



CONSTRUCTION SPECIFICATION FOR EARTH BORROW

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212.01 SCOPE

This specification covers the requirements for earth borrow.

212.01.01 Specification Significance and Use

This specification is written as a provincial-oriented specification. Provincial-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of the Ontario Ministry of Transportation.

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

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

Ontario Provincial Standard Specifications, Construction

OPSS 201	Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders
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
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MTO Form:

PH-D-10	Aggregate Sample Data Sheet
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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 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 borrow material being used in the Work, the Contractor shall provide a list of intended borrow sources and the tonnage that is expected to be used from each source to the Contract Administrator.

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) Identification and description of any frost-susceptible materials that the Contractor intends to use as borrow and a detailed plan describing where the Contractor intends to use it.

212.05 MATERIALS

212.05.01 Earth Borrow

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

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

212.07 CONSTRUCTION

212.07.01 General

The work required for borrow shall include clearing, grubbing, and stripping of a borrow source according to OPSS 201 and 206; construction and maintenance of access roads; maintenance and restoration of haul roads; excavating, hauling, placing, and compacting 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

Unless otherwise specified, 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 of any unsuitable materials. These operations shall be completed a minimum of 3 Working Days in advance of any excavation where 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, the Contractor, and the owner of the haul road.

All required restoration work shall be performed when haul roads are damaged due to hauling operations.

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 borrow material that does not meet the requirements specified herein and elsewhere in the Contract Documents.

All samples shall be obtained and delivered to the QA laboratory according to the Contract Documents. The data to be included with all samples shall be according to the requirements of the MTO form PH-D-10.

212.08.02 Acceptance of Earth Borrow

At the discretion of the Owner, the Quality Assurance (QA) laboratory designated by the Owner may carry out QA testing for the purposes of ensuring that earth borrow being placed above the frost penetration depth in the areas listed in the General subsection of the Construction section is not frost-susceptible.

For earth borrow material being placed within the frost penetration depth in the areas specified above, lots may be established at the discretion of the Contract Administrator, in accordance with the schedule shown in Table 1. In addition, any single lot or series of lots may be terminated and a new lot or series of lots re-established, at the discretion of the Contract Administrator.

A minimum of one randomly-obtained duplicate sample shall be obtained from each lot. Additional samples may also be taken at the discretion of the Contract Administrator. In the event that the Contractor is unavailable to take a designated sample for a lot, then no further earth materials from that lot shall be placed above the frost penetration depth until the designated sample is taken.

The Contract Administrator shall document and seal each sample container according to the Contract Documents.

For each duplicate sample, one sample shall be tested for QA purposes and the remaining sample shall be retained for referee testing, if necessary.

If a sample is found to contain more than 50% of its particles by mass between 5 and 75 μm when tested in accordance with LS-702, the Contract Administrator shall then notify the Contractor, in writing, within 2 Business Days of receiving the results, that any material within that lot represented by that sample including any material already within the Work or in stockpiles is frost susceptible and not acceptable for use above the frost penetration depth, wherever specified in the Contract Documents.

In addition, any of the material within that lot which has already been placed within the areas listed in the General subsection of the Construction section shall be removed at no additional cost to the Owner.

212.08.02.01 Referee Testing

The Contractor may invoke referee testing for any lot by submitting a written request to the Contract Administrator within 2 Business Days following notification from the Contract Administrator that the sampled material has been determined to be frost-susceptible.

The retained duplicate QA sample shall be used for referee testing. However, if a referee sample is not available, the Contractor shall then be responsible for obtaining a new sample from a location to be decided on by the Contract Administrator, at no additional cost to the Owner.

Referee testing shall be carried out, as specified herein and elsewhere in the Contract Documents.

All referee test results for a lot shall replace the respective QA tests for acceptance of the applicable lot and the referee results shall be binding on both the Owner and the Contractor.

212.09 MEASUREMENT FOR PAYMENT

212.09.01 Actual Measurement

212.09.01.01 Earth Borrow

Measurement of earth borrow shall be by volume in compacted cubic metres, excluding the volume of any boulders that cannot be accommodated in the Work.

Earth borrow shall be measured at the Contract site using the method of average end areas and surveyed cross-sections taken both prior to and after the placement of the material in the Work.

However, for borrow quantities that are less than 1,000 m³, in areas where surveying may be impractical such as where borrow is being placed in areas of standing water, or where materials that are not designated as borrow are being placed and compacted in the same area and at the same time as borrow, then the truck box method may be used, at the discretion of the Contract Administrator.

In this case, each truck carrying borrow shall be readily-identifiable and the loose volume that it contains shall be calculated based on an estimated percentage of the truck box capacity which has been pre-determined from measurements taken by the Contract Administrator. The Contract Administrator shall then determine the compacted in-place volume of the borrow by dividing the estimated volume of the material within the truck box by an appropriate bulking factor determined by the Owner.

212.10 BASIS OF PAYMENT

212.10.01 Earth Borrow - Item

Payment at the Contract price for the above tender item 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 or removal of unacceptable material or both shall be at no additional 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.

TABLE 1
Lot Schedule for Sampling and Testing Earth Borrow
Placed Above the Frost Penetration Depth

Expected Quantity from Each Source m ³	Lot Size
< 10,000	One lot
> 10,000 (Note 1)	10,000 m ³ lots up to 50,000 m ³ and 50,000 m ³ lots thereafter

Notes:

1. When the quantity of borrow is insufficient for a complete lot and is:
 - a) less than one-half the quantity of a complete lot, then that quantity shall be added to the previous lot; or
 - b) greater than or equal to one-half the quantity of a complete lot, then that quantity shall form its own lot.

**Appendix 212-A, November 2013
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS**

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

No information provided here.

Related Ontario Provincial Standard Drawings

No information provided here.