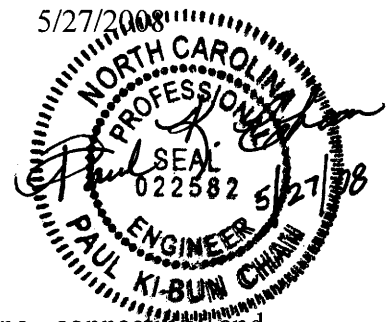


PROJECT SPECIAL PROVISIONS
Roadway Lighting



1.00 DESCRIPTION

The work covered by this section consists of furnishing, installing, connecting, and placing into satisfactory operating condition roadway lighting at locations shown on the plans. All work shall be performed in accordance with these Special Provisions, the Plans, the National Electrical Code, and North Carolina Department of Transportation "Standard Specifications for Roads and Structures" (Standard Specifications).

Install all bore pits outside clear zone as defined in 2002 AASHTO Roadside Design Guide or as directed by the Engineer.

All work shall be in conformance with Division 14 of the Standard Specifications except as modified or added to by these Special Provisions.

The following sections of the Standard Specifications listed below are applicable to the work on this project.

Section 1400	Roadway Lighting
Section 1401	High Mount Standard and Portable Drive Unit
Section 1402	High Mount Foundation
Section 1403	High Mount Luminaires
Section 1405	Standard Foundation
Section 1407	Electric Service Pole and Lateral
Section 1408	Light Control System
Section 1409	Electrical Duct
Section 1410	Feeder Circuits
Section 1411	Electrical Junction Boxes

2.00 RELOCATE LIGHT STANDARDS

2.10 DESCRIPTION

The work covered by this section consists of providing all equipment, labor and materials necessary to move an existing light standard to a new foundation at locations shown on the plans. It also includes storage of materials to be reused, and removal of the existing foundation. It does not include the construction of the new foundation.

2.20 MATERIALS

Reuse existing materials, which include the light standard, breakaway device, arm, luminaire and branch circuit wiring. Shims and washers may be reused, but new anchor

bolts are required. Replace materials that are to be reused, if they are damaged during relocation. Damaged materials will be replaced with new materials, at no additional cost to the Department.

Provide new lamp in accordance with the Standard Specification Section 1400-2 (G).

Provide new breakaway fuses in accordance with the Standard Specification Section 1400-2 (E).

The Contractor is responsible to store and protect the reused materials against loss or damage.

2.30 CONSTRUCTION METHODS

Dismount the light standard from the existing standard foundation, reinstall it on a new foundation and reuse the existing breakaway device. Use rope or web slings when hoisting or lifting the light standard, to prevent damage or marking. If the light standards are to be stored between dismantling and reinstalling, provide proper transportation and supports to prevent warping. Provide protection to insure that the luminaire and circuitry will not be damaged by the elements.

Remove existing concrete light standard foundation. Dispose the removed concrete, reinforcing steel, and anchor bolts in waste areas furnished by the Contractor. Backfill the holes with suitable material and compact the material as required.

Abandon or remove the conductors and conduit as required by construction. Reconnect circuitry to the existing light standards as shown on the plans.

MEASUREMENT AND PAYMENT

The quantity of relocated light standards to be paid for will be the actual number which have been installed at proposed locations in a satisfactory manner and have been accepted by the Engineer.

Relocated light standards measured as provided above will be paid for at the contract unit bid price per each "Relocate Light Standard". Such price and payment will be considered full compensation for new lamp, new breakaway fuses, disconnecting circuitry, disassembly, transportation, storage, reassembly, and connection of circuitry, removal of foundation, disposing of concrete, backfilling, compaction and all incidentals necessary to complete the work.

Payment will be made under:

Relocate Light Standard Each

3.00 REMOVE HIGH MAST

3.10 DESCRIPTION

The work covered by this section consists of the removal of existing metal High Mast and concrete foundation at locations shown on the plans. The High Mast has four luminaires with a 100' mounting height and is attached to the foundation with anchor bolts. Salvage High Mast with luminaires and deliver to a D.O.T. warehouse.

3.20 MATERIALS

No materials are required for this work except such miscellaneous items as tape and terminal devices to dead-end circuits serving the High Mast.

3.30 CONSTRUCTION METHODS

Maintain operation of the existing lighting system until such time that it becomes in conflict with the actual construction work, or it becomes a hazard to traffic as determined by the Engineer.

The Contractor shall coordinate his work with the D.O.T. Traffic Services Supervisor to assure that circuits can be de-energized where and when necessary.

The Contractor shall conduct his work so that portions of the lighting system, which are not in conflict with construction, will be maintained in continuous nighttime operation.

Remove carrier ring, winch assembly, cables and luminaires from High Mast and deliver in good condition to a D.O.T. warehouse. Disassemble the High Mast pole and deliver to a D.O.T. warehouse.

Deliver all salvaged materials to the same D.O.T. warehouse. The Division Traffic Engineer will provide the exact location, name of person to contact and the time when delivery can be made.

Use rope or web slings to hoist and lift the High Mast to prevent damage. Provide proper blocking support to prevent warping. Protect all salvaged material from the elements. Provide materials, equipment and labor to transport and unload the removed materials.

Remove existing concrete High Mast foundation. Dispose the removed concrete, reinforcing steel, and anchor bolts in waste areas furnished by the Contractor. Backfill the holes with suitable material and compact the material as required.

Abandon or remove the conductors and the conduit for the removed High Mast as shown on the plans

3.40 MEASUREMENT AND PAYMENT

The quantity of removed High Mast to be paid for will be the actual number which have been dismantled from existing foundations and delivered to a D.O.T. warehouse in good condition and accepted.

The removed High Mast measured as provided above will be paid for at the contract unit price per each "Remove High Mast". Such price and payment will be considered full compensation for disassembly and delivery of the High Mast pole, carrier ring, winch assembly, cables and luminaires. It also includes the foundation removal, disposal and backfilling, compaction and all incidentals necessary to complete the work

Payment will be made under:

Remove High Mast.....Each

4.00 REMOVE CONTROL SYSTEM

4.10 DESCRIPTION

The work covered by this section consists of the removal of an existing lighting control system and concrete foundation.

The control system consists of electrical components mounted inside a stainless steel enclosure, a photo cell, a galvanized support pole, feeder circuits in conduit, a concrete foundation, and an electrical service pole and service lateral.

4.20 MATERIALS

No materials are required for this work except such miscellaneous items as terminal devices to seal openings in the stainless steel enclosure, after all conduits have been removed..

4.30 CONSTRUCTION METHODS

The existing lighting control system shall be left in operation until the new proposed lighting system can be used to maintain the normal nightly operation of the roadway lights.

The Contractor shall coordinate his work with the D.O.T. Traffic Services Supervisor to assure that circuits can be de-energized where and when necessary.

The Contractor shall conduct his work so those portions of the lighting system, which are not in conflict with construction, will be maintained in continuous nighttime operation.

The stainless steel enclosure shall be removed from its galvanized support pole, with all its internal electrical components intact. All conduit and wiring entering the enclosure shall be removed, and all resulting holes in the enclosure shall be sealed with stainless steel hole seals. The enclosure shall be delivered in good condition to a D.O.T. warehouse.

The photo cell shall be removed from the galvanized support pole and delivered in good condition to a D.O.T. warehouse.

The galvanized support pole, wood service pole, service lateral, conduit and wire shall become the property of the Contractor and shall be removed from the project or abandoned as approved by the Engineer.

The D.O.T. warehouse will be within 20 miles of the project and all salvaged materials can be delivered to the same location. The Division Traffic Engineer will provide the exact location, name of person to contact and the time when delivery can be made.

All hoisting and lifting shall be with rope or web slings fastened in such a manner as to prevent damaging or marking any of the salvaged materials. The Contractor shall provide proper transportation and supports so that salvaged materials will not be damaged, and he shall provide protection so that the electrical components and circuitry will not be damaged by rain, etc. He shall furnish equipment, labor, and blocking materials to unload and properly store all salvaged materials at the D.O.T. warehouse.

The Contractor shall remove existing concrete lighting control system foundation. Dispose the removed concrete, reinforcing steel, and conduits in waste areas furnished by the Contractor. Backfill the holes with suitable material and compact the material as required.

4.40 MEASUREMENT AND PAYMENT

The work covered by this provision will be paid for at the contract lump sum price for "Remove Control System".

Such price and payment will be considered full compensation for disassembly and delivery of the stainless steel enclosure and photo cell to the D.O.T. warehouse. It also includes the removal, disposal and backfilling associated with the concrete foundation, support pole and electrical service pole.

Payment will be made under:

Remove Control System.....Each

5.00 TRANSFORMER PANEL

5.10 DESCRIPTION

The work covered by this section consists of the construction and installation of an electrical transformer panel to step down roadway lighting circuit voltage (normally 480 VAC) for the operation of sign lights (normally 120/240 VAC).

5.20 MATERIALS

Provide conduit, conductors, ground rod and hardware in conformance with Section 1400-2 of the Standard Specifications for Roads and Structures.

Provide an enclosure for the transformer panel constructed of AISI #304 stainless steel and rated NEMA Type 3R. Use an enclosure with a panel for mounting components and a flange mounted operator handle to prevent the opening of the door with the service circuit breaker in the ON position, except by use of safety override devices. Key padlocks alike for all transformer panels. Provide a door containing a continuous hinge from top to bottom, a print pocket and a two-point, roller latch, door closing mechanism. Use stainless steel mounting flanges as an integral part of the basic enclosure. Size as shown on the plans.

Provide only the openings necessary for the entrance of conduits as shown on the plans. Do not use knockouts. Provide waterproof hubs for all conduit entrances. Use an enclosure in conformance with NEC Article 312, and mount the devices so the NEC clearances will be provided except use 1 1/2" where "not specified" is noted in the tables for minimum wire bending space.

Provide louver plate kits formed from AISI #304 stainless steel and an inside bracket with a replaceable aluminum filter. Size louver plate kits as shown on the plans.

Use a primary circuit breaker with an RMS symmetrical amperes interrupting rating of 18,000 amperes minimum. Use a breaker that is a thermal magnetic molded case permanent trip type unit. Provide solderless box lugs of the appropriate size. Use insulating material approved for NEMA 3R applications. Use a breaker with a voltage and amperage rating as indicated on the plans.

Provide a transformer that is dry type enclosed with at least two (2) 5% taps below normal full capacity (BNFC) and kilovoltampere (KVA), primary voltage, and secondary voltage ratings as shown on the plans.

Provide a surface mount secondary breaker panel rated as service entrance equipment, with breaker handles protruding through the front cover, neutral bar, and main lugs. Size and rate the breaker panel to accommodate the number of breakers shown on the plans. Use branch circuit breakers with visible trip indicators that are rated (SWD), for switching of high intensity discharge (HID) lighting systems.

Provide two Class T fuses in a 2-pole fuse block with box lug connections and a fuse puller.

5.30 CONSTRUCTION METHODS

Use construction methods in conformance with Section 1400-4 of the Standard Specifications for Roads and Structures. Secure the transformer panel to the sign support by means of a galvanized threaded rod assembly as shown on the plans. Make all cuts square and remove all rough edges.

Use insulating bushings for all wiring entrances into the transformer and secondary circuit breaker panel. Neatly route, bundle and identify all wiring. Place the fuse puller in the enclosure. Coat all raw cut metal with zinc rich paint.

5.40 MEASUREMENT AND PAYMENT

The quantity of transformer panels to be paid for will be the actual number of transformer panels which have been installed and accepted.

The quantity of transformer panels measured as provided above will be paid for at the contract unit price each for "Transformer Panel, __KVA." Such price and payment will be full compensation for all work to furnish and install the panel complete with transformer, circuit breakers, conduit, wire, ground rod, mounting hardware and all connections for an operative system.

Payment will be made under:

GENERIC LIGHTING ITEM
(TRANSFORMER PANEL, 3KVA).....Each