



**CONSTRUCTION SPECIFICATION FOR TEMPORARY
POTABLE WATER SUPPLY SERVICES**

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493.01 SCOPE

This specification covers the requirements for the installation of temporary watermains, service connections, and associated appurtenances to supply potable water prior to disconnecting service of an existing watermain on a temporary basis.

493.02 REFERENCES

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

Ontario Provincial Standard Specifications, Construction

- OPSS 206 Grading
- OPSS 441 Watermain Installation in Open Cut
- OPSS 492 Site Restoration Following Installation of Pipelines, Utilities, and Associated Structures

CSA Standards

- B64.5-11 Double Check Valve (DCVA) Backflow Preventers [Part of B64 Series-11 (R2016), Backflow Preventers and Vacuum Breakers Compendium]

American Water Works Association (AWWA)

C510-17 Double Check Valve Backflow Prevention Assembly

ASTM International

D1784 - 20 Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
D2241 - 20 Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
D3139 - 19 Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
F477 - 14 Elastomeric Seals (Gaskets) for Joining Plastic Pipe

NSF International

61-2014a Drinking Water System Components - Health Effects

493.03 DEFINITIONS

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

Associated Appurtenance means structures, devices, and appliances, other than pipe and conduit that are used in connection with a water distribution system, such as valves, hydrants, corporation cocks, services, and thrust restraints.

Excavation, Earth and Rock means the excavation classified as earth and rock according to OPSS 206.

Temporary Hydrant means temporary fire hydrant and all associated temporary appurtenances.

Temporary Potable Water Supply Services means temporary watermains, services, hydrants, and all associated appurtenances.

Temporary Services means temporary potable water supply services installed on or just below the ground surface for the purpose of providing potable water to customers while the existing watermain is out of service.

Temporary Watermain means temporary potable water supply hose or pipe installed on or just below the ground surface for the purpose of providing potable water to temporary services and temporary fire hydrants while the existing watermain is out of service.

Watermain means an installation designed for the conveyance of water under pressure using circular pipe.

493.04 DESIGN AND SUBMISSION REQUIREMENTS

493.04.01 Submission Requirements

The following information shall be submitted to the Contract Administrator 14 Days prior to the commencement of any work requiring temporary potable water supply services:

- a) Temporary potable water supply services plans including installation, operation, testing procedures, and a list of material and equipment to be used.
- b) Temporary hydrant details.

493.05 MATERIALS

493.05.01 General

The pipe size, type, and class shall be as specified in the Contract Documents.

Fittings shall be suitable for and compatible with the pipe material and class with which they are used.

All materials in contact with potable water shall be NSF 61 compliant and, if being reused, shall have been used exclusively for potable water services in the past.

All materials shall be capable of withstanding 860 kPa pressure and all other conditions of use.

493.05.02 Temporary Potable Water Supply Services

The pipe, hose, and all other materials used in conjunction with the temporary potable water supply services shall be as follows:

- a) Flexible hose jackets shall be abrasion resistant, either double jacket or specially coated, and be capable of being driven over by vehicles periodically without short term effects.
- b) Hose lining shall be of material that does not impart any taste or odour to the water.
- c) Hose shall come complete with aluminium couplings with threads.
- d) Rigid pipe shall be made of class 12454-B PVC material according to ASTM D1784. Material shall have a minimum hydrostatic design stress of 14 MPa.
- e) PVC shall be formulated with impact modifiers, heat stabilizers, and ultraviolet inhibitors.
- f) Pipe extrusion shall meet or exceed all requirements of ASTM D2241.
- g) Joints and couplings shall be according to ASTM D3139.
- h) O-rings shall be according to ASTM F477.
- i) Double check valve backflow preventers shall be according to CSA B64.5 and AWWA C510.

493.05.03 Valves

Valves shall be according to OPSS 441.

493.05.04 Temporary Hydrants

Temporary hydrants shall be as specified in the Contract Documents.

493.07 CONSTRUCTION

493.07.01 General

Written notices to all affected property owners are required a minimum of 48 hours prior to any disruption of water service as a result of the temporary by-pass.

Temporary water services shall be connected to the temporary watermain for each single residential unit or other building.

Connection to the private plumbing system of a residential unit shall be via a wye at an outside tap or an existing water service as specified in the Contract Documents. The connection of single residential units in series is not permitted. Each temporary water service shall have its own valved connection to the temporary watermain.

Connection to other buildings shall be as specified in the Contract Documents.

An adequate water supply shall always be available. Emergency repairs shall be performed whenever there is a failure or cessation of the operation of any component or components of the temporary potable water system. If the temporary potable water supply service fails, it shall be reported to the Contract Administrator immediately and restored as soon as possible. Repair service shall be provided 24-7 for the duration of the Contract.

Care shall be exercised during the installation of temporary potable water supply services to avoid contamination of the services.

No work shall be done during freezing weather unless directed by the Contract Administrator. No temporary watermains or temporary water services shall be installed or operated during freezing weather. Pipes already in use shall be removed or drained and existing services restored when so directed by the Contract Administrator.

493.07.02 Shutting Down or Charging Watermains

Shutting down or charging watermains shall be according to OPSS 441.

493.07.03 Temporary Watermains

Installation of a temporary watermain shall be according to OPSS 441.

A double check valve backflow preventer shall be installed at any connection of a temporary watermain to the water supply and distribution system (e.g., at hydrants). Source connections shall be as specified in the Contract Documents.

493.07.04 Temporary Potable Water Supply Services

Temporary potable water supply services for single residential units and other users, including flow to maintain fire protection systems, shall be as specified in the Contract Documents.

The temporary potable water supply service connections shall be valved near the point of connection to the temporary watermain and near the point of connection to a private plumbing system so that both the temporary watermain and the temporary potable water supply services may be disinfected.

493.07.05 Temporary Hydrants

When a hydrant is removed from service, a temporary hydrant and the necessary valves and fittings shall be installed as specified in the Contract Documents.

Before permanently shutting down the existing watermain, the temporary hydrants shall be tested to ensure that they are in proper working order.

The hydrants that are out of service during construction operations shall be bagged and clearly marked with a "HYDRANT OUT OF SERVICE" tag.

Once in use, the temporary hydrants shall be maintained until the existing or new hydrants are restored to service.

All temporary potable water supply service attachments to fire hydrants shall be easily removable for fire protection purposes.

All temporary hydrants shall have reflective tape on the barrel for increased visibility. The temporary hydrants shall be in an upright position at all times.

493.07.06 Valves

Valves shall be installed at each branch of a temporary watermain.

Before permanently shutting down the existing watermain, the valves shall be tested to ensure that they are in proper working order.

493.07.07 Protection

Protection shall be provided to the temporary potable water supply services at locations such as road crossings, sidewalks, driveways, and walkways.

When temporary watermains cross over the roadway, the asphalt pavement shall be saw cut and removed and the temporary watermain shall be buried. Under no circumstance is a pipe road crossing to remain open and unprotected from vehicular and pedestrian traffic. If a concrete road base exists, it shall not be disturbed.

When temporary potable water supply services are used on full right-of-way reconstruction projects, the temporary potable water supply service piping shall also be buried at all sidewalks, driveways, and walkways.

When temporary potable water supply services are used on projects where the road surface is not being reconstructed, the temporary service piping shall be buried only at all road crossings. When temporary watermains or temporary potable water supply services cross a driveway or a sidewalk, asphalt or another acceptable material shall be mounded over the pipe. A polyethylene sheet shall be placed as a barrier on concrete or interlocking driveways. If the protection work performed or material used is not to the satisfaction of the Contract Administrator, action shall be taken to rectify the problem at no additional cost to the Owner. Safety flashers and barricades, as may be required, shall be furnished and maintained. In general, the temporary potable water supply service pipe shall be laid where it causes the least obstruction and is least likely to be damaged.

The temporary potable water supply services installed across all road crossings, sidewalks, driveways, and walkways shall be protected for the duration of the work. This shall include earth excavation, backfill, asphalt reinstatement, and ramping material required as directed by the Contract Administrator.

Adequate signage shall be provided at locations where hoses are exposed and may present a public safety hazard, such as blow off hoses at catchbasins.

493.07.08 Leakage Testing

The temporary potable water supply service shall be watertight. Testing of the temporary watermain and services shall be at system pressure.

Leakage testing shall be conducted in the presence of the Contract Administrator upon completion of the watermain, including services. All leaks shall be repaired prior to covering the pipe and at no cost to the Owner.

493.07.09 Flushing and Disinfecting Temporary Watermains and Services

Flushing and disinfecting temporary watermains and services shall be according to the flushing and disinfecting watermains subsection as specified in OPSS 441.

493.07.10 Removal of Temporary Potable Water Supply Services

Temporary potable water supply services may be used from approximately mid-April to mid-October. All temporary services shall be completely removed by mid-November. Any deviation from this timing window shall be approved by the Contract Administrator.

Site and roadway restoration shall be according to OPSS 492.

493.07.11 Management of Excess Material

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

All chlorinated water used for testing, flushing, or disinfecting watermains shall be directed to an acceptable outlet in a manner that meets the requirements of all applicable regulations.

493.10 BASIS OF PAYMENT

493.10.01 Temporary Potable Water Supply Services – 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.

On completion of the supply, installation, flushing, disinfecting, and testing of the temporary potable water supply services prior to putting it in operation, a progress payment to 60% of the above item shall be made. The balance shall be prorated over the remainder of the working period.

Removal or draining of the temporary potable water supply services during freezing weather and its subsequent return to service shall be at no additional cost to the Owner.