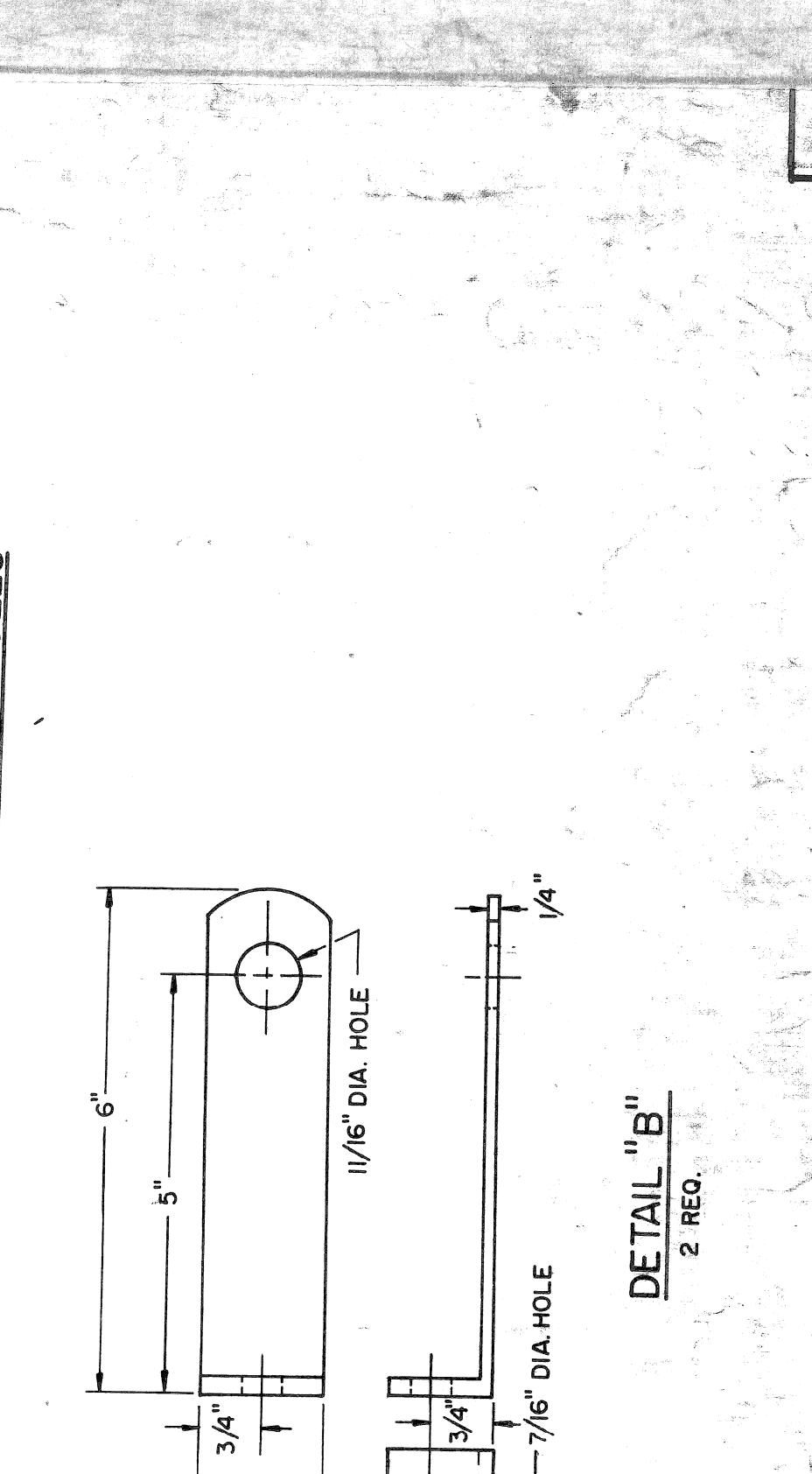
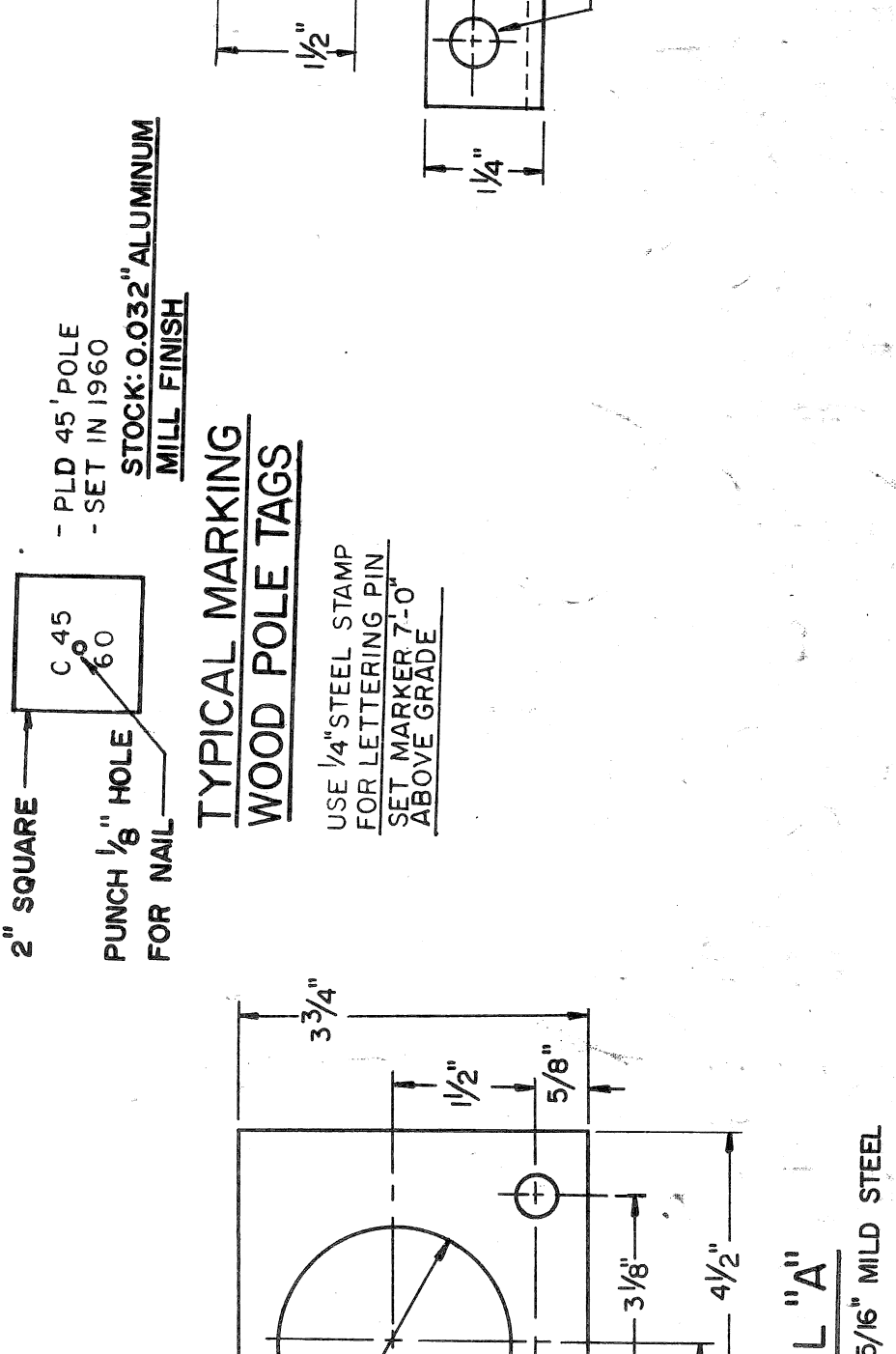
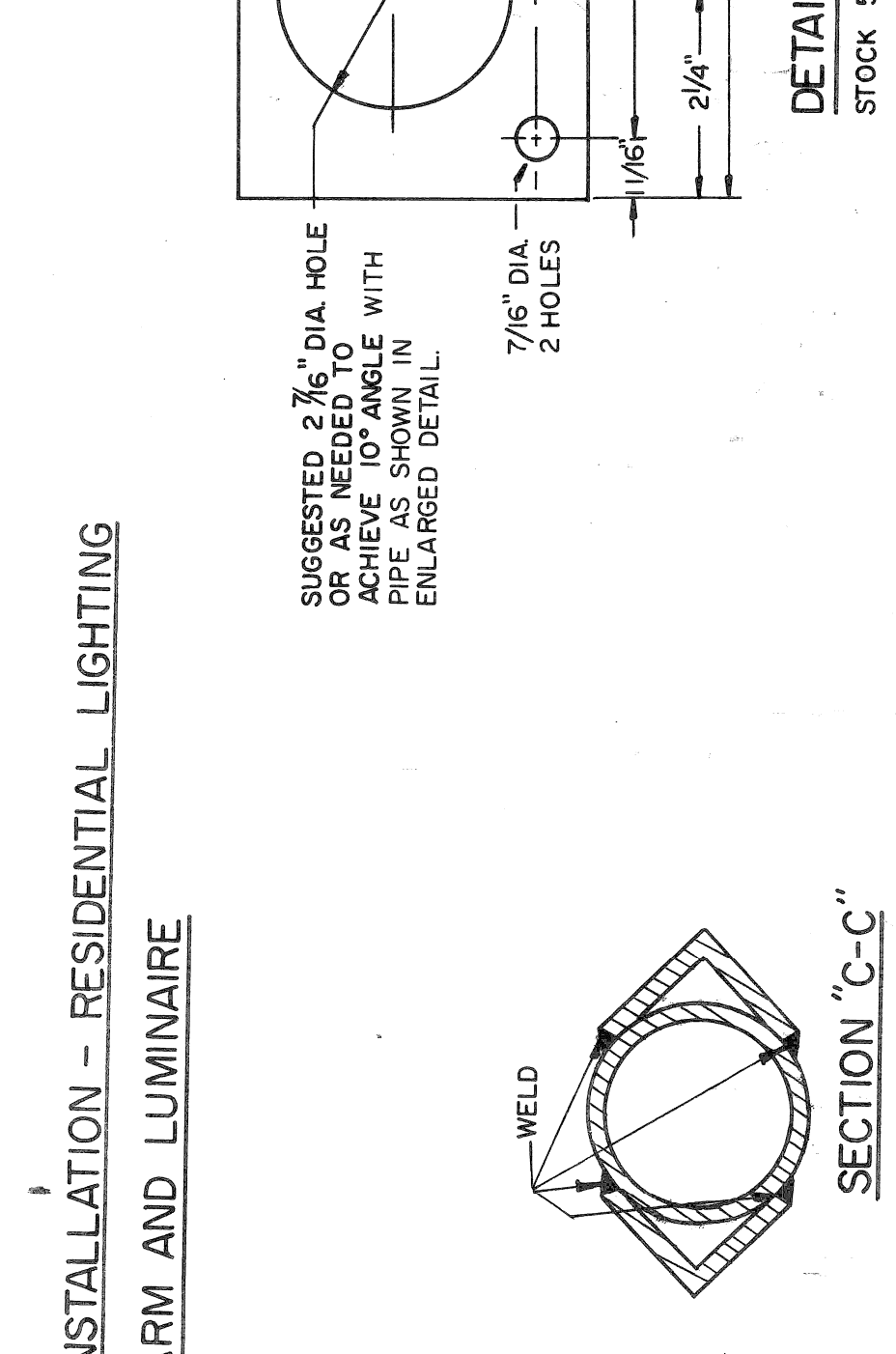
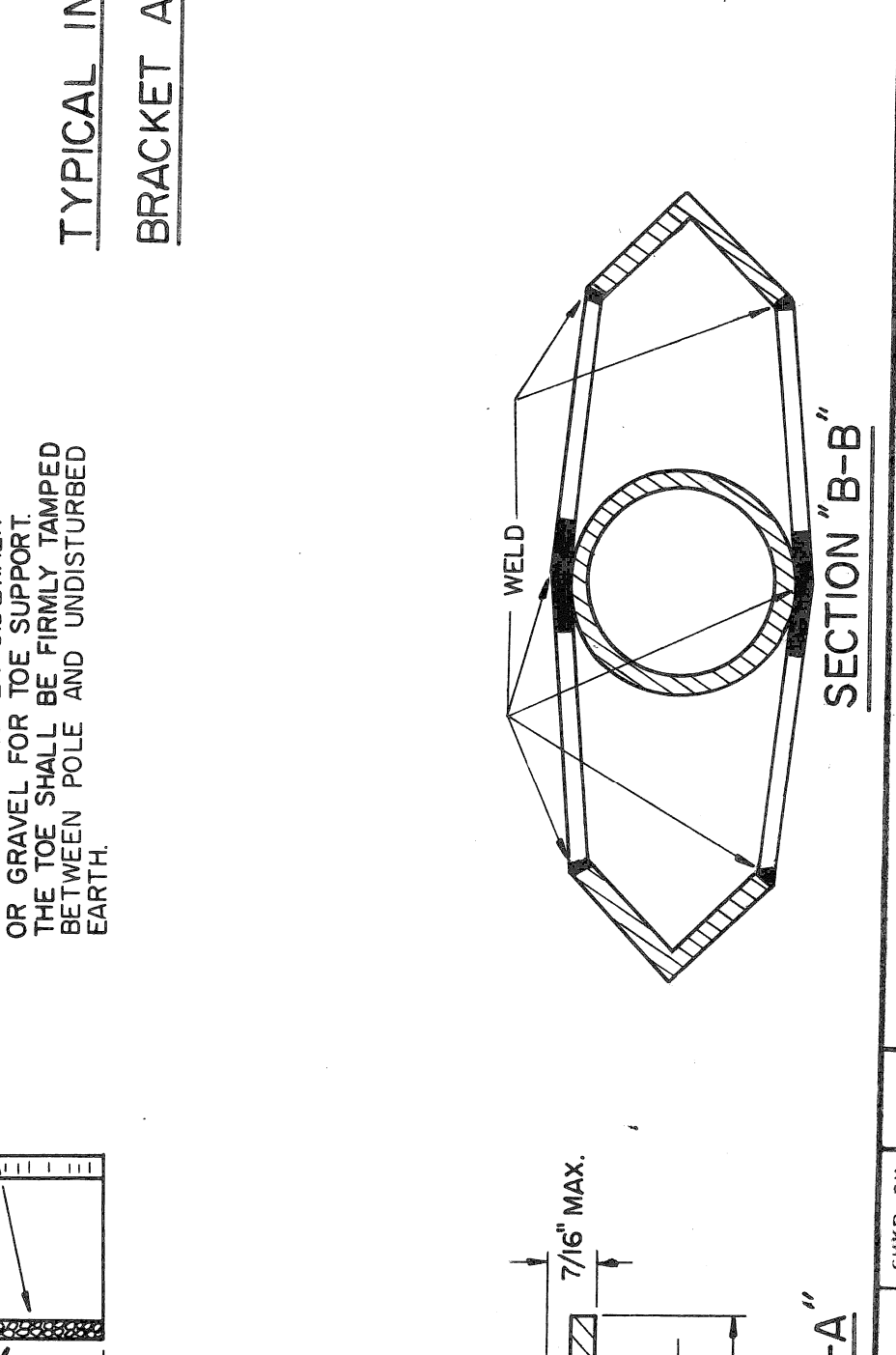
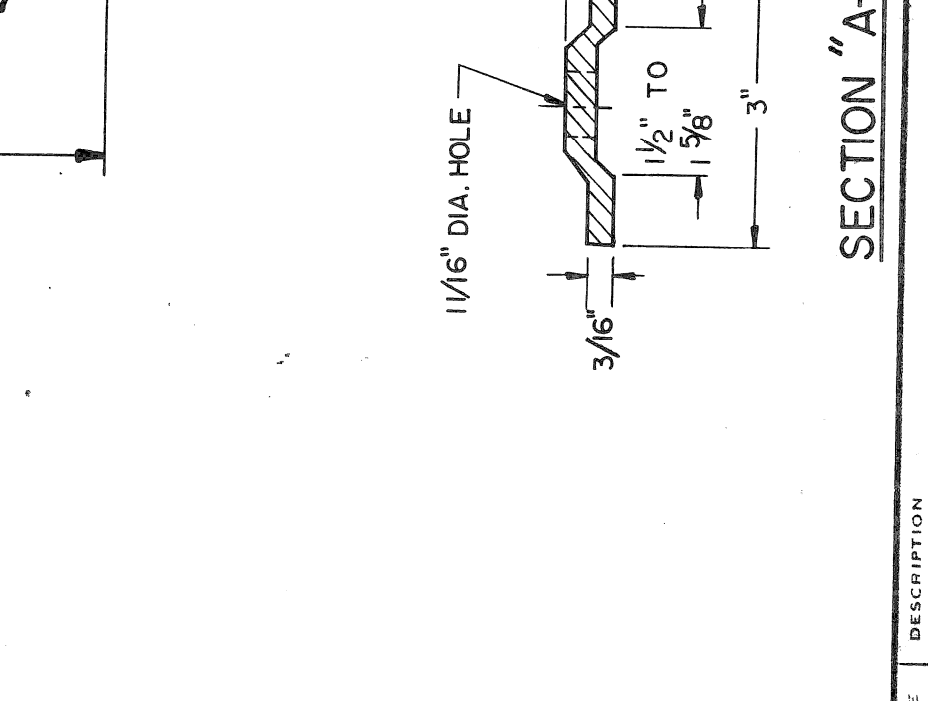
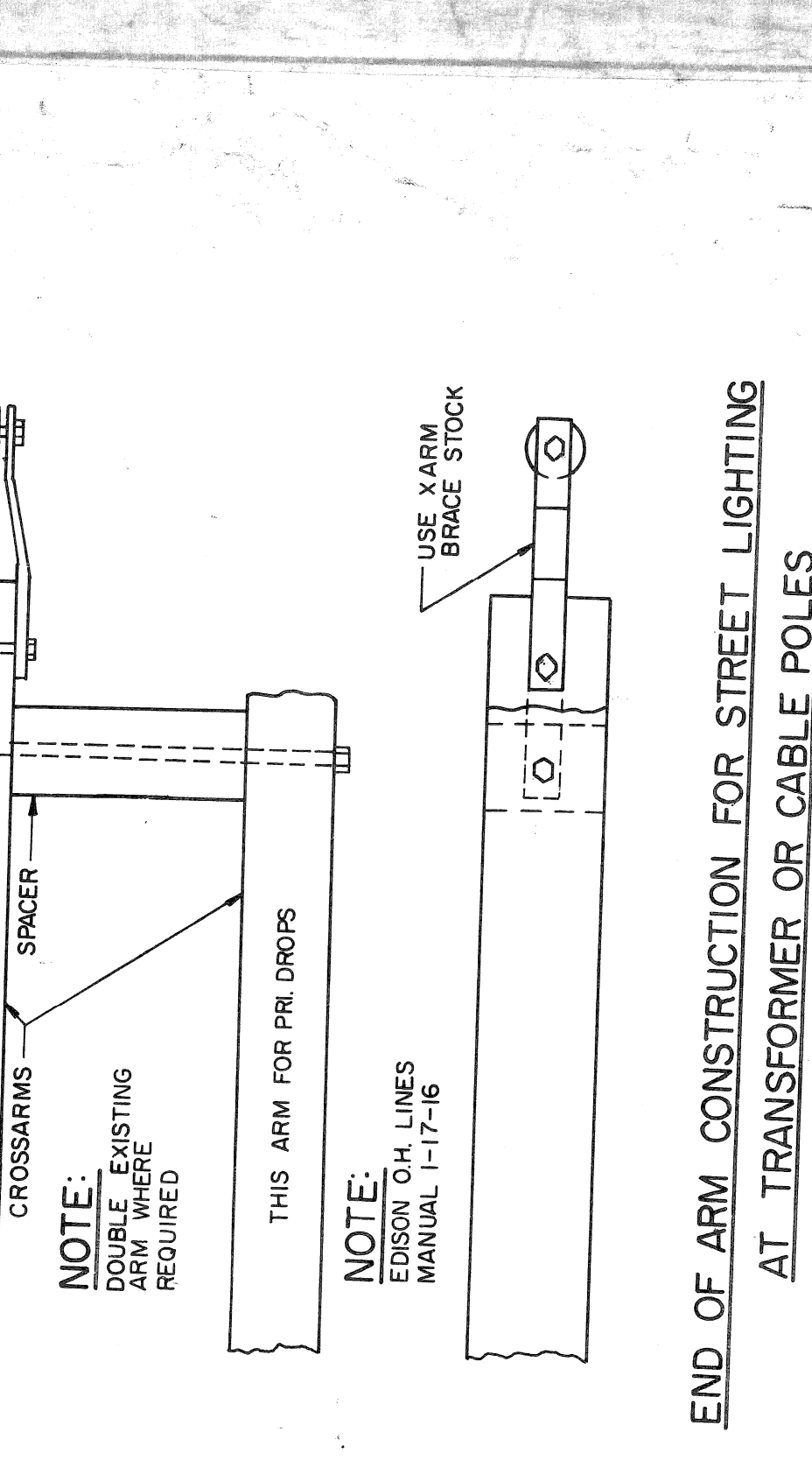
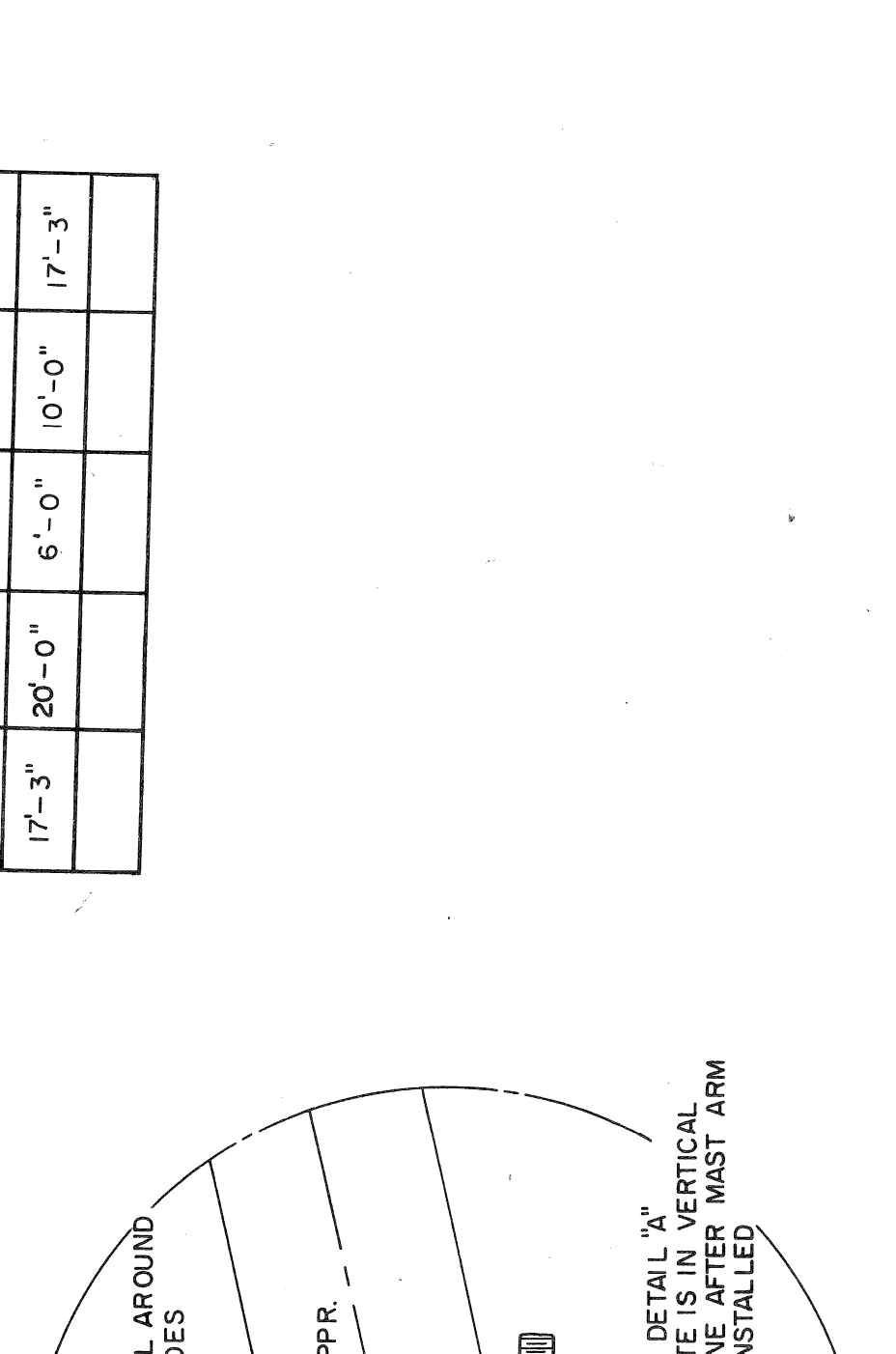
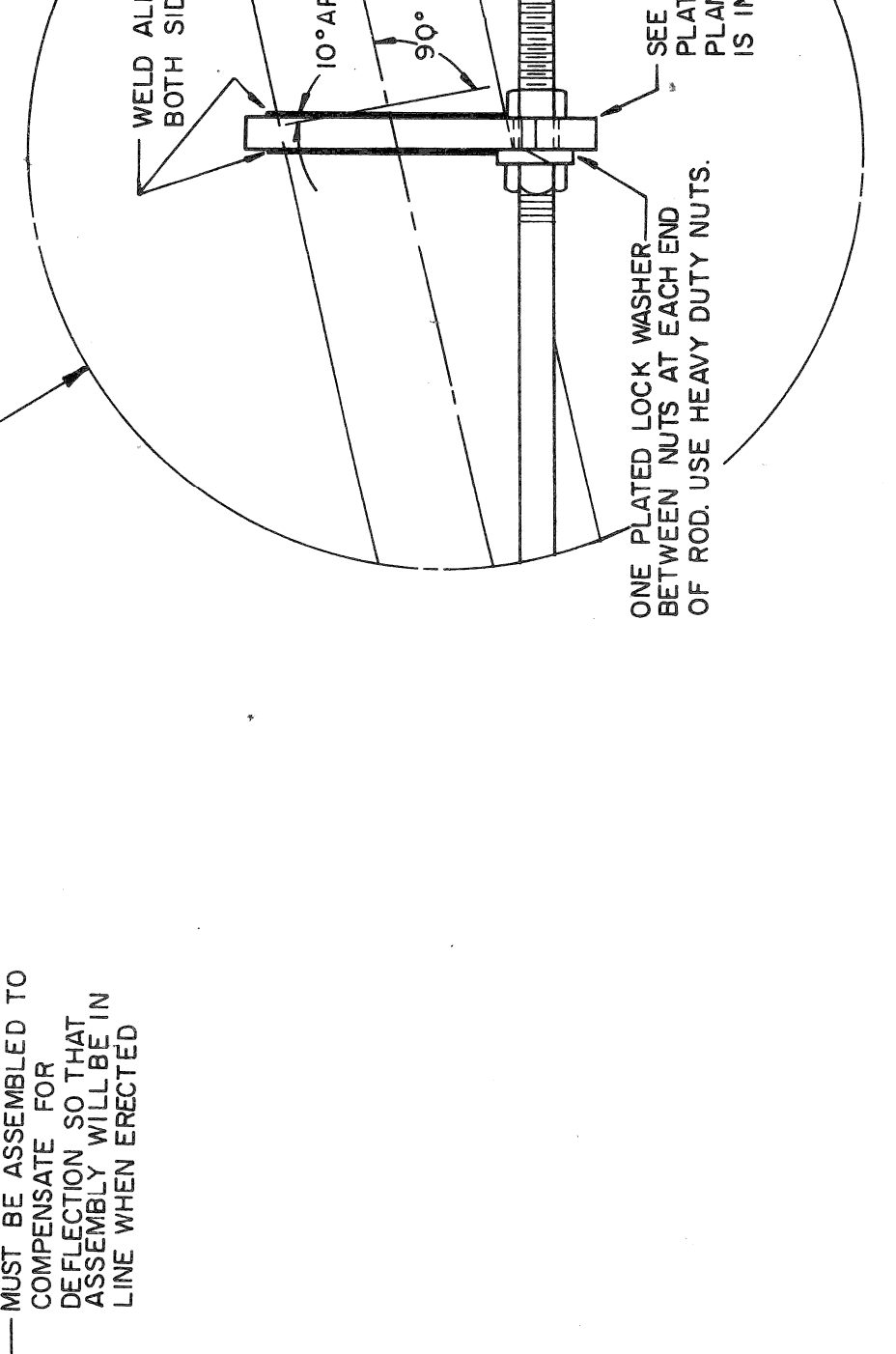
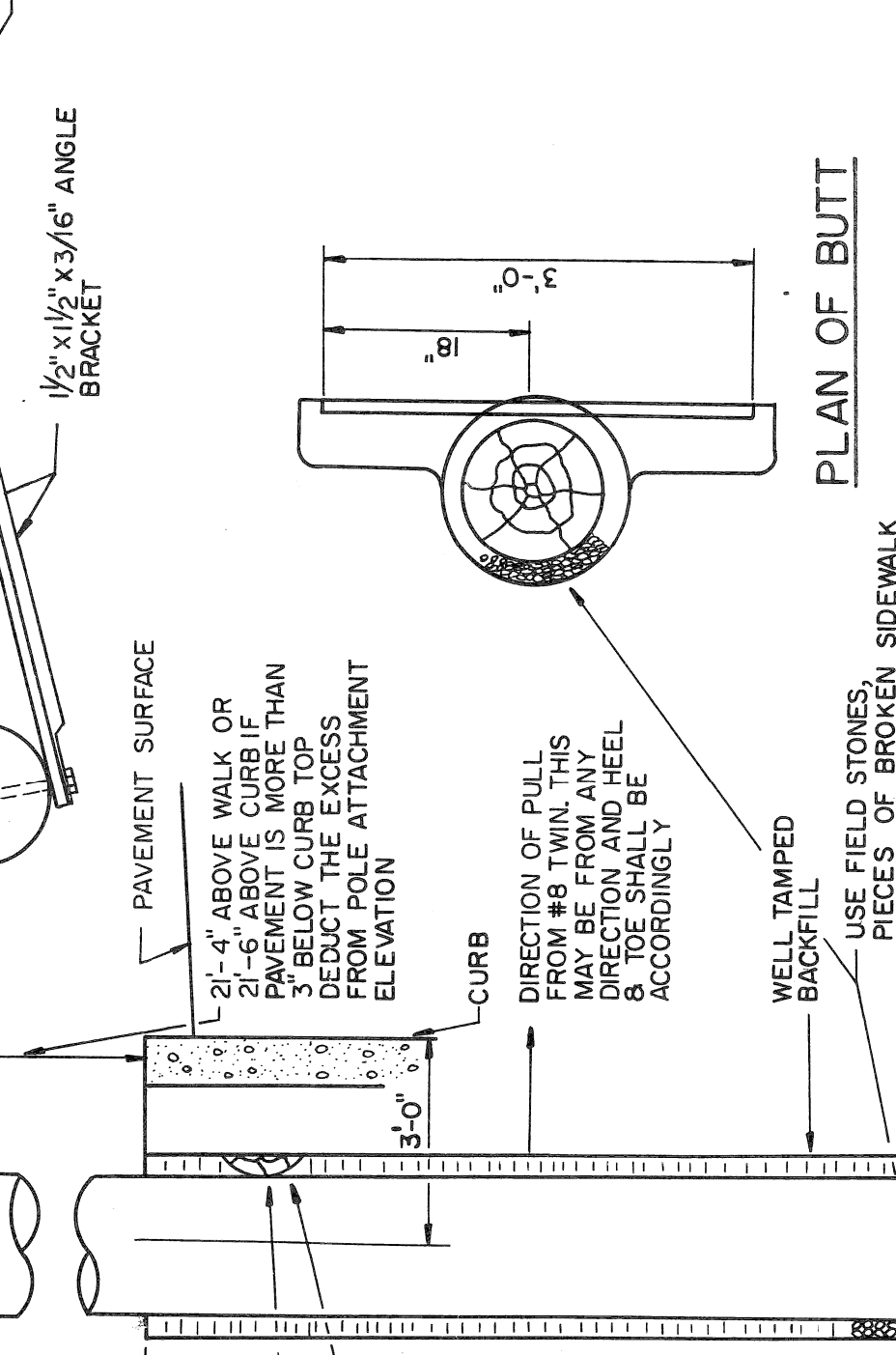
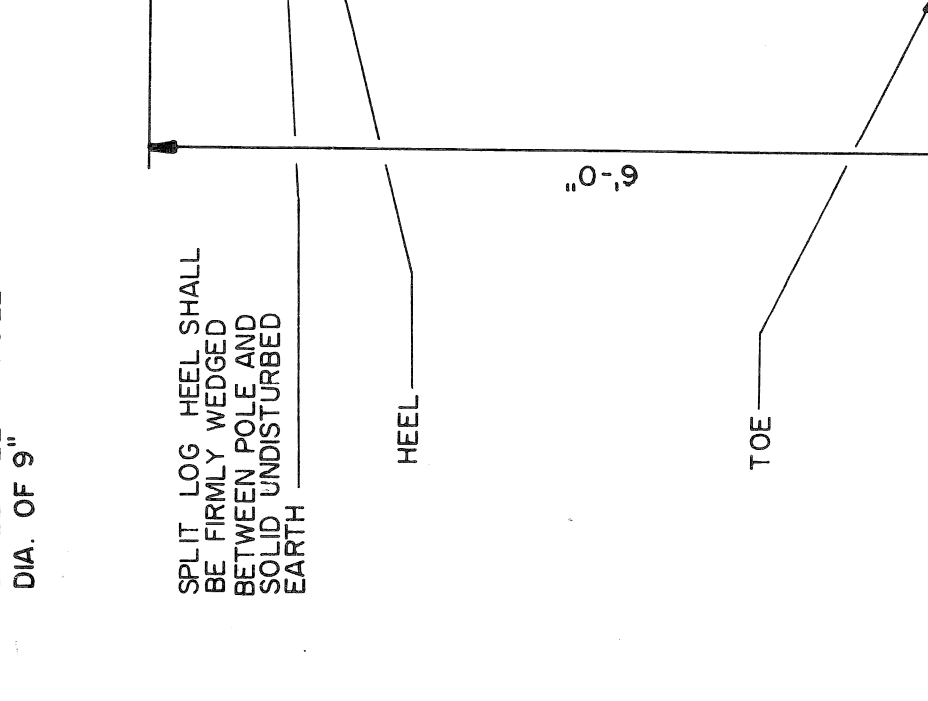
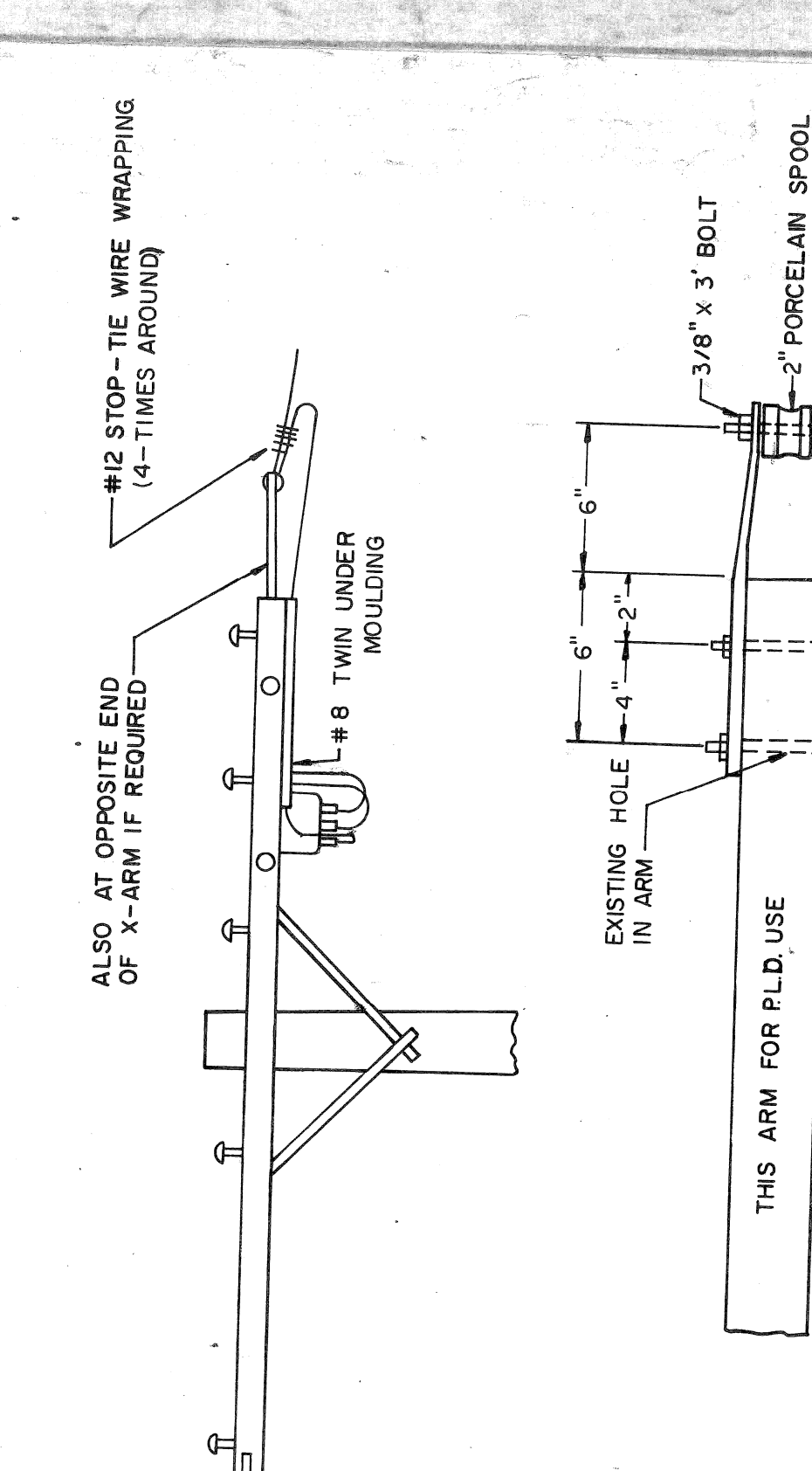
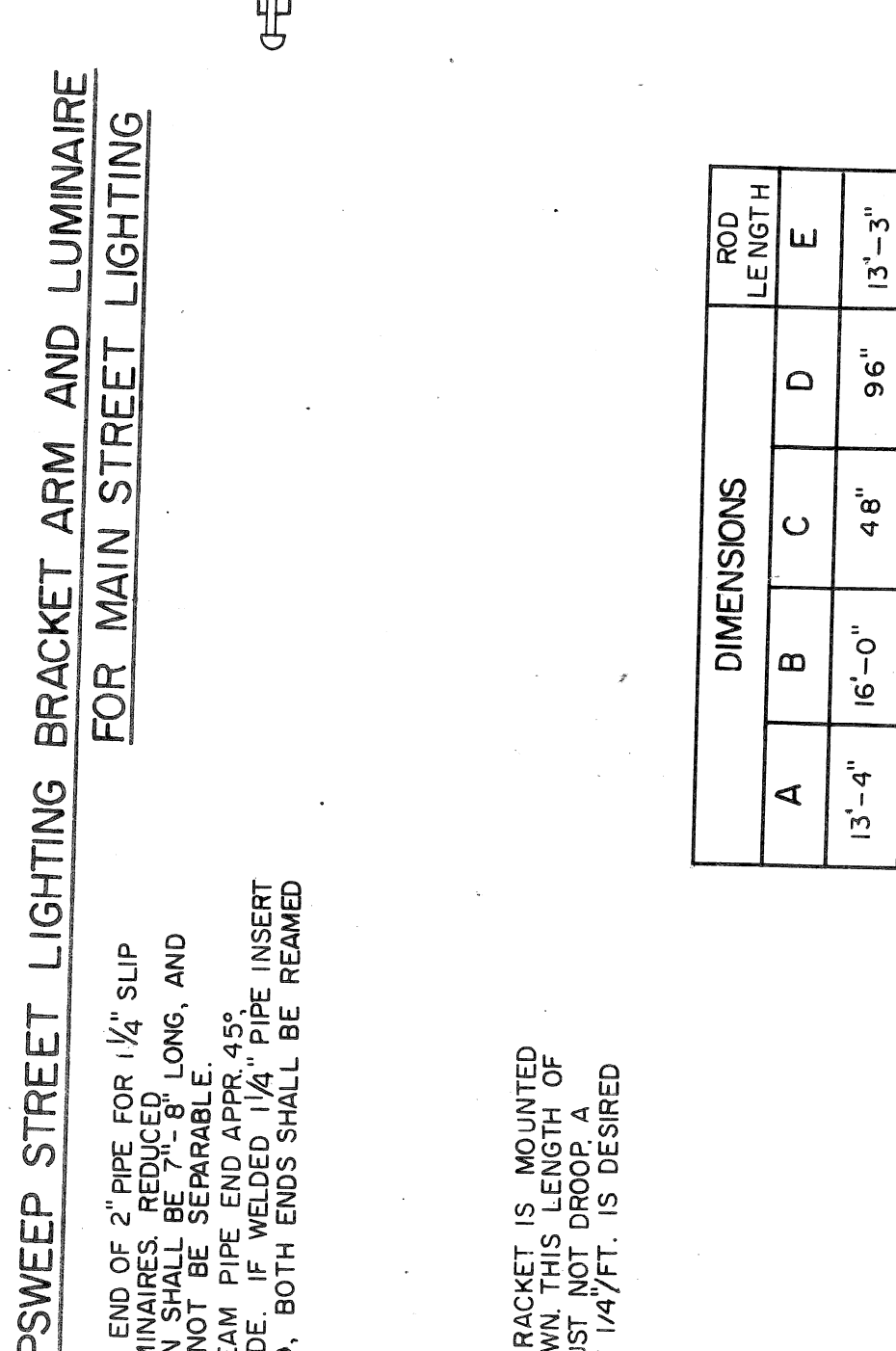
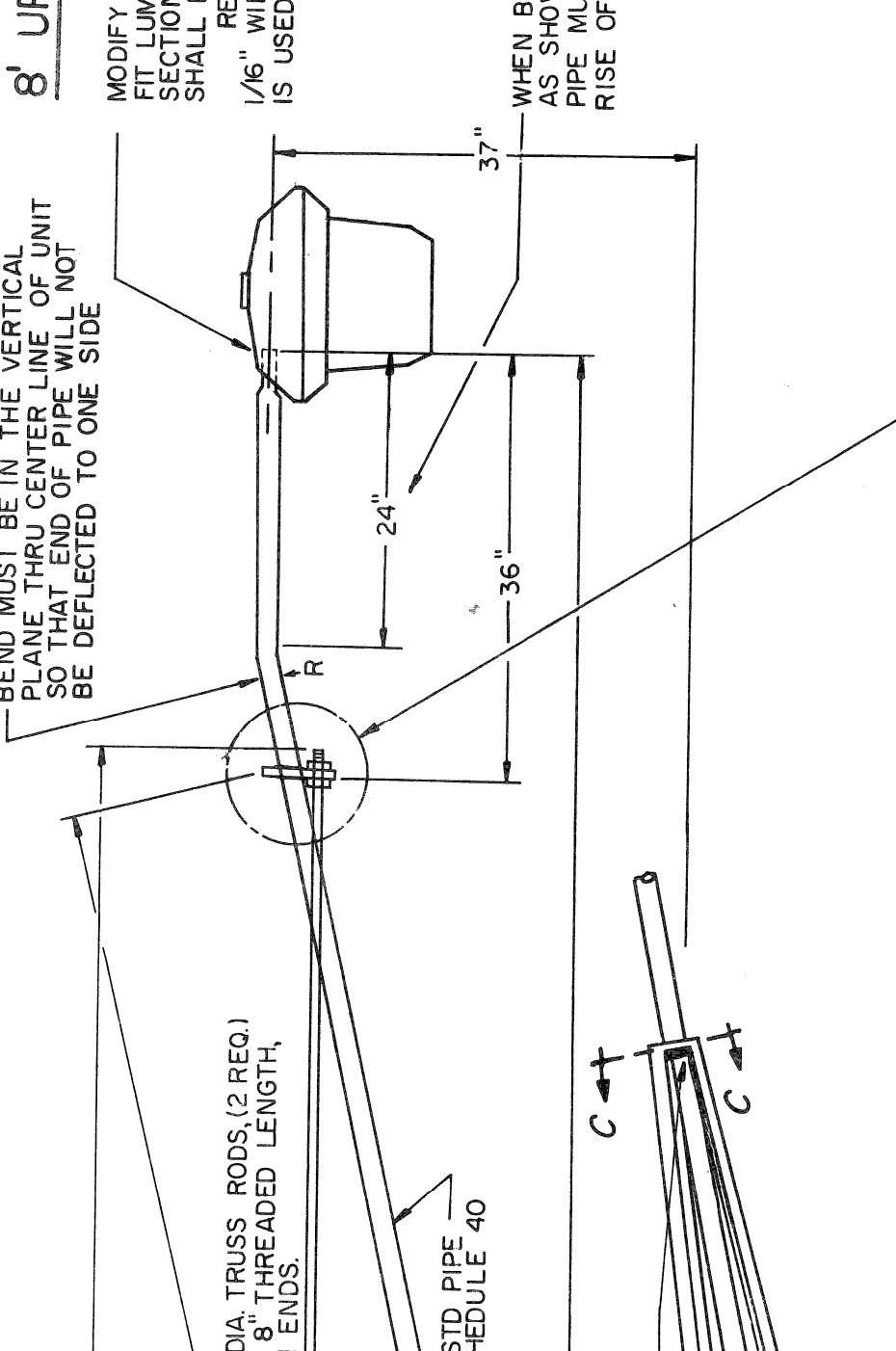
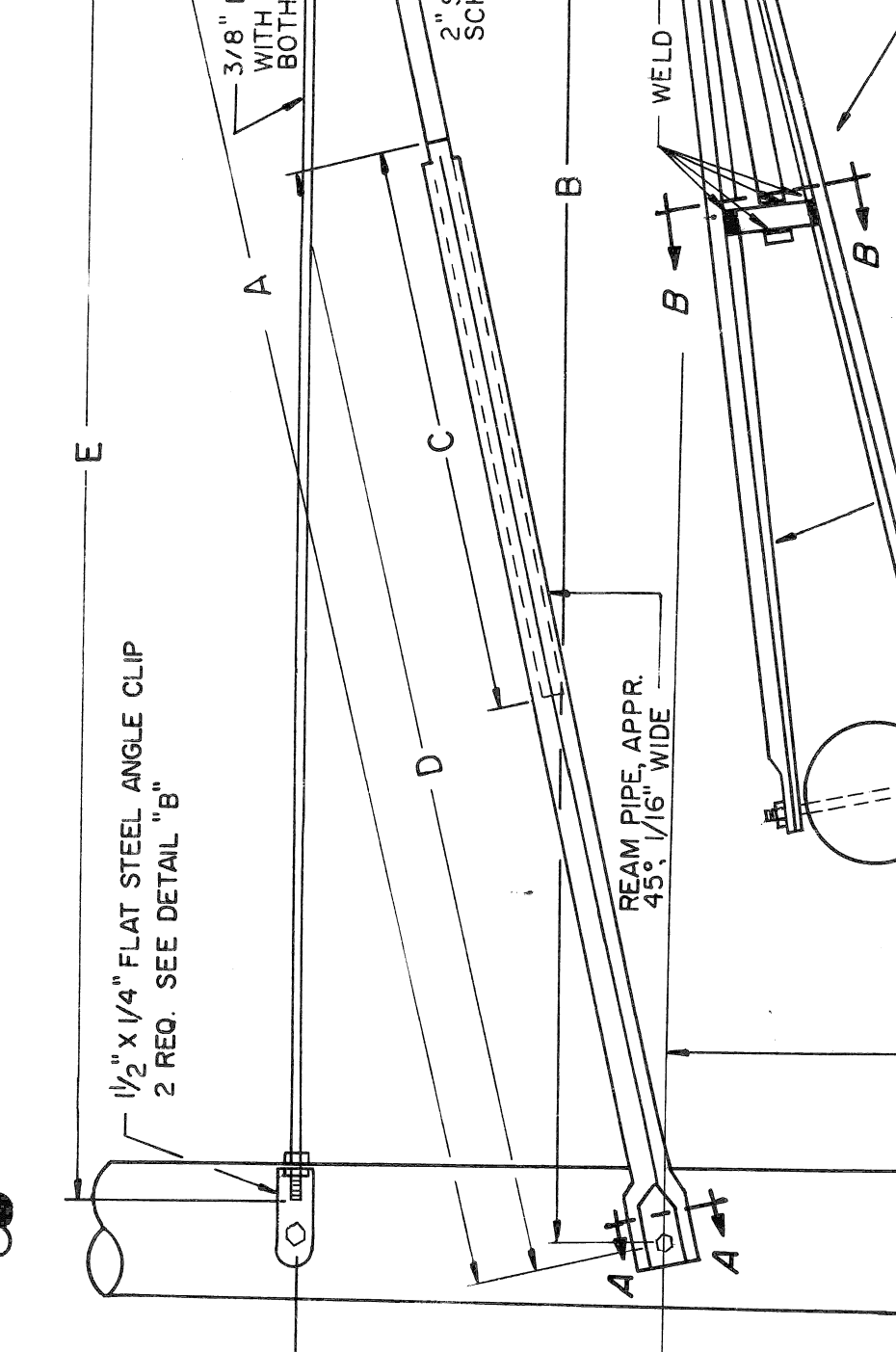
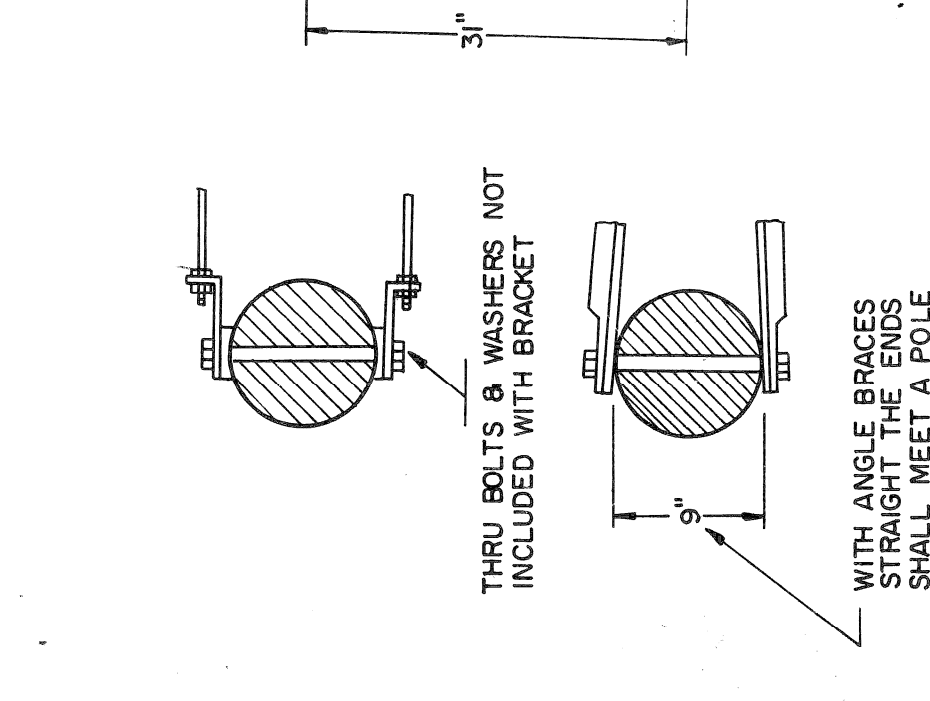
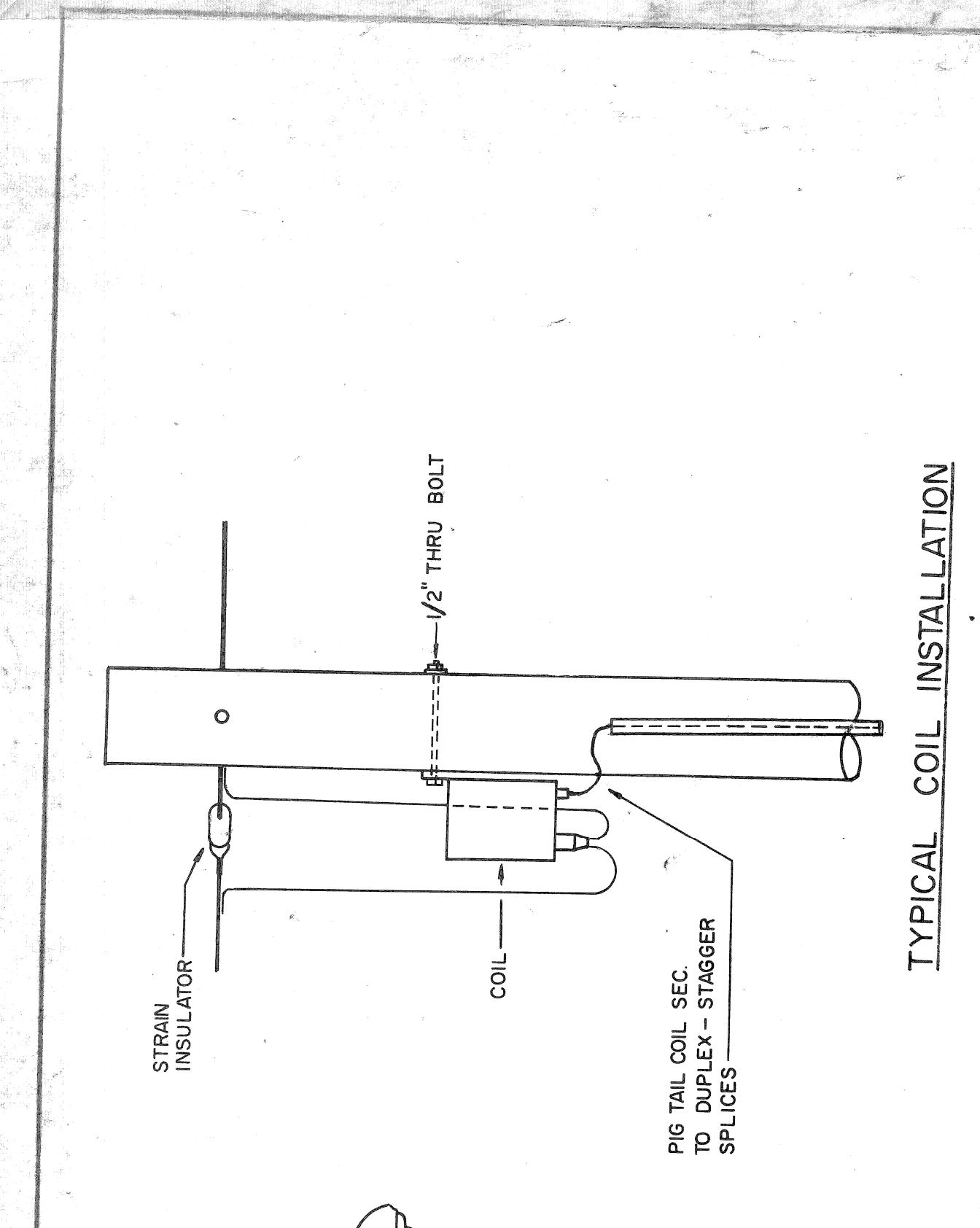
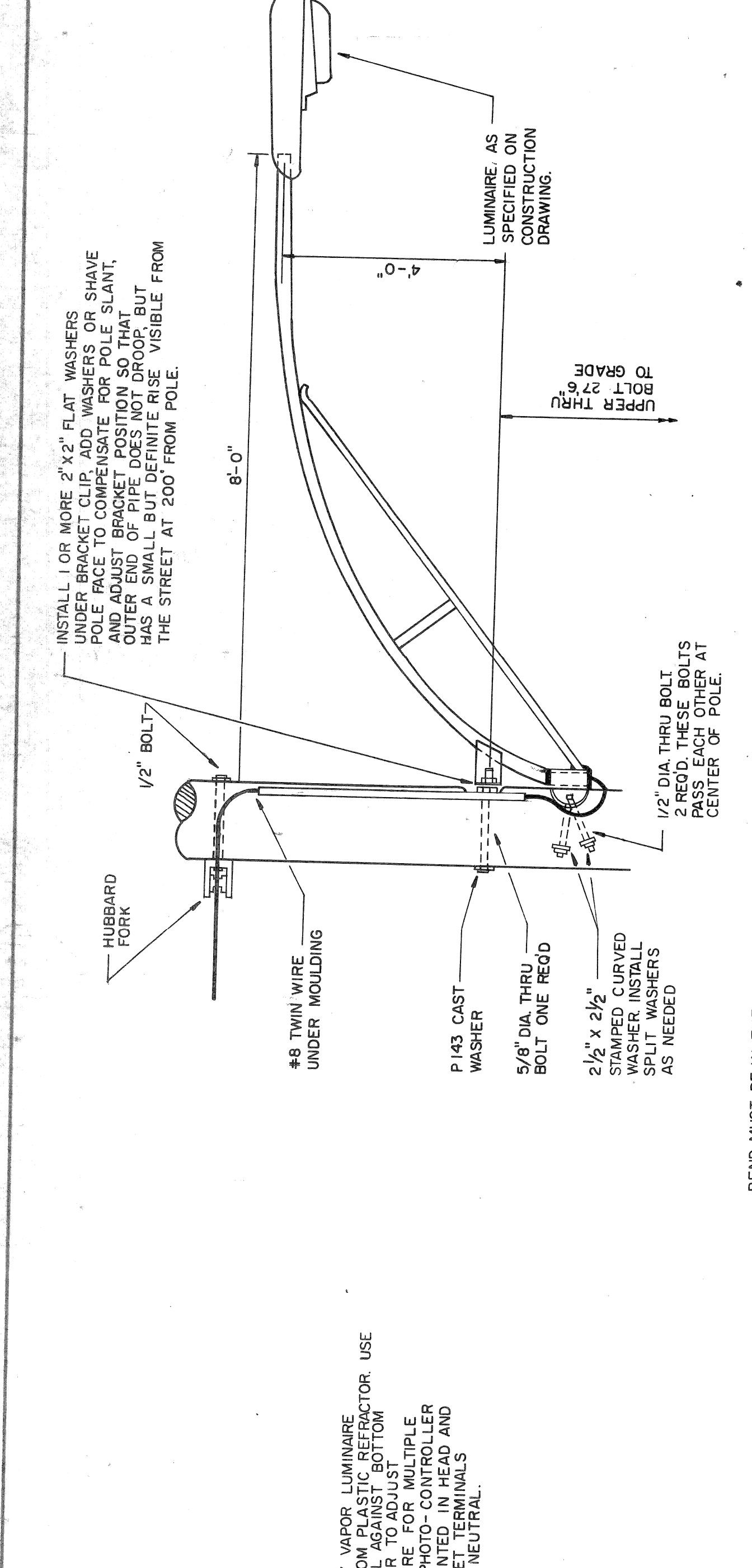
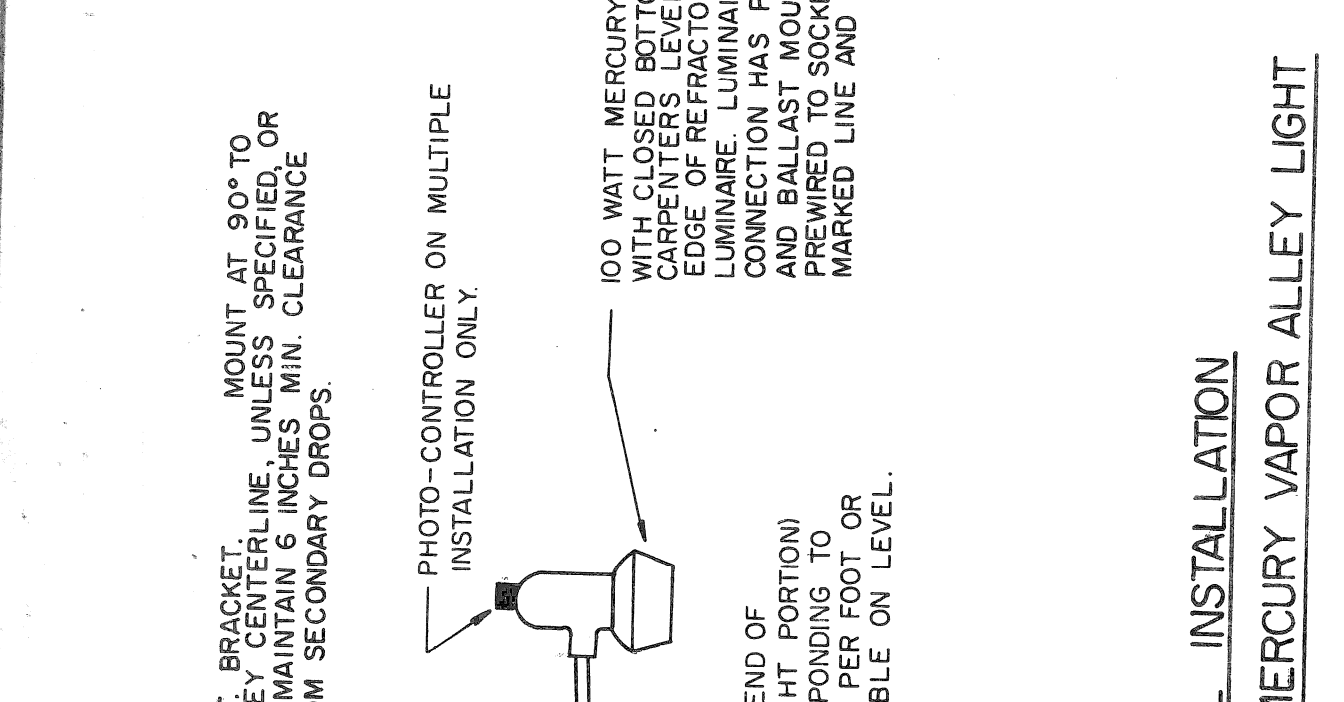
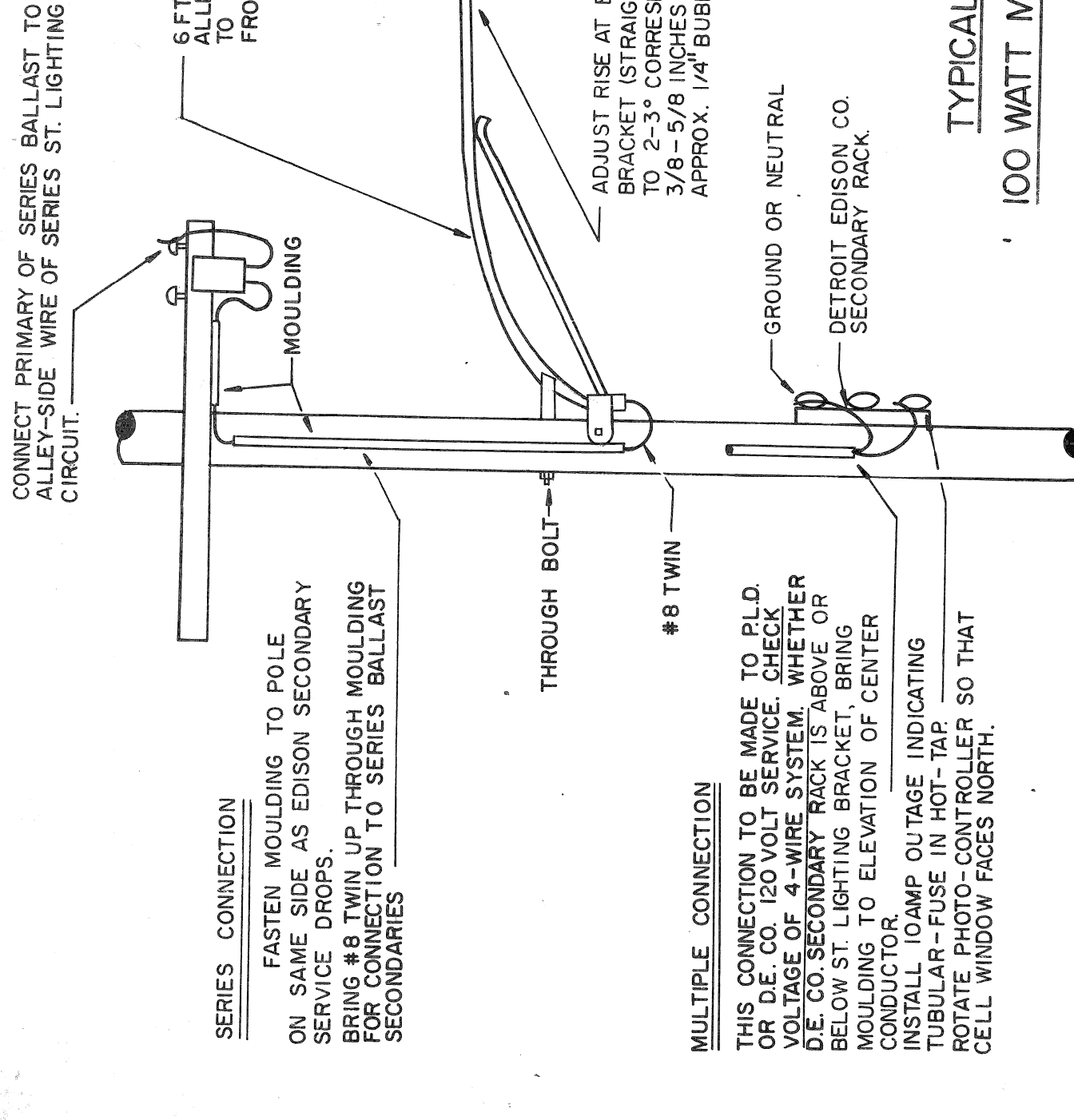
PLAN PREPARED BY:  
 CONSULTING ENGINEERING ASSOCIATES INC.  
 ENGINEERING CONSULTANTS  
 16580 WYOMING DETROIT, MICH., 48221  
 FILE NO. **CEA 1098**

DRWG. NO. **29 OF 41**

**PUBLIC LIGHTING**  
 DEPARTMENT  
 CITY OF DETROIT

**208**  
 FILE NO. **51-0585**  
 SHEET NO. **59 OF 71**  
 DATE **AUG 1984**





DATE	DESCRIPTION

CHKD. BY	41
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SHEET	OF	SHEETS
JOB NO.		
ASSIGNMENT		
NO.		
DATE		

DRAWN BY	CEA
CHECKED BY	
APPROVED BY	
DATE	

FILE NO.	51-0585
SHEET NO.	60 OF 71
DATE	AUG 1984

M.L. KING JR BLVD. RECONSTRUCTION  
 WA BASH AVE TO LINCOLN AVE  
 MISCELLANEOUS OVERHEAD  
 DETAILS

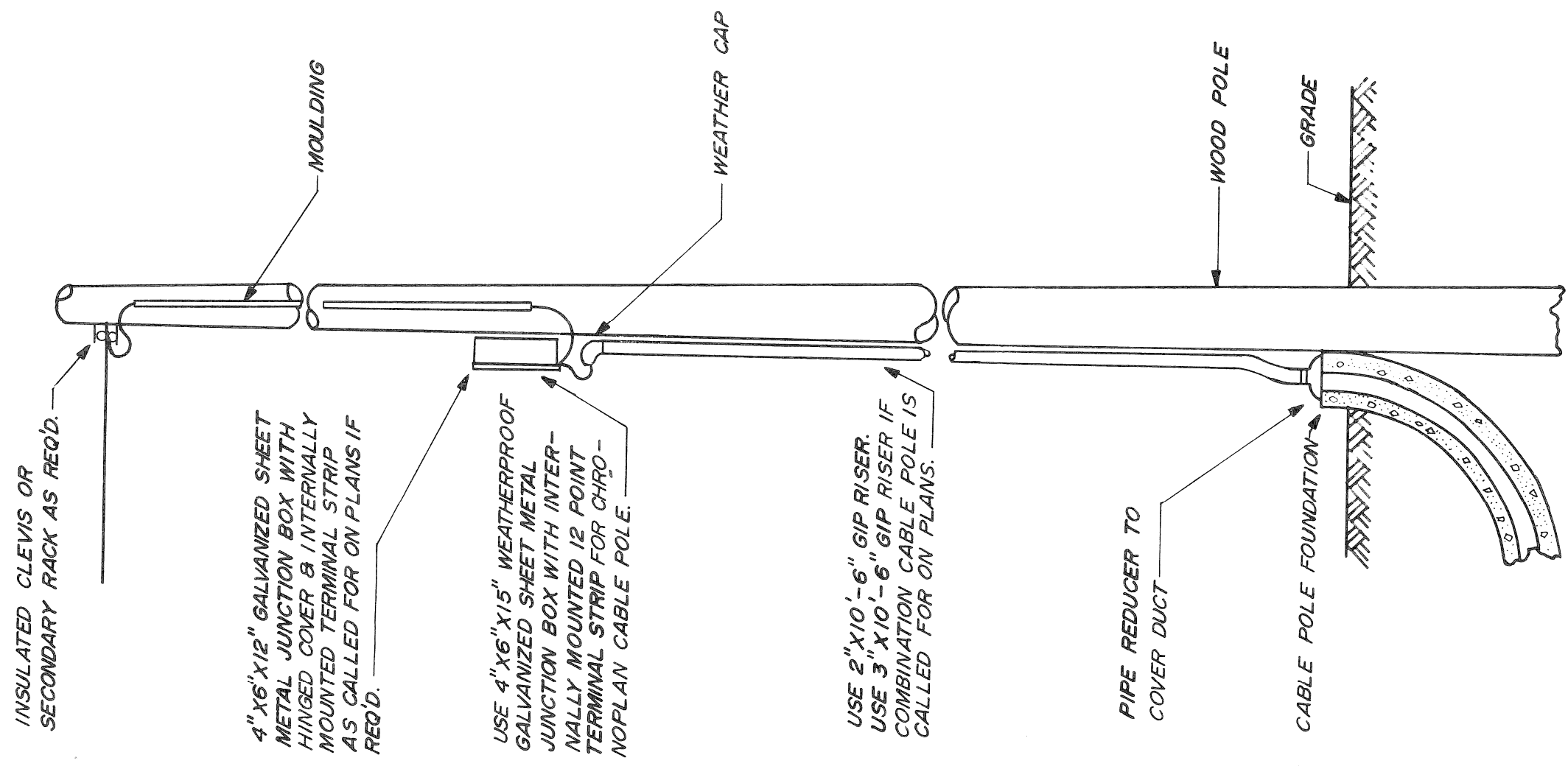
CITY OF DETROIT  
 CITY ENGINEERING DEPARTMENT

PLAN PREPARED BY  
 CONSULTING ENGINEERING ASSOCIATES INC.  
 ENGINEERING CONSULTANTS  
 16560 WYOMING DETROIT, MICH. 48221

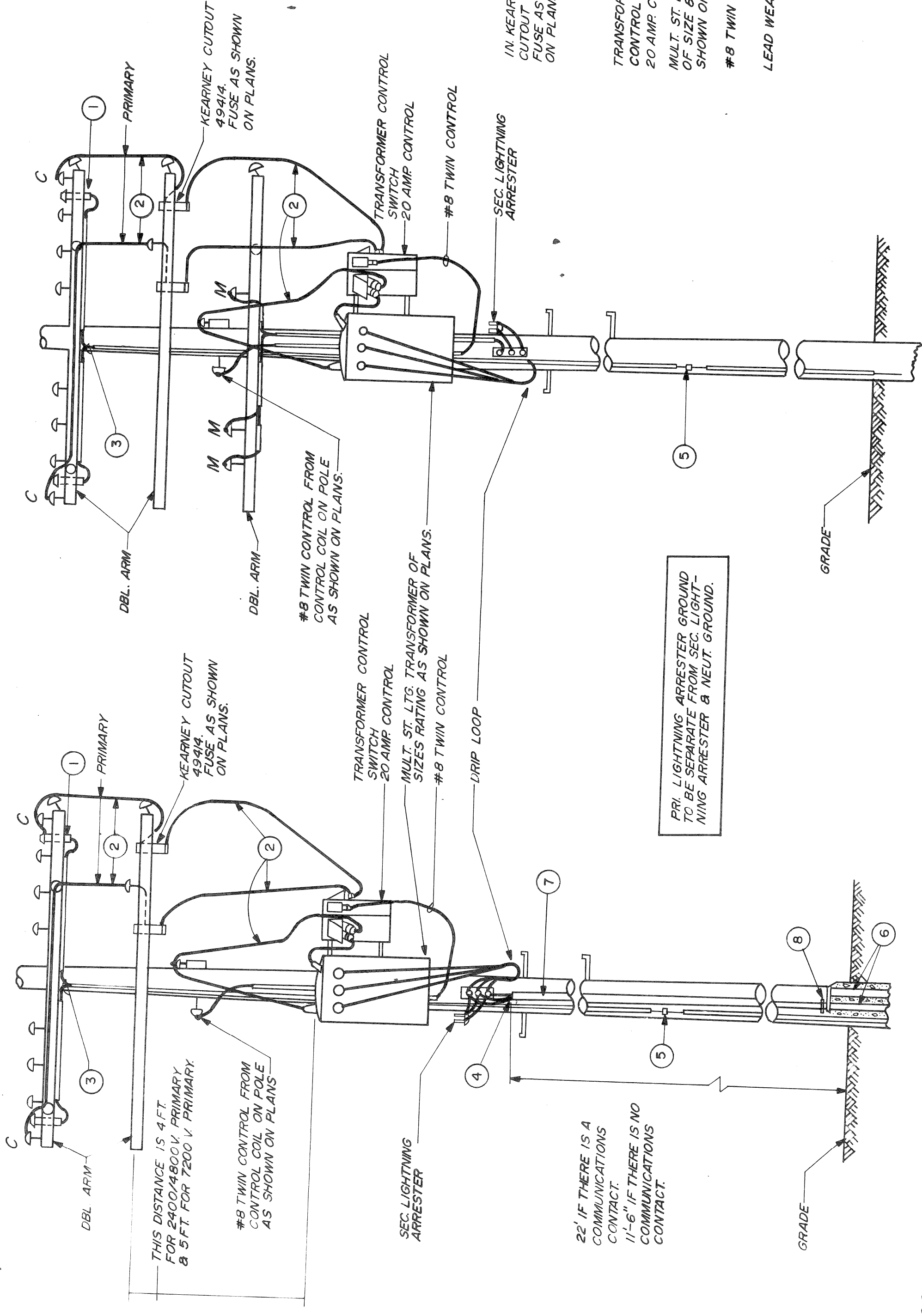
PUBLIC LIGHTING  
 COMMISSION  
 CITY OF DETROIT

301  
 FILE NO. 51-0585  
 SHEET NO. 60 OF 71  
 DATE AUG 1984





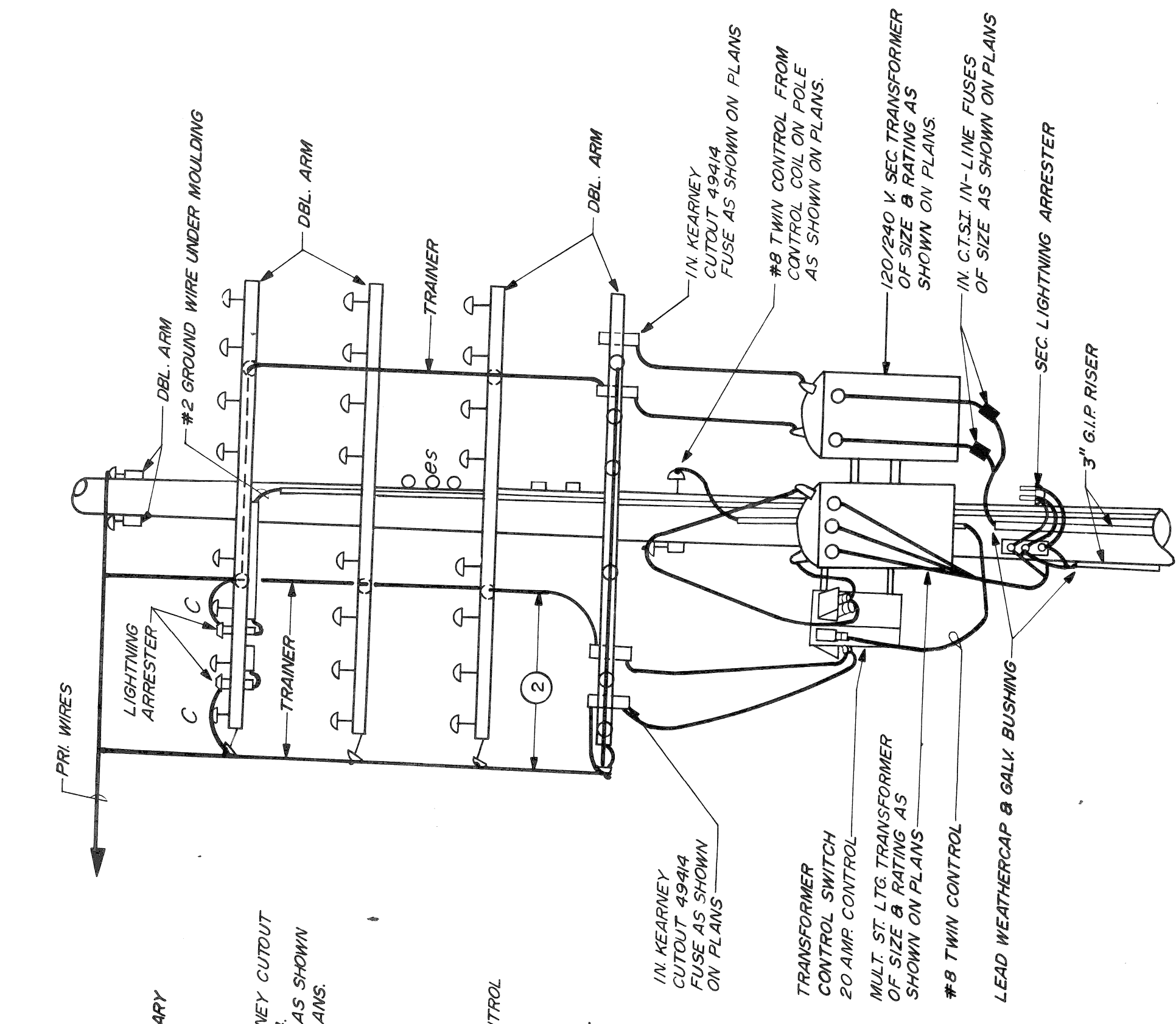
TYPICAL CHRONOPLAN, SECONDARY, MULTI ST. LTG. & TRAFFIC SIGNAL CABLE DETAIL  
DETAIL "D"  
N.T.S.



COMB. MULT. ST. LTG. TRANSF. POLE & MULT. ST. LTG. CABLE POLE  
DETAIL "A"  
N.T.S.

DETAIL ITEMS	
1	LIGHTNING ARRESTER
2	OVERHEAD TRAINING WIRE
3	#2 GROUND WIRE UNDER MOULDING
4	LEAD WEATHERCAP & GALK BUSHING
5	FOUR SCREW CONNECTOR
6	4" PLASTIC CONDUIT
7	3" G.I.P. RISER
8	3" x 4" REDUCER ADAPTER

MULT. ST. LTG. TRANSFORMER POLE  
DETAIL "B"  
N.T.S.



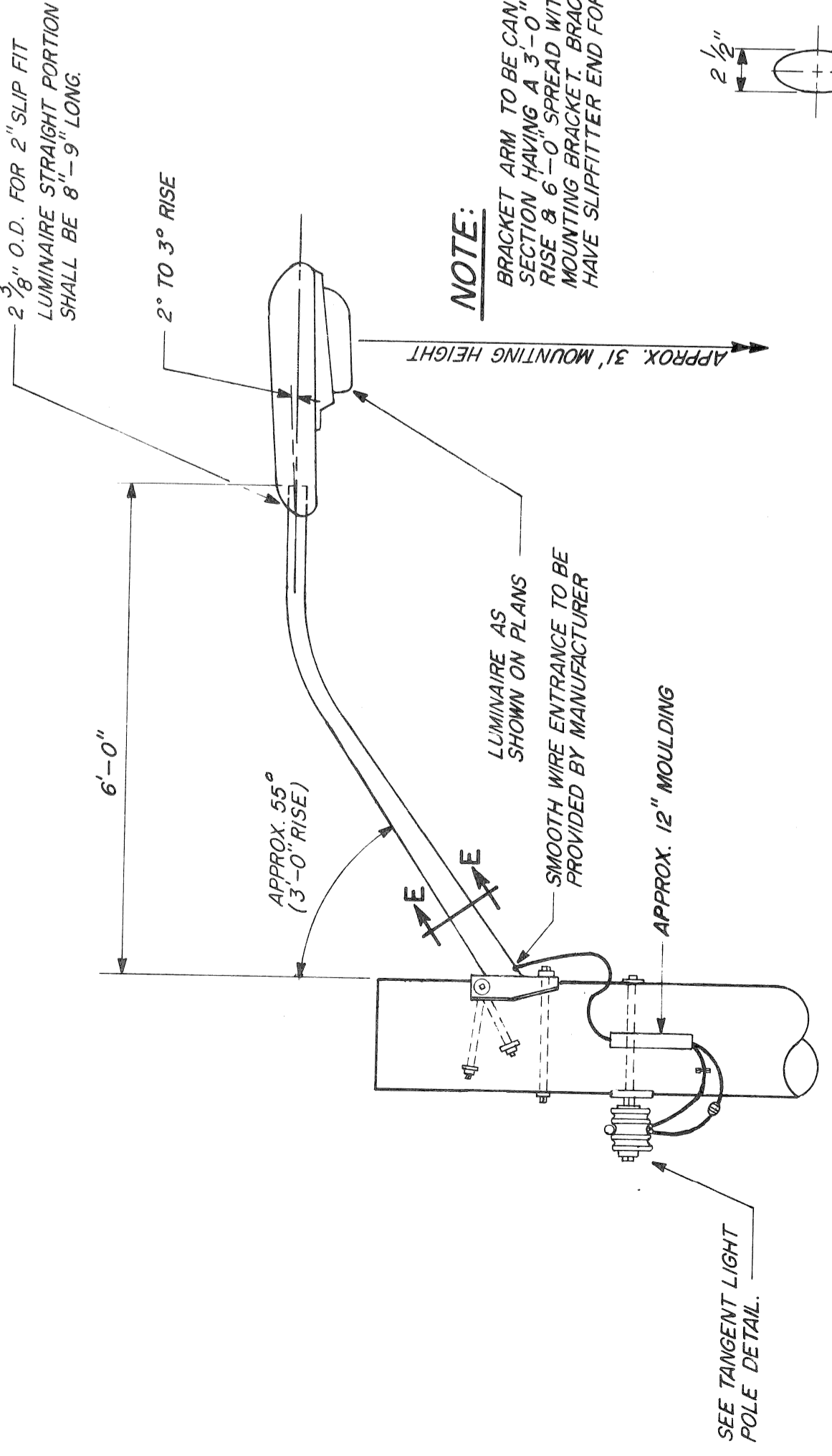
COMB. TRANSF. POLE, MULT. ST. LTG. TRANSF. POLE, MULT. ST. LTG. & SEC. CABLE POLE  
(CLUSTER MOUNT-TYP.)  
DETAIL "C"  
N.T.S.

DATE	DESCRIPTION	CHKD. BY	FILE NO.	310
			51-0585	
			61 OF 71	
			DATE	AUG 1984
M.L. KING JR. BLVD. RECONSTRUCTION WABASH AVE. TO LINCOLN AVE. (240/480V)			PUBLIC LIGHTING DEPARTMENT CITY OF DETROIT	
TRANSFORMER POLES & MISC. CABLE POLE DETAILS			CITY OF DETROIT CITY ENGINEERING DEPARTMENT	
SHEET _____ OF _____ SHEETS			PLAN PREPARED BY CONSULTING ENGINEERING ASSOCIATES INC.	
JOB NO.			CHECKED BY	
ASSIGNMENT NO.			APPROVED BY	
DATE			FILE NO.	
AUG 19 84			CEA 1098	
31 OF 41			DATE	
			AUG 19 84	

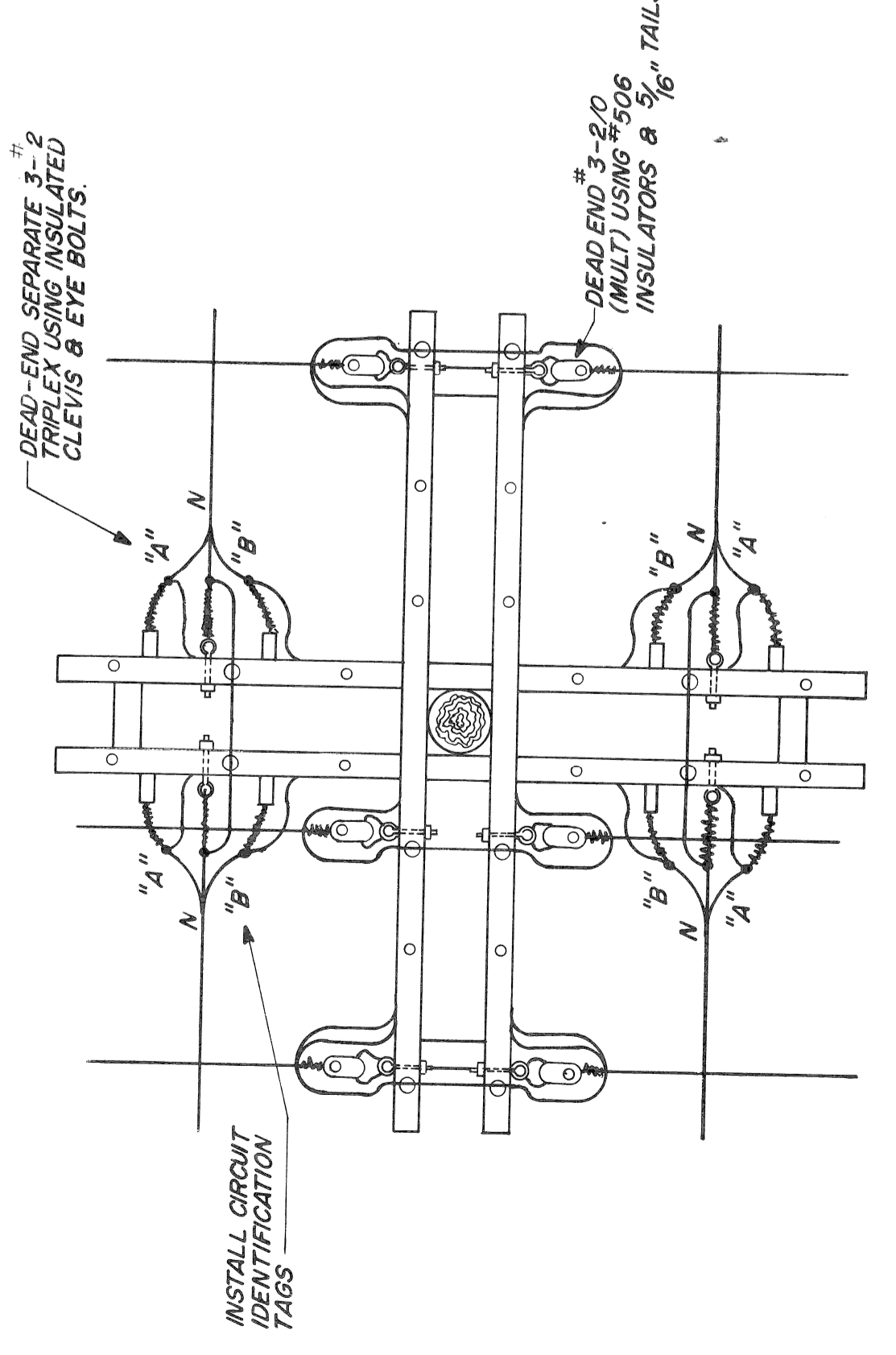
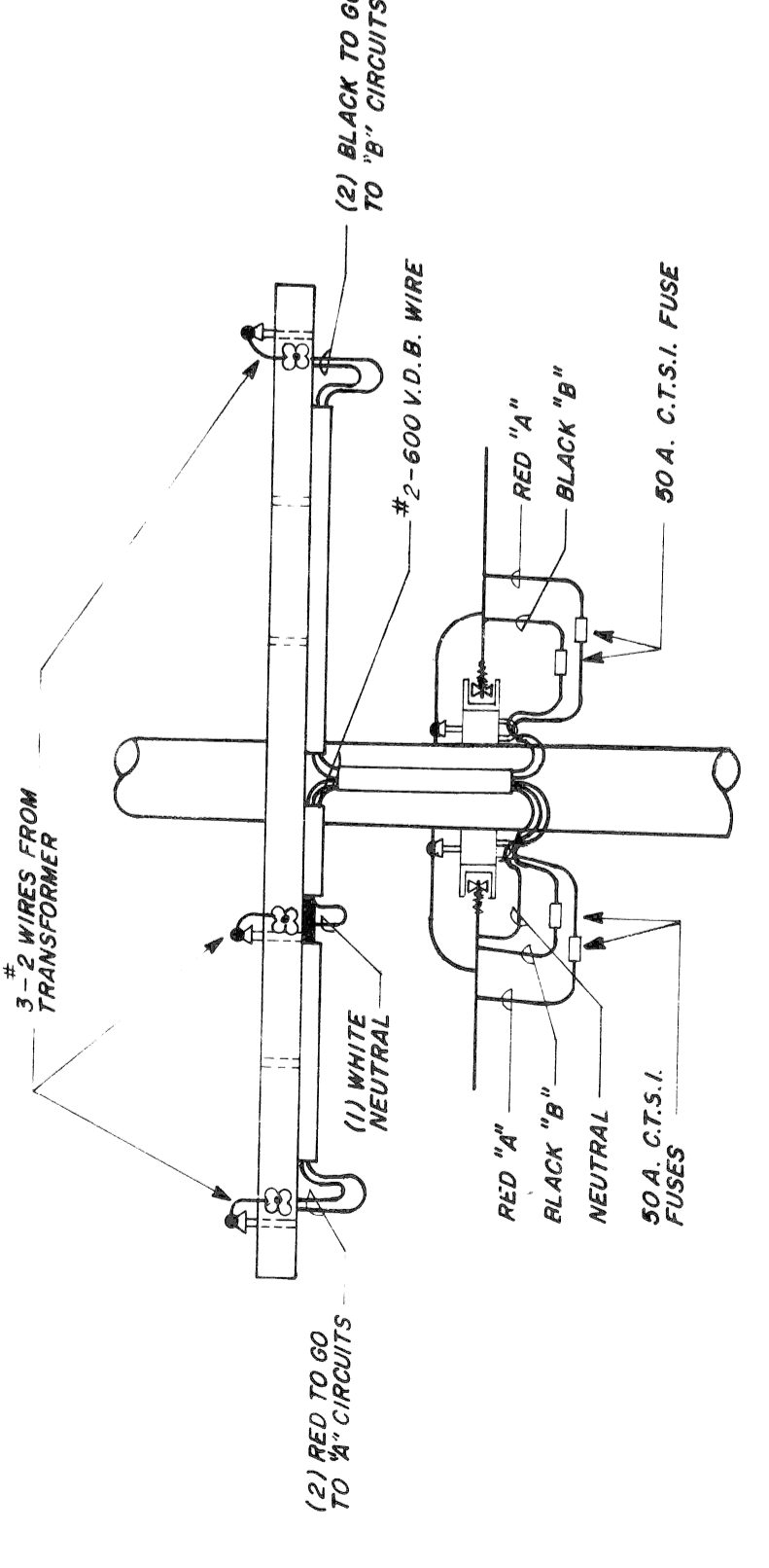








**SPECIAL O.H. ST. LTG. UNIT MOUNTING**  
 240/480V. MULTIPLE FEED  
 SODIUM VAPOR OR MERCURY VAPOR, INTEGRAL BALLAST  
 (USE ONLY WHEN CALLED FOR ON PLANS)



**DETAIL SHOWING FUSING & CONNECTION OF 3-2 TRIPLEX MULT. ST. LTG. CIRCUITS TO 3-20, 240/480V. MULT. ST. LTG. FEEDER**

DATE	DESCRIPTION	CHKD. BY

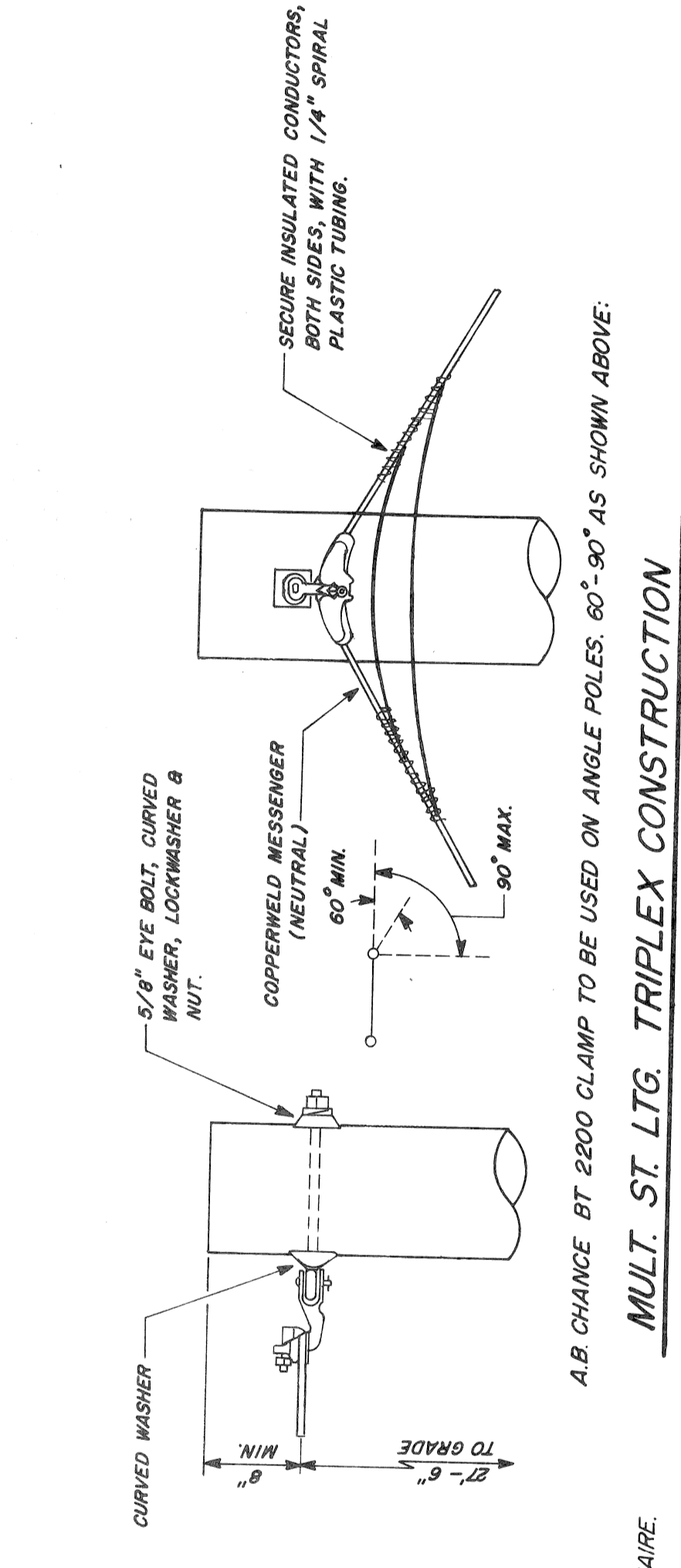
**M.L. KING JR. BLVD. RECONSTRUCTION**  
**WABASH AVE. TO LINCOLN AVE.**  
 MULT. ST. LTG. DETAILS (TRIPLEX)

SHEET	OF	SHEETS

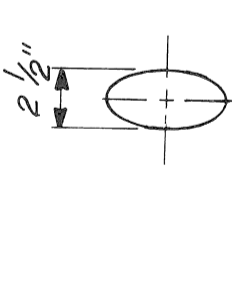
**CITY OF DETROIT**  
 CITY ENGINEERING DEPARTMENT

PLAN PREPARED BY  
 CONSULTING ENGINEERING ASSOCIATES INC  
 ENGINEERING CONSULTANTS  
 16580 WYOMING DETROIT, MICH. 48221  
 DRAWING NO. 33 OF 41  
 DATE AUG 1984  
 FILE NO. CEA 1098

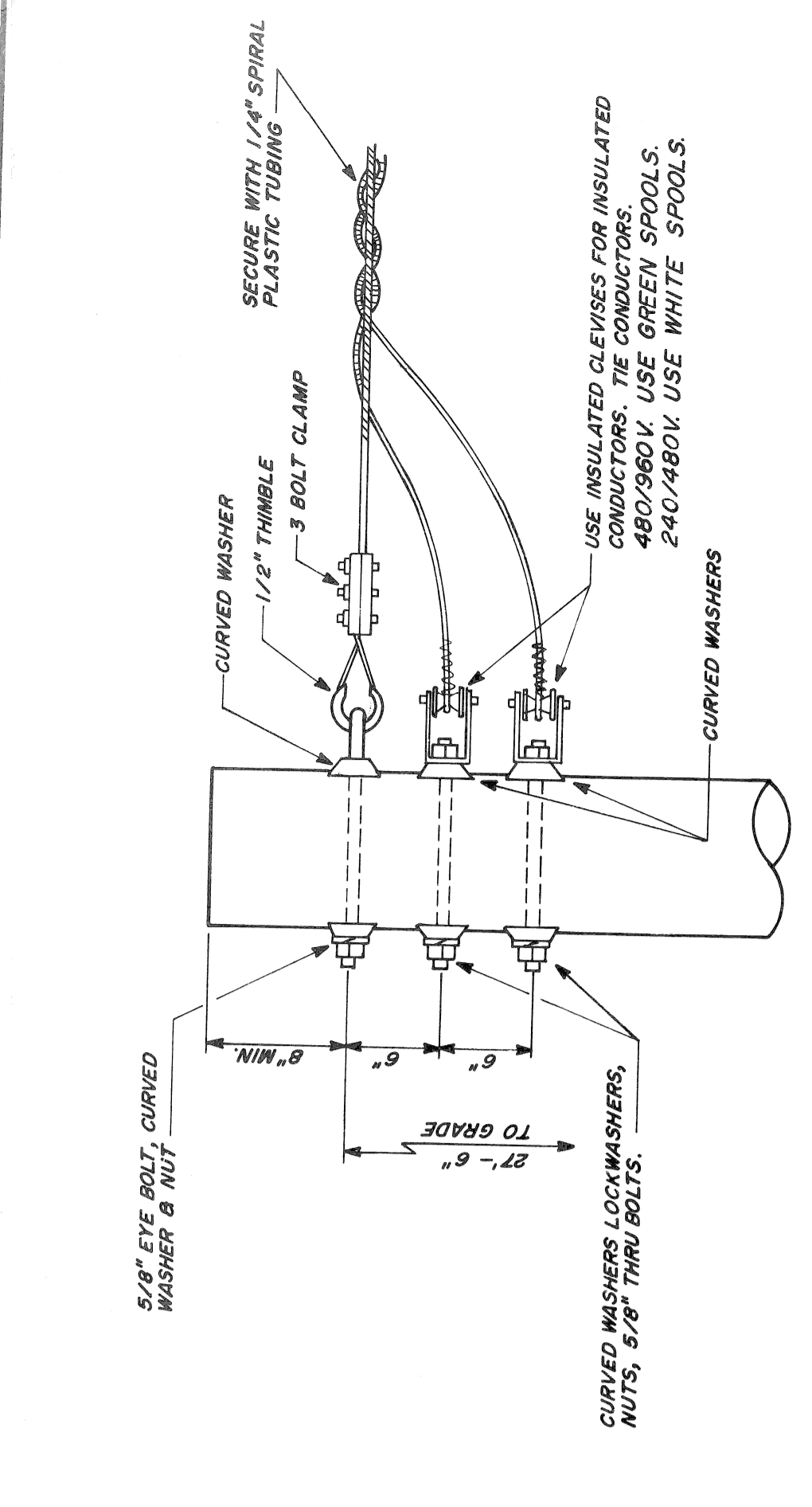
FILE NO. 306  
 SHEET NO. 51-0585  
 OF 63 OF 71  
 DATE AUG 1984



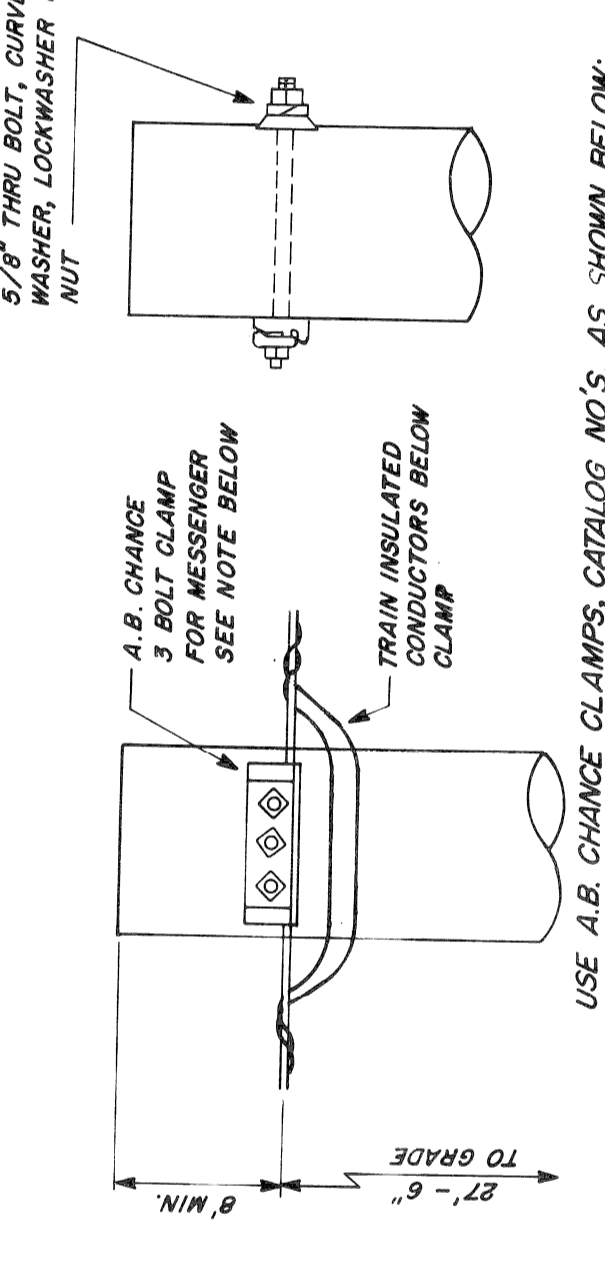
**MULT. ST. LTG. TRIPLEX CONSTRUCTION**  
 CORNER POLE  
 DETAIL "C"



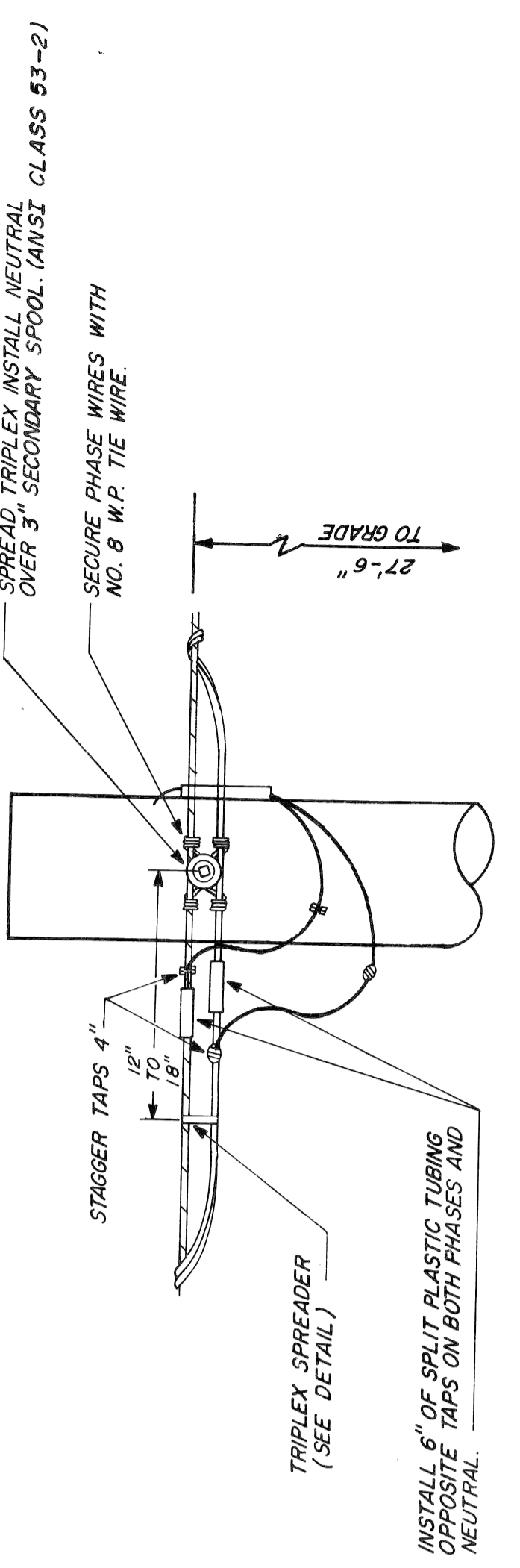
SECTION "E-E"  
 N.T.S.



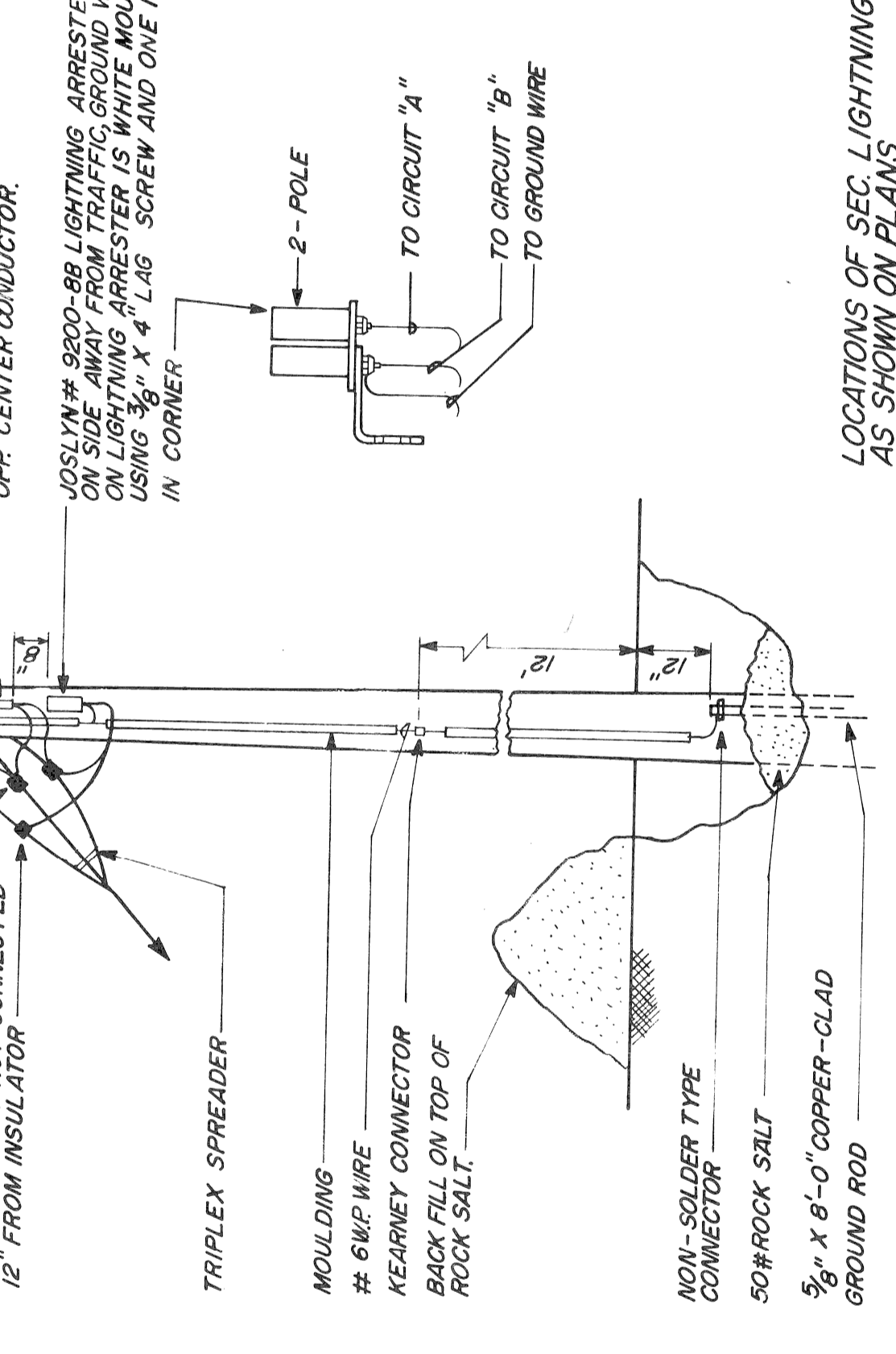
**MULT. ST. LTG. TRIPLEX CONSTRUCTION**  
 DEAD-END POLE  
 DETAIL "D"



**MULT. ST. LTG. TRIPLEX CONSTRUCTION**  
 THROUGH POLE  
 DETAIL "A"

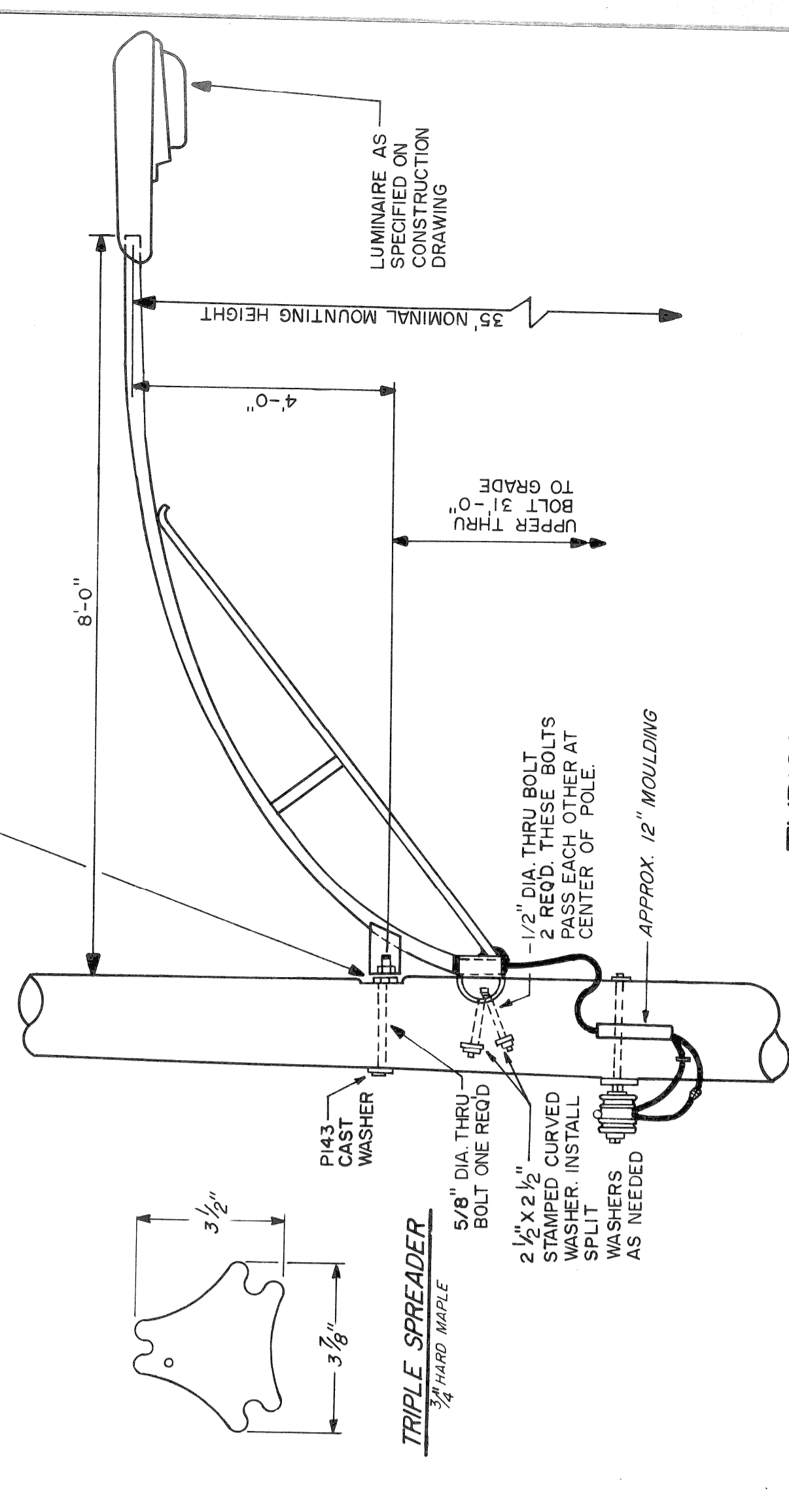


**TANGENT LIGHT POLE**  
 DETAIL "B"



**TYPICAL MOUNTING OF JOSLYN 2-POLE #9200-8B SEC. LIGHTNING ARRESTERS**

LOCATIONS OF SEC. LIGHTNING ARRESTERS AS SHOWN ON PLANS.



**TYPICAL O.H. ST. LTG. UNIT MOUNTING**  
 240/480V. MULTIPLE FEED  
 SODIUM VAPOR OR MERCURY VAPOR, INTEGRAL BALLAST

FILE NO. 306  
 SHEET NO. 51-0585  
 OF 63 OF 71  
 DATE AUG 1984

**PUBLIC LIGHTING DEPARTMENT**  
 CITY OF DETROIT

PLAN PREPARED BY  
 CONSULTING ENGINEERING ASSOCIATES INC  
 ENGINEERING CONSULTANTS  
 16580 WYOMING DETROIT, MICH. 48221  
 DRAWING NO. 33 OF 41  
 DATE AUG 1984  
 FILE NO. CEA 1098

**CITY OF DETROIT**  
 CITY ENGINEERING DEPARTMENT

SHEET	OF	SHEETS

**M.L. KING JR. BLVD. RECONSTRUCTION**  
**WABASH AVE. TO LINCOLN AVE.**  
 MULT. ST. LTG. DETAILS (TRIPLEX)

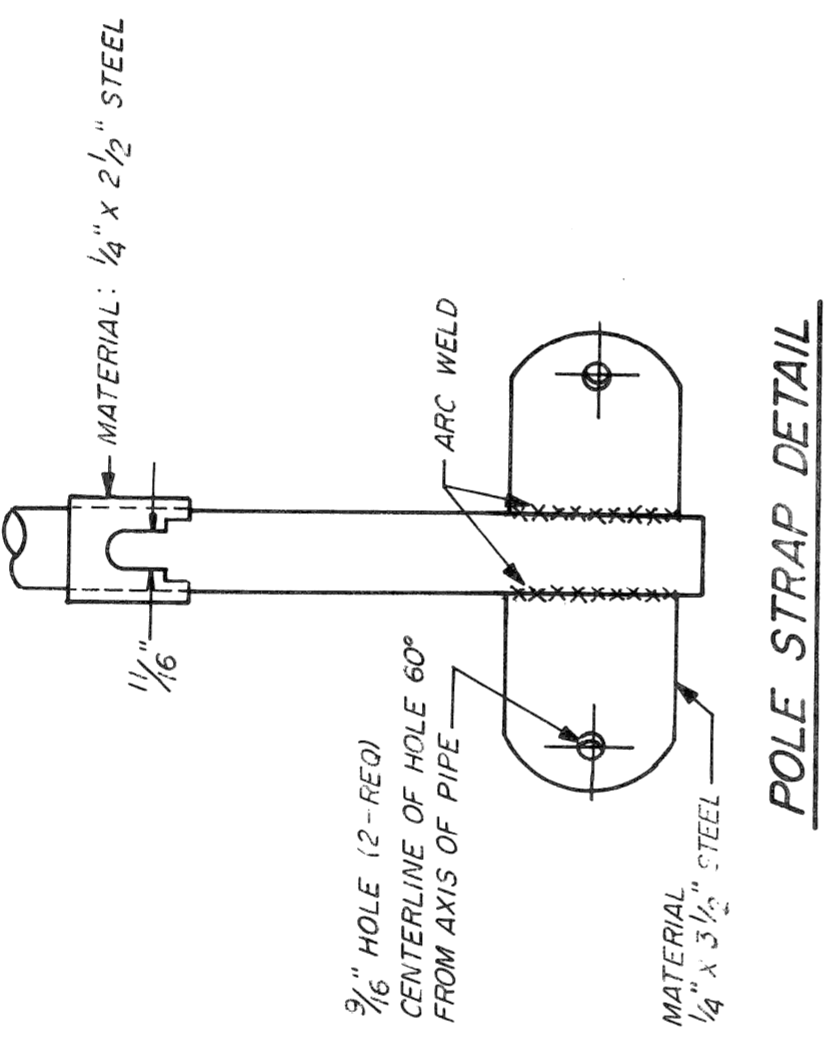
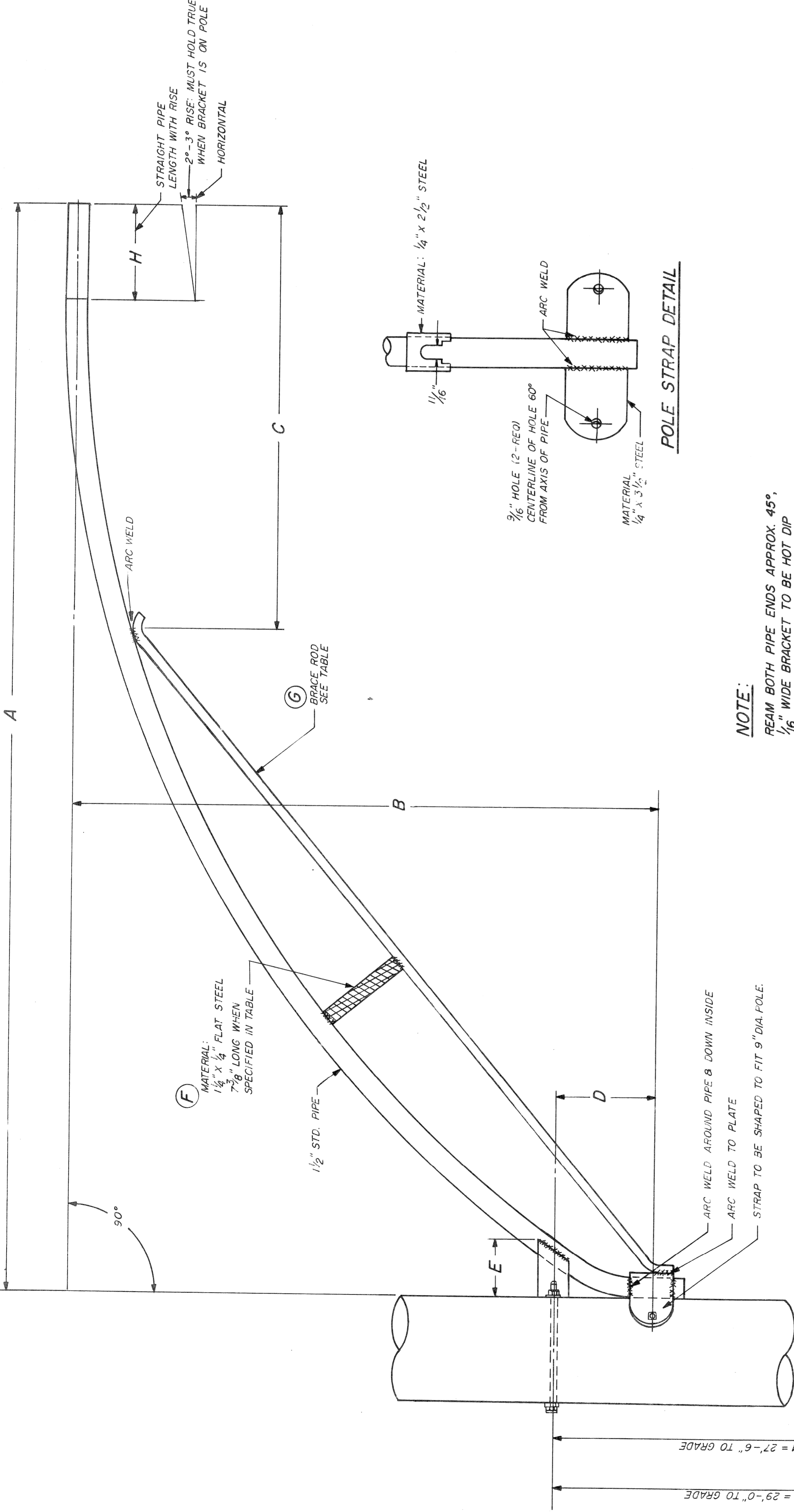
DATE	DESCRIPTION	CHKD. BY



DIMENSION TABLE

TYPE	A	B	C	D	E*	F	G	H
6 FT.	6'-0"	2'-8"	2'-5"	8 <sup>3</sup> / <sub>4</sub> "	5 <sup>1</sup> / <sub>2</sub> "	NO	NONE	1'-2"
8 FT.	7'-8"	4'-0"	3'-0"	8 <sup>3</sup> / <sub>4</sub> "	4 <sup>1</sup> / <sub>2</sub> "	YES	1" SOLID	8"
10 FT.	10'-2"	2'-9"	3'-6"	8 <sup>7</sup> / <sub>8</sub> "	8"	NO	1" SOLID	2'-0"

\* THIS DIMENSION IS APPROXIMATE

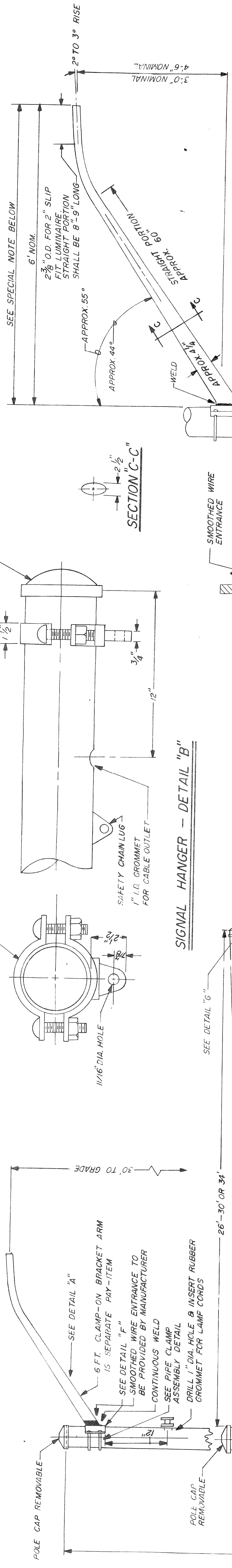


**NOTE:**  
 REAM BOTH PIPE ENDS APPROX 45°,  
 1/16" WIDE BRACKET TO BE HOT DIP  
 GALVANIZED AFTER FABRICATION.

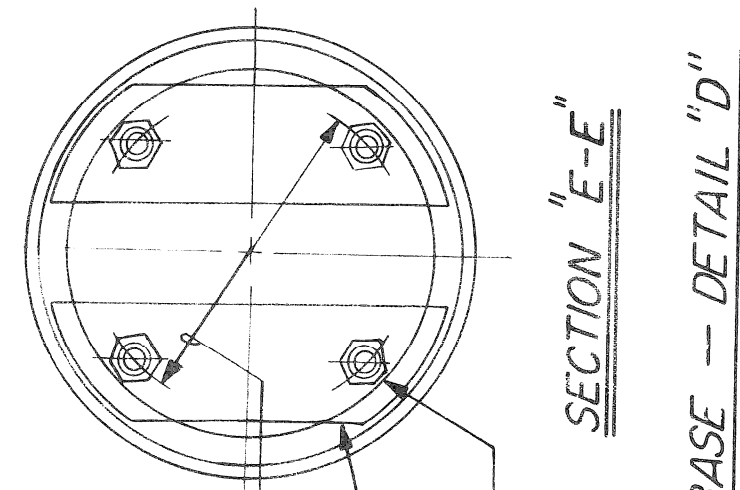
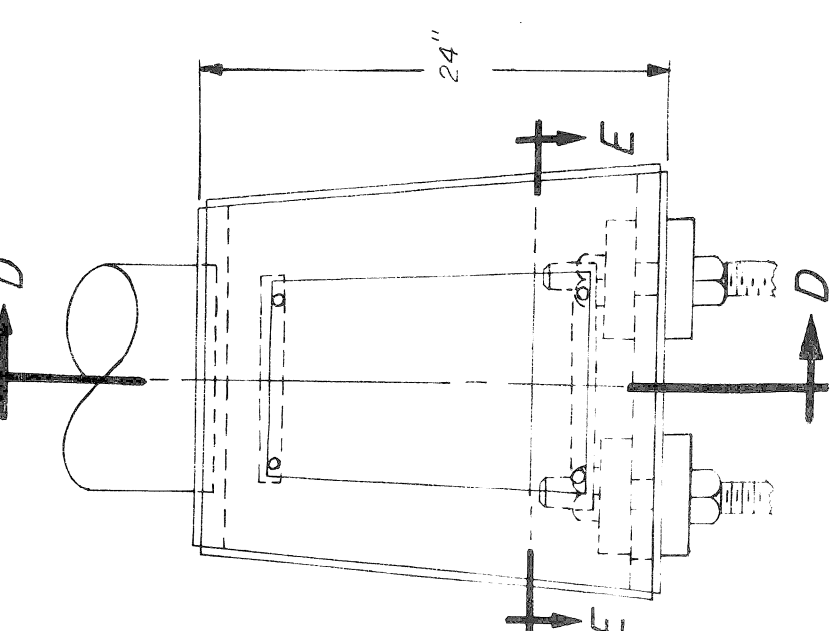
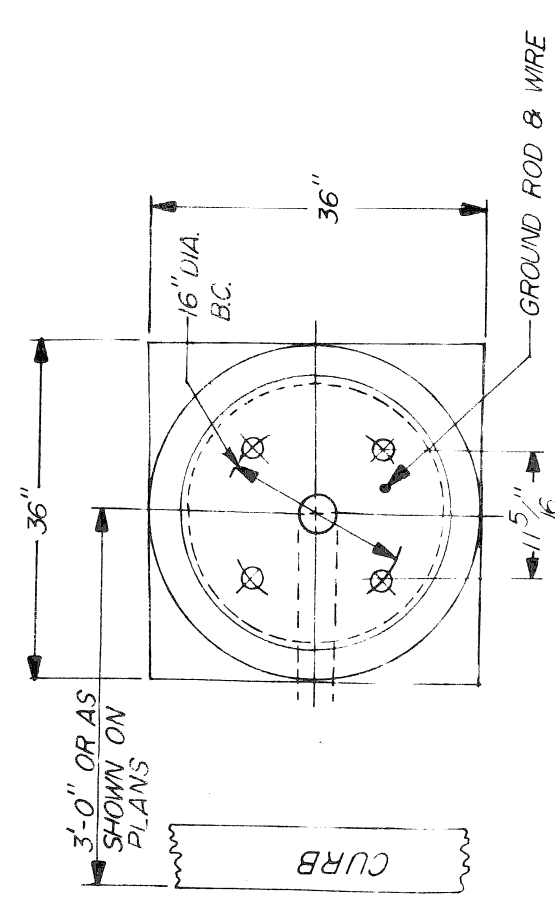
DRAWN CEA	CHECKED g	APPROVED g	DATE AUG 1984	FILE NO. 34 OF 41	FILE NO. CEA 1098
CITY OF DETROIT CITY ENGINEERING DEPARTMENT			PUBLIC LIGHTING COMMISSION CITY OF DETROIT		
M.L. KING JR. BLVD. RECONSTRUCTION WABASH AVE. TO LINCOLN AVE. STREET LIG. BRACKETS, UPSWEEP, MAIN STREET LIG. DETAILS			PLAN PREPARED BY: CONSULTING ENGINEERING ASSOCIATES INC. ENGINEERING CONSULTANTS 16580 WYOMING DETROIT, MICH., 48221		
SHEET _____ OF _____ SHEETS			JOB NO. _____		
JOB NO. _____			ASSIGNMENT		
DATE _____			DATE _____		



CLAMP - 1/4" STOCK  
STEEL LUG - 3/4" STOCK  
(2) - 5/8" DIA. CARBIDE BOLTS & HEX NUTS  
MOUNTED TO BE HOT DIP GALVANIZED AFTER FABRICATION



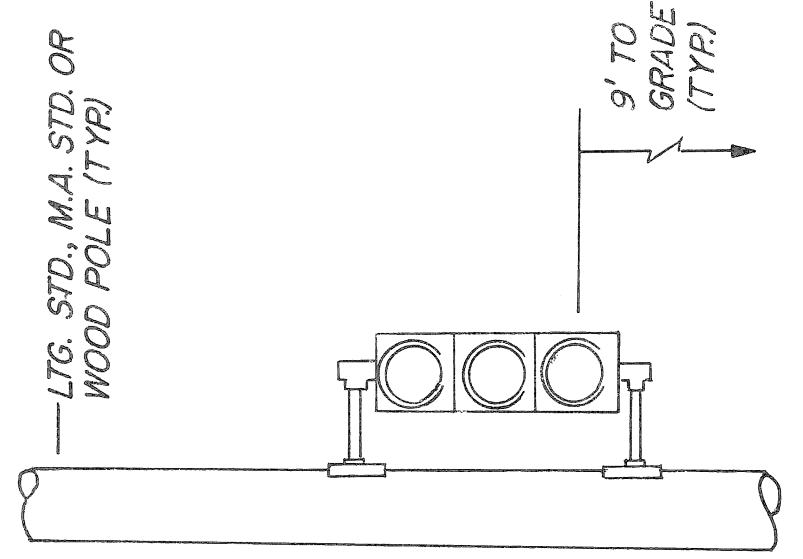
**SPECIAL NOTE:**  
WHERE BRACKET ARM OF LENGTH OTHER THAN 6 FT. IS CALLED FOR ON PLANS CONTRACTOR SHALL SUBMIT TO PLC SHOP-DRAWINGS SHOWING ALL INFORMATION & OBTAIN PLC APPROVAL.



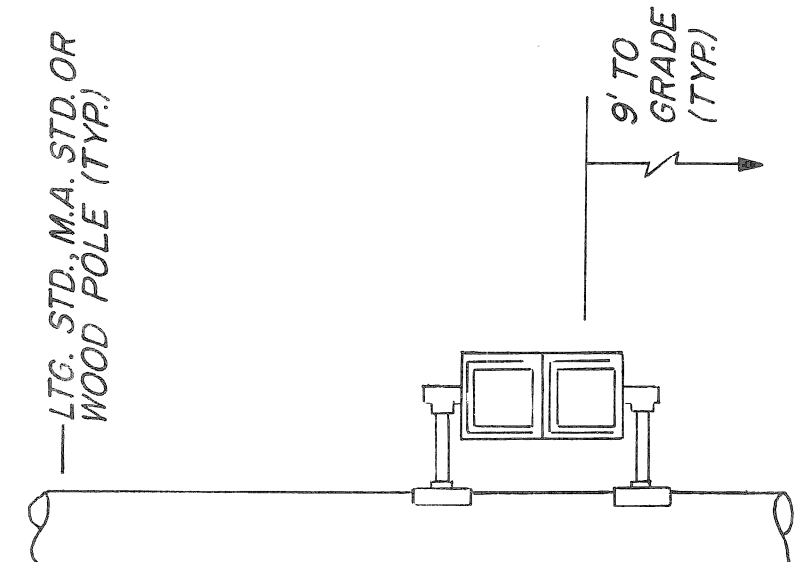




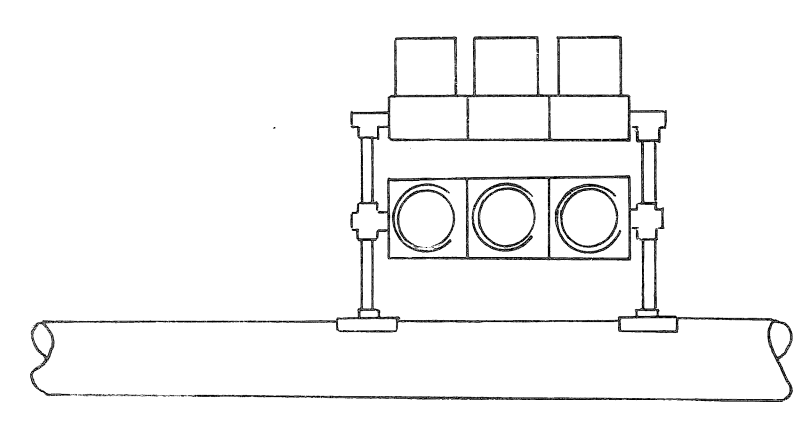




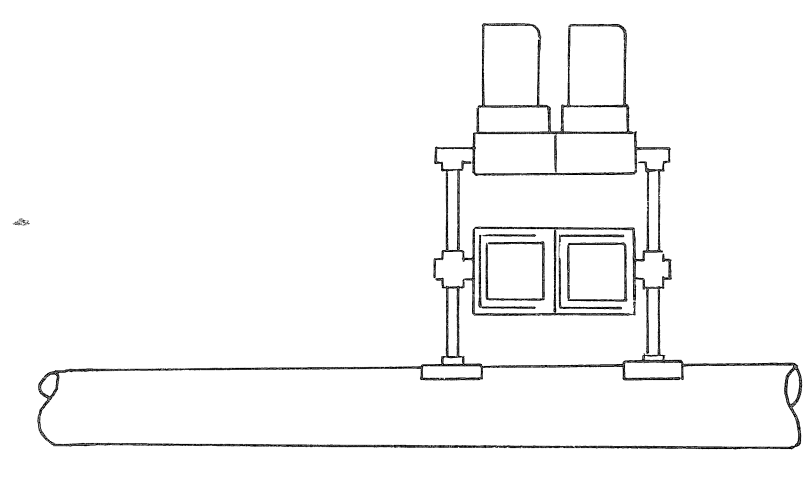
DETAIL "A-1"



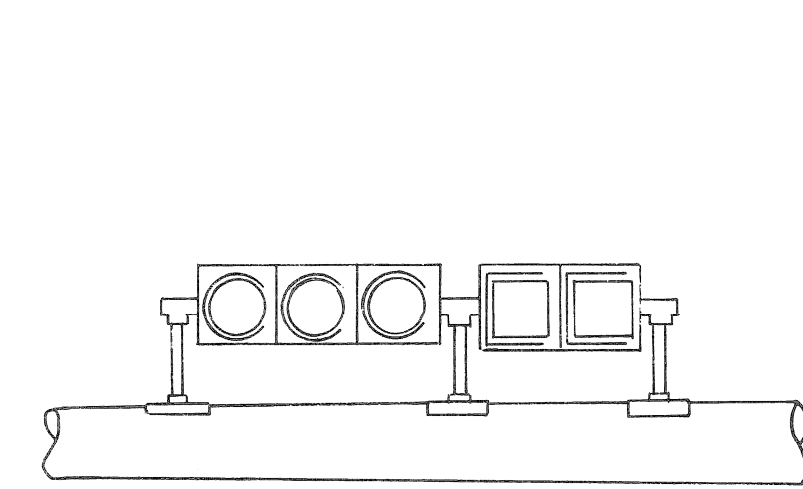
DETAIL "B-1"



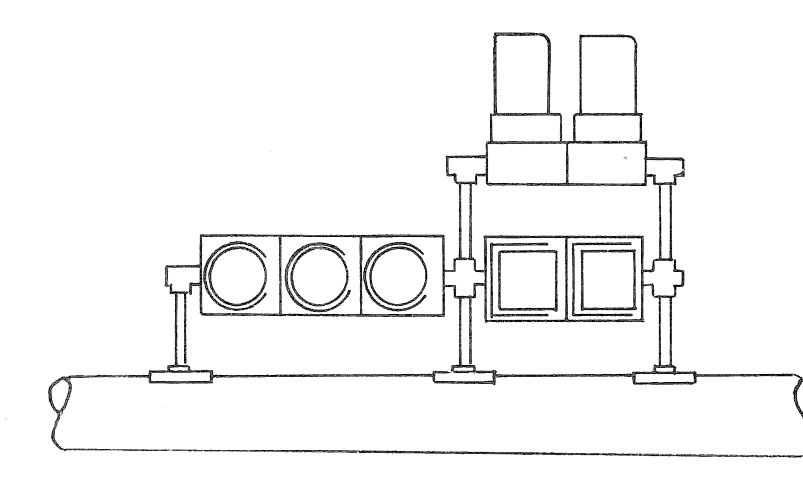
DETAIL "C-1"



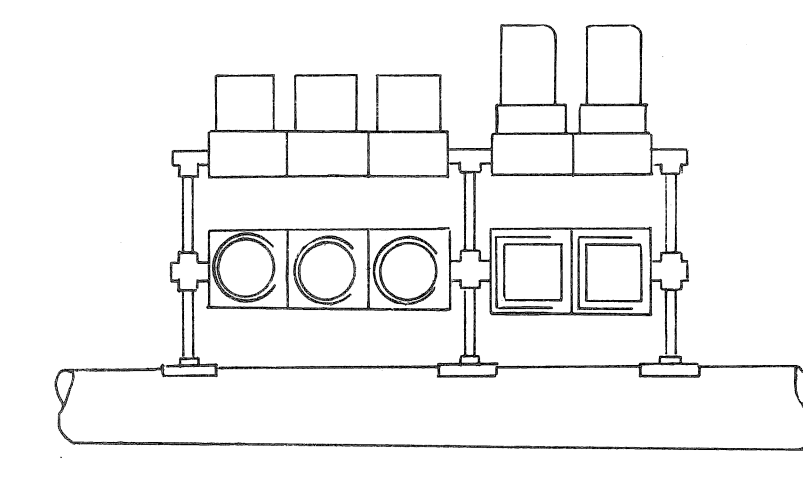
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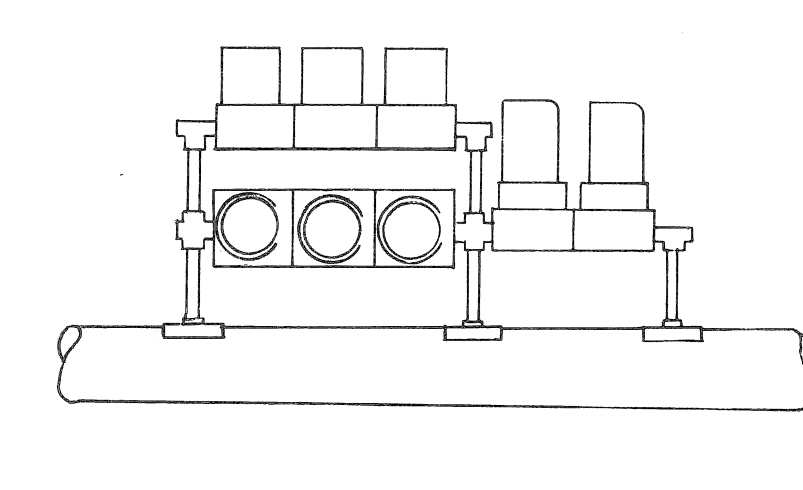
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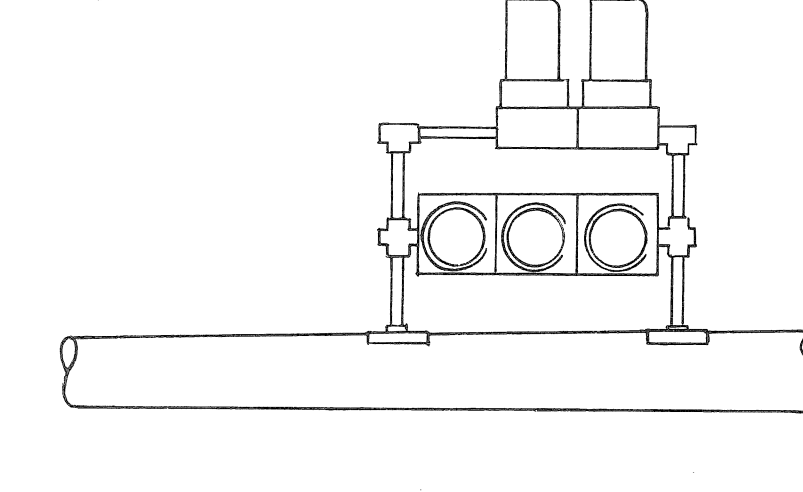
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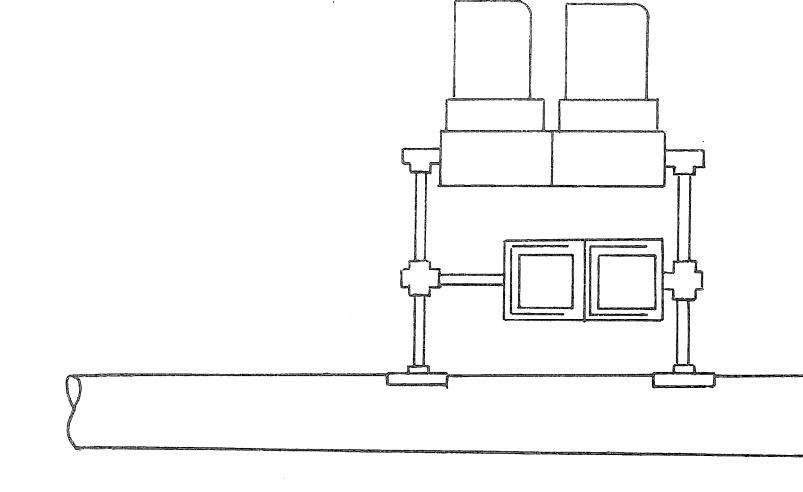
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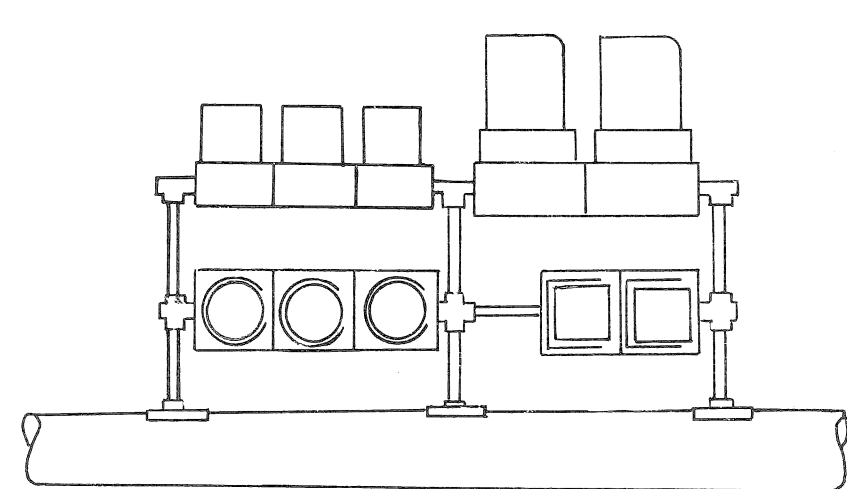
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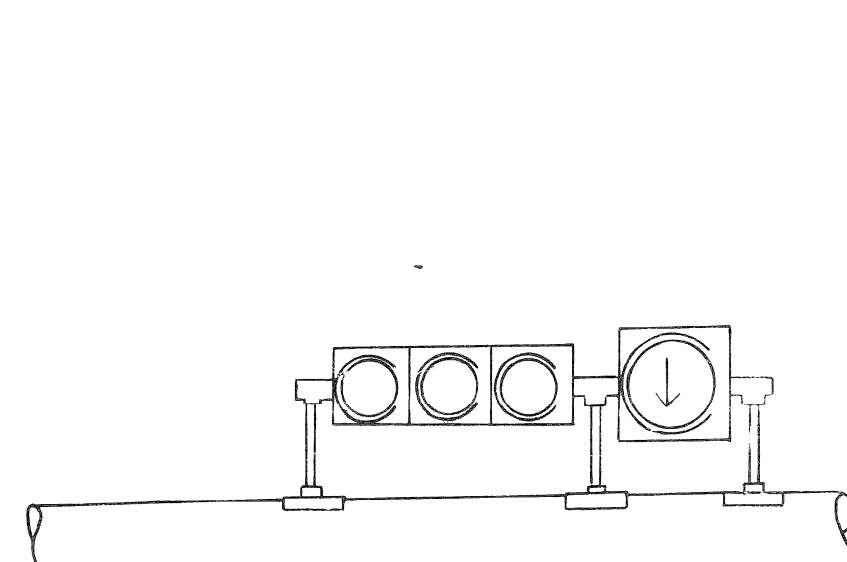
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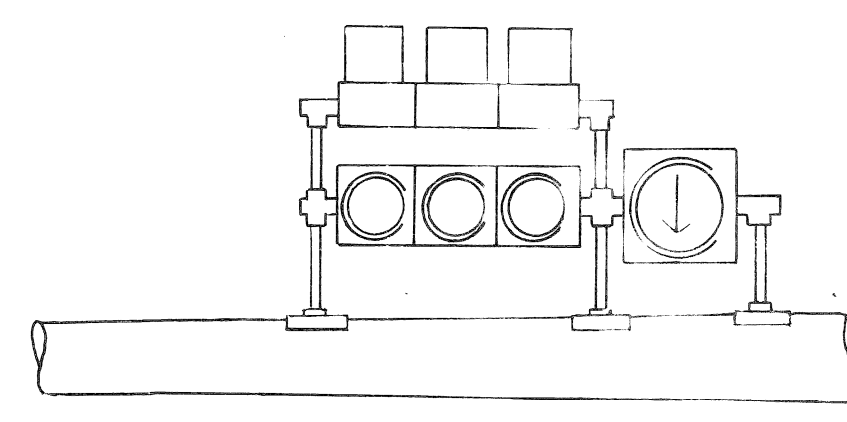
DETAIL "K-1"



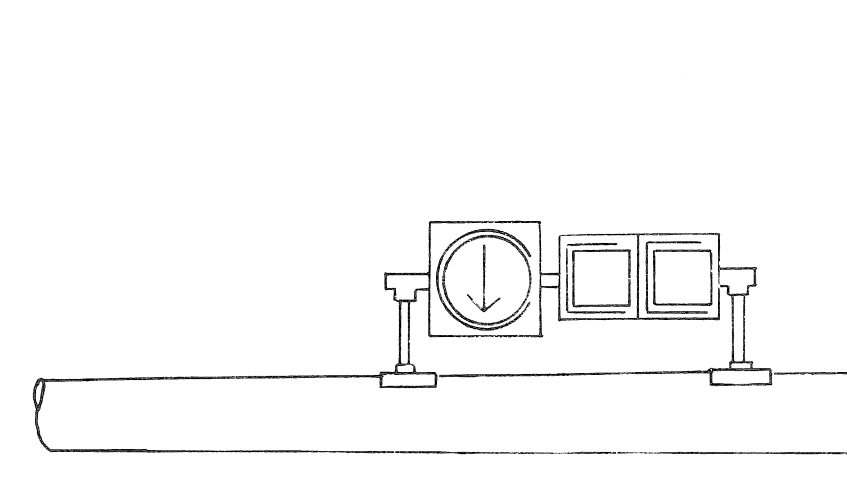
DETAIL "L-1"



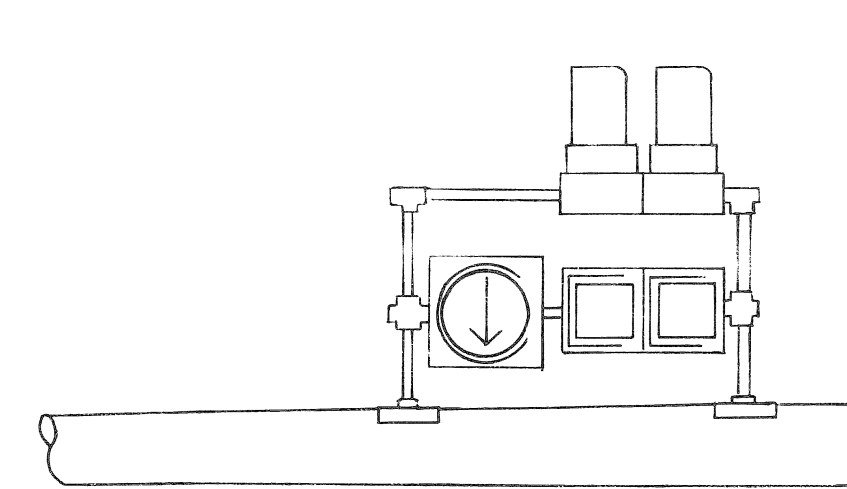
DETAIL "M-1"



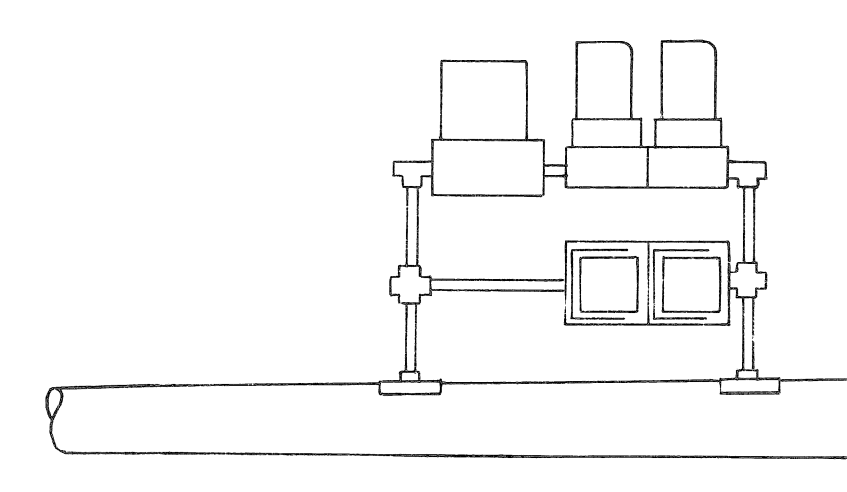
DETAIL "N-1"



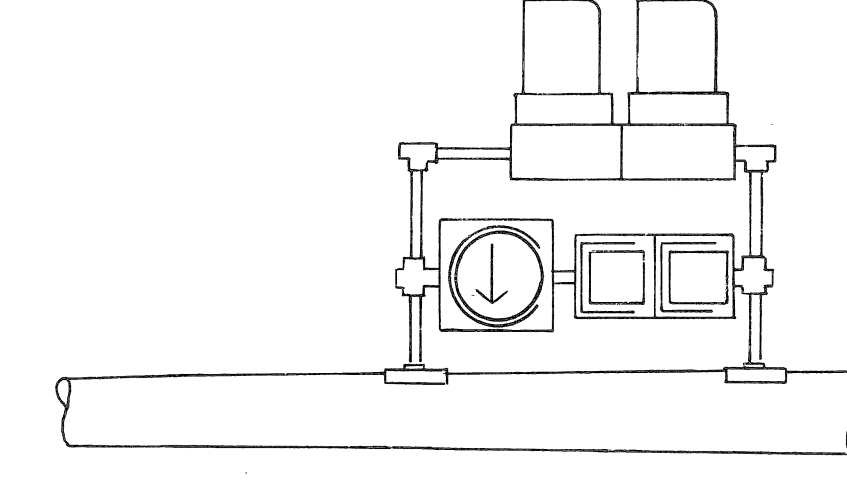
DETAIL "P-1"



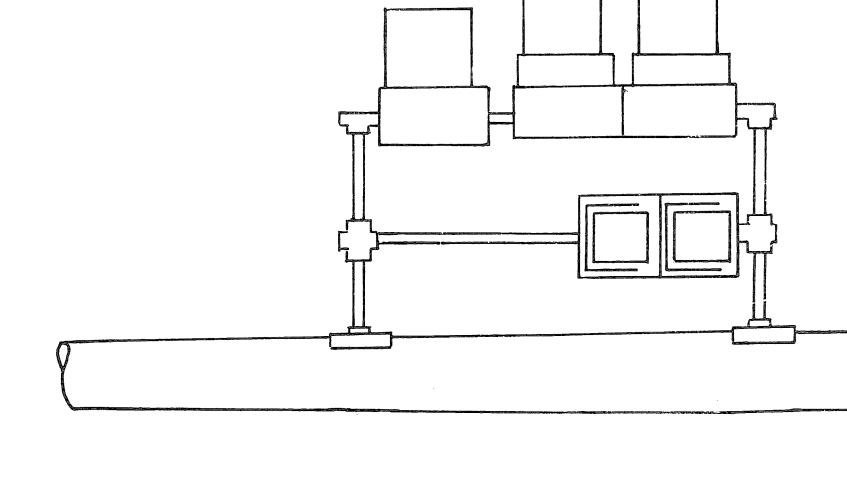
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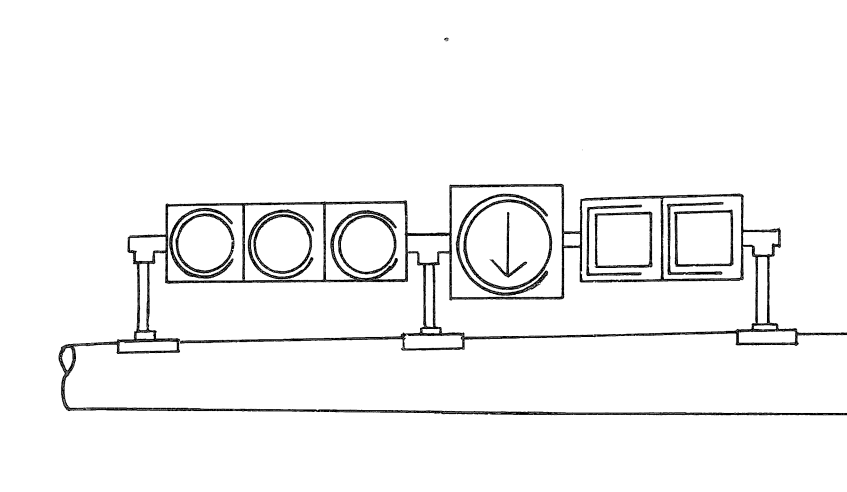
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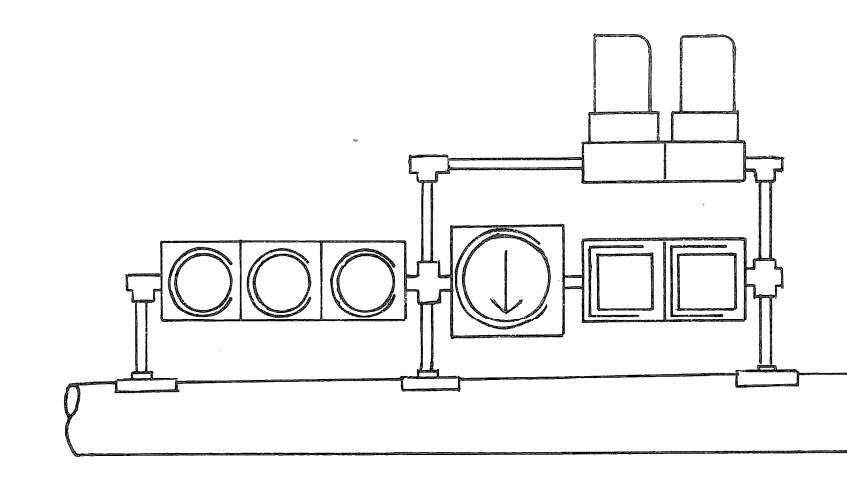
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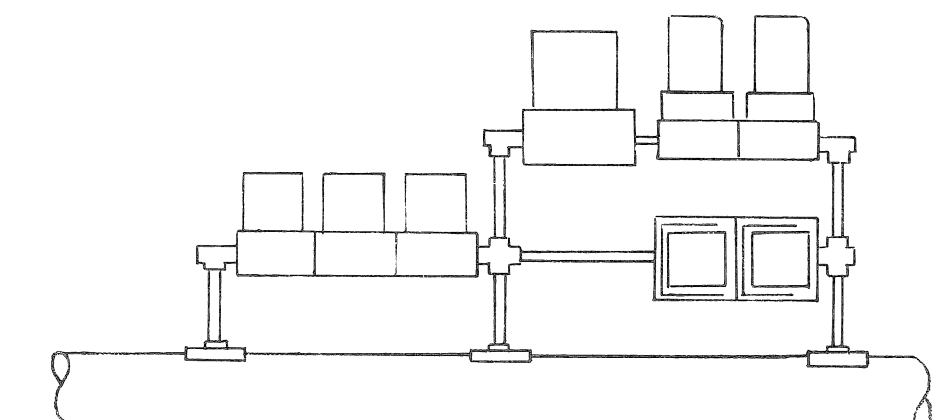
DETAIL "T-1"



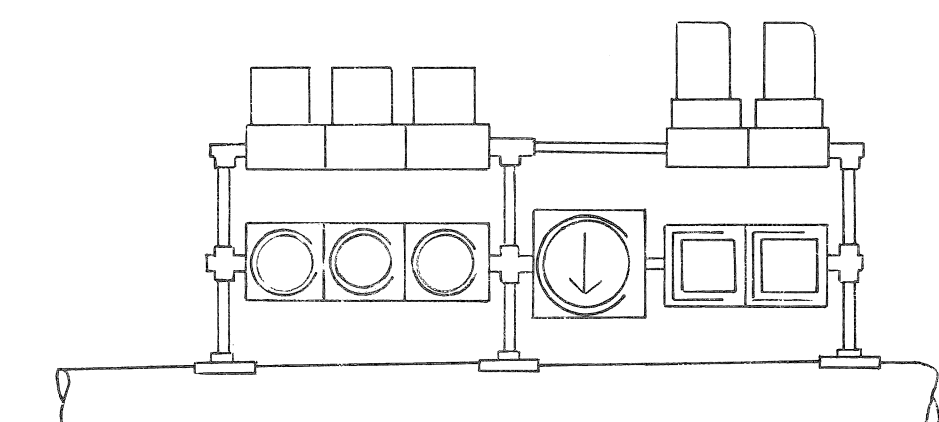
DETAIL "U-1"



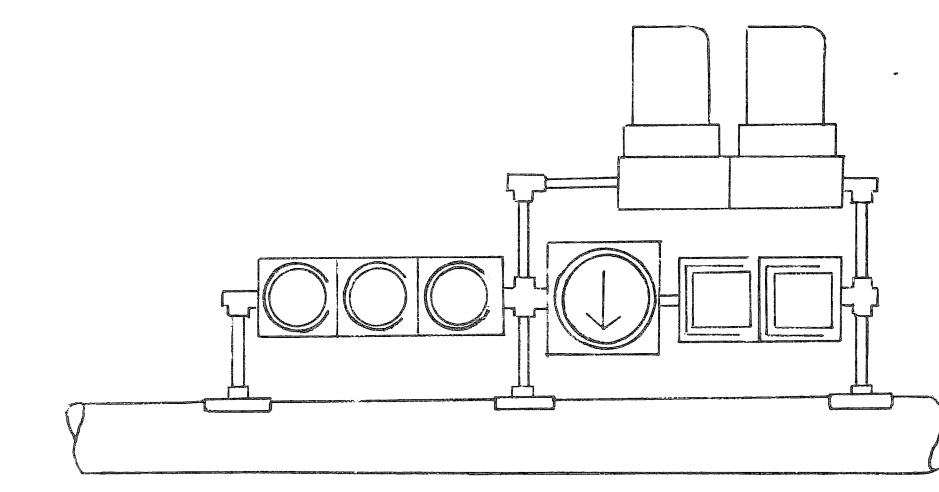
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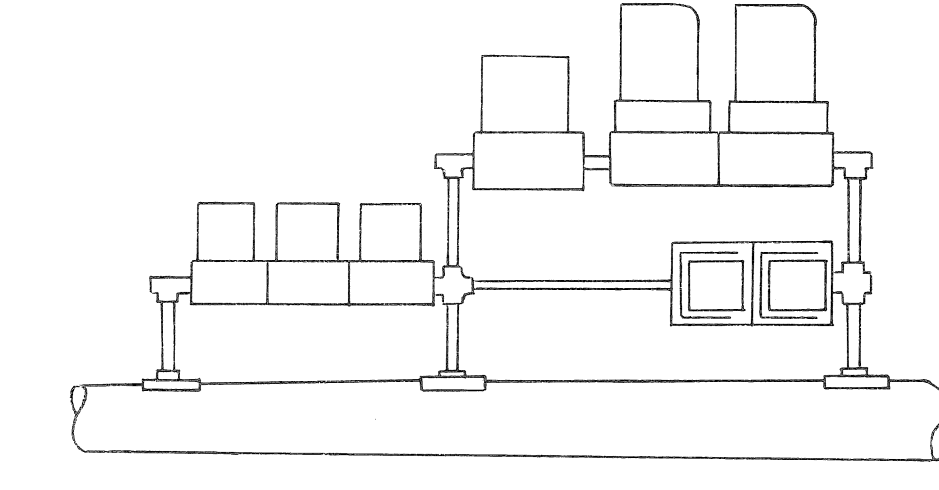
DETAIL "W-1"



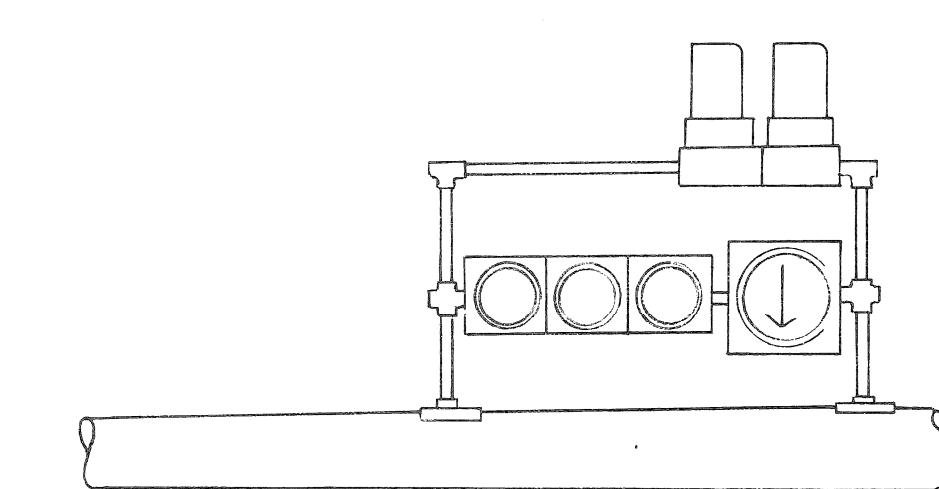
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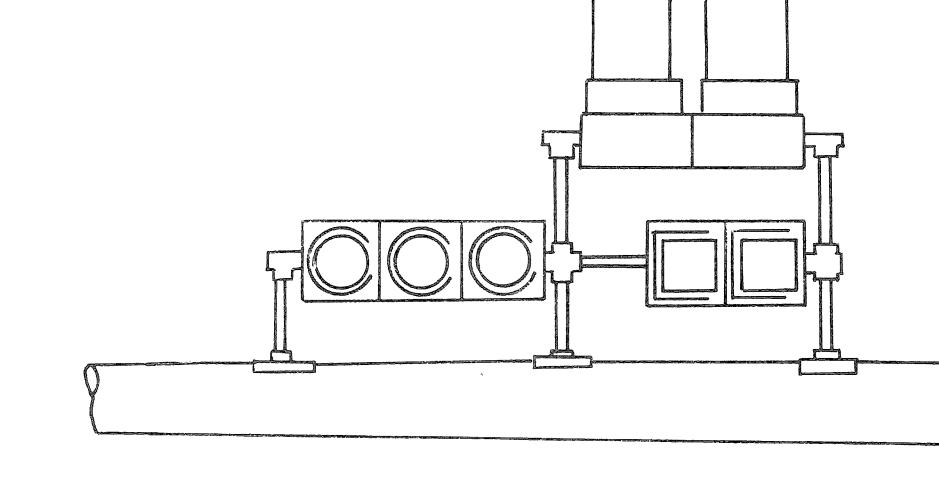
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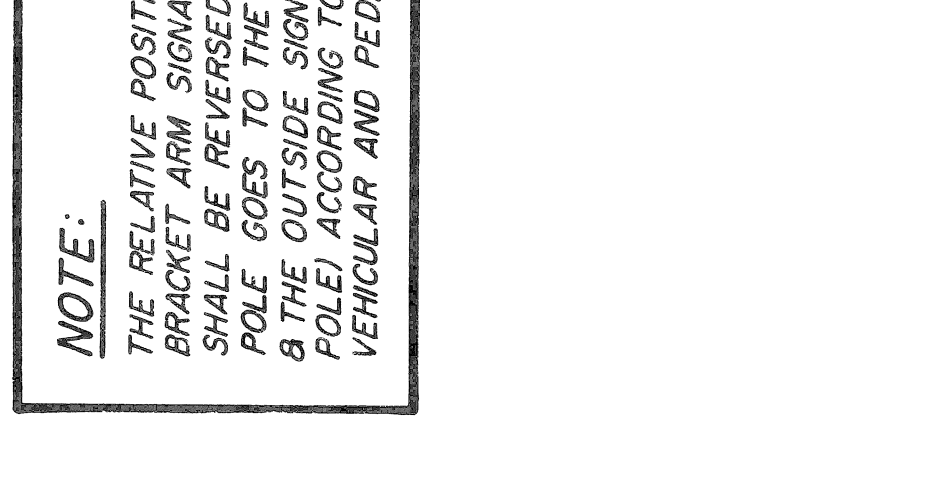
DETAIL "Z-1"



DETAIL "A-A-1"



DETAIL "B-B-1"



**NOTE:**  
THE RELATIVE POSITION OF 2-WAY T.S. & PEDESTRIAN BRACKET ARM SIGNALS WITHIN THE BRACKET ASSEMBLY SHALL BE REVERSED (I.E. THE SIGNAL NEAREST THE POLE GOES TO THE OUTSIDE OF THE BRACKET ASSEMBLY & THE OUTSIDE SIGNAL GOES INBOARD OR NEAREST TO THE POLE) ACCORDING TO THE PLAN VIEW TO PROVIDE CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

**NOTE:**  
PIPE ASSEMBLY SHALL BE OF SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

DATE	
BY	
CHECKED BY	
58	

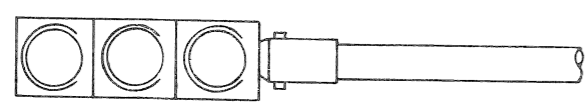
M.L. KING JR. BLVD. RECONSTRUCTION  
WABASH AVE. TO LINCOLN AVE.  
T.S. BRACKET ARM ASSEMBLY DETAILS

CITY OF DETROIT  
CITY ENGINEERING DEPARTMENT

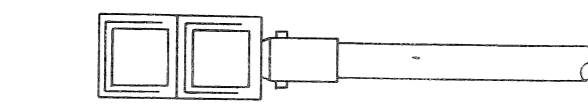
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DATE: AUG 1984

FILE NO. 51-0585  
SHEET NO. 67 OF 71  
DATE: AUG 1984

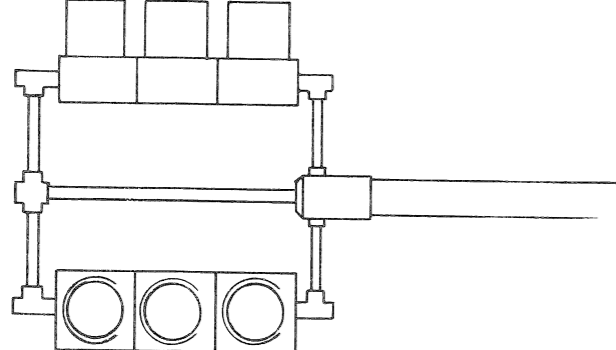




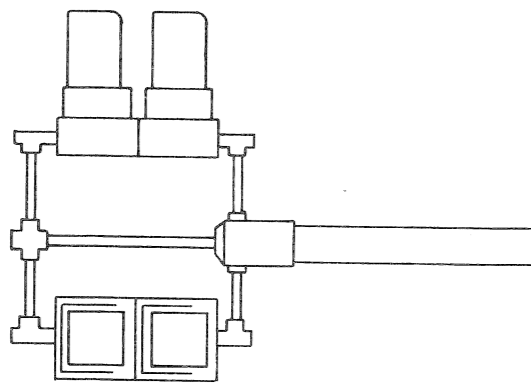
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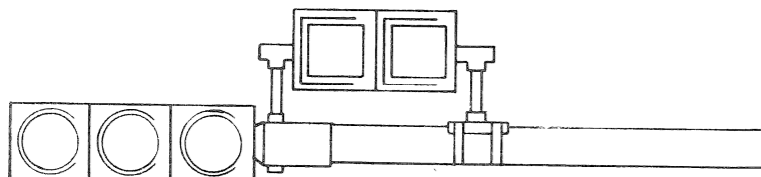
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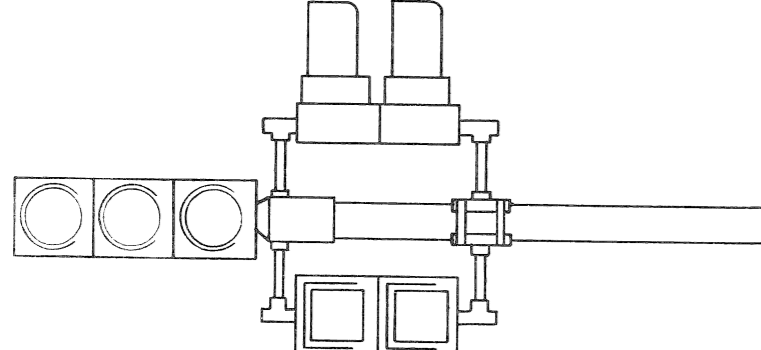
DETAIL "C-2"



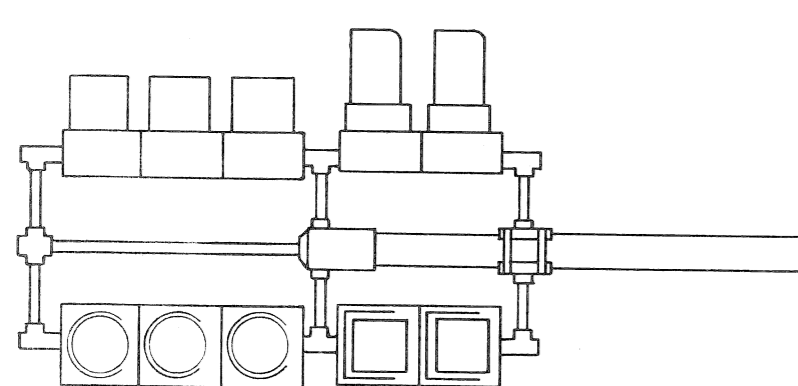
DETAIL "D-2"



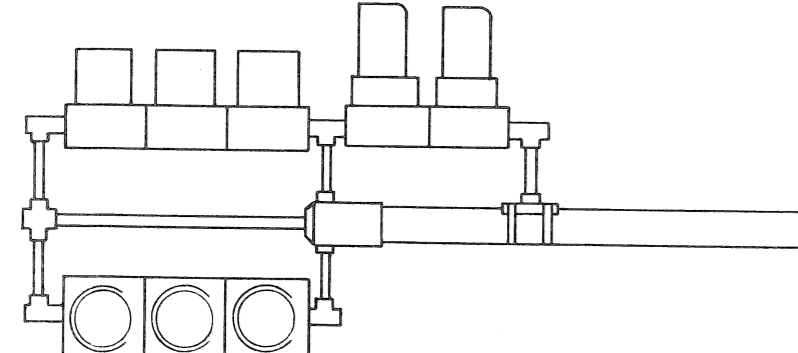
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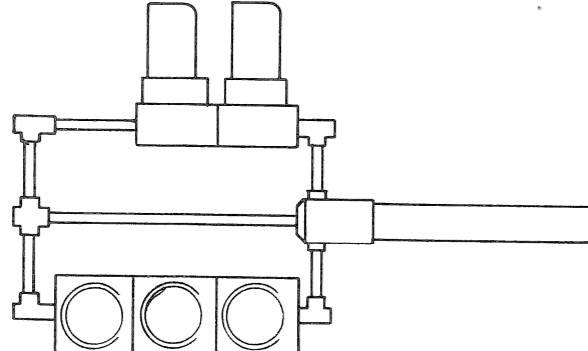
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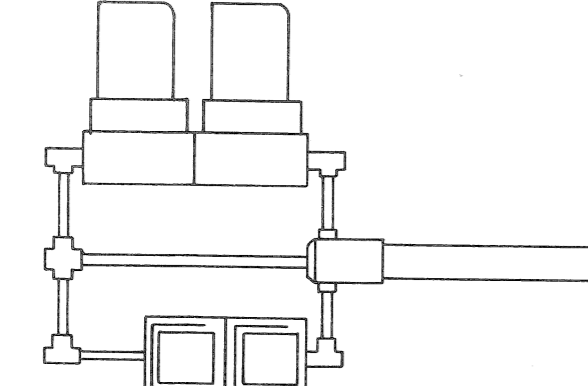
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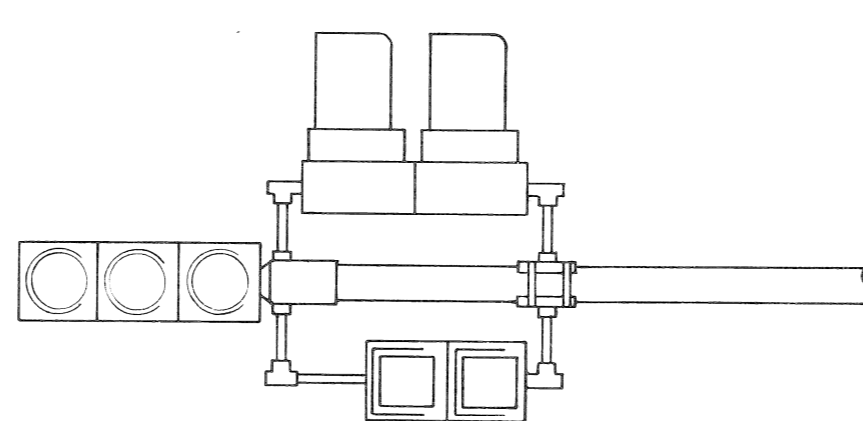
DETAIL "H-2"



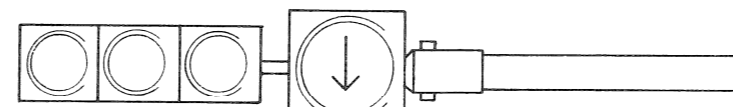
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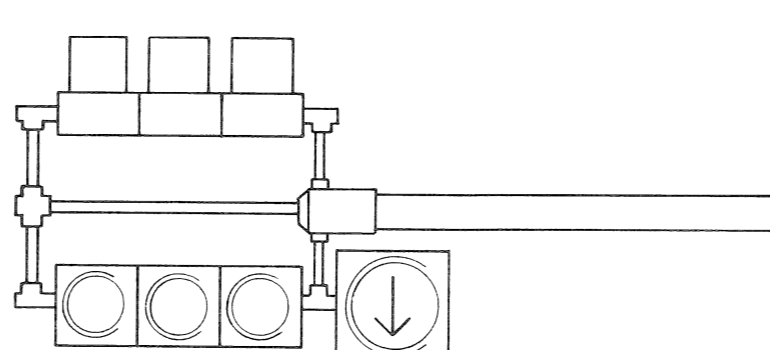
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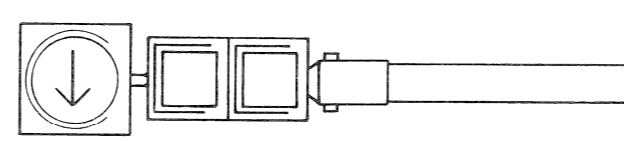
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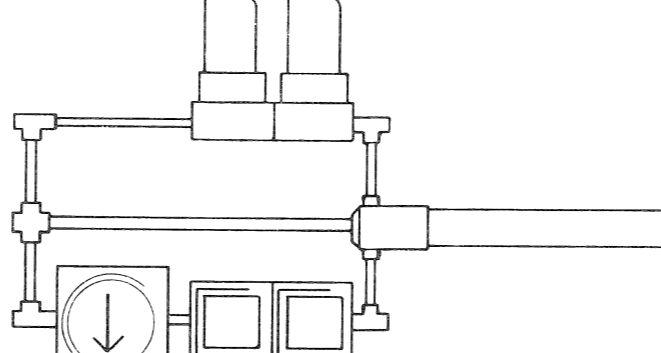
DETAIL "M-2"



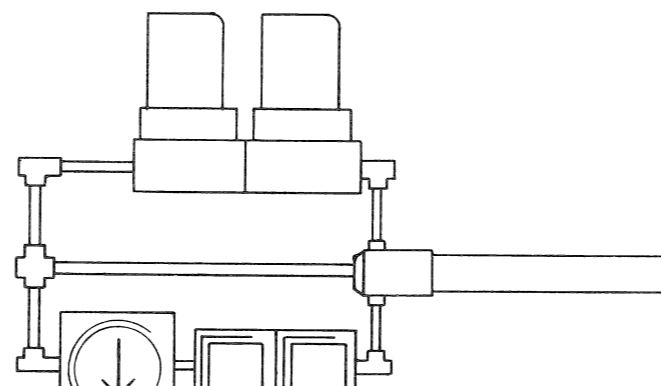
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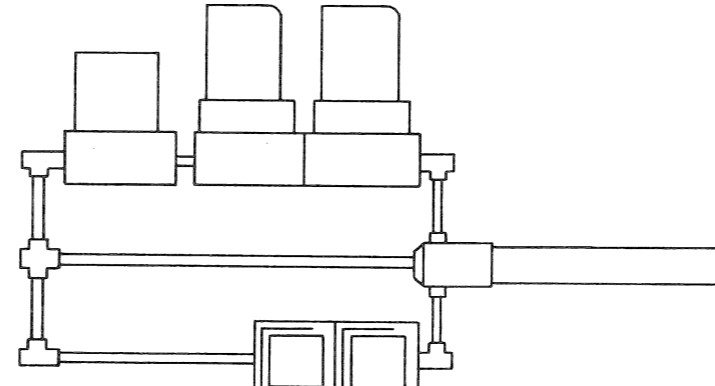
DETAIL "P-2"



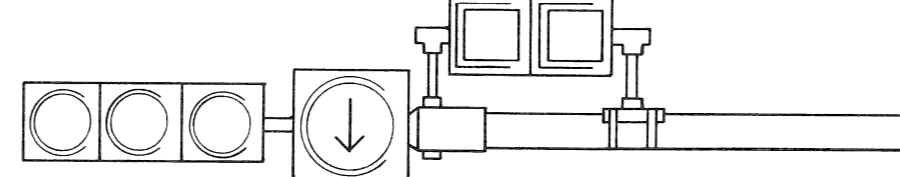
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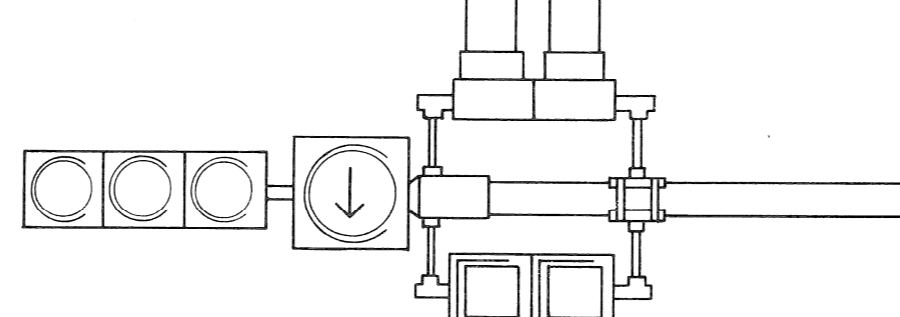
DETAIL "R-2"



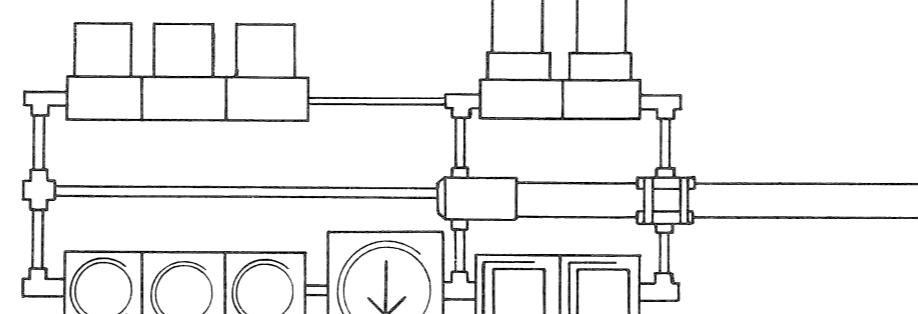
DETAIL "S-2"



DETAIL "T-2"

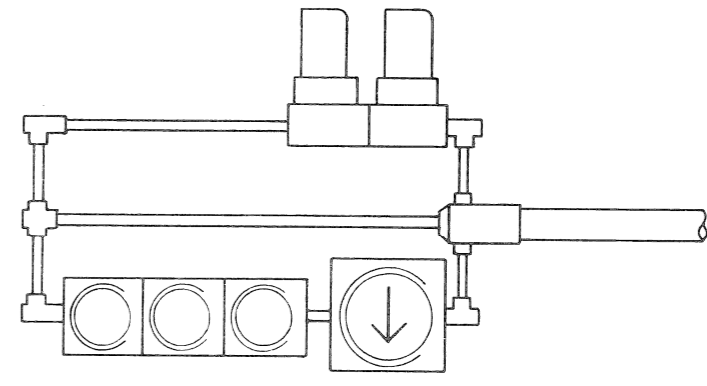


DETAIL "U-2"

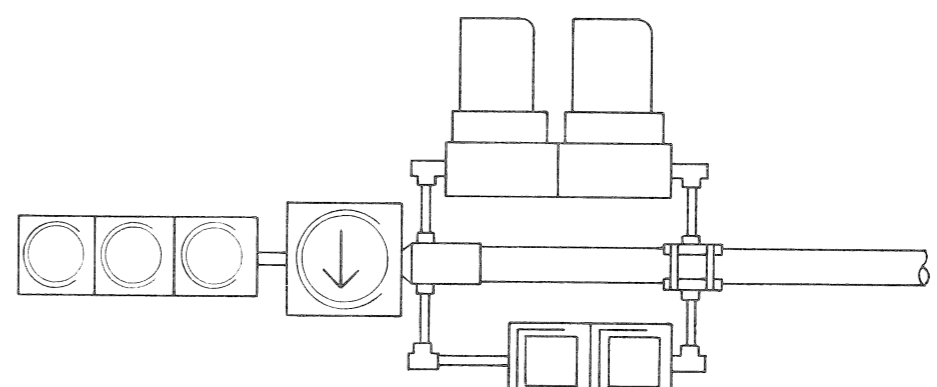


DETAIL "V-2"

NOTE: PIPE ASSEMBLY SHALL BE OF SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.



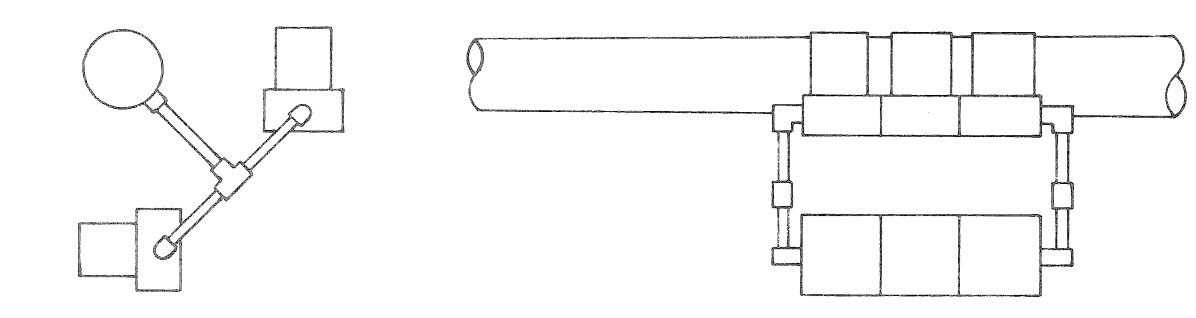
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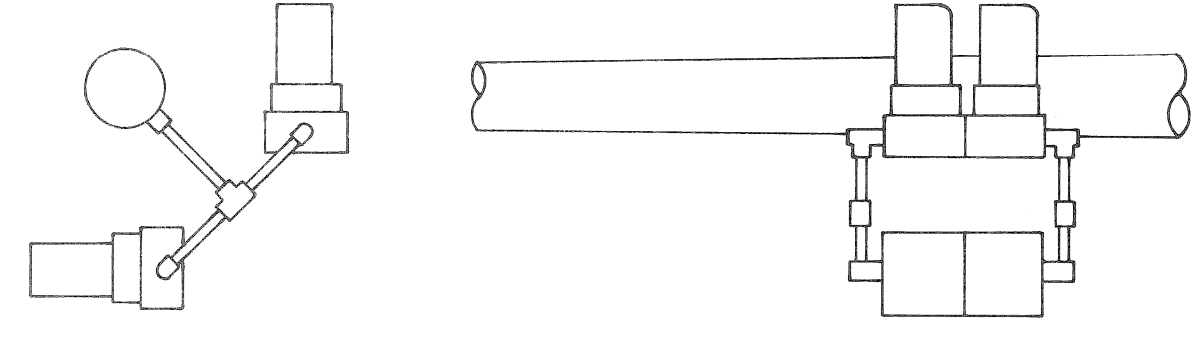
DETAIL "W-2"

509		FILE NO. 51-0585	PUBLIC LIGHTING COMMISSION CITY OF DETROIT	
59		SHEET NO. 68 OF 71	CHECKED BY	APPROVED BY
M.L. KING JR. BLVD. RECONSTRUCTION WABASH AVE. TO LINCOLN AVE. T.S. PEDESTAL ASSEMBLY DETAILS		CONSULTING ENGINEERING ASSOCIATES INC. ENGINEERING CONSULTANTS 16580 WYOMING DETROIT, MICH. 48221	FILE NO. CEA 1098	DATE AUG 1984
SHEET _____ OF _____ SHEETS		DRAWING NO. 38 OF 41	CITY OF DETROIT CITY ENGINEERING DEPARTMENT	
JOB NO.		DATE	DRAWN BY CEA	
ASSIGNMENT NO.		DATE	CHECKED BY	
NO.		DATE	APPROVED BY	

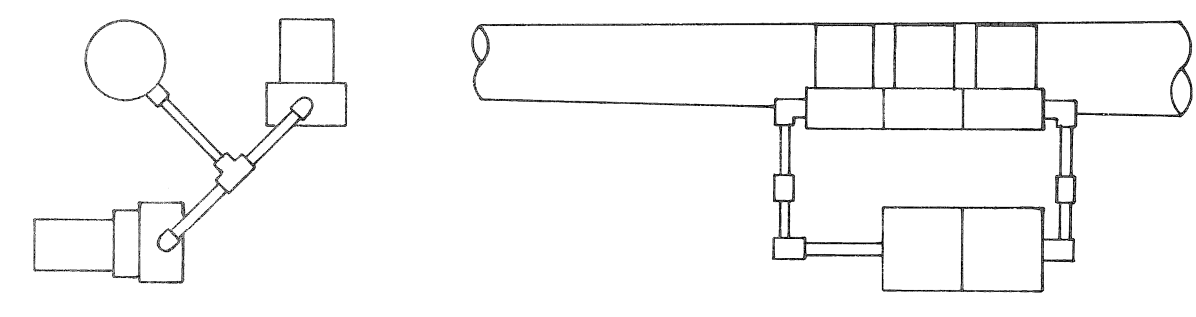




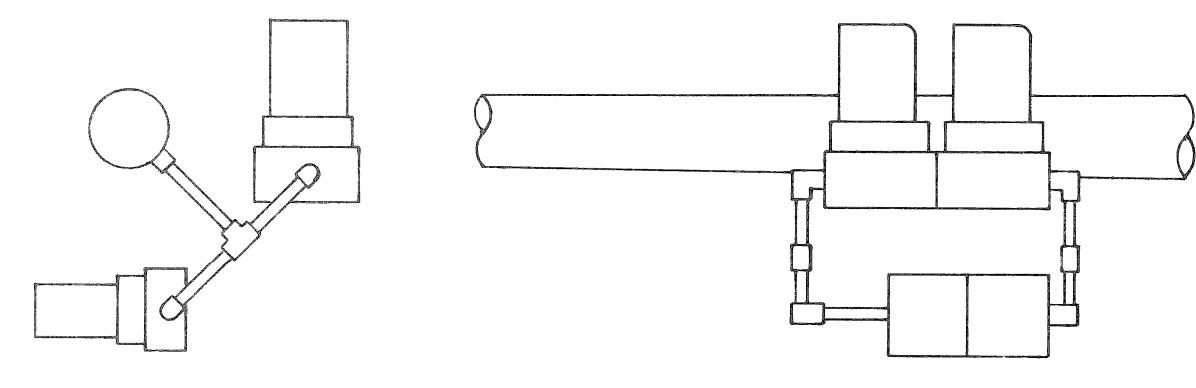
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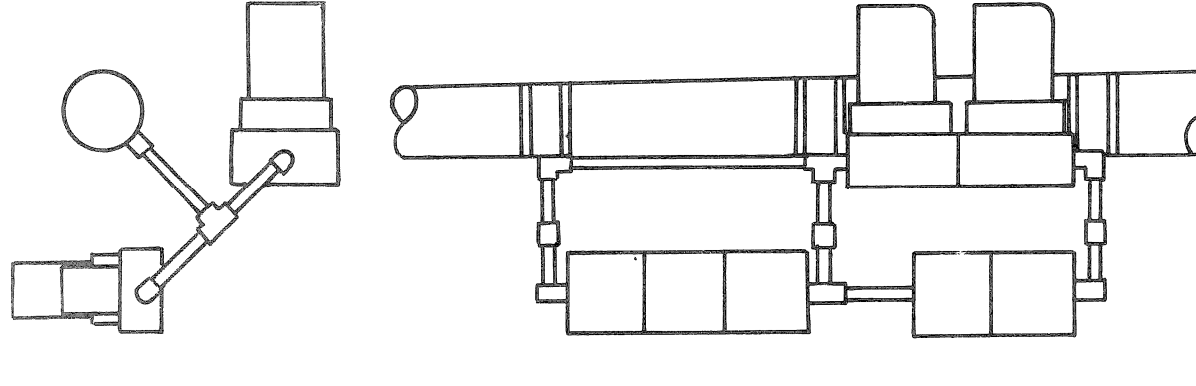
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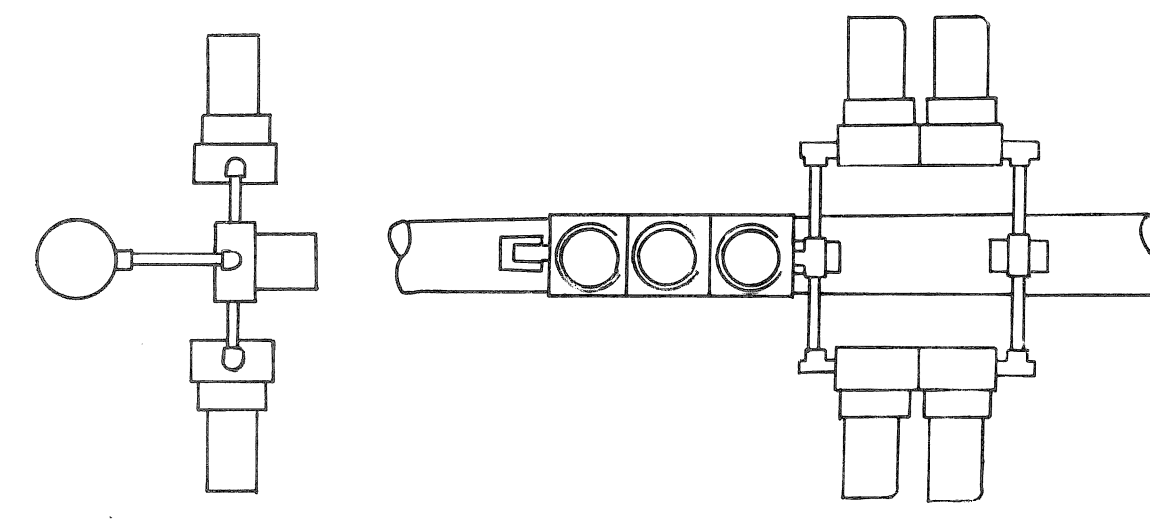
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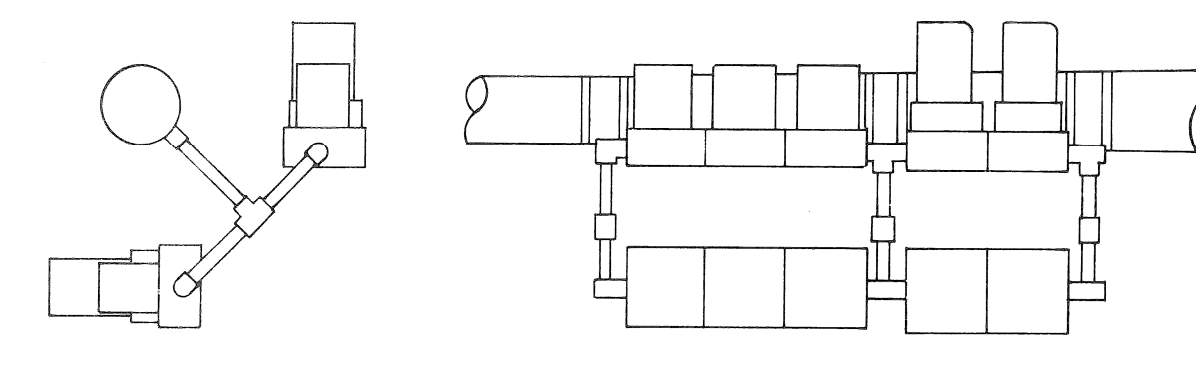
DETAIL "D-3"



DETAIL "E-3"



DETAIL "F-3"



DETAIL "G-3"

**NOTE:**  
 PIPE ASSEMBLY SHALL BE OF SUCH LENGTH  
 AND HEIGHT AS TO ACCOMMODATE TRAFFIC  
 SIGNALS AND PEDESTRIAN SIGNALS FOR  
 PROPER MAINTENANCE AND CLEAR VEHICULAR  
 AND PEDESTRIAN VIEWING.

DATE		DESCRIPTION		CHRG. BY		60		510	
SHEET		OF		SHEETS				FILE NO.	
JOB								51-0585	
NO.								SHEET NO.	
ASSIGNMENT								69 OF 71	
NO.								DATE	
DATE								AUG 1984	
DRAWN		CEA		CHECKED		9/1		APPROVED	
CITY OF DETROIT		CITY OF DETROIT		CITY OF DETROIT		CITY OF DETROIT		CITY OF DETROIT	
CITY ENGINEERING DEPARTMENT		CITY ENGINEERING DEPARTMENT		CITY ENGINEERING DEPARTMENT		CITY ENGINEERING DEPARTMENT		CITY OF DETROIT	
M.L. KING JR. BLVD. RECONSTRUCTION		WABASH AVE. TO LINCOLN AVE.		T.S. BRACKET ARM ASSEMBLY DETAILS				PUBLIC LIGHTING COMMISSION	
								CITY OF DETROIT	
								CONSULTING ENGINEERING ASSOCIATES INC.	
								ENGINEERING CONSULTANTS	
								16360 WYOMING DETROIT, MICH. 48221	
								FILE NO.	
								CEA 1098	
								DRWG. NO.	
								39 OF 41	
								AUG 1984	
								DATE	
								APPROVED BY	
								CHECKED BY	



