



**MATERIAL SPECIFICATION FOR
NON-PRESSURE POLYVINYL CHLORIDE PIPE PRODUCTS**

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1841.01	SCOPE
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This specification covers the requirements for non-pressure polyvinyl chloride (PVC) plastic pipe products to be used for sanitary and storm sewers, service connections, and pipe culverts.

1841.01.01 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.

1841.01.02 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.

1841.02 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:

CSA Standards

- B182.1-11 Plastic Drain and Sewer Pipe and Pipe Fittings
[Part of B1800-11, Plastic Nonpressure Pipe Compendium]
- B182.2-11 PSM Type Polyvinylchloride (PVC) Sewer Pipe and Fittings
[Part of B1800-11, Plastic Nonpressure Pipe Compendium]
- B182.4-11 Profile Polyvinylchloride (PVC) Sewer Pipe and Fittings
[Part of B1800-11, Plastic Nonpressure Pipe Compendium]

ASTM International

- D 3034-14 Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
- F 679-15 Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
- F 794-14 Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter
- F 949-15 Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings
- F 1760-01(2011) Coextruded Poly (Vinyl Chloride) (PVC) Non-Pressure Plastic Pipe Having Recycled-Recycled Content
- F 1803-19 Poly (Vinyl Chloride) (PVC) Closed Profile Gravity Pipe and Fittings Based on Controlled Inside Diameter

Uni-Bell PVC Pipe Association

UNI-B-9-90 Polyvinyl Chloride (PVC) Profile Wall Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter (Nominal Pipe Sizes 4 - 48-inch)

1841.03 DEFINITIONS

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

Certification Body means an independent 3rd party agency, accredited by the Standards Council of Canada that has the qualifications, skills, and expertise required to confirm that a pipe manufacturer produces pipe products to the quality and requirements of an accepted standard and that has the mandate to certify the pipe products produced.

Certified means pipe products that have been marked with a certification body's logo confirming that the production of the pipe product is in accordance with the quality and requirements of CSA B182.1, CSA B182.2, or CSA B182.4.

Delivered Quality means the pipe products' physical condition upon arrival at the construction site in terms of the extent and degree of dents, scratches, cracks, pipe coating integrity, etc., that appear on the pipe products delivered.

Pipe Products means pipe lengths and associated pipe fittings that are needed to construct a pipe sewer run or a pipe culvert.

1841.05 MATERIAL

1841.05.01 Polyvinyl Chloride Pipe Products

The extruded, moulded, and fabricated material shall be polyvinyl chloride plastic according to CSA B182.1, CSA B182.2, CSA B182.4, ASTM D 3034, ASTM F 679, ASTM F 794, ASTM F 949, ASTM F 1760, ASTM F 1803, or UNI-B-9, as applicable, for the appropriate type of polyvinyl chloride plastic pipe products.

1841.07 PRODUCTION

1841.07.01 Requirements

The pipe diameter, stiffness, material, and type of all polyvinyl chloride plastic pipe products shall be as specified in the Contract Documents.

The requirements for profile polyvinyl chloride plastic pipes and associated fittings shall be according to CSA B182.4, ASTM F 794, ASTM F 949, ASTM F 1803, or UNI-B-9, as applicable.

The requirements for smooth interior and exterior walled polyvinyl chloride plastic pipe and associated fittings shall be according to either:

- a) ASTM D 3034 or ASTM F 679 for pipes manufactured without reprocessed-recycled material.
- b) CSA B182.2 for pipes manufactured that may have multilayer construction and the middle layer may have reprocessed-recycled material.
- c) CSA B182.2 or ASTM F 1760 for pipes manufactured having reprocessed-recycled material.

Polyvinyl chloride service connection pipe shall be according to CSA B182.1 and have bell and spigot joints with elastomeric gaskets.

All polyvinyl chloride plastic pipe products used on the Contract shall be certified and supplied from a manufacturer that produces the polyvinyl chloride plastic pipe products according to CSA B182.1, CSA B182.2, CSA B182.4, ASTM D 3034, ASTM F 679, ASTM F 794, ASTM F 949, ASTM F 1760, ASTM F 1803, or UNI-B-9, as applicable, for the appropriate type of polyvinyl chloride plastic pipe products.

1841.07.02 Testing

Testing of polyvinyl chloride plastic pipe products shall be according to the appropriate standard for which the product was produced.

1841.08 QUALITY ASSURANCE

1841.08.01 Inspection and Testing

The Owner reserves the right to make inspections and tests at such times as the Owner may consider necessary to ensure that the materials supplied are in accordance with this specification.

All materials failing to comply with the requirements of this specification shall be rejected.

1841.08.02 Markings

Markings for certified polyvinyl chloride plastic pipe products shall be according to the appropriate standard for which the product was produced.

As a minimum, the following markings shall be placed, notwithstanding any other required markings, in accordance with the applicable standard:

- a) Pipe diameter.
- b) Pipe stiffness.
- c) Standard designation (e.g., CSA B182.2).
- d) Manufacturer.
- e) Accredited certification body's logo.

Accepted certification body logos confirming certified polyvinyl chloride plastic pipe products shall be as shown in Figures 1, 2 and 3.

1841.08.03 Certificate of Compliance

When requested by the Owner, the Contractor shall provide a copy of the certificate of compliance from the manufacturer for sanitary and storm sewers, service connections, and pipe culverts. The manufacturer's certificate of compliance shall be issued by the certification body confirming that the manufacturer produces certified polyvinyl chloride plastic pipe products.

1841.09 OWNER PURCHASE OF MATERIAL

1841.09.01 Measurement and Basis of Payment

Measurement of non-pressure polyvinyl chloride plastic pipe shall be by length in metres along the centreline of the pipe.

For measurement purposes, a count shall be made of the non-pressure polyvinyl chloride plastic pipe fittings supplied and delivered as noted on the purchasing order.

Payment at the price specified in the purchasing order shall be for the supply of non-pressure polyvinyl chloride plastic pipe products delivered to the destination on the date and time specified.

The cost of all testing, except that performed in the Owner's laboratory, shall be included in the price.



FIGURE 1
CSA Standards Certification Logo



FIGURE 2
Warnock Hersey - Intertek Certification Logo



FIGURE 3
NSF International Certification Logo
(Note: Different variations of the NSF logo will also be accepted)

**Appendix 1841-A, November 2019
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 pipe diameter, stiffness, material, and type in the Contract Documents. (1841.07.01)

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.