

POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE CLEVELAND ELECTRIC ILLUMINATING COMPANY AT THE LOCATION(S) INDICATED ON THE PLANS. POWER SHALL BE RUN FROM THE NEAREST POWER POLE TO THE CONTROLLER. ONE 51MM CONDUIT RISER, 25 METERS OF 51mm CONDUIT AND 31 METERS OF POWER CABLE ARE INCLUDED PER LOCATION TO BE USED AS DIRECTED BY THE ENGINEER. POWER SUPPLIED SHALL BE 120 VOLTS.

ITEM 625 - PULL BOX, MISC.: 330MM X 610MM(13"x24") OR 279MM X 457MM(11"x18")

SIZE: BOX - 330MM X 610MM X 661MM(13"x24"x26") DEEP (NOMINAL).
SIZE: BOX - 279MM X 457MM X 661MM(11"x18"x26") DEEP (NOMINAL).

COVER AND BOX SHALL HAVE A MINIMUM VERTICAL TEST LOAD OF 4571 KG (10,000 LBS.) OVER A 254MM X 254MM(10" X 10") AREA PER ASTM C-857 AND SO BE IDENTIFIED ON THE SURFACE, ALL IN ACCORDANCE WITH THE WESTERN UNDERGROUND COMMITTEE - GUIDE 3.6(W.U.C. 3.6). THE BOX MUST ALSO MEET THE STRUCTURAL REQUIREMENTS FOR LATERAL (SIDE) LOADING AS DEFINED IN W.U.C. GUIDE 3.6. THE PULL BOX SHALL BE SUITABLE FOR INSTALLATION AND USE THROUGH A TEMPERATURE RANGE OF -40° C TO +90° C.

THE PULL BOX COVER AND RING SHALL BE MADE OF HIGH DENSITY POLYMER CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 20,000 P.S.I. THE BODY OF THE BOX SHALL BE MADE OF FIBERGLASS REINFORCED POLYESTER (FRP). HIGH DENSITY POLYETHYLENE (HDPE), STRUCTURAL FOAM, OR STRUCTURAL THERMOPLASTIC SHALL NOT BE ACCEPTABLE.

THE COVER SHALL BE FASTENED TO THE BOX WITH TWO STAINLESS STEEL HEX HEAD BOLTS. THE BOX SHALL HAVE A "SELF-LOCATING" OR "FLOATING" THREADED INSERT MADE OF STAINLESS STEEL AND SHALL BE REPLACEABLE. COVER SURFACE SHALL BE SKID RESISTANT AND SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.50.

IDENTIFICATION "TRAFFIC" SHALL BE PERMANENTLY MOLDED ON THE TOP SURFACE OF THE PULL BOX COVER.

THE BOX SHALL BE WIDER AT THE BASE FOR STABILITY AND TAPERED INWARDS TOWARD THE TOP. THE BOX SHALL BE PROVIDED WITH A BOTTOM FLANGE AT LEAST 1-1/4" WIDE TO PREVENT SETTLING IN FIRM SOIL WHEN SUBJECTED TO SPECIFIED LOADS. TOP REGION OF THE BOX SHALL BE CONFIGURED TO PROVIDE "KEYING IN" TO LOCK THE BOX IN CONCRETE WHEN INSTALLED IN SIDEWALKS.

IF IT IS NECESSARY TO MAKE CONDUIT ENTRY HOLES IN THE FIELD, IT SHOULD BE POSSIBLE TO DO SO WITH A SIMPLE TOOL SUCH AS A WOOD HOLE CUTTING SAW.

NOTE: THE EXACT LOCATIONS OF PULL BOXES ARE TO BE STAKED AND CHECKED BY THE ENGINEER PRIOR TO PLACEMENT TO VERIFY CLEARANCE OF UNDERGROUND FACILITIES AND ANY ABOVE GROUND OBSTRUCTIONS. IF THERE ARE ANY CONFLICTS, THEY ARE TO BE ADJUSTED AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS IS INCIDENTAL TO ALL 625 ITEMS.

UNDERDRAINS FOR PULL BOXES

UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER. AND SHALL BE PROVIDED WHEN THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 12.2 METERS(40'). AN ESTIMATED QUANTITY OF 400 METERS OF ITEM 603, 100MM(4") CONDUIT TYPE E, IS INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

ITEM 632 - SIGNAL SUPPORT, TYPE TC-81.20 OR TYPE TC-12.30, AS PER PLAN

SIGNAL POLES AND MAST ARMS SHALL COMPLY WITH 732.11, EXCEPT THAT THE POLES SHALL BE SINGLE SECTION TRUE CONTINUOUS TAPERED TUBES, AND MAST ARMS SHALL BE ONE OR TWO SECTION TRUE CONTINUOUS TAPERED TUBES, AS SHOWN ON STANDARD CONSTRUCTION DRAWING TC-81.20. THE USE OF STRAIGHT SECTIONS WITH A TAPER EFFECT ACCOMPLISHED BY THE USE OF REDUCERS WILL NOT BE PERMITTED.

PEDESTRIAN SIGNAL HEAD BRACKET ARMS SHALL BE ATTACHED TO THE POLES BY UTILIZING 38MM (1-1/2") BLIND HALF COUPLINGS WELDED INTO THE POLE PRIOR TO GALVANIZING. FIELD INSTALLATION OF WIRING HOLES FOR PEDESTRIAN SIGNALS AND PUSH BUTTONS WILL NOT BE PERMITTED.

PAYMENT FOR "ITEM 632 - SIGNAL SUPPORT, TYPE TC-81.20, AS PER PLAN" OR "ITEM 632 - COMBINATION SIGNAL SUPPORT, TYPE TC-12.30, AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH.

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, POLES, MAST ARMS, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE STORED ON THE PROJECT FOR REUSE OR FOR SALVAGE BY THE CITY OF EASTLAKE, IN ACCORDANCE WITH THE LISTING GIVEN HEREIN. ANY ITEMS NOT DESIGNATED FOR REUSE OR SALVAGE, AND/OR ANY ITEMS NOT SALVAGED BY THE MUNICIPALITY BY THE COMPLETION DATE SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE.

ITEMS FOR DISPOSAL BY THE CONTRACTOR:

- 1) CABLE AND MESSENGER WIRE
- 2) WOODEN POLES BEING REPLACED
- 3) SIGN POSTS BEING REPLACED
- 4) HARDWARE
- 5) PULL BOXES

ITEMS TO BE STORED AND PICKED UP BY THE CITY OF EASTLAKE

- 1) CONTROLLER CABINETS, BACK PANELS, LOAD RELAYS AND TIMERS
- 2) PEDESTRIAN SIGNALS NOT BEING REUSED ON THE PROJECT
- 3) VEHICULAR SIGNALS NOT BEING REUSED ON THE PROJECT
- 4) EXISTING METAL MAST ARM AND METAL STRAIN POLES
- 5) PEDESTRIAN PUSH BUTTONS NOT BEING REUSED ON THE PROJECT
- 6) FLAT SHEET SIGNS BEING REPLACED

ITEM 632 - REUSE OF TRAFFIC CONTROL ITEM

QUANTITIES HAVE BEEN INCLUDED IN THE PLANS FOR REUSE OF VARIOUS TRAFFIC CONTROL ITEMS PER ODOT SPECIFICATION 632.26. ITEMS INDICATED FOR REUSE ARE AS FOLLOWS:

- CONTROLLER (INSTALL IN NEW CABINET)
- CONFLICT MONITOR
- LOOP DETECTOR UNIT
- PEDESTRIAN SIGNAL HEADS
- VEHICULAR SIGNAL HEADS

ITEM 633 - CONTROLLER WORK PAD

REFERENCES TO ITEM 608 102MM(4") CONCRETE WALK FOR CONTROLLER WORK PADS ON THE STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS REFERENCES TO ITEM 633 CONTROLLER WORK PAD.

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958, AND 961 ON THE STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731 AND 733.

ITEM 632 AND 633: TRAFFIC SIGNAL PERFORMANCE PERIOD

THE TRAFFIC SIGNAL EQUIPMENT INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A TRAFFIC SIGNAL PERFORMANCE PERIOD OF 90 DAYS FOLLOWING THE SUCCESSFUL COMPLETION OF THE 10-DAY PERFORMANCE TEST SPECIFIED IN 632.27.

DURING THE TRAFFIC SIGNAL PERFORMANCE PERIOD, THE CONTRACTOR SHALL PERFORM ALL WORK, PROVIDE ALL EQUIPMENT NECESSARY AND REPLACE ALL DEFECTIVE MATERIAL IMMEDIATELY IN CORRECTING AN UNSATISFACTORY OPERATION AT NO ADDITIONAL COST TO THE OWNER.

THE FOLLOWING ITEMS OF THE TRAFFIC SIGNAL SYSTEM ARE COVERED BY THIS PROVISION: CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTION ITEMS, INTERCONNECTION ITEMS, MASTER CONTROL EQUIPMENT, COMPUTERS AND SOFTWARE.

CUSTOMARY MANUFACTURER GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

PAYMENT FOR THE COST OF THE TRAFFIC SIGNAL PERFORMANCE PERIOD SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR THE VARIOUS ITEMS MAKING UP THE SYSTEM.

CONSTRUCTION COORDINATION

THE INSTALLATION OF TRAFFIC SIGNAL EQUIPMENT INSTALLED AS PART OF THIS CONTRACT SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE DAMAGE TO THE PROPOSED PAVEMENT, DRIVEWAYS OR SIDEWALKS. PROPOSED CONDUIT SHALL BE INSTALLED PRIOR TO PLACEMENT OF FINAL PAVEMENT. ALL TRENCHING OPERATIONS SHALL BE PAID FOR AS UNCLASSIFIED TRENCH.

SIGNALIZATION, MISC.: RECONNECT EXISTING WIRING TO EXISTING EQUIPMENT VINE STREET/S.R. 91 INTERSECTION

THE INTERSECTION IS BEING MODIFIED TO ADD RIGHT TURN LANES FOR NORTHBOUND AND SOUTHBOUND TRAFFIC. THE INTENTION OF THE SIGNAL MODIFICATION PLAN IS TO REUSE SIGNAL EQUIPMENT THAT DOES NOT CONFLICT WITH THE PROPOSED CONSTRUCTION. EXISTING CONDUIT SHALL BE CLEANED AND SIGNAL WIRE SHALL BE REMOVED AND REPLACED AS NECESSARY TO PERMIT MODIFICATIONS TO THE SIGNAL SYSTEM.

A LUMP SUM ITEM HAS BEEN INCLUDED TO RECONNECT EXISTING WIRING TO EXISTING EQUIPMENT. THIS SHALL INCLUDE ALL TOOLS, MATERIAL AND LABOR NECESSARY TO RECONNECT ALL EXISTING WIRING NOT INDICATED FOR REPLACEMENT IN THE SIGNAL PLANS. WIRING SHALL BE RUN THROUGH THE COMPLETED SYSTEM OF PULL BOXES, EXISTING CONDUIT AND NEW CONDUIT. NO SPLICES SHALL BE PERMITTED IN THE EXISTING WIRING. ANY WIRING DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

ITEM 630 - SIGN, DOUBLE FACED, STREET NAME, AS PER PLAN

ALL DOUBLE FACED STREET SIGNS SHALL UTILIZE REFLECTIVE SHEETING GREEN (RSG) BACKGROUND.

ITEM 632 - INTERCONNECT CABLE, 6 PAIR, No. 19 AWG, SOLID, RFA (PE-39), AS PER PLAN

INTERCONNECT CABLE SHALL BE SUITABLE FOR UNDERGROUND INSTALLATION. SPLICING OF INTERCONNECT CABLE IS NOT PERMITTED OTHER THAN IN CONTROLLER CABINETS.

ITEM 632 - SIGNALIZATION MISC.: FOUNDATION TEST HOLES

IF UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED THAT PRECLUDE USE OF THE STANDARD OR ALTERNATE FOUNDATION DESIGNS, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH COMPLETE INFORMATION REGARDING THE OBSTRUCTION INCLUDING TYPE (I.E. UTILITY), SIZE, DEPTH AND LATERAL CLEARANCES TO THE SIDES OF THE FOUNDATION EXCAVATION. THE FOUNDATION HOLE SHALL BE COVERED WITH A STEEL PLATE (3/4" PLYWOOD IN PEDESTRIAN ACCESSIBLE AREAS) UNTIL THE ENGINEER DETERMINES IF A NEW FOUNDATION LOCATION WILL BE REQUIRED. IF SUBSEQUENTLY DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL BACKFILL AND COMPACT THE HOLE AND RESTORE THE SURFACE AS DESCRIBED IN "RESTORATION OF DISTURBED AREAS."

THE CONTRACTOR SHALL BE COMPENSATED FOR EACH FOUNDATION HOLE THAT MUST BE ABANDONED. PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING BACK FILL COMPACTING AND SURFACE RESTORATION, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR ITEM "632 - SIGNALIZATION MISC.: FOUNDATION TEST HOLES" FOR THE NUMBER EXCAVATED AND BACKFILLED. THE FOLLOWING QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
632	8	EA.	SIGNALIZATION MISC.: FOUNDATION TEST HOLES

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

- A) NEW SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.
- B) EXISTING SIGNAL INSTALLATIONS OR DEVICES, INSTALLED OR MODIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME THE WORK BEGINS UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE CITY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR (4) HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. THE SIGNAL SHALL BE BACK IN SERVICE WITHIN EIGHT (8) HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE OR MALFUNCTION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION, THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT, THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR THE CITY FOR POLICE SERVICE AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONEYS DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM.

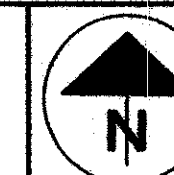
ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING, WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN SECTION 632.24.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

- 1. TIME OF NOTIFICATION OF MALFUNCTION;
- 2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
- 3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
- 4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
- 5. A TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.



CALC. BY:
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TRAFFIC CONTROL GENERAL NOTES

LAK-640-2865 (1.78)