

## SECTION 271 STORMWATER MANAGEMENT POND

**271.01 Description.** This work consists of constructing the foundation, dam, reservoir, and emergency spillway for a stormwater management pond at the location shown on the Plans and as directed by the Engineer.

**271.02 Materials.** Borrow for stormwater management pond construction shall conform to the requirements of [Subsection 274.02](#). The types of soil required are as follows:

Foundation Cutoff	Clay Borrow, Type 1
Dam	Clay Borrow, Type 2

### CONSTRUCTION METHODS.

**271.03 Excavation.** The Contractor shall excavate for the stormwater management pond in reasonably close conformity with the lines and grades shown on the Plans or as directed by the Engineer. All suitable material removed as excavation shall be used in constructing the dam foundation and embankment before securing or hauling any borrow, or unless directed by the Engineer. Materials determined by the Engineer to be unsuitable for use in the dam foundation and embankment shall be deposited on slopes as directed by the Engineer or removed from the Project site and disposed.

If rock excavation, as defined in [Section 205](#), is necessary for construction of the stormwater management pond, it shall be paid for in accordance with [Section 205](#). The classification "Rock Excavation" shall not apply to soft disintegrated rock. This material is classified as normal excavation and is included in [Section 271](#).

**271.04 Dam Foundation and Reservoir Preparation.** The dam foundation and reservoir shall be cleared of trees, logs, stumps, roots, brush, boulders, sod, topsoil and rubbish. All surfaces under the foundation shall be graded to remove irregularities and shall be scarified parallel to the axis of the fill to loosen the soil a minimum of 2" (50 mm) in depth. The moisture content of the loosened material shall be controlled as specified in [Subsection 271.06](#).

The foundation area shall be kept free of standing water during placement of the material for the dam by approved dewatering methods. Exposed rock surfaces under the foundation shall be cleaned of all loosened earth material.

Test pits and other cavities shall be filled with compacted soil conforming to [Section 210](#).

Topsoil shall be stockpiled and used in the completed embankment and other areas as directed by the Engineer.

**271.05 Foundation Cutoff Trench.** The foundation cutoff trench shall be located under the dam centerline or as shown on the Plans. The foundation cutoff trench shall be keyed into the original ground extending down to a relatively impervious layer and up the abutment slope to at least the ten-year pool elevation. The foundation cutoff trench shall be excavated prior to placing the dam embankment. The cutoff trench shall extend a minimum of 4' (1.22 m) below the original ground surface or as indicated on the Plans. The trench shall have a minimum 4' (1.22 m) bottom width or be wide enough to accommodate the equipment used for excavation, backfill, and compaction. The side slopes of the cutoff trench shall be no steeper than 1:1.

**271.06 Dam Foundation and Embankment Placement and Compaction.** Fill shall not be placed until the required foundation preparation has been completed and the foundation excavation has been inspected and approved by the Engineer. Fill shall not be placed on frozen surfaces nor shall frozen materials be used in the fill.

If the surface of any layer becomes too hard, smooth or dry for proper bond with the next layer, it shall be scarified parallel to the axis of the dam to a depth of not less than 2" (50 mm) and brought to the optimum moisture content before the next layer is placed.

Fill material shall contain the optimum moisture to obtain the required density. If the material is too wet, it shall be allowed to dry or be removed. If the material is too dry, water shall be added and mixed with the soil until the optimum moisture content is met.

Fill material shall be placed beginning at the lowest area of the foundation and shall be brought up in 8" (200 mm) to 12" (300 mm) thick continuous, horizontal layers over the entire length of the fill. Compaction shall be obtained by approved rollers or compactors. Compaction or rolling shall start at the edges and progress towards the center of the embankment. Compaction shall continue until each layer of the full width is thoroughly and uniformly compacted to at least 90% of the laboratory maximum density on the same soil.

**271.07 Method of Measurement.** The quantity of stormwater management ponds will be measured as the actual number of cubic yards (cubic meters) of material excavated to construct stormwater management ponds. The volume will be computed by the method of average end areas and will be measured by cross-sections taken at regular intervals and at breaks in grade. All excavation, except topsoil, will be measured in its original position. Topsoil will be measured in its original position or in a stockpile excavation, at the discretion of the Engineer. Topsoil removed from fill areas may be stockpiled separately for the cross-sectioning or may be measured by cross-sectioning the area of removal before and after topsoil stripping is performed. No measurement will be made for materials excavated beyond or below the lines and grades shown on the Plans.

**271.08 Basis of Payment.** The quantity of stormwater management ponds will be paid for at the Contract unit price per cubic yard (cubic meter) of excavation. Price and payment will constitute full compensation for clearing, grubbing, and disposing of all obstructions, including all pipes within the limits of the work, not covered under any other Section; for excavating the foundation cutoff trench; for placing and compacting the foundation; for grading and compacting the dam; for excavating, grading, and shaping the reservoir and emergency spillway; for removing and disposing of all unsuitable material; for backfilling all areas from which unsuitable materials have been removed; for salvaging and stock piling topsoil for re-use; for removing and disposing of all material not otherwise provided for so that the stormwater management pond is completed in a neat and clean manner; for dewatering; and for all labor, equipment, tools, and incidentals required to complete the work.

The removal and final disposal of materials specified under other pay items is not included in this work.

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