



Note: The MUNI implemented in April 2017 replaces OPSS 824 COMMON, November 2014 with no technical content changes.

CONSTRUCTION SPECIFICATION FOR BAFFLES IN A CULVERT

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824.01 SCOPE

This specification covers the requirements for the construction of baffles in culverts using streambed material to direct the flow of water within the culverts and to enhance fish passage through the culverts.

824.01.01 Specification Significance and Use

This specification has been developed for use in municipal oriented Contracts. The administration, testing, and payment policies, procedures, and practices reflected in this specification correspond to those used by many municipalities in Ontario.

Use of this specification or any other specification shall be according to the Contract Documents.

824.01.02 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.

824.02 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, Materials

OPSS 1005 Aggregates - Streambed Material

Canadian and Provincial Statutes

Fisheries Act, R.S.C., 1985, c. F-14, as amended
Ontario Water Resources Act, R.S.O. 1990, c. 0.40, as amended

824.03 DEFINITIONS

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

Baffle means one or a series of partial obstructions in a channel designed to increase flow depth or dissipate the energy of water flowing at high velocity while at the same time providing fish passage.

Culvert means a structure that provides an opening through an embankment and to which roadway loads are distributed through fill or that is designated as a culvert in the Contract Documents.

Deleterious Substance means as defined in the Fisheries Act.

Low Flow Channel means the part of a streambed occupied by water during periods of low flow.

Streambed means the bottom of the channel where a watercourse flows.

Streambed Material means the material that rests at the bottom of a waterbody and typically consists of natural sand, gravel, cobble, and boulders.

Waterbody means any permanent or intermittent, natural or constructed body of water, including lakes, ponds, wetlands, and watercourses, but does not include sewage works as defined in the Ontario Water Resources Act.

Watercourse means a stream, creek, river, or channel including ditches, in which the flow of water is permanent, intermittent, or temporary.

824.05 MATERIALS

824.05.01 Streambed Material

Streambed material used to construct baffles in a culvert shall be according to OPSS 1005 and as specified in the Contract Documents.

824.07 CONSTRUCTION

824.07.01 General

All baffles shall be constructed in the dry.

824.07.02 Baffles in a Culvert

Baffles shall be installed in a culvert to be a permanent feature within the culvert as specified in the Contract Documents.

When the construction of the baffles in a culvert is complete and the waterbody flow has been reinstated, streambed material placement shall be adjusted by hand to achieve the design specified in the Contract Documents.

The baffles in a culvert shall be monitored after installation is complete to verify that the grade and transition of flow to the low flow channel within the culvert does not present any barriers to fish passage.

The placement of streambed material shall be adjusted to rectify any barriers to fish passage.

824.07.03 Protection of Waterbodies and Waterbody Banks

Protection of waterbodies and waterbody banks shall be according to the Contract Documents.

824.07.04 Temporary Flow Control for Construction in Waterbodies

Temporary flow control for construction in waterbodies shall be according to the Contract Documents.

824.07.05 Management of Excess Materials

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

824.09 MEASUREMENT FOR PAYMENT

824.09.01 Actual Measurement

824.09.01.01 Baffles in a Culvert

For measurement purposes, a count shall be made of the number of baffles installed in a culvert.

824.09.02 Plan Quantity Measurement

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

824.10 BASIS OF PAYMENT

824.10.01 Baffles in a Culvert - 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.

**Appendix 824-A, November 2014
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

- The designer should specify the following in the Contract Documents:
- The gradation of the various components of streambed material as specified in OPSS 1005 required to construct the baffles in the culverts that are suitable to the Contract site. (824.05.01)
- Any other materials required to form the base of the baffles.

The designer should consider the following and specify it in the Contract Documents:

- The use of baffles in culverts should be limited to retrofit situations only.
- Whereas, baffles can be used to direct and reduce flow velocity in a culvert where it may be too high for fish passage, it must be verified that the hydraulics and flow carrying capacity of the culverts are sufficient to accommodate the altered flow that baffles will produce, when specifying their use in a Contract using this specification.

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

OPSD 222.090 Baffles in a Culvert

