

EXCAVATION & BACKFILLING

GUELPH TRANSIT OPERATIONS & MAINTENANCE
WATSON ROAD FACILITY
WATER RECLAMATION PROJECT

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PART 1 GENERAL

1.1 Description

The Work of this Section shall be all labour, materials, equipment and supervision necessary to complete the stripping, excavation and backfilling as shown on the drawings and as specified herein, including the following:

- .1 Removal of existing granular and native materials to required elevations.
- .2 Offsite disposal of excavated native materials.
- .3 Supply, place and compact granular materials.

1.2 Related Specified Elsewhere

- .1 Provision of dust suppressant as required under Section 02362.

1.3 Reference Standards

- .1 Ontario Provincial Standard Specifications
 - OPSS 206 - Grading
 - OPSS 517 - Dewatering
 - OPSS 1010 - Aggregates, Granular A, B and M and select subgrade material
 - CGSB 15-GP-1M-80, Calcium Chloride.

1.4 Site Conditions

- .1 Visit and examine the site and note all characteristics and features which may affect the Work of this section. The information shown on the Drawings is provided for the guidance of the Contractor but shall in no way relieve him of the responsibility for determining the nature of the conditions of the site.
- .2 No allowance will be made for difficulties encountered or expenses incurred resulting from conditions known, visible or which can be reasonably construed at time of bid.

1.5 Utility Lines

- .1 Before commencing excavation, engage the services of local public utilities commission, hydro, telephone, gas and all other authorities to accurately determine location of any underground services.
- .2 Take care not to damage or displace encountered services, whether known or unknown.

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- .3 When such services are encountered during the execution of Work immediately notify the Consultant and protect, brace and support active services. Where repairs to these services become necessary, use the following procedure:
 - (a) Known services: Repair at no expense to the Owner.
 - (b) Unknown services: Forward to the Owner a complete breakdown of the estimated cost of such work. When the Owner's written approval of the cost of such repair work has been received, proceed immediately with repairs. The amount approved therefore shall be considered as an addition to the Contract.
- .4 In case of damage to an essential service, notify the Consultant immediately and repair the service under the Owner's direction, and to the approval of authorities having jurisdiction.
- .5 Record locations of maintained, re-routed and abandoned underground utility lines.

1.6 Protection

- .1 Protect from damage all established, utilities, buried services, roadways, bench marks, reference points, and boundary markers on this or the adjoining properties.
- .2 Protect utilities, pavements, and other facilities immediately adjacent to excavations, from damage caused by settlement, lateral movement, undermining, washout and other hazards.
- .3 Effect approved measures to minimize dust as result of this Work.
- .4 Stockpile excavated material where it will not interfere with site operation or drainage.

1.7 Removal of Water

- .1 Provide and install pumps with adequate suction and discharge lines together with power to operate same to keep excavations free of water at all times. Retain pumping equipment at site and operate same as required by other trades to facilitate their operations. Take all necessary precautions to prevent cave-ins and flow of water into the excavation.
- .2 Conform to OPSS 517 for dewatering.

1.8 Samples

- .1 Submit samples of the following materials in accordance with Section 01300:
 - (a) Imported crusher run limestone (19mm and 50mm).

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- .2 Allow continual sampling by Consultant during production.
- .3 Provide Consultant with access to source and processed material for sampling.
- .4 Install sampling facilities at discharge end of production conveyor, to allow Consultant to obtain representative samples of items being produced. Stop conveyor belt when requested by Consultant to permit full cross section sampling.

1.9 Handling, Storage and Delivery

- .1 Handle and transport aggregates to avoid segregation, contamination and degradation.

1.10 Stockpiling

- .1 Stockpile new materials on site in locations as indicated unless directed otherwise by Consultant.
- .2 Stockpile new materials in sufficient quantities to meet project schedules.
- .3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
- .4 Stockpile materials on ground but do not incorporate bottom 300mm of pile into the Work.
- .5 Stockpile different materials far enough apart to prevent intermixing.
- .6 Do not use intermixed or contaminated materials, Remove and dispose of rejected materials as directed by Consultant with forty-eight (48) hours of rejection.
- .7 Stockpile materials in uniform layers of thickness as follows:
 - (a) Max 1.5 m for all materials.
- .8 Uniformly spot-dump materials delivered to stockpile in trucks and build up stockpile as specified.
- .9 Do not cone piles or spill material over edges of piles.
- .10 Do not use conveying stackers.
- .11 Leave stockpile site in tidy, well drained condition, free of standing surface water.

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PART 2 PRODUCTS

2.1 Materials

- .1 All granular materials shall be crusher run limestone and satisfy the requirements of OPSS 1010.
- .2 Below asphalt backfill in the parking lot shall be imported crusher run limestone.
- .3 Excavated material existing on site may be suitable to use as fill provided it is free of organic materials, roots and stones greater than 75mm diameter.
- .4 Water potable.

PART 3 EXECUTION

3.1 Excavation

- .1 Excavate to the extent, elevations and depth required for the completion of the Work.
- .2 Do not excavate outside of slopes or below established grades unless directed by the Consultant.
- .3 Should the Contractor unless ordered by the Consultant, excavate below grade, he shall be required to backfill such excavations with suitable materials and compact it in 150mm layers or less, for which no payment will be made for the obtaining, hauling, handling, placing or compaction of such backfill material.
- .4 Bottoms of excavations are to be dry undisturbed soil, level and free from loose or organic matter. Remove soft, wet or unconsolidated ground, muskeg, quicksand, and organic material encountered in excavating. Fill void with well compacted clean dry fill of quality as herein specified.
- .5 If removal of earth causes displacement of adjacent earth, the earth so disturbed shall be removed and replaced with compacted crushed limestone materials, at no additional cost to the Owner.
- .6 Keep bottom of excavations clean and clear of loose materials.
- .7 If the excavations reveal seepage zones, springs or other unexpected sub-surface conditions which may necessitate revisions or additions to any drainage system, inform the Consultant immediately so that remedial action can be taken.
- .8 Transport dusty materials in covered haulage vehicles.
- .9 Public roadways shall be kept clean and free of mud and debris.

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- .10 Have the sub-base inspected to ensure all organic matter and fill materials have been removed, where required.

3.2 Backfilling

- .1 Do not commence backfilling until areas of work to be backfilled have been inspected and approved by the Consultant.
- .2 Areas to be backfilled shall be free of debris, snow, ice, water or frozen ground. Backfill materials shall not be frozen or contain ice, snow, or debris.
- .3 Prior to placing fill materials, compact existing subgrade to obtain same compaction as specified for fill. Remove "soft" material and fill with approved material.
- .4 Maintain proper moisture content in fill to ensure specified compaction density.
- .5 Place and compact fill materials in continuous horizontal layers not exceeding 150mm in loose depth. Use methods which prevent disturbing or damaging of buried services. Make good any damage caused by this Section at no cost to Owner.
- .6 Compact fill to specified compaction density with a heavy vibrating roller. Compact fill where heavy roller equipment cannot approach with mechanical tampers to equivalent density.

3.3 Granular Courses

- .1 Place, grade and compact to ninety-eight percent (98%) Standard Proctor Modified Dry Density, 19mm crusher run limestone, 50mm crusher run limestone courses to the depths indicated on the Drawings. Maintain optimum moisture content.
- .2 Maintain grading tolerance for 50mm crusher run stone sub-base course to plus or minus 30mm.
- .3 Place, grade and compact to ninety-eight percent (98%) Standard Proctor Modified Dry Density, OPSS Granular "A" (20 mm CRL), OPSS Granular "B" (50 mm CRL) courses to the depths indicated on the drawings. Maintain optimum moisture content.
- .4 Maintain grading tolerance for OPSS Granular "B" (50 mm CRL) sub-base course to ± 30 mm.
- .5 Refer to OPSS 1010 Standards.

3.4 Inspection and Testing

- .1 VA Woods of Guelph, ON, will be retained under a cash allowance to inspect the sub-base and to test placing and compaction of granular backfill.

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- .2 The Contractor will pay for the services under the cash allowance for testing and inspection.

3.5 Compaction

- .1 If during progress of Work, tests indicate fill does not meet specified requirements, remove defective fills, replace and retest at no extra cost.
- .2 Where compaction of backfill is called for, the Consultant may order compaction tests by an independent testing company. Tests will be arranged for by the Consultant and be paid under the cash allowance.
- .3 Where tests show the compaction does not meet the specified requirement, carry out further compaction in a manner directed by the Consultant, and pay for further testing to establish proof of the specified compaction.
- .4 For backfill compaction, tests will be made at every 0.5m max. depth, after each three 150 mm lifts have been placed.
- .5 Co-operate with the Consultant and testing company by scheduling the placing and the compacting of backfill so tests can be progressively taken.

3.6 Surplus Material

- .1 Remove material unsuitable for fill, grading or landscaping from site as directed by the Consultant.
- .2 Include cost of trucking material from site and payment of fees at dump site.
- .3 An approved dump site must be used for disposal of all excess material.

3.7 Adjustment

- .1 Correct and make good where settlement has occurred during the warranty period of the Contract.
- .2 Make up settlement of backfilling as soon as possible, so that regular traffic in and around work will not be inconvenienced.
- .3 Fill depressions to restore the correct grade after a period adequate to reveal settlement have passed. Assume responsibility for making good any subsequent settlement of such fill. Pay costs involved in making good paving, sodding, sidewalks, curbs and all other surfaces damaged by such settlement and subsequent restoration.

End of 02223