



CONSTRUCTION SPECIFICATION FOR ROOTWAD STRUCTURES

TABLE OF CONTENTS

810.01	SCOPE
810.02	REFERENCES
810.03	DEFINITIONS
810.04	DESIGN AND SUBMISSION REQUIREMENTS - Not Used
810.05	MATERIALS
810.06	EQUIPMENT - Not Used
810.07	CONSTRUCTION
810.08	QUALITY ASSURANCE - Not Used
810.09	MEASUREMENT FOR PAYMENT
810.10	BASIS OF PAYMENT
APPENDICES	Not Used

810.01 SCOPE

This specification covers the requirements for the installation of rootwad structures to provide streambed and waterbody bank stabilization and to improve fish habitat.

810.01.01 Specification Significance and Use

This specification is written as a provincial-oriented specification. Provincial-oriented specifications are written 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.

810.01.02 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.

810.02 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 206 Grading
OPSS 517 Dewatering

Ontario Provincial Standard Specifications, Material

OPSS 1440 Steel Reinforcement for Concrete

810.03 DEFINITIONS

For the purpose of this specification, the definitions in OPSS 182 and the following definitions apply:

Anchoring Stone means large stones used to anchor rootwad structures into a waterbody bank.

Excavated Bank Material means the existing earth material removed from the waterbody bank prior to the installation of a rootwad structure and replaced on top of the anchoring stone when backfilling the installation.

Footer Log means a log used to provide support under the rootwad trunk of a rootwad structure installed into a waterbody bank.

Rootfan means the root mass at the end of a rootwad trunk.

Rootwad Structure means the trunk of a tree with the limbs removed and the rootfan attached and exposed from earth that is installed along the toe of a waterbody bank to stabilize the slope and provide fish habitat, and includes a footer log, anchoring stone, and may include reinforcing steel.

Rootwad Trunk means the trunk of a tree used in a rootwad structure.

810.05 MATERIALS

810.05.01 General

All materials shall be free of deleterious substances.

810.05.02 Trees

Trees used for rootwad structures and footer logs shall be natural and untreated oak, maple, cedar, spruce, pine, or beech, unless otherwise specified in the Contract Documents.

Preference shall be given to trees sourced on-site.

810.05.03 Rootwad Trunk

The rootwad trunk shall be sized as specified in the Contract Documents. All limbs shall be removed from the rootwad trunk.

810.05.04 Rootfan

The rootfan shall be maintained intact at the end of the rootwad trunk.

810.05.05 Footer Log

Footer logs shall be generally straight and sized as specified in the Contract Documents.

810.05.06 Anchoring Stone

Anchoring stone shall be large field stone or quarried bedrock.

810.05.07 Reinforcing Steel

Reinforcing steel shall be according to OPSS 1440.

810.07 CONSTRUCTION

810.07.01 General

Rootwad structures shall be installed in the dry. The outside edge of the rootfan of a rootwad structure shall be installed so that it is no lower than the bottom of the waterbody or otherwise so that it is 1/3 below the low water level of the waterbody as specified in the Contract Documents.

810.07.02 Installation

Installation of rootwad structures shall be completed in the following sequence:

- a) The streambed and waterbody bank shall be excavated to accommodate the entire length of the rootwad trunk and the footer log. The excavation shall be slightly angled to become deeper further inland from the edge of the waterbody.
- b) The excavated bank materials shall be reused for the final layer when backfilling.
- c) The footer log shall be installed so that it sits at the waterbody edge of the excavation, parallel to the waterbody bank, and at the depth specified in the Contract Documents. When more than one rootwad structure is to be installed in series, the footer logs shall be installed starting at the downstream end of the installation.
- d) The rootwad trunk shall be placed in the excavation resting on the footer log so that it is embedded into the waterbody bank up to the roofline. The rootwad trunk shall be angled slightly in the excavation so that the rootwad structure is facing upstream at an angle, as specified in the Contract Documents, to the waterbody bank and shall be anchored into the bank with reinforcing steel if specified in the Contract Documents.
- e) Anchoring stone shall be installed on the rootwad trunk and footer log to secure the rootwad structure in place. The anchoring stone shall cover minimum 1.5 times the diameter of the rootwad trunk, both in horizontal and vertical directions, and the entire length of the rootwad trunk and the footer log so that neither is visible from above.
- f) The previously excavated bank material shall be placed over the anchoring stone and graded according to OPSS 206.
- g) Vegetative cover shall be applied to the graded area as specified in the Contract Documents.

810.07.03 Protection of Waterbodies and Waterbody Banks

Protection of waterbodies and waterbody banks shall be as specified in the Contract Documents.

810.07.04 Dewatering and Temporary Flow Control

Dewatering and/or temporary flow control shall be according to OPSS 517.

810.07.05 Management of Excess Materials

Management of excess materials shall be as specified in the Contract Documents.

810.09 MEASUREMENT FOR PAYMENT

810.09.01 Actual Measurement

810.09.01.01 Rootwad Structure

For measurement purposes, a count shall be made of the number of rootwad structures installed along the waterbody bank.

810.09.02 Plan Quantity Measurement

When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clauses under Actual Measurement.

810.10

BASIS OF PAYMENT

810.10.01

Rootwad Structure - 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.

