

ITEM 10599.2011 M - REMOVE, RELOCATE AND REINSTALL WARNING GATES

DESCRIPTION

Under this item, the Contractor shall disconnect, remove, relocate and reinstall all the warning gates. The relocation of the warning gates shall be done according to the stages of construction and will require several arm length adjustments. The work shall include all labor, materials, equipment and necessary coordination with the construction stages to ensure relocation and proper operation of the warning gates as shown in the plans and specified herein.

The following related work is included and paid under separate item numbers:

1. The removal of existing conduits and junction boxes, Item No. 10670.9412 M - **Remove Wiring, Conduits and Junction Boxes.**
2. Temporary wiring for the warning gates, Item No. 10670.9521 M - **Install and Remove Temporary Wiring.**
3. The installation of new conduits, Item Nos. 670.2305 M and 670.2306 M - **P.V.C. Coated Galvanized Steel Conduit** of the Standard Specifications, Section 723-23.
4. The installation of new wiring, Item No. 670.7006 M - **Single Conductor Cable** of the Standard Specifications, Section 723-70.
5. The installation of new junction boxes, Item No. 670.40 M - **Cast Iron Junction Boxes** of the Standard Specifications, Section 723-40.

MATERIALS

Unless otherwise indicated on the plans, the relocation of the warning gates shall include the existing warning gate housings, new arms, mounting hardware, and temporary wiring. Products such as warning gate arms, incorporated in the work shall be furnished by the manufacturer of the existing warning gates. Drawings and specifications for the existing warning gates will be available through the Atlantic Beach Bridge Authority.

Each new gate arm (roadway arm) shall be a fiberglass unit. The arm shall be braced to resist wind load without excessive vibration. Each arm assembly shall be designed for a 75 MPH wind, acting horizontally in any position of the roadway arm. Roadway arms shall be designed to be frangible in order to avoid damage to gate housing and offset pivot arms when impacted by a vehicle.

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Length of the roadway arms shall be determined in the field, depending on the total width of lanes in use during the stages of construction. For each stage of construction, the Contractor shall determine the temporary location of each gate, the total width of active northbound and southbound lanes before ordering the corresponding roadway arm.

Roadway arms shall be adequately protected during shipment and storage awaiting installation to prevent damage.

The Contractor shall provide the Engineer with a written guarantee for each installed roadway arm. This guarantee shall provide for the satisfactory in-service operation of each roadway arm for a period of six months.

All mounting hardware shall be stainless steel and in accordance with the requirements under subsection 715-16 of the NYSDOT Standard Specifications. They shall be securely tightened to prevent loosening by the wind. The warning gate assembly temporary wiring shall be in accordance with the specifications under item number 10670.952 M.

CONSTRUCTION DETAILS

A. Submittals

Catalog cuts shall be submitted for all components that are standard manufactured catalog items. Each catalog cut shall clearly identify the component and its use and include all electrical ratings, dimensions, industry standards and codes complied with, and any other applicable information or data which will determine its compliance with the plans.

B. Shop Drawings

The Contractor shall prepare and submit complete shop drawings executed in accordance with the NYSDOT Steel Construction Manual. Shop drawings shall include the following:

1. Assembly and erection drawings of the warning gates at their temporary and permanent locations.
2. Dimensioned locations of all warning gates and associated new roadway arms.
3. Temporary and permanent wiring details of gate electrical equipment. Wires shall suitably numbered for proper identification.

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4. Installation methods showing mounting details, fasteners, and required anchor bolts at temporary and permanent locations.
5. Drawings showing construction of the new roadway arms, including provision for guying, bracing and flashing lights.

C. Submittal Schedule

The Contractor shall submit the required catalog cuts and shop drawings for installation of the new roadway arms on the existing warning gates to the Engineer for review within 90 days after the date of award of Contract.

Prior to the beginning of any work, the Contractor shall submit to the Engineer a detailed schedule of work operation. This schedule shall be complete and include the expected percentage of work to be completed within specific time frames. The Engineer may at any time require the preparation and submittal of the updated work schedule. Failure by the Contractor to submit such a document upon request will cause the progress payment procedure to terminate immediately.

D. Removal and Reinstallation

The removal of the warning gates shall be done according to the stages of construction:

Stage IA: The contractor shall disconnect and carefully remove the existing northwest and southwest warning gate assemblies, including roadway arms and mounting hardware, etc., from their existing locations. He shall reinstall the warning gates behind the temporary barrier where shown on Dwg. No. 1A (page 8 of this specification), have the new roadway arms with flashing lights attached and extend temporary wiring from the east side of the bridge to the gate electrical equipment. The same flashing lights used in stage IA can also be used in stages IB, II, IIIA and IIIB. The new arms shall cover the entire width of the temporary sidewalk.

The existing northeast and southeast warning gates shall remain in place with temporary wiring connected to the gate electrical equipment, including the flashing lights. New arms shall be furnished and installed to cover the entire width of the lanes in use. All gates shall be operational throughout the construction stage.

Stage IB: After satisfactory completion of stage IA construction, the Contractor shall disconnect, remove from behind the temporary barrier, and reinstall the northwest and southwest warning gates to their original locations. He shall keep

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the roadway arms used in stage IA to cover the width of the permanent sidewalk. He shall rewire the gate electrical equipment with the permanent wiring in place. The northeast and southeast warning gates shall remain the same as in stage IA (See dwg. No. 1B on page 9 of this specification). The Contractor shall make sure that all four (4) warning gates are operational during this stage of construction.

Stage II: After stage IB is complete, the Contractor shall remove from the northwest and southwest warning gates the roadway arms used in stage IB and provide new roadway arms which will cover the total width of lanes in use. He shall also remove the roadway arms from the existing northeast and southeast warning gates and replace them with new shorter arms which will cover the two lanes in use.

In stage II, the new roadway arms for all the four (4) warning gates shall be about the same length. Each roadway arm will only cover a total width of two (2) lanes in use as shown on Dwg. No. 2 (page 10 of this specification). The Contractor shall verify that the operation of all gates is satisfactory.

Stage IIIA: The Contractor shall remove the four (4) gate arms used in stage II and reinstall their corresponding original roadway arms with flashing lights.

Stage IIIB: The Contractor shall disconnect and carefully remove the northeast and southeast warning gate assemblies including roadway arms and mounting hardware etc., from their existing locations. He shall reinstall the removed warning gates behind the temporary barrier where shown on Dwg. No. 3B (page 12 of this specification), and reattach roadway arms used in stage II. The northwest and southwest warning gates shall remain at their locations. Original roadway arms used in stage IIIA shall be removed and roadway arms used in stage II shall be reinstalled. He shall extend temporary wiring to the gate electrical equipment, including the flashing lights and verify satisfactory operation of all the gates.

Roadway arm lengths will vary depending on the total width of lanes in use to be covered. The Contractor shall verify where and if they are interchangeable before ordering more roadway arms than he may need.

Roadway arms and existing counterweights shall be rigidly bolted to the offset pivot arms. Each roadway arm shall be counterbalanced to be slightly counterweight heavy in the fully lowered position to assist in manually raising the gate in the event of power failure.

The outside surfaces of the roadway arm shall be coated with red reflective sheeting to

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provide alternate red and white stripes. The stripes shall be 406 mm wide measured parallel to the end of the gate arm. The stripes shall slope downward at an angle of 45 degrees toward the center line of the roadway. Sheeting shall be Class B high intensity reflective sheeting conforming to NYSDOT Standard Specifications, subsection 730-05, Reflective Sheeting. Touch-up paint in field after installation, as directed by the Engineer.

E. Tests

The Contractor shall perform all necessary field tests, as directed by the Engineer, to demonstrate that all the warning gates are in proper working order before removal and after reinstallation. Should the tests after reinstallation show that component, in the opinion of the Engineer, is defective or functions improperly, the Contractor shall make all adjustments or replacements as necessary to provide an installation working as required, at no additional cost to the State.

During field testing, the Contractor shall arrange to have at the job site a representative of the gate manufacturer. This representative shall be capable of supervising all roadway arm adjustments, field repairs and modification to the equipment, of locating faults or defects and correcting them, and obtaining from the manufacturer without delay new parts or replacements for equipment which does not perform in accordance with the specified requirements.

F. Spare Parts

The following spare parts shall be furnished and delivered to a bridge representative as directed by the Engineer:

One complete roadway arm including a complete set of flashing lights wired and terminated in a waterproof quick-disconnect plug.

Three (3) complete flashing lights.

Twelve (12) lamps for flashing lights.

Twelve (12) fuses for flashing lights.

All spare parts listed, except roadway arms, shall be packed in approved wooden boxes clearly marked to identify the contents. They shall be delivered to a bridge representative as designated by the Engineer.

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After satisfactory completion of stage IIIB construction, the Contractor shall relocate the northeast and southeast warning gates to their permanent locations where shown on the contract plans after removing the corresponding temporary wiring. He shall permanently rewire the gates. The original roadway arms shall be reinstalled on all warning gates with their flashing lights properly functioning.

The Contractor shall also retest all warning gates after being reinstalled in their original locations to ensure their being satisfactorily operated.

The installation and removal of temporary wiring shall be paid for under Item No. 10670.9521 M.

METHOD OF MEASUREMENT

This work will be measured on a lump sum basis for all gate relocations, the roadway arms furnished, installed, adjusted, tested and satisfactorily completed and for spare parts delivered.

BASIS OF PAYMENT

The price bid will include the cost of all labor, materials and equipment necessary to complete the work, and furnishing of spare parts and their delivery.

Monthly payments will be made under this item in proportion to the amount of work done as determined by the Engineer.