ITEM 602.210210 – REPAIR OF CULVERTS WITH CENTRIFUGALLY CAST CONCRETE (EMERGENCY STANDBY CONTRACT WORK)

DESCRIPTION
This work shall consist of repairing culverts with Centrifugally Cast Concrete in accordance with the contract documents and as directed by the Engineer.

MATERIALS
All provisions of 701-08 shall apply except as noted:
- Repair areas may be of any size designated on the plans.
- The 28 Day Compressive Strength (Table 701-08) shall be 6000 psi (min)

At least 1 month prior to commencing placement of the material a copy of the proposed mixture design and trial batch test results shall be provided to the Director of the NYSDOT Materials Bureau, submitted through the Regional Materials Engineer, for evaluation.

Data submitted shall include: the material mix proportions, material sources and source codes, and compressive strength at 7 and 28 days.

Multiple mix designs may be required to address performance and placement issues as deemed necessary by the contractor. Submit each mixture for evaluation, as indicated above, prior to use. Resubmit any proposed mixture design change to the Director, Materials Bureau, for approval.

CONSTRUCTION DETAILS
Provide the Engineer, a minimum of 10 days prior to starting of the work, a written proposal of how the work will be progressed. The proposal shall include dewatering of the pipe, the manufacturer’s written guidance, instructions, and specifications for the application process and any subsequent repair process.

Existing Pipe Preparation: Dewater, clean and inspect the existing pipe. Determine the location of and remove obstructions that may prevent proper application of the concrete. Inspect small inaccessible pipes, generally less than 48 inches in diameter, using a closed circuit television and camera to provide a visual inspection.

The invert of the culvert shall be prepared for the sole purpose of accommodating rehabilitation equipment. This may be accomplished with an approved cementitious product. Under no circumstances will the invert preparation procedures generate an inward, collapsing pressure on the pipe. The Contractor shall select a concrete or a grout that is compatible with the culvert lining material in accordance with the Manufacturer's recommendation. The material selection shall be submitted to the E.I.C. for approval by the Regional Materials Engineer prior to use.

Quality Assurance: Six 2-inch test cubes will be obtained at the start and six will be obtained at the end of each day’s placement for strength testing. The frequency of this testing may be reduced if satisfactory results are routinely achieved. During application a wet probe will be used to monitor the thickness of the material. The Engineer will reject any concrete represented by an average less than 6000 psi of the 28 day compressive strength for the 2-inch cubes, or an individual test specimen with a compressive strength less than 5400 psi. Test cubes shall be
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provided to the Director of the NYSDOT Materials Bureau, submitted through the Regional Materials Engineer, for evaluation.

All defects or damage to concrete which occurs prior to the final acceptance of the work shall be repaired or replaced at no additional expense to the State. The defects shall include but are not limited to spalling and irregular cracking at joints, edge spalls, honeycombing, and damage or other imperfections caused by traffic and/or construction operations.

METHOD OF MEASUREMENT
This work will be measured as the number of square feet determined by the pipe's interior circumference, as defined in the contract documents, multiplied by the length along the centerline of the pipe to the nearest square foot.

BASIS OF PAYMENT
The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. Include the cost of dewatering, cleaning, preparing the invert for rehabilitation equipment, and removal of any obstructions. The unit price bid shall also include the cost of mix design and the laboratory testing.

Payment for culvert repair under this item shall include the unit price bid and the measured quantity multiplied by the payment factor for the required lining thickness as per the special note "Item 602.21021001 - Repair of Culverts with Centrifugally Cast Concrete" in the contract proposal.