



Note: The PROV published in November 2017 replaces OPSS 404, November 2010 with no technical content changes.

CONSTRUCTION SPECIFICATION FOR SUPPORT SYSTEMS

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404.01 SCOPE

This specification covers the requirements for supplying, placing, maintaining, and removing support systems required to permit the excavation and backfilling of trenches or excavations for the installation of sanitary and storm pipe sewers, pipe culverts and end sections, forcemains and associated appurtenances, watermains and associated appurtenances, and other underground Utilities; maintenance holes, catch basins, ditch inlets, and valve chambers; and any other specified subsurface construction.

404.02 REFERENCES

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

Ontario Provincial Standard Specifications, Construction

OPSS 412 Sewage Forcemain Installation in Open Cut

Provincial Statute

Occupational Health and Safety Act

R.S.O. 1990,

c. O.1, as amended

Ontario Regulations 213/91 - Regulations for Construction Projects, as amended

404.03 DEFINITIONS

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

Associated Appurtenances mean as defined in OPSS 412 and OPSS 441.

Sheathing means the vertical members of the support system that are placed up against the walls of an excavation to directly resist the pressure exerted from the walls of the excavation. Sheathing may be either wood or steel sheet piling.

Support Systems means as described in the *Occupational Health and Safety Act* and Regulations for Construction Projects.

Trench means the definition as provided in the *Occupational Health and Safety Act* and Regulations for Construction Projects.

404.04 DESIGN AND SUBMISSION REQUIREMENTS

404.04.01 Submission Requirements

404.04.01.01 Pre-Condition Survey

When specified in the Contract Documents, a pre-condition survey shall be prepared for all buildings, Utilities, structures, roadway infrastructure, and facilities within 30 m of the location where the support system is to be installed. The pre-condition survey shall include, as a minimum: existing structural and cosmetic damage or defects.

A copy of the pre-condition survey shall be provided to the Contract Administrator upon request.

404.07 CONSTRUCTION

404.07.01 General

Support systems shall be supplied, placed, and maintained at the locations and elevations that are necessary or required to:

- a) support and protect the sides and bottom of the excavation.
- b) prevent undue disturbance or weakening of the supporting material below or beside the works.
- c) prevent movement of ground which may disturb or damage the works, adjacent pavements, property, structures, or other works.

404.07.02 Installation

Support systems shall be placed so they can be removed as backfilling takes place without damage to the works and without settlement of or damage to adjacent pavements, property, structures, or other works.

404.07.03 Removal, Backfilling, and Compacting

As the excavation is backfilled, the support system shall be removed, unless it is specified in the Contract Documents to be left in place or approved by the Contract Administrator.

Support systems shall be withdrawn gradually as backfilling progresses. Backfill shall be placed and compacted in a manner that fills the voids left by pulled support systems. The procedure for extracting the support system and placing backfill shall ensure the backfill load is applied gradually and disturbance of the works or foundation material is avoided.

Backfill shall be placed and compacted around and over the support systems left in place. Support systems left in place shall be cut off as specified in the Contract Documents.

404.07.04 Management of Excess Material

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

404.09 MEASUREMENT FOR PAYMENT

404.09.01 Actual Measurement

404.09.01.01 Support System Left in Place

Measurement for support systems left in place shall be based on the sheathing area for all sides of the excavation in square metres according to the following:

a) Height

The vertical distance of the sheathing actually left in place. If the sheathing is cut off less than 1,200 mm from its top then the actual vertical height placed shall be used.

b) Length

The horizontal distance along the line of the supported excavation from the beginning to the end of the sheathing left in place.

404.10 BASIS OF PAYMENT

404.10.01 Support Systems

Payment at the Contract price for the appropriate tender items for the installation of sanitary and storm pipe sewers, pipe culverts and end sections, forcemains and associated appurtenances, watermains and associated appurtenances, and other underground Utilities; maintenance holes, catch basins, ditch inlets or valve chambers; and any other specified subsurface construction shall include full compensation for all labour, Equipment, and Material to do the work.

404.10.02 Support Systems Left in Place - Item

Payment at the Contract price for the above tender item shall be full compensation for all Material left in place.

No additional payment shall be made for support systems left in place at the Contractor's option.