

GENERAL NOTES

XIX - CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATION (Cont'd)

Payment for Item 816 "Concrete for Controller and Pedestal Foundation" shall be made per cubic yard for each foundation constructed in accordance with the typical foundation details and shall include concrete, excavation and backfill.

XX - PULL BOX, CIRCULAR 713.09, AS PER PLAN

Pull boxes shall be circular with a 12" gravel drain below the bottom of pull box using gravel.

Pull boxes shall be furnished without airbells.

Maximum spacing between pull boxes not stationed on the plans shall be 200 feet.

The pull box cover shall have the words "Traffic Control" in the surface in accordance with Specification 713.08.

Payment for Item 625 "Pull Box, Circular, 713.09 as per plan" shall be made for each pull box installed and shall include the circular pull box, pull box lid, 12 inch gravel drain and all excavation and backfill.

XXI - MESSENGER WIRE, 7 STRAND, BY SIZES WITH ACCESSORIES

Messenger wire shall be aluminum clad steel meeting ASTM designation A474-68. It shall consist of 7 strand (Breaking Load 11,500 #) #8 AWG. Aluminum clad steel lashing rods shall tightly secure the signal cable to the messenger wire. Wet-porcelain strain insulators (600 volt), guy clamps, and aluminum clad pre-formed guy grip dead ends with a rated loading strength equal to or greater than the breaking load of the messenger wire shall be installed as shown on the plans or as specified by the Engineer. The messenger wire shall be installed so that the entire load of the signal equipment will not cause sag to exceed a maximum of 5% or a minimum of 3%.

Payment for Item 816 "Messenger Wire, 7 Strand, By Sizes with Accessories" will be made at the contract unit price per lineal foot completely assembled in accordance with the typical signal installation details and shall include messenger wire, lashing rods, strain insulators, guy clamps, dead ends and any equipment shown on the detail and shall include cable clamps and suspension fittings for each signal head.

XXII - PEDESTRIAN PUSH BUTTONS WITH SIGNS

Push buttons shall be of two piece construction, consisting of a housing and a removable cover plate assembly. The cover plate assembly shall attach to the housing with stainless steel or non-ferrous machine screws. The cover plate assembly shall consist of one set of normally open contacts and all the necessary mechanical and electrical components required for the operation of the pedestrian push button. The housing shall have a single one-half inch conduit threaded opening (top or bottom). The cover plate and housing will consist of a cast aluminum alloy material. All cast metal parts shall have a tensile strength of not less than 17,000 pounds per square inch. The alloy used shall be S-SA or CS-72A of ASTM Specification B-26-60T. Only metal components will be permitted on the outside of the push button. The push button shall be waterproof and designed for rugged operation.

XXIII - PEDESTRIAN PUSH BUTTONS WITH SIGNS (Continued)

Pedestrian push buttons installed on steel signal poles and on pedestrian signal pole units shall be serviced by cables inside the poles. The Contractor shall drill the proper size holes in the steel poles in back of the push button, install an insulated bushing, and route the cable through to the push button so that the cable does not appear on the outside of the poles. All push buttons shall be installed with the center of the push button a height of 4'-0" above the ground. The push buttons shall be located on the side of poles as shown on the plans.

Over each pedestrian push button there shall be placed a suitable instruction sign containing the message "push button for walk signal" when installed with pedestrian signals and the message "push button for green light" when installed without pedestrian signals. The sign shall be constructed of heavy gauge steel or aluminum and shall be 9" wide by 12" high.

Signs and push buttons shall be oriented to face the crosswalk to which they apply.

Payment for Item 625 "Pedestrian Push Button With Sign" will be made at the contract unit price for each, completely assembled, mounted in place, tested and accepted.

XXIII - TESTING OF TRAFFIC SIGNALS

The Contractor shall furnish all personnel, equipment and appliances required to successfully test the completed installations.

The Contractor shall test and demonstrate to the satisfaction of the Engineer or his authorized representative, that the circuits are properly connected, continuous and free from short circuits, crosses and unspecified grounds, and that they are connected in accordance with the wiring instructions and that each circuit is operable correctly and independently of any other circuit.

The Contractor shall test each underground circuit and spare wires terminating at the traffic controller cabinet for resistance to ground. This resistance to ground shall be not less than ten (10) megohms. The Contractor shall furnish a complete report of all megohm readings of each circuit and spare conductors in cables appearing at the controller base. The ground rod at the traffic controller shall have a resistance of not more than 15 OHMS to ground.

After all circuits and spare conductors have been tested the Contractor will install the traffic controller and connect the field wiring to the terminal contacts of the traffic controller. The completed installation shall operate continuously for a period of ten (10) days without interruption or failure attributable to poor workmanship or defective material prior to acceptance and after any defective parts have been replaced and all faults corrected.

The Contractor shall have the responsibility of correcting malfunctions of the installation. Power for the test will be furnished from the service installed as a part of this contract. The cost of the power to conduct the test will be borne by the Contractor. Costs of conducting tests by the Contractor shall be included in the bid price for the item tested.

XXIV - TRAFFIC RESPONSIVE MASTER CONTROLLER

All component parts shall be of high quality, meeting the acceptable standards of good engineering practices. The controller shall operate satisfactorily between a temperature range of -35°F and 120°F.

Power:

The controller shall be designed to operate on a 120 volt, 60 cycle normal power supply.

The controller shall function satisfactorily at any voltage within plus or minus 10 per cent of the rated voltage.

Description:

The master controller shall act as a supervisor of the entire system of local controllers and shall act as the coordinating unit for the system supply a synchronizing signal for the offset circuit selected by master control. This signal occurs once per cycle and ensures that all secondary intersection controllers in the system remain in the proper offset relationship with the master.

The master controller shall be so designed as to encompass the following equipment:

Traffic Adjustment Section;
Three dial master coordinating unit;
Three dial offset interrupter;
Weekly programmer and time switch;
Master control panel lights and switches;
Free standing rack type cabinet.
ENCODERS AND DECODERS AND INTERCONNECT COMMUNICATION EQUIPMENT.

A) TRAFFIC ADJUSTMENT SECTION:

1) Design:

The controller shall be designed to efficiently direct the operations of a number of interconnected intersection controllers. The controller shall process traffic flow information supplied to its inputs by vehicle presence detectors. The processing shall result in the generation of two control parameters; congestion index and direction index. Congestion index, a direct measure of traffic demand on an artery, shall have the range of 0 to 100 percent, 0 percent representing no demand, 100 percent representing bumper to bumper traffic. Direction index, a measure of the directional balance of the measured traffic, shall have the range 0 to 100 percent, 0 percent representing a totally outbound flow, and 100 percent a totally inbound flow. The computed parameters shall be classified into discrete categories and shall be used to select system cycle length and offset. The output circuits associated with the selected categories shall be used to control the operation of associated coordinating units.

2) Operation:

The traffic adjustment section shall consist of two identical modules housed in a chassis with an integral power supply and shall operate in the following manner: