

# GENERAL NOTES

CALCULATED  
CHECKED

GENERAL NOTES

LAKE COUNTY  
LAK-20-22.916/VARIOUS

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## POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE CITY OF PAINESVILLE, DIVISION OF ELECTRIC AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 115 VOLTS.

## GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 180 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION, THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM:

CONTROLLERS, CABINETS AND ASSOCIATED EQUIPMENT,  
DETECTOR UNITS,  
INTERCONNECTION ITEMS,  
MASTER CONTROL EQUIPMENT AND  
CENTRAL OFFICE EQUIPMENT.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS AND ALL OTHER TRAFFIC CONTROL EQUIPMENT SHALL BE TURNED OVER TO THE CITY OF PAINESVILLE FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS INCLUDED IN THE SYSTEM.

## MAINTAINING SIGNAL TIMING FOR NEW SIGNALS

AS THE NEW SIGNAL INSTALLATIONS ARE ENERGIZED, THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN "TIME BASED COORDINATION" BETWEEN ALL NEW CONTROLLERS UNTIL THE PHONE INTERCONNECT IS IN PLACE AND THE CONTROLLER(S) IS/ARE BROUGHT ON LINE" WITH THE MASTER CONTROLLER.

## TEMPORARY SIGNAL TIMING FOR NEW SIGNALS

AS THE NEW SIGNAL INSTALLATIONS ARE ENERGIZED, THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN "TIME BASE COORDINATION" BETWEEN ALL NEW CONTROLLERS UNTIL THE PHONE INTERCONNECT IS IN PLACE AND THE CONTROLLER(S) IS BROUGHT "ON-LINE" WITH THE SYSTEM MASTER CONTROLLER.

THE INTERIM TIMING PATTERN SHALL BE THE COORDINATION TIMING SHOWN IN THE PLAN INCLUDING THE TIME OF DAY SCHEDULE.

IN ORDER TO MAINTAIN COORDINATION BETWEEN SIGNALIZED INTERSECTIONS UNTIL THE PROPOSED SYSTEM IS COMPLETE, NEW SIGNALS SHALL BE ENERGIZED CONCURRENTLY AT THE LOCATIONS SHOWN AS A GROUP OR SUBSYSTEM IN THE SCHEMATIC PLAN ON SHEET 2. THE PROPOSED COORDINATION TIMING PLANS SHALL BE IMMEDIATELY IMPLEMENTED AFTER ENERGIZING.

THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE CONTROLLER PAY ITEM. NO ADDITIONAL COMPENSATION SHALL BE MADE TO THE CONTRACTOR TO PERFORM THIS WORK.

## 202 WALK REMOVED, AS PER PLAN

THE REMOVAL OF WALK SHALL INCLUDE ALL WALKS CONSTRUCTED OF CONCRETE OR ASPHALT IN ACCORDANCE WITH ITEM 202. REMOVED MATERIALS FOR SALVAGE OR DISPOSAL SHALL BE IN ACCORDANCE WITH 202.05.

PAYMENT FOR WALK REMOVED SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE METER FOR ITEM 202 - WALK REMOVED, AS PER PLAN.

## 625 PULL BOX, MISC.: (BY SIZE)

THIS ITEM SHALL CONSIST OF 330mm x 610mm x 457mm OR 432mm x 762mmx610mm DEEP BOX, TAPERED OUTWARD FROM TOP TO AN OPEN BOTTOM. ALL BOLTS AND THREADED INSERTS SHALL BE STAINLESS STEEL. LOAD CAPACITY SHALL BE 6,180 KILOGRAMS ON A 254mm x 254mm AREA TESTED IN ACCORDANCE WITH WESTERN UNDERGROUND COMMITTEE GUIDE 3.6. COVER DEFLECTION SHALL BE LESS THAN 13mm AT THE DESIGN LOAD AND SHOW NO SIGNS OF DAMAGE AFTER TEN (10) CYCLES AT DESIGN LOAD.

THE BODY SHALL BE MADE OF FIBERGLASS REINFORCED POLYMER (FRP) WITH ISOPHTHALIT POLYESTER USING THE SPRAY-UP AND ROLL CONSTRUCTION METHOD OR MADE OF HIGH DENSITY POLY-ETHYLENE (HDPE). THE MATERIAL SHALL HAVE STABILIZERS TO RESIST UV DEGRADATION IN ACCORDANCE WITH ASTM D-790 AND ASTM D-1501-71, SECTION 6, PROCEDURE B. THE TOP RING OF THE BOX SHALL BE MADE OF POLYMER CONCRETE USING A POLYESTER BINDER WITH AGGREGATE FILLERS AND CHOPPED FIBERGLASS WITH A MINIMUM TENSILE STRENGTH OF 13,100 KPa. THE RING SHALL HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL.

THE COVER SHALL BE MADE WITH A THICK MOLDING COMPOUND (TMC) USING THE COMPRESSION MOLDING METHOD. THE TMC SHALL CONSIST OF A MINIMUM 10% FIBERGLASS IN A CALCIUM CARBONATE AND POLYESTER RESIN MATRIX. THE COVER SHALL BE MARKED "TRAFFIC" EMBOSSED INTO THE TMC, HAVE A NON-SKID SURFACE AND HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL. TWO (2) RECESSED HEX HEAD STAINLESS STEEL BOLTS AND WASHERS SHALL BE USED TO SECURE THE COVER TO THE BOX.

OPENINGS IN THE SIDE OF THE PULL BOX WHICH ARE REQUIRED IN ORDER TO INSERT CONDUIT(S), SHALL BE DRILLED OR SAWED IN THE FIELD, ONCE THESE LOCATIONS HAVE BEEN DETERMINED. THE OPENINGS SHALL NOT EXCEED THE CONDUIT OUTSIDE DIAMETER BY MORE THAN FIVE (5) PERCENT. ALL OPENINGS SHALL BE THOROUGHLY GROUTED WITH CEMENT MORTAR AFTER PLACING OF THE CONDUIT(S). THE CONTRACTOR SHALL NOT SAW THROUGH THICKENED EDGES OF THE BOTTOM OF THE PULL BOX. AGGREGATE SHALL BE PLACED IN ACCORDANCE WITH 625.11 AND STANDARD CONSTRUCTION DRAWING HL- 30.11M.

PAYMENT FOR "ITEM 625 PULL BOX, MISC.: (BY SIZE)" SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY TO INSTALL ONE PULL BOX.

## 630 SIGN HANGER ASSEMBLY, MAST ARM MOUNTED, AS PER PLAN

SIGNS MOUNTED ON PROPOSED TRAFFIC SIGNAL MAST ARMS, EXCEPT FOR STREET NAME SIGNS, SHALL BE RIGIDLY ATTACHED TO THE ARM AND CENTERED VERTICALLY WITH THE ARM, USING THE SIGN BRACKET DETAIL ON STANDARD CONSTRUCTION DRAWING TC-16.20 OR OR ANOTHER METHOD OF RIGID ATTACHMENT AS APPROVED BY THE ENGINEER. SIGNS SHALL BE MOUNTED LEVEL AND NOT SLOPED ALONG THE MAST ARM. THE CONTRACTOR SHALL INSURE THAT THE FACE IS MOUNTED PERPENDICULAR (90 DEGREES) TO THE DIRECTION OF TRAFFIC. EXISTING REGULATORY SIGNS SHALL NOT BE REMOVED UNTIL THE NEW SIGNS ARE ERECTED. ANY SIGNS MOUNTED ON POLES TO BE REMOVED SHALL BE TEMPORARILY RELOCATED UNTIL THE NEW SIGNS ARE INSTALLED.

PAYMENT FOR "ITEM 630 SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND ALL PARTS NECESSARY TO ERECT ONE INDIVIDUAL SIGN.

## 630 SIGN, FLAT SHEET, TYPE G

THE FOLLOWING LIST OF PROPOSED SIGNS, AS INDICATED ON THE PLAN SHEETS, SHALL BE FABRICATED USING TYPE G (HIGH INTENSITY SHEETING, AS PER 730.19 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS:

### A) REGULATORY SIGNS

1. STOP SIGN (R-1)
2. MULTIWAY STOP PLATES (R-1A,B)
3. YIELD SIGN (R-2)
4. TURN PROHIBITION SIGNS (R-22,120,121,123)
5. NO TURN ON RED SIGN AND PLATE (R-23, RP-23)
6. LEFT (RIGHT) TURN SIGNAL SIGN (R-25E)
7. LEFT TURN YIELD ON GREEN SIGN (R-25F)
8. OVERHEAD LANE USE CONTROL SIGNS (R-26A, 27A, 28A, 28B, 28C, 29A, 30A)
9. KEEP RIGHT (LEFT) SIGNS (R-37R, L, R-38R, L)
10. WRONG WAY SIGN (R-41A)
11. DO NOT ENTER SIGN (R-41B)
12. ONE WAY SIGNS (R-43, 44)
13. TWO WAY LEFT TURN ONLY SIGNS (R-50, RP-49, 51)
14. LEFT (RIGHT) ON ARROW ONLY SIGN (R-86A)
15. USE LANE WITH GREEN ARROW SIGN (R-89)
16. OVERHEAD PREFERENTIAL LANE SIGNS (R-148, 150, 152)

## 631 REMOVAL, MISC.: REMOVE AND REERECT EXIST SCHOOL SPEED LIMIT SIGN ASSEMBLY

THIS ITEM OF WORK INCLUDES THE REMOVAL OF A SCHOOL SPEED LIMIT SIGN ASSEMBLY WHICH IS MOUNTED ON A PEDESTAL OR WOOD POLE. THIS ITEM SHALL INCLUDE THE REMOVAL OF THE SIGN ASSEMBLY, PULL BOXES, SIGNAL CABLE, CONDUIT, RISERS, TIMER AND TIMER ENCLOSURE, FLASHER CONTROLLER AND POWER SERVICE.

AT LOCATIONS WHERE A SCHOOL FLASHER IS MOUNTED ON ITS OWN SUPPORT, THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF THE SUPPORT AND FOUNDATION TO 0.3 METERS (1 FOOT) BELOW FINISHED GRADE. BACKFILLING, RESTORATION OF SURFACES AND DISPOSAL OF SURPLUS MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 603.09 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

THE CONTRACTOR SHALL REERECT THE SCHOOL SPEED LIMIT SIGN ASSEMBLY, TIMER, TIMER ENCLOSURE, AT THE LOCATION SHOWN ON THE PLANS. ALL OTHER MATERIALS REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR.

ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO PERFORM THE WORK AS OUTLINED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID "EACH" FOR ITEM 631 REMOVAL, MISC.: REMOVE AND REERECT SCHOOL SPEED LIMIT SIGN ASSEMBLY.

## 632 SIGNAL SUPPORT, (BY TYPE AND DESIGN)

THIS PROJECT REQUIRES CONSTRUCTION OF SIGNAL SUPPORT FOUNDATIONS IN LOCATIONS WHICH CONTAIN NUMEROUS EXISTING UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOT ORDER SIGNAL SUPPORT POLES AND MAST ARMS UNTIL AFTER THE ASSOCIATED SUPPORT FOUNDATIONS HAVE BEEN PROPERLY LOCATED AND, CONSTRUCTED.

IF A UTILITY OR OTHER CONFLICT EXISTS WHICH REQUIRES THAT A SIGNAL SUPPORT BE CONSTRUCTED IN A LOCATION OTHER THAN WHAT IS INDICATED ON THE PLAN, THE ENGINEER SHALL DETERMINE WHETHER THE SPECIFIED MAST ARM LENGTH IS APPROPRIATE. SUPPORT FOUNDATION LOCATIONS SHALL BE ADJUSTED ONLY WHEN APPROVED BY THE ENGINEER.

THE CONTRACTOR IS ADVISED TO LOCATE AND CONSTRUCT THE SIGNAL SUPPORT FOUNDATIONS AS SOON AS POSSIBLE IN ORDER TO PROVIDE AMPLE LEAD TIME TO ORDER SIGNAL SUPPORTS AND THEIR ASSOCIATED MAST ARMS. NO TIME EXTENSIONS SHALL BE GRANTED FOR DELAYS WHICH ARE CAUSED BY THE CONTRACTOR'S FAILURE TO PLAN FOUNDATION WORK AS SOON AS POSSIBLE IN THE CONTRACTOR'S PROGRESS SCHEDULE.

ALL COSTS ASSOCIATED WITH THE PROCEDURES AS OUTLINED ABOVE, SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE UNIT PRICE BID (EACH) FOR ITEM 632 - SIGNAL SUPPORT, (BY TYPE AND DESIGN).