

## **SECTION 212 UNDERCUT EXCAVATION**

**212.01 Description.** This work consists of excavation to correct unstable sub-grades and embankment foundations and the disposal of such excavated material.

**212.02 Materials.** All material removed in the work of undercut excavation will be classified unsuitable and shall be disposed of, unless otherwise directed.

### **CONSTRUCTION METHODS.**

**212.03 Equipment.** Equipment utilized in undercutting and backfilling operations shall be capable of removing and replacing the material within the area established by the Engineer. Equipment that will displace the underlying or adjacent material will not be permitted.

**212.04 Preparation.** When unstable subgrade or foundation conditions are encountered, all normal construction preparation procedures shall be performed to correct the unstable situation before undercutting will be considered. After performing these normal preparation procedures, the Contractor shall allow sufficient time to elapse to accurately judge the success of the preparation effort. These normal construction preparation procedures shall include, but are not limited to, cutting channels and ditches in order to lower the water table, grading to prevent excessive surface water from entering the subgrade or foundation materials, performing all reasonable efforts to correct the moisture content to within specifications, and using properly sized equipment in such a way that does not overload the subgrade or foundations. Interpretation of "normal", "sufficient", and "reasonable", shall be made by the Engineer.

In lieu of following the above established preparation requirements, or following the required construction methods, or waiting over a reasonable time for the environmental conditions to improve, the Contractor may elect to replace the subgrade or foundation material as a means of correcting instability.

**212.05 Undercutting.** When the Engineer determines that undercutting is required, the Engineer will direct the Contractor to remove the material from within defined areas to defined depths. Prior to backfilling, additional depths of undercutting below the original defined depth may be required in some areas as directed by the Engineer.

Upon acceptance of the undercut excavation, the area shall be backfilled and compacted in accordance with [Section 202](#), or as directed. The Contractor shall conduct undercut operations in a manner that will allow the Engineer to take necessary measurements, before any backfill is placed. No backfill material shall be placed in water unless approved.

Any area remaining unstable after backfilling shall be reworked in accordance with this Section. When such rework is required, the Contractor shall salvage and reuse as much of the previously placed backfill as possible. If the Engineer determines that an unstable subgrade or embankment foundation exists, the unstable condition within the affected limits shall be satisfactorily corrected.

**212.06 Performance Requirements.** The correction of an unstable condition shall result in a firm, unyielding foundation.

**212.07 Method of Measurement.** The quantity of undercut excavation will be measured in cubic yards (cubic meters) computed by the average end area method. When directed by the Engineer, the correction of an unstable subgrade or embankment foundation caused by in-place material not meeting the organic, gradation, density, or liquid limit requirement of Borrow Type F as described in [Section 209](#) shall qualify for measurement as undercut excavation. The correction of instability, as directed, not remedied by normal construction procedures nor by improved environmental conditions, both given reasonable time to establish

their effect, shall qualify for measurement as undercut excavation. Undercut areas that are re-excavated as directed by the Engineer and are not necessary as a result of the Contractor's methods of operation, will also be measured. The replacement of subgrade or foundation material, when elected by the Contractor in lieu of following normal construction preparation procedures described in [Subsection 212.04](#), will not qualify for measurement as undercut excavation.

**212.08 Basis of Payment.** The quantity of undercut excavation will be paid for at the Contract unit price per cubic yard (cubic meter). Price and payment will constitute full compensation for performing all preparation excavation; for correcting unstable subgrade or embankment foundation caused by the Contractor's methods, as determined by the Engineer; and for furnishing all labor, tools, equipment, and incidentals required to complete the work. However, the unit price bid for Undercut Excavation, as defined herein, shall not exceed 150% of the unit price bid per cubic yard (cubic meter) for the item Excavation and Embankment, where such item is a bid item. Prior to award, the Department shall delete from the Contract bid price for this item any portion which exceeds the limit set forth in this paragraph.

The material used for backfilling undercut areas will be paid under applicable Sections.

No compensation will be made for the replacement of subgrade or foundation material, when elected by the Contractor in lieu of following the normal construction preparation procedures described in [Subsection 212.04](#).

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