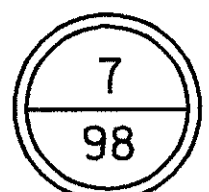


TRAFFIC CONTROL NOTES

CALC. BY: _____ DATE: _____	LAKE COUNTY LAK-20-2.70	OHIO	
CHKD. BY: _____ DATE: _____		FHWA 5 REGION	
		FEDERAL	
		PROJECT	

12. ITEM 632.27 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS IS MODIFIED AS FOLLOWS:

- A. PART 5, FUNCTIONAL TEST, SHALL HAVE THE FOLLOWING REQUIREMENTS ADDED:
- ALL HARDWARE, SOFTWARE AND PERFORMANCE FUNCTIONS REQUIRED IN THE SPECIFICATIONS SHALL BE INDIVIDUALLY DEMONSTRATED TO THE ENGINEER BY THE CONTRACTOR TO ASSURE COMPLIANCE AND TO SHOW THAT THE SYSTEM IS COMPLETELY FUNCTIONAL AND READY FOR SERVICE.
 - TRAINING SHALL HAVE BEEN PROVIDED TO CITY REPRESENTATIVES IN THE MANNER REQUIRED AND SHALL BE COMPLETED

B. PART 6, PERFORMANCE TEST (10 DAYS TEST) SHALL BE MODIFIED ONLY AS FOLLOWS:

- THE LIST OF MAJOR MALFUNCTIONS IN 632.07-6 SHALL BE EXPANDED TO INCLUDE:
 - FAILURE OF LOCAL CONTROLLER TO CONTROL TRAFFIC SAFELY AND IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
 - FAILURE OF THE MASTER CONTROLLER (WITH SYSTEM MONITOR) TO CORRECTLY SUPERVISE AND CONTROL THE SYSTEM, OR TO ACCEPT AND PROCESS TRAFFIC DATA FROM THE FIELD OR TO PROPERLY REPORT SYSTEM STATUS AND MALFUNCTIONS.
 - FAILURE OF MORE THAN TWO INTERSECTIONS, IN ANY 24-HOUR PERIOD, TO FUNCTION COMPLETELY IN THE MANNER CALLED FOR IN THE SPECIFICATION WITHOUT LOSS OF COMMUNICATION OR REVERTING TO STANDBY OPERATION.
 - FAILURE OF ANY SINGLE INTERSECTION MORE THAN 3 TIMES DURING A 5 DAY PERIOD TO FUNCTION COMPLETELY IN THE MANNER CALLED FOR IN THE SPECIFICATION WITHOUT LOSS OF COMMUNICATION OR REVERTING TO STANDBY OPERATION.
 - A SOFTWARE ERROR WHICH CAUSES THE SYSTEM TO CEASE TO OPERATE THE TRAFFIC CONTROL SYSTEM OR CAUSES AN UNSAFE CONDITION ON THE STREET.
 - THE APPEARANCE OF ANY PROBLEM WHICH, IN THE OPINION OF THE ENGINEER, HAS A SIGNIFICANT EFFECT UPON THE RELIABILITY, SAFETY OR OPERATION ON THE SYSTEM.
- DURING THE 10-DAY PERFORMANCE TEST THE ENGINEER OR THE TRAINED REPRESENTATIVES OF THE CITY, SHALL EXERCISE THE SYSTEM AND DOCUMENT THE PERFORMANCE OF ALL SPECIFIED FEATURES, AND ANY OTHER EVENTS WHICH COULD BE EXPECTED TO OCCUR IN AN OPERATIONAL TRAFFIC CONTROL SYSTEM INCLUDING THE SIMULATION OF FAILURES.

PAYMENT FOR 633 CENTRAL OFFICE MONITOR WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH CENTRAL OFFICE MONITOR IN PLACE AND FULLY OPERATIONAL AS SHOWN IN THE PLANS.

ITEM 625 PULL BOX, AS PER PLAN

- SIZE:
- BOX - 13" x 24" x 18" DEEP (NOMINAL)
BOX TO TAPER OUTWARD FROM TOP TO THE OPEN BOTTOM
INSIDE BOTTOM DIMENSIONS 20"W x 29 1/2"L MINIMUM.
- COVER - 13 3/4" x 23 1/4" x 2" OVERALL HEIGHT.
WT: 50 LBS
- BOLTS - BOLTS AND THREADED INSERTS SHALL BE STAINLESS STEEL.
- LOAD CAPACITY: 15,000 LBS. ON A 10"x10" AREA TESTED IN ACCORDANCE WITH WESTERN UNDERGROUND COMMITTEE GUIDE 3.6 COVER DEFLECTION TO BE LESS THAN 1/2" AT DESIGN LOAD AND SHOW NO SIGNS OF DAMAGE AFTER 10 CYCLES AT DESIGN LOAD.

MATERIAL AND CONSTRUCTION:

- BOX - THE BODY SHALL BE MADE OF FIBERGLASS REINFORCED POLYMER (FRP) WITH ISOPHTHALIT POLYESTER USING THE SPRAY-UP AND ROLL CONSTRUCTION METHOD. 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 1900 PSI. THE RING SHALL HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL. THE THREADED INSERTS (2) FOR THE COVER BOLTS SHALL BE STAINLESS STEEL.
- COVER - 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" AND HAVE A NON-SKID SURFACE AND THE SAME UV RESISTANCE AS THE FRP MATERIAL. TWO RECESSED HEX HEAD STAINLESS STEEL BOLTS AND WASHERS SHALL BE USED TO SECURE THE COVER TO THE BOX.
- CONDUIT OPENINGS - OPENINGS IN THE SIDE OF THE PULL BOX WHICH ARE REQUIRED IN ORDER TO INSERT CONDUIT (INTO THE PULL BOX) SHALL BE DRILLED OR SAWED IN THE FIELD, ONCE THESE LOCATIONS HAVE BEEN DETERMINED. THE OPENING SHALL NOT EXCEED THE CONDUIT OUTSIDE DIAMETER BY MORE THAN FIVE (5) PERCENT. ALL OPENINGS IN THE PULL BOX SHALL BE THOROUGHLY GROUTED WITH CEMENT MORTAR AFTER PLACING OF THE CONDUIT.

630 SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN

SIGNS MOUNTED ON PROPOSED SIGNAL MAST ARMS SHALL BE RIGIDLY ATTACHED TO THE ARM, CENTERED VERTICALLY WITH THE ARM. THE CONTRACTOR MAY USE THE METHOD OF ATTACHMENT SHOWN IN STANDARD CONSTRUCTION DRAWING TC-16.20 OR ANOTHER ALTERNATE METHOD AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL INSURE THE SIGN FACE IS MOUNTED PERPENDICULAR (90°) TO THE DIRECTION OF TRAFFIC. THE COST OF ALL MATERIALS, LABOR AND EQUIPMENT NECESSARY TO ERECT ONE SIGN AS STATED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID EACH FOR ITEM 630-SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN.

633 CONTROLLER ACTUATED, BY PHASE, SOLID STATE, DIGITAL MICROPROCESSOR, MODEL: TRANSYT 1880 EL, (WITH INTERNAL TRANSCEIVER MODULE), -ALTERNATE BID

THE CONTROLLER SHALL BE A MODEL: TRANSYT 1880EL WITH INTERNAL TRANSCEIVER MODULE AS MANUFACTURED BY TRANSYT AND SHALL INCORPORATE OR BE FURNISHED WITH ALL THE DESIGN FEATURES, AUXILIARY EQUIPMENT, ACCESSORIES, AND PREWIRED CABINET FEATURES AS REQUIRED IN THE STANDARD BID ITEM.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH, IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED AND ACCEPTED.

633 CONTROLLER ACTUATED, SOLID STATE, DIGITAL MICROPROCESSOR, TRAFFIC RESPONSIVE MODEL: TRANSYT 3800EL - ALTERNATE BID

THE CONTROLLER SHALL BE A MODEL: TRANSYT 3800EL MASTER AS MANUFACTURED BY TRANSYT AND SHALL INCORPORATE OR BE FURNISHED WITH ALL THE DESIGN FEATURES, AUXILIARY EQUIPMENT AND ACCESSORIES AS REQUIRED IN THE STANDARD BID ITEM.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH, IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED AND ACCEPTED.

REMOVAL ITEM CHART

DESCRIPTION OF THE ITEMS TO BE REMOVED BY THE CONTRACTOR	ITEMS TO BE STORED FOR THE CITY OF WILLOUGHBY	ITEMS TO BE DISPOSED OF BY THE CONTRACTOR
ALL CONTROLLERS W/CABINETS ALL ACCESSORIES	X	
ALL SIGNAL HEADS	X	
MESSENGER WIRE AND SIGNAL CABLE		X
EXISTING SIGNAL POLES (WOOD)		X
EXISTING PEDESTALS	X	
SPAN WIRE MOUNTED SIGNS		X
PEDESTRIAN SIGNAL HEADS AND PUSHBUTTONS	X	