

ITEM 06555.13 M - GROUT CULVERT PIPE INSERT

DESCRIPTION:

This work shall consist of the in-place grouting of corrugated metal pipe within an existing culvert as shown on the plans.

The requirements of the work are such that the entire portion of the culvert cell which surrounds the culvert pipe insert shall be completely filled with grout for the full length of the culvert pipe insert.

MATERIALS:

Materials used for grout manufacture shall conform to the following requirements.

Portland Cement, Type 2	701-01
Flyash	711-10
Grout Sand	703-04
Water	712-01

The Grout Mix Design shall be proportioned by weight in accordance with the following one (1) cubic meter mix.

Cement	284 kg
Flyash	459 kg
Grout Sand	1156 kg

Slumps shall be between 140 mm and 200 mm.

The Contractor may propose an alternate mix design to the Materials Bureau for approval. Such a submission will not be cause for an extension of time as provided under Section 108-04.

Grouting equipment shall be capable of placing grout at all locations required by the plans. All equipment shall be approved by the Engineer at least five (5) working days prior to its intended use. A working demonstration of the pumping equipment's capability will be required as part of the approval procedure.

All grout shall be batched from an approved automated batch plant in accordance with the requirements of Subsection 501-3.02.

CONSTRUCTION DETAILS:

The Contractor may place the grout in accordance with the scheme shown on the plans, or may submit an alternate scheme to the Regional Construction Engineer for approval. Such a submission will not be cause for an extension of time as provided under Subsection 108-04. If the Contractor's plan is not approved, the scheme shown on the plans shall be used.

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Grout shall be transferred from the point of mixing to the points of deposition only by approved equipment. The grout shall be pumped in such a manner that:

1. The grout does not dilute or separate.
2. The pipe insert does not move.
3. The abutting ends of the pipe are not deformed.
4. All voids between the liner-pipe and existing culverts are completely filled.
5. The grout differential level between sides of the pipe does not exceed 300 mm.
6. The grout pressure can be varied to effectively move the grout against a head pressure of at least 70 kPa.

If it becomes necessary to change the rate of pumping, the pressure will be increased at a rate not to exceed seven (7) kPa per minute up to the required rate.

Agitation shall be continuous and shall be continued during shut-downs. If a shut-down equals or exceeds 15 minutes, the grout shall be recirculated through the pump and delivery lines. If required by the Engineer, the delivery lines shall be flushed clean of grout with clean water.

If in the opinion of the Engineer, the grout has begun to set in the agitator, pump, or lines, it shall not be placed regardless of reason.

After the grout is in place for three (3) days, the interior surface of the pipe shall be sounded by hammering and a minimum of four (4) ea 25 mm diameter drill holes shall be made at locations specified by the Engineer. The holes shall extend into the grout area. If any of the test holes show inadequate grouting, the failing test holes shall be regouted and a new hole made in the failing area. The grouting shall be accepted when the test holes all show acceptable grout filling has been done.

METHOD OF MEASUREMENT:

Grout filling will be measured by the number of cubic meters, based on truck delivery tickets, used to complete the work to the satisfaction of the Engineer. Deductions will be made for any waste as determined by the Engineer.

Quantities of grout used for regrouting will be measured for payment.

BASIS OF PAYMENT:

The unit price bid per cubic meter shall include the cost of furnishing all labor, material, and equipment to complete the work, including the necessary drilling and plugging of any necessary test holes.