

ITEM 02555.13 M - GROUT CULVERT PIPE INSERT

DESCRIPTION:

The 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 pipe insert shall be completely filled with grout for the full length of the culvert.

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

Grout Mix Design:

The Contractor shall provide a grout mix design that is appropriate for the liner material being used.

Slump 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 Subsection 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 shall place the grout in accordance with the procedure shown on the plans, or may submit an alternate procedure 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 procedure shown on the plans shall be used.

Grout shall be transferred from the point of mixing to the point of deposition using 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 culvert are completely filled.
5. The grout differential level between sides of the pipe does not exceed 300 mm.

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6. The grout pressure can be varied to effectively move the grout against a head pressure of at least 70kPa.

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

Agitation shall be continuous and shall be continued during all shut-downs. If a shut-down equals or exceeds 15 minutes, the grout shall be recirculated through the pump and 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.

If after the grouting operation has ceased the Engineer determines that the fill material used was less than the anticipated volume of the fill material, further evaluations may be necessary.

After the grout is in place for a minimum of three days, the interior surface of the pipe liner shall be sounded by hammering to determine if voids may be identified in the annular space. If voids are identified by sounding, the Engineer may order cores to be taken in those areas. If this exploration shows inadequate grouting has occurred those locations shall be regouted to the satisfaction of the Engineer.

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.

BASIS OF PAYMENT:

The unit price bid per cubic meter shall include the cost of furnishing all labor, materials, from work and plugging leaks, necessary to complete the work.