

DIVISION 4**STREET GRADING**4.01 Description:

Street grading shall consist of all the work including filling, excavating, and grading necessary for shaping the street to conform to the established grades and cross sections shown on the plans and as may be indicated on the site by stakes set by the Engineer. It shall include all the area of the pavement, curb and gutter, parkway, sidewalks, entrances to driveways and alleys, intersecting streets, and such adjacent property as may be necessary to construct needed side slopes of 1 on 4 minimum, or to such limits as indicated on plans. Clearing, grubbing, and removal of trees shall be as specified in Division 2.

Placing of fill required to replace material that may have been removed as part of the pavement removal, or to compensate for any difference in thickness between the old and new pavement or old and new street grades shall also be included in this item.

4.02 Construction Methods:4.02.01 Preparing Area for Fills – The following shall govern the preparation of fill area:

- (a) Where fills are to be made in areas containing trees, stumps, brush, shrubs, and other vegetation, the ground shall be prepared as described in Clearing and Grubbing. Fills shall not be started in such areas until the site has been inspected and approved by the Engineer.
- (b) Where embankments are to be constructed on existing slopes steeper than one (1) vertical to six (6) horizontal, steps with a horizontal dimension of not less than three (3') feet shall be formed in the slope before any of the embankment is placed.
- (c) Where existing roadways are to be covered with less than three (3') feet of fill, the surface shall be removed.
- (d) Where fills are to be constructed to a height of five (5') feet or less, the sod and topsoil shall be excavated and removed from the project.

4.02.02 Constructing Embankments – Embankments shall be constructed of sound earth, or of an approved compactable mixture of sound earth and stones not over three (3") inches in largest dimension within roadway. No boulders or broken concrete shall be placed within the embankment.

Materials to be used for embankments shall meet the requirements of Class II granular material as specified in Michigan Department of Transportation Specifications. The material shall be placed in successive layers six (6") inches to twelve (12") inches in depth for the full width of the embankment, and shall be deposited by operating the conveying equipment over the layer being placed. Each layer shall be thoroughly compacted by heavy-tread type equipment or by pneumatic-tired equipment. A combination of the above or other approved methods may be used. The operations of compacting shall be continued until each layer is satisfactorily compacted to its full width.

Frozen lumps shall not be placed within the embankment. During periods of continuous freezing weather when construction of the embankment in layers would result in deposits of frozen materials in the embankment, construction shall be postponed or modified as directed by the Engineer.

The embankment shall be compacted to a minimum density of 95% of the maximum unit weight in accordance with current Michigan Department of Transportation Specifications.

4.03 Excess Embankment:

Fill material required in excess of the excavated material used for embankment will be considered excess embankment. All such excess embankment material shall be subject to the approval of the Engineer or as stated in item.

4.03.01 Embankment – Embankment shall conform to material as described in 4.02.02 unless otherwise stated in the proposal.

4.04 Salvageable Material:

The Engineer reserves the right to direct the Contractor to haul any surplus earth and to pay the Contractor for such hauling. Any excess earth shall become the property of the City, and shall be disposed of as directed by the Engineer.

Any salvageable existing culverts, sewer pipe, castings, or other salvageable material which is uncovered by the operations of excavation and grading shall be salvaged by the Contractor and delivered by the Contractor to a site as designated by the Engineer. The removal and salvaging of such material shall be included in excavation or grading. The removal and satisfactory disposal of headwalls on culverts or sewers shall be considered included in street grading.

4.05 Method of Measurement:

Excess embankment shall be included in the street grading item in the proposal.

Construction of embankments will normally be included in street grading unless otherwise provided for in the proposal.

Measurement for street grading shall be in linear feet along the centerline of the street.

Street grading at intersections will be measured along the centerline of one street only and shall include all grading required within the right-of-way (as extended through the intersection) of that street. Street grading for an intersecting street which is not measured through the intersection, shall be limited to that portion of street lying beyond the right-of-way (as extended through the intersection) of the intersecting street.

Cul-de-sac streets shall be measured for street grading from the point where the centerline extended intersects the right-of-way line.

4.06 Basis of Payment:

The contract unit price per linear foot for "Street Grading" shall be payment in full for all work including filling, excavating, grading, and disposal of unsuitable material to prepare the area within the street right-of-way for surface improvements to established lines and grades.