

JOB NO. 130900-PLAN AT:

- ④ MONROE - ST ANTOINE
- ⑤ BRUSH - MONROE
- ⑥ ⑦ CHRYSLER EAST & WEST SERVICE DR. - LAFAYETTE
- ⑧ LAFAYETTE - ST ANTOINE



001

Drawn CEA	Plan Prepared by <b>Consulting Engineering Associates, Inc.</b> 16580 WYOMING AVE., DETROIT MICHIGAN 48213 TELEPHONE (313) 341-5797 FAX (313) 341-0205	Date: 1999
Checked		CEA File Name 1309COVR
Approved		Drawn no. 1 OF
<b>PUBLIC LIGHTING DEPARTMENT</b> CITY OF DETROIT		

ITEM NO. UG 2032 & UG 2033  
CONTRACT FOR C., D.S., P., & UTILITIES

LOCAL AUTHORITY APPROVAL  
CITY OF DETROIT  
CITY ENGINEERING DEPARTMENT  
DEPARTMENT OF PUBLIC WORKS

APPROVED BY \_\_\_\_\_ HEAD ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ CITY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

PREPARED UNDER THE SUPERVISION OF

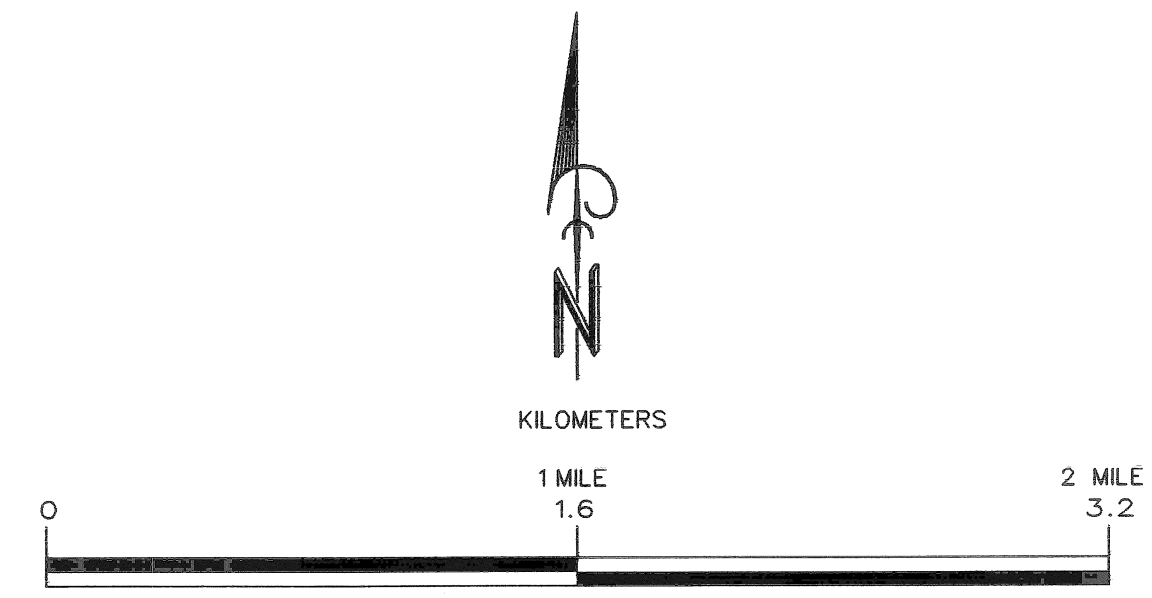
\_\_\_\_\_  
REGISTERED PROFESSIONAL ENGINEER REGISTRATION NO. \_\_\_\_\_

\_\_\_\_\_  
CONSULTING ENGINEERING ASSOCIATES ORGANIZATION

\_\_\_\_\_  
16580 WYOMING, DETROIT MICHIGAN ADDRESS

**CITY OF DETROIT  
DEPARTMENT OF PUBLIC WORKS**

IN CO-OPERATION WITH  
MICHIGAN DEPARTMENT OF TRANSPORTATION  
AND  
FEDERAL HIGHWAY ADMINISTRATION  
FEDERAL AID URBAN PROJECT NO. MICHIGAN MRG2000(000)  
CONTROL SECTION MUG B2000  
JOB NO. 0000A ITEM NO. UG 0000  
JOB NO. 0000A ITEM NO. UG 0000

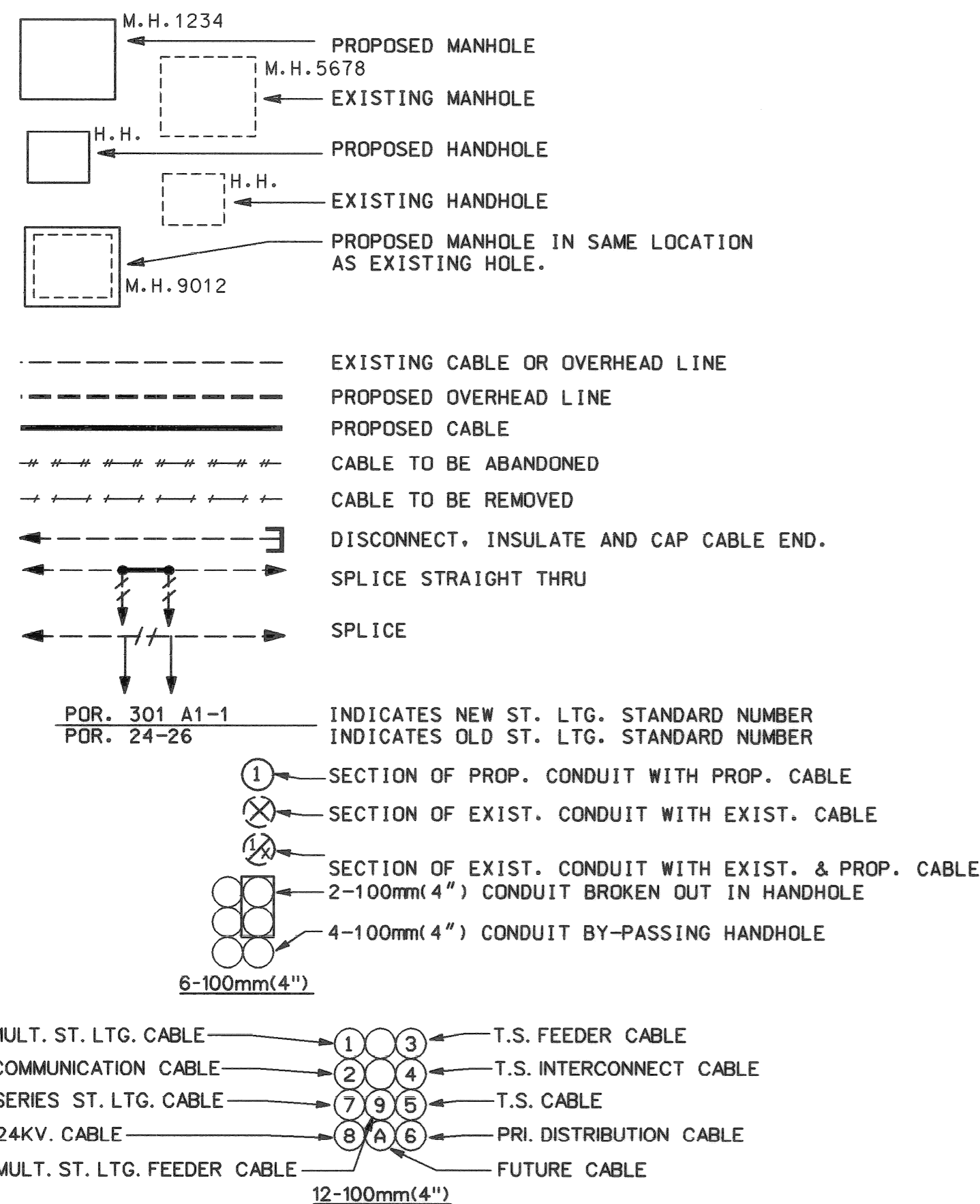


# UNDERGROUND

- FIRE HYDRANT
- EXISTING MANHOLE
- EXISTING HANDHOLE
- EXISTING DUCT RUN
- ABANDON EXISTING DUCT RUN
- EXISTING DIRECT BURIAL OR PARKWAY CABLE
- ABANDON DIRECT BURIAL OR PARKWAY CABLE
- INSTALL DIRECT BURIAL CABLE (NO. AND SIZE WILL BE SHOWN)
- BUILD ENCASED CONDUIT (E.C.) (NO. AND SIZE WILL BE SHOWN)
- INSTALL DIRECT BURIAL CONDUIT (D.B.) (NO. AND SIZE WILL BE SHOWN)
- JACKED-BORED CONDUIT (J.B.) (NO. AND SIZE WILL BE SHOWN)
- BUILD NEW MANHOLE (2-WAY)
- BUILD NEW MANHOLE (3-WAY)
- BUILD NEW MANHOLE (4-WAY)
- BUILD NEW MANHOLE (CORNER)
- BUILD NEW HANDHOLE (ROUND OR SQUARE AS INDICATED ON PLANS).
- BUILD POLYMER CONCRETE HANDHOLE
- BUILD TYPE "S" HANDHOLE
- BUILD TYPE "D" HANDHOLE
- EXISTING UNDERGROUND-FED ST. LTG. UNIT AND FOUNDATION
- REMOVE UNDERGROUND-FED ST. LTG. UNIT AND FOUNDATION (EXCEPT AS OTHERWISE NOTED)
- INSTALL CODE 009-00, 010-06, OR 118-06 AS NOTED ST. LTG. UNIT ON BRIDGE OR NEW FDN. INSTALL LUMINAIRE (SALVAGED), EXCEPT WHERE OTHERWISE NOTED. ANCHOR BOLTS IN BRIDGE DECK ON PLAN BY OTHERS
- SALVAGED UNDERGROUND-FED ST. LTG. UNIT ON NEW FOUNDATION.

# DIAGRAMS

(U.G.-FED. ST. LTG. STD. SYMBOLS ARE THE SAME AS THE UNDERGROUND LEGEND ON THIS SHEET).



# LEGEND SHEET

## DIAGRAMS

- INDICATES 2000V., 1-1/C #6 ST. LTG. CABLE
- INDICATES 2000V., 1-1/C #6 ST. LTG. CABLE & 1-#6 NEUTRAL.
- INDICATES 2000V., 2-1/C #6 ST. LTG. CABLES & 1-#6 NEUTRAL (ALL UNLABELED CABLE GROUPS ON WIRING DIAGRAM ARE SUCH.) 480/960V.
- INDICATES 2000V., 1-1/C #2 ST. LTG. CABLE
- INDICATES 2000V., 1-1/C #2 ST. LTG. CABLE & 1-#2 NEUTRAL.
- INDICATES 2000V., 2-1/C #2 ST. LTG. CABLES & 1-#2 NEUTRAL (ALL UNLABELED CABLE GROUPS ON WIRING DIAGRAM ARE SUCH.) 240/480V.
- INDICATES 2000V., 3-1/C #2 ST. LTG. CABLES & 1-#2 NEUTRAL.
- INDICATES REMOVE CABLES IN CONDUIT (REGARDLESS OF SIZE OR NUMBER OF CABLES IN THE CONDUIT.)
- INSTALL 7500V., 1-1/C #8 L.C. ST. LTG. CABLE
- INSTALL 7500V., 2-1/C #8 L.C. ST. LTG. CABLES

## OVERHEAD

- INSTALL OVERHEAD ALLEY LTG. UNIT. WITH 1.83m BRACKET ARM.
- INSTALL OVERHEAD RESIDENTIAL LTG. (4.88m ARM WITH TYPE I 4-WAY LUMINAIRE SHOWN)
- INSTALL OVERHEAD RESIDENTIAL LTG. UNIT (3.048m ARM WITH TYPE II 2-WAY LUMINAIRE SHOWN)
- EXISTING WOOD POLE (AMERITECH POLE SHOWN)
- REMOVE WOOD POLE (P.L.D. POLE SHOWN)
- REPLACE WOOD POLE (HEIGHT & CLASS AS INDICATED)
- INSTALL WOOD POLE (HEIGHT & CLASS AS INDICATED) (USE SALVAGED POLE WHERE INDICATED)
- EXISTING OVERHEAD ST. LTG. UNIT
- REMOVE OVERHEAD ST. LTG. UNIT (D.E. CO. POLE SHOWN)
- INSTALL OVERHEAD ST. LTG. UNIT WITH 8FT. MAIN ST. LTG. BRACKET ARM.
- EXISTING OVERHEAD LINE
- REMOVE OVERHEAD LINE
- INSTALL OVERHEAD LINE
- INSTALL AND LATER REMOVE OVERHEAD LINE
- INSTALL GUY AND ANCHOR (10mm GUY UNLESS OTHERWISE NOTED)
- REMOVE GUY AND ANCHOR ROD
- INSTALL POLE GUY (10mm GUY UNLESS OTHERWISE NOTED)
- INSTALL ARM GUY (6mm GUY UNLESS OTHERWISE NOTED)
- REMOVE GUY (POLE OR ARM GUY WILL BE INDICATED)
- MATERIALS TO BE REMOVED
- MATERIALS TO BE INSTALLED
- CABLE POLE
- EXISTING MATERIALS
- MAKE WOOD POLE SELF-SUPPORTING IN CRUSHED STONE
- PHASES OF P.L.D. DISTRIBUTION WIRES OR EQUIPMENT
- D.E. CO. DISTRIBUTION WIRE
- D.E. SECONDARY WIRE
- CABLE TELEVISION
- INSTALL SUSPENSION INSULATOR
- P.L.D. DISTRIBUTION WIRE
- P.L.D. SECONDARY WIRE
- P.L.D. SERIES ST. LTG. WIRE
- P.L.D. MULT. ST. LTG. WIRE

## GENERAL

- BUILDING (STRUCTURE)
- GUARD RAIL (CONCRETE)
- GUARD RAIL (STEEL)
- CENTER LINE (CL)
- PROPERTY LINE (PL) OR RIGHT OF WAY (ROW)
- PAVEMENT JOINTLINE AND CURB
- CURB LINE
- EXISTING ROUND CATCH BASIN
- EXISTING RECTANGLE CATCH BASIN
- EXISTING SEWER LINE, MANHOLE AND CATCH BASIN
- EXISTING DETROIT EDISON UNDERGROUND LINE AND MANHOLE
- EXISTING AMERITECH TELEPHONE UNDERGROUND LINE AND MANHOLE
- EXISTING GAS LINE AND MANHOLE
- EXISTING WATER LINE AND HANDHOLE
- EXISTING DETROIT PUBLIC LIGHTING UNDERGROUND LINE AND HANDHOLE.
- EXISTING DETROIT EDISON UNDERGROUND STEAM LINE
- EXISTING CABLE TELEVISION
- EXISTING R.R. TRACKS
- EXISTING STREETCAR TRACKS
- EXISTING FENCE
- EXISTING PUBLIC TELEPHONE
- EXISTING TELEPHONE CONTROL BOX
- EXISTING TRANSFORMER OR NOTED AS REMOVE
- NEW TRANSFORMER
- EXISTING R.R. CROSSING GATE AND FLASHERS
- EXISTING R.R. FLASHERS
- EXISTING R.R. CROSSING MAST ARM AND FLASHERS
- EXISTING DOUBLE POST SIGN (TYPE SHOWN ON PLANS)
- INSTALL DOUBLE POST SIGN (TYPE SHOWN ON PLANS)
- EXISTING SINGLE POST SIGN (TYPE SHOWN ON PLANS)
- INSTALL SINGLE POST SIGN (TYPE SHOWN ON PLANS)
- EXISTING MAST ARM ROAD SIGN (TYPE SHOWN ON PLANS)

## TRAFFIC SIGNAL

- POLE CONTACT HEIGHT OF TRAFFIC SIGNAL SPAN WIRE
- LOWEST CONTACT HEIGHT OF TRAFFIC SIGNAL TO SPAN WIRE.
- REMOVE HOOD AND INSTALL LAMPS (INCIDENTAL TO INSTALLATION OF TRAFFIC SIGNAL ON THIS CONTRACT)
- BACK-OUT LAMPS AND HOOD (SIGNALS INCLUDED IN THE INSTALLATION OF TRAFFIC SIGNAL ON THIS CONTRACT).
- EXISTING STOP BAR
- STOP BAR TO BE INSTALLED

## TRAFFIC SIGNAL

- 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 3-SECTION 300mm(12") TRAFFIC SIGNAL (2-WAY SHOWN)
- EXISTING 1 OR 2-SECTION 300mm(12") TRAFFIC SIGNAL FLASHERS
- INSTALL 1 OR 2-SECTION 300mm(12") TRAFFIC SIGNAL FLASHERS
- INSTALL TWO-WAY ILLUMINATED CASE SIGN
- INSTALL TWO-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE TWO-WAY ILLUMINATED CASE SIGN
- EXISTING TWO-WAY ILLUMINATED CASE SIGN
- INSTALL FOUR-WAY ILLUMINATED CASE SIGN
- INSTALL FOUR-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE FOUR-WAY ILLUMINATED CASE SIGN
- EXISTING FOUR-WAY ILLUMINATED CASE SIGN
- INSTALL 2-SECTION, 300mm(12") PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (2-WAY SHOWN)
- INSTALL 2-SECTION, 300mm(12") PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL WITH SALVAGED HEAD (2-WAY SHOWN)
- REMOVE 2-SECTION, PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- EXISTING 2-SECTION, 300mm(12") PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL TRAFFIC SIGNAL CONTROLLER (NEW OR SALVAGED AS SHOWN) (EXCEPT AS OTHERWISE NOTED).
- INSTALL MAST ARM STD. & MAST ARM ON NEW FOUNDATION (EXCEPT AS OTHERWISE NOTED).
- INSTALL TRAFFIC SIGNAL PEDESTAL ON NEW FOUNDATION (EXCEPT AS OTHERWISE NOTED).
- INSTALL 9.14m(30') ANCHOR BASE STEEL STRAIN POLE ON NEW FOUNDATION (EXCEPT AS OTHERWISE NOTED). (USE 400mm(16") BOLT CIRCLE FOR ALL NEW STRAIN POLES).
- EXISTING TRAFFIC SIGNAL CONTROLLER
- EXISTING MAST ARM STANDARD
- EXISTING PEDESTAL
- EXISTING STEEL STRAIN POLE
- INSTALL OVERHEAD PLASTIC JACKETED CABLE (P.J.)
- EXISTING OVERHEAD PLASTIC JACKETED CABLE (P.J.)
- REMOVE OVERHEAD PLASTIC JACKETED CABLE (P.J.)
- INSTALL JUNCTION BOX (J.B.)
- INSTALL SALVAGED JUNCTION BOX (J.B.)
- REMOVE JUNCTION BOX (J.B.)
- EXISTING JUNCTION BOX (J.B.)
- EXISTING LOOP DETECTOR
- INSTALL LOOP DETECTOR

PLAN INDEX	
DRWG. NO.	SUB-TITLE
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3	GENERAL INFORMATION
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9 - 19	DETAILS

**CONTRACTOR TO FURNISH AND INSTALL ALL MATERIALS**

**002**

# IMPROVEMENT OF TRAFFIC SIGNALS FOR GREEK TOWN LEGEND

REV	Date	Description	Chkd. by

Designed by <b>CEA</b>	<p>16580 WYOMING AVE., DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5197 FAX: 341-0205</p>	Scale No Scale	<b>PUBLIC LIGHTING DEPARTMENT</b> CITY OF DETROIT	File No. 52-2473
Drawn by		Checked by		Sheet No. 2 of 20
Checked by	Disk File Name LEG-1	File No. CEA 130900	Approved by	Date JUNE-1999

# GENERAL INFORMATION

1. CALL MISS DIG (313) (647-7344) 3 WORKING DAYS PRIOR TO ANY EXCAVATION FOR THE LOCATIONS OF UNDERGROUND UTILITIES.
2. A MINIMUM CLEARANCE OF 1.07m (3.5') HORIZONTAL & .3048m(1.0') VERTICAL MUST BE MAINTAINED BETWEEN PROPOSED P.L.D. FACILITIES & EXISTING U.G. WATER FACILITIES.
3. CONTRACTOR TO NOTIFY MICHIGAN CONSOLIDATED GAS CO. AT (313) 491-6301 IF PROTECTIVE COATED GAS MAIN IS EXPOSED OR DAMAGED.
4. CONTRACTOR TO NOTIFY D.E. CO., AT (313) 237-9564 IF PROTECTIVE COATING OF ANY D.E.CO. HIGH VOLTAGE UNDERGROUND LINE IS EXPOSED OR DAMAGED.
5. ALL EXISTING P.L.D. LIGHTING, TRAFFIC SIGNAL, PRIMARY, TRANSMISSION ETC. CIRCUITS SHALL ALWAYS BE MAINTAINED IN AN OPERATIONAL CONDITION (EXCEPT WHERE OTHERWISE NOTED). NOTIFY P.L.D. SYSTEM OPERATOR AT (313) 224-0500 48 HOURS PRIOR TO BEGINNING WORK ON P.L.D. CIRCUITS & KEEP HIM INFORMED ON A DAILY BASIS.
6. EXISTING OVERHEAD & TRAFFIC SIGNAL FACILITIES ARE NOT NECESSARILY SHOWN ON PLANS.
7. CROSSARMS SHALL BE REMOVED AFTER ALL CONTACTS ARE REMOVED. (INCLUDED WITH THE REMOVAL OF OVERHEAD LINES).
8. ALL OVERHEAD WIRES & UNDERGROUND CABLES SHALL CONSIST OF COPPER CONDUCTORS AS PER SPECIFICATIONS.
9. ALL REMOVED WOOD POLES & CROSSARMS SHALL HAVE DISPOSAL BY P.L.D. OR THE CONTRACTOR AT A PROPER SITE. (AS DIRECTED BY P.L.D.)
10. ALL NEW ANCHOR GUYS SHALL BE INSTALLED ON A 1:1 RATIO OR AS NEARLY AS POSSIBLE (EXCEPT WHERE OTHERWISE NOTED). (STRUT GUYS ARE EXCEPTED).
11. ARM GUYS SHALL BE SIEMENS-MARTIN GRADE. ANCHOR AND POLE GUYS SHALL BE EXTRA HIGH STRENGTH GRADE.
12. INSTALL WOOD POLES SO AS NOT TO INTERFERE WITH TRAFFIC OR FUTURE CONSTRUCTION STAGES.
13. ALL SALVAGED WOOD POLES DIRECTED TO BE INSTALLED SHALL BE POLES PREVIOUSLY INSTALLED NEW ON THIS CONTRACT.
14. ALL TRANSFORMER POLES AND CABLE POLES SHALL BE FITTED UP WITH 3.048m (120") ARMS (EXCEPT WHERE OTHERWISE INDICATED).
15. INSTALLATION OF ARMS FOR EQUIPMENT, CUTOUTS, POTHEADS, TRANSFORMER, ETC. NOT SHOWN ON NEW CABLE AND TRANSFORMER POLES SHALL BE INSTALLED AS PER THE DETAIL DRWG. REQUIREMENT AND SHALL BE INCLUDED IN THE FITTING-UP OF THE CABLE AND/OR TRANSFORMER POLE.
16. ALL POTHEADS ON PRIMARY DISTRIBUTION CABLE POLES SHALL BE FLAT DIVERGENT DISCONNECTING TYPE.
17. WHERE A P.L.D. WOOD POLE WITH OTHER UTILITY CONTACTS IS TO BE REMOVED THE P.L.D. INSPECTOR WILL INDICATE IF THE POLE IS IN FACT TO BE REMOVED.
18. ALL TRAFFIC STREET SIGNS SUCH AS "NO PARKING", "NO STANDING" ETC. SHALL BE TRANSFERRED FROM OLD STD. OR POLE TO NEW STD. OR POLE AT SAME LOCATION OR IN CLOSE PROXIMITY BY D.D.O.T.
19. ALL TRAFFIC SIGNALS SHALL BE MOUNTED WITH NEW STANDARD TRAFFIC SIGNAL BRACKETS & FITTINGS.
20. ALL TRAFFIC SIGNAL ITEMS, AS CALLED FOR ON PLANS, SHALL INCLUDE AS INCIDENTAL TO THE TRAFFIC SIGNAL ALL CABLES FROM THE CONTROLLER TO THE TRAFFIC SIGNALS & FOUNDATIONS AS INDICATED.
21. WHEN ENTERING PROPOSED CONDUIT INTO EXISTING MANHOLES & HANDHOLES EXERCISE CAUTION NOT TO DISTURB EXISTING CABLES. WALLS SHALL BE CORE DRILLED ONLY FOR ENTRANCE OF CONDUITS. NEW CONDUITS SHALL NOT INTERFERE WITH RACKING AND / OR TRAINING OF CABLES.
22. ALL SALVAGED TRAFFIC SIGNALS DIRECTED TO BE INSTALLED SHALL BE TRAFFIC SIGNALS PREVIOUSLY INSTALLED NEW ON THIS CONTRACT. (EXCEPT AS OTHERWISE INDICATED).
23. FOR TRAFFIC SIGNAL SPAN WIRE USE 8mm (5/16") EXTRA HIGH STRENGTH GRADE AS PER SPECIFICATIONS.
24. SIDEWALK RAMPS OF THE TYPE & LOCATION AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER SHALL BE CONSTRUCTED.
25. SEAL-END OF CABLE WHERE COILING OF CABLE IS CALLED FOR ON PLANS. (CONTRACTOR SHALL RECEIVE PAYMENT FOR COILED-UP CABLES).
26. CONTRACTOR SHALL DELIVER WHERE REQUIRED TO THE PUBLIC LIGHTING DEPARTMENT THE T.S. CONTROLLER FOR TIMING. CONTRACTOR SHALL PICK-UP CONTROLLER FROM P.L.D. WHEN READY FOR INSTALLATION.
27. PROPOSED T.S. SHALL BE PUT INTO OPERATION AT TIME OF REMOVAL OF EXISTING T.S. FACILITIES. CONTRACTOR SHALL NOTIFY THE P.L.D. INSPECTION IF HE IS UNABLE TO MAINTAIN T.S. IN AN OPERABLE CONDITION AT ALL TIMES.
28. THE CANDLEPOWER DISTRIBUTION FOR ALL MERCURY VAPOR & SODIUM VAPOR ST. LTG. LUMINAIRES SHALL BE SEMI-CUTOFF, MEDIUM DISTRIBUTION OF TYPE AS INDICATED ON THE PLANS.
29. ALL LUMINAIRES SHALL BE PROVIDED WITH 240V. INTERNAL BALLASTS AS CALLED FOR ON PLANS. (EXCEPT WHERE OTHERWISE INDICATED)
30. WHERE REMOVAL OF LUMINAIRES IS CALLED FOR ON PLANS THE ASSOCIATED O.H. SERIES COIL SHALL BE REMOVED BY THE CONTRACTOR. (REMOVE O.H. COIL IS INCLUDED WITH THE REMOVAL OF LUMINAIRE).
31. WHERE INSTALLATION OF NEW MANHOLES OR HANDHOLES OVER EXISTING CONDUITS (TO ACCOMMODATE NEW & EXISTING CONDUITS) IS CALLED FOR ON PLANS, CONTRACTOR SHALL CAREFULLY & SO AS NOT TO DAMAGE EXIST. CABLES, REMOVE THE EXISTING CONDUITS & ENCASEMENT WITHIN HOLES. EXIST. CABLES SHALL BE EXTENDED & PROPERLY TRAINED, RACKED & SUPPORTED.
32. WHERE ABANDONING OF U.G. CABLES IS CALLED FOR ON PLANS OR DIAGRAMS, CONTRACTOR SHALL CUT & REMOVE CABLES WITHIN MANHOLES & HANDHOLES.
33. FOR LOCATIONS OF P.L.D. INSTALLATIONS ON STRUCTURES SUCH AS CONDUITS HANDHOLES, CONDUIT SLEEVES, GALVANIZED STEEL CONDUITS & STREET LIGHTING STANDARD ANCHOR BOLTS SEE STRUCTURE PLANS.
34. PAVEMENT, SIDEWALK, CURB REMOVAL, REPLACEMENT AND EXCAVATION & BACKFILL SHALL BE DONE ACCORDING TO CITY OF DETROIT SPECIFICATIONS.
35. UNDERGROUND CABLE QUANTITIES ARE ITEMIZED ON GENERAL PLANS. ALL CABLES SHALL BE TAGGED IN ALL M.H.'S & H.H.'S. THIS INCLUDES EXIST. CABLES THAT ARE CONVERTED TO MULTIPLE, RECONNECTED TO OTHER CIRCUITS OR RENDERED DEAD.
36. ALL NEW SALVAGED & CONVERTED STEEL STREET LIGHTING STANDARDS SHALL BE PAINTED.
37. ALL ST. LTG. UNITS INSTALLED ON THIS CONTRACT AND EXIST. STREET LIGHTING UNITS CONVERTED OR RE-CONNECTED TO OTHER CIRCUITS SHALL BE STENCILLED OR RE-STENCILLED AS SHOWN ON PLANS. (INCLUDED TO STREET LIGHTING UNITS)
38. STENCILLING SHALL BE ON THE CURB SIDE OF THE POLE, LOCATED BETWEEN 1.219m (4') AND 1.524m (5') ABOVE GRADE. ALL LETTERS AND NUMBERS SHALL BE 50.8mm (2") IN HEIGHT. THE STENCILLING SHALL BE DONE WITH A WEATHER-RESISTANT ENAMEL: BLACK ENAMEL ON GRAY COLORED OR ALUMINUM POLES, AND YELLOW OR WHITE ENAMEL ON BLACK OR BRONZE COLORED POLES.
39. WHERE UNDERGROUND UTILITIES INTERFERE WITH THE INSTALLATION OF A NEW FOUNDATION, INSTALL THE SPECIAL FOUNDATION OF PARTICULAR DIMENSIONS AS INDICATED ON THE DETAIL DRWG. TO SUIT THE FIELD CONDITION. THERE WILL BE NO EXTRA PAYMENT FOR THE SPECIAL FOUNDATION. IT WILL BE PAID FOR AS A NORMAL FOUNDATION.
40. ALL NEW CONDUIT RUNS SHALL BE BUILT STRAIGHT AS POSSIBLE. BENDS SHALL HAVE NO LESS THAN 7.925m (26') RADIUS AND NO REVERSE OR "S" BENDS.
41. WHERE TRIMMING OF TREES ON CITY PROPERTY IS CALLED FOR ON PLANS THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE RECREATION DEPT. OF THE CITY OF DETROIT AND SHALL HAVE SUCH WORK DONE BY A LICENSED TREE SERVICE CONTRACTOR. CALL (313) (931-3950).
42. ALL TREE TRIMMING REQUIRED TO CLEAR NEW OR SALVAGED STREET LIGHTING & TRAFFIC SIGNAL STD.'S AND O.H. ST. LTG. & TRAFFIC SIGNAL UNITS & O.H. WIRES SHALL BE INCLUDED WITH THE PAY-ITEM & NO EXTRA PAYMENT SHALL BE MADE.
43. WHERE IT IS SHOWN ON PLANS TO HAND DIG FOUNDATION, EXCAVATE BY HAND TOOLS ENTIRE DEPTH OF FOUNDATION. NO MECHANICAL EQUIPMENT SHALL BE USED.
44. CONTRACTOR SHALL NOTIFY THE P.L.D. SYSTEM OPERATOR AT (313) (224-0500) & THE D.D.O.T. AFTER COMPLETION OF WORK AT ANY TRAFFIC SIGNAL INTERSECTION.
45. ALL CABLES SHALL BE TRAINED & PROPERLY RACKED IN ALL EXISTING MANHOLES & HANDHOLES. RACKS ARE TO BE INSTALLED WHERE NECESSARY & ARE INCLUDED IN THE INSTALLATION OF UNDERGROUND CABLE.
46. ALL CONDUITS NOT TERMINATING IN STRUCTURES SUCH AS MANHOLES, HANDHOLES OR FOUNDATIONS SHALL EXTEND .914m (3') BEYOND PAVEMENT LIMIT (EXCEPT AS OTHERWISE INDICATED). ALL UNOCCUPIED CONDUITS SHALL BE PLUGGED.
47. ALL NEW UNDERGROUND-FED STREET LIGHTING UNITS SHALL BE INSTALLED .762m (2.5') BACK OF FACE OF CURB UNLESS OTHERWISE INDICATED ON PLANS. VERIFY WITH P.L.D.
48. D.S.R. STREETCAR RAILS AND FOUNDATIONS (TRACKS) ARE SHOWN ON THE PLANS IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. EXACT LOCATIONS WITHIN THE STREETS & INTERSECTIONS ARE NOT KNOWN. SOME RAILS MAY BE REMOVED.
49. THE "FINAL" CONDUIT MUST BE TRIMMED FLUSH WITH MANHOLE WALL, HAVE END BELLS AND SPACERS AND BE TUCK POINTED. DO NOT ENCASE FINAL CONDUIT WITHOUT INSPECTION BY THE P.L.D. UNDERGROUND INSPECTION DEPARTMENT.
50. INSTALL 5mm (3/16") DIAMETER YELLOW POLYPROPYLENE ROPE IN ALL "FINAL" CONDUIT. (INCLUDE IN PAY ITEM FOR "CONDUIT")
51. METRIC MEASUREMENTS: M-METERS, mm-MILLIMETERS AND MPa-MEGAPASCALS.
52. CONDUIT TRENCHES SHALL BE EXCAVATED FROM MANHOLE TO MANHOLE TO ASSURE A CLEAR PASSAGE WITH PROPER GRADING PRIOR TO BUILDING ENCASED CONDUIT RUN.

ITEM		QUANTITIES
LIST OF MATERIAL		
CONDUIT REPAIR-UNDER SIDEWALK OR DIRT		1 EA.
CONDUIT REPAIR-UNDER PAVEMENT		1 EA.
REMOVING STREETCAR RAIL AND FOUNDATION		----- M

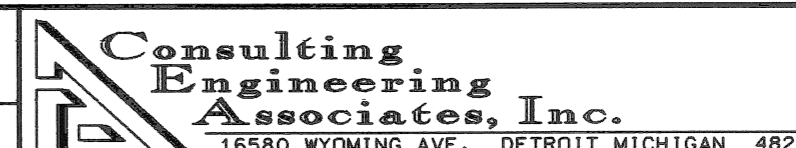
THE ITEMS AND QUANTITIES LISTED ABOVE SHALL APPLY TO ALL LOCATIONS AS DIRECTED BY THE ENGINEER.

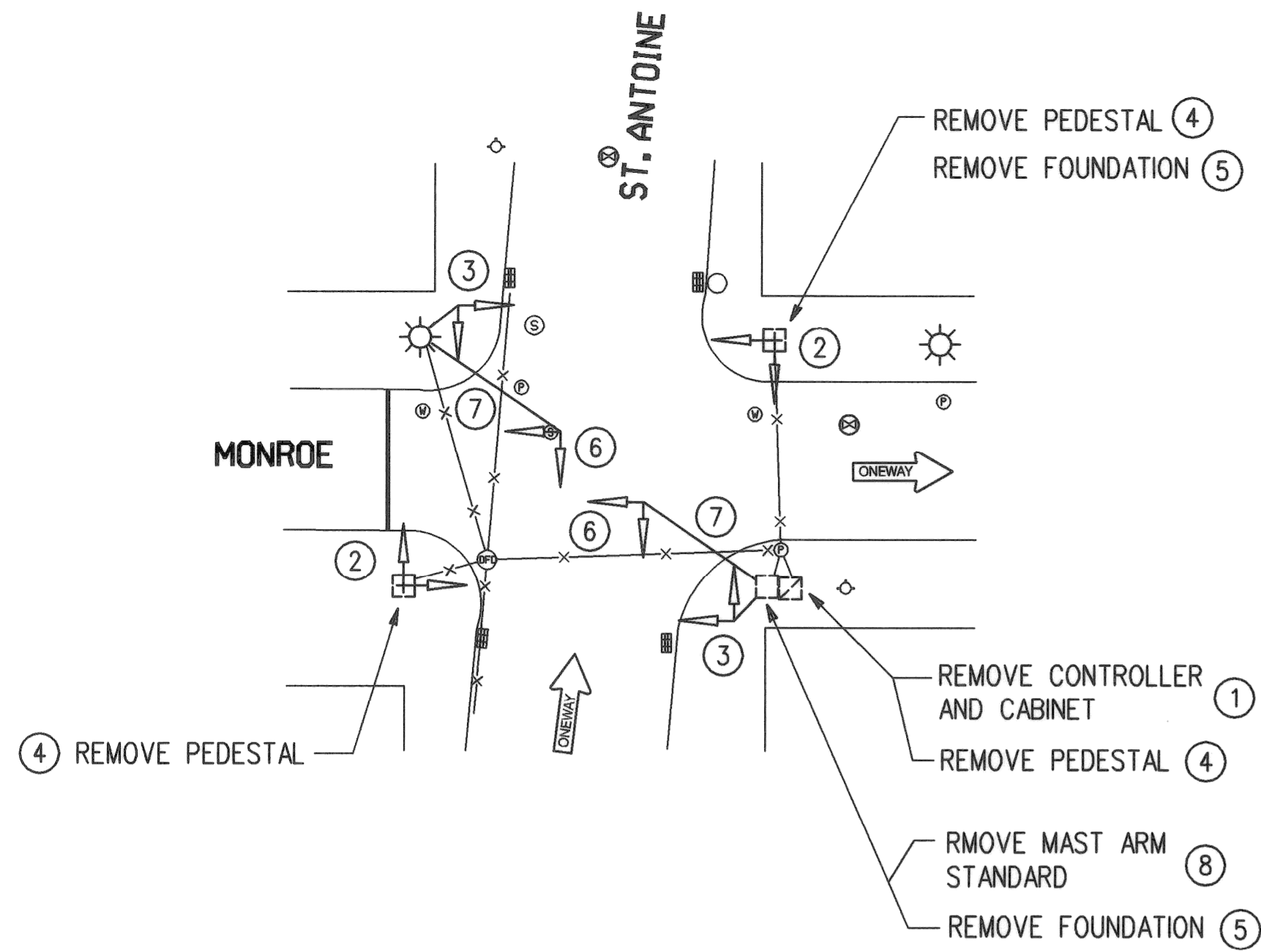
**HAND DIG ENTIRE DEPTH OF ALL STEEL STRAIN POLE & MAST ARM STANDARD FOUNDATIONS.**

ALL REMOVED TRAFFIC SIGNAL AND STREET LIGHTING EQUIPMENT SHALL BE SALVAGED IN REUSABLE CONDITION AND SHALL BECOME PROPERTY OF PLD. ALL REMOVED MATERIAL WILL BE STORED ON SITE FOR PICK-UP BY PLD. ALL MATERIAL LEFT FOR THE CONTRACTOR WILL BECOME THE RESPONSIBILITY OF THE CONTRACTOR FOR DISPOSAL AWAY FROM THE SITE.

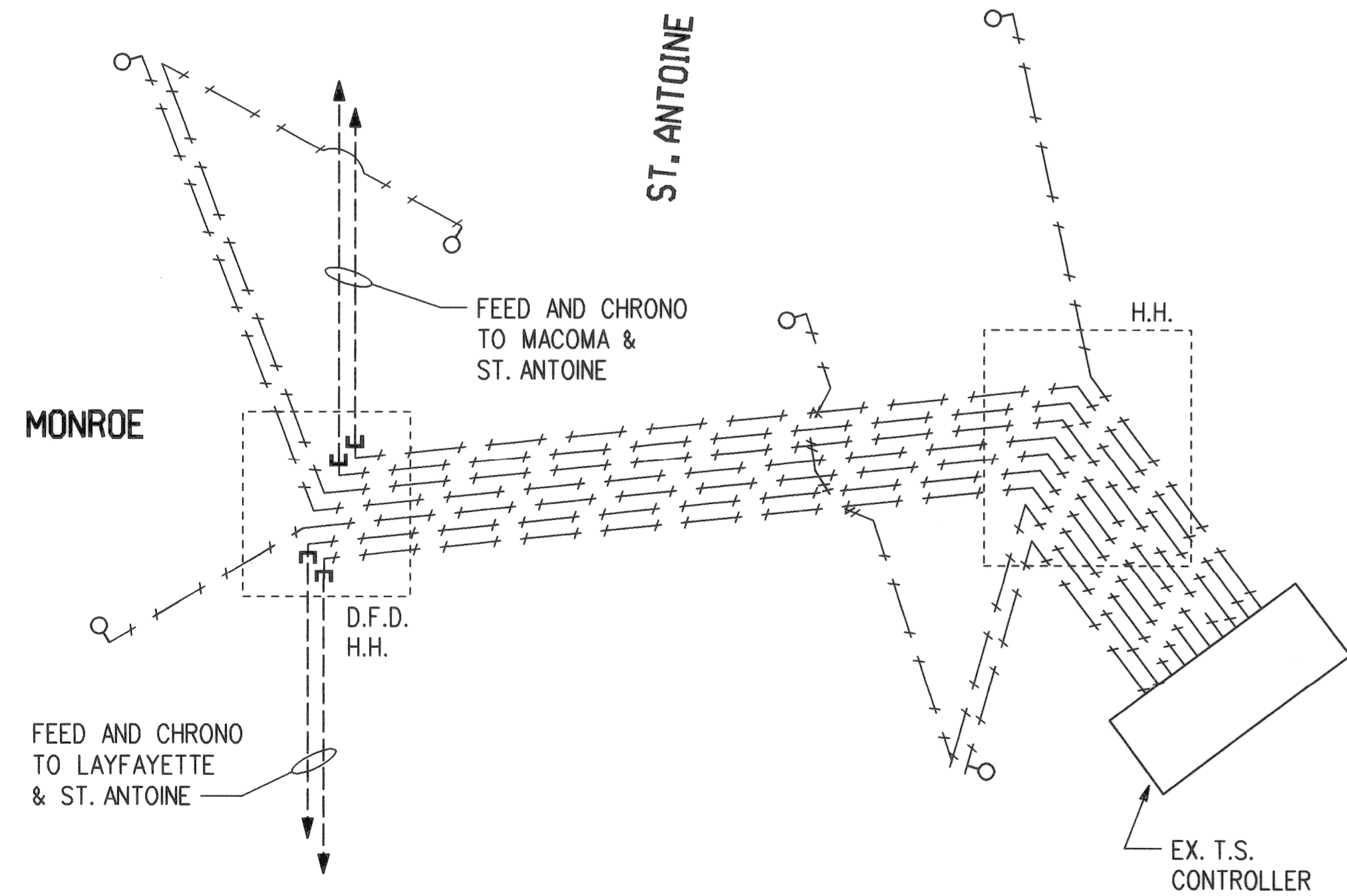
REV	Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEK TOWN  
GENERAL INFORMATION**

Designed by CEA	 <p style="font-size: small;">16580 WYOMING AVE., DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205</p>	Scale No Scale	<b>PUBLIC LIGHTING DEPARTMENT CITY OF DETROIT</b>	File No. 52-24
Drawn by		Checked by		Sheet No. 3 of
Checked by		Disk File Name GEN-2		File No. CEA 130900

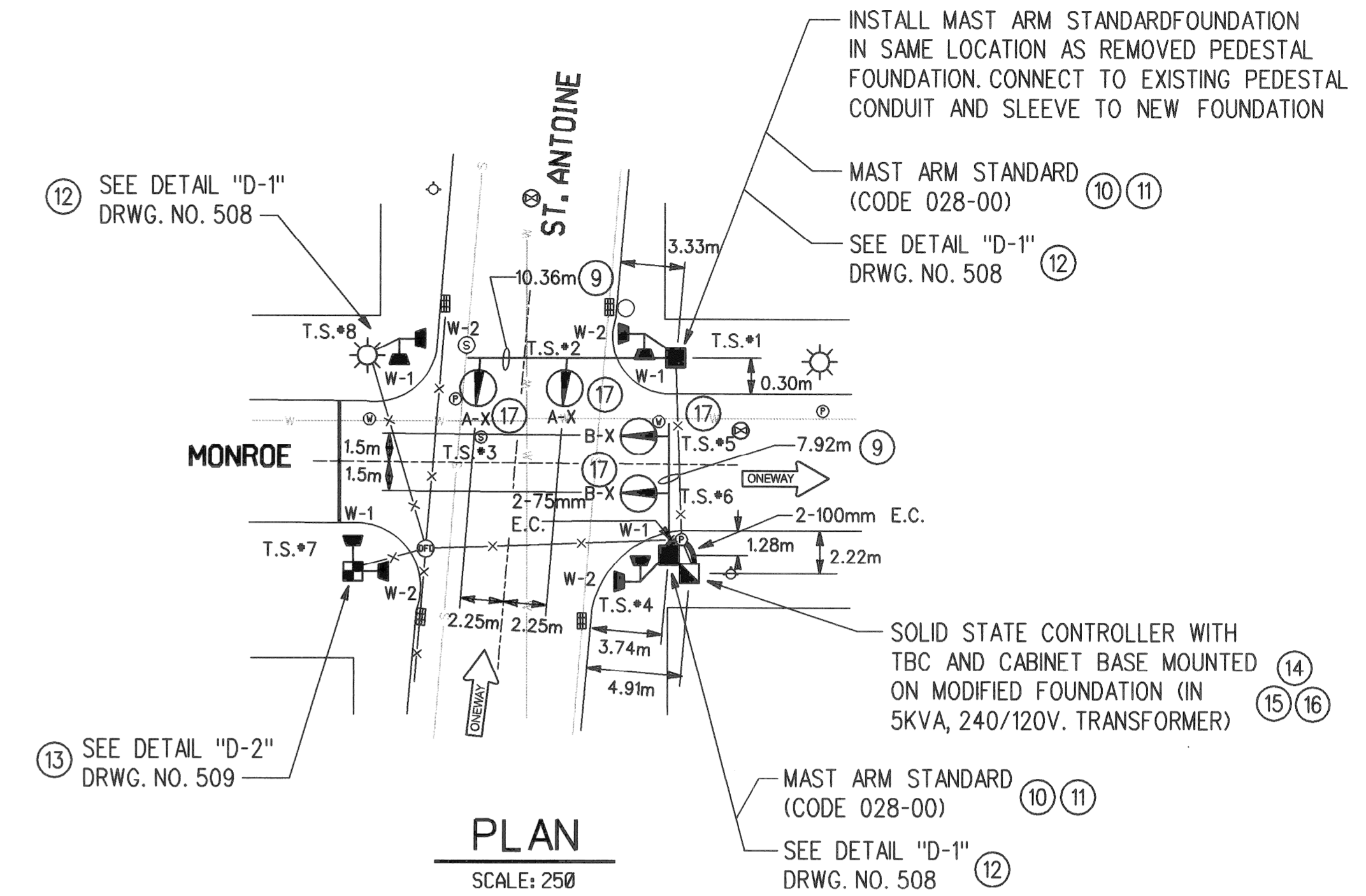


**REMOVAL PLAN**  
SCALE: 250

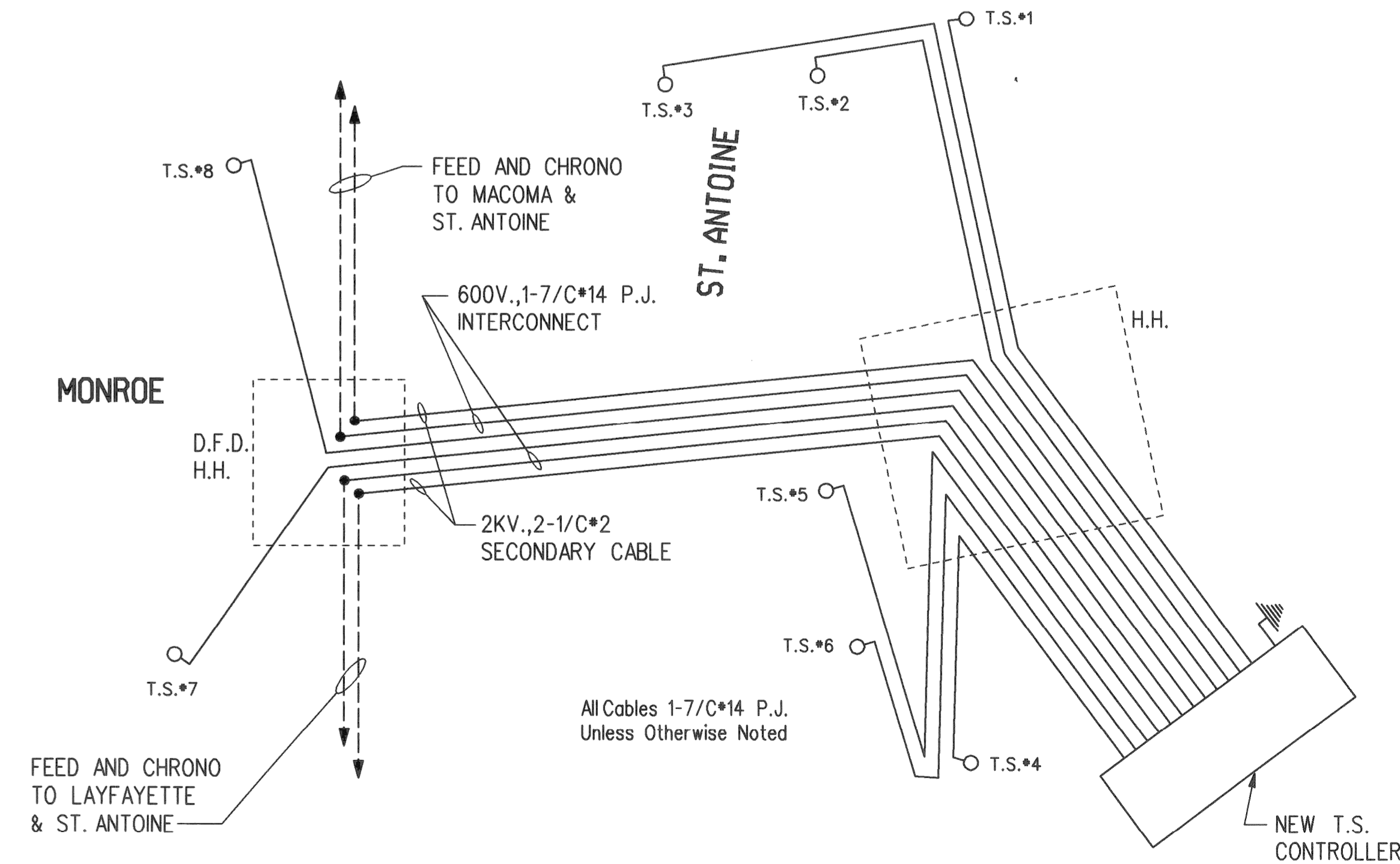


**REMOVAL WIRING DIAGRAM**  
N.T.S.

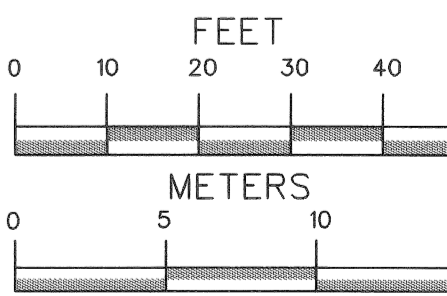
LIST OF MATERIAL			
NO.	ITEMS	QUANTITIES	CODE NO.
1	Controller and Cabinet, Rem	1 ea	8200017
2	TS, Bracket Arm Mtd, Rem	2 ea	8200065
3	TS, Pedestal Mtd, Rem	2 ea	8200068
4	Pedestal, Rem	3 ea	8200039
5	Fdn, Rem	2 ea	8200022
6	TS, Mast Arm Mtd, Rem	2 ea	8200067
7	Mast Arm, Rem	2 ea	8200035
8	Mast Arm Std, Rem	1 ea	8200036
9	Mast Arm	2 ea	8200400
10	Mast Arm Std (Code 028-00)	2 ea	8200401
11	Mast Arm Std Fdn	2 ea	8200402
12	TS, Pedestrian, Two Way Bracket Arm Mtd	3 ea	8200260
13	TS, Pedestrian, Two Way Pedestal Mtd	1 ea	8200268
14	Controller and Cabinet, Solid State, TBC, Delivered	1 ea	8200329
15	Controller and Cabinet, Solid State, TBC	1 ea	8200332
16	Controller Fdn, Base Mount, Modified	1 ea	-----
17	TS, One Way Mast Arm Mtd	4 ea	8200288
	Conduit, Encased, 2, 75 mm	1 m	8190034
	Conduit, Encased, 2, 100 mm	2 m	8190046
	P.J. Cable, 600V, 1, 7/c *14, Intercon	30 m	8190403
	Sec Cables, 2Kv, 2, 1/c *2	30 m	-----
	P.J. Cable, 600V, 1, 7/c *14	120 m	8190402



**PLAN**  
SCALE: 250



**WIRING DIAGRAM**  
N.T.S.



SCALE: 250



Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEKTOWN  
GENERAL PLAN**

Designed by  
**C.E.A.**  
Drawn by  
Checked by

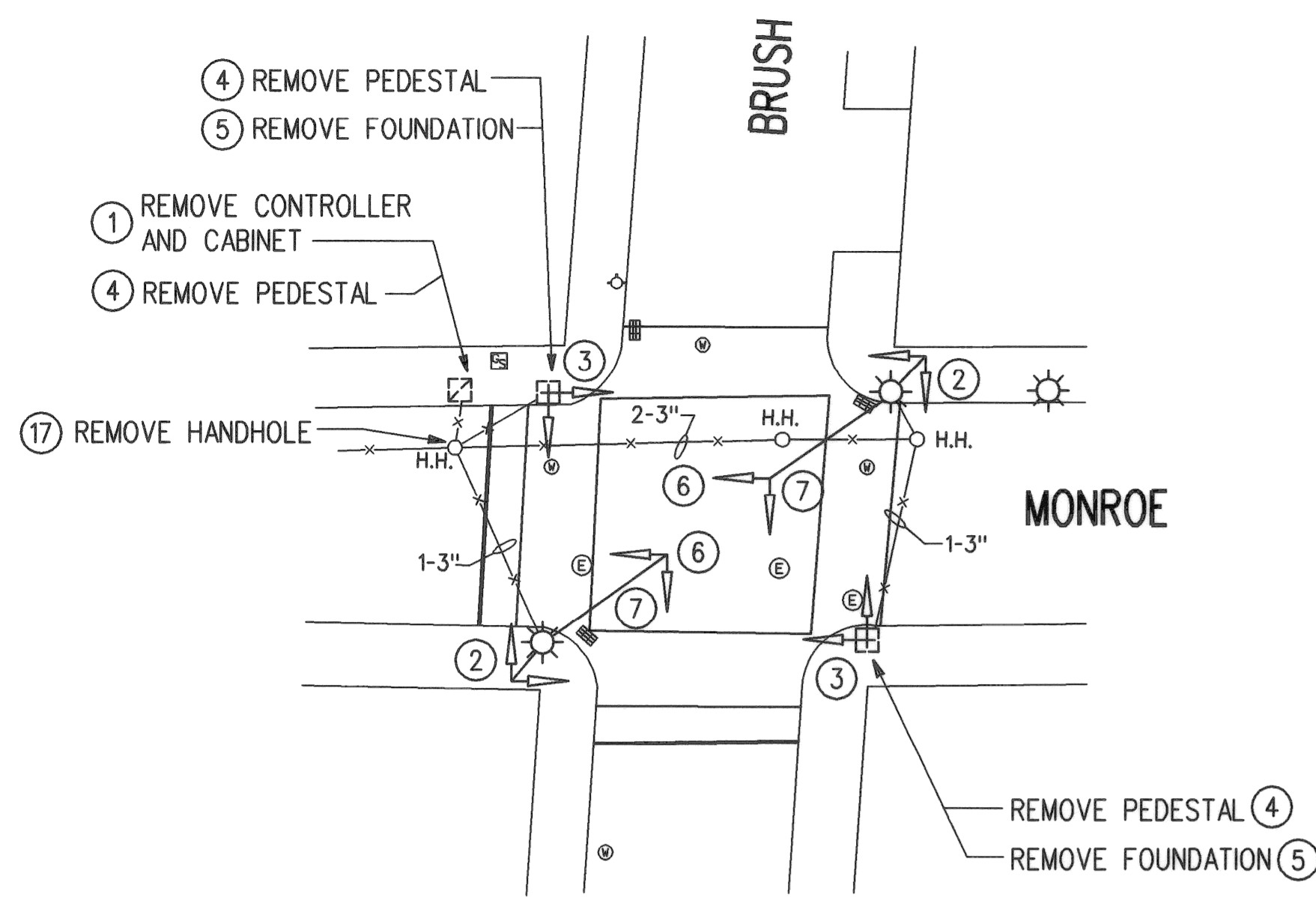
**Consulting  
Engineering  
Associates, Inc.**  
16580 WYOMING AVE. DETROIT MICHIGAN 48221  
TELEPHONE: (313) 341-5797 FAX: 341-0205

Metric Scale  
250  
Checked by  
Approved by

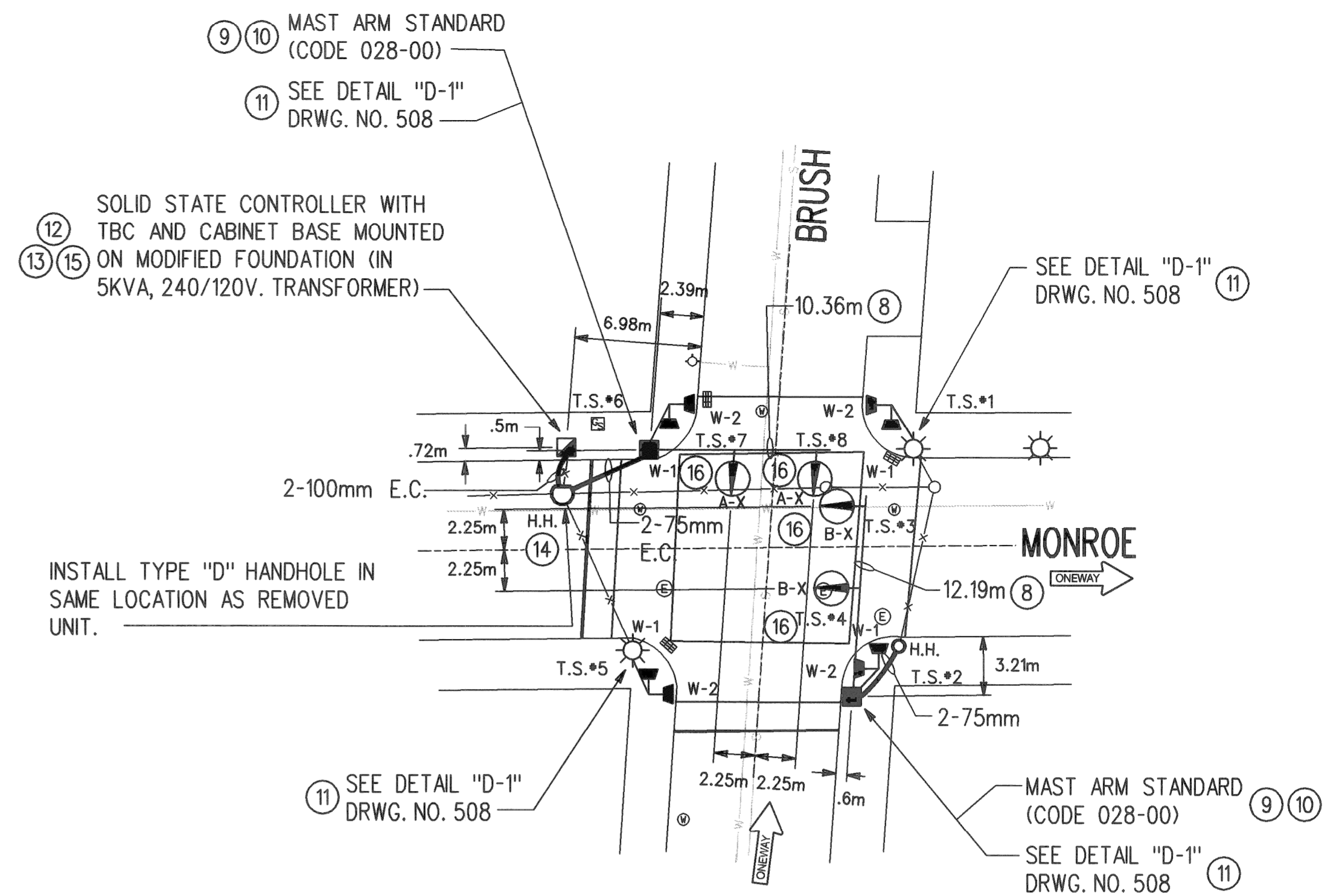
**PUBLIC LIGHTING  
DEPARTMENT  
CITY OF DETROIT**

File No.  
**32-247**  
Sheet No.  
**4 OF 4**  
Date  
**JUNE-19**

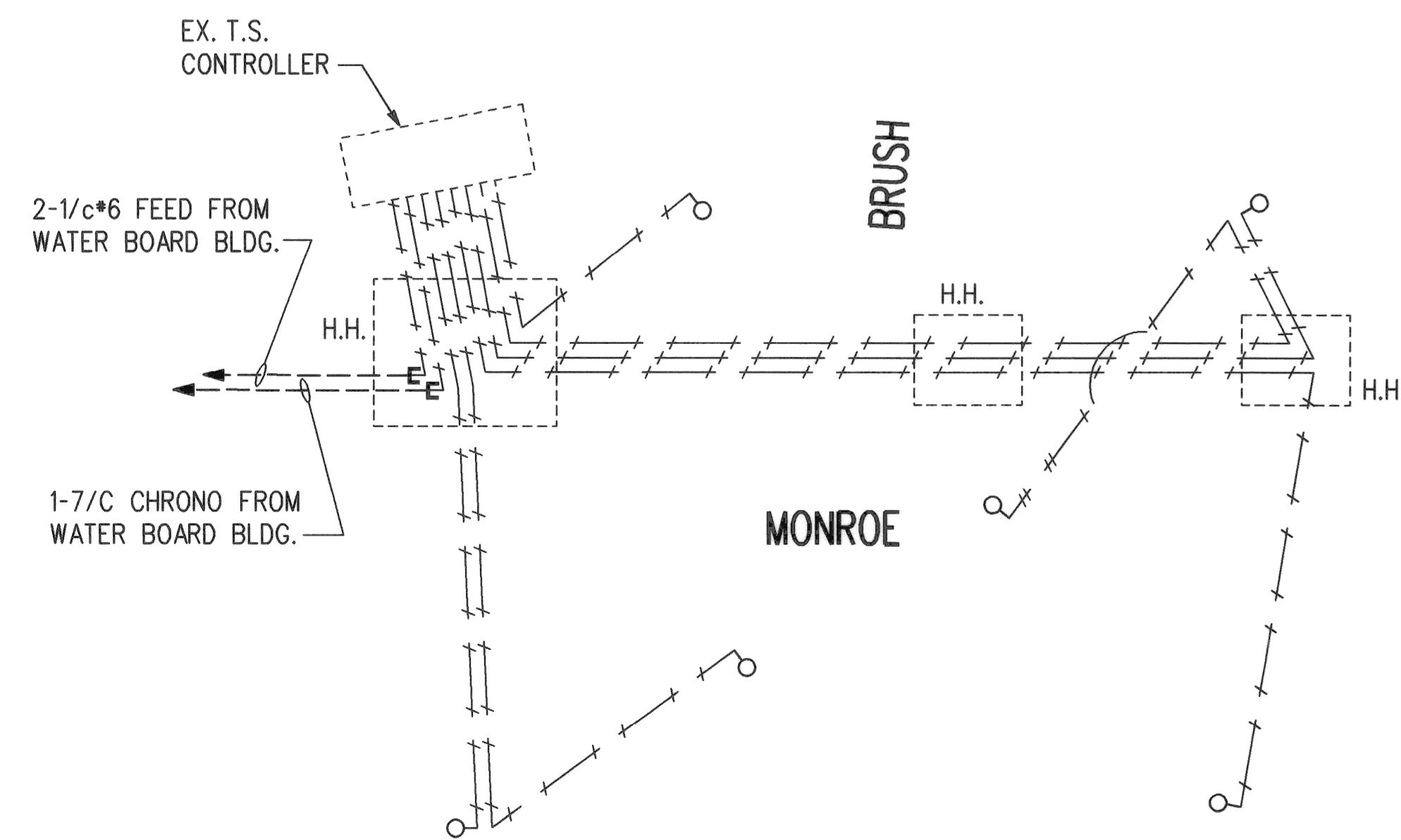
USE TS-METRIC-PLT FOR SCALE 250 PLOTTING SCALE 6:385



**REMOVAL PLAN**  
SCALE: 250

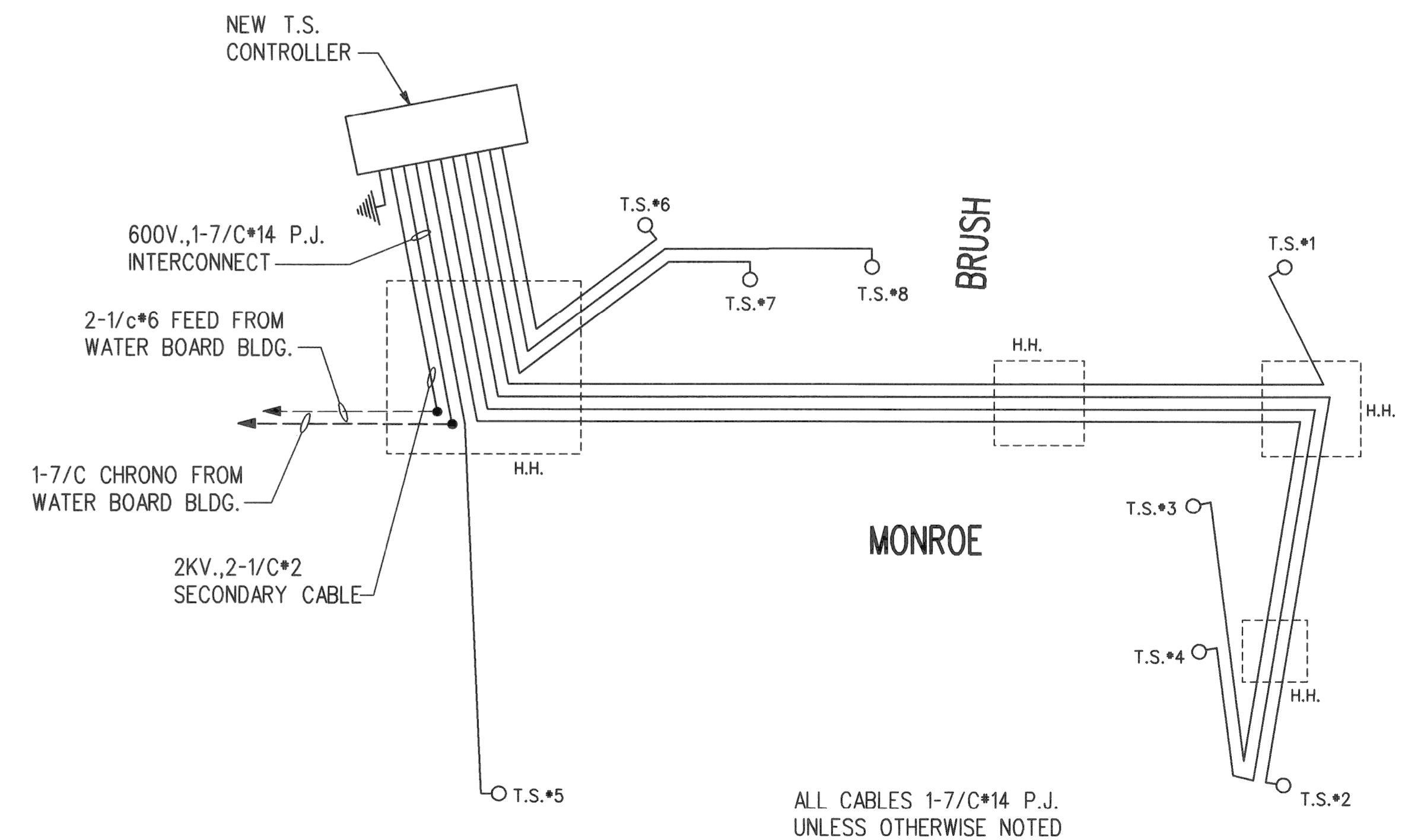


**PLAN**  
SCALE: 250

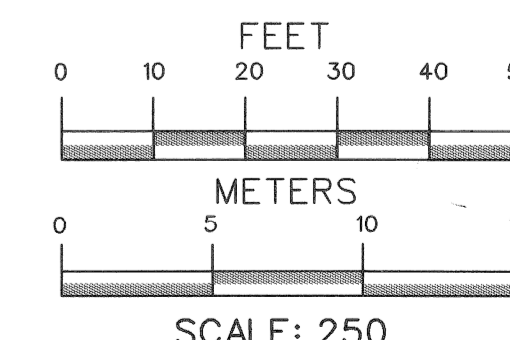


**REMOVAL WIRING DIAGRAM**  
N.T.S.

LIST OF MATERIAL			
NO.	ITEMS	QUANTITIES	CODE NO.
1	Controller and Cabinet, Rem	1 ea	8200017
2	TS, Bracket Arm Mtd, Rem	2 ea	8200065
3	TS, Pedestal Mtd, Rem	2 ea	8200068
4	Pedestal, Rem	3 ea	8200039
5	Fdn, Rem	2 ea	8200022
6	TS, Mast Arm Mtd, Rem	2 ea	8200067
7	Mast Arm, Rem	2 ea	8200035
8	Mast Arm	2 ea	8200400
9	Mast Arm Std (Code 028-00)	2 ea	8200401
10	Mast Arm Std Fdn	2 ea	8200402
11	TS, Pedestrian, Two Way Bracket Arm Mtd	4 ea	8200260
12	Controller and Cabinet, Solid State, TBC, Delivered	1 ea	8200329
13	Controller and Cabinet, Solid State, TBC	1 ea	8200332
14	Hh, Type D	1 ea	8190350
15	Controller Fdn, Base Mount, Modified	1 ea	-----
16	TS, One Way Mast Arm Mtd	4 ea	8200288
17	Hh, Rem	1 ea	8190344
	Conduit, Encased, 2, 75 mm	9 m	8190034
	Conduit, Encased, 2, 100 mm	3 m	8190046
	P.J. Cable, 600V, 1, 7/c *14, Intercn	4 m	8190403
	Sec Cables, 2Kv, 2, 1/c *2	4 m	-----
	P.J. Cable, 600V, 1, 7/c *14	200 m	8190402



**WIRING DIAGRAM**  
N.T.S.



**WARNING!** ALL UTILITY LOCATIONS ARE APPROXIMATE AND NOT EXACT. 3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE)

REV	Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS FOR GREEKTOWN GENERAL PLAN**

Designed by  
C.E.A.  
Drawn by  
Checked by

**Consulting Engineering Associates, Inc.**  
16580 WYOMING AVE. DETROIT MICHIGAN 48221  
TELEPHONE: (313) 341-5797 FAX: 341-0205

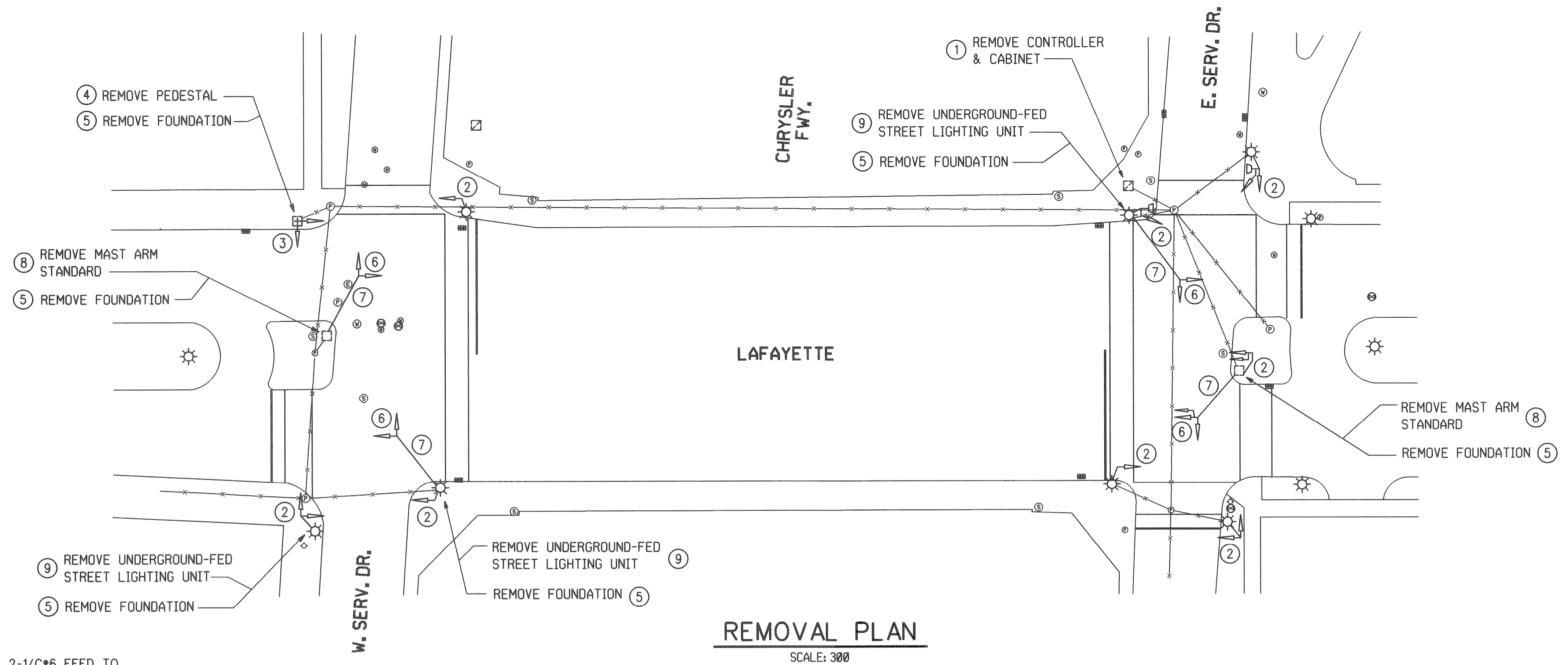
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Job File No.: CEA 130900

Metric Scale: 250  
Checked by  
Approved by

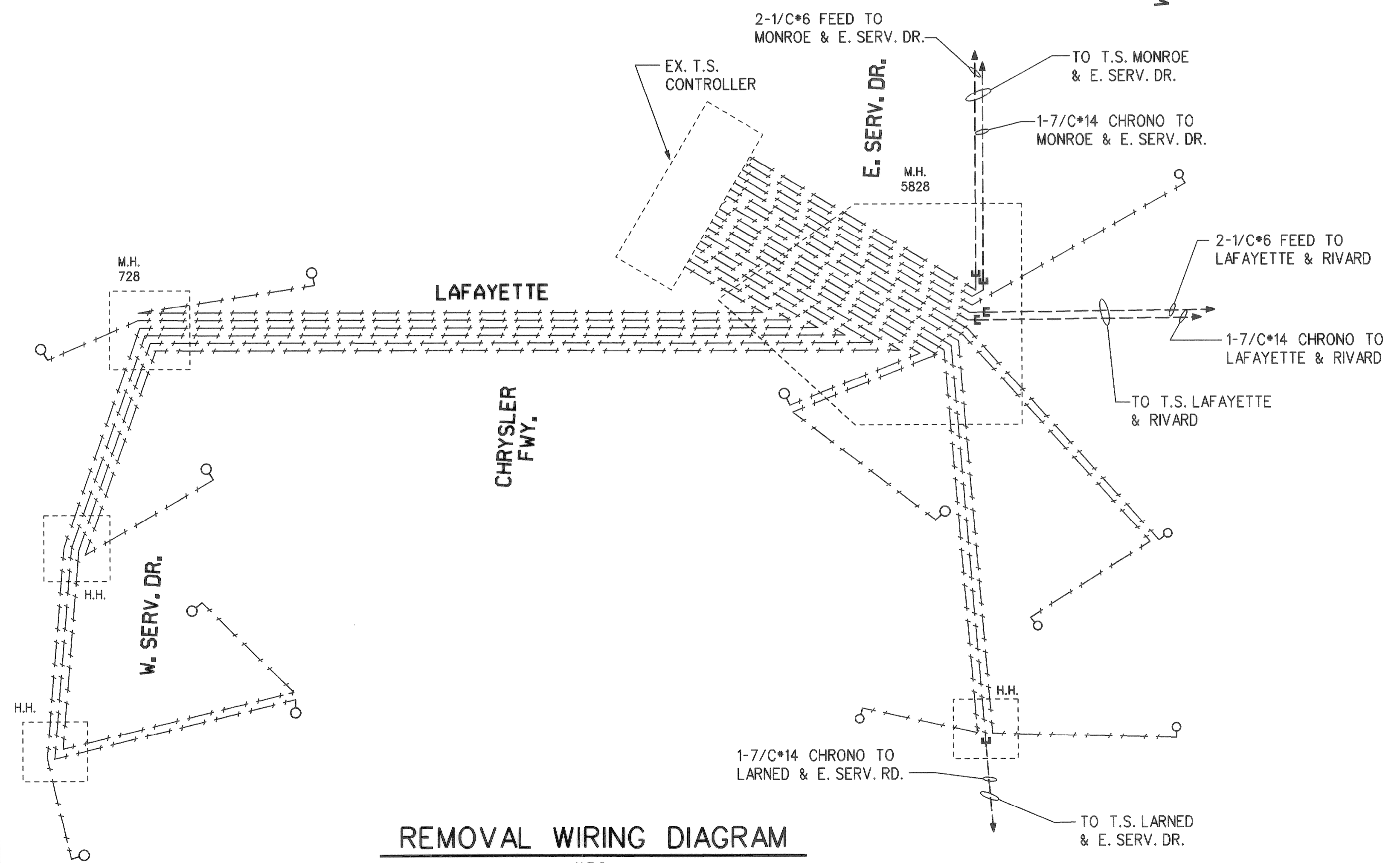
**PUBLIC LIGHTING DEPARTMENT**  
CITY OF DETROIT

File No.: 52-2473  
Sheet No.: 5 OF 00  
Date: JUNE-1999

USE TS-METRIC.PLT FOR SCALE 250 PLOTTING SCALE 6:365

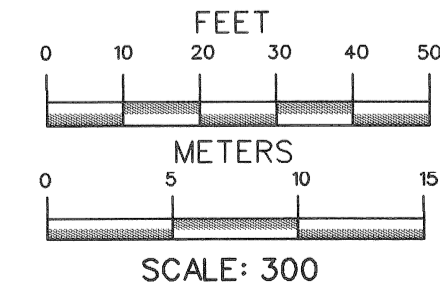


**REMOVAL PLAN**  
SCALE: 300



**REMOVAL WIRING DIAGRAM**  
N.T.S.

LIST OF MATERIAL			
NO.	ITEMS	QUANTITIES	CODE NO.
1	Controller and Cabinet, Rem	1 ea	8200017
2	TS, Pedestrian, Bracket Arm Mtd, Rem	8 ea	8200069
3	TS, Pedestrian, Pedestal Mtd, Rem	1 ea	8200070
4	Pedestal, Rem	1 ea	8200039
5	Fdn, Rem	6 ea	8200022
6	TS, Mast Arm Mtd, Rem	4 ea	8200067
7	Mast Arm, Rem	4 ea	8200035
8	Mast Arm Std, Rem	2 ea	8200036
9	Underground Fed St Ltg Unit, Rem	3 ea	8190840



REV	Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEKTOWN  
GENERAL PLAN**

Designed by  
**C.E.A.**

Drawn by  
---

Checked by  
---

Disk File Name  
1309-3

Job File No.  
CEA 130900

**Consulting  
Engineering  
Associates, Inc.**  
16580 WYOMING AVE. DETROIT MICHIGAN 48221  
TELEPHONE: (313) 341-5797 FAX: 341-0205

Metric Scale  
300

Checked by  
---

Approved by  
*W. Smith*

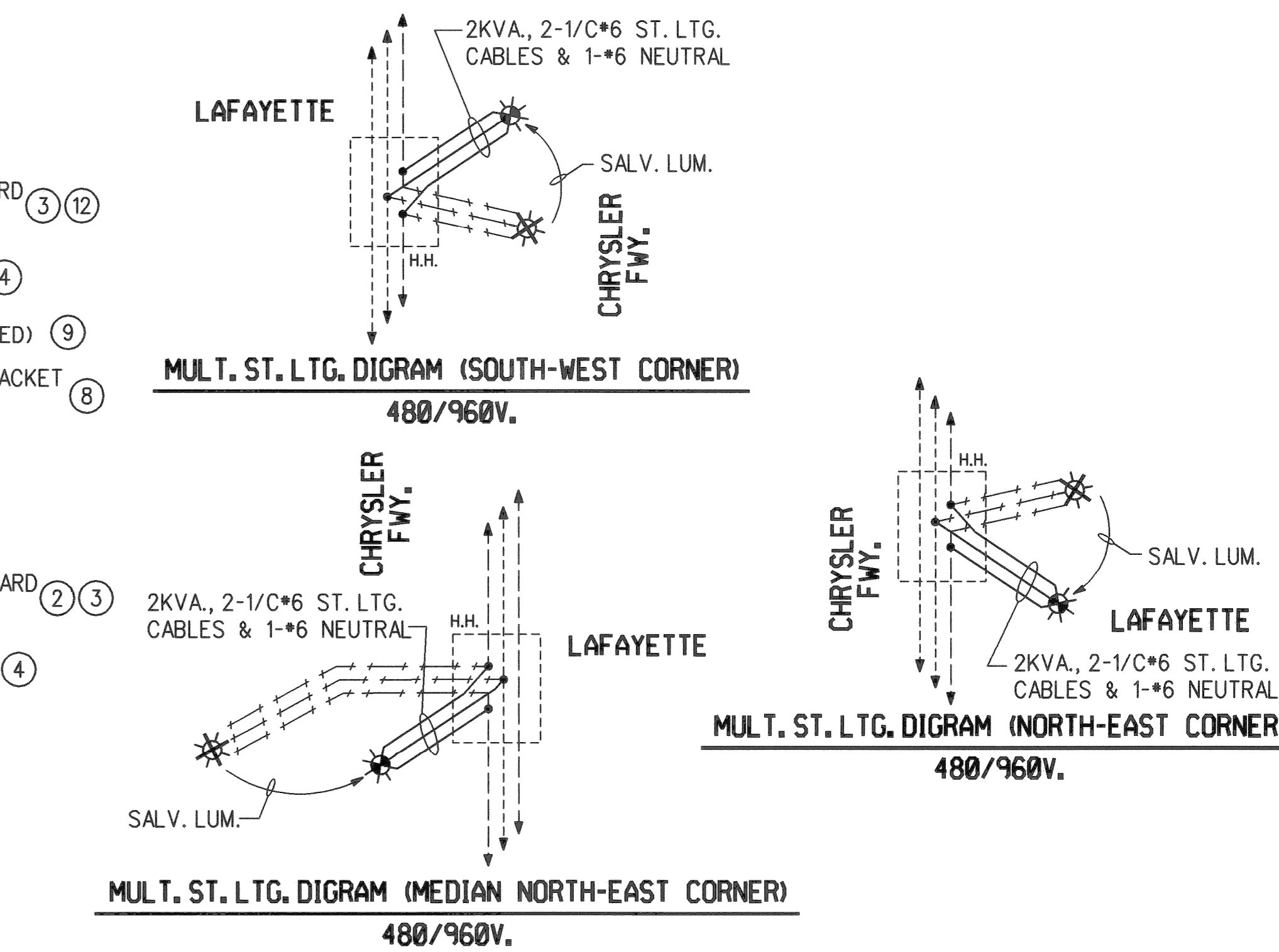
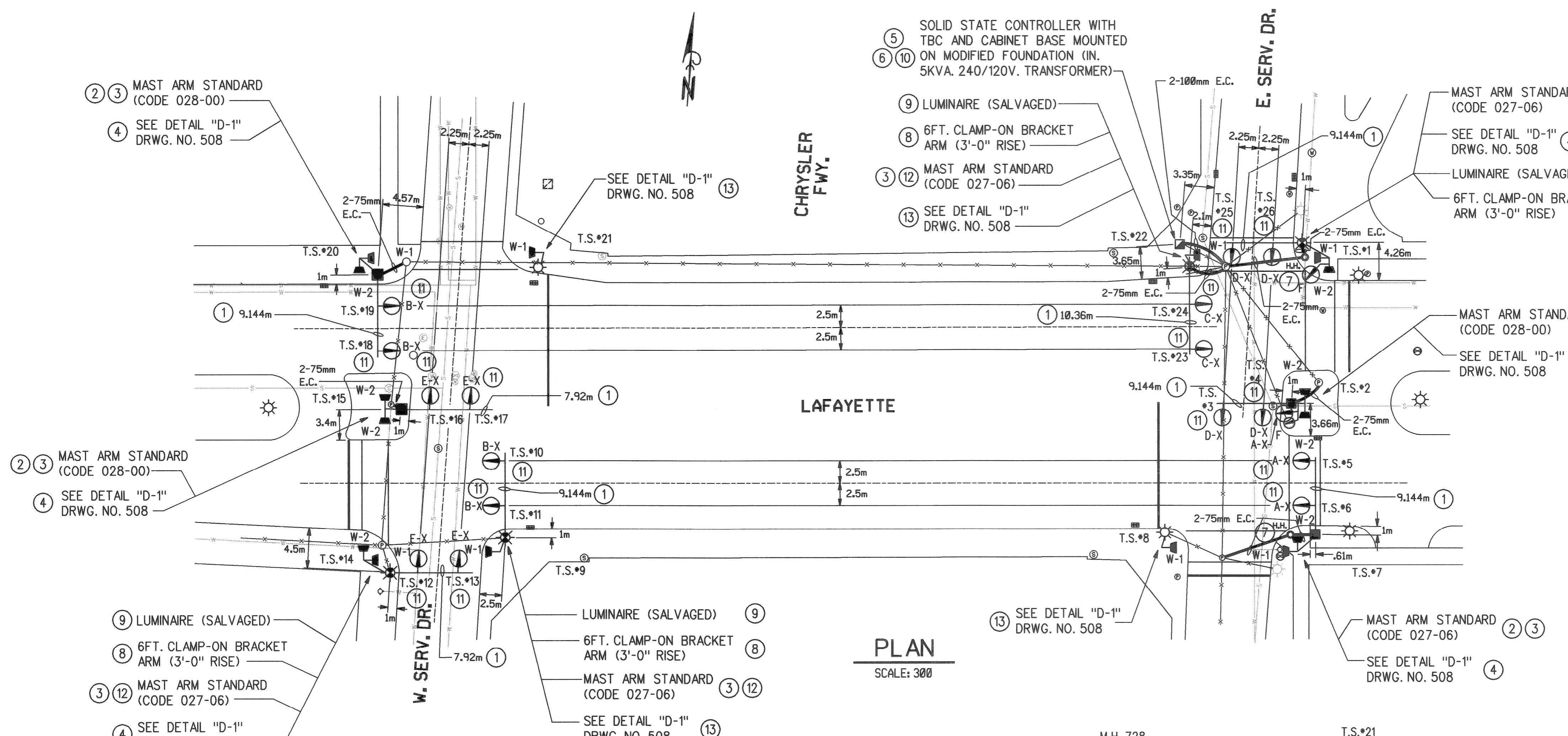
**PUBLIC LIGHTING  
DEPARTMENT  
CITY OF DETROIT**

File No.  
52-2473

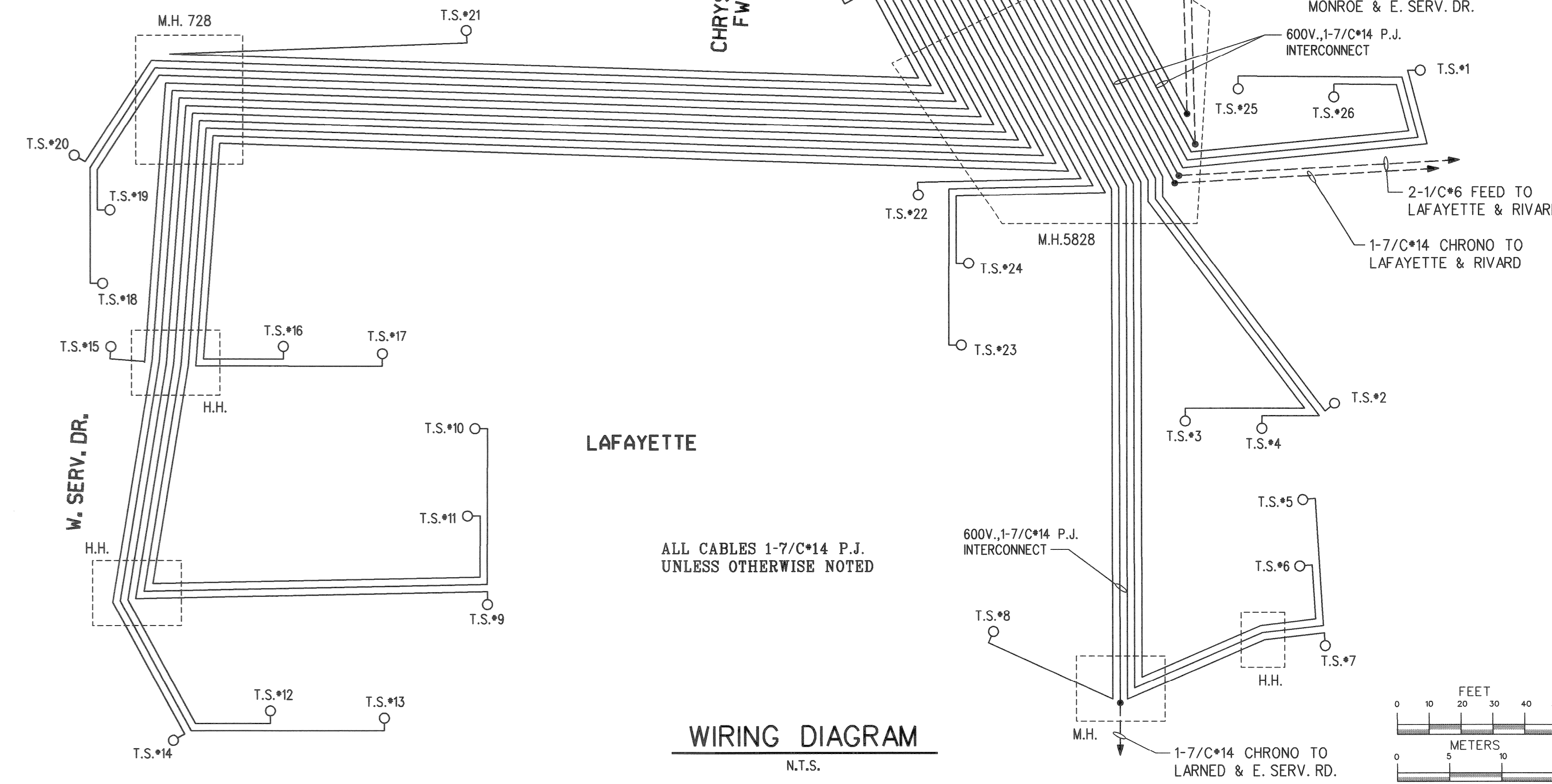
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**6 OF 00**

Date  
JUNE-1999

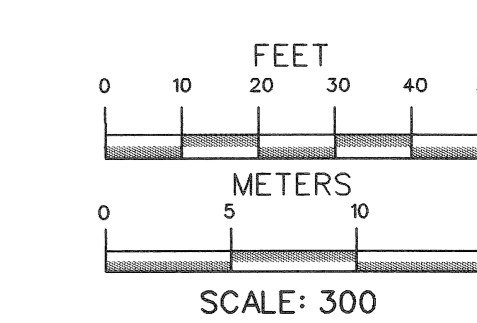
USE TS-METRC.PLT FOR SCALE 300 PLOTTING SCALE 7.640



LIST OF MATERIAL			
NO.	ITEMS	QUANTITIES	CODE NO.
1	Mast Arm	8 ea	8200400
2	Mast Arm Std (Code 028-00)	4 ea	8200401
3	Mast Arm Std Fdn	8 ea	8200402
4	TS, Pedestrian, Two Way Bracket Arm Mtd	6 ea	8200260
5	Controller and Cabinet, Solid State, TBC, Delivered	1 ea	8200329
6	Controller and Cabinet, Solid State, TBC	1 ea	8200332
7	Hh, Round	2 ea	8190347
8	Bracket Arm, 1830 mm, with 915 mm Rise, Clamp on	4 ea	8200448
9	Luminaire, Salv	4 ea	8190537
10	Controller Fdn, Base Mount, Modified	1 ea	-----
11	TS, One Way Mast Arm Mtd	16 ea	8200288
12	Mast Arm Std (Code 027-06)	4 ea	-----
13	TS, Pedestrian, One Way Bracket Arm Mtd	4 ea	8200258
	Conduit, Encased, 2, 75 mm	35 m	8190034
	Conduit, Encased, 2, 100 mm	6 m	8190046
	P.J. Cable, 600V, 1, 7/c *14, Intercn	55 m	8190403
	Sec Cables, 2Kv, 2, 1/c *2	11 m	-----
	St Ltg Cable, 2Kv, 2, 1/c *6 & 1, *6 Neutral	35 m	8190448
	P.J. Cable, 600V, 1, 7/c *14	1900 m	8190402



WIRING DIAGRAM  
N.T.S.



REV.	Date	Description	Chkd. by

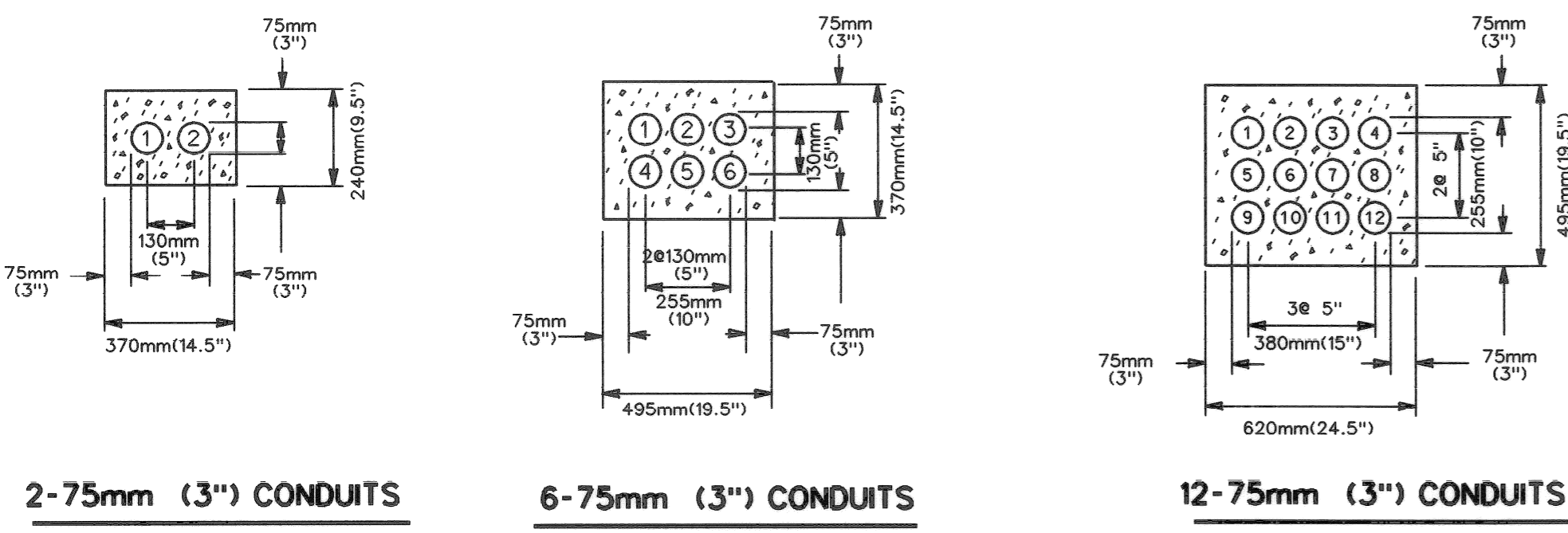
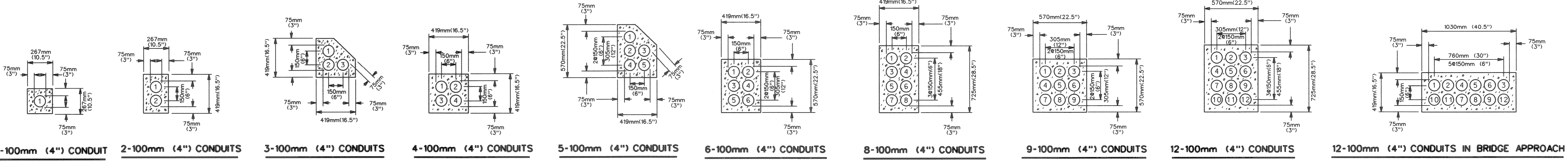
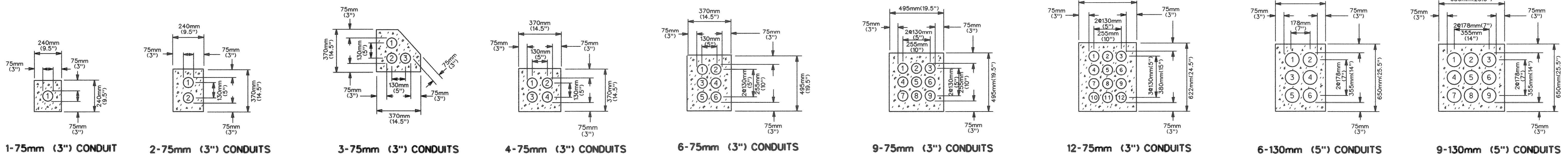
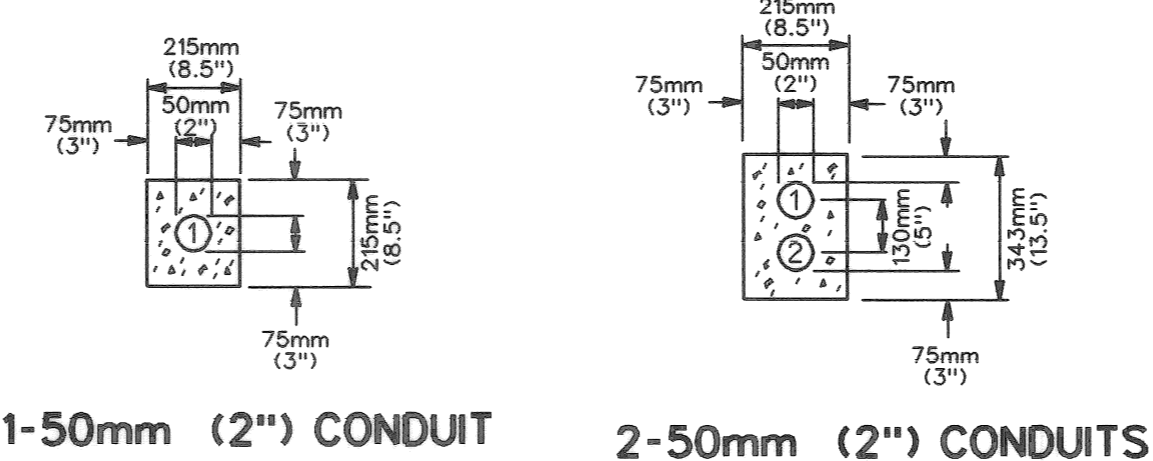
IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEKTOWN  
GENERAL PLAN

Designed by C.E.A.	Consulting Engineering Associates, Inc. 16580 WYOMING AVE. DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205	Metric Scale 300	<b>PUBLIC LIGHTING DEPARTMENT</b> CITY OF DETROIT	File No. -----
Drawn by ---		Checked by ---		Sheet No. 7 OF 00
Checked by ---	Disk File Name 1309-3	Job File No. CEA 130900	Approved by <i>Amah</i>	Date JUNE-1999

USE TS-METRC.PLT FOR SCALE 300 PLOTTING SCALE 7.640

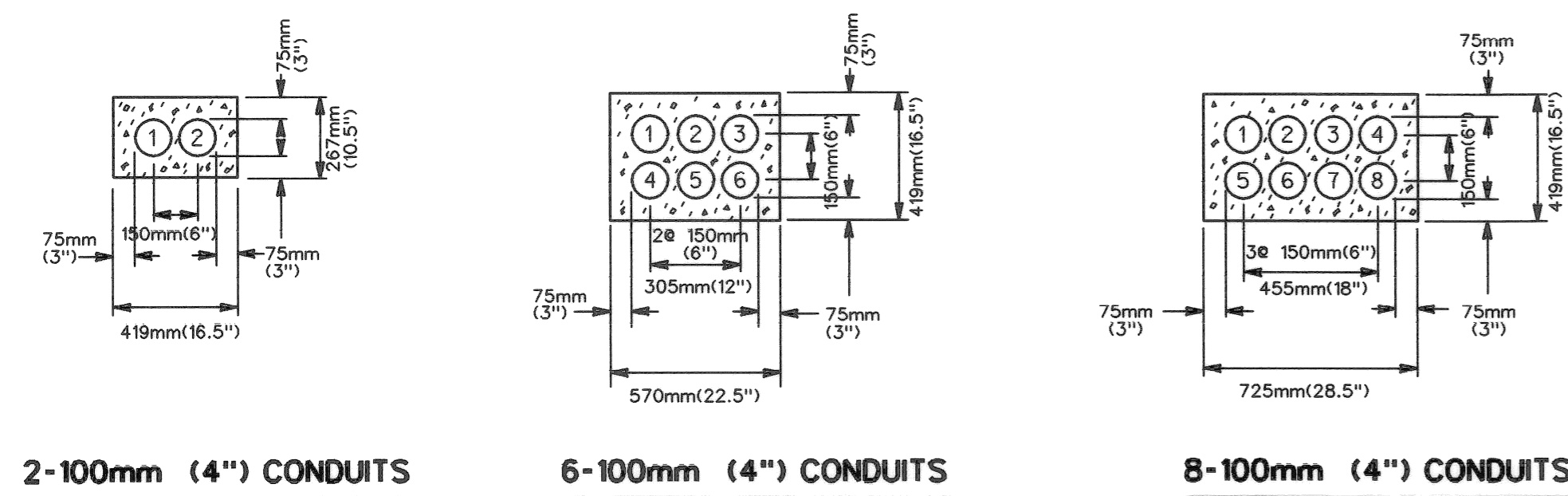






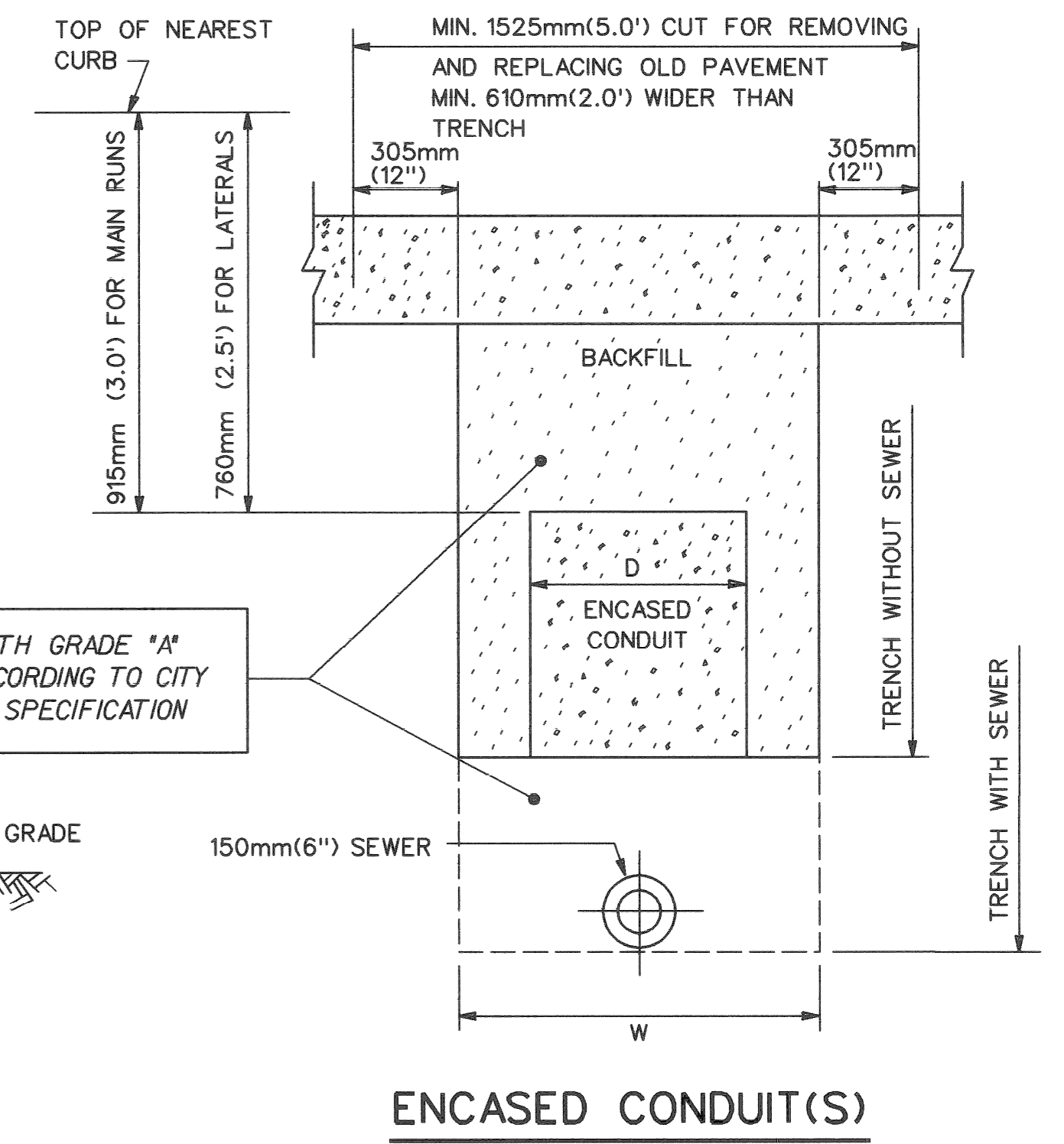
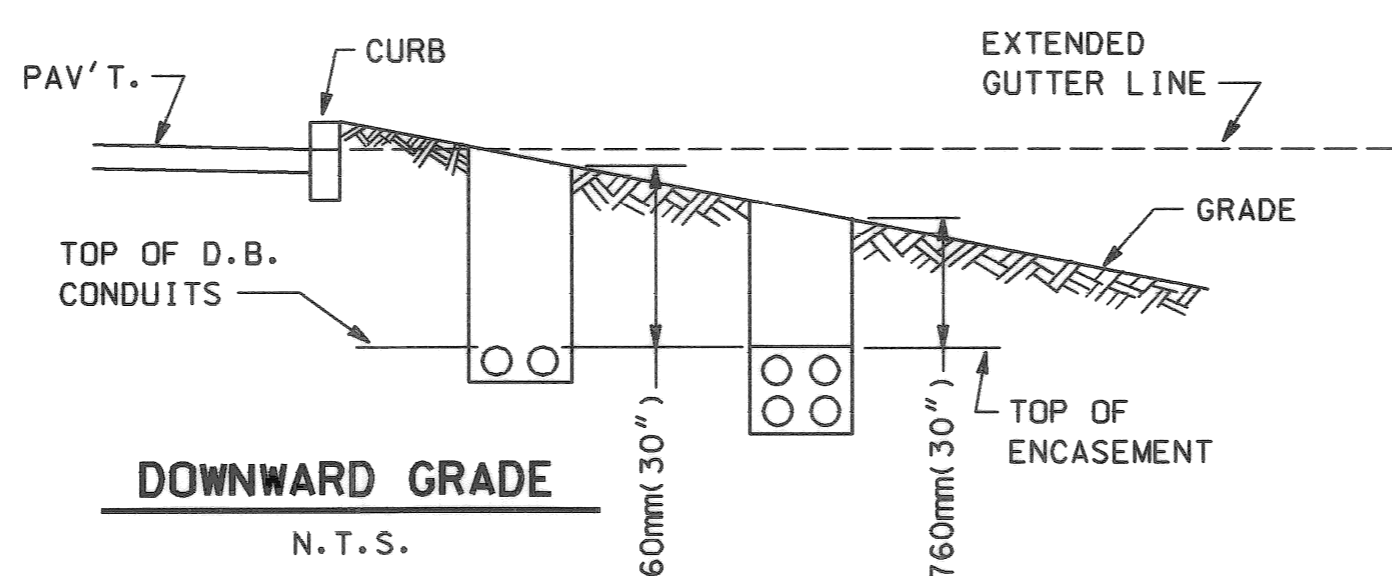
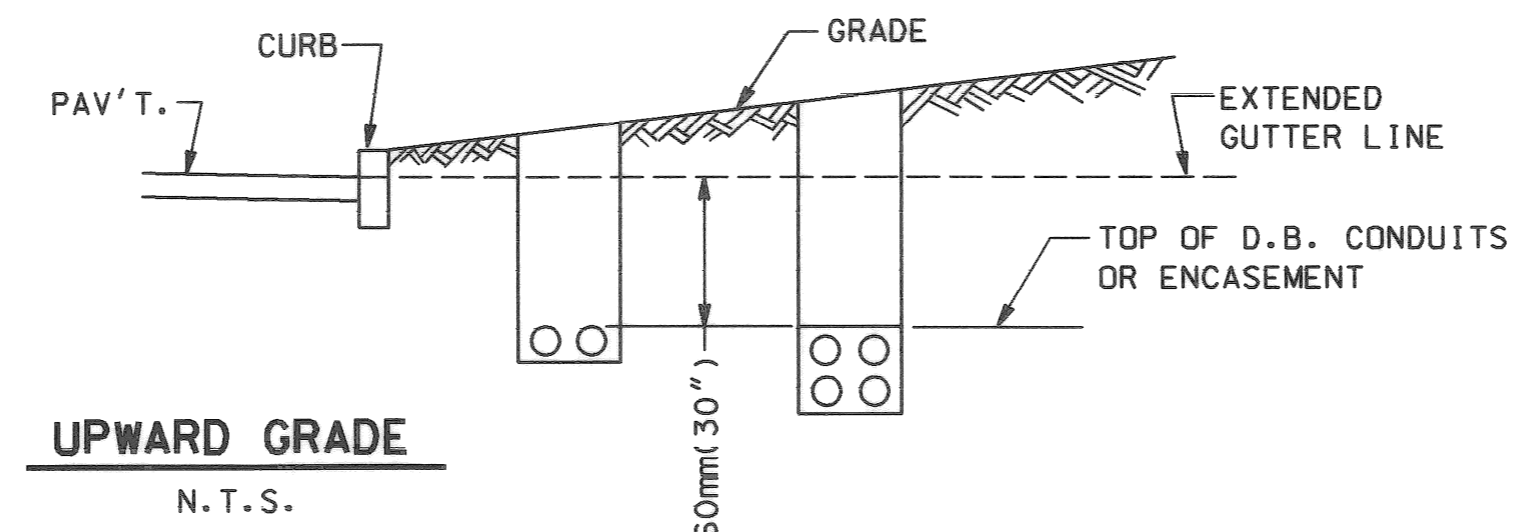
**ALTERNATE ARRANGEMENT OF 75mm (3") CONDUIT**

(TO SUIT FIELD CONDITIONS)  
(TO BE APPROVED BY THE ENGINEER)



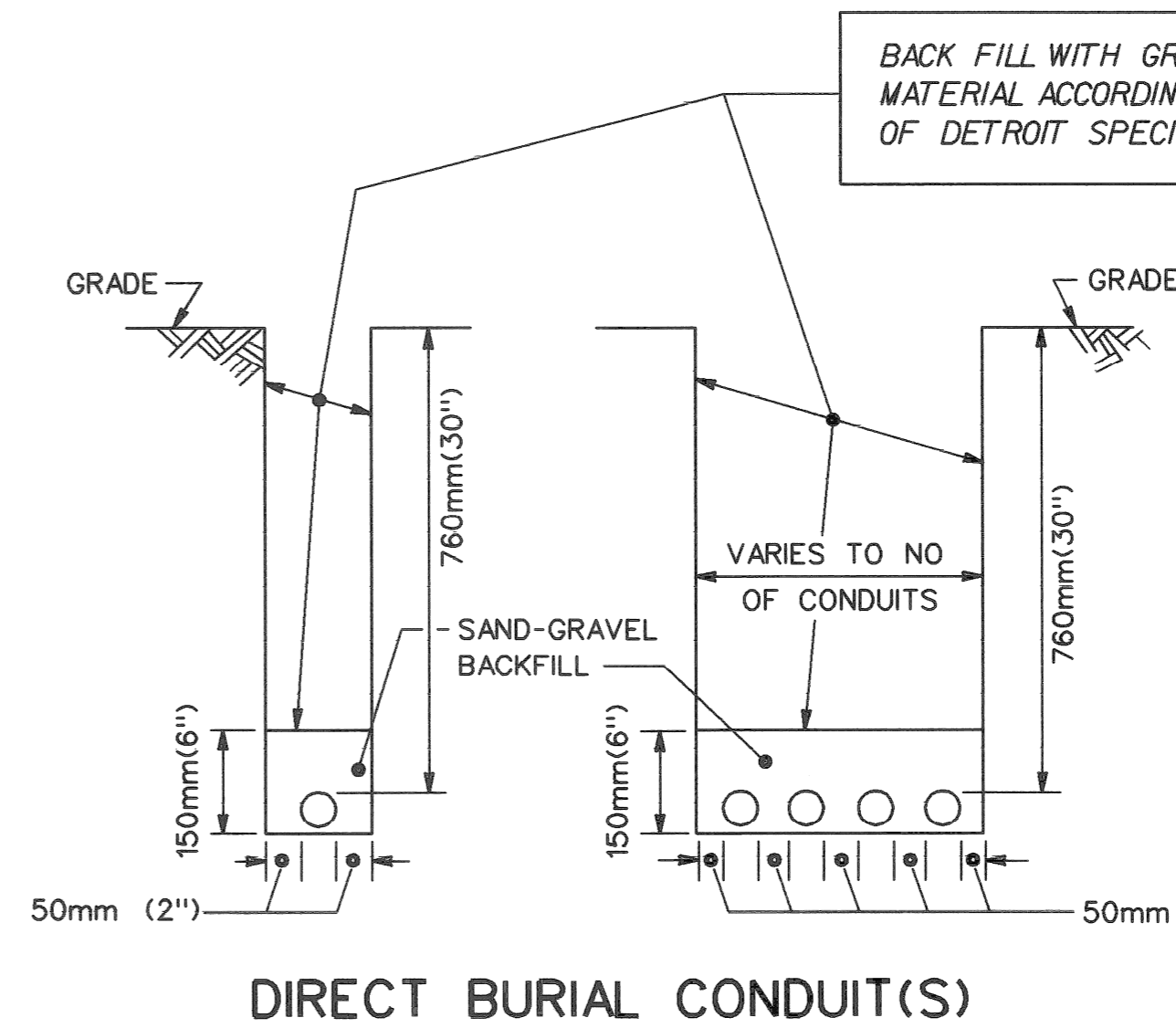
**ALTERNATE ARRANGEMENT OF 100mm (4") CONDUIT**

(TO SUIT FIELD CONDITIONS)  
(TO BE APPROVED BY THE ENGINEER)



**NOTE:**

THE PREFERRED TRENCH WIDTH "W" IS THE WIDTH OF "D" OF CONDUIT ENCASEMENT.

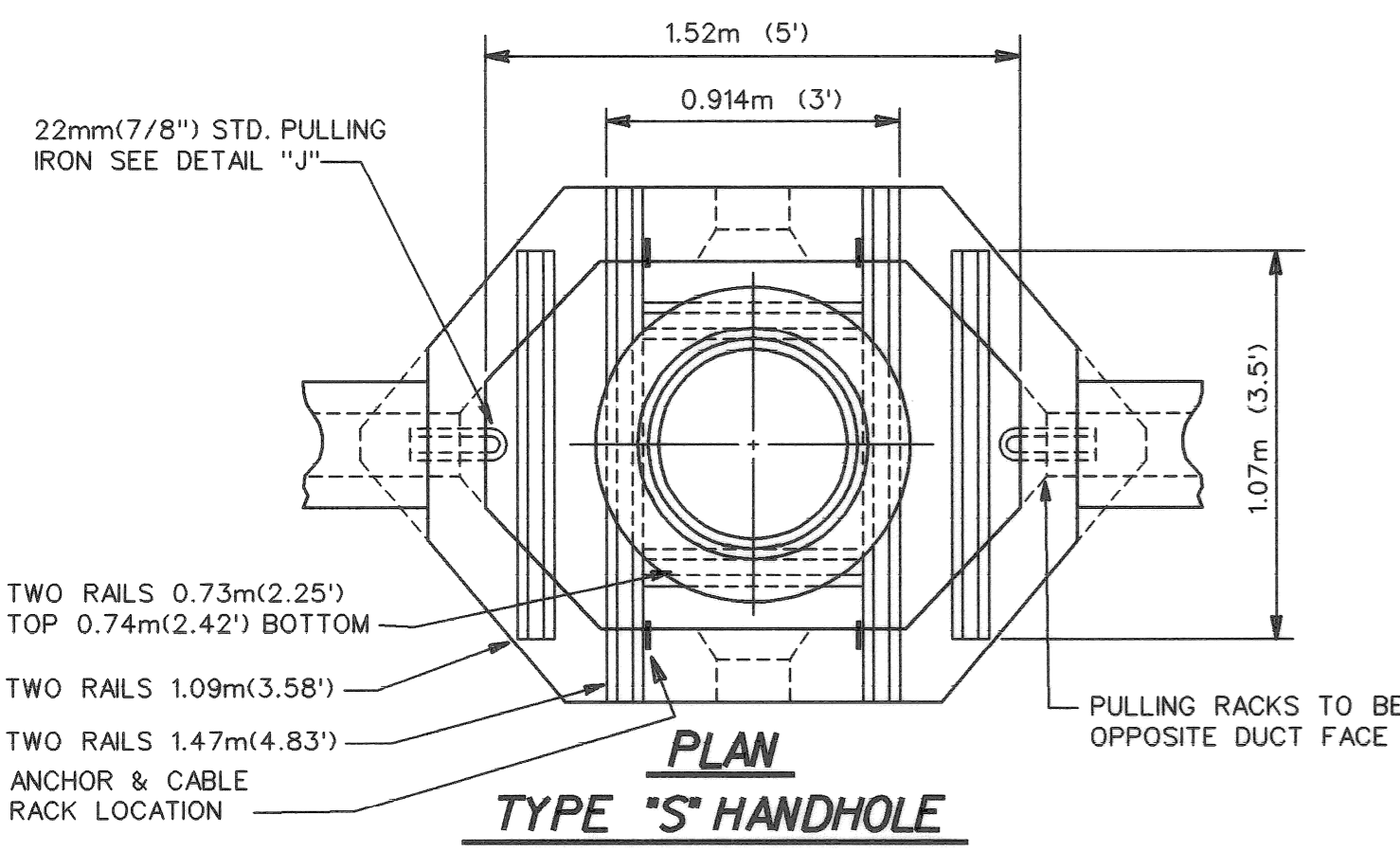


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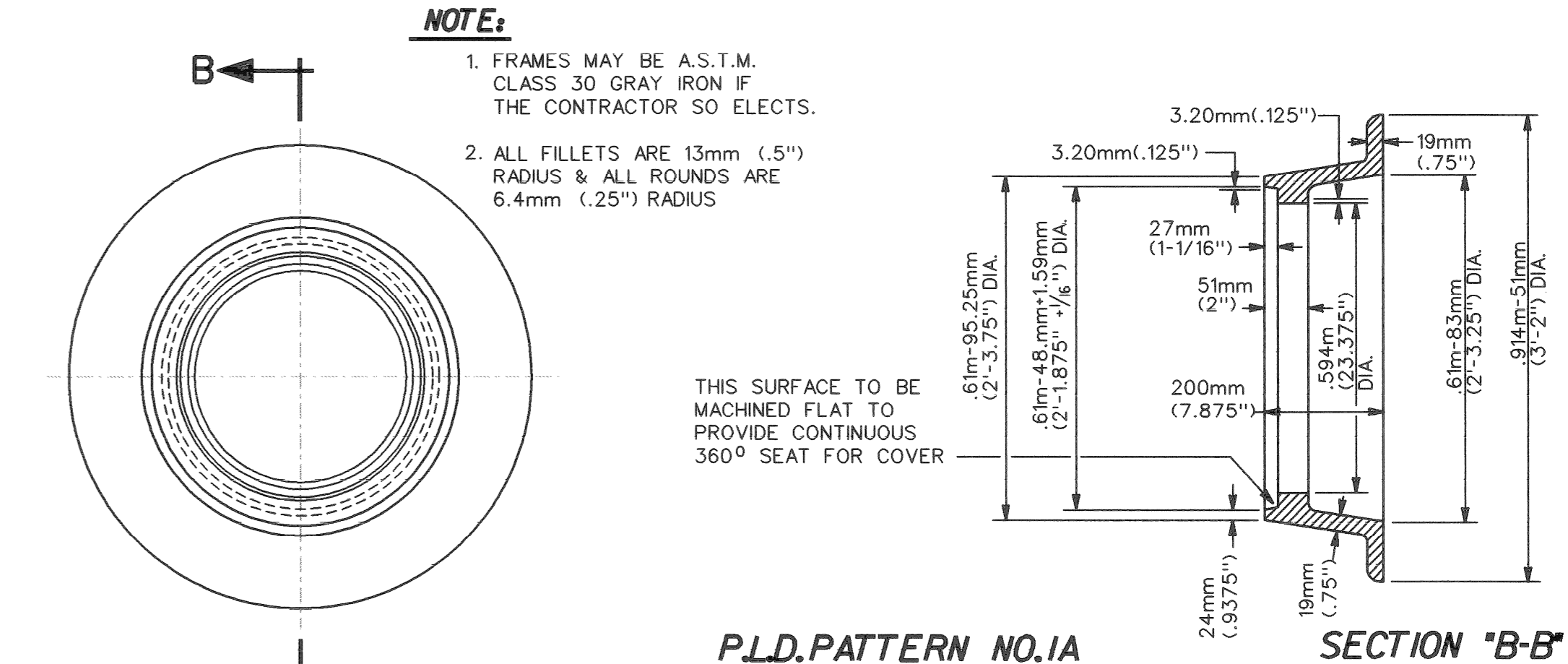
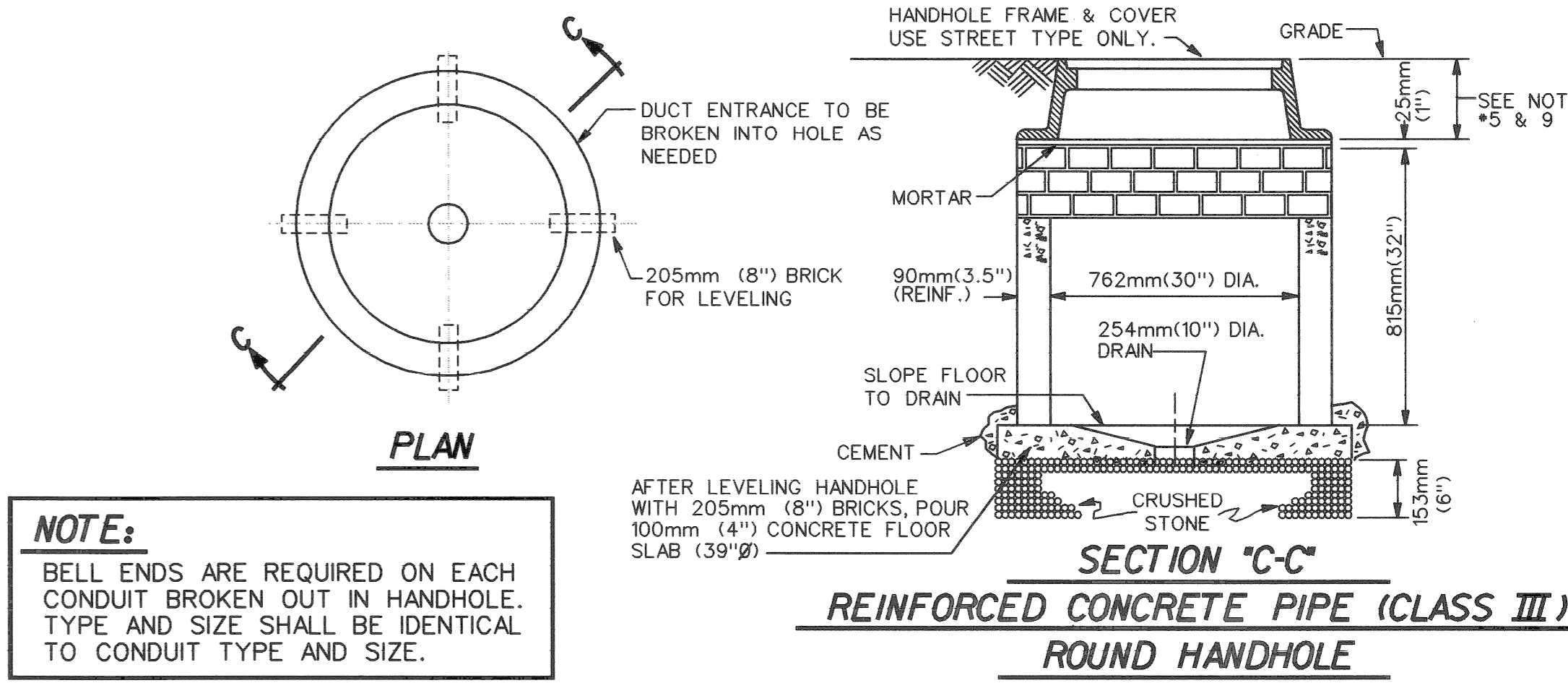
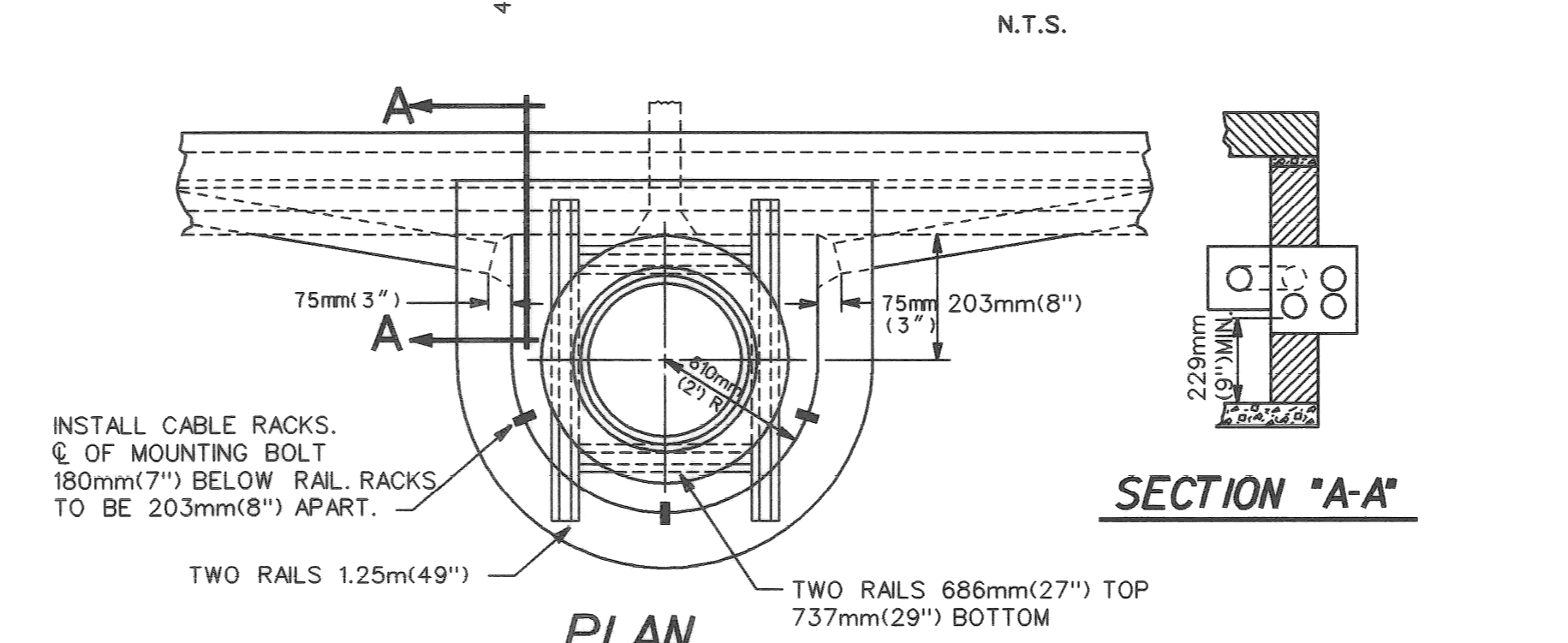
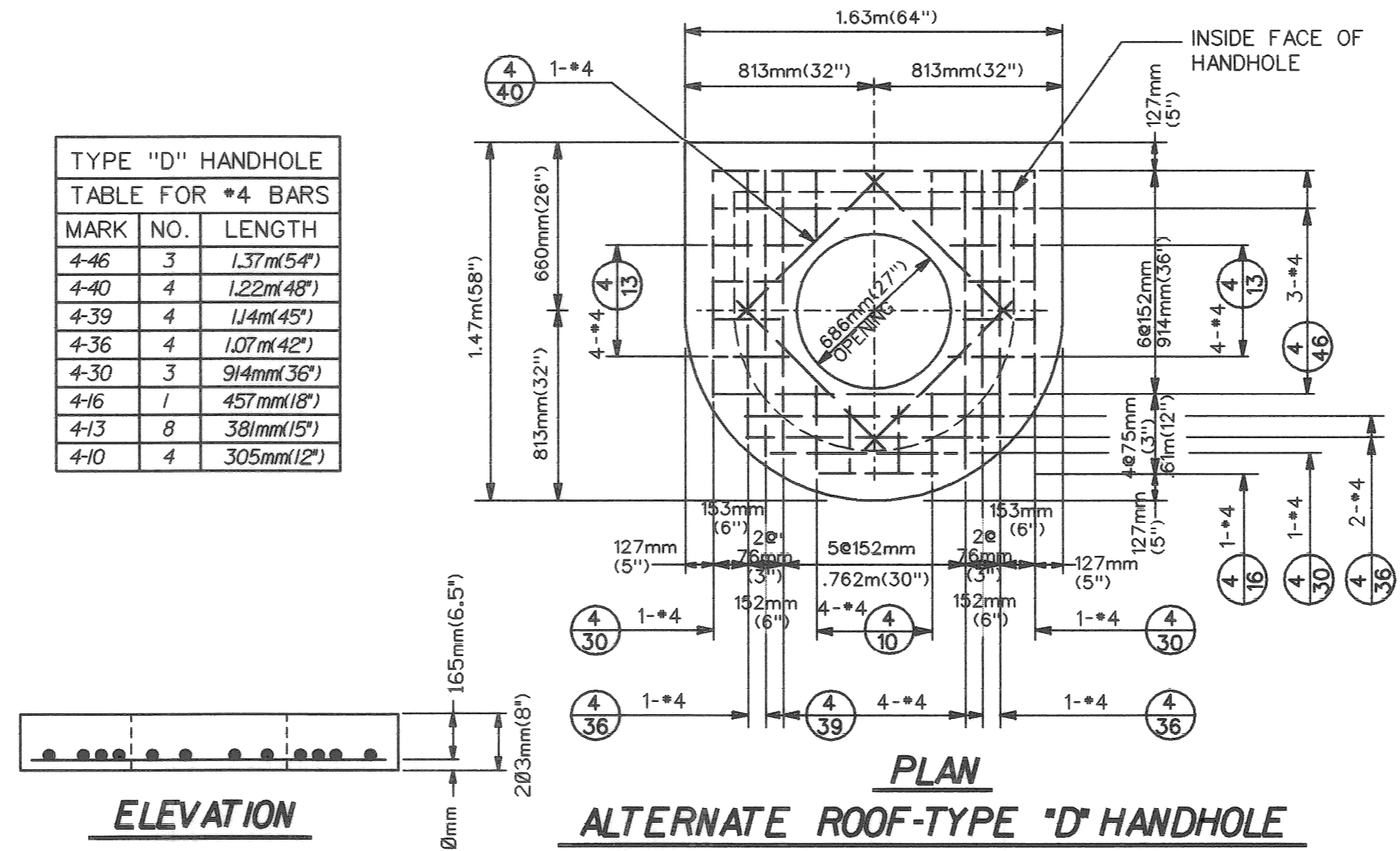
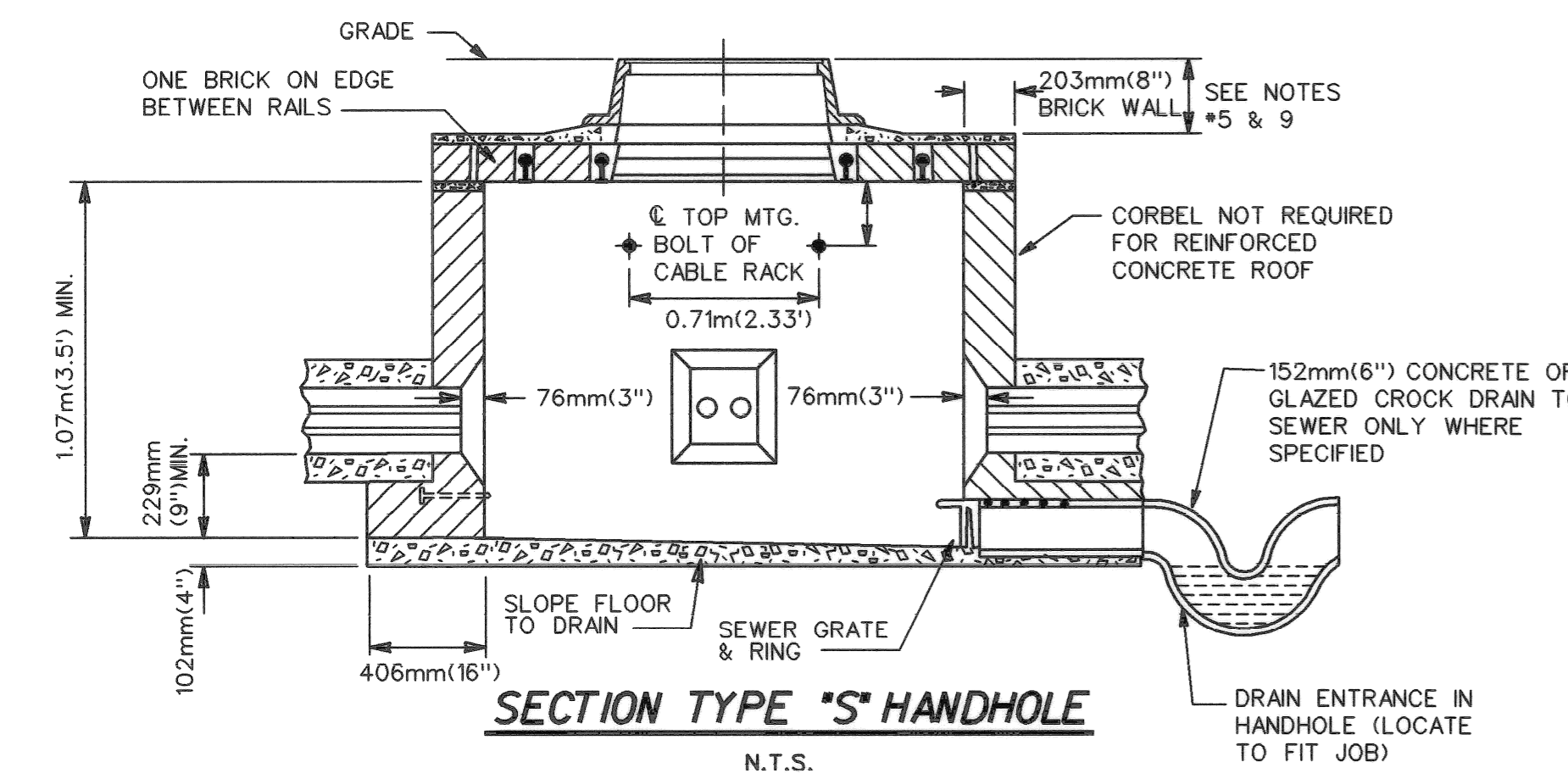
REVISION	Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEK TOWN  
MISCELLANEOUS CONDUIT SECTIONS**

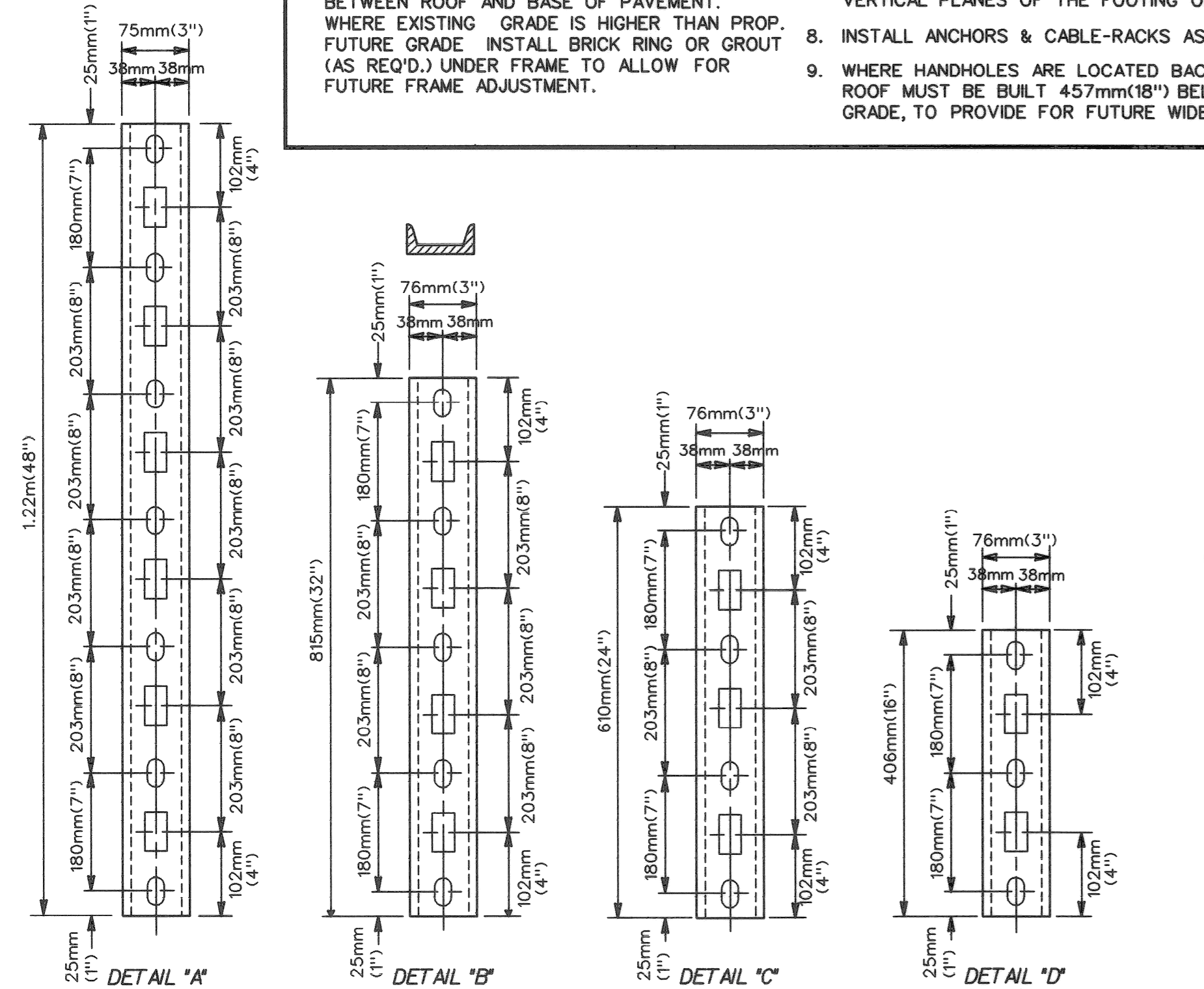
Designed by CEA	 Consulting Engineering Associates, Inc. 16560 WYOMING AVE. DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205	Scale No Scale	<b>PUBLIC LIGHTING DEPARTMENT CITY OF DETROIT</b>	File No. -----
Drawn by		Checked by		Sheet No. 9 of 20
Checked by	Drwg. No. 9 OF 20	File No. CEA 130900	Approved by	Date JUNE-1999



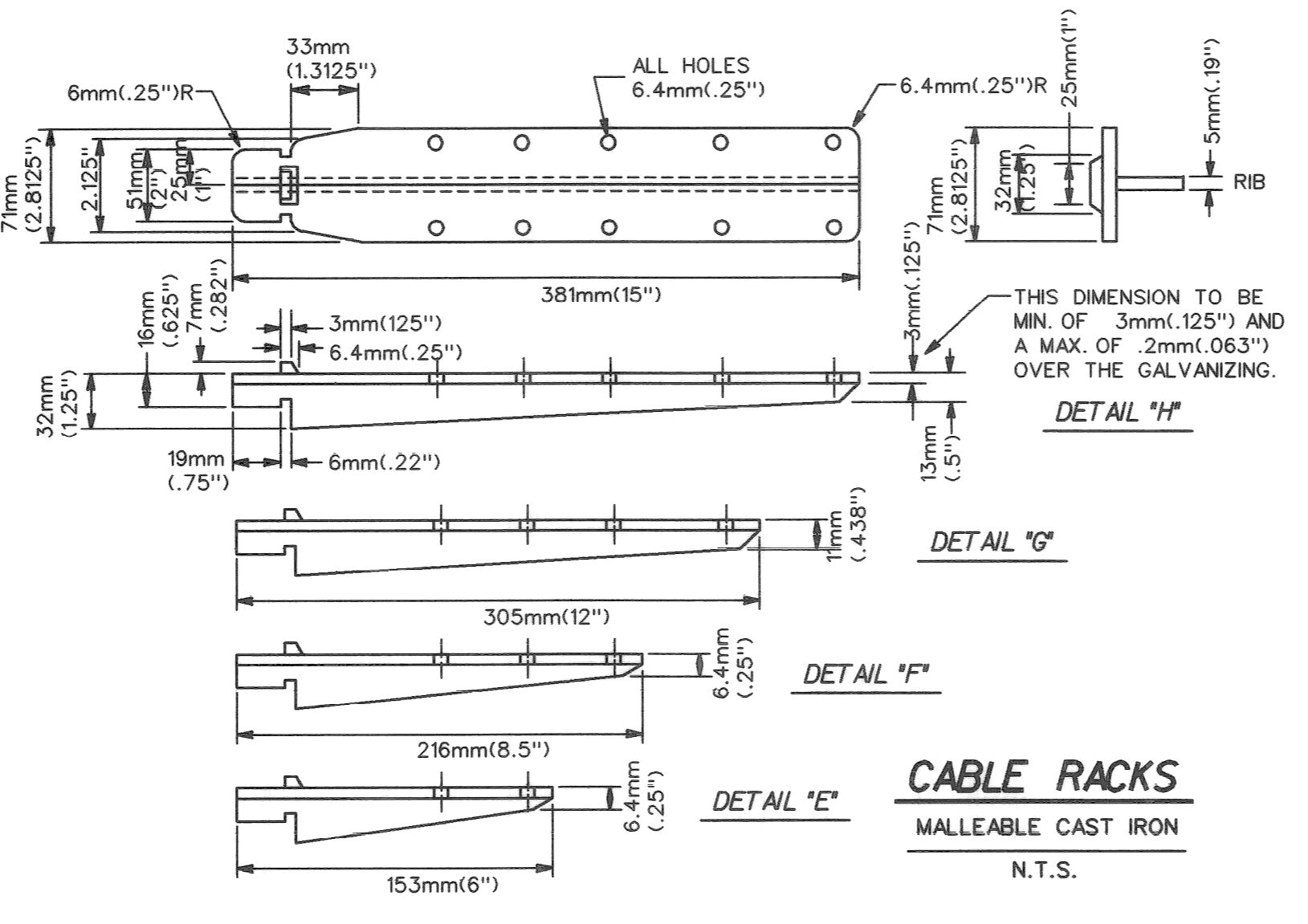
TYPE "S" HANDHOLE			
MARK	NO.	LENGTH	
5-50	2	1.52m(5')	
5-46	8	1.37m(4.5')	
5-36	4	1.07m(3.5')	
5-30	6	809mm(2')	
5-19	10	533mm(1.7')	
5-10	8	304mm(1.0')	



- NOTE:**
- DUCT ENTRANCE TO BE BUILT AS REQUIRED.
  - ALL RAILS TO BE 60\*/YD. OR HEAVIER.
  - CABLE PULLING IRONS TO BE GALVANIZED.
  - CABLE RACKS AND ARMS TO BE GALVANIZED.
  - IN PAVEMENT PROVIDE AT LEAST 75mm (3") BETWEEN ROOF AND BASE OF PAVEMENT. WHERE EXISTING GRADE IS HIGHER THAN PROP. FUTURE GRADE INSTALL BRICK RING OR GROUT (AS REQ'D.) UNDER FRAME TO ALLOW FOR FUTURE FRAME ADJUSTMENT.
  - BAR NUMBERS DENOTE THE SIZE OF BAR REQUIRED IN ACCORDANCE WITH CURRENT USAGE SPECIFIED BY THE CONCRETE REINFORCING STEEL INSTITUTE.
  - EXCAVATION LIMITS FOR PUBLIC LIGHTING DEPARTMENT HANDHOLES SHALL BE ON VERTICAL PLANES OF THE FOOTING OUTLINE.
  - INSTALL ANCHORS & CABLE-RACKS AS SHOWN.
  - WHERE HANDHOLES ARE LOCATED BACK OF CURBS ROOF MUST BE BUILT 457mm (18") BELOW CURB GRADE, TO PROVIDE FOR FUTURE WIDENING.

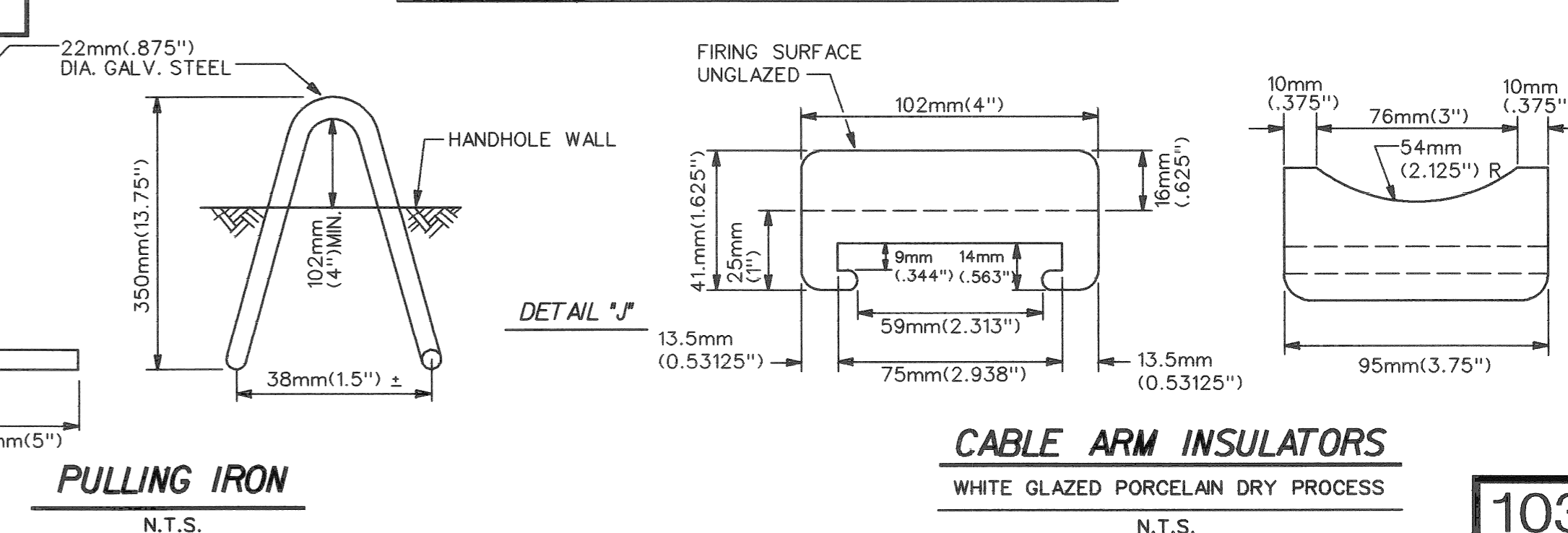
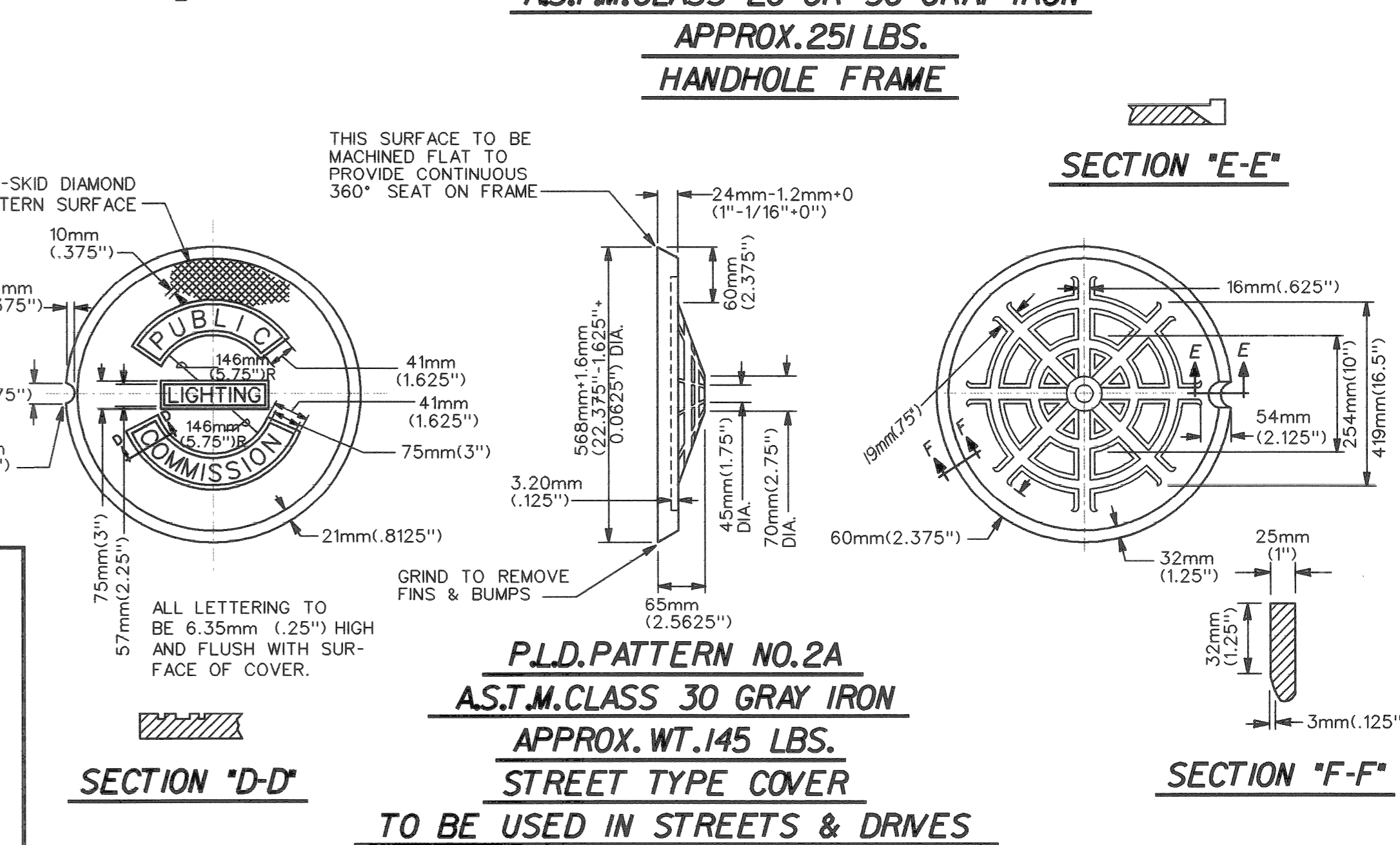


**CABLE RACKS**  
75mm (3") STD. 4.1" CHANNEL  
N.T.S.



**CABLE RACKS**  
MALLEABLE CAST IRON  
N.T.S.

- 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 13mm (.5") GALV. SUPPORTING BOLTS AND EXPANSION ANCHORS.



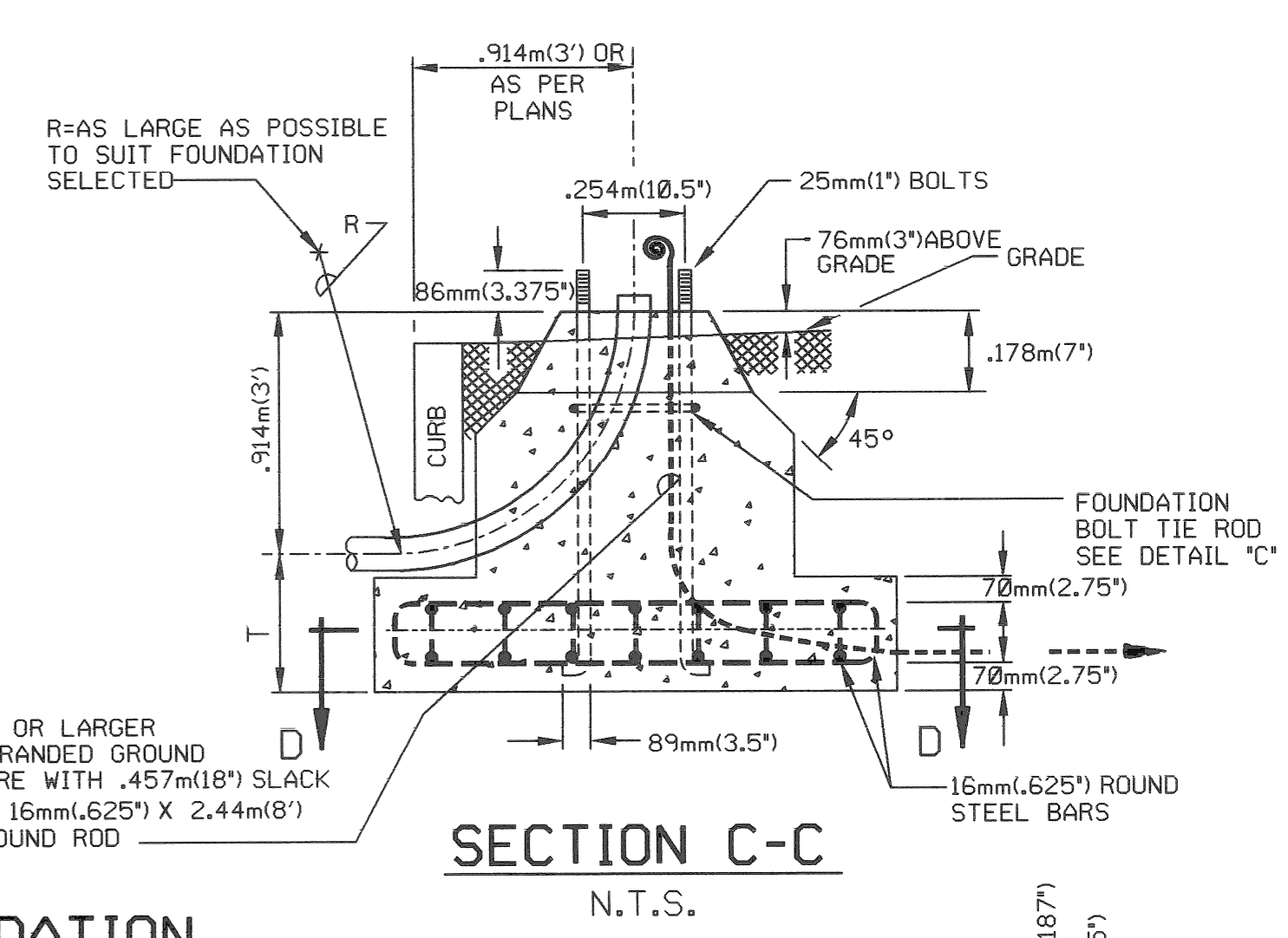
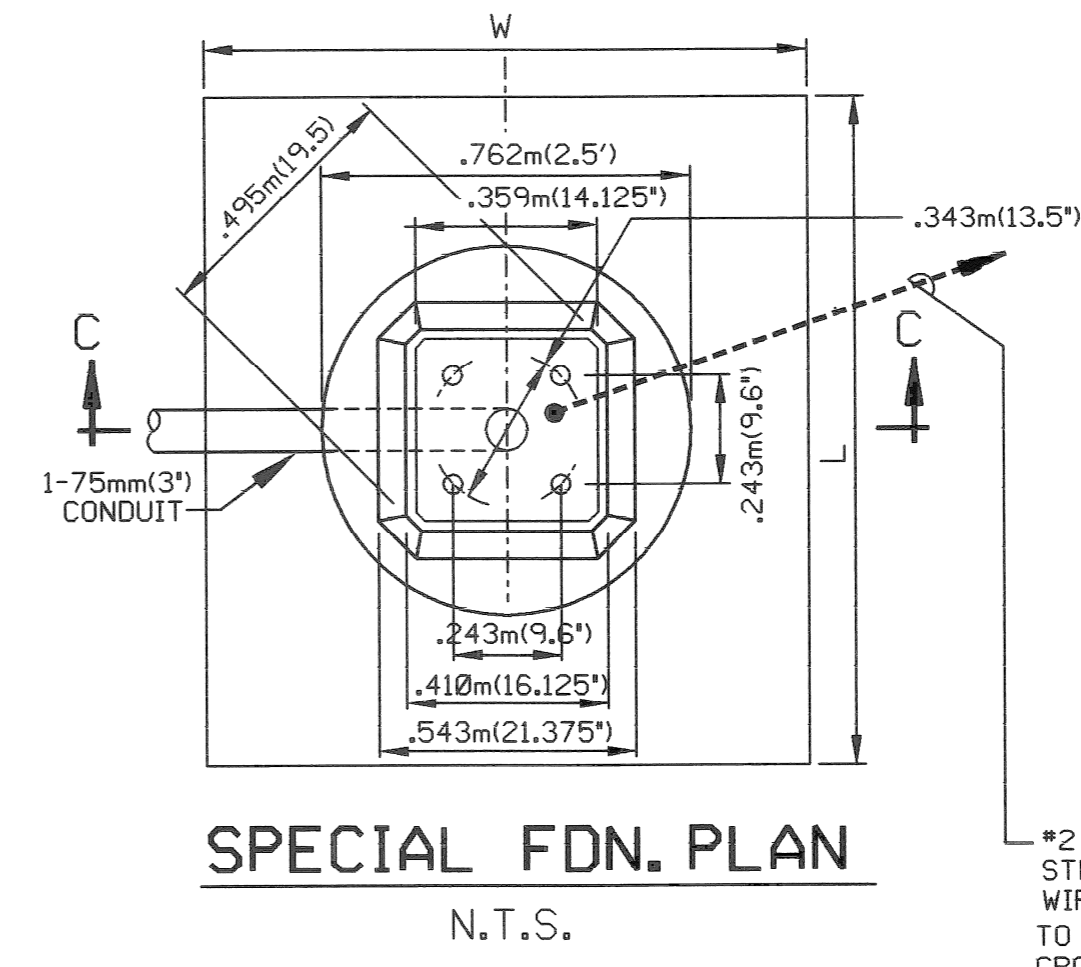
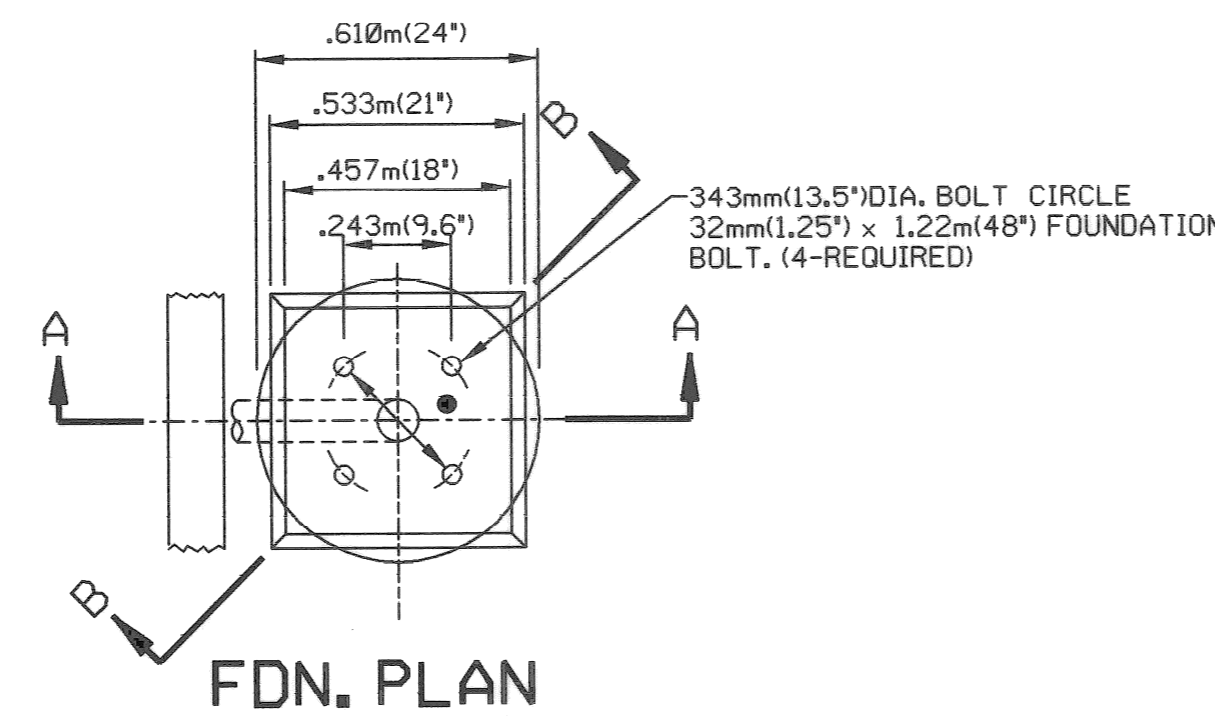
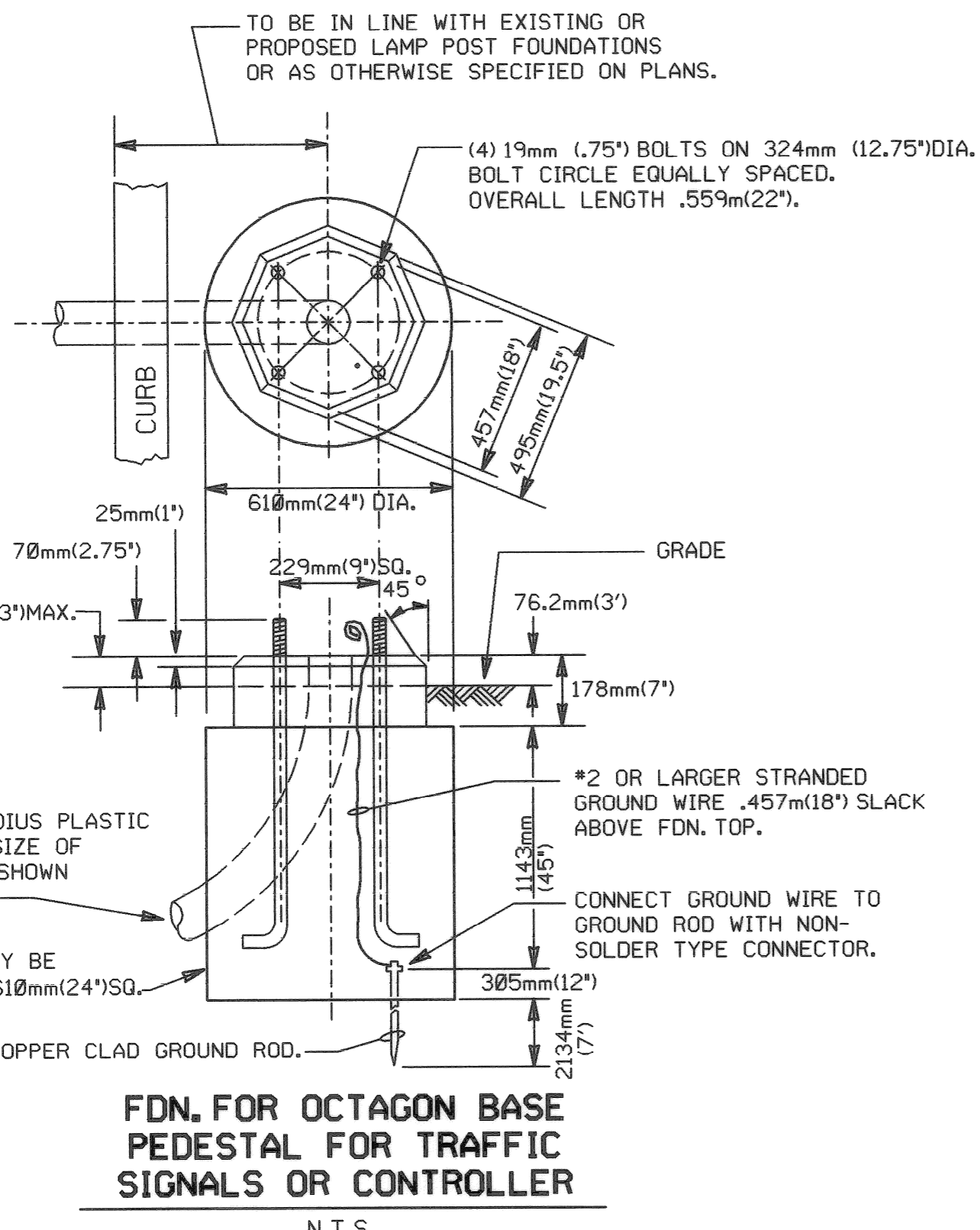
**PULLING IRON**  
N.T.S.

**CABLE ARM INSULATORS**  
WHITE GLAZED PORCELAIN DRY PROCESS  
N.T.S.

IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEK TOWN  
HANDHOLE

REVISION	Date	Description	Chkd. by

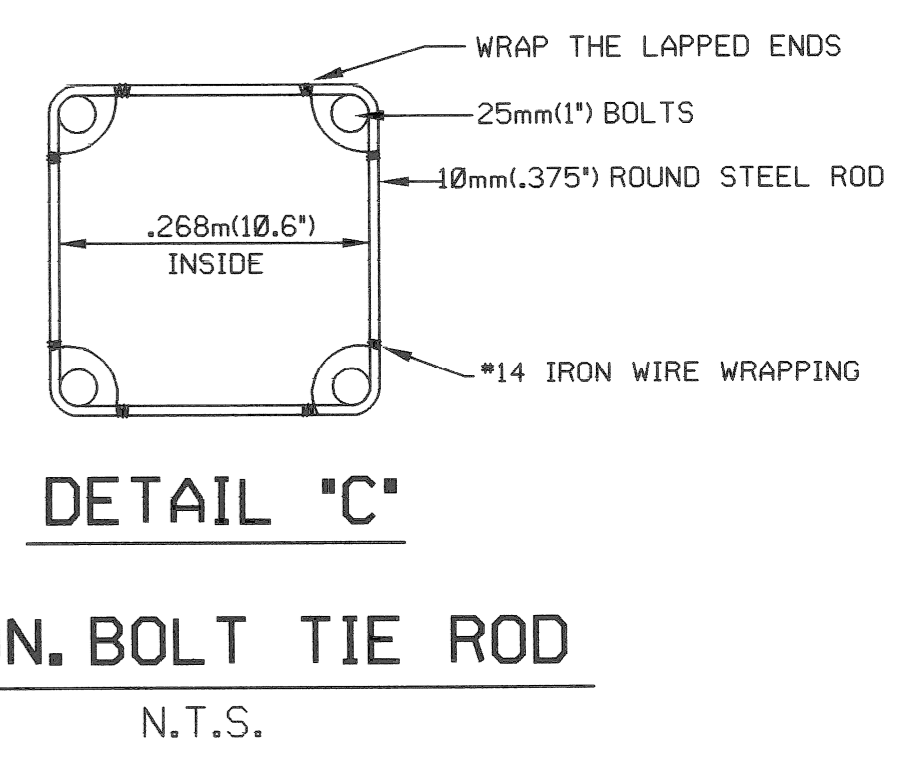
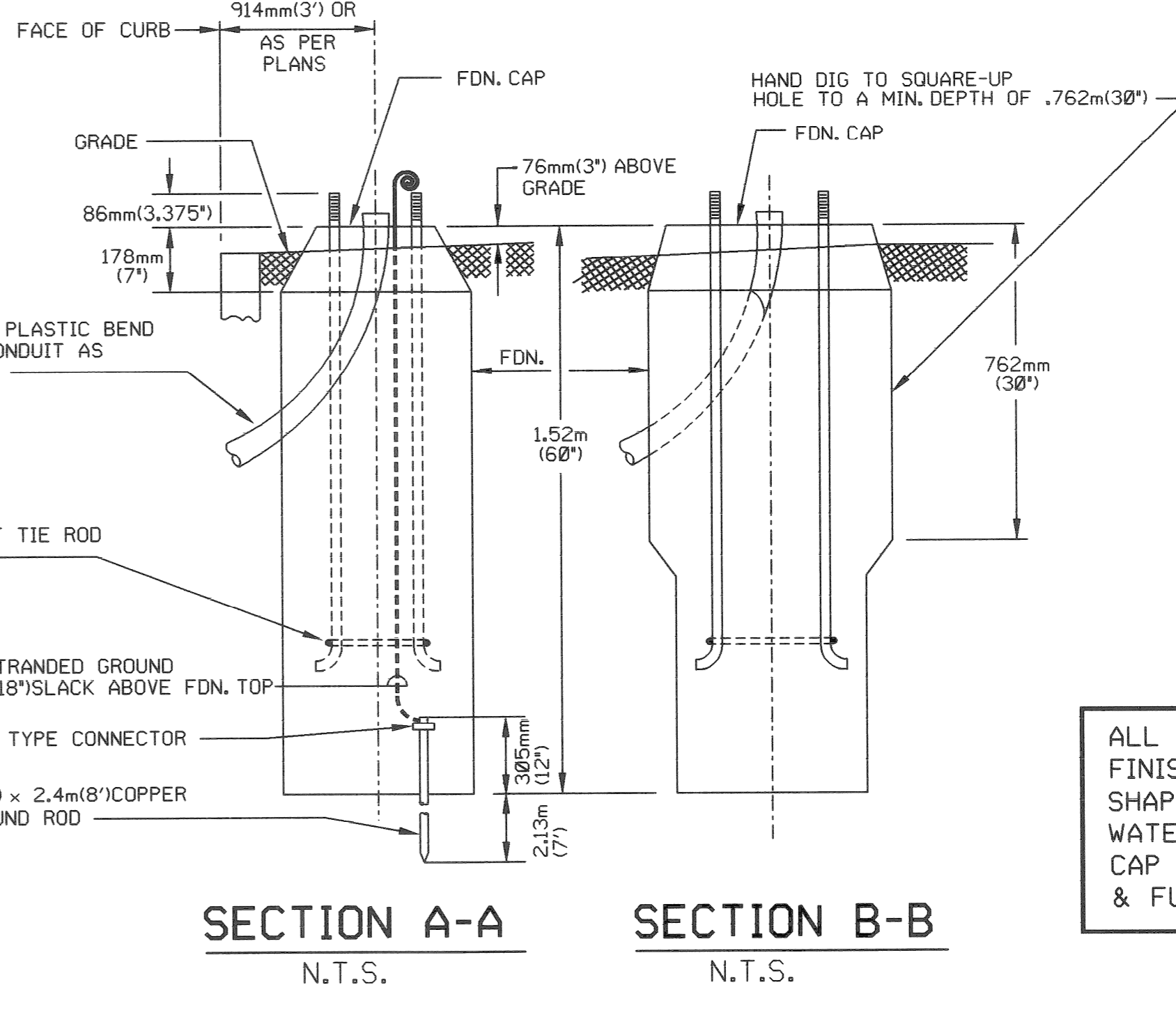
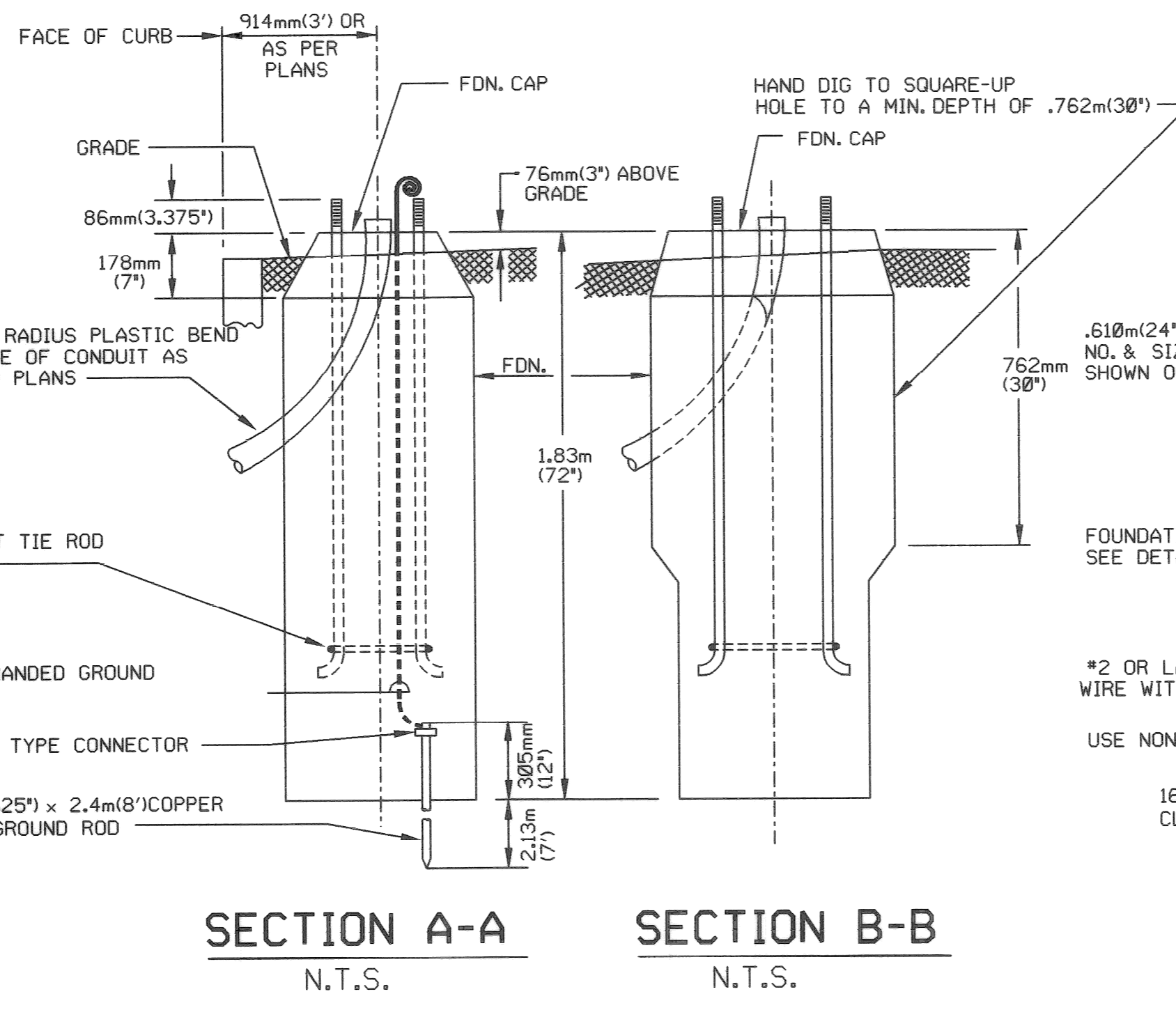
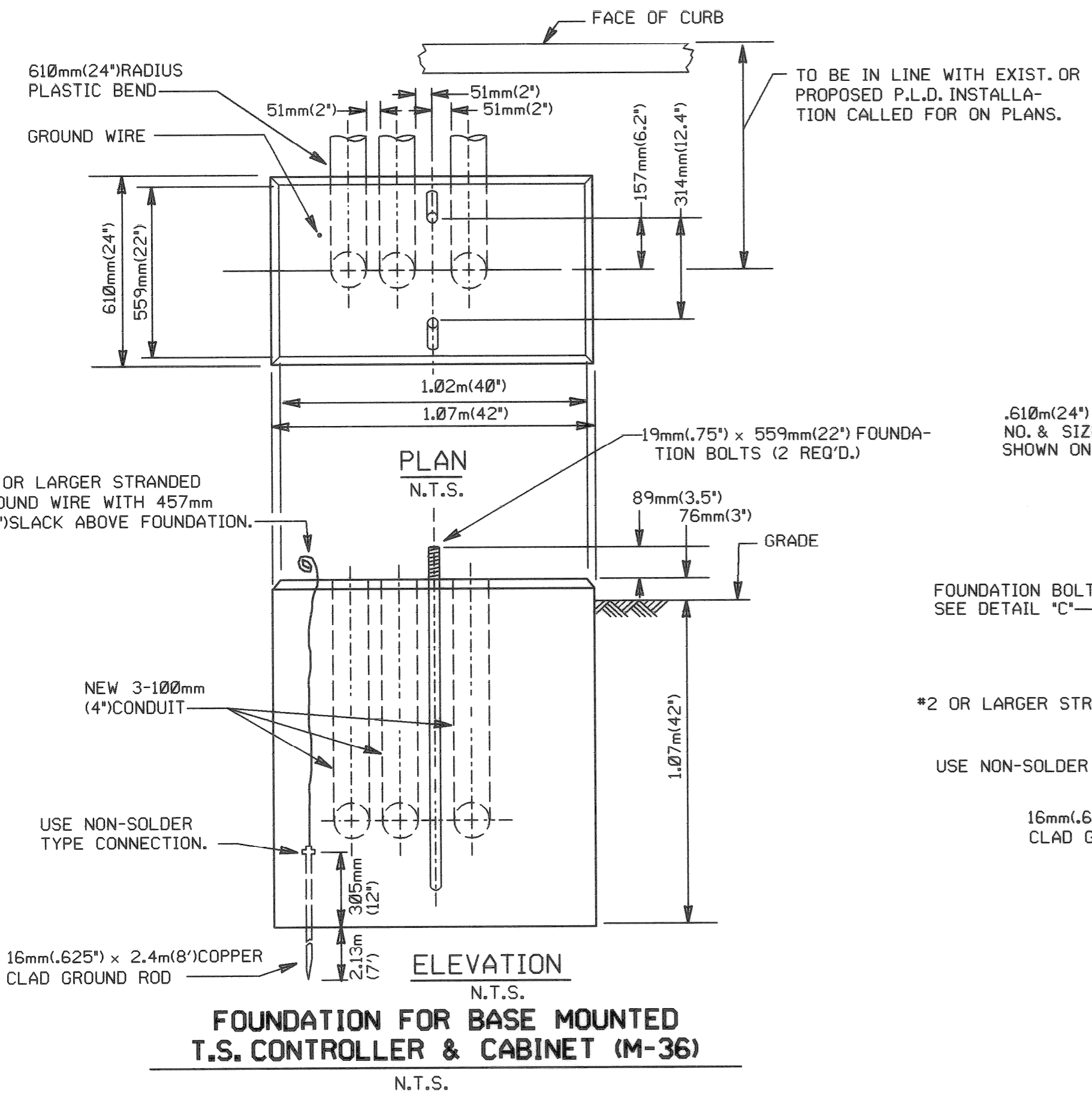
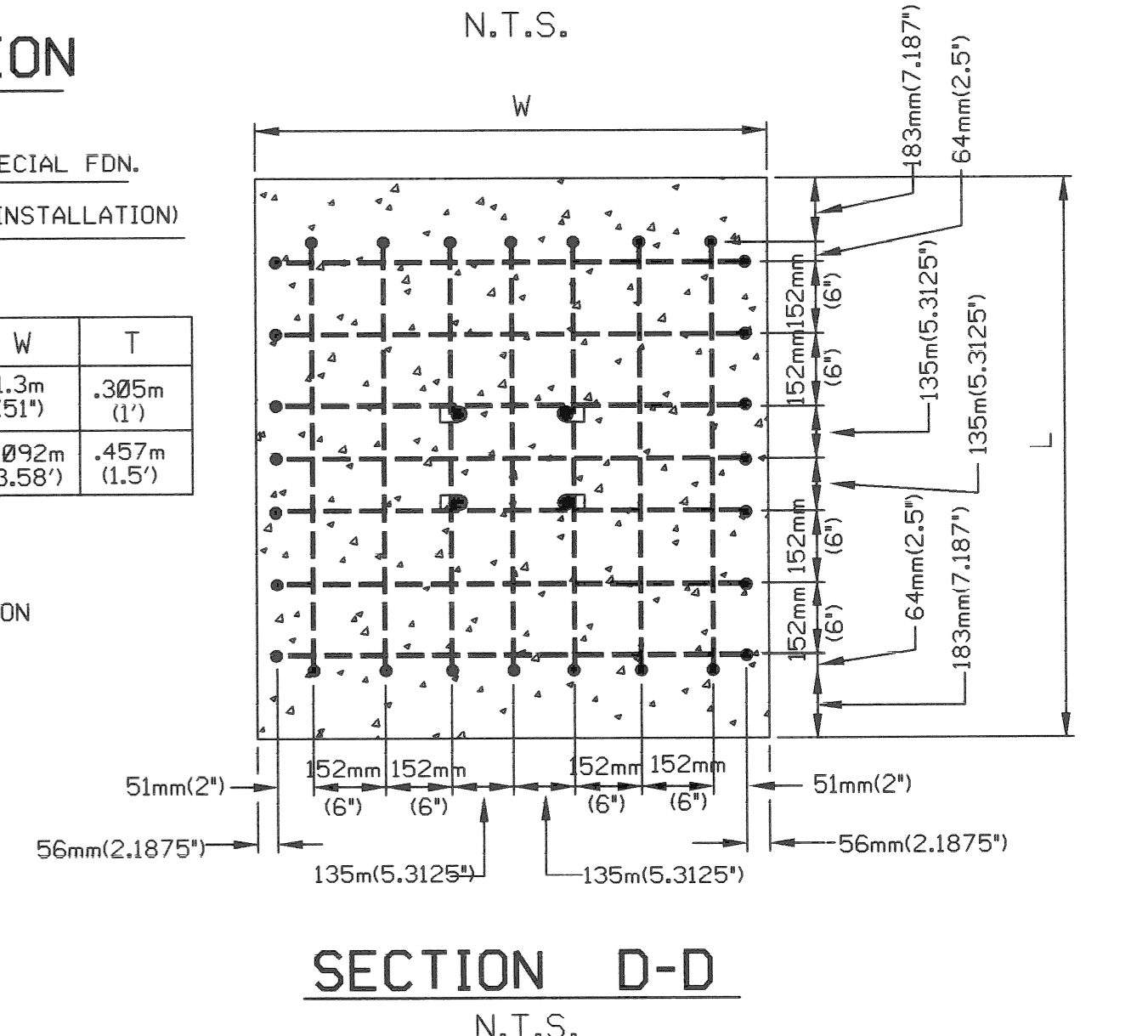
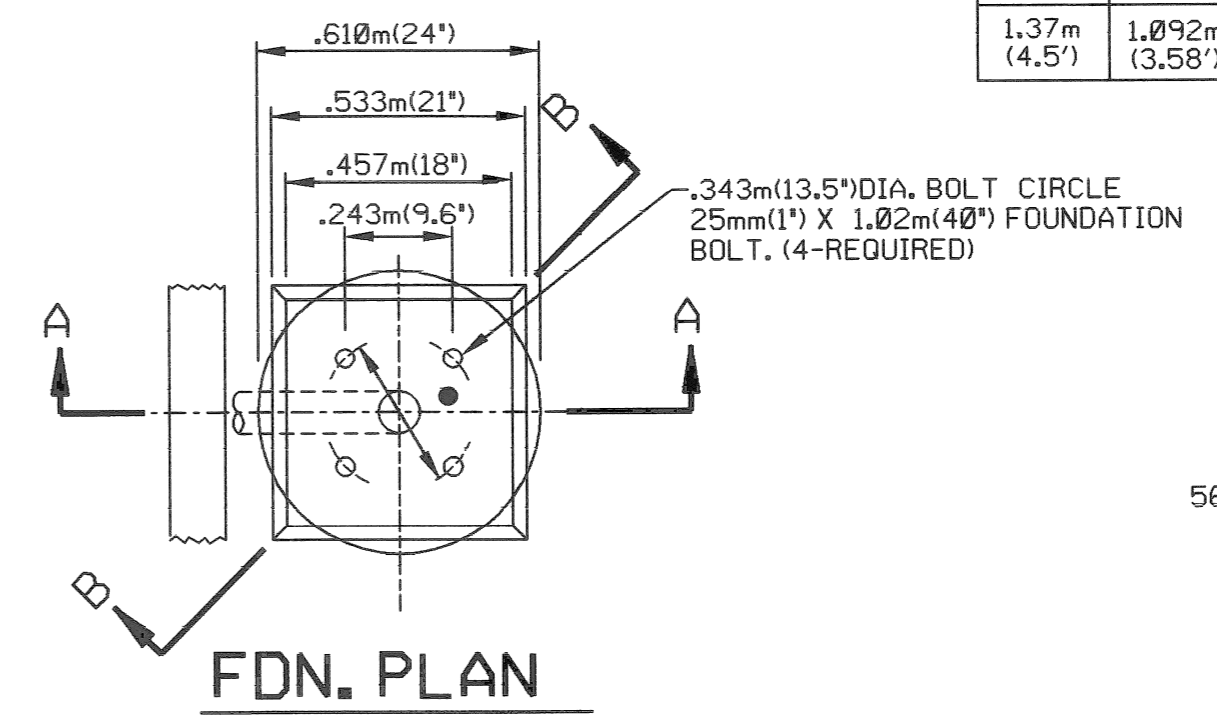
Designed by CEA	Scale No Scale	<p>15850 WYOMING AVE. DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205</p>	<b>PUBLIC LIGHTING DEPARTMENT</b> CITY OF DETROIT	File No.
Drawn by	Checked by			Sheet No.
Checked by	Approved by			10 of 20
Drwg. No. 10 OF 20	File No. CEA 130900			Date JUNE-1999



**SPECIAL FOUNDATION**

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

L	W	T
1.52m (5')	1.3m (51')	.305m (1')
1.37m (4.5')	1.092m (3.58')	.457m (1.5')



ALL FOUNDATION CAPS SHALL HAVE A SMOOTH FINISH WITH BEVELED EDGES & SHALL BE SHAPED TO ALLOW COMPLETE DRAINAGE OF WATER. ANCHOR BOLT PROJECTIONS ABOVE CAP SHALL BE CLEANED OF ALL CONCRETE & FULLY USABLE THEIR FULL LENGTH.

**ANCHOR BASE STD. FOUNDATION**  
CODE 118-06,119-06,117-10-10

**ANCHOR BASE STD. FOUNDATION**  
CODE 009-00,010-06,116-02

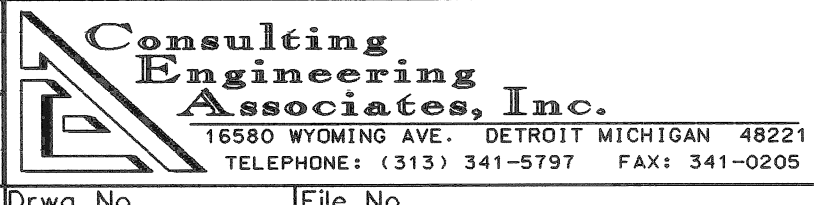
IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEK TOWN  
FOUNDATIONS

REVISIONS	Date	Description	Chkd. by

Designed by CEA	<p>16580 WYOMING AVE. DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205</p>	Scale No Scale	<b>PUBLIC LIGHTING DEPARTMENT</b> CITY OF DETROIT	File No.
Drawn by		Checked by		Sheet No. 11 of 20
Checked by	Drwg. No. 11 OF 20	File No. CEA 130900	Approved by	Date JUNE-1999

REVISION	Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEK TOWN  
CABLE & WIRE SPECIFICATIONS, DETAILS**

Designed by <b>CEA</b>	 <p>16580 WYOMING AVE. DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205</p>	Scale No Scale
Drawn by		Checked by
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12 OF 20	File No. CEA 130900	Approved by

**PUBLIC LIGHTING  
DEPARTMENT  
CITY OF DETROIT**

USE	VOLT RATING NO.	CONDUCTOR	SYNTHETIC RUBBER	IMPREG-NATED PAPER	POLYETHYLENE	POLYVINYL-CHLORIDE	SHIELD OVER INSULATED CONDUCTOR	TAPE OVER INSULATED CONDUCTORS	IMPREG-NATED PAPER BELT	JACKET	LEAD SHEATH	COVERING OVER LEAD	STEEL TAPE ARMOR	COVERING OVER STEEL TAPE	COVERING OVER CONDUCTOR
OVERHEAD LINE WIRE	1	#2-#6 AWG. HD. UNCOATED SOLID COPPER A.S.T.M. B1													1.2mm(.047") BLACK NEOPRENE
	2	#4/#8-#2/0AWG. M.H.D. UNCOATED 7/5 STR. COPPER A.S.T.M. B1													1.6mm(.063") BLACK NEOPRENE
	3	#2- AWG. H.D., UNCOATED SOLID COPPER A.S.T.M. B1													.8mm(.032") BLACK POLYETHYLENE
	4	#2- AWG. H.D., UNCOATED SOLID COPPER A.S.T.M. B1													1.2mm(.047") BLACK POLYETHYLENE
	5	#4/0-#2/0AWG. M.H.D. UNCOATED 7/5 STR. COPPER A.S.T.M. B8													1.6mm(.063") BLACK POLYETHYLENE
SPECIAL EVENT FEEDER,	2000V.														
MULT. ST. LTG.	2000V.														
TRAFFIC SIGNAL SECONDARY	2000V.														
RECEPTACLE BRACKET & LAMP POST WIRE	600V.	#8 AWG. 1/C UNCOATED, SOFT COPPER A.S.T.M. B8			1.6mm(.062") 75°C BLACK, OR WHITE AS REQUIRED. UNCOATED AND PRINTED CONSTRUCTION				11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.4mm(.095") COPPER BEARING LEAD				2.3mm(.090") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
2/C AERIAL SERVICE	600V.	2/C#8 AWG. UNCOATED, SOFT COPPER A.S.T.M. B8							11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.2mm(.085") COPPER BEARING LEAD				2mm(.080") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
DISTRIBUTION CABLES	5000V. BELTED	3/C 350 MCM UNCOATED, SOFT COPPER AIEC							11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.4mm(.095") COPPER BEARING LEAD				2.3mm(.090") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
	5000V. BELTED	3/C#2/0 AWG. UNCOATED, SOFT COPPER AIEC							11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2mm(.080") COPPER BEARING LEAD				2mm(.080") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
	7000V. BELTED	3/C 350 MCM UNCOATED, SOFT COPPER AIEC							11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.4mm(.095") COPPER BEARING LEAD				2.3mm(.090") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
	7000V. BELTED	3/C#2/0 AWG. UNCOATED, SOFT COPPER AIEC							11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.2mm(.085") COPPER BEARING LEAD				2mm(.080") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
SERIES ST. LTG. CABLE, IN DUCT	7500V.	1/C#8 AWG. UNCOATED, SOFT COPPER ASTM B3			4.8mm(.188") HIGH MOLECULAR OVER CONDUCTOR				11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		1.6mm(.063") PURE				1.2mm(.047") ASPHALTUM SATURATED JUTE OVER LEAD
	7500V.	1/C#8 AWG. SOLID, SOFT COPPER ASTM B3			4.8mm(.188") HIGH MOLECULAR NATURAL OVER CONDUCTOR				11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.2mm(.085") COPPER BEARING LEAD				2mm(.080") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
TRANS-MISSION CABLES	24000V. SHIELDED	3/C 350 MCM UNCOATED, SOFT COPPER * AIEC							5.8mm(.230") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.8mm(.110") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH				2.8mm(.110") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
	24000V. SHIELDED	3/C 350 MCM UNCOATED, SOFT COPPER * AIEC							5.8mm(.230") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.7mm(.105") COPPER BEARING LEAD				2.6mm(.105") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
	24000V. SHIELDED	3/C #2/0 AWG. UNCOATED, SOFT COPPER * AIEC							6.2mm(.245") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100°C (212°F)		2.5mm(.100") COPPER BEARING LEAD				2.3mm(.090") HEAT & LIGHT STABILIZED BLACK HIGH MOLECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH
MULTI-SIGNAL CABLE, IN DUCT	—	#14 AWG. SOFT UNCOATED COPPER, NO. OF CONDUCTOR AS REQ'D. ASTM B3													
	—	#14 AWG. SOFT UNCOATED COPPER, NO. OF CONDUCTOR AS REQ'D. ASTM B3													
8/C SERIES ST. LTG. IN DUCT	7500V.	8/C#8 AWG. SOLID, SOFT TINNED COPPER ASTM B33													
OVERHEAD FLEXIBLE TRAINER WIRE (SHIELDED)	—	1/C#2 AWG. & LARGER, SOFT COPPER, CLASS C OR CLASS B, TANNING WIRE ASTM B173													

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 LATEST EDITION OF ICEA S-68-516, NEMA WC 8 FOR ETHYLENE-PROPYLENE RUBBER INSULATION AND ASTM D2802-78 AND UL STANDARD 44. JACKET: MEETS OR EXCEEDS ALL REQUIREMENTS OF LATEST EDITION OF ICEA S-68-516, NEMA WC8 FOR HEAVY DUTY CHLOROSULFONATED-POLYETHYLENE. LISTED BY UNDERWRITERS LABORATORIES INC. AS TYPE RHH OR RHM.

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.

COLOR CODED AS FOLLOWS:

RED - A CIRCUIT  
BLACK - B CIRCUIT  
WHITE - NEUTRAL

ACCORDING TO SPECIFICATIONS

SPECIAL INSTRUCTION  
1.6mm(.063") OF 30% HEAVY RUBBER AND ONE LAYER OF LAPPED FILLED COTTON TAPE OVER EACH CONDUCTOR CENTRAL CONDUCTOR HAS ADDITIONAL 4.3mm(.17") VARNISHED CAMBRIC TAPE REMAINING ON CONDUCTOR WITH HEAVY ADDITIONAL 2.4mm(.094") VARNISHED CAMBRIC TAPE REMAINING ON CONDUCTOR WITH PAPER INSULATION. OVERALL 2.4mm(.094") BELT OF OIL SATURATED PAPER OVERALL (2.9mm(.115) INCH COPPER BEARING LEAD BENEATH OVERALL

SEMI-CONDUCTING COTTON TAPE CLASS C OR CLASS B, TANNING WIRE  
#268 OZONE RESISTING BUTYL  
1.6mm(.063") GENERAL PURPOSE HEAVY DUTY BLACK NEOPRENE

\* \* BINDER TAPE OVER SHIELDED INSULATED CONDUCTOR AND FILLERS TO BE COPPER OR BRONZE TAPE INTERCALATED METALLIZED PAPER TAPES

1. DISTRIBUTION AND TRANSMISSION CABLES

ALL TRANSMISSION CABLES, (24 KV., ITEMS 11-16 INCLUSIVE) ARE FOR CIRCUITS WITH GROUNDED NEUTRAL, AND SHALL CONFORM STRICTLY WITH THE LATEST REVISION OF THE A.E.I.C. "SPECIFICATION FOR IMPREGNATED PAPER INSULATED, LEAD COVERED SOLID TYPE CABLE", 9TH EDITION, DATED APRIL, 1954, AND CONSTRUCTION OPTIONS AS NOTED IN SHEET 1. ALL DISTRIBUTION CABLES, (7 & 5 KV, ITEMS 19 & 21 INCLUSIVE) ARE FOR CIRCUITS WITH UNDERGROUND 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 C8.34 (NEOPRENE COVERING) OR THE LATEST REVISION OF ASA C8.35 (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. APPLICABLE REFERENCE SPECIFICATIONS SHOWN BELOW:

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

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

ORIGINAL		POLYVINYL-CHLORIDE 60°C (140°F)	POLYVINYL-CHLORIDE 75°C (167°F)	HIGH MOLECULAR WEIGHT NATURAL POLYETHYLENE	SYNTHETIC RUBBER 75°C (167°F) HEAT & MOISTURE RESISTANT	OZONE RESISTING BUTYL RUBBER
ORIGINAL	TENSILE STRENGTH PSI	2300, MIN.	2300, MIN.	1400, MIN.	700, MIN.	600, MIN.
	ELONGATION AT RUPTURE, PERCENT	250, MIN.	250, MIN.	250, MIN.	300, MIN. & 13mm(.5") SET, MAX.	350, MIN. & 13mm(.5") SET, MAX.
AIR OVEN TEST, TIME & TEMP, AS NOTED	TENSILE STRENGTH % OF ORIGINAL	65, MIN. 168 HRS., 100 ± 1°C (212 ± 1.8°F)	120, MAX. 80, MIN. 168 HRS., 120 ± 1°C (248 ± 1.8°F)	75, MIN. 48 HRS., 100 ± 1°C (212 ± 1.8°F)	—	60, MIN. 168 HRS., 100 ± 1°C (212 ± 1.8°F)
	ELONGATION % OF ORIGINAL	65, MIN. 168 HRS., 100 ± 1°C (212 ± 1.8°F)	75, MIN. 168 HRS., 120 ± 1°C (248 ± 1.8°F)	75, MIN. 48 HRS., 100 ± 1°C (212 ± 1.8°F)	—	60, MIN. 168 HRS., 100 ± 1°C (212 ± 1.8°F)
OXYGEN PRESSURE TEST	TENSILE STRENGTH % OF ORIGINAL	—	—	—	50, MIN. 168 HRS., 80 ± 1°C (176 ± 1.8°F)	—
	ELONGATION % OF ORIGINAL	—	—	—	50, MIN. 168 HRS., 80 ± 1°C (176 ± 1.8°F)	—
AIR PRESSURE HEAT TEST	TENSILE STRENGTH % OF ORIGINAL	—	—	—	20 HRS., 127 ± 1°C (260 ± 1.8°F)	40 HRS., 127 ± 1°C (260 ± 1.8°F)
	ELONGATION % OF ORIGINAL	—	—	—	20 HRS., 127 ± 1°C (260 ± 1.8°F)	40 HRS., 127 ± 1°C (260 ± 1.8°F)
HEAT DISTORTION 121 ± 1°C (250 ± 1.8°F)	% OF ORIGINAL	50, MAX.	25, MAX.	—	—	—
OIL IMMERSION 4 HRS., 70 ± 1°C (158 ± 1.8°F)	TENSILE STRENGTH % OF ORIGINAL	* 85, MIN.	** 85, MIN.	—	—	—
	ELONGATION % OF ORIGINAL	* 85, MIN.	** 85, MIN.	—	—	—
HEAT SHOCK 121 ± 1°C (250 ± 1.8°F)	—	NO CRACKS	NO CRACKS	—	—	—
COLD BEND	—	NO CRACKS -30 ± 1°C (-22 ± 1.8°F)	NO CRACKS -30 ± 1°C (-22 ± 1.8°F)	NO CRACKS -55 ± 1°C (-67 ± 1.8°F)	—	—
INSULATION RESISTANCE CONSTANT AT 15.6°C (60 ± 1.8°F)	—	1,000 MIN.	2,000 MIN.	50,000 MIN.	4,000 MIN.	20,000 MIN.
FLAME RESISTANCE PROPERTIES	—	SECT. 6.5 IPCEA S-61-402	SECT. 6.5 IPCEA S-61-402	—	—	—
ACCELERATED WATER ABSORPTION REQUIREMENT	ELECTRICAL METHOD	DIELECTRIC CONSTANT, 1 DAY	10, MAX.	10, MAX.	—	5, MAX.
		% CAPACITANCE INCREASE	1-14 DAYS-10, MAX. 7-14 DAYS-5, MAX.	1-14 DAYS-4.0, MAX. 7-14 DAYS-2.0, MAX.	—	1-14 DAYS-10.0, MAX. 7-14 DAYS-4.0, MAX.
OR GRAVIMETRIC METHOD	TEMP.	50 ± 1°C (122 ± 1.8°F)	75 ± 1°C (167 ± 1.8°F)	—	75 ± 1°C (167 ± 1.8°F)	75 ± 1°C (167 ± 1.8°F)
		20 MILLIGRAMS PER SQ. 25.4mm(1") MAX.	10 MILLIGRAMS PER SQ. 25.4mm(1") MAX.	—	20 MILLIGRAMS PER SQ. 25.4mm(1") MAX.	15 MILLIGRAMS PER SQ. 25.4mm(1") MAX.
TEST IN ACCORDANCE WITH LATEST REVISION OF:	—	IPCEA S-61-402 (EXCEPTIONS ARE NOTED ABOVE)	IPCEA S-61-402	IPCEA S-19-81 (EXCEPTIONS ARE NOTED ABOVE)	IPCEA S-19-81	IPCEA S-19-81

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.  
 • OR \*\* TENSILE STRENGTH AFTER OIL IMMERSION 80% MIN.  
 • OR \*\* ELONGATION AFTER OIL IMMERSION 60% MIN.

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 B3
MEDIUM HARD DRAWN COPPER WIRE	ASTM B2
HARD DRAWN COPPER WIRE	ASTM B1
CONCENTRIC-LAY-STRANDED COPPER CONDUCTORS, HARD, MEDIUM HARD OR SOFT, COATED OR UNCOATED, AS REQUIRED.	ASTM B8
ROPE-LAY-STRANDED, SOFT, COPPER CONDUCTORS, COATED OR UNCOATED, AS REQUIRED.	ASTM B173
SOFT, SOLID COPPER CONDUCTORS, TINNED	ASTM B33
SOFT, SOLID COPPER CONDUCTORS, LEAD OR LEAD ALLOY COATED	ASTM B189

JACKETS

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

ORIGINAL	TENSILE STRENGTH PSI	NEOPRENE BLACK, HEAVY DUTY	NEOPRENE BLACK GENERAL PURPOSE	POLYVINYL-CHLORIDE, BLACK	HEAT & LIGHT STABILIZED BLACK POLYETHYLENE COVER'G OVER LEAD SHEATH
ORIGINAL	TENSILE STRENGTH PSI	1800, MIN.	1500, MIN.	1500, MIN.	1400, MIN.
ORIGINAL	ELONGATION AT RUPTURE, %	300, MIN. & 10mm(.375") MAX. SET	250, MIN. & 10mm(.375") MAX. SET	100, MIN.	350, MIN.
AIR OVEN TEST, TIME & TEMP, AS NOTED	TENSILE STRENGTH % OF ORIGINAL	—	—	75 MIN. 120 HRS. 121 ± 1°C (250 ± 1.8°F)	75, MIN.
	ELONGATION % OF ORIGINAL	—	—	60 MIN. 120 HRS. 121 ± 1°C (250 ± 1.8°F)	75, MIN.
OXYGEN PRESSURE TEST 168 HRS. 80 ± 1°C (176 ± 1.8°F)	TENSILE STRENGTH % OF ORIGINAL	50, MIN.	50, MIN.	—	—
	ELONGATION % OF ORIGINAL	50, MIN.	50, MIN.	—	—
AIR PRESSURE HEAT TEST 20 HRS. 127 ± 1°C (260 ± 1.8°F)	TENSILE STRENGTH % OF ORIGINAL	50, MIN.	50, MIN.	—	—
	ELONGATION % OF ORIGINAL	50, MIN.	50, MIN.	—	—
OIL IMMERSION TEST, TIME & TEMP. AS NOTED	TENSILE STRENGTH % OF ORIGINAL	60 MIN. 18 HRS 121 ± 1°C (250 ± 1.8°F)	60 MIN. 18 HRS 121 ± 1°C (250 ± 1.8°F)	60 MIN. 4 HRS 70 ± 1°C (158 ± 1.8°F)	—
	ELONGATION % OF ORIGINAL	60 MIN. 18 HRS 121 ± 1°C (250 ± 1.8°F)	60 MIN. 18 HRS 121 ± 1°C (250 ± 1.8°F)	60 MIN. 4 HRS 70 ± 1°C (158 ± 1.8°F)	—
HEAT DISTORTION PERCENT OF UNAGED VALUE	—	—	—	50, MAX. 90 ± 1°C (194 ± 1.8°F)	25, MAX. 90 ± 1°C (194 ± 1.8°F)
HEAT SHOCK 121 ± 1°C (250 ± 1.8°F)	—	—	—	NO CRACKS	—
COLD BEND TEST -35 ± 1°C (-31 ± 1.8°F)	—	—	—	NO CRACKS	NO CRACKS
ENVIRONMENTAL CRACKING	—	—	—	—	NO CRACKS
LIGHT ABSORPTIVITY	—	—	—	—	24,000, MIN.
TEST IN ACCORDANCE WITH LATEST REVISION OF:	—	IPCEA S-19-82	IPCEA S-61-402	IPCEA S-61-402	IPCEA INTERIM REVISION #1 PUB. S-54-401 SEPT. 1959

IMPROVEMENT OF TRAFFIC SIGNALS FOR GREEK TOWN CABLE & WIRE SPECIFICATIONS

Designed by  
 Drawn by  
 Checked by

Scale  
 No Scale  
 Checked by  
 Approved by

Drwg. No. 13 OF 20  
 File No. CEA 130900

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PUBLIC LIGHTING DEPARTMENT  
 CITY OF DETROIT

File No. \_\_\_\_\_  
 Sheet No. 13 of 20  
 Date JUNE-1999

**CERTIFIED TEST REPORTS**

SHIPMENTS OF WIRE AND CABLE SHALL NOT BE CONSIDERED COMPLETE UNTIL CERTIFIED TEST REPORTS ARE RECEIVED AND APPROVED. TEST REPORTS FOR 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 8.34 (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 B8, B33 OR B189.
2. THE PHYSICAL AND OTHER TESTS FOR THE SPECIFIED INSULATION SHOWN ON SHEET 2.
3. INSULATION THICKNESS MEASUREMENTS.
4. THE ALTERNATING-CURRENT VOLTAGE TEST IN ACCORDANCE WITH THE LATEST REVISION OF IPCEA S-61-402.
5. 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 1.83m SAMPLE OF THE COMPLETED 2 CONDUCTOR WIRE WITH CLEANLY CUT ENDS SHALL BE SUBJECTED TO A TEMPERATURE OF (-23.3°C), -10°F FOR ONE HOUR, WHILE STILL COLD. THE TWO INSULATED CONDUCTORS SHALL BE SEPARATED AT ONE END FOR A DISTANCE OF APPROXIMATELY (76mm) 3 INCHES AND THEN SHALL BE TORN APART WITH STEADY PULL AT A RATE OF (838mm) 33 INCHES IN ONE SECOND OR LESS. THERE SHALL BE NO DAMAGE TO THE INSULATION.

**ITEMS 11 - 16 INCLUSIVE - DISTRIBUTION CABLES UNDER 10KV. RATING**

1. CONDUCTOR RESISTANCE.
2. SHEATH THICKNESS MEASUREMENTS.
3. HIGH VOLTAGE TEST.
4. MECHANICAL INTEGRITY TEST.
5. BENDING TEST.
6. 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 SPECIFICATION" 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-3.
2. THE PHYSICAL AND OTHER TESTS FOR HIGH MOLECULAR WEIGHT POLYETHYLENE INSULATION AS SHOWN ON SHEET 2.
3. THE PHYSICAL AND OTHER TESTS FOR 60°C (140°F) POLYVINYL-CHLORIDE INSULATION AS SHOWN ON SHEET 2.
4. THE FOLLOWING TESTS SHALL ALSO BE MADE AND REPORTED:

HIGH VOLTAGE TEST-AFTER NOT LESS THAN SIX(6)HOURS IMMERSION IN WATER AT (15.6°C). (60°F) AND WHILE STILL IMMERSED, EACH REEL OF INSULATION 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 26,500 MEGOHMS PER THOUSAND FEET AT (15.6°C). 60°F THIS TEST SHALL BE CONDUCTED UPON COMPLETION OF THE HIGH VOLTAGE TEST.

SHORT-TIME DIELECTRIC STRENGTH TEST - A (3.05m)TEN(10)FT.) SAMPLE OF THE FINISHED CABLE WITH ONLY THE LEAD REMOVED, AFTER TWELVE (2) 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 IN ACCORDANCE WITH I.P.C.E.A. SPECIFICATIONS, UNTIL THE INSULATION IS PUNCTURED. THIS VOLTAGE SHALL BE RECORDED AND SHALL BE NOT LESS THAN 72,000 VOLTS.

EXTERNAL CORONA TEST-THE TEST SHALL BE CONDUCTED ON ONE(SAMPLE PER 10,000 FT. OF COMPLETED CABLE EIGHTEEN(18)INCHES LONG WITH ONLY THE LEAD SHEATH REMOVED, AFTER WHICH 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. THE BENT SAMPLES SHALL THEN BE PLACED IN A VERTICAL POSITION ON A FLAT METALLIC GROUNDED PLATE AND 60 CYCLE A.C. VOLTAGE SHALL BE GRADUALLY APPLIED WITH A CORONA-LEVEL TEST APPARATUS OF THE FILTER-CIRCUIT TYPE, MAINTAINING SUFFICIENT AMPLIFICATION TO INDICATE THE EXISTENCE OF CORONA DISCHARGE. THIS 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 NOT 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-EACH LENGTH OF COMPLETED CABLE SHALL BE TESTED IN ACCORDANCE WITH SECTION 6.13 OF THE LATEST REVISION OF I.P.C.E.A. 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. HIGH VOLTAGE-TIME TEST ) ONE TEST PER ORDER OR
8. DIELECTRIC POWER TEST ) THERE IS A QUANTITY LIMITATION OF
9. POWER FACTOR TEST ) 7.62m (25') ON THESE TESTS PER AEIC
10. SPARK TEST ON COVERING OVERHEAD SHEATH ON EACH LENGTH

ALL TESTS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF "SOLID-TYPE IMPREGNATED-PAPER-INSULATED LEAD-COVERED CABLE SPECIFICATION," 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 B3.
2. INSULATION THICKNESS MEASUREMENTS.
3. INSULATION PHYSICAL AND OTHER TESTS FOR 60°C (140°F) POLYVINYL CHLORIDE IS SHOWN ON SHEET 2.
4. ALTERNATING CURRENT VOLTAGE TEST.
5. INSULATION RESISTANCE TEST INSULATION RESISTANCE CONSTANT AS SHOWN ON SHEET 2.
6. (CABLE ITEM 23 ONLY)
  - a. POLYVINYL CHLORIDE JACKET PHYSICAL AND OTHER TESTS SHOWN ON SHEET 2.
  - b. JACKET THICKNESS MEASUREMENTS.
7. (CABLE ITEM 22 ONLY), LEAD SHEATH THICKNESS MEASUREMENTS.

TESTS NO. 4-7, INCLUSIVE, SHALL BE MADE IN ACCORDANCE WITH THE LATEST REVISION OF I.P.C.E.A. S-61-402, EXCEPT THAT THE INSULATION RESISTANCE CONSTANT SHALL BE 1000 AT 15.6°C (60°F).

**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 A.C. FOR A DURATION OF 5 MINUTES, BETWEEN CONDUCTORS AND FROM EACH CONDUCTOR TO THE LEAD SHEATH.

**ITEM 25 - 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 I.P.C.E.A. S-19-81 AS FOLLOWS:
  - a. ALTERNATING-CURRENT VOLTAGE TEST.
  - b. INSULATION RESISTANCE TEST.
  - c. DIRECT-CURRENT VOLTAGE TEST.
  - d. CORONA LEVEL TEST.
  - e. SHORT-TIME DIELECTRIC STRENGTH TEST.
  - f. COLD-BENDING AND LONG-TIME DIELECTRIC STRENGTH TEST.
  - g. CAPACITY AND POWER FACTOR TEST.
  - h. OZONE RESISTANCE TEST.
4. PHYSICAL AND OTHER TESTS ON THE NEOPRENE JACKET (GENERAL PURPOSE OR HEAVY DUTY), AS SHOWN ON SHEET 2.
5. JACKET THICKNESS MEASUREMENTS

**ITEM 26 - SUPERVISORY CONTROL CABLE (MULTI-CONDUCTOR)**

1. CONDUCTOR RESISTANCE, TENSILE STRENGTH AND ELONGATION, IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-3.
2. INSULATION PHYSICAL FOR 60°C (140°F) 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 LEAD SHEATH ON EACH LENGTH.

**ITEM 27 - INTEGRAL MESSENGER COMMUNICATIONS CABLE (MULTI-PAIR)**

**ITEM 28 - COMMUNICATIONS CABLE**

**ITEM 29 - COMMUNICATIONS CABLE, LEAD SHEATH**

**ITEM 30 - COMMUNICATIONS CABLE, LEAD SHEATH, DIRECT BURIAL**

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

ITEM NO.	USE AND RATING	CONDUCTOR	INSULATION (b)	TAPE OVER INSULATION CONDUCTORS	INNER BELT	SHIELD OVER TAPE OR BELT	JACKET OR SHEATH	COVERING OVER SHEATH
27	(a) AERIAL 600V.		.635mm(.025") (c) CLASS B POLYETHYLENE (ASTM D 1351)			CORRUGATED, LONGITUDINAL, ANNEALED, .1mm (.004") (c) COPPER	BLACK POLYETHYLENE (ASTM D 2308). THICKNESSES OVER CORE AND MESSENGER AND WEB DIMENSIONS IN ACCORDANCE WITH REA SPECIFICATION PE-38.	
28	IN DUCT 600V.	*6 ØR *19 AWG, SOLID, UNCOATED COPPER (ASTM B3)-NUMBER OF PAIRS AS REQUIRED		12.5 PERCENT MINIMUM LAP, POLYETHYLENE TEREPHTHALATE	BLACK POLY-ETHYLENE (ASTM D 2308) .254mm(.010") MIN. .76mm(.030") MAX. THICKNESS		BLACK POLYETHYLENE (ASTM D 2308). THICKNESS IN ACCORDANCE WITH PARAGRAPH 3.6,7,3.7 AND TABLE IV OF FED. SPEC. J.C.111.	
29	IN DUCT 600V.		.79mm(.031") (c) DIOCTYL PHTHALATE PLASTICIZED PVC (ASTM D 2219)				LEAD-ANTIMONY THICKNESS PER ITEM 26 EXCEPT 1.6mm (.063") MIN. THICKNESS (c)	
30	DIRECT BURIAL 600V.	*6 ØR *19 AWG, SOLID, TINNED COPPER (ASTM B 33)-NUMBER OF PAIRS AS REQUIRED					COMMERCIALLY PURE LEAD, THICKNESS PER ITEMS 22 & 23.	ASPHALTUM-SATURATED JUTE STEEL ARMOR PER ITEMS 17 & 18.

**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 304.80m (1000')
2. CERTIFICATION OF MUTUAL CAPACITANCE OF ALL CABLES AND OF NON-INJURIOUS EFFECT OF FLOODING COMPOUND ON ITEM 27.

(a) FIGURE .203m (8") CONSTRUCTION, MESSENGER SHALL BE 7 STRAND EHS GALVANIZED, CLASS A, 6mm (.25") NORMAL DIAM. (ASTM A 475) AND SHALL BE FULL FLOODED.

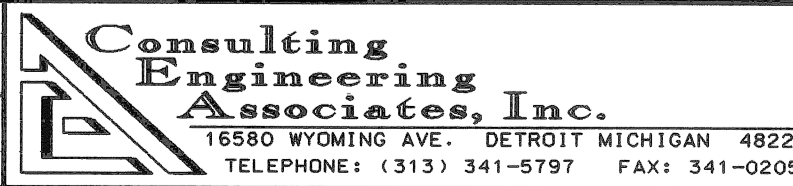
(b) COLOR CODED PER FEDERAL SPECIFICATION J-C-111.

(c) NOMINAL THICKNESS, mm (INCHES).

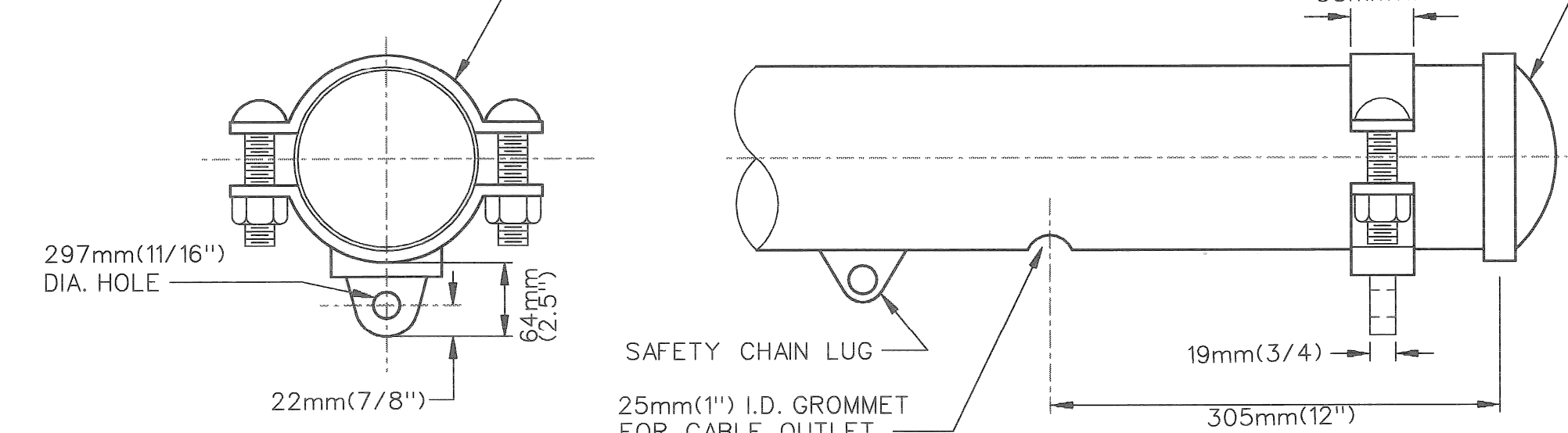
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REV	Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEK TOWN  
CABLE & WIRE SPECIFICATIONS**

Designed by CEA	 <p>1650 WYOMING AVE. DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205</p>	Scale No Scale	<b>PUBLIC LIGHTING DEPARTMENT</b> CITY OF DETROIT	File No. -----
Drawn by		Checked by		Sheet No. 14 of 20
Checked by		Drwg. No. 14 OF 20		File No. CEA 130900

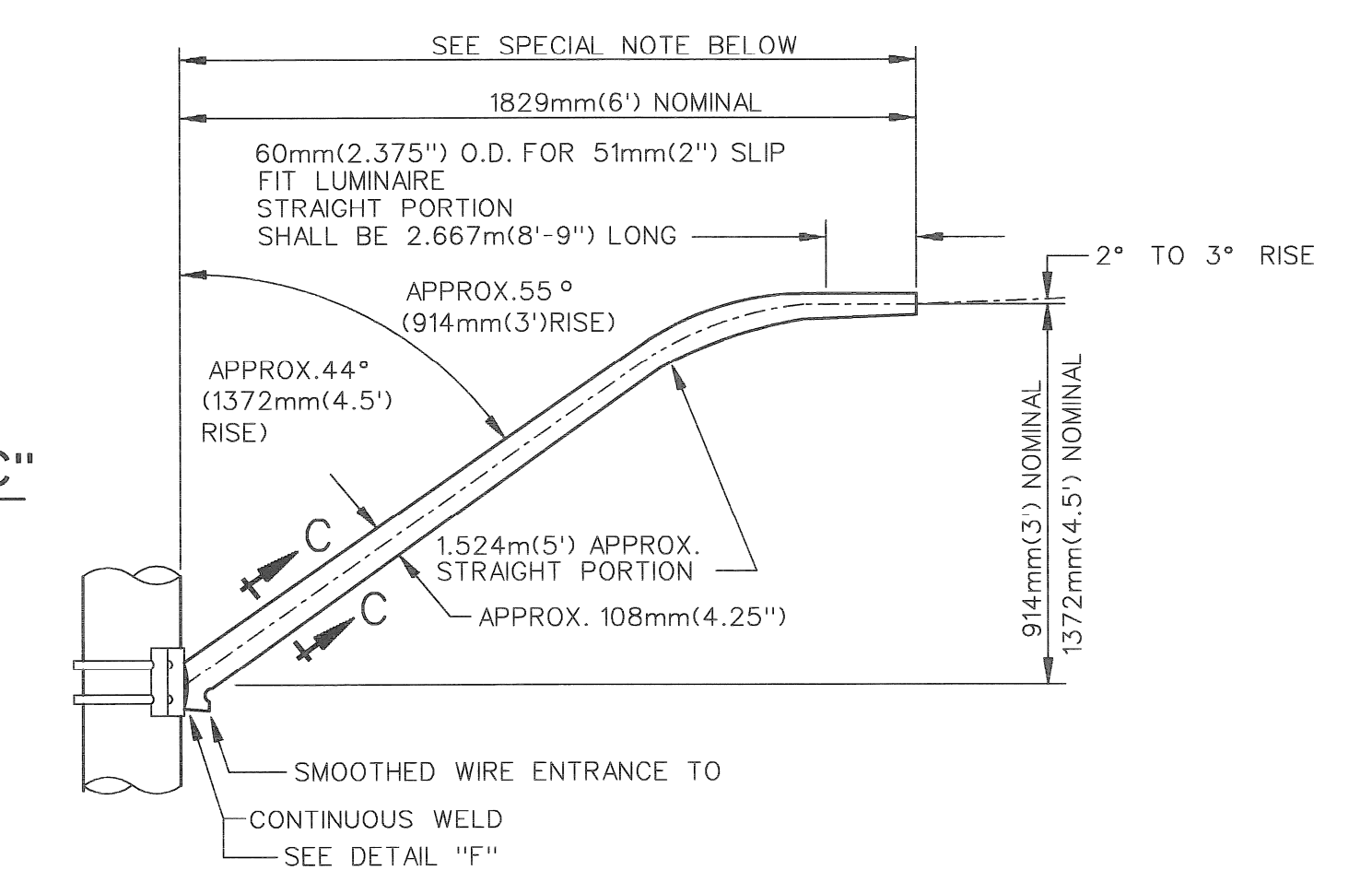
CLAMP-6mm(.25") STOCK  
 STEEL LUG- 19mm(.75") STOCK  
 (2)-16mm(5/8") DIA. CARR. BOLTS & HEX NUTS  
 PARTS TO BE HOT DIP GALVANIZED AFTER FABRICATION



**SIGNAL HANGER - DETAIL "G"**

N.T.S.

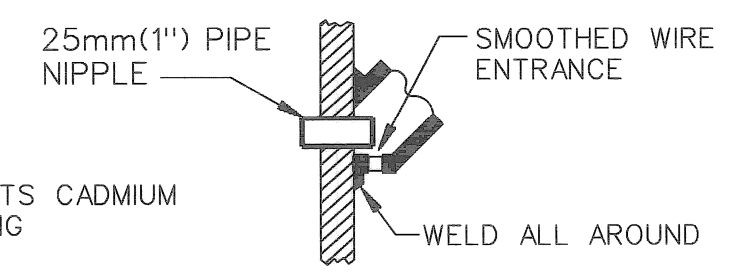
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N.T.S.



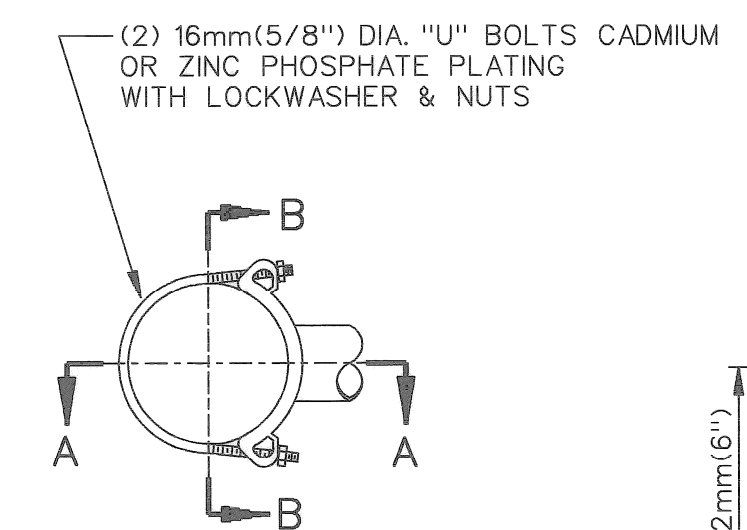
**STREET LTG. BRACKET ARM ASSEMBLY - DETAIL "A"**

N.T.S.

**SPECIAL NOTE**  
 WHERE BRACKET ARM OF LENGTH OTHER THAN 1.829m(6FT). IS CALLED FOR ON PLANS CONTRACTOR SHALL SUBMIT TO P.L.D. SHOP DRAWINGS SHOWING ALL INFORMATION & OBTAIN P.L.D. APPROVAL.



**SECTION "A-A"**



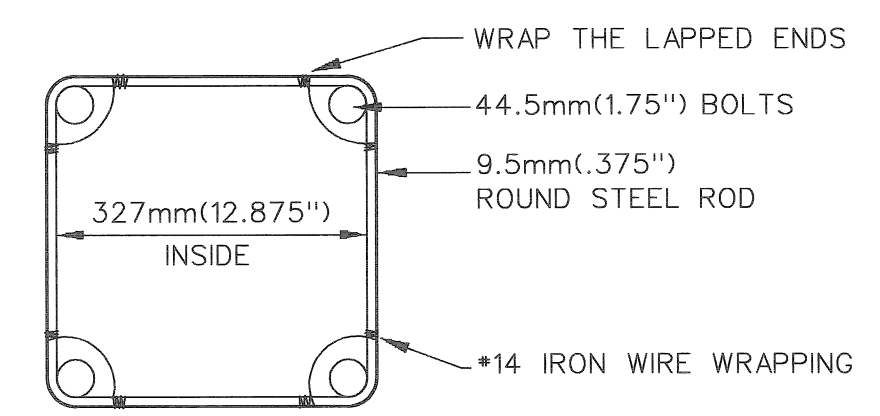
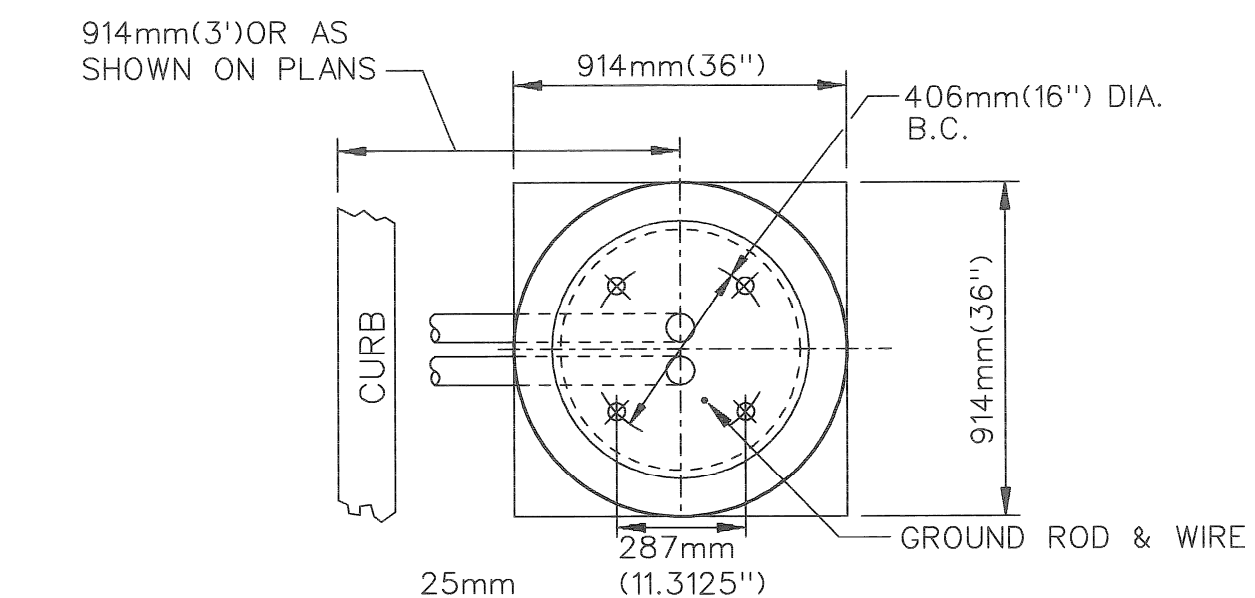
**CLAMP DETAIL "F"**

N.T.S.

**SECTION "B-B"**

**CLAMP SIZE TABLE**

TYPE	POLE DIAMETER
A	89mm(3.5")-114mm(4.5")
B	155mm(6.1")-175mm(6.9")
C	191mm(7.5")-216mm(8.5")



**FDN. BOLT TIE ROD**

N.T.S.

POUR FOUNDATION TO BELOW GRADE LEAVE TOP SURFACE ROUGH.

USE A CONDUIT COUPLING AS SHOWN. AFTER STANDARD IS MOUNTED RAKED, EXTEND CONDUIT & GROUND WIRE INTO BASE & GROUT BETWEEN FOUNDATION & STD. BASE. TAPER GROUTING AS SHOWN.

FOUNDATION BOLT TIE ROD. (SEE DETAIL "E" ABOVE)

44.5mm(1.75") x 2.286m(90") FOUNDATION BOLTS.(4 REQ'D)

\*2 OR LARGER STRANDED GROUND WIRE WITH 762mm(30") SLACK ABOVE ROUGH TOP.

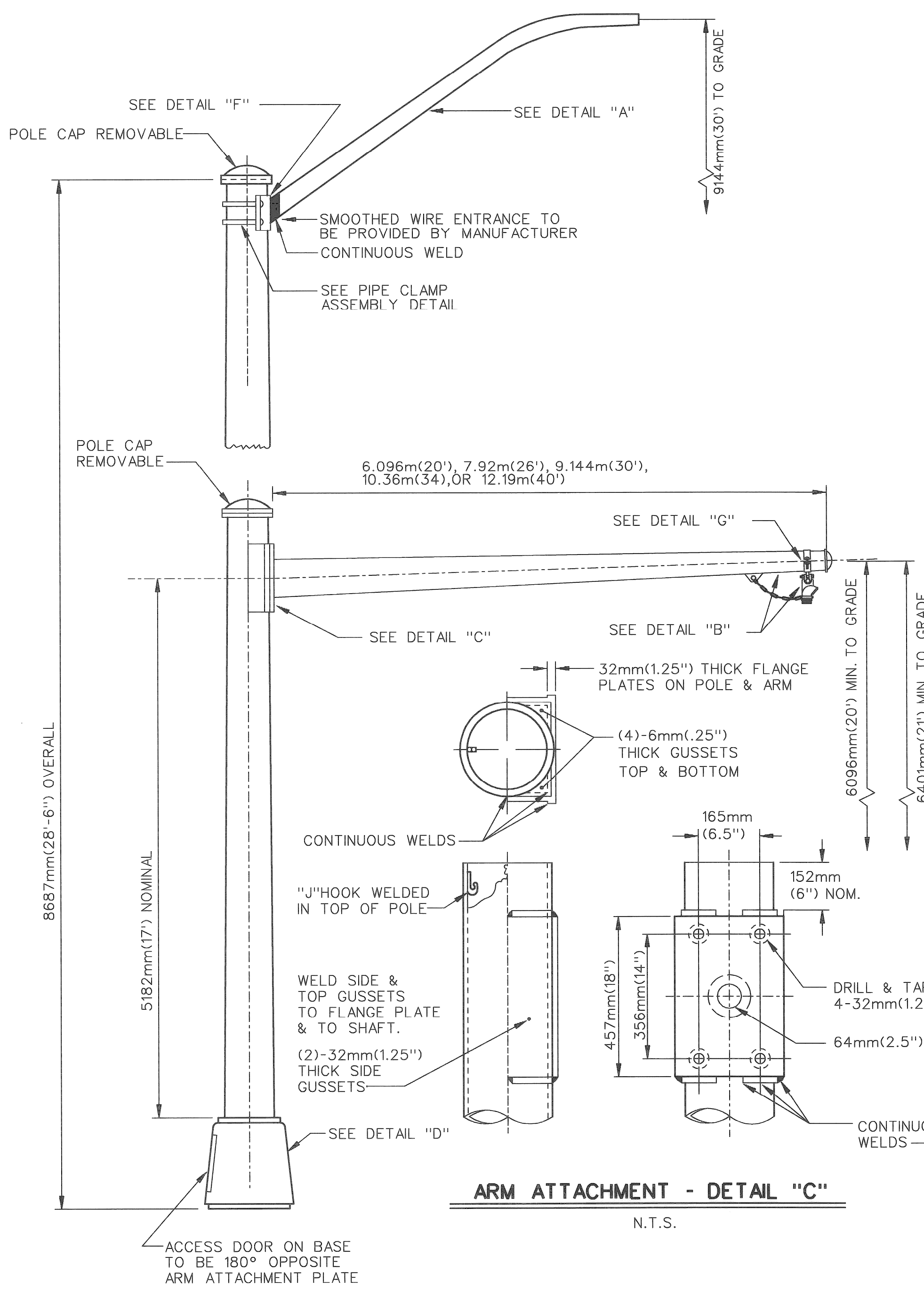
USE NON-SOLDER TYPE CONNECTOR 16mm(0.625") x 2.44m(8") GROUND ROD EMBEDDED IN FDN.

**NOTE:**  
 ENTIRE EXCAVATION FOR FDN. TO BE FILLED WITH CONCRETE. FORMS SHALL NOT BE USED (EXCEPT FOR FDN. TOP WITHOUT APPROVAL OF PROJECT ENGINEER.

**FOUNDATION DETAILS**

N.T.S.

**CANTILEVER TYPE STD. MAST ARM STD. OR COMB. ST. LTG. & MAST ARM STD.**

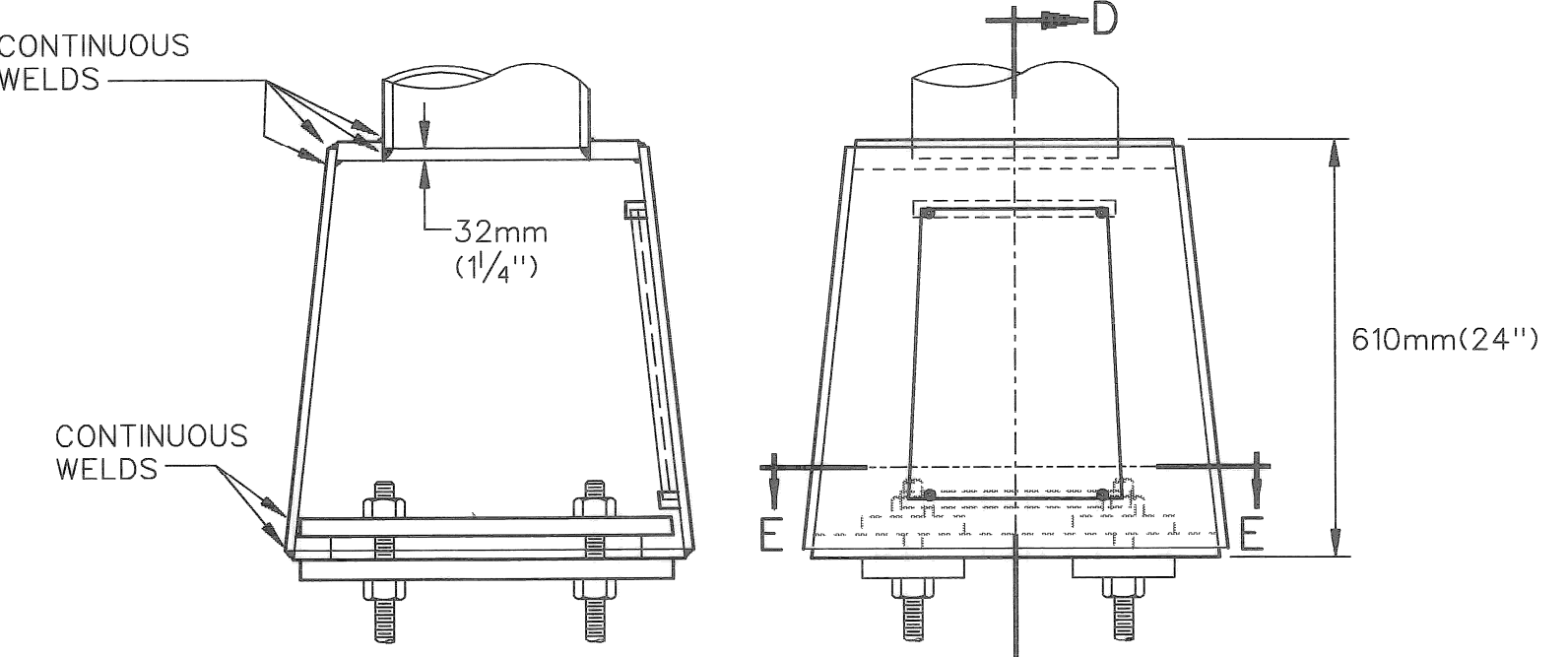


**CANTILEVER TYPE MAST ARM ASSEMBLY**

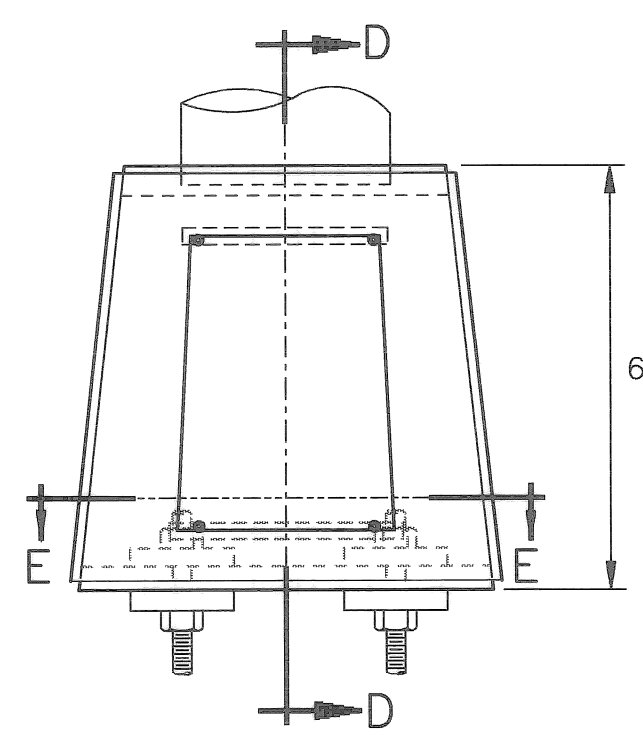
AND  
**MAST ARM STANDARD OR COMBINATION STANDARD**

**CODE 028-00**

**CODE 027-06**



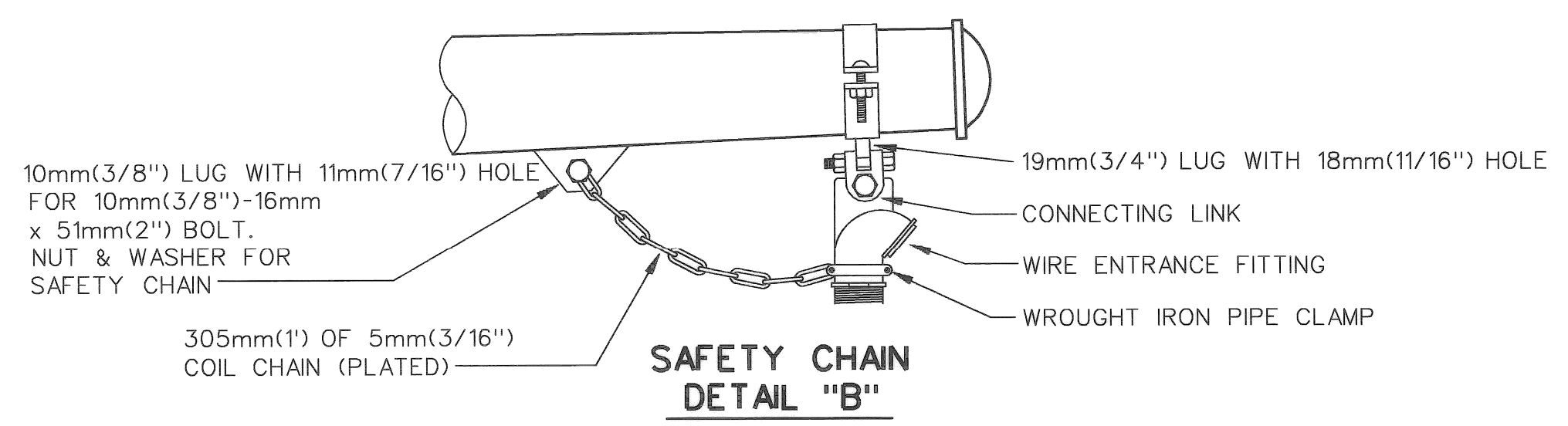
**SECTION "D-D"**



**SECTION "E-E"**

**CANTILEVER TYPE MAST ARM ASSEMBLY**

N.T.S.



**SAFETY CHAIN DETAIL "B"**

N.T.S.

**IMPROVEMENT OF TRAFFIC SIGNALS FOR GREEK TOWN**  
 T.S.CANTILEVER TYPE MAST ARM ASSEMBLY  
 (CODE 027-06) (CODE 028-00)

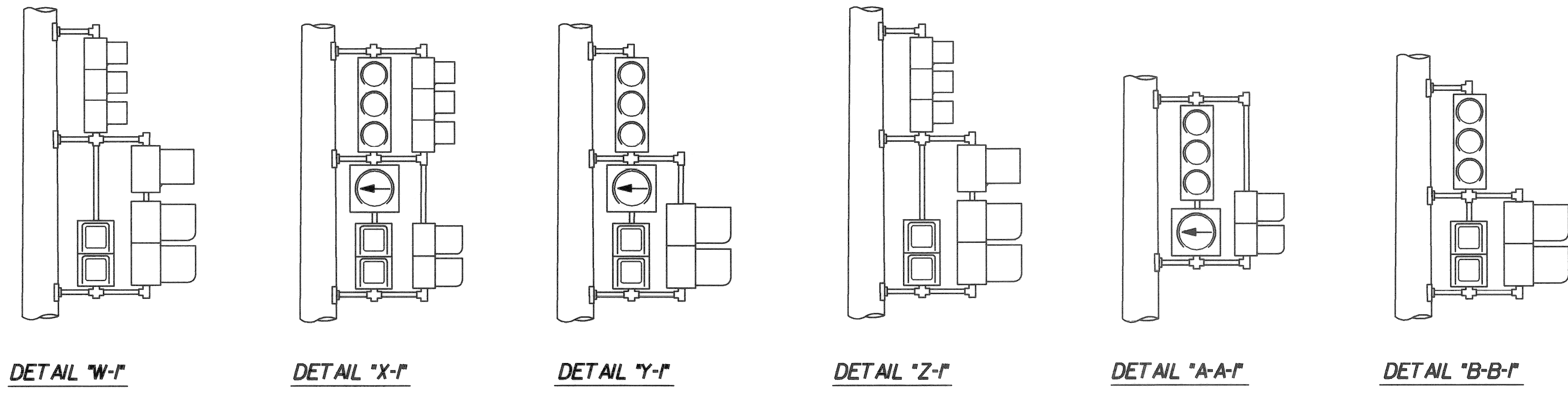
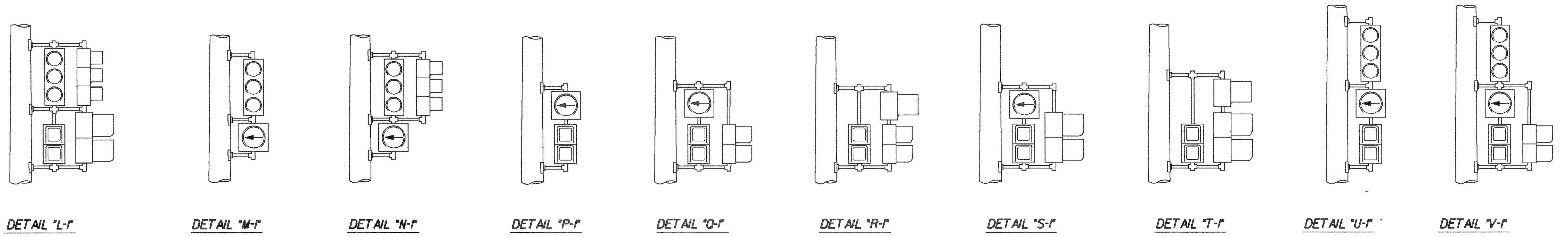
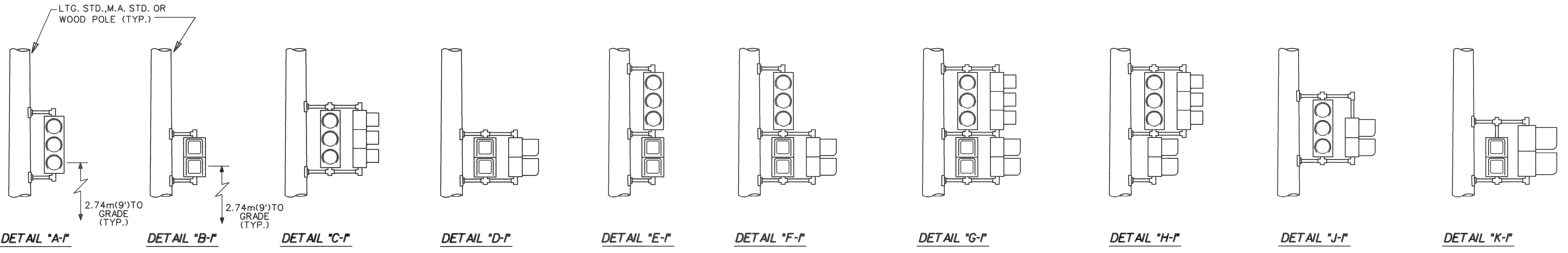
REVISIONS	Date	Description	Chkd. by

Designed by **CEA**  
 Drawn by **Consuling Engineering Associates, Inc.**  
 16580 WYOMING AVE. DETROIT MICHIGAN 48221  
 TELEPHONE: (313) 341-5797 FAX: 341-0205  
 Checked by **550 JPL DM** File No. **CEA 130900**

Scale **No Scale**  
 Checked by  
 Approved by  
**PUBLIC LIGHTING DEPARTMENT**  
**CITY OF DETROIT**

**502**  
 File No. \_\_\_\_\_  
 Sheet No. **45 of 20**  
 Date **JUNE-1999**

DISK FILE: 502PLDMTR



**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 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.

DISK FILE: 508PLDM/MT

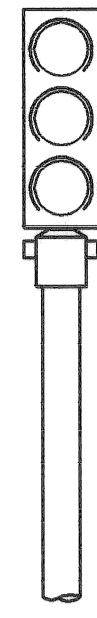
REVISION	Date	Description	Chkd. by

**IMPROVEMENT OF TRAFFIC SIGNALS  
 FOR GREEK TOWN  
 T.S. BRACKET ARM ASSEMBLY DETAILS**

Designed by CEA	 Consulting Engineering Associates, Inc. 71550 WYOMING AVE. DETROIT MICHIGAN 48221 TELEPHONE: (313) 341-5797 FAX: 341-0205	Scale No Scale
Drawn by		Checked by
Checked by		Approved by
Drwg. No. 16 OF 20	File No. CEA 130900	

**PUBLIC LIGHTING  
 DEPARTMENT  
 CITY OF DETROIT**

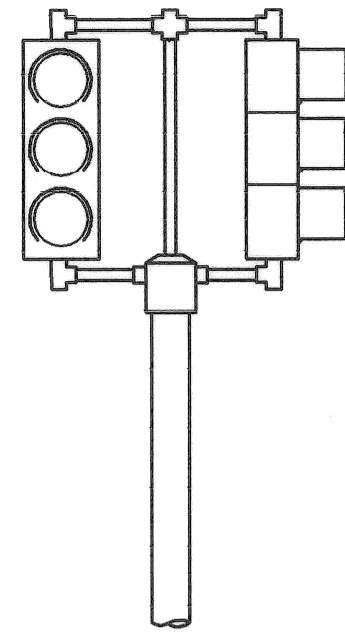




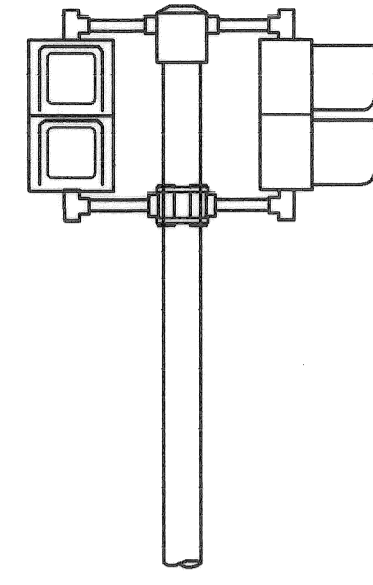
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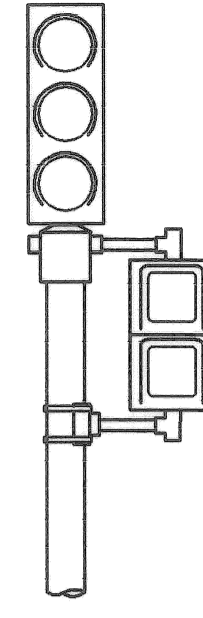
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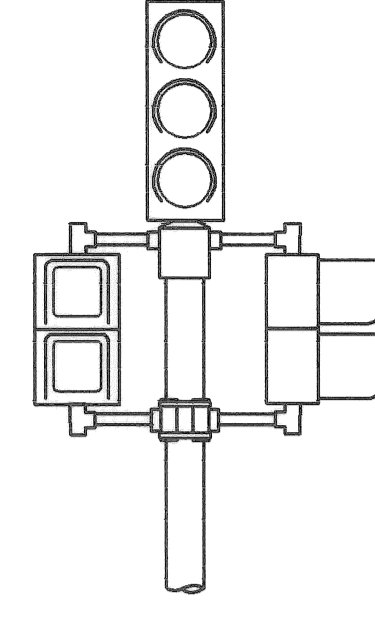
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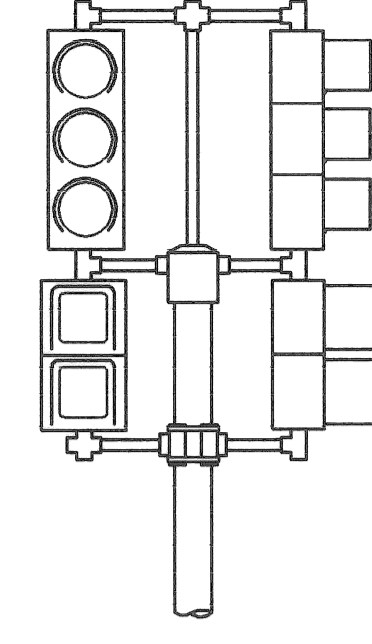
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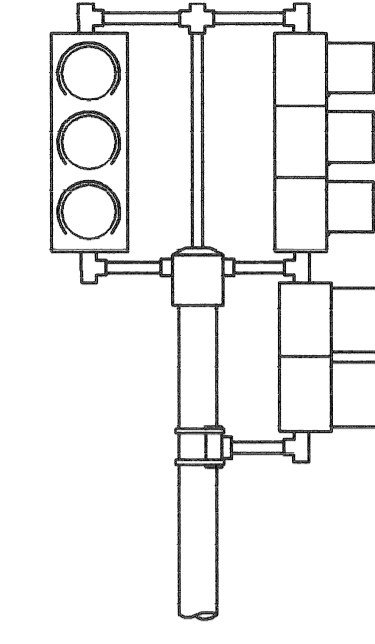
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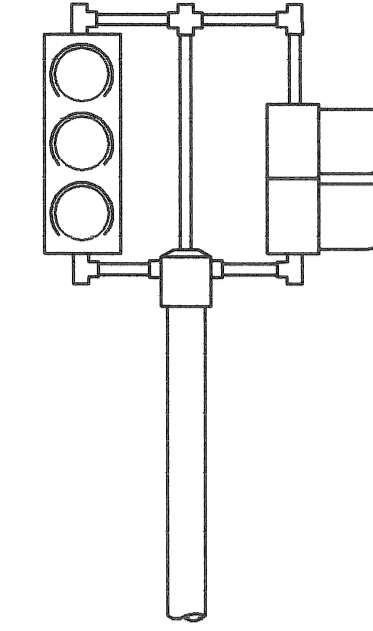
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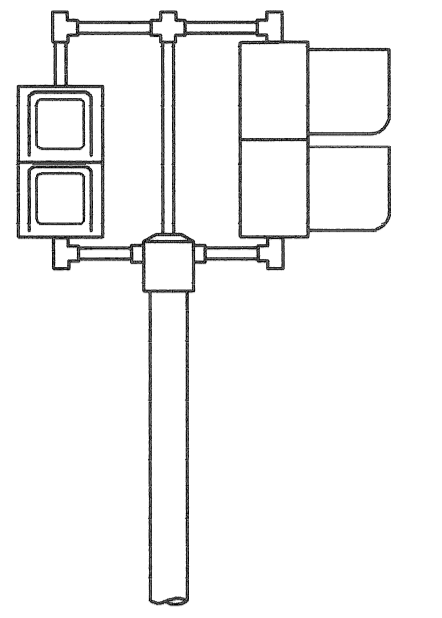
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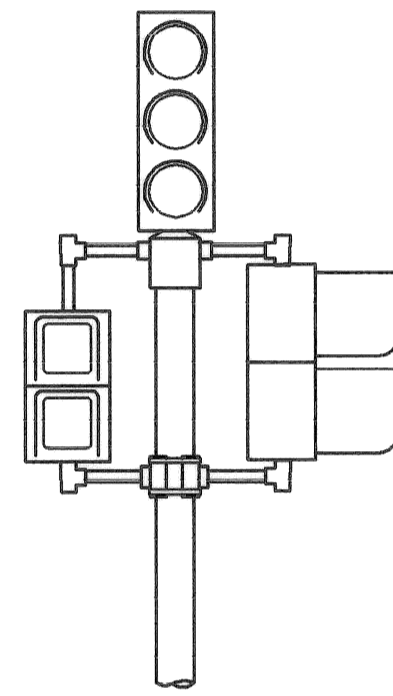
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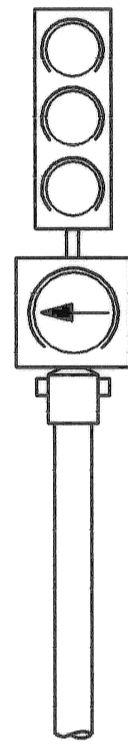
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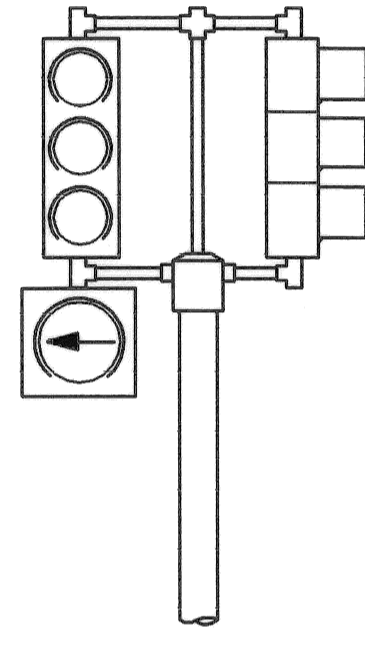
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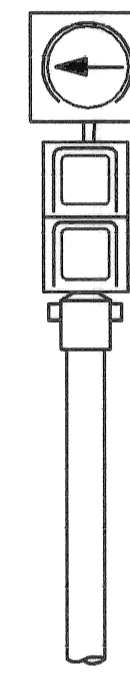
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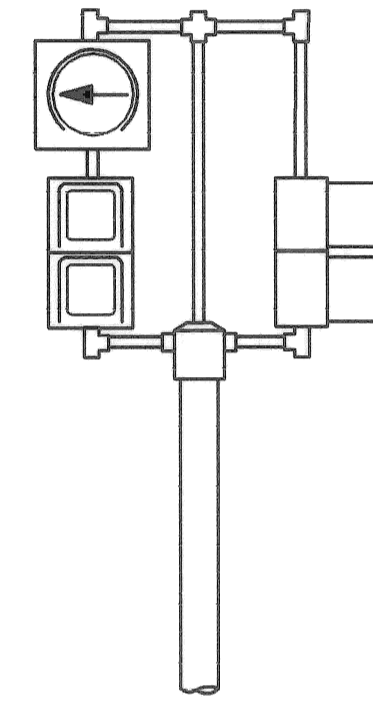
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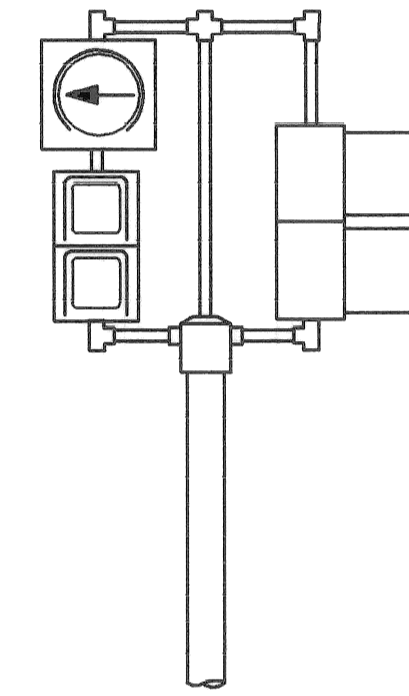
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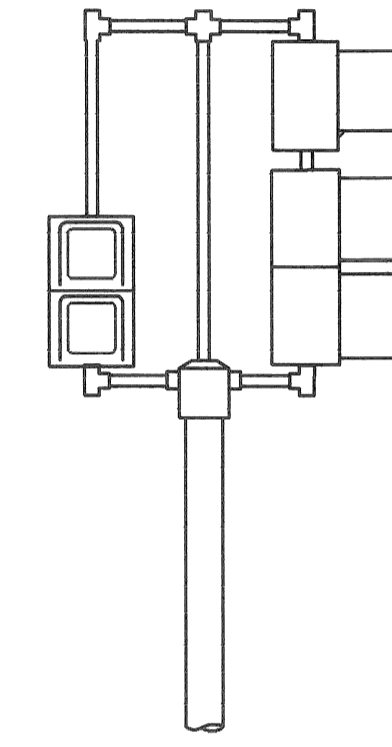
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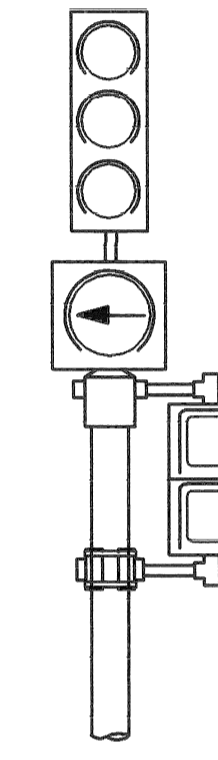
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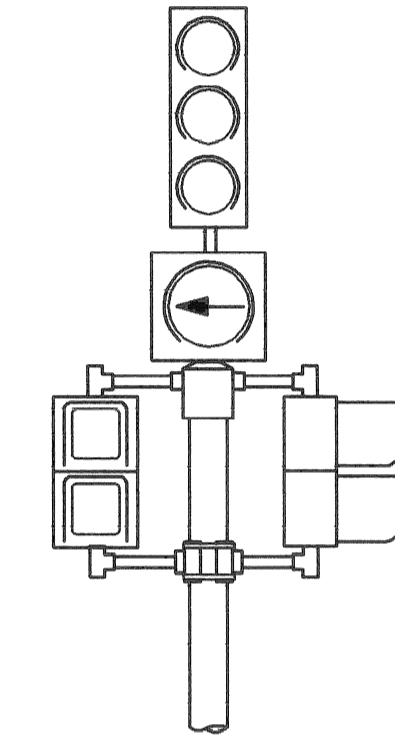
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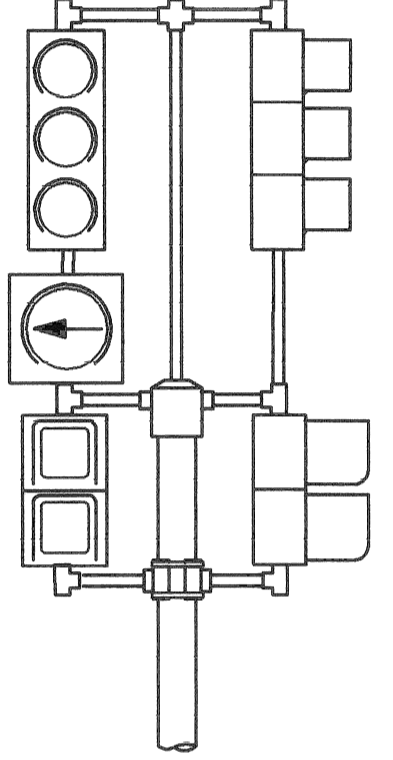
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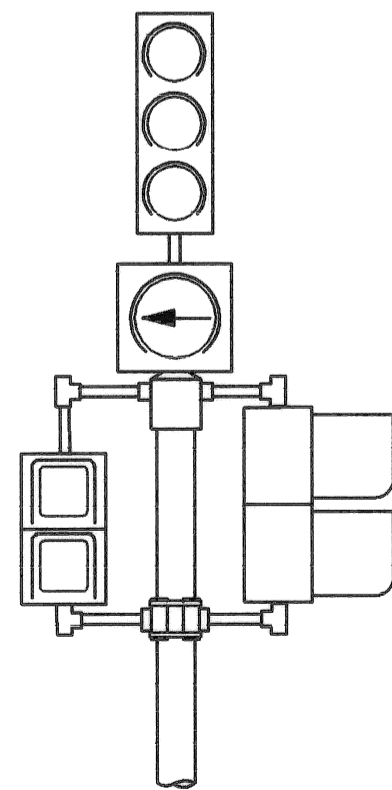
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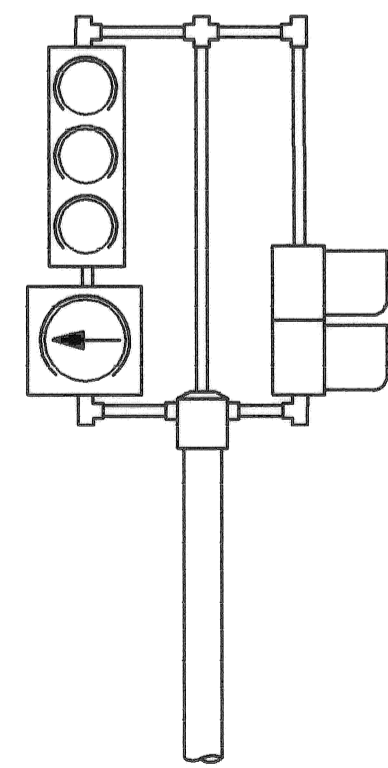
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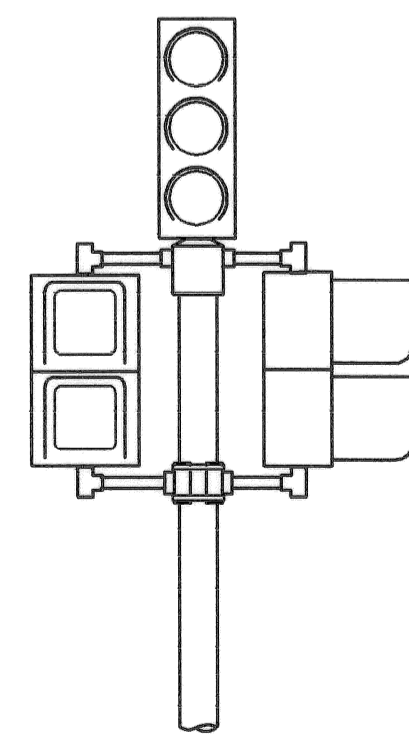
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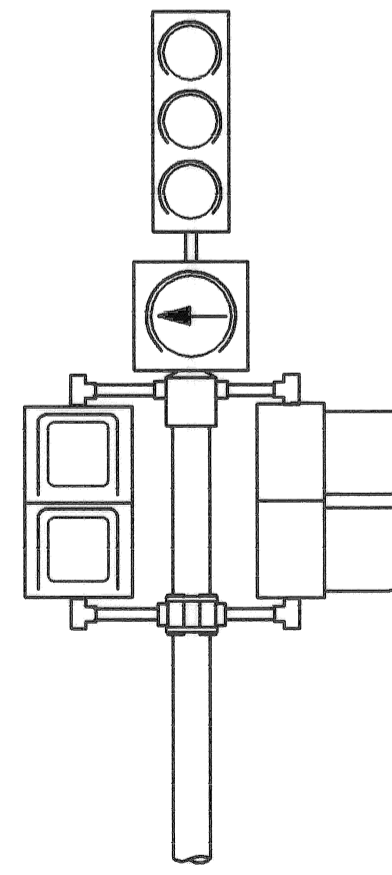
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DETAIL "X-2"



DETAIL "Y-2"



DETAIL "Z-2"

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 POLE) ACCORDING TO THE PLAN VIEW TO PROVIDE CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

NOTE:

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IMPROVEMENT OF TRAFFIC SIGNALS FOR GREEK TOWN T.S. PEDESTAL ASSEMBLY DETAILS

REV	Date	Description	Chkd. by

Designed by  
CEA  
 Drawn by  
 Checked by

**Consulting Engineering, Inc. Associates, Inc.**  
 11550 WYOMING AVE. DETROIT MICHIGAN 48221  
 TELEPHONE: (313) 341-5797 FAX: 341-0205

Drwg. No. 17 OF 20  
 File No. CEA 130900

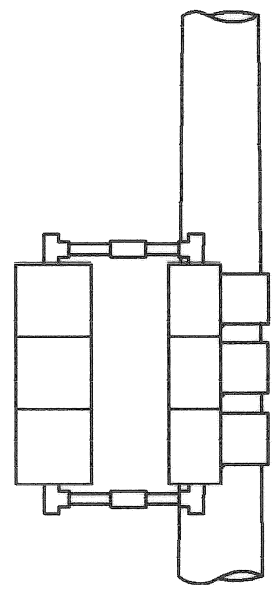
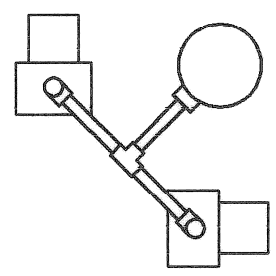
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 CITY OF DETROIT

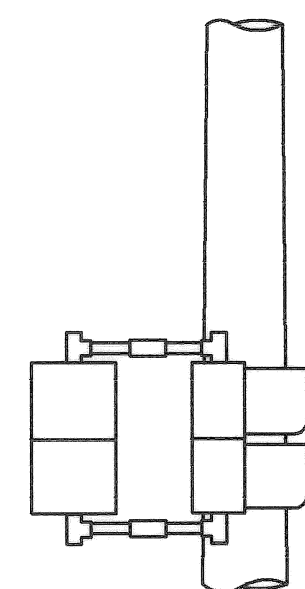
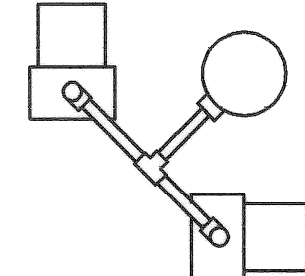
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 Date JUNE-1999

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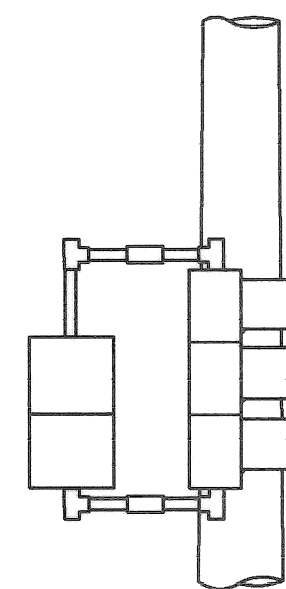
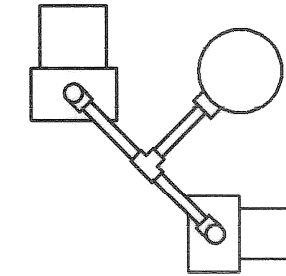
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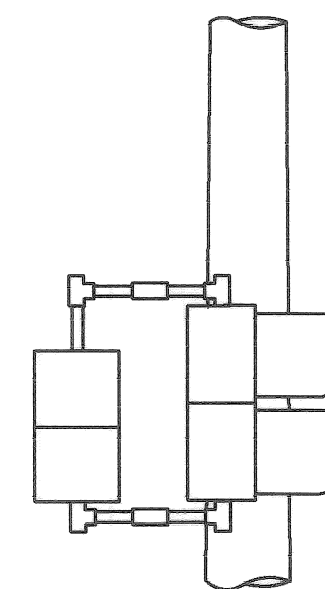
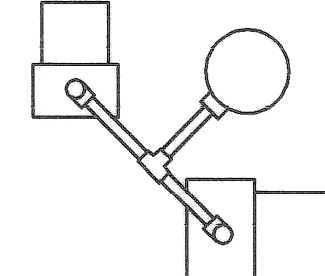
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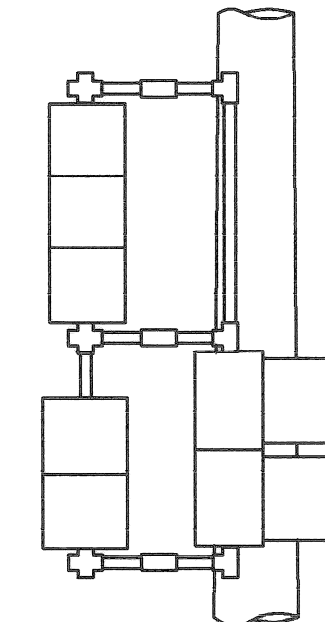
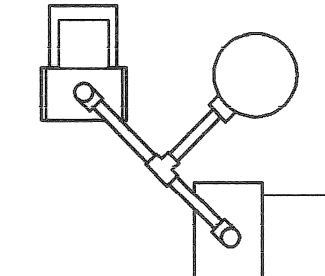
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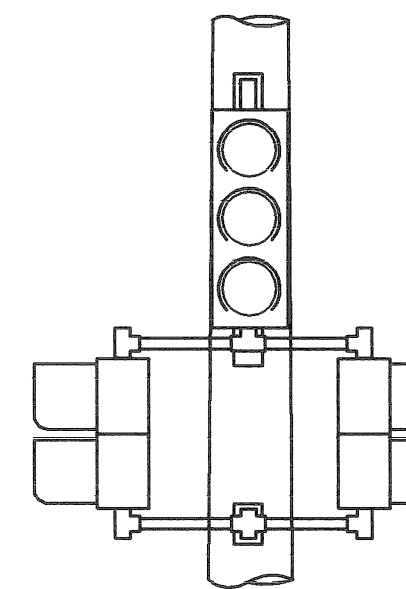
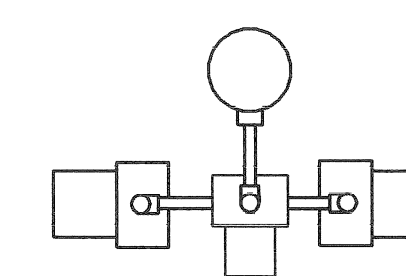
DETAIL "C-3"



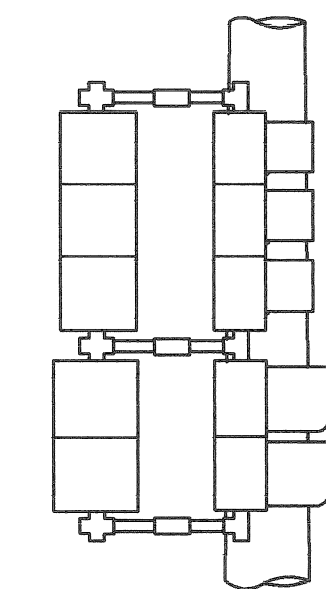
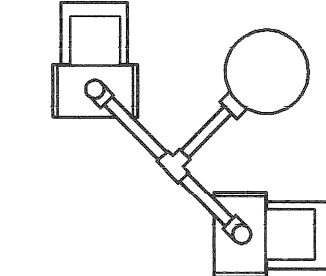
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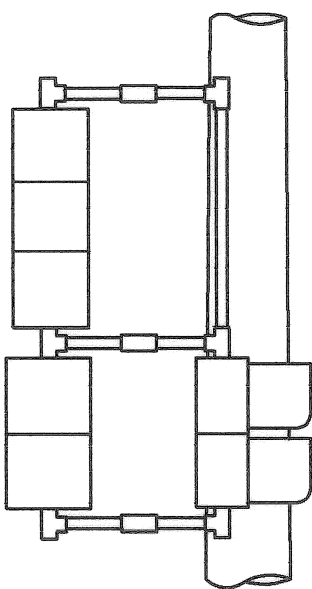
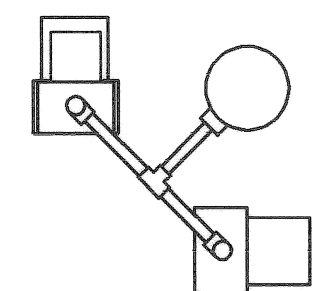
DETAIL "E-3"



DETAIL "F-3"



DETAIL "G-3"



DETAIL "H-3"

**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 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.

21  
DISK FILE: S10PLD.MTR

REVISIONS	Date	Description	Chkd. by

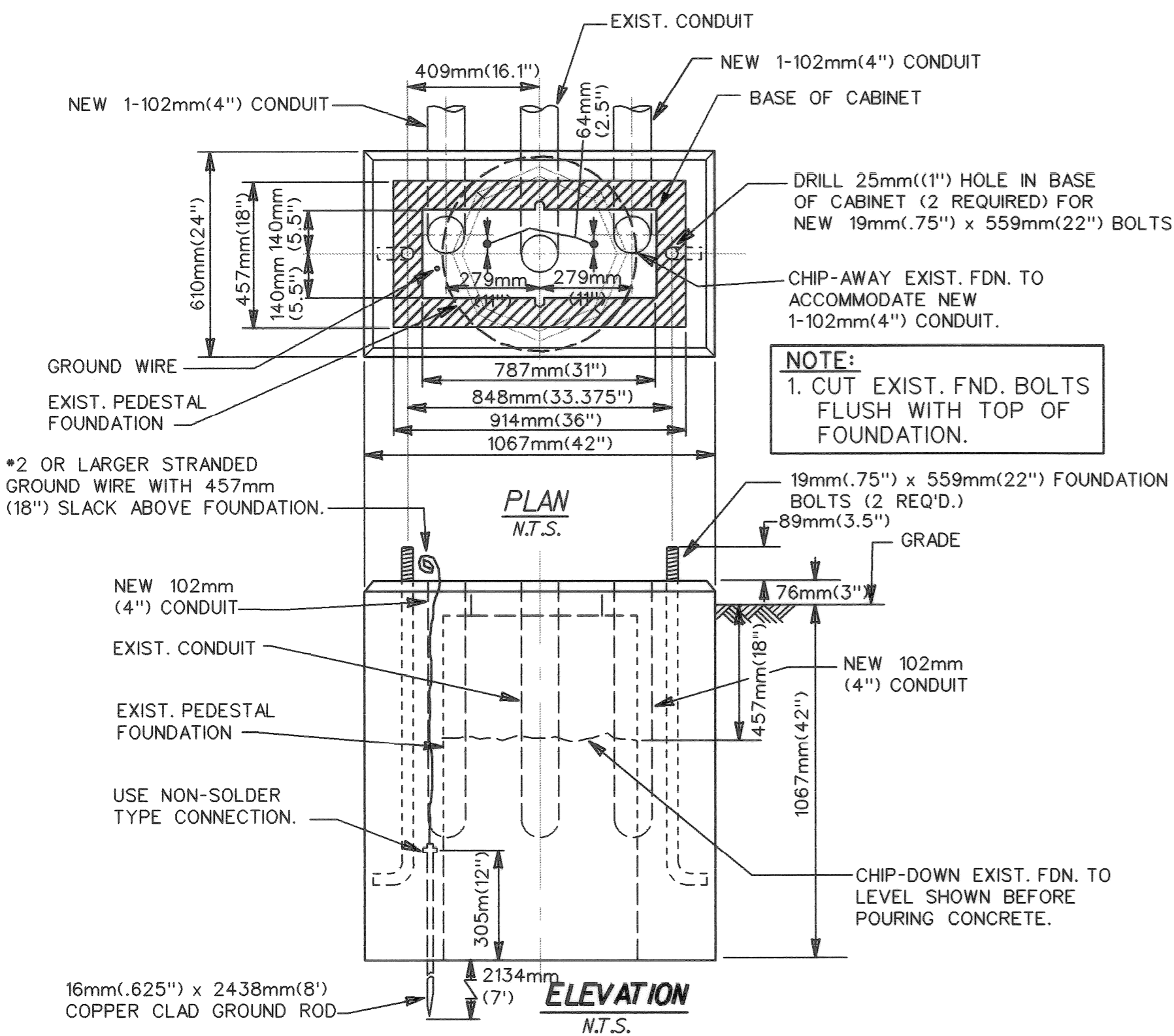
**IMPROVEMENT OF TRAFFIC SIGNALS  
 FOR GREEK TOWN**  
*T.S. BRACKET ARM ASSEMBLY DETAILS*

Designed by CEA	 <small>CONSULTING ENGINEERING ASSOCIATES, INC.        11550 WYOMING AVE. DETROIT MICHIGAN 48221        TELEPHONE: (313) 341-5797 FAX: 341-0205</small>	Scale No Scale
Drawn by		Checked by
Checked by		Approved by
Drwg. No. 18 OF 20	File No. CEA 130900	

**PUBLIC LIGHTING  
 DEPARTMENT  
 CITY OF DETROIT**

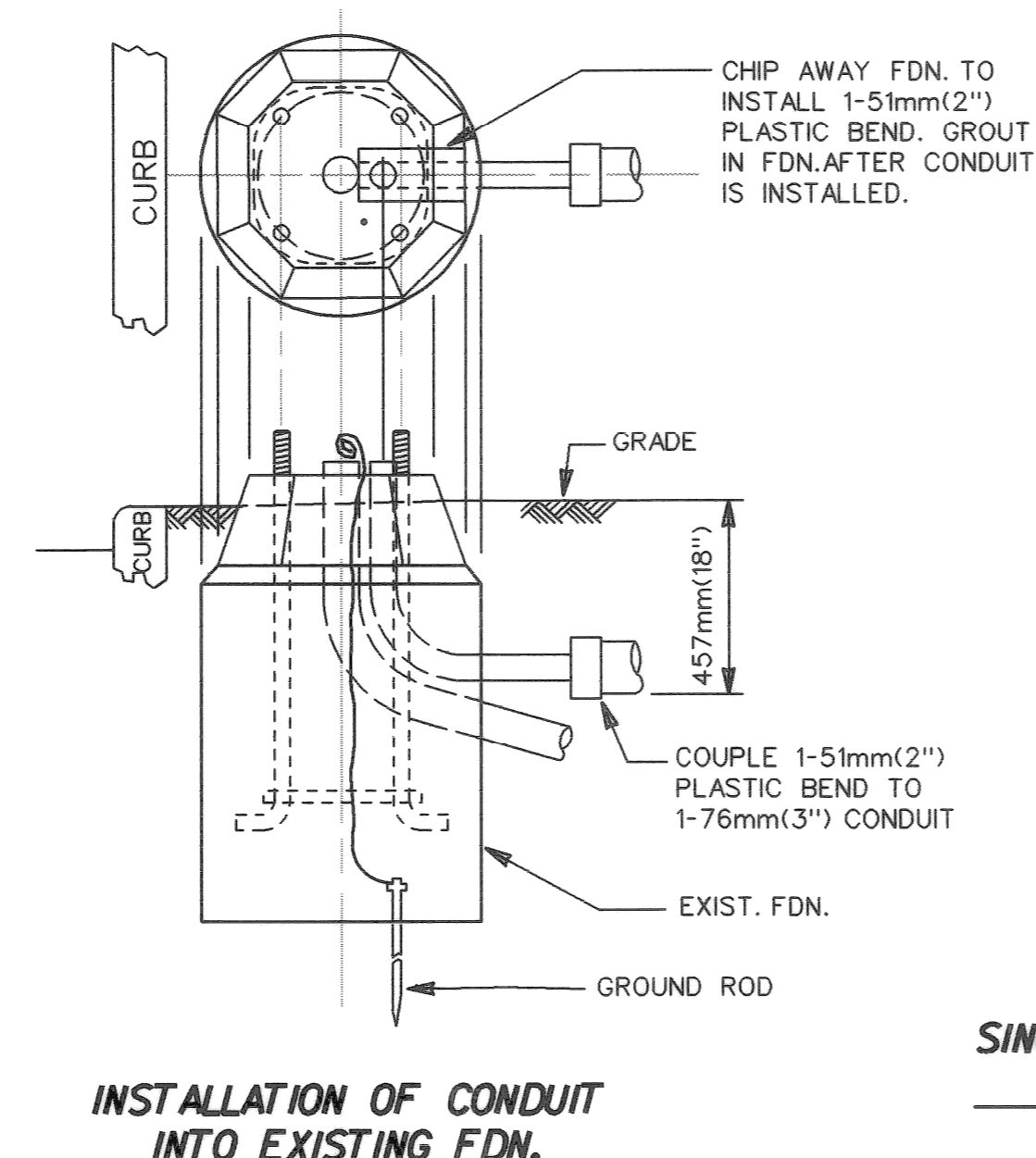
File No. \_\_\_\_\_  
 Sheet No. 18 OF 20  
 Date JUNE-1999

NOTE:  
GROUNDING SYSTEM SHALL MEASURE  
10 OHM OR LESS TO GROUND.

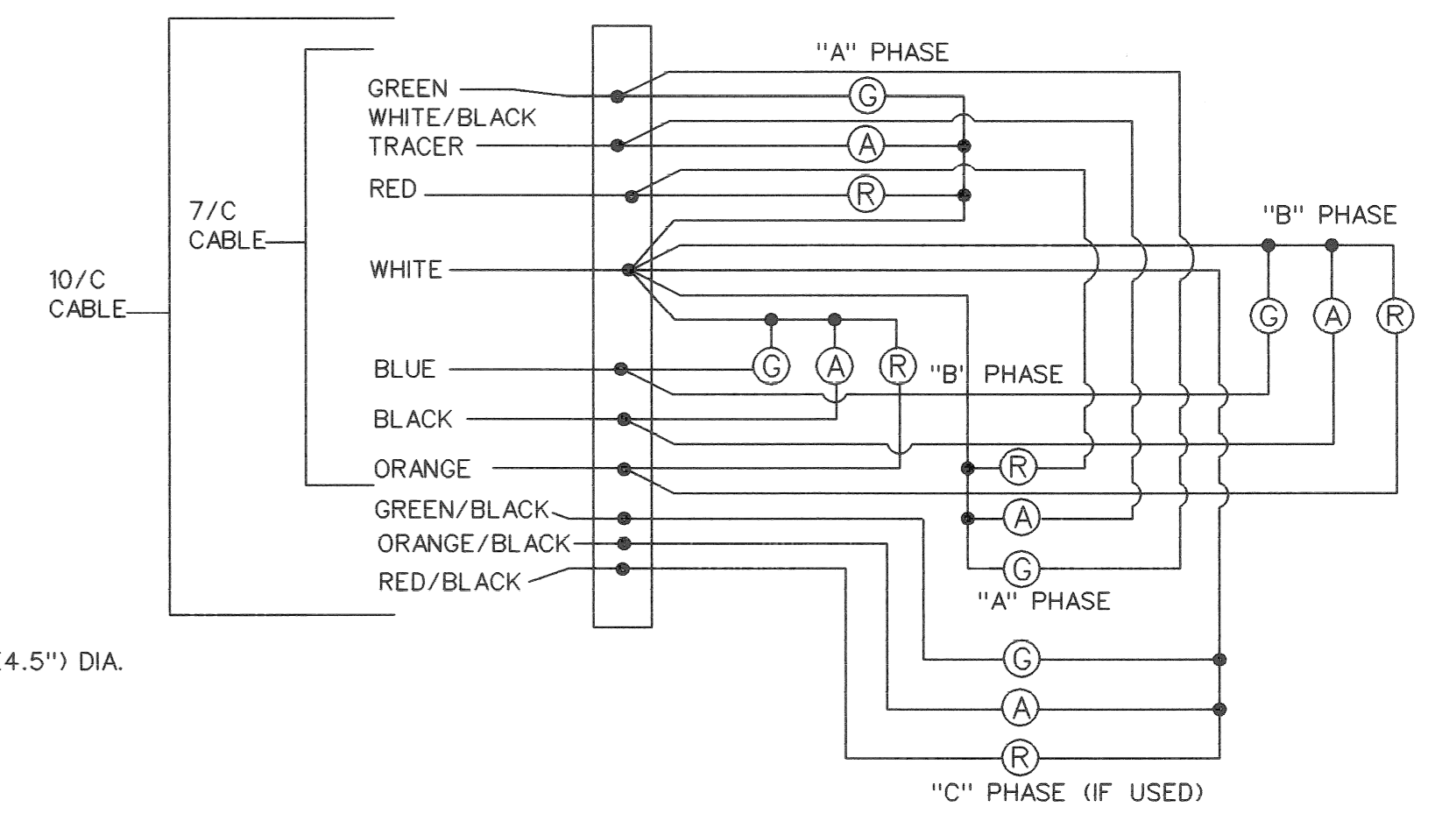
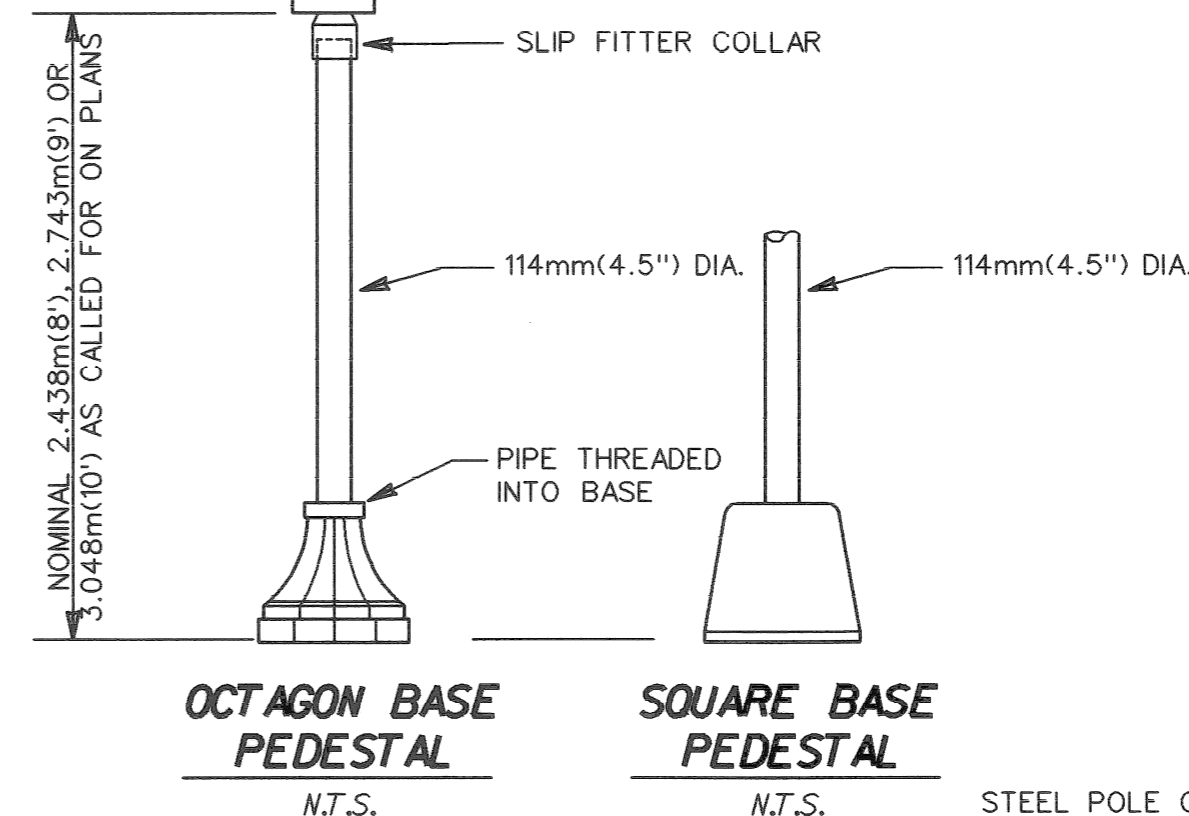
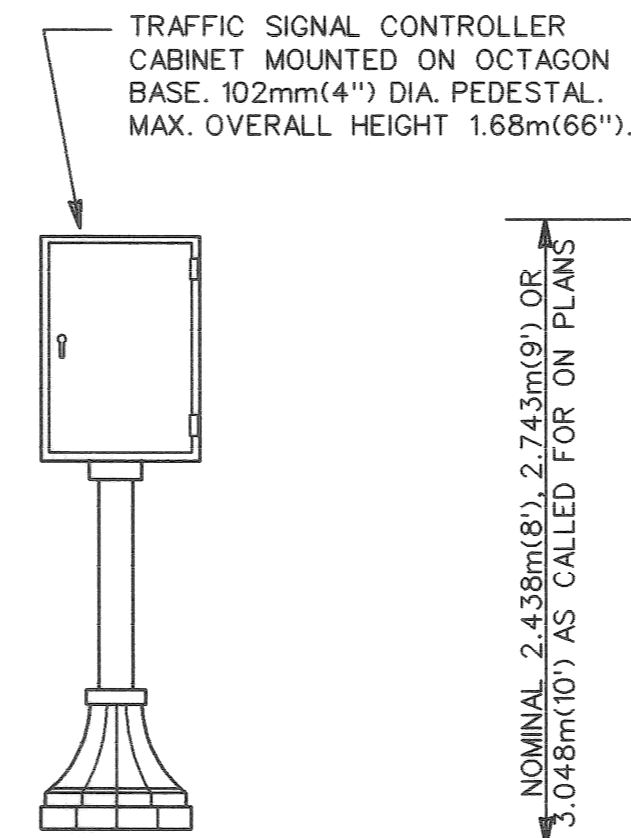


MODIFICATION OF PEDESTAL FDN.FOR  
BASE MOUNTED T.S.CONTROLLER (M-36)

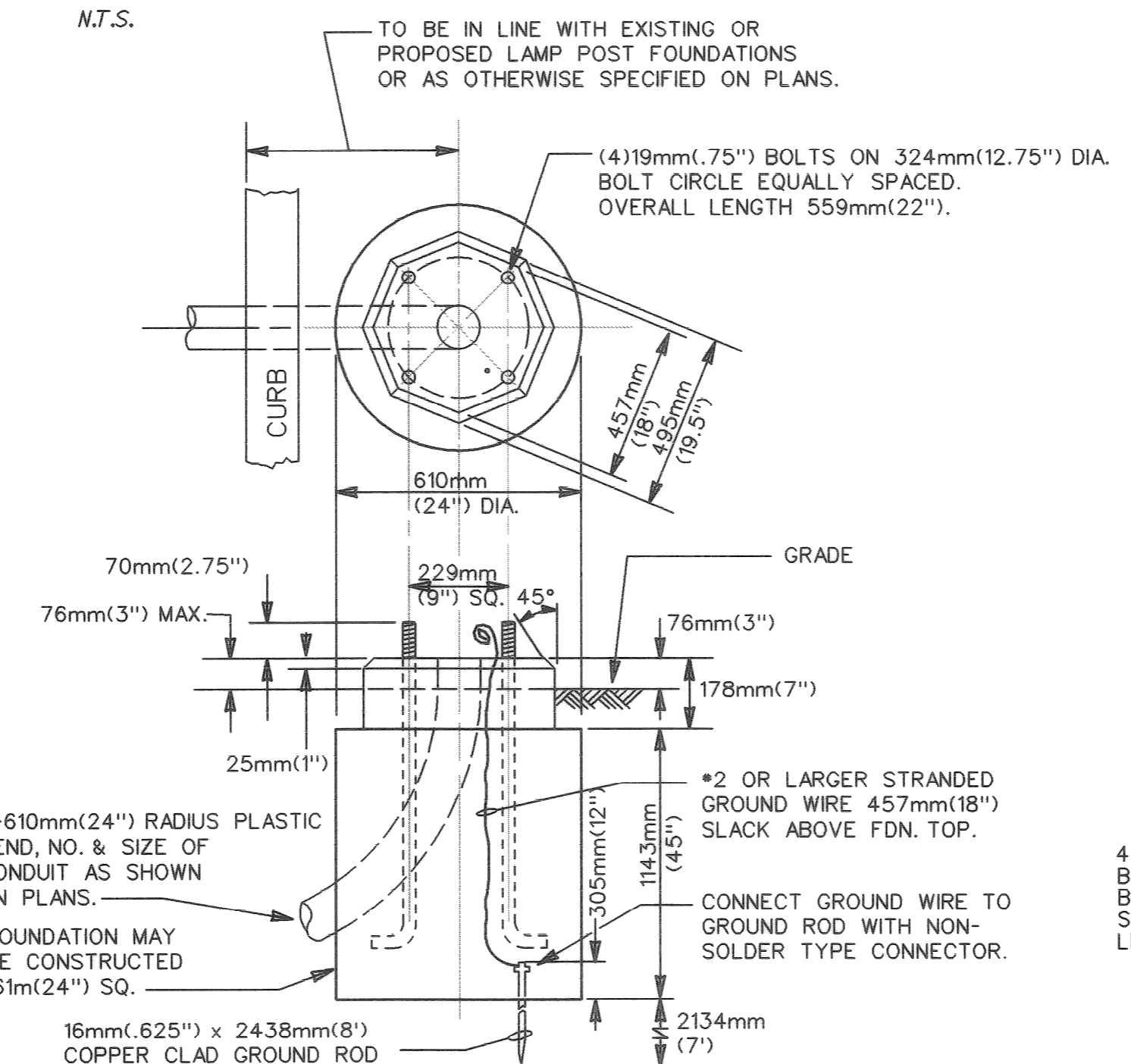
ALL FOUNDATION CAPS SHALL HAVE A SMOOTH FINISH WITH BEVELED EDGES & SHALL BE SHAPED TO ALLOW COMPLETE DRAINAGE OF WATER. ANCHOR BOLT PROJECTION ABOVE CAP SHALL BE CLEAN OF ALL CONCRETE & FULLY USABLE THEIR FULL LENGTH.



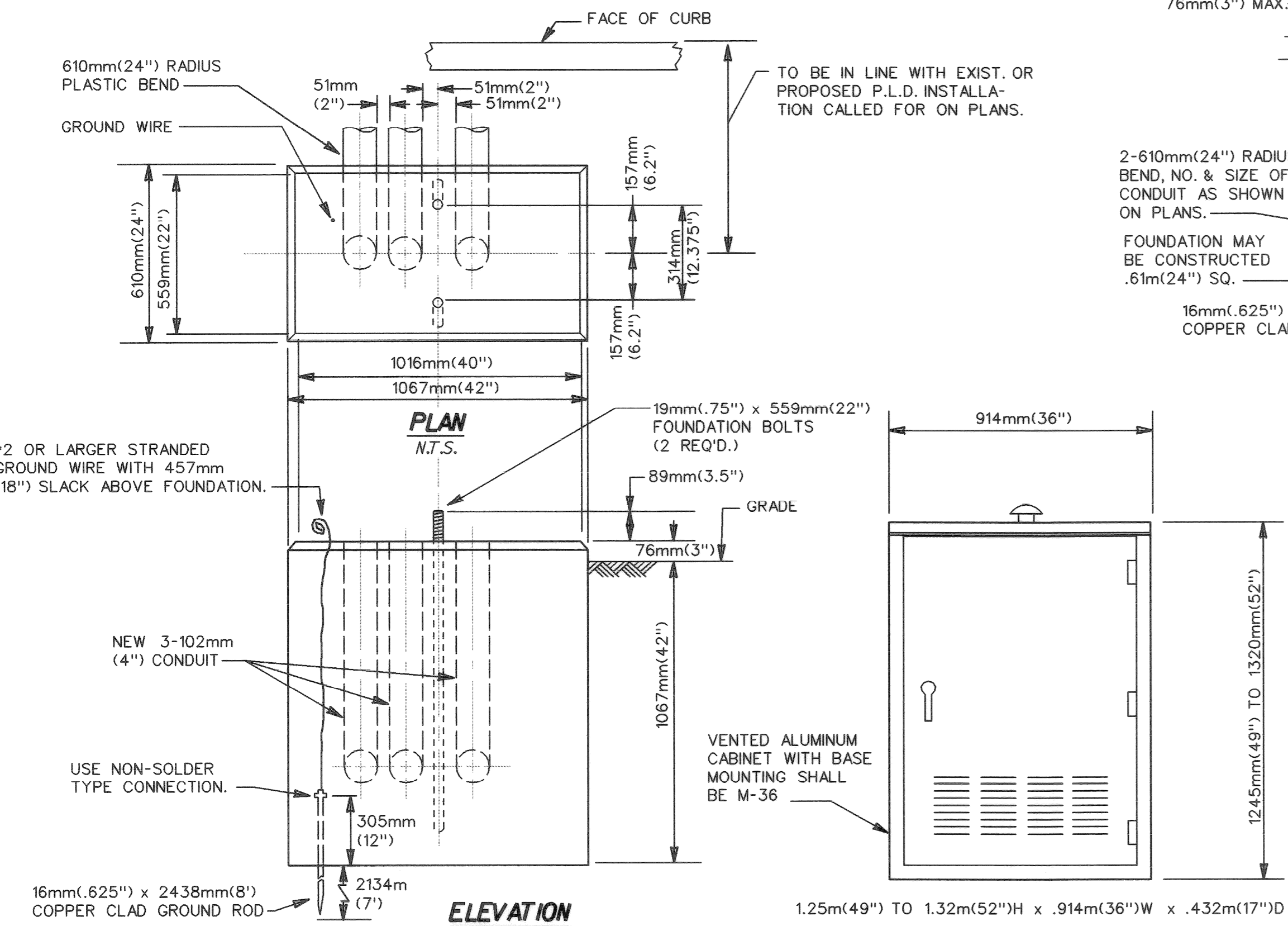
SINGLE CABINET CONTROLLER  
OCTAGON BASE  
N.T.S.



THE INCOMING CABLE FROM THE CONTROLLER IS TO BE CONNECTED TO THE TERMINAL BLOCK IN ONE FACE OF THE SIGNAL ASSEMBLY. THE OTHER FACES IN THE ASSEMBLY ARE TO BE CONNECTED TO THIS TERMINAL BLOCK BY #14 TW WIRES THROUGH THE ASSEMBLY FRAMEWORK.

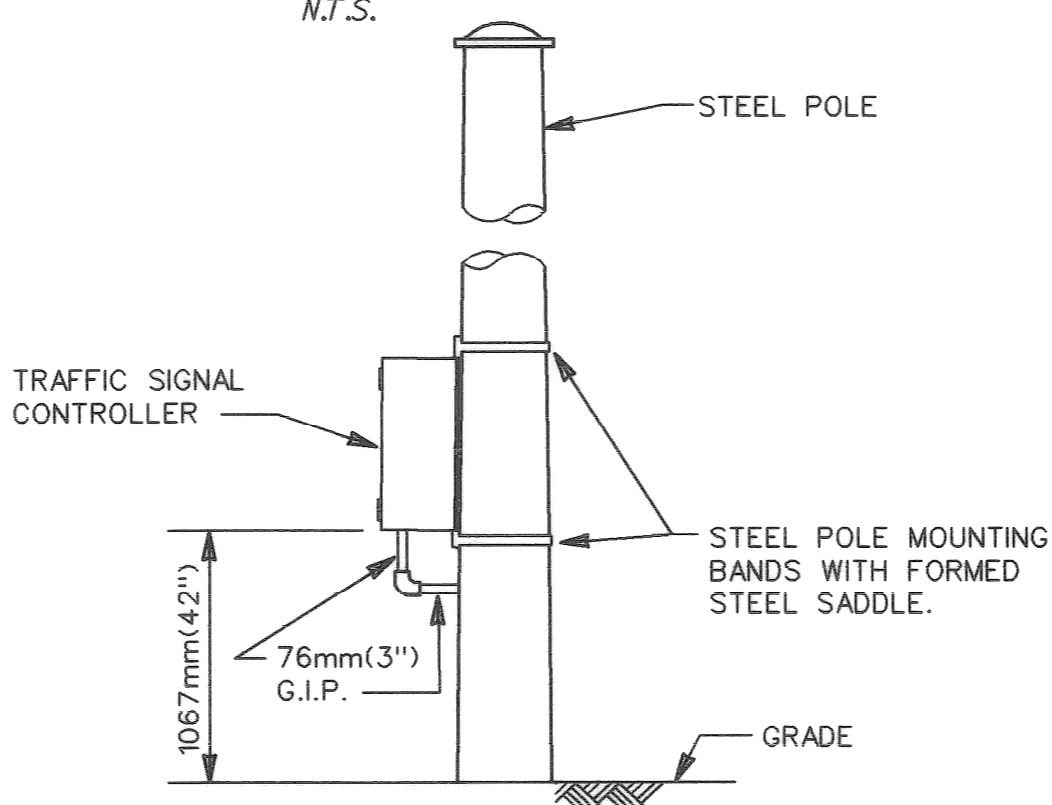


FDN.FOR OCTAGON BASE PEDESTAL FOR TRAFFIC SIGNALS OR CONTROLLER  
N.T.S.

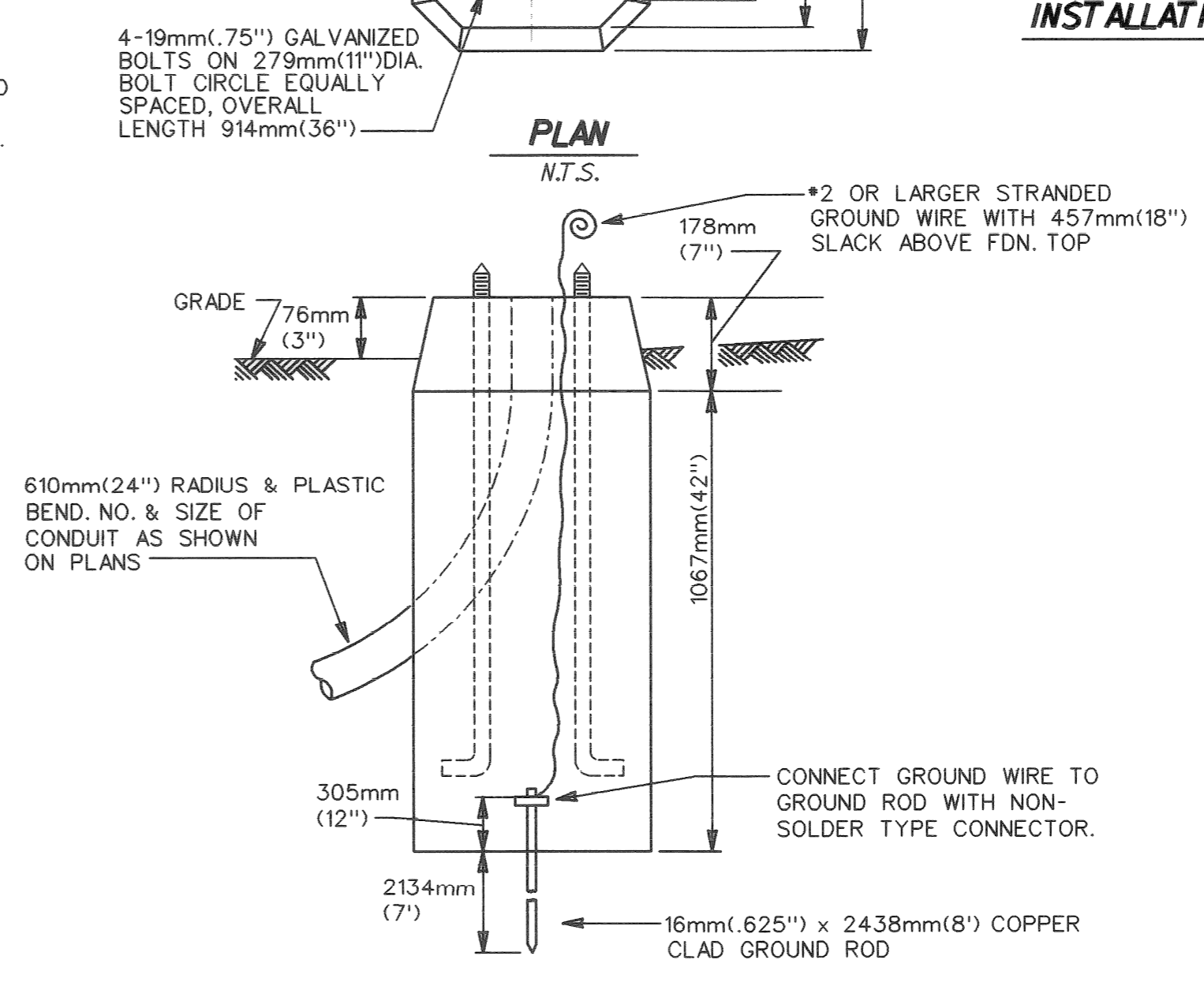


FOUNDATION FOR BASE MOUNTED T.S.CONTROLLER & CABINET (M-36)

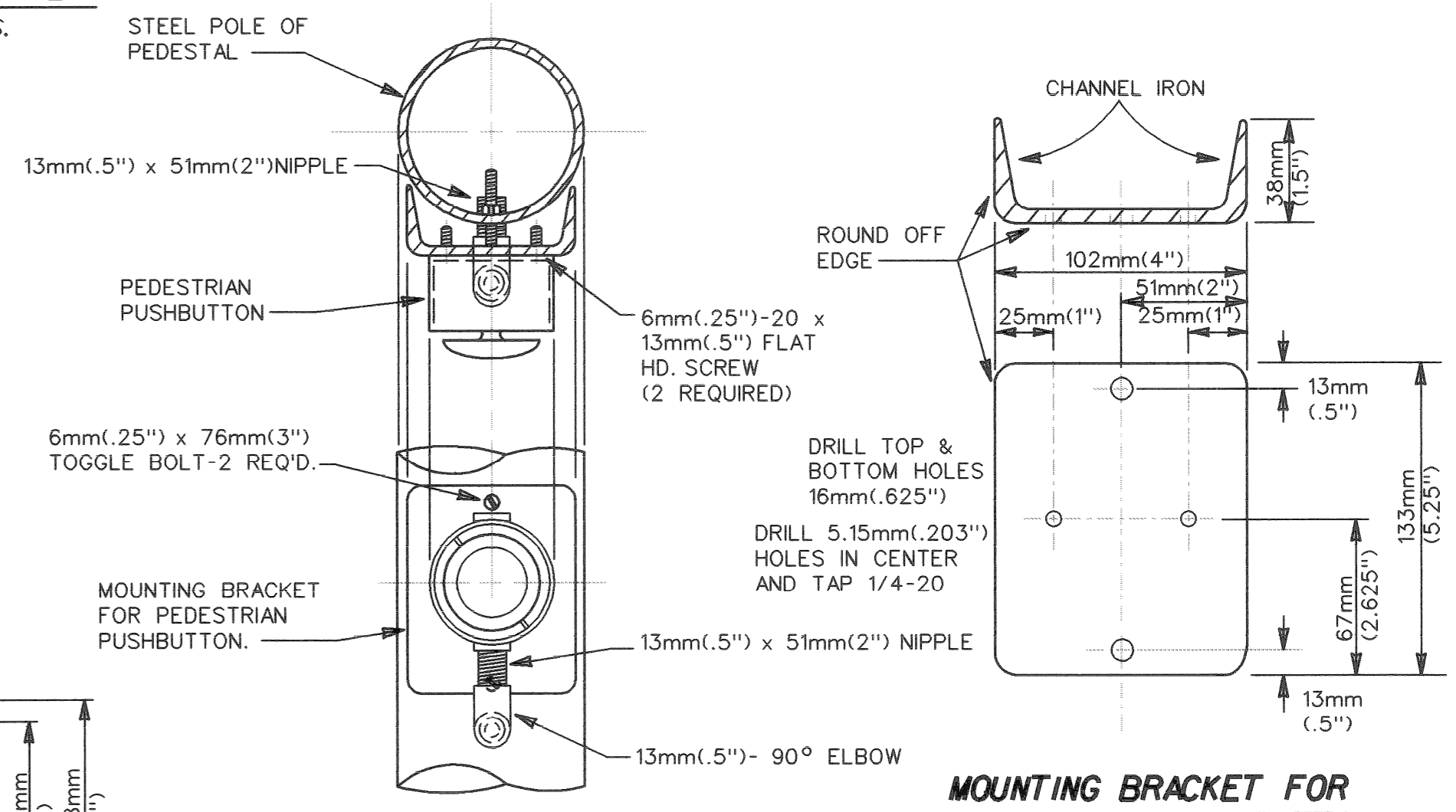
BASE MOUNTED TRAFFIC SIGNAL CONTROLLER & CABINET (M-36)  
N.T.S.



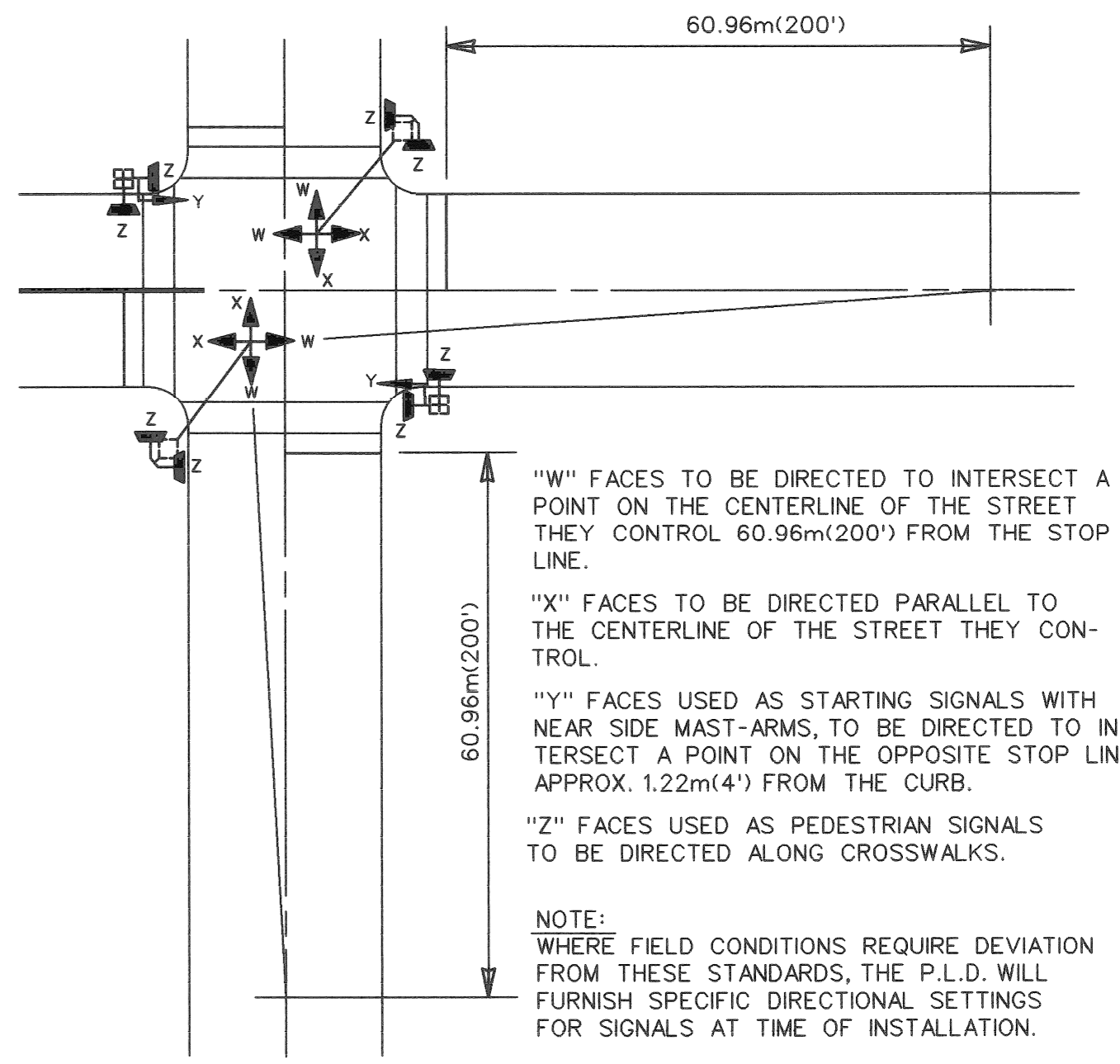
INSTALLATION OF TRAFFIC SIGNAL CONTROLLER ON STEEL POLE  
N.T.S.



ELEVATION ALUMINUM PEDESTAL FDN.DETAILS  
N.T.S.



PEDESTRIAN PUSH BUTTON INSTALLATION ON A STEEL POLE  
N.T.S.



STANDARDS FOR DIRECTIONAL SETTINGS OF TRAFFIC SIGNALS  
N.T.S.

REVISION	Date	Description	Chkd. by

IMPROVEMENT OF TRAFFIC SIGNALS  
FOR GREEK TOWN  
MISCELLANEOUS TRAFFIC SIGNAL DETAILS

Designed by CEA	Checked by	Scale No Scale	PUBLIC LIGHTING DEPARTMENT CITY OF DETROIT
Drawn by	Checked by	Checked by	
Checked by	Checked by	Approved by	
Drwg. No. 19 OF 20	File No. CEA 130900	Scale No Scale	File No. 52-2473- Sheet No. 19 of 20 Date JUNE-1999

**SUMMARY**

BID ITEMS	ITEM CODE	UNIT	4	5	6	7	8																								TOTAL
Controller and Cabinet, Rem	8200017	ea	1	1	1	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4		
TS, Pedestrian, Bracket Arm Mtd, Rem	8200069	ea	2	2	8	--	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17			
TS, Pedestrian, Pedestal Mtd, Rem	8200070	ea	2	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5			
Pedestal, Rem	8200039	ea	3	3	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7			
Fdn, Rem	8200022	ea	2	2	6	--	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14			
TS, Mast Arm Mtd, Rem	8200067	ea	2	2	4	--	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12			
Mast Arm, Rem	8200035	ea	2	2	4	--	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12			
Mast Arm Std, Rem	8200036	ea	1	--	2	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5			
Underground Fed St Ltg Unit, Rem	8190840	ea	--	--	3	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5			
TS, One Way Mast Arm Mtd	8200288	ea	4	4	--	16	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32			
Mast Arm	8200400	ea	2	2	--	8	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16			
Mast Arm Std (Code 028-00)	8200401	ea	2	2	--	4	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10			
Mast Arm Std Fdn	8200402	ea	2	2	--	8	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16			
TS, Pedestrian, Two Way Bracket Arm Mtd	8200260	ea	3	4	--	6	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18			
TS, Pedestrian, One Way Pedestal Mtd	8200258	ea	--	--	--	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4			
TS, Pedestrian, One Way Bracket Arm Mtd	8200266	ea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0			
Controller and Cabinet, Solid State, TBC, Delivered	8200329	ea	1	1	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4			
Controller and Cabinet, Solid State, TBC	8200332	ea	1	1	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4			
Hh, Round	8190347	ea	--	--	--	2	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5			
Pedestal, Alum	8200428	ea	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1			
Pedestal, Fdn	8200430	ea	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1			
Bracket Arm, 1830 mm, with 915 mm Rise, Clamp On	8200448	ea	--	--	--	4	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6			
Luminaire, Salv.	8190537	ea	--	--	--	4	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6			
Controller Fdn, Base Mount, Modified	-----	ea	1	1	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4			
Hh, Type D	8190350	ea	--	1	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2			
Conduit, Encased, 1, 75 mm	8190033	m	--	--	--	--	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9			
Conduit, Encased, 2, 75 mm	8190034	m	1	9	--	35	43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88			
Conduit, Encased, 2, 100 mm	8190046	m	2	3	--	6	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20			
P.J. Cable, 600V, 1, 7/c #14, Intercon	8190403	m	30	4	--	55	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	139			
Sec Cables, 2Kv, 2, 1/c #2	-----	m	30	4	--	11	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	55			
Mast Arm Std (Code 027-06)	-----	ea	--	--	--	4	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6			
St Ltg Cable, 2KV, 2, 1/C#6, & 1, #6 Neutral	8190448	m	--	--	--	35	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	55			
TS, 4th Level LTGA	8200250	ea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0			
P.J. Cable, 600V, 1, 7/c #14	8190402	m	120	200	--	1900	500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2720			
TS, Pedestrian, Two Way Pedestal Arm Mtd	8200268	ea	1	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2			
Hh, Rem	8190344	ea	--	1	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2			

**QUANTITY SHEET  
GREEK TOWN CASINO  
Traffic Signals**

**Consulting Engineering Associates, Inc.  
16580 Wyoming  
Detroit, Michigan 48221**

CEA job number: 130900  
07/07/99

20