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CITY OF WINDSOR

STANDARD SPECIFICATIONS

FOR

EARTH EXCAVATION (GRADING) AND STRUCTURAL REMOVAL

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FOR

EARTH EXCAVATION (GRADING) AND STRUCTURE REMOVAL

1. GRADING GENERAL

1.01 DESCRIPTION

The Contractor shall do all the excavation and grading within or without the limits of the street right-of-way, required in the construction of the roadway, side intersections, side entrances, road ditches, off-take ditches, detours, all outlets to structures, and hauling and placing of the excavated materials as specified on the contract drawings.

The Contractor shall not excavate materials until after the original cross-section measurements have been taken on the area. He will be advised by the Commissioner of Works within 48 hours of his request.

The Contractor shall perform all excavation operations in such a manner as to avoid the saturation by flooding of embankment materials and roadway foundation materials, either by providing effective surface drainage during all stages of the work, or in the case of sub-excavation and stripping operations where provision for surface drainage is not feasible, by placing the backfill materials as soon as practical following the excavation work.

All ice and snow shall be removed from any portion of the work either prior to or during any stage of ditching, stripping, excavation embankment construction, sub-excavation, and any other grading operation, whenever deemed necessary by the Commissioner of Works. Such removal of snow and ice shall be incidental to and included in the unit price bid for Earth Excavation.

All materials that are to be incorporated in the work shall be subject to test by the Commissioner of Works to determine their suitability for the portions of the work in which they are to be placed. Such tests may consist of chemical or physical analysis to determine the organic content, mechanical properties, bearing capacity, density, stability or any other properties pertinent to the satisfactory completion of the work as proposed. Material not satisfactory or material in excess of the quantity requirements for the project shall be disposed of in waste areas provided by the Contractor outside the limits of the contract and at his own expense, or within the contract limits as directed by the Commissioner of Works.

All completed excavations and embankments shall truly conform to the lines, given by the Commissioner of Works and shall be trimmed to his satisfaction.

1.02 MEASUREMENT FOR PAYMENT

Volumes of all classes of excavation described under grading will be measured in excavation and computed in cubic yards by method of average and areas.

1.03 CLASSIFICATION

Excavated materials will be classified as either "Rock Excavation" or "Earth Excavation" in accordance with Section 1.5 "Classification of Excavated Materials".

1.04 BASIS OF PAYMENT

Payment will be made in accordance with the Contract unit prices as bid on the component items of the work and such payment will be in full compensation for excavating, hauling and placing, shaping and trimming, in conformity with the lines given by the Commissioner of Works and any other work incidental thereto, excepting those items of work, if any, for which additional payment is provided under this specification for such items.

1.05 CLASSIFICATION OF EXCAVATED MATERIALS

DESCRIPTION

All excavated materials shall be classified for purposes of payment as "Rock Excavation" or "Earth Excavation" in conformity with the following:

- (1) Rock Excavation  
"Rock Excavation" means,
  - (a) boulders and rock fragments measuring in volume twenty-seven cubic feet or more; but
  - (b) notwithstanding clause (a) the removal of dense tills, hardpan, and any other similar materials, shall not be "Rock Excavation" for purposes of payment.

Payment as "Rock Excavation" for boulders or fragments or rock shall be based on actual measurement only and the Contractor shall give the Commissioner of Works opportunity to make the required measurement. The City will not make payment for boulders or fragments based on estimates thereof nor will the City make payment for boulders or fragments which have not been measured.

Separate payment methods shall be provided for the removal of concrete pavement and other pavements, curb and gutter, concrete structures, and masonry walls. For purposes of payment the removal of these items shall not be classified as "Rock Excavation".

(2) Earth Excavation

"Earth Excavation" shall comprise the excavation of all other materials of whatsoever nature that do not come under the classification of "Rock Excavation", excepting such items that may be included in the Tender to cover the specific work.

"Earth Excavation" shall include the removal of:

- (a) corduroy from old roadbeds; and
- (b) frozen earth material; and
- (c) loose and shattered rock and debris of fragment volume less than 27 cubic feet
- (d) street car railway tracks including all ballast attachments and ties if all of the latter are shown on the drawings
- (e) dense tills, hardpans, and any other similar materials.

1.06 EARTH EXCAVATION

This work shall include all excavation such as that required to complete earth cuts, ditching, sub-excavations, under fill stripping and transition or grade point treatments; and shall include hauling, handling, and incorporation of the suitable materials into embankment construction, and shall include the hauling and handling of the unsuitable materials and the trimming of such unsuitable materials along the embankment slopes or elsewhere.

The Contractor shall not excavate outside of the slopes or below the established grade unless directed by the Commissioner of Works.

Should the Contractor (unless ordered by the Commissioner of Works) excavate below grade, he shall be required to backfill such excavations with suitable materials and compact it in 6" layers or less, for which no payment will be made for the obtaining, hauling, handling, placing or compaction of such backfill material.

All deposits of frost heave and unsuitable materials shall be removed below subgrade to the lengths, widths and depths as shown on the construction drawings and such unsuitable materials shall be replaced with acceptable material and compacted in place.

All earth cuts shall be finished to true sections as excavations progress. Ditches in roadway cuts will be constructed as soon as possible to provide drainage in the cut to prevent softening of the subgrade.

Where tile subdrainage is required in bases of roadway cuts the work must be completed at the time the ditches are being constructed.

Roadway foundations under embankments of 4' or less in height shall be stripped of all unsuitable materials to the widths and depths as shown on the construction drawings.

All earth grade roadway surfaces shall on completion be compacted and shaped to the specified grade and cross-section. The finished surfaces shall not deviate more than 1/10th of a foot from the specified grade and cross-section, and shall be compacted to a minimum of 95% of the maximum Standard Proctor dry density as determined by A.S.T.M. Designation D-698. The surfaces shall be maintained to these grade and cross-section tolerances, and to a density of not less than that specified until the project, or that portion thereof as accepted or, if the project includes the construction of the granular base course, until the surfaces are covered with granular base course. The constructing and shaping of the earth roadway surfaces shall be considered incidental to and included in the unit price bid for "Earth Excavation", and no separate payment will be made for any such work. For the rolling of earth roadway surfaces, payment will be made under the unit for "Compaction Equipment Rental".

Boulders and rock fragments, 135 cubic feet and greater in volume excavated from within earth roadway and ditching excavation sections will be measured and paid for as "Rock Excavation".

#### 1.07 MEASUREMENT FOR PAYMENT

Materials excavated in cut shall be measured above the established grade. Excavations below the established grade will be measured only when such excavations are ordered by the Commissioner of Works.

Measurement for materials excavated in transition or grade point treatments, sub-excavations and underfill stripping shall be limited; to the neat lines of excavation as specified or as directed by the Commissioner of Works.

BASIS OF PAYMENT

Payment for excavation shall be made at the Contract unit price per cubic yard for "Earth Excavation" and shall be compensation in full for all excavation and for hauling, placing and trimming of excavated materials all as herein required.

Payment for backfilling sub-excavations and transition or grade point treatments will be made in accordance with the specifications for the materials used for such work.

1.08 DEMOLITION AND REMOVAL OF STRUCTURES

GENERAL

The following sections of the specification cover the requirements for demolishing, salvaging and removing wholly or in part the various items designated to be removed or partially removed and for the backfilling of the resulting trenches, holes and pits.

1.09 DEMOLITION

Demolitions shall be carried out in such a manner and with such equipment as not to disturb adjacent pavement, utilities or other works to be left in place and with such care as to leave undamaged materials designated to be salvaged. Where a section of pavement, sidewalk, curb and gutter, or other structure is to be removed, the broken edges of the portions to be left in place shall, where necessary, be squared up and trimmed to the lines specified by the Commissioner of Works.

1.10 DISPOSAL OF DEBRIS

Concrete or clay pipe may be demolished by rupturing the pipe with suitable equipment and leaving the debris in the trench in such a manner as to eliminate all voids when the fragments to remain will not be detrimental to the work. Except as otherwise specified, other concrete and masonry shall be used for rip-rap or embankment construction within the limits of the contract and shall be disposed of outside the right-of-way at locations arranged for by the Contractor when unsuitable or surplus to construction requirements.

Timber, steel and materials other than concrete or masonry, which are not designated on the contract drawings for salvage, shall become the property of the Contractor and shall be removed from the right-of-way. The removal of fences shall be as specified in the contract documents.

1.11 SALVAGE

Where manholes, catchbasins and ditch inlets are to be demolished, castings and riveted grating conforming to City Standards shall be carefully removed and stockpiled for use elsewhere on the contract or delivered to the nearest City yard when surplus to the contract requirements. Where fences are to be dismantled, the fabric shall become the property of the Contractor and removed from the right-of-way.

Other materials, when designated in the Contract to be salvaged, shall be dismantled, stockpiled or otherwise handled as set out elsewhere within the contract.

1.12 EXCAVATION

Excavation required for the work to be carried out under this specification shall be performed in such a manner as to leave undisturbed, adjacent structures or other work to be left in place and to save where necessary, for purposes of backfill, the acceptable excavated materials. Where payment for the item to be removed is by the cubic yard, excavation, shall be carried out to such an extent as to permit the measurement by the Commissioner of Works of the volume of concrete or masonry to be removed. Excavated material which is not required for the backfilling of the void resulting from the structure removal shall be used for embankment construction or disposed of as set out elsewhere in the contract documents.

1.13 BACKFILLING AND TRIMMING

After the removal or partial removal of the structure, where filling is required of the resulting trench hole or pit, the Contractor shall backfill to the required grade using the excavated materials if suitable and imported materials as required and shall level and trim the site to provide slightly contours and adequate drainage. Backfill material shall be placed in layers not exceeding six inches and shall be compacted to 95% of the maximum dry density in the case of earth and 100% of the maximum dry density in the case of granular material.

1.14 MEASUREMENT FOR PAYMENT

Removal of Pavements Concrete Base and Cement Treated Base

The removal of pavements concrete base and cement treated base will be measured for payment in square yards in place. No deductions will be made from the computed areas for the spaces occupied by manhole and catchbasin castings. The removal of concrete pavement, asphalt covered concrete pavement, concrete base and cement treated base will be measured for payment whether on the roadway surface or within an excavation. The removal of asphalt pavement will be



1.14 MEASUREMENT FOR PAYMENT (continued)

Removal of Pavements Concrete Base and Cement Treated Base  
(continued)

measured for payment only when the pavement forms the roadway surface. When asphalt pavement is encountered elsewhere within an excavation, it will be paid for at the contract price for earth excavation. No payment other than at the contract price for earth excavation will be made for the removal of bituminous treated base, prime and surface treatments.

Concrete alley pavements removed will be measured for payment in square yards in place.

Where curbs or curbs and gutters are removed in conjunction with the removal of concrete road pavements, the curbs or curbs and gutters to be removed will be included in the measured area of concrete pavement to be removed.

Where curbs or curbs and gutters are removed in conjunction with the removal of bituminous road pavements, they will be measured in lineal feet in place.

Removal of Curb and Gutter

The term curb and gutter shall be construed as meaning curb, gutter, combinations of curb and gutter, set back bullnoses and gutter outlets. Measurement for removal will be made horizontally in lineal feet along the faces adjacent to the pavement. Payment will be made for the removal of either concrete curb and gutter or asphalt curb and gutter without further separation into types. No deduction will be made from the measured lengths for the spaces occupied by manhole and catchbasin castings. Where the removal includes runs of curb and gutter which converge to form bullnoses, each run will be measured for payment and such measurement will be deemed to include the concrete fillet within the bullnoses.

Removal of Sidewalks and Driveway Approaches

The removal of concrete sidewalks, asphalt sidewalks and driveway approaches will be measured in square feet in place.

Removal of Manholes, Catchbasins and Ditch Inlets

Where manholes, catchbasins and ditch inlets are to be removed in their entirety payment will be made without separation into types for each unit removed.

1.14 MEASUREMENT FOR PAYMENT (continued)

Removal of Fences, Guide Rails and Guide Posts

Where fences, guide rails and guide posts are to be removed, measurement will be made horizontally in lineal feet of the actual length of run of each type of installation removed except however, where cable guide rails are anchored to concrete blocks, measurement will be made between the end anchor cleats with no additional measurement made of the overlapping sections at intermediate anchorages and the removal of concrete anchor blocks will be paid for as a separate item.

Removal of Sewers

The removal of sewers will be measured horizontally in lineal feet. There will be no deduction in length for the spaces occupied by intermediate manholes, catchbasins or ditch inlets.

Removal of Bridges, Culverts and Other Items

The removal of bridges, culverts and other items not previously referred to may be paid for by each, by lump sum, by the cubic yard or by such other method as the contract may call for. Where the contract calls for payment by the cubic yard, measurement will be made of the total volume of material making up the structure, portion of structure or group of structures designated for removal under the contract item including mortared masonry, concrete or material embedded in the concrete.

Imported Backfill Material

Imported backfill material will be measured for payment in accordance with the specification for the material required and used.

Earth Excavation

Earth excavated in the course of demolition operations and subsequently wasted or used for backfill or embankment construction will not be measured for payment under this specification. When however such excavation overlaps excavation required for other work under the contract, then the over-lapping excavation shall be paid for in accordance with the specification for such other work.

Compaction

Payment for compaction shall be made in accordance with the contract unit prices for the number of hours of equipment as specified.

1.15 BASIS OF PAYMENT

Payment at the contract prices for the tender items covered by this specification shall be full compensation for demolition, for the disposal of debris, for Salvage where specified, for earth excavation required for the demolition and for the subsequent disposition of the excavated material and for the backfilling of the resulting trenches, holes and pits except that imported backfill will be paid for separately in accordance with the specification for the material required and used.

When it is necessary to remove a section of pavement, concrete or cement treated base, sidewalk, curb and gutter or similar item in order to remove a culvert, sewer or other structure lying beneath, payment will be made for each item in accordance with the specification for its removal.

The volume of any excavation quantity measured for payment will include the void within the established lines of the excavation which results from the removal or partial removal of any structure with the exception of a bridge and will include the volume of any pavement, concrete base, sidewalk, curb and gutter or similar item which overlies and which is removed in conjunction with such excavation.

Excavation quantities measured for payment will not include voids resulting from the removal or partial removal of bridges and will not include the volume of pavement, concrete base, cement treated base, sidewalk, curb and gutter and similar items which are removed from the surface but which do not overlie materials to be excavated directly beneath.

Where broken concrete or masonry is used for rip-rap construction in accordance with Section 1.10, the placing of the rip-rap will be paid for separately under the appropriate tender item and will not be part of the work to be carried out under this specification.