

LOCATION MAP



PORTION TO BE IMPROVED   
 OTHER ROADS

# MAH-170-4.80 (STREET LIGHTING UPGRADE)

## VILLAGE OF NEW MIDDLETOWN MAHONING COUNTY

**INDEX OF SHEETS:**

TITLE SHEET	1
GENERAL NOTES	2
GENERAL SUMMARY	3
SUB-SUMMARY	4
LIGHTING PLAN	5 - 6
LIGHTING GENERAL NOTES	7 - 8
LIGHTING DETAILS	9
ODOT STANDARD CONSTRUCTION DRAWINGS	10 - 16

**PROJECT DESCRIPTION**

THE PROPOSED PROJECT INCLUDES THE INSTALLATION OF ROADWAY LIGHTING ON THE WEST SIDE OF S.R. 170 (MAIN STREET) FROM NORTH OF THE INTERSECTION OF STRUTHERS ROAD AND MAIN STREET TO SOUTH OF THE INTERSECTION OF SYCAMORE DRIVE AND MAIN STREET.

THE TOTAL LENGTH OF THIS PROJECT IS APPROXIMATELY 1,470 LINEAR FEET.

**EARTH DISTURBED AREA**

PROJECT:	0.07 ACRES
CONTRACTOR:	0.01 ACRES
NOTICE OF INTENT:	4.90 ACRES

**2008 SPECIFICATIONS**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

**UNDERGROUND UTILITIES**  
 TWO WORKING DAYS  
**BEFORE YOU DIG**  
 CALL 1-800-362-2764 (TOLL FREE)  
 OHIO UTILITIES PROTECTION SERVICE  
 NON-MEMBERS  
 MUST BE CALLED DIRECTLY  
 OIL & GAS PRODUCERS PROTECTIVE  
 SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:  
 THOMAS FOK & ASSOCIATES, INC.  
 CONSULTING ENGINEERS  
 3896 MAHONING AVENUE  
 YOUNGSTOWN, OHIO 44515  
 (330) 799-1501

ENGINEERS SEAL:	STANDARD CONSTRUCTION DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
	LA-1.1	7-28-00	800	10-16-09
	HL-20.11	1-19-07	832	5-5-09
	HL-30.22	4-17-09		
	MT-97.10	4-17-09		
	MT-110.10	1-16-09		
			SPECIAL PROVISIONS	

SIGNED:   
 DATE: 11-20-09

REVIEWED BY:   
 DATE: \_\_\_\_\_  
 MAYOR HARRY KALE  
 VILLAGE OF NEW MIDDLETOWN

REVIEWED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 MR. CARL FLITCRAFT, FISCAL OFFICER/ROAD SUPERINTENDENT  
 VILLAGE OF NEW MIDDLETOWN

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11-19-2009 10:37 AM  
SCALE: 1=1E

FEDERAL PROJECT NO. FAN E090(010)  
 PID NO. 85011  
 CONSTRUCTION PROJECT NO. 09-6087  
 RAILROAD INVOLVEMENT NONE  
 MAH-170-4.80  
 1/16



**CONTINGENCY QUANTITIES**

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

**UTILITIES**

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

OHIO EDISON COMPANY AT&T  
730 SOUTH AVENUE 50 WEST BOWERY STREET  
YOUNGSTOWN, OHIO 44502 6TH FLOOR  
(330) 740-7635 AKRON, OHIO 44308  
ATTN.: MR. BILL SPEECE (330) 384-3281  
ATTN.: MS. CINDY ZUCHEGNO

DOMINION EAST OHIO GAS ACCESS  
320 SPRINGSIDE DRIVE 425 W. MAIN STREET  
AKRON, OHIO 44333 CANFIELD, OHIO 44406  
(330) 664-2409 (330) 702-9832  
ATTN.: MS. MARY LONG ATTN.: MS. LISA SMITH

COMCAST AQUA OHIO  
7820 DIVISION DRIVE STRUTHERS/MAHONING VALLEY DIVISION  
MENTOR, OHIO 44060 235 STATE STREET  
(440) 974-3401 STRUTHERS, OHIO 44471  
ATTN.: MR. MICHAEL JONES (330) 755-2163  
ATTN.: MR. ROBERT KIMMEL

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

**PERMITS, LICENSES AND TAXES**

THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES, AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE VARIOUS ITEMS OF WORK TO BE PERFORMED IN THIS CONTRACT. NO SEPARATE PAYMENT WILL BE MADE.

**PROPERTY PINS**

DUE TO THE CLOSE PROXIMITY OF PROPERTY IRON PINS TO THE CONSTRUCTION AREA, SPECIAL CARE SHALL BE TAKEN TO AVOID THEIR DISTURBANCE. IF ANY PROPERTY IRON PIN SHOULD HAPPEN TO BE DISTURBED, THE CONTRACTOR SHALL HAVE THE PIN RESET BY A REGISTERED SURVEYOR AT HIS OWN EXPENSE. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER WRITTEN DOCUMENTATION THAT THE PROPERTY PINS WERE RESET BY A REGISTERED SURVEYOR. ALL PROPERTY PINS NEEDING RESETTING MUST BE RESET PRIOR TO THE "FINAL WALK THRU" OF THE PROJECT.

**RECORD RETENTION**

AS THE LPA (NEW MIDDLETOWN VILLAGE), ODOT, OR THE UNITED STATES GOVERNMENT MAY LEGITIMATELY REQUEST FROM TIME TO TIME, THE CONTRACTOR AGREES TO MAKE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION BY THE LPA, ODOT OR UNITED STATES GOVERNMENT, ALL RECORDS, BOOKS, AND DOCUMENTS OF EVERY KIND AND DESCRIPTION THAT RELATE TO THIS PROJECT.

**TELEVISIONING OF THE SITE**

PRIOR TO ACTUAL CONSTRUCTION, THE CONTRACTOR SHALL TAKE, OR HAVE TAKEN TELEVISED PICTURES OF THE ENTIRE LENGTH AND WIDTH OF THE WORK SITE.

THE CONTRACTOR SHALL NOTIFY THE OFFICE OF THE VILLAGE OF NEW MIDDLETOWN ROAD DEPARTMENT PRIOR TO TAKING OF PICTURES. REPRESENTATIVES OF NEW MIDDLETOWN AND THE ENGINEER SHALL BE PRESENT WHEN THE PICTURES ARE TAKEN.

PICTURES SHALL BE RECORDED ON A DIGITAL MEDIA CARD, HAVING A MINIMUM PLAYBACK TIME OF 30 MINUTES, COLOR, WITH AUDIO.

THE CARD SHALL BECOME THE PROPERTY OF THE VILLAGE OF NEW MIDDLETOWN AND SHALL BE DELIVERED BY THE CONTRACTOR TO THE OFFICE OF THE ROAD SUPERINTENDENT. PAYMENT FOR THE PERFORMANCE OF THIS WORK SHALL BE INCLUDED IN THE VARIOUS ITEMS OF WORK TO BE PERFORMED IN THIS CONTRACT. NO SEPARATE PAYMENT WILL BE MADE.

**SPECIAL CARE**

SPECIAL CARE SHALL BE TAKEN DURING THE INSTALLATION OF THE IMPROVEMENTS IN THESE PLANS SO AS NOT TO DAMAGE THE EXISTING TREES OR SHRUBS CLOSE TO THE CONSTRUCTION AREA. SHOULD ANY TREES REQUIRE PRUNING, THEY SHALL BE PRUNED TO MAKE THEM LOOK SHAPELY, TYPICAL OF THEIR SPECIES. ALL CUTS OR WOUNDS SHALL BE PAINTED WITH TREE WOUND DRESSING. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO SUCH WORK SO THAT THE OWNER MAY PERFORM THIS TASK THEMSELVES IF THEY SO DESIRE.

IN SOME AREAS OF THE CONSTRUCTION SITE, VARIOUS PRIVATE RESIDENTIAL AND COMMERCIAL IMPROVEMENTS EXIST, SUCH AS SHRUBS, FLOWER BEDS, ROCK GARDENS, FENCE AND VARIOUS OTHER SIMILAR ITEMS. SPECIAL CARE SHALL BE TAKEN IN THE REMOVAL OF THESE ITEMS SO THAT THEY MAY BE REPLACED IN THEIR ORIGINAL POSITION. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO SUCH WORK SO THAT THE OWNER MAY REMOVE IT THEMSELVES IF THEY SO DESIRE. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEMS.

**CONSTRUCTION NOISE**

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICE SHALL NOT BE OPERATED BETWEEN THE HOURS OF 7:00 P.M. AND 8:00 A.M. . IN ADDITION, ANY SUCH DEVICE SHALL NOT BE OPERATED AT ANY TIME IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

**SAFETY COORDINATOR**

THE CONTRACTOR SHALL DESIGNATE ONE RESPONSIBLE INDIVIDUAL FROM HIS FORCES TO BE THE SAFETY COORDINATOR FOR THE PROJECT SITE. THIS INDIVIDUAL SHALL BE RESPONSIBLE FOR THE SAFETY OF THE GENERAL PUBLIC, AS WELL AS THE SUB-CONTRACTORS AND CONTRACTOR'S PERSONNEL AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT THIS INDIVIDUAL'S NAME, ADDRESS, WORK AND HOME PHONE NUMBERS TO THE VILLAGE OF NEW MIDDLETOWN PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY REQUIREMENTS OF ALL GOVERNING AGENCIES.

PAYMENT FOR THE PERFORMANCE OF THIS WORK SHALL BE INCLUDED IN THE VARIOUS ITEMS OF WORK TO BE PERFORMED IN THIS CONTRACT. NO SEPARATE PAYMENT WILL BE MADE.

**MAINTENANCE OF TRAFFIC**

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT THAT ONE WAY TRAFFIC, CONTROLLED BY FLAGGERS, WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME FOR CONSTRUCTION AND EQUIPMENT REQUIREMENTS. ALL TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH ODOT SPECIFICATION ITEM 614 AND THE OHIO MANUAL OF TRAFFIC CONTROL DEVICES, LATEST EDITION.

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE MAINTENANCE OF TRAFFIC:

ITEM 614 MAINTAINING TRAFFIC LUMP

**DOMINION EAST OHIO GAS**

THE CONTRACTOR SHALL BE INFORMED THAT DEO = THE EAST OHIO GAS COMPANY, DBA DOMINION EAST OHIO, 1-800-362-7557.

**ITEM 832 - EROSION CONTROL**

REFER TO SUPPLEMENTAL SPECIFICATIONS 832 FOR FURTHER DETAILS.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR EROSION CONTROL:

832, EROSION CONTROL 1000 EACH

**ROADWAY QUANTITIES**

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	TOTAL	DESCRIPTION
201	LUMP	CLEARING AND GRUBBING
623	LUMP	CONSTRUCTION LAYOUT STAKES
624	LUMP	MOBILIZATION

**ITEM SPECIAL - MAILBOX SUPPORT**

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH THE LOCATION & DESIGN MANUAL OF OHIO, VOLUME ONE, ROADWAY DESIGN SECTION 803.1, AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4"x4" SQUARE OR 4-1/2" DIAMETER ROUND, AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2" I.D., AND CONFORM TO AASHTO M 181.

HARDWARE (PLATES, SCREWS, BOLTS, ETC.) SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.12. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR THE FOLLOWING ITEM:

ITEM SPECIAL - MAILBOX SUPPORT SYSTEM, SINGLE 2 EACH



SHEET NUMBER

SHEET NUMBER										ITEM	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
									2						
									LUMP	201	LUMP				
									2	SPECIAL	2	EACH	CLEARING AND GRUBBING MAILBOX SUPPORT SYSTEM, SINGLE	2	
										<b>EROSION CONTROL</b>					
									1000	832	1000	EACH	EROSION CONTROL		
										<b>LIGHTING</b>					
									10	625	10	EACH	LIGHT POLE FOUNDATION, AS PER PLAN	8	
									20	625	20	FT	CONDUIT, 3/4", 725.04		
									846	625	846	FT	CONDUIT, 2", 725.04		
									629	625	629	FT	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3", 725.04, AS PER PLAN	8	
									866	625	866	FT	TRENCH		
									3150	625	3150	FT	NO. 2 AWG 600 VOLT DISTRIBUTION CABLE		
									560	625	560	FT	NO. 10 AWG 600 VOLT DISTRIBUTION CABLE		
									10	625	10	EACH	CONNECTOR KIT, TYPE II		
									11	625	11	EACH	CABLE SPLICING KIT		
									LUMP	625	LUMP		HIGH VOLTAGE TEST		
									866	625	866	FT	PLASTIC CAUTION TAPE		
									10	625	10	EACH	DECORATIVE LIGHT POLE AND LUMINAIRE, AS PER PLAN	8	
									10	625	10	EACH	JUNCTION BOX, 725.07, 13" X 24", AS PER PLAN	8	
										<b>MAINTENANCE OF TRAFFIC</b>					
									LUMP	614	LUMP		MAINTAINING TRAFFIC		
									LUMP	623	LUMP		CONSTRUCTION LAYOUT STAKES		
									LUMP	624	LUMP		MOBILIZATION		

GENERAL SUMMARY

CALCULATED	MJT	CHECKED	DTB
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MAH-170-4.80

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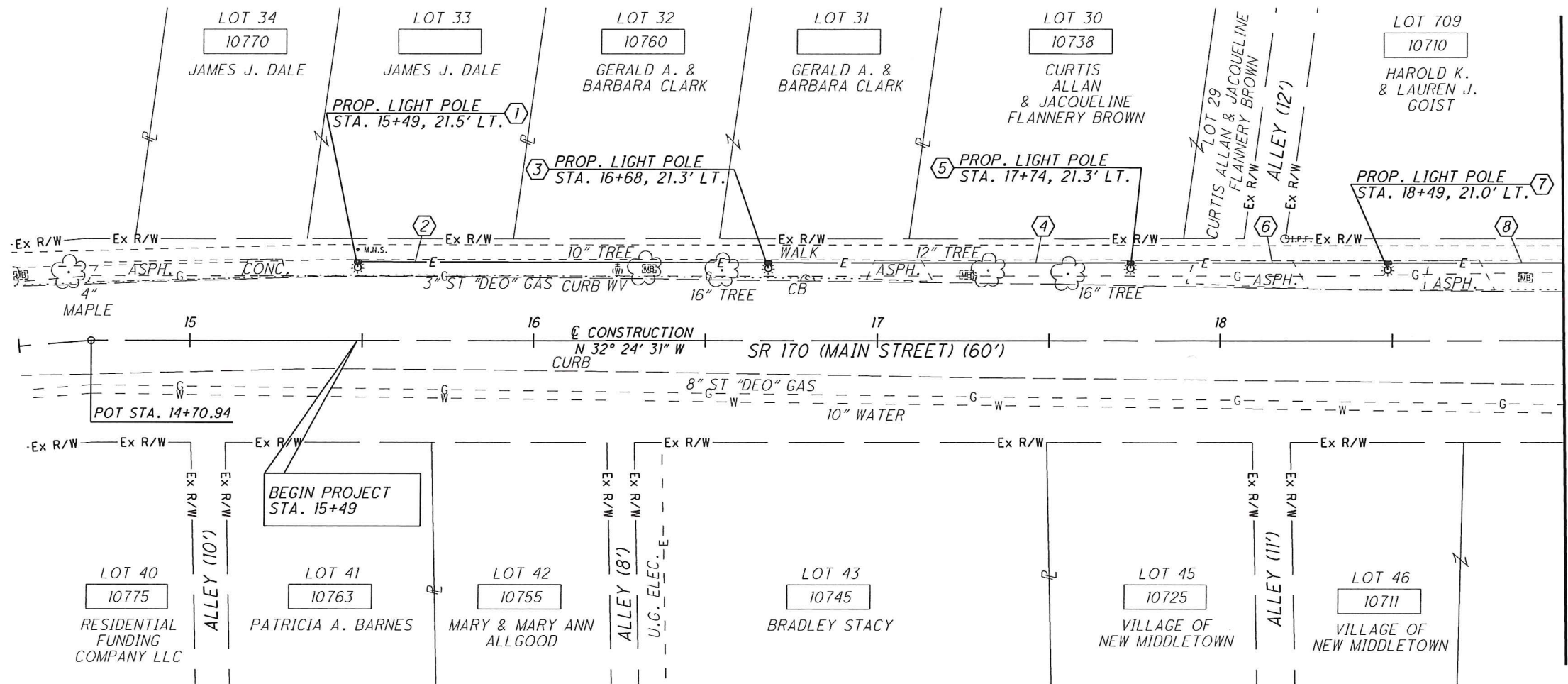
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SHEET NO.	REFERENCE NO.	STATION		SIDE											625				625		625		
		FROM	TO		DECORATIVE LIGHT POLE AND LUMINAIRE, AS PER PLAN	LIGHT POLE FOUNDATION, AS PER PLAN	JUNCTION BOX, 725.07, 13" X 24", AS PER PLAN	CONDUIT, 3/4", 725.04	CONDUIT, 2", 725.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3", 725.04, AS PER PLAN	TRENCH												
					EACH	EACH	EACH	FT	FT	FT	FT												
5	1	15+49		LT	1	1	1	2			2												
5	2	15+49	16+68	LT					119		119												
5	3	16+68		LT	1	1	1	2			2												
5	4	16+68	17+74	LT					92	14	92												
5	5	17+74		LT	1	1	1	2			2												
5	6	17+74	18+49	LT					46	29	46												
5	7	18+49		LT	1	1	1	2			2												
5	8	18+49	19+65	LT					89	27	89												
5	9	19+65		LT	1	1	1	2			2												
5	10	19+65	20+92	LT					67	62	67												
5	11	20+92		LT	1	1	1	2			2												
5 - 6	12	20+92	25+08	LT					36	380	36												
6	13	25+08		LT	1	1	1	2			2												
6	14	25+08	26+06	LT					83	15	83												
6	15	26+06		LT	1	1	1	2			2												
6	16	26+06	27+48	LT					110	32	110												
6	17	27+48		LT	1	1	1	2			2												
6	18	27+48	28+48	LT					58	45	58												
6	19	28+48		LT	1	1	1	2			2												
6	20	28+48	30+19	LT					146	25	146												
																		LUMP					
<b>TOTALS CARRIED TO GENERAL SUMMARY</b>					10	10	10	20	846	629	866							3150	560	10	11	LUMP	866

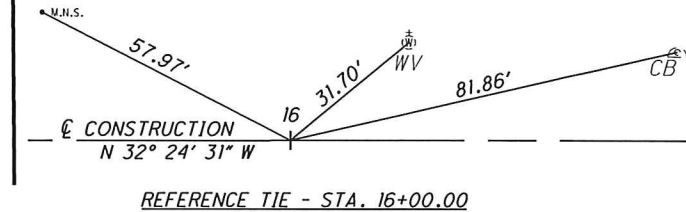
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<b>MAH-170-4.80</b>	
4 16	



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 SCALE: 1" = 20'



MATCH LINE STA. 19+00



**LEGEND**

PROPOSED LIGHT POLE

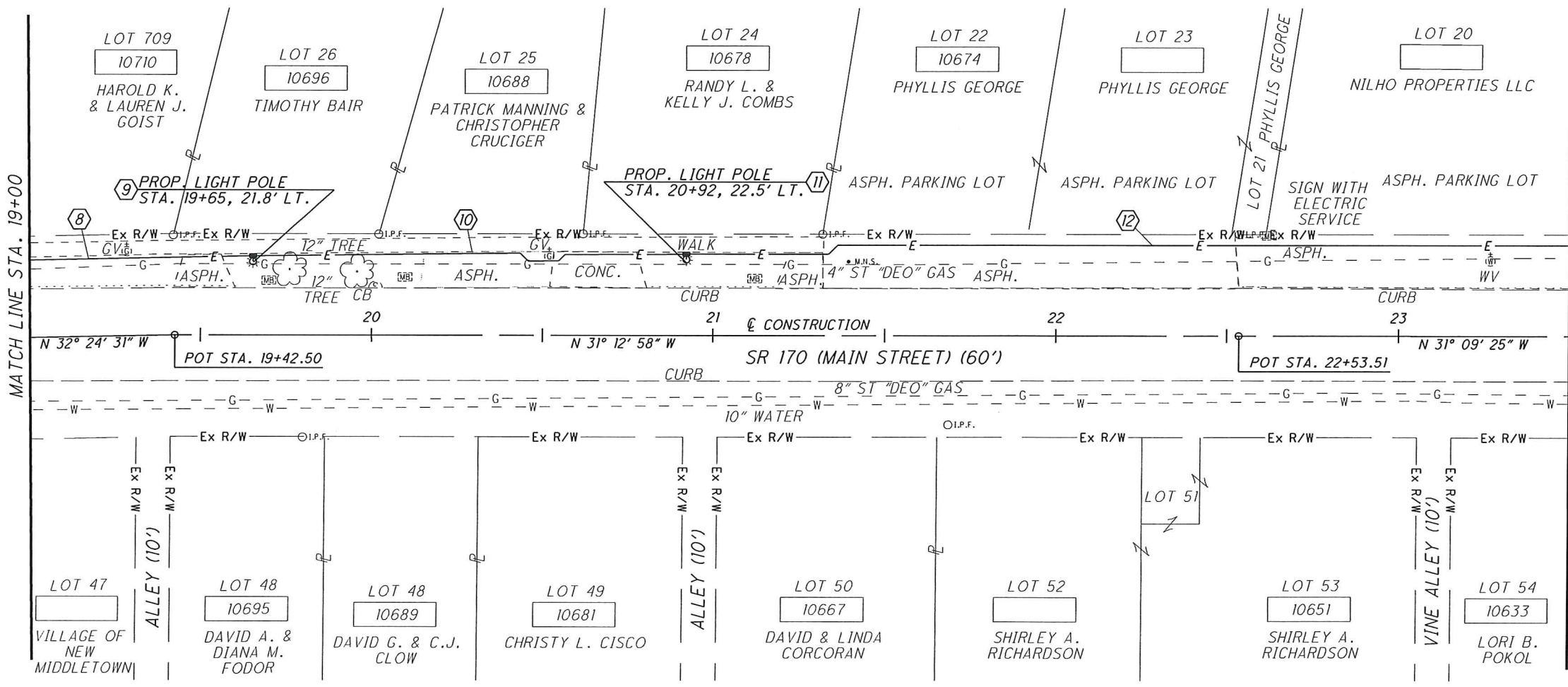
PROPOSED JUNCTION BOX

PROPOSED CONDUIT

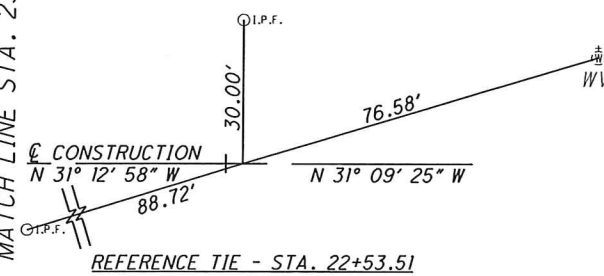
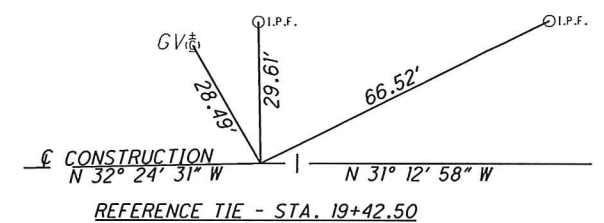
**CROSS REFERENCES**

SHEET NO.	DESCRIPTION
4	SUB-SUMMARY
9	LIGHTING DETAILS



MATCH LINE STA. 19+00

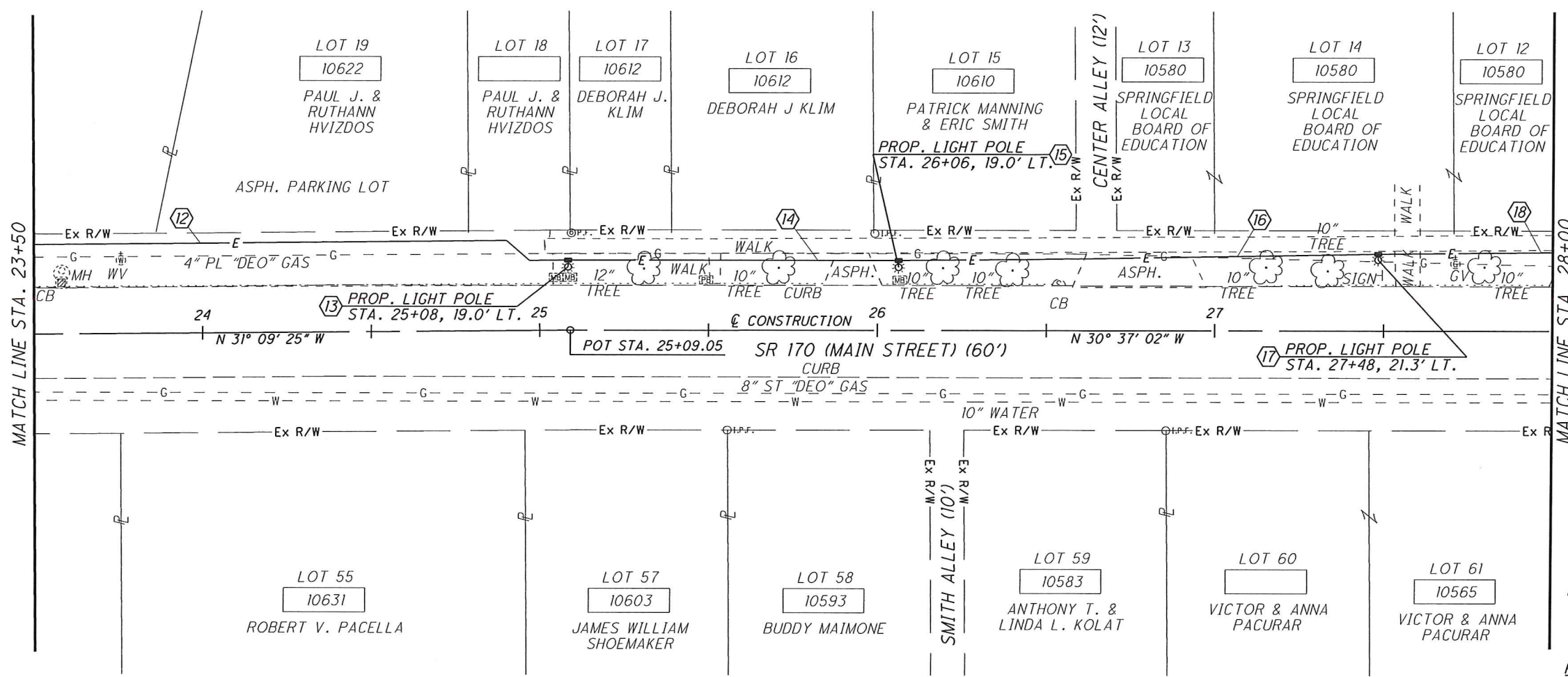
MATCH LINE STA. 23+50



**LIGHTING PLAN**  
 STA. 14+50 TO STA. 23+50



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**LEGEND**

PROPOSED LIGHT POLE

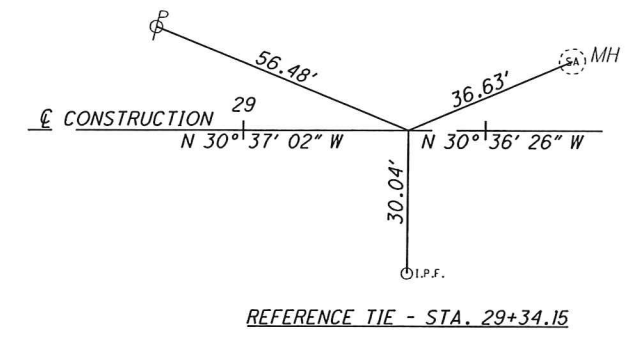
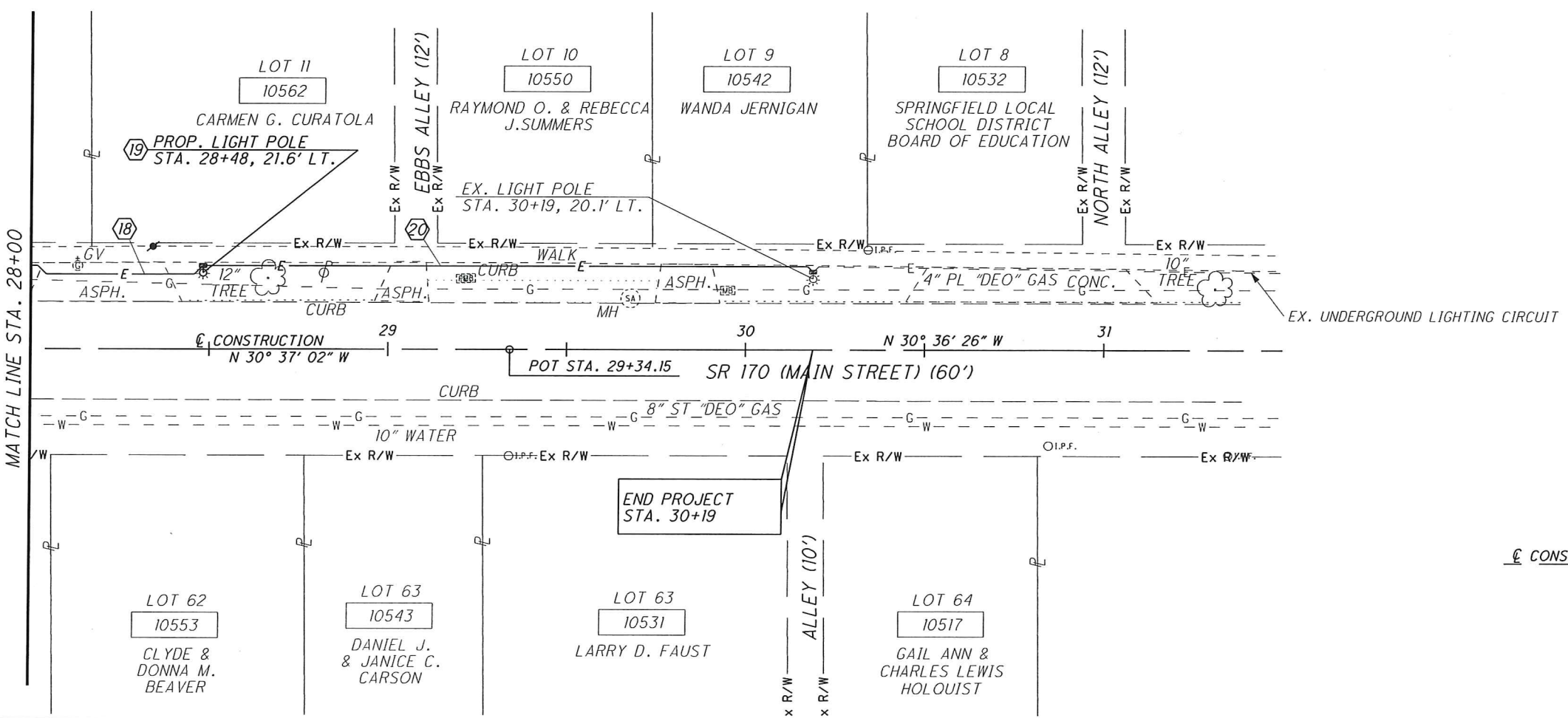
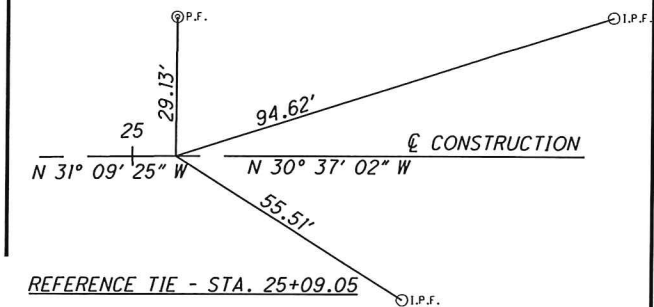
PROPOSED JUNCTION BOX

PROPOSED CONDUIT

**CROSS REFERENCES**

SHEET NO.	DESCRIPTION
4	SUB-SUMMARY
9	LIGHTING DETAILS



NOTE: THE CONTRACTOR SHALL CONNECT THE PROPOSED LIGHTING CIRCUIT TO THE EXISTING LIGHTING CIRCUIT AT THE EXISTING LIGHT POLE LOCATED AT STA. 30+19, LT. PAYMENT FOR THIS CONNECTION TO BE INCLUDED WITH THE VARIOUS ITEMS OF WORK TO BE PERFORMED IN THIS CONTRACT. NO SEPARATE PAYMENT WILL BE MADE.



## ELECTRICAL NOTES

### 1. RELATED REQUIREMENTS

- A. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE WORK OF OTHER TRADES AND MAKE REASONABLE MODIFICATIONS REQUIRED TO PREVENT CONFLICT AND FOR PROPER EXECUTION OF THE WORK AS DIRECTED BY THE ENGINEER, WITHOUT EXTRA COST TO THE OWNER.
- B. THE ELECTRICAL CONTRACTOR SHALL BE LICENSED IN THE VILLAGE OF NEW MIDDLETOWN.

### 2. INSPECTION

- A. ALL WORK SHALL BE INSPECTED BY THE AUTHORITY HAVING JURISDICTION.
- B. UPON COMPLETION OF THE WORK, THIS CONTRACTOR SHALL FURNISH TO THE ENGINEER A CERTIFICATE OF INSPECTION AND APPROVAL FROM SAID AUTHORITY BEFORE FINAL PAYMENT ON THE CONTRACT WILL BE ALLOWED.
- C. FEE FOR THE INSPECTION SHALL BE A PART OF THE CONTRACT, THE COST OF WHICH SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

### 3. CODES

- A. PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, AND ANY STATE AND LOCAL CODES OR ORDINANCES.

### 4. SHOP DRAWINGS

- A. THE CONTRACTOR SHALL SUBMIT COMPLETE DETAILED SHOP DRAWINGS COVERING ALL ITEMS OF EQUIPMENT AND BROCHURES OF ALL LIGHTING FIXTURES. NO EQUIPMENT SHALL BE PUT INTO MANUFACTURED OR ORDERED UNTIL THESE SHOP DRAWINGS OR BROCHURES HAVE BEEN APPROVED BY THE ENGINEER.

### 5. MATERIALS & EQUIPMENT

- A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND OF THE TYPE LISTED BY UNDERWRITERS LABORATORIES, INC. AND SHALL BE IN STRICT CONFORMITY WITH THE LATEST STANDARDS OF THE FOLLOWING WHERE SUCH STANDARDS NORMALLY APPLY:
  1. UNDERWRITERS LABORATORIES, INC.
  2. NATIONAL FIRE PROTECTION ASSOCIATION
  3. ILLUMINATING ENGINEERS SOCIETY
- B. WHERE MATERIALS, EQUIPMENT, APPARATUS OR OTHER PRODUCTS ARE SPECIFIED BY BRAND NAME, TYPE OR CATALOG NUMBER, SUCH DESIGNATION IS TO ESTABLISH STANDARDS OF DESIRED QUALITY AND STYLE AND SHALL BE THE BASIS OF THE BID. MATERIALS SO SPECIFIED SHALL BE FURNISHED UNDER THE CONTRACT. WHERE TWO OR MORE DESIGNATIONS ARE LISTED, CHOICE SHALL BE OPTIONAL TO THE CONTRACTOR.
- C. ONLY THOSE MATERIALS SPECIFIED ON THE "FIRST ENERGY APPROVED MATERIALS LIST" MAY BE USED ON THIS PROJECT.

### 6. CUTTING AND REPAIRING

- A. THE GENERAL CONTRACTOR SHALL DO ALL PAVEMENT CUTTING, TRENCHING, EXCAVATION, BACKFILL AND PATCHING REQUIRED TO PERFORM THE ELECTRICAL SCOPE AS INDICATED ON THE DRAWINGS OR AS PER ODOT 2008 SPECIFICATIONS.

### 7. SCOPE OF WORK

- A. THE ELECTRICAL CONTRACTOR SHALL INCLUDE ALL LABOR, MATERIAL, SUPERVISION, TOOLS AND EQUIPMENT NECESSARY TO PERFORM THE ELECTRICAL WORK AS SHOWN ON THE DRAWINGS AND/OR DESCRIBED IN THIS SPECIFICATION TO COMPLETE THE PROJECT. A COMPLETE SET OF AS-BUILT DRAWINGS SHALL BE FURNISHED TO THE OWNER UPON COMPLETION OF PROJECT.

## ELECTRICAL NOTES

### 8. CONDUIT

- A. ALL WIRING SHALL BE INSTALLED IN RIGID METAL CONDUIT WHERE EXPOSED. ALL CONDUITS SHALL BEAR THE U.L. LABEL.
- B. MINIMUM CONDUIT SHALL BE 3/4" TRADE SIZE.
- C. CONDUIT SHALL BE GALVANIZED RIGID CONDUIT.

### 9. CABLE

- A. CABLE FOR THE STREET LIGHTING CIRCUIT SHALL BE A #2 AL XLPE CABLE.
- B. CABLE SHALL BE 2/C #10 UF SOLID COPPER FROM THE HANDHOLE JUNCTION BOX TO THE LIGHTING FIXTURE.

### 10. BOXES

- A. FURNISH AND INSTALL ALL NECESSARY BOXES, FITTINGS, SUPPORTS AND ANCHORS TO MAKE A COMPLETE RACEWAY SYSTEM.
- B. HANDHOLE JUNCTION BOXES SHALL BE PLASTIC WITH A HIGH DENSITY ULTRAVIOLET STABILIZED MOLDED POLYETHYLENE COVER

### 11. LIGHTING FIXTURES

- A. ALL LUMINARIES AND LIGHTING EQUIPMENT SHALL BE COMPLETE WITH ACCESSORIES, LAMPS, WIRING, ETC. AND SHALL CONFORM TO THE SPECIFICATIONS PROVIDED BY OHIO EDISON. OHIO EDISON SPECIFICATIONS ARE INCLUDED WITHIN THE PROJECT BID BOOK.

### 12. GUARANTEE

- A. THE CONTRACTOR SHALL GUARANTEE HIS WORKMANSHIP AND MATERIAL (LAMPS EXCEPTED) FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE AND LEAVE HIS WORK IN PERFECT ORDER AT COMPLETION. SHOULD DEFECTS DEVELOP WITHIN THE GUARANTEE PERIOD, THE CONTRACTOR SHALL, UPON NOTICE OF SAME, REMEDY THE DEFECTS AND HAVE ALL DAMAGES TO OTHER WORK OR FURNISHINGS CAUSED BY THE DEFECTS OR THE WORK OF CORRECTING SAME, REPAIRED AND/OR REPLACED AT HIS OWN EXPENSE, TO THE CONDITION BEFORE SUCH DAMAGE.



**ITEM 625 – CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3", 725.04, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF CMS 625, THIS ITEM SHALL ALSO INCLUDE ALL REQUIRED EXCAVATION, BACKFILL, COMPACTION, DISPOSAL OF SURPLUS MATERIALS, RESTORATION OF DISTURBED SURFACES, AND THE SPECIFIED CONDUIT.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 625 – CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3", 725.04, AS PER PLAN

**ITEM 625 – LIGHT POLE FOUNDATION, AS PER PLAN**

THE LIGHT POLE FOUNDATION SHALL CONSIST OF A POWER INSTALLED 6"-13" BOLT, MANUFACTURED BY A.B. CHANCE, 210 NORTH ALLEN STREET, CENTRALIA, MO 65240, PHONE: 573-682-5967 OR EQUIVALENT. THE FOUNDATION SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS. THE OPTION OF THE CONCRETE FOUNDATION PER FIRST ENERGY SPECIFICATIONS IS NOT PERMITTED.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 625 – LIGHT POLE FOUNDATION, AS PER PLAN AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO PERFORM THIS WORK.

**ITEM 625 – JUNCTION BOX, 725.07, 13" X 24", AS PER PLAN**

THE JUNCTION BOX SHALL CONSIST OF A 13" X 24" X 15" HANDHOLE, MANUFACTURED BY EITHER FARGO (CATALOG NO. B-125-AGR-OE) OR PENN-CELL PLASTICS (CATALOG NO. PE-20-HDXM) OR APPROVED EQUIVALENT. THE JUNCTION BOX SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 625 – JUNCTION BOX, 725.07, 13" X 24", AS PER PLAN AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO PERFORM THIS WORK.

**ITEM 625 – DECORATIVE LIGHT POLE AND LUMINAIRE, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF CMS 625, THIS ITEM SHALL ALSO INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS NECESSARY TO SUPPLY AND INSTALL THE FOLLOWING ITEMS:

- A. ONE 120 VOLT BLACK PHOTOELECTRIC CELL MANUFACTURED BY EITHER ALR/TYCO ELECTRONICS (CATALOG NO. 2060NPA-BK) OR DTL/T&B (CATALOG NO. DP120-1.5-TMBK) OR FISHER-PIERCE (CATALOG NO. 7671BMCBD) OR LUMATROL/PRECISION (CATALOG NO. L120-1.5-PBT-BL) OR APPROVED EQUAL.
- B. A SET OF THREE 3/4" DIAMETER X 20" LENGTH WITH NUTS GALVANIZED ANCHOR BOLTS AS MANUFACTURED BY UNION METAL (PART NO. 311173R) OR APPROVED EQUAL.
- C. ONE 600 VOLT #12-#4 SOLID, #10-#4 STRANDED STRAIGHT FUSEHOLDER AS MANUFACTURED BY HOMAC (CATALOG NO. SLK-M) OR APPROVED EQUAL OR ONE 600 VOLT #10-#4 LINE #14-#6 LOAD CU. WYE FUSEHOLDER AS MANUFACTURED BY EITHER BUCHANAN (CATALOG NO. 82S-ADB1-C) OR HOMAC (CATALOG NO. FYU-M) OR APPROVED EQUAL.
- D. ONE 600 VOLT 10 AMP FUSE AS MANUFACTURED BY EITHER BUSSMAN (CATALOG NO. KTK-10) OR SHAWMUT FERRAZ (CATALOG NO. ATM-10) OR APPROVED EQUAL.
- E. ONE FORM CONCRETE ROUND 3' X 18" DIAMETER X 0.2" WALL LIGHT WALL, WAX COATED SONOTUBE.
- F. ONE 150 WATT ANSI CODE S55 LAMP AS MANUFACTURED BY EITHER GENERAL ELECTRIC (CATALOG NO. LU150/55), PHILLIPS (CATALOG NO. C150S55), OR SYLVANIA (CATALOG NO. LU150/55) OR APPROVED EQUAL.
- G. ONE 150 WATT HPS ROUND COLONIAL POST TOP LUMINAIRE AS MANUFACTURED BY HOLOPHANE COMPANY, INC. (CATALOG NO. PTU15AHP12BTG3B-H) OR APPROVED EQUAL.
- H. ONE 12' FLUTED FIBERGLASS POST AS MANUFACTURED BY EITHER MAINSTREET LIGHTING (CATALOG NO. FF-802B) OR SHAKESPEARE (CATALOG NO. AP17-12FS1101) OR APPROVED EQUAL.

ALL HARDWARE SHALL BE COMPATIBLE AS RECOMMENDED BY THE MANUFACTURER. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER SHOP DRAWINGS OF THE ABOVE FOR APPROVAL FROM THE ENGINEER PRIOR TO ORDERING ANY MATERIALS.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 625 – LIGHTING, MISC.: DECORATIVE LIGHT POLE AND LUMINAIRE, AS PER PLAN.

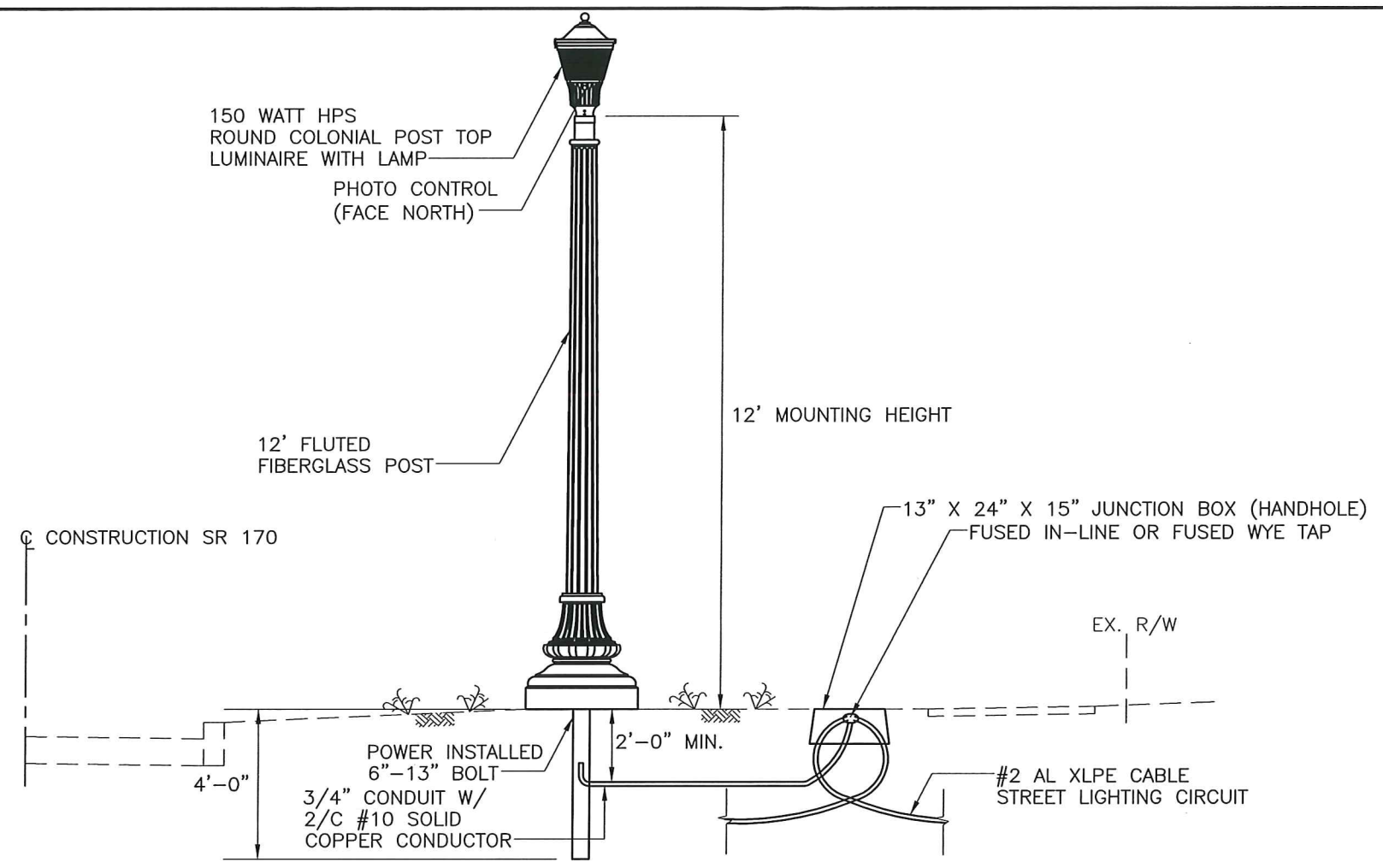
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LIGHTING GENERAL NOTES

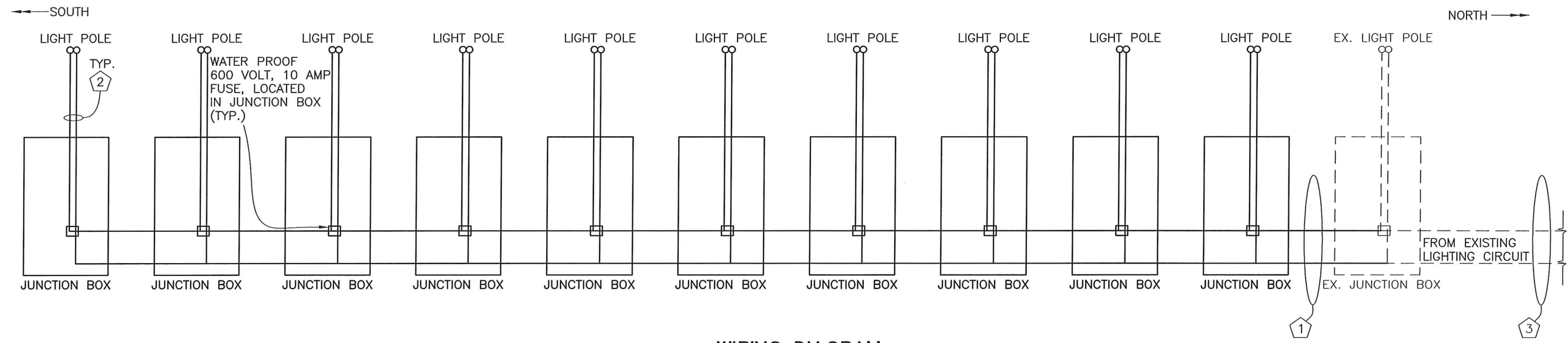
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**DECORATIVE LIGHTING DETAIL**  
 N.T.S.



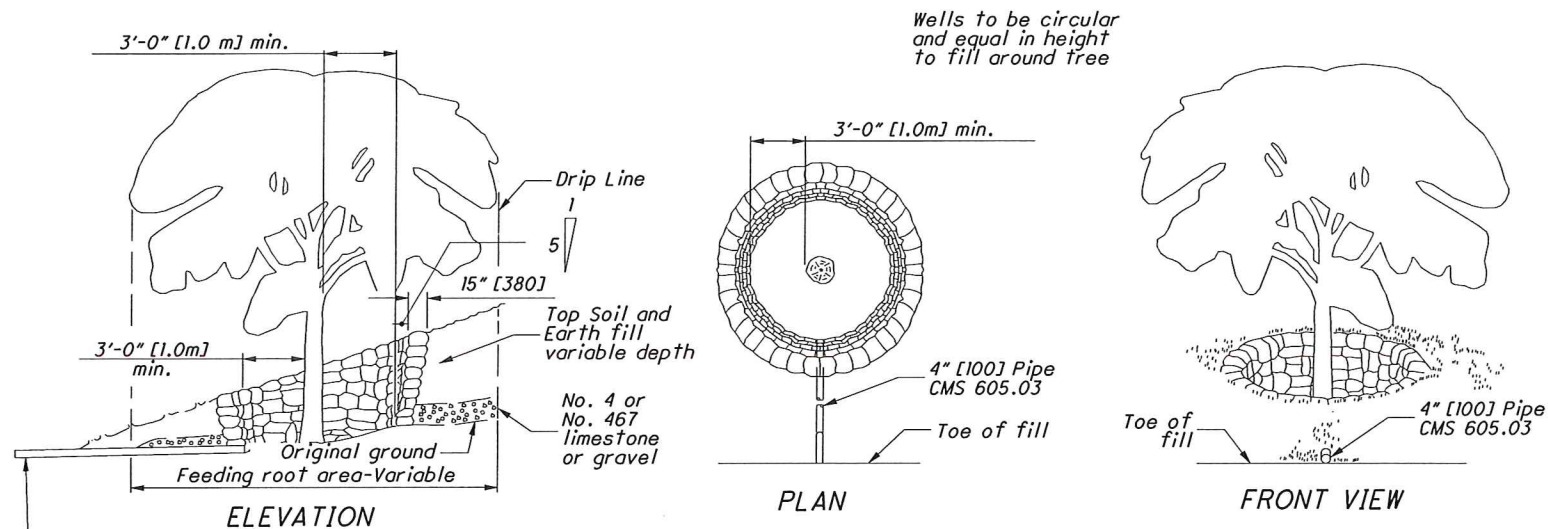
**WIRING DIAGRAM**  
 NOT TO SCALE

CONDUIT SCHEDULE

- ① 2" CONDUIT (#2 AL XLPE CABLE)
- ② 3/4" CONDUIT (2/C #10 UF SOLID COPPER CONDUCTOR)
- ③ EX. 3" CONDUIT (#2 AL XLPE CABLE OR ONE BLACK & ONE WHITE #6 CU XLPE SINGLE CONDUCTOR)

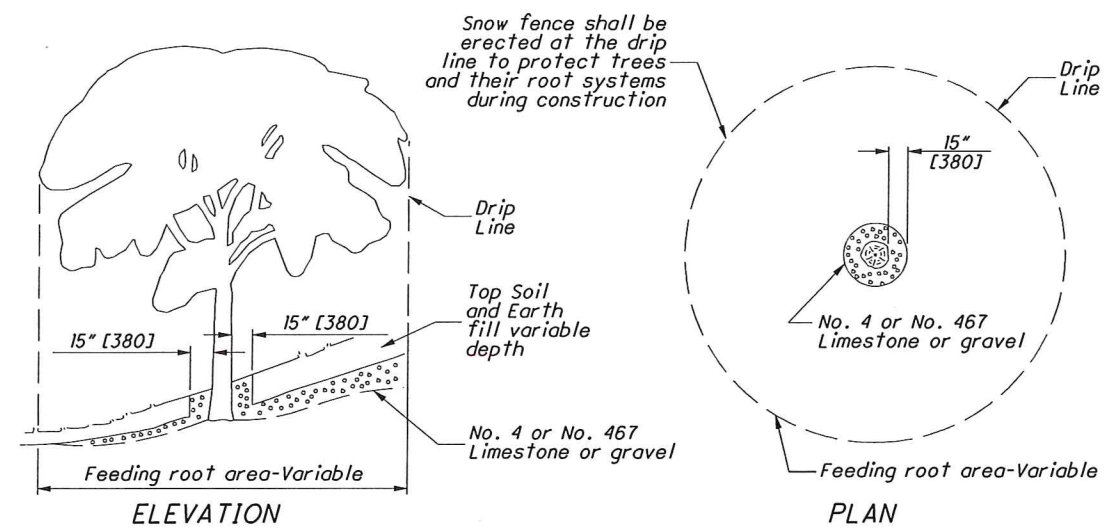


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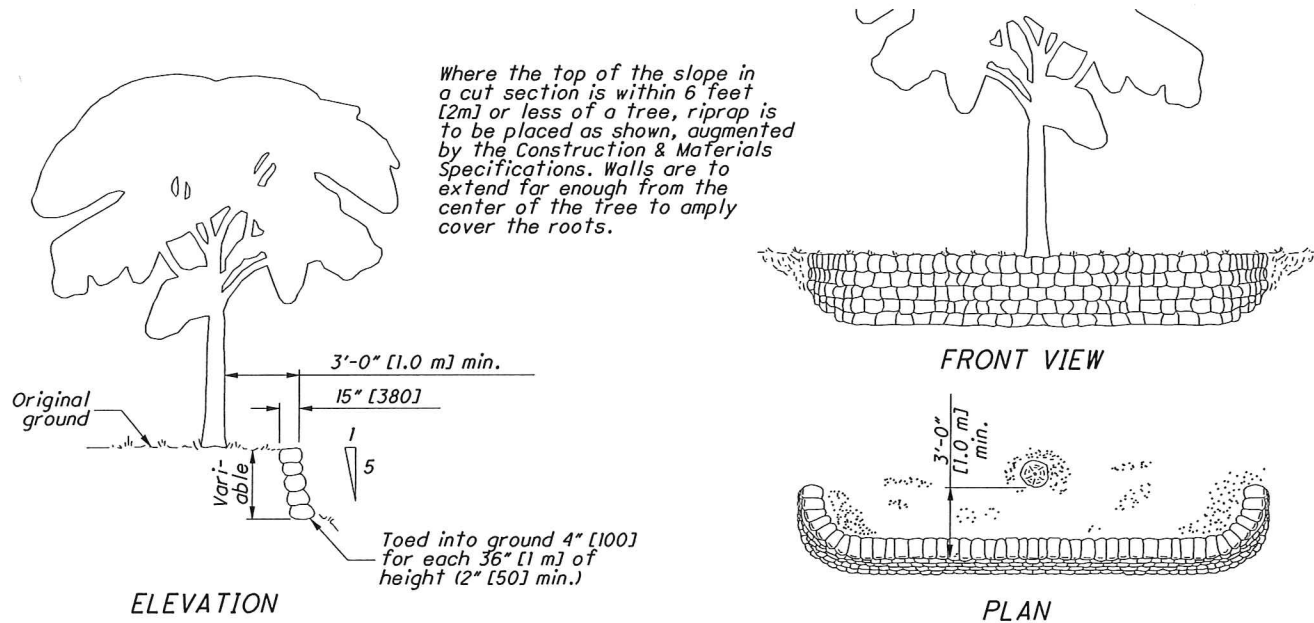
Where fill around tree is 12" [300] or more in depth over any part of the feeding root area or periphery of the tree, a well is to be constructed as shown.

RIPRAP AND AGGREGATE FOR TREE PROTECTION AND AERATION IN FILL

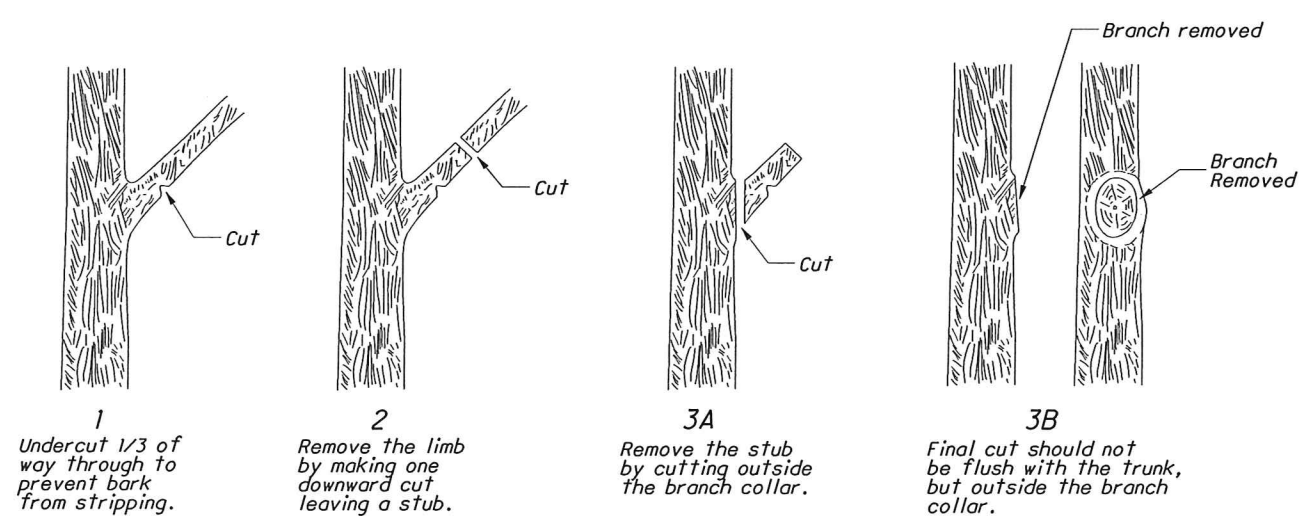
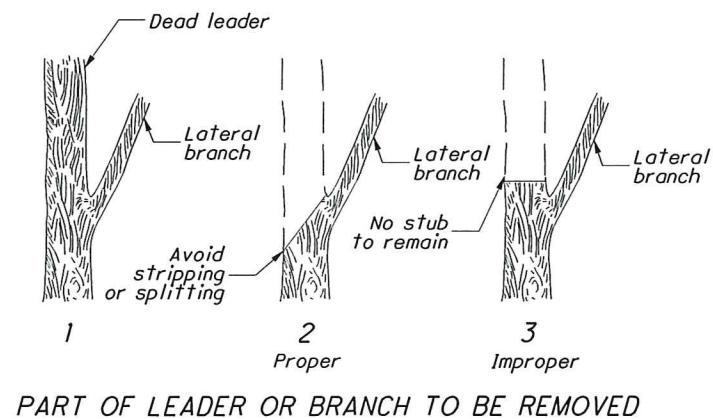


Where fill around tree is less than 12" [300] in depth over any part of the feeding root area or periphery of the tree, construct as shown.

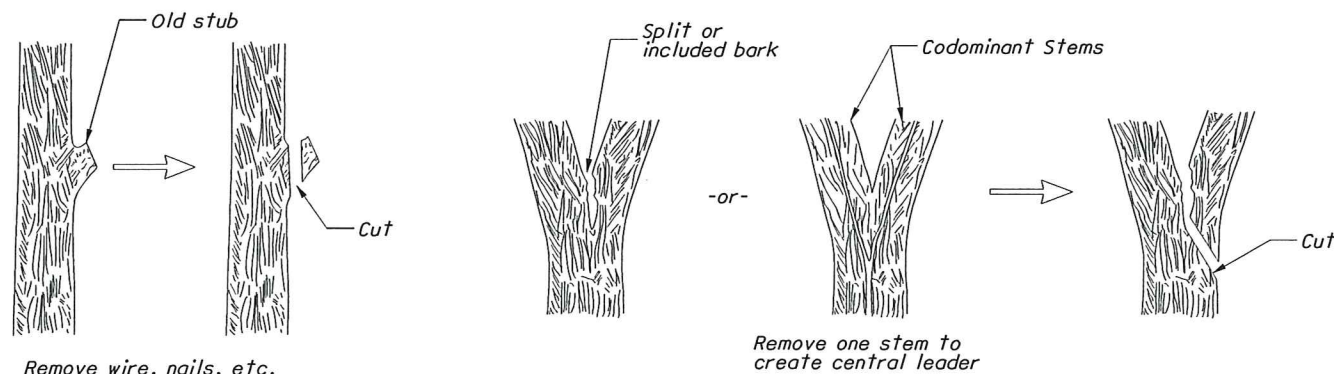
AGGREGATE FOR TREE ROOT PROTECTION IN FILL



RIPRAP FOR TREE PROTECTION IN CUT



PROPER REMOVAL OF BRANCHES



REMOVING STUBS

PROPER CROTCH TREATMENT

PRUNING

THIS DRAWING REPLACES LA-1.1M DATED 9-6-95.

STANDARD ROADWAY CONSTRUCTION DRAWING

TREE WELLS AND PRUNING

OFFICE OF ROADWAY ENGINEERING

ALL METRIC DIMENSIONS ( IN BRACKETS ) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

STDS. ENGINEER M. Evans

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

Signed Larry F. Sutherland ADMINISTRATOR

7-28-00 DATE

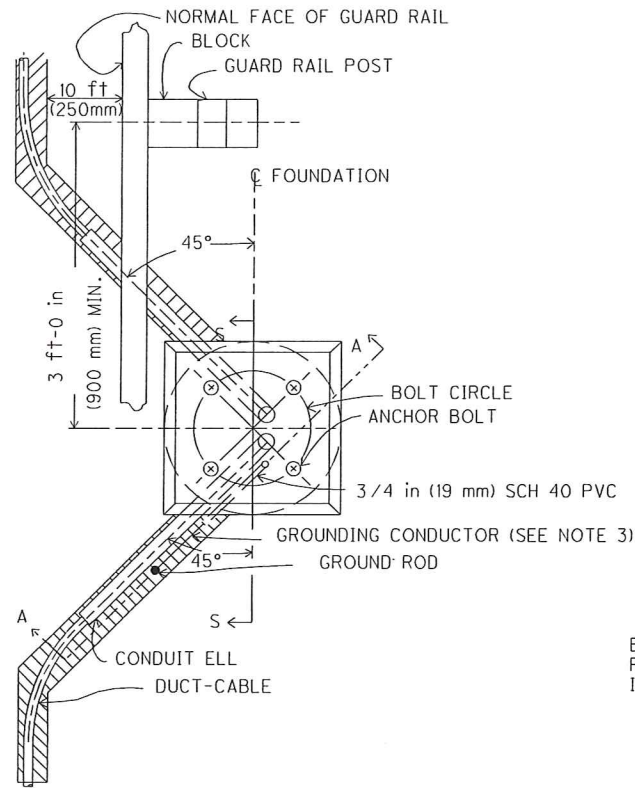
MAH-170-4.80

ODOT STANDARD CONSTRUCTION DRAWINGS

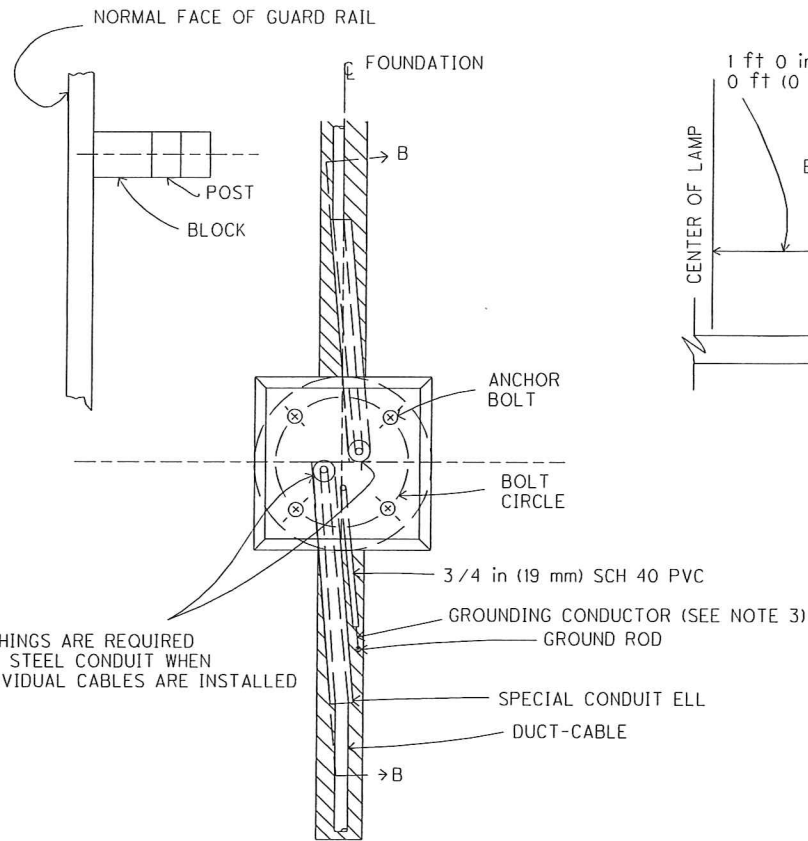
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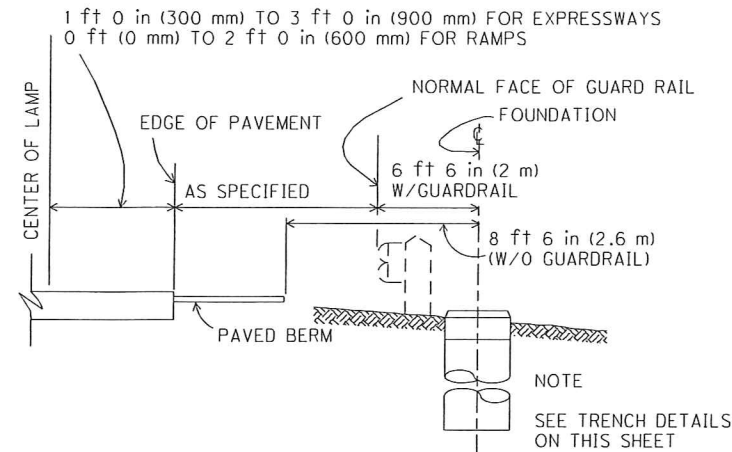
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 SCALE: 1" = 10'



ALTERNATE TRENCH ALIGNMENT  
 (USE AS DIRECTED BY THE ENGINEER)



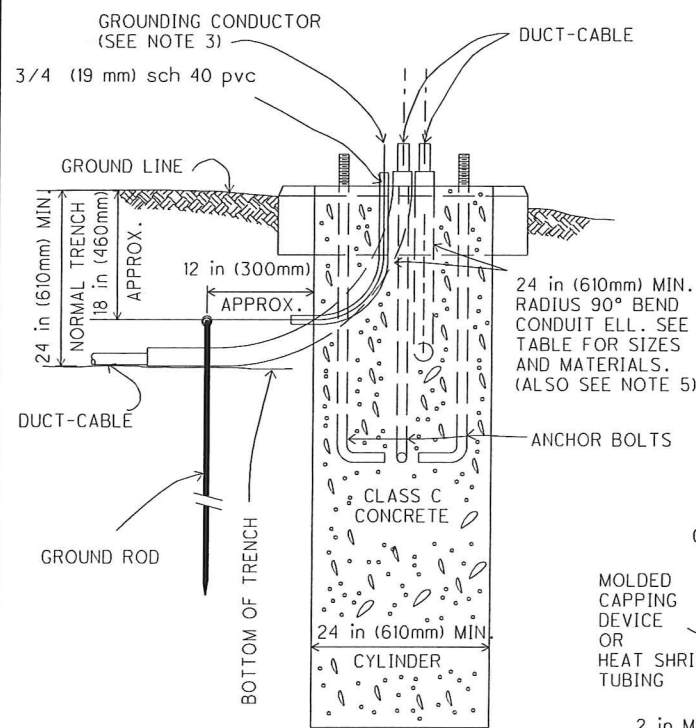
NORMAL TRENCH ALIGNMENT



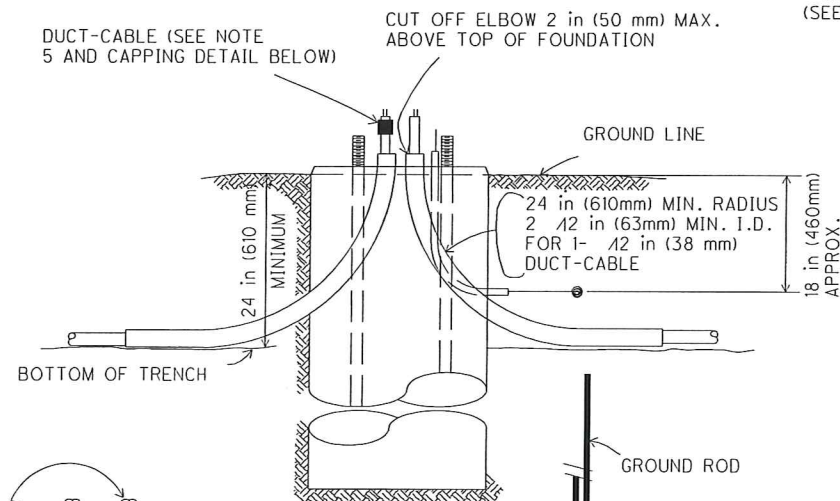
NORMAL LOCATION OF LIGHT POLE FOUNDATION

NOTES

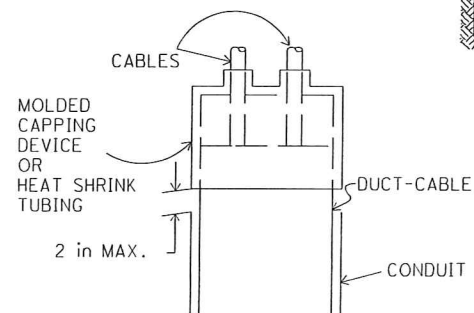
- Upslope side of foundation for pole with breakaway feature shall be flush with grade if pole is exposed to traffic.
- Minimum depth to be as follows:  
 6 ft (1.8 m) for poles having a support height less than 40 ft (12.2 m).  
 8 ft (2.4 m) for poles having a support height 40 ft (12.2 m) thru 44 ft (13.5 m).  
 9 ft (2.7 m) for poles having a support height 45 ft (13.6 m) thru 49 ft (15 m).  
 10 ft (3 m) for poles having a support height of 50 ft (15.1 m) thru 55 ft (16.8 m).  
 1/2 ft (12.7 mm) dia. tie bars required as follows:  
 4 No. 4 (12.7 mm) dia. tie bars for 6 ft (1.8 m) depth  
 5 no. 4 (12.7 mm) tie bars for 8 ft (2.4 m) and depth  
 6 No. 4 (12.7 mm) tie bars for 10 ft (3 m) depth rotate bars to clear conduits.
- Grounding conductor shall be 4 AWG, insulated copper. Exothermically weld cable to ground rod, run free end through 3/4 in (19 mm) sch 40 PVC and connect as shown on Standard Construction Drawing HL-60.11. Use two coats of insulating varnish over exothermic weld and exposed conductor.
- For anchor bolt data see Standard Construction Drawing HL-10.13, Pole Base Details.
- Where 2 in (51 mm) or 3 in (76 mm) diameter conduit terminates in a foundation, the conduit elbows in the foundation shall be the same as the conduit. The ends of the conduit elbows containing distribution cable shall be closed as described in 625.12. When the terminating conduit is steel, the conduit elbows in the pole foundation shall also be steel. At the last light pole on a circuit, the vacant conduit elbow in the light pole foundation shall be stubbed out and capped.
- Reinforcing steel may be assembled in cages by approved welding of bars. Subject to approval of the Engineer cages may be assembled in a spiral conformation.
- Squared section in top 6 in of foundation required only when foundation is in tree lawn or contiguous to or in paved surround.



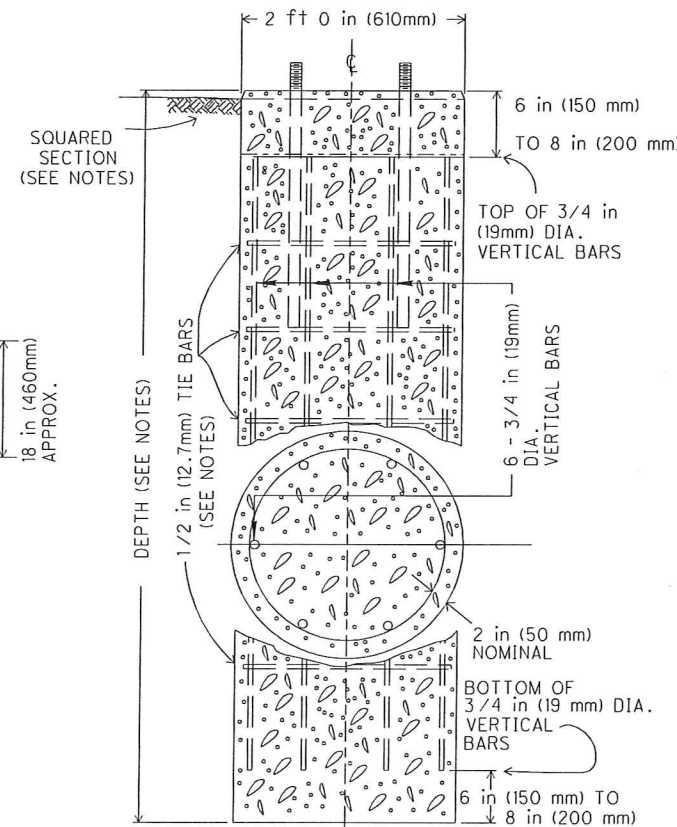
SECTION A-A



SECTION B-B (EXPANDED)



CAPPING DETAIL



SECTION S-S REINFORCING STEEL

SPECIAL CONDUIT ELLS 90° BEND IN INCHES (MM)			
R=BENDING RADIUS S=STRAIGHT SECTION Y=R+S			
	R	S	Y
24 (610)	11 (279)	35 (889)	
30 (762)	11 (279)	41 (1041)	
36 (914)	11 (279)	47 (1194)	
42 (1067)	12 (305)	54 (1372)	
48 (1219)	12 (305)	60 (1524)	

01-19-07

FOUNDATION AND  
 TRENCH DETAILS

OFFICE OF TRAFFIC  
 ENGINEERING

HL-20.11

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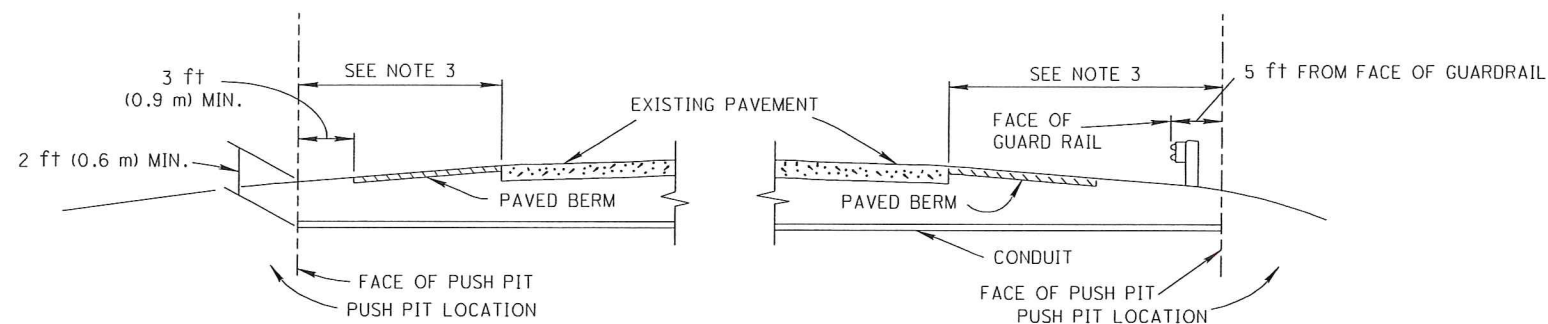
ODOT STANDARD CONSTRUCTION DRAWINGS

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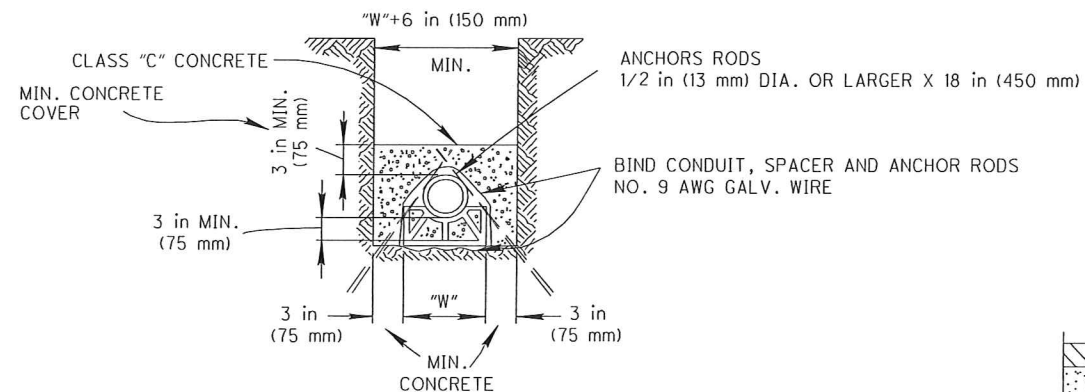
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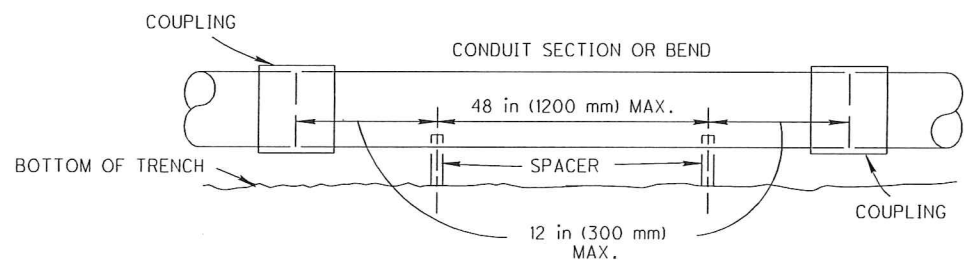
CONDUIT JACKED UNDER PAVEMENT

NOTES

1. Replacement of disturbed flexible pavement shall consist of a 511 concrete subcourse with a 404 surface course. Replacement of rigid pavement shall consist of a 511 concrete course with surface finished in accordance with 452.
2. Restore disturbed facilities and surfaces to a condition equal to that existing before the work started.
3. When undermining shoulder areas that do not have paved berms, provide 3/4 inch (19 millimeter) thick steel surface plates, corrugated pipe sleeves, shoring or other approved means to prevent cave-in.
4. When conduit is jacked or drilled under divided pavements, cable may be installed in a trench through the median area when specified in the plans.

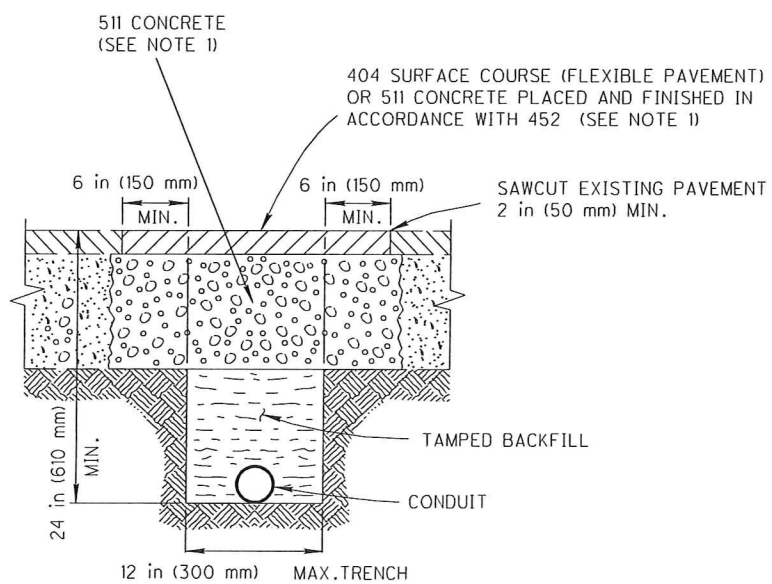


TRENCH SECTION

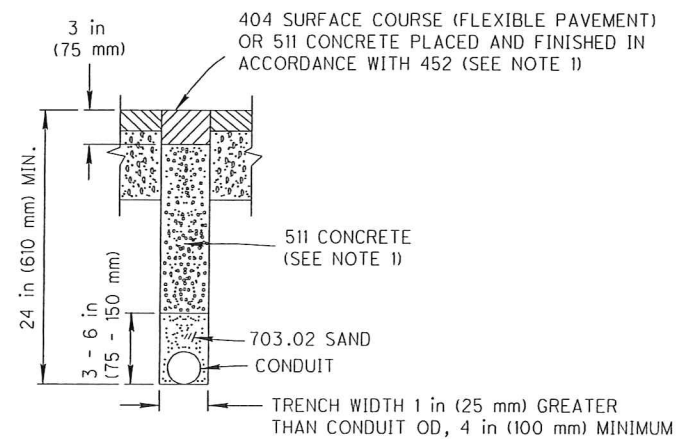


SIDE ELEVATION

CONCRETE ENCASED CONDUIT



"T" TRENCH IN PAVED AREA



NARROW SLIT TYPE TRENCH IN PAVED AREA

04-17-09

ROADWAY CONDUIT DETAILS II

OFFICE OF TRAFFIC ENGINEERING

HL-30.22

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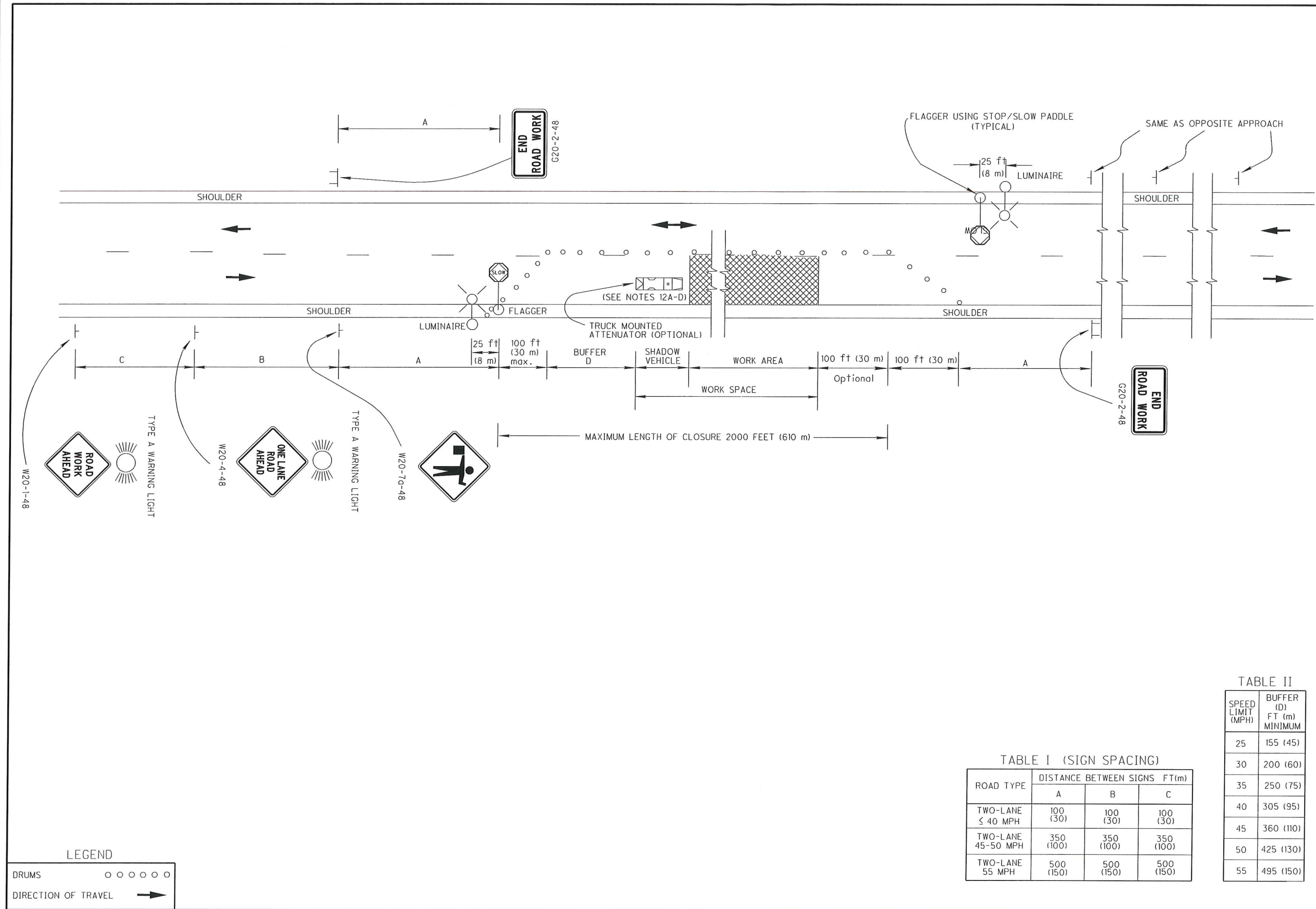
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ODOT STANDARD CONSTRUCTION DRAWINGS

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**LEGEND**

DRUMS ○ ○ ○ ○ ○

DIRECTION OF TRAVEL →

**TABLE I (SIGN SPACING)**

ROAD TYPE	DISTANCE BETWEEN SIGNS FT(m)		
	A	B	C
TWO-LANE ≤ 40 MPH	100 (30)	100 (30)	100 (30)
TWO-LANE 45-50 MPH	350 (100)	350 (100)	350 (100)
TWO-LANE 55 MPH	500 (150)	500 (150)	500 (150)

**TABLE II**

SPEED LIMIT (MPH)	BUFFER (D) FT (m) MINIMUM
25	155 (45)
30	200 (60)
35	250 (75)
40	305 (95)
45	360 (110)
50	425 (130)
55	495 (150)

**MT-97.10** OFFICE OF TRAFFIC ENGINEERING **FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY-STATIONARY OPERATION** **4-17-09**



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 SCALE: 1" = 10'

GENERAL NOTES:

FLAGGERS

1. Flaggers, one for each direction, shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall be able to communicate with each other at all times.

LENGTH OF CLOSURE

2. Several small work areas close together should be combined into one work zone. However, the closure shall not be more than 2000 feet (610 meters) long unless approved by the Engineer. The minimum length between closures shall be 2000 feet (610 meters). Only one side of the road shall be closed in any one work zone.

SIGN LOCATION AND SPACING

- 3A. The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.
- 3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200 feet (60 meters) for speeds of 45 mph or less and a minimum of 400 feet (120 meters) for speeds of 50 mph or greater.
- 3C. The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the flagger station and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

- 5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.
- 5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than one day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.
- 5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 sign which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

SIGNING DETAILS

- 6A. The Advisory Speed plaque W13-1 shall be used when specified in the plan.
- 6B. 36 inch (900 millimeter) warning signs may be used when the approach speed limit is 40 mph or less.

FLASHING WARNING LIGHTS

7. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

DRUMS/CONES

- 8A. Drum spacing shall be as follows:
  - a) Spacing along the closure shall be 40 feet (12 meters) center to center.
  - b) Spacing along the approach taper shall be 10 feet (3 meters) center to center.
- 8B. Cones may be substituted for drums as follows:
  - a) Cones used for daytime traffic control shall have a minimum height of 28 inches (0.7 meters).
  - b) Cones used for nighttime traffic control shall have a minimum height of 42 inches (1.1 meters).
  - c) Use of cones at night shall be prohibited along tapers.
- 8C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.
- 8D. A minimum of 2 drums shall be used to close the paved shoulder.

EQUIPMENT/MATERIALS STORAGE

- 9A. No equipment or material shall be located within the taper or buffer zone.
- 9B. When no work is being performed, all material and equipment shall be stored as per CMS 614.03.

AREA ILLUMINATION

- 10A. Adequate area illumination of each flagger station shall be provided at night. Use of portable flood lighting is acceptable. Luminaires shall be located adjacent to each flagger station.
- 10B. To ensure the adequacy of floodlight placement and the elimination of glare, the Contractor and the Engineer shall drive through the worksite each night when the lighting is in place. Light placement and shielding shall be adjusted to the satisfaction of the Engineer.

INTERSECTION/DRIVEWAY ACCESS

11. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The contractor shall:
  - a) Place across the closed lane, either 3 drums (cones) or barricades,
  - and/or
  - b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25 feet (8m) beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawings MT-97.11 or MT-97.12. For Barricades, see Standard Construction Drawing MT-101.60.

Existing stop signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

SHADOW VEHICLE

- 12A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.
- 12B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).
- 12C. The vehicle shall be equipped with a truck-mounted attenuator (TMA) when called for in the plans.
- 12D. Other protective devices may be used in lieu of the shadow vehicle shown when approved by the Engineer.

4-17-09

FLAGGER CLOSING 1 LANE OF A 2-LANE  
 HIGHWAY-STATIONARY OPERATION

OFFICE OF TRAFFIC  
 ENGINEERING

MT-97.10

2 / 2

CALCULATED  
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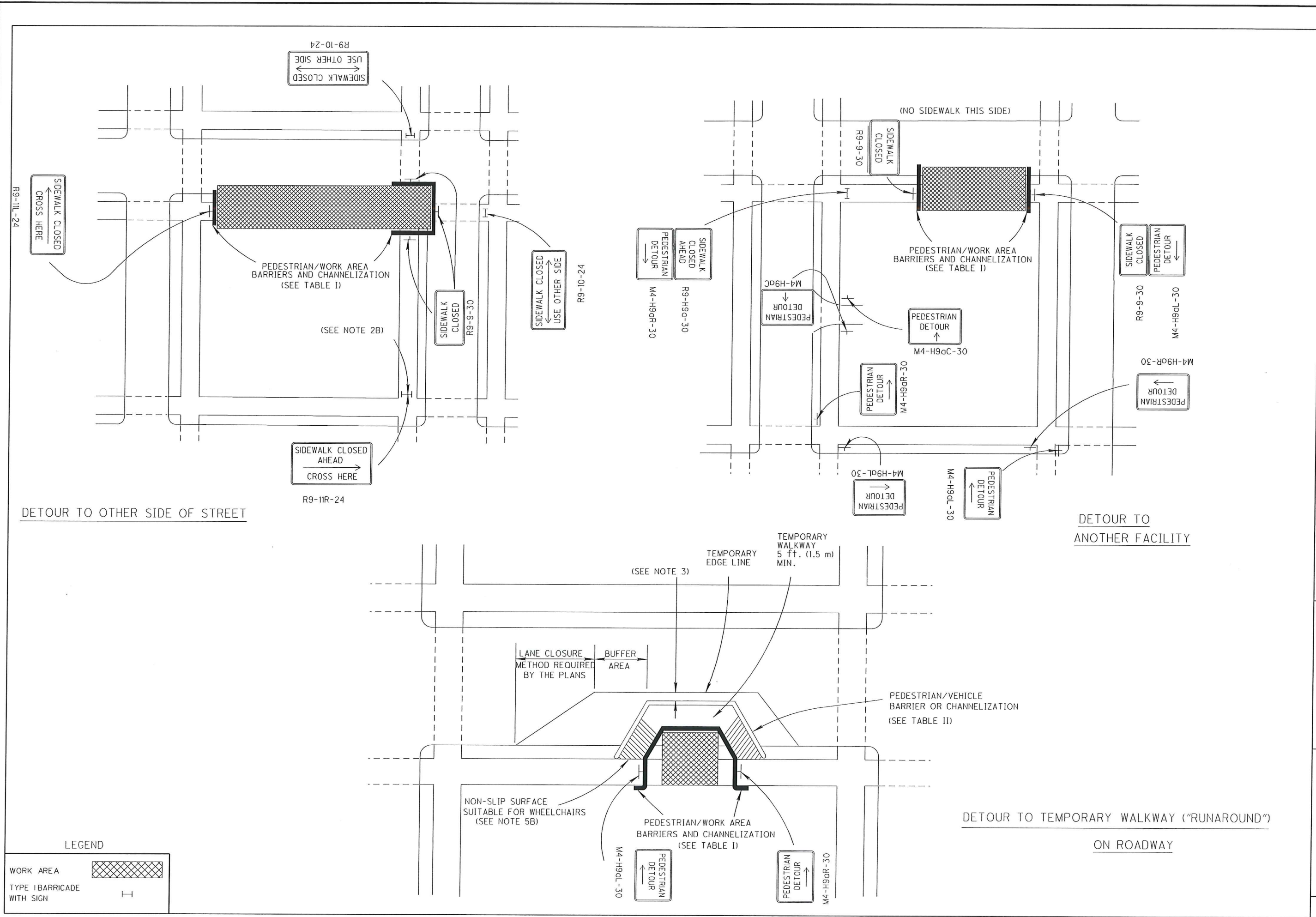
ODOT STANDARD CONSTRUCTION DRAWINGS

MAH-170-4.80


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


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**LEGEND**

WORK AREA 

TYPE I BARRICADE WITH SIGN 

MT-110.10

OFFICE OF TRAFFIC ENGINEERING

PEDESTRIAN DETOUR METHODS

01-16-09



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 SCALE: 1" = 10'

GENERAL NOTES

General

- 1A. This drawing presents traffic controls only for pedestrian traffic. Vehicular traffic control shall be provided as required.
- 1B. The purpose of the traffic control devices provided hereon is to divert and guide pedestrians whose path would otherwise enter the work area. The Contractor must take additional precautions as appropriate to protect other pedestrians or residents (including children) from exposure to hazards resulting from construction operations.

Signs and Barricades

- 2A. All signs and barricades shall be placed so that they do not cause a hazard for pedestrians. All signs, not on barricades or channelizing devices, near or over active sidewalks shall have a minimum 7 foot (2.1 m) vertical clearance. Signs mounted on barricades or channelizing devices shall have a minimum 1 foot (0.3 m) clearance above the sidewalk.
- 2B. Advance signing for sidewalk closure shall be mounted on Type I Barricade, placed such that they will not block more than one-half the sidewalk.

Pavement Marking

- 3. Maintain 2 foot (0.6 m) minimum when possible, between the work zone edge line and the barrier or channelizing device separating the pedestrian path from the vehicle path.

Staged Work

- 4. For repair or reconstruction work involving sidewalks on both sides of the street, the work shall be staged so that one side is rebuilt before the other is disrupted.

Temporary Walkways

- 5A. Pedestrian walkways constructed by the Contractor shall be kept free of any obstructions or hazards including holes, debris and mud. Other walkways damaged or dirtied by the Contractor shall be immediately repaired or cleaned.
- 5B. For construction of temporary walkway the maximum grade shall be 5 percent unless specified otherwise in the plans. The maximum cross slope shall be 2 percent.

Lighting and Delineation

- 6A. At night, in otherwise unlighted areas, pedestrian-channelizing devices and barricades and pedestrian detour signs shall be provided with lighting as follows:
  - a) Illumination shall provide a minimum of 1.2 foot candles (13.0 lux) on temporary walkways.
  - b) Illumination shall be controlled by photocells.
  - c) Illumination fixtures may consist of floodlights or other protected fixtures mounted at least 10 feet (3.0 m) above ground.
  - d) Illumination supports may be standard highway lighting poles, 4 x 4 inch (102 x 102 mm) wood posts or other supports approved by the Engineer.
- 6B. For barriers and channelizing devices located between the pedestrian way and the vehicle travel lane in unlighted areas, the devices shall be delineated or lighted at night as follows:
  - a) Delineation of the portable concrete barrier located between the vehicle lane and the pedestrian path shall be by barrier reflectors on the vehicle side of the PCB and by object markers as per Standard Construction Drawing MT-101.70.
  - b) Channelizing devices other than PCB shall be provided with Type C steady burning lights on the vehicle side of the channelizer.

Channelization Requirements

- 7A. All channelization devices used to separate pedestrians from the work area or from the vehicular lane shall be as determined from the adjacent tables.
- 7B. Wood railing shall be a min. of a 2 x 4 inch (50x100 mm) rail at 32 inch (810 mm) above ground. It shall be secured to 2 x 4 inch (50 x 100 mm) posts at not more than 6 feet (1.8 m) spacing with secure attachment hardware. It shall be installed and braced to be essentially rigid and able to support the following loads:
  - a) A horizontal transverse load of 100 pounds (45 kg) at each post top.
  - b) A vertical load of 250 pounds (113 kg) at midpoint between each post.
- 7C. Wood snow fence shall be nominally 42 inch (1.1 m) high, securely supported by wood or steel posts at 6 feet (1.8 m) maximum spacing. Plastic/nylon construction fence shall be bright orange. It shall be securely fastened to wood or metal posts at not more than 6 feet (1.8 m) spacing. It shall be nominally 42 inch (1.1 m) high and the top edge shall not sag below 30 inch (760 mm) [12 inch (300 mm) max. sag]. Either of the fence sections with extensive broken slats or holes greater than 12 x 12 inch (300 x 300 mm) shall be repaired or replaced.
- 7D. Chain link fence, Type CLT shall conform to CMS 607 and appropriate details on Roadway Standard Drawings F-1.1, F-3.1 and F-3.2, except that materials need not be new nor shall certification and tests be required.
- 7E. Plywood walls shall be a minimum of 5/8 inch (16 mm) exterior plywood, supported by 2 x 4 inch (50x100 mm) or heavier framing securely anchored and buttressed to resist wind load and/or persons. They shall be designed for a minimum wind loading of 30 pounds per square foot (138 kpa) (or larger if local codes require). Height of the wall shall be not less than 7 feet (2.1 m) above the walkway and if within range of thrown objects, shall be of sufficient height to screen pedestrians and passing cars.
- 7F. When Portable Concrete Barrier is provided, it shall be 32 inch (813 mm) Portable Concrete Barrier as per CMS 622. Delineation of Portable Concrete Barrier shall be as per Standard Construction Drawing MT-101.70.
- 7G. Barrier located along a "runaround" within the roadway pavement shall meet the following requirements:
  - a) shall be a minimum of 36 inch (900 mm) in height and continuous with the ground surface
  - b) shall extend along the entire length of the runaround
  - c) have no breaks or gaps along the full length of the barrier
  - d) have a solid, continuous bottom rail between 4 inches (100 mm) and 12 inches (300 mm) in height
  - e) be of high contrast color and material
  - f) provide temporary ramps and boardwalks as required to ensure a smooth and continuous surface that complies with Americans with Disabilities Act Accessibility Guidelines (ADAAG)

BARRIER AND CHANNELIZING DEVICE SELECTION TABLES

TABLE I - CHANNELIZATION TYPE WHEN USED BETWEEN THE PEDESTRIAN WALKWAY AND THE WORK AREA:

DISTANCE FROM WORK ACTIVITY TO CHANNELIZATION	WORK CHARACTERISTICS*					
	< 2 ft. (0.6 m) DROPOFF	2 - 5 ft (0.6-1.5 m) DROPOFF	> 5 ft. (1.5 m) DROPOFF	DIRT/MUD SPLASHED	EQUIPMENT WHICH MOVES OR HAS EXPOSED MOVING PARTS	OPERATION WHICH THROWS STONE/ETC.
< 5 ft. (1.5 m)	A-E	B-E	C-D	D	D-E	D
5 - 10 ft. (1.5 m - 3.0 m)	A-E	B-E	B-E	D	B-E	D
> 10 - 30 ft. (3.0 m - 9.0 m)	A-E	A-E	B-E	N/A	A-E	D
> 30 ft. (9.0 m)	N/A	A-E	B-E	N/A	A-E	D

\*These requirements shall not apply to paving, grinding or other similar operations.

TABLE II - CHANNELIZATION TYPE WHEN USED BETWEEN THE PEDESTRIAN WALKWAY AND THE VEHICULAR LANE:

DISTANCE FROM EDGE OF TRAFFIC LANE TO FACE OF CHANNELIZATION	SPEED LIMIT (MPH)		
	25	30 - 40	> 40
0 - 2 ft. (0.6 m)	E	E	E
> 2-6 ft. (0.6 m - 1.8 m)	B-E	E	E
> 6 ft. (1.8 m)	B-E	B-E	E

SELECTION LIST

- A. WOOD RAILING
- B. SNOW FENCE, WOOD OR ORANGE PLASTIC CONSTRUCTION FENCE
- C. CHAIN LINK FENCE, TYPE CLT
- D. PLYWOOD WALL
- E. PORTABLE CONCRETE BARRIER

MT-110.10

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PEDESTRIAN DETOUR METHODS

01-16-09

MAH-170-4.80

ODOT STANDARD CONSTRUCTION DRAWINGS

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