CONSTRUCTION SPECIFICATION FOR BORROW

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212-A Commentary

212.01 SCOPE

This specification covers the requirements for earth borrow and rock borrow.

212.01.01 Specification Significance and Use

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be according to the Contract Documents.
212.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner’s use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

212.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

This specification refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Construction

OPSS 206 Grading
OPSS 401 Trenching, Backfilling, and Compacting

Ontario Ministry of Transportation Publications

MTO Laboratory Testing Manual:
LS-702 Determination of Particle Size Analysis of Soils

212.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Access Road means a private road built or an existing road used by the Contractor to gain access to the Work or to a source of material.

Borrow means earth or rock material acquired from outside the right-of-way to complete the Work.

Haul Road means any public road, excluding the road under Contract, that forms part of a material haul route.

Quality Assurance (QA) means a system or series of activities carried out by the Owner to ensure that materials received from the Contractor meet the specified requirements.
Referee Testing means testing of a material attribute for the purpose of resolving acceptance issues at the request of the Contractor or the Owner.

212.04 DESIGN AND SUBMISSION REQUIREMENTS

212.04.01 Submission Requirements

A minimum of 14 Days prior to earth borrow material being used in the Work, a list of intended borrow sources and the tonnage that is expected to be used from each source shall be provided to the Contract Administrator to allow time for sampling and testing.

A minimum of 48 hours prior to the placement of borrow in the Work, the following shall be submitted to the Contract Administrator:

a) Written proof for the right to occupy and operate each borrow source, including all appropriate permits.

b) A plan outlining the use of frost susceptible earth borrow.

212.05 MATERIALS

212.05.01 Earth Borrow

Earth borrow shall consist of earth or shale as defined in OPSS 206 and shall be free from organic and foreign material.

Earth borrow with at least 50% of the particles by mass between 5 and 75 µm, as determined by LS-702, shall be considered frost-susceptible.

212.05.02 Rock Borrow

Rock borrow shall consist of rock as defined in OPSS 206, excluding shale.

212.07 CONSTRUCTION

212.07.01 General

The work required for borrow shall include clearing, grubbing, and stripping of borrow source; construction and maintenance of access roads; excavating, hauling, placing, and compacting the borrow; and borrow source rehabilitation.

The construction of embankments and backfill areas with borrow shall be according to OPSS 206 and OPSS 401, respectively.

Frost-susceptible material shall not be placed in the following areas:

a) Within the zone between the frost penetration depth specified elsewhere in the Contract Documents and the final grade that will be established within the roadway upon completion of construction.

b) In any other areas specified elsewhere in the Contract Documents.

When borrow is stockpiled prior to use, material from different sources shall be stockpiled separately from each other.
212.07.02  Owner's Properties

Material shall not be supplied from the Owner's properties.

212.07.03  Clearing, Grubbing, and Stripping

Borrow sources shall be cleared, grubbed, and stripped. These operations shall be completed a minimum of 3 Working Days in advance of excavation when cross-sections are required.

Stripped material shall be piled sufficiently back from the face of the pit or quarry to prevent the contamination of the face material. The stripped material shall be piled such that the distance from the face being worked to the stripped material shall be:

a) For pits, at least equal to the depth of the face or 5 m, whichever is the greater distance.

b) For quarries, at least 5 m.

212.07.04  Haul Roads

Inspection of all haul roads prior to construction use shall be undertaken jointly by the Contract Administrator, Contractor, and the owner of the haul road.

Acceptable material shall be chosen and properly placed on the haul road to:

a) Provide safe passage and control of traffic at all times; and

b) Repair that road to the pre-contract condition upon completion of the hauling operations both to the satisfaction of the Contract Administrator and the Owner of the road.

212.07.05  Borrow Source Rehabilitation

The borrow source shall be rehabilitated to comply with all applicable federal, provincial, and municipal requirements.

212.07.06  Management of Excess Material

Management of excess material shall be according to the Contract Documents.

212.08  QUALITY ASSURANCE

212.08.01  General

The Contract Administrator reserves the right to visually inspect borrow and reject any material that is not free from organic or foreign material.

All samples shall be obtained by the Contractor in the presence of the Contract Administrator or a designated representative. Notwithstanding, the Owner may take samples for its own purposes at any time from any location. The Contractor shall provide assistance to the Owner in obtaining samples.

The Contractor shall supply sample containers.

The Contractor shall place bags or containers of samples into clear polyethylene security bags supplied by the Owner when instructed by the Contract Administrator. The Contract Administrator or his representative may apply security seals.
All samples, including those handled by a commercial carrier, shall be accompanied by a sample data sheet identifying the following information:

a) Contract Number.

b) Name of Contractor and a contact person's name and telephone numbers.

c) Contract Administrator's name and telephone numbers.

d) Date sampled (i.e., yyyy-mm-dd).

e) Date shipped (i.e., yyyy-mm-dd).

f) Source name and location.

g) Test hole number and location.

h) Sample number and soil type.

All QA samples shall be delivered to the QA laboratory as specified in the Contract Documents.

212.08.02 Earth Borrow Source

Except when referee testing is invoked, QA test results shall be used for acceptance purposes. When QA test results show that the earth borrow meets the material requirements of this specification, the earth borrow source shall be accepted.

A minimum of one QA sample per soil type per source shall be tested to verify the material meets the requirements of this specification. Additional QA samples may be taken at anytime. QA samples shall be taken in duplicate. One sample shall be tested for QA purposes. The remaining sample shall be used for referee testing, if invoked by the Contractor.

When QA test results show that the earth borrow does not meet the material requirements of this specification, the Contract Administrator shall notify the Contractor that the material represented by the QA test results is not acceptable. This notification shall take place in writing within 1 Business Day of receipt of the non-conforming data.

212.08.02.01 Referee Testing

When QA test results do not meet the requirements of this specification, the Contractor has the option of invoking referee testing of the test result that failed to meet the requirements. The Contractor shall notify the Contract Administrator in writing invoking this option within 2 Business Days following notification of unacceptable material. The notification shall include the material and specific attribute or attributes for which the referee testing is being requested.

The Contract Administrator shall select a referee laboratory acceptable to the Contractor within 3 Business Days following the Contractor's notification to invoke referee testing. Referee samples shall be delivered to the referee laboratory from the QA laboratory by the Contract Administrator. If referee samples are not available, the Contractor shall be responsible for obtaining and submitting new samples to the referee laboratory from a location to be decided by the Contract Administrator. The Contract Administrator shall be present to witness the sampling.
Referee testing shall be carried out in the presence of the Contract Administrator. The Contractor may observe the testing. Owner and Contractor observers shall be permitted to validate sample identification, view sample condition, observe test procedures, take notes, view equipment readings, and review completed work sheets while in attendance. Concerns with sample condition or sample identification shall be made prior to commencement of referee testing. Comments on deviations from the applicable test method shall be made immediately and corrected at the time of testing. Unresolved concerns shall be specific in nature and submitted in writing to the laboratory's designated representative and other observers at the time of testing. Referee test results shall be binding on both the Owner and the Contractor.

When a referee test result shows that the material does not meet the requirements of this specification, the material represented by the test result, including material in existing stockpiles or in the Work, shall not be accepted and the materials shall be removed.

When a referee test result shows that the material is in conformance with the requirements of this specification, the material represented by the sample shall be accepted.

212.08.03 Earth Borrow

The Contract Administrator reserves the right to visually identify localized soft spots. The Contractor shall remove the identified soft spots and backfill the resulting void with approved material.

212.09 MEASUREMENT FOR PAYMENT

212.09.01 Actual Measurement

212.09.01.01 Earth Borrow and Rock Borrow

Measurement of earth borrow and rock borrow shall be by mass in tonnes or by volume in cubic metres as specified in the Contract Documents.

When earth borrow and rock borrow is measured by volume, one of the following methods, as specified in the Contract Documents, shall be used to calculate the volume of the material:

a) End Area Method
   i. At Source

      Material shall be measured at the source in its original location by the method of average end areas.

      Cross-sections shall be taken after the source has been cleared, grubbed, and stripped of all unsuitable surface material.

      The volume of boulders removed from borrow pits that cannot be accommodated in embankments shall be deducted.

   ii. In Place

      The material shall be measured in place with no allowance for shrinkage by the method of average end areas.
b) Truck Box Method

The material shall be measured loose by predetermined truck box capacities and an appropriate bulking factor as determined by the Contract Administrator. The predetermined capacity of each truck shall be that computed from its box dimensions.

Each truck shall be uniquely and readily identifiable.

212.10 BASIS OF PAYMENT

212.10.01 Earth Borrow - Item
Rock Borrow - Item

Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment, and Material to do the work.

Removal and replacement of localized soft spots identified by the Contract Administrator shall be at no extra cost to the Owner.

Removal of unacceptable material shall be at no extra cost to the Owner.

The Owner shall be responsible for the cost of referee testing, provided that the referee test results show that the material meets the applicable specifications. Otherwise, the Contractor shall be responsible for the costs.

212.10.02 Haul Roads

Payment at the Contract price for the appropriate tender items used to perform maintenance and restoration of haul roads shall be full compensation for all labour, Equipment, and Material to maintain and restore haul roads.

When the Contract does not include the appropriate tender items, prices shall be negotiated.

212.10.03 Access Roads

No separate or additional payment shall be made for the cost of construction and maintenance of access roads.
Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner’s design decisions and methodology.

**Designer Action/Considerations**

The designer shall specify the following in the Contract Documents:

- Frost penetration depth. (212.07.01)
- Areas where frost-susceptible borrow is not to be placed. (212.07.01)
- Who delivers the QA samples to the QA laboratory. (212.08.01)
- The method of measurement for earth borrow and rock borrow. (212.09.01.01)
- The method of calculation of volume of material if measurement is by volume. (212.09.01.01)

All acceptable fill material should be considered for embankment construction, prior to selecting either earth borrow or rock borrow as a construction alternative.

The designer should determine if material from Owner sources is available and, if so, the designer should specify this information in the Contract Documents. (212.07.03)

When borrow sources are known, they should be identified in the Contract Documents.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

**Related Ontario Provincial Standard Drawings**

No information provided here.