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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | November 5, 2007 | Minor revisions by Legal Services. |
| 3 | November 13, 2009 | Modified ‘Related Section’ |
| 4 | March 14, 2011 | Minor changes by Legal |
| 5 | June 5, 2012 | Addition of References and Replacement Parts sections on this page |
| 6 | June 29, 2012 | Reformatted to Remove White Space |
| 7 | April 24, 2015 | General formatting |
| 8 | April 7, 2020 | Removed Replacement Parts  Specification rewritten to align with OPSS.MUNI 442  Added requirements for petrolatum anti-corrosion protection system  1.1 Added Summary  1.3 Added applicable references  1.4 Added Measurement and Payment language  (BM) |
| 9 | February 4, 2022 | Removed reference to standard drawing W-213 (BM) |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# GENERAL

## Summary

This specification covers the requirements for providing corrosion protection to metallic watermains and sewage forcemains and their metallic components using galvanic anodes, petroleum wax tape coating systems, or a combination of methods in typical soil conditions.

## Related Sections

[Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements—not to define the scope of the Section.

Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.

Contractor is responsible for coordination of the Work.

This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the section for the specific project it may be deleted.]

[List Sections specifying related requirements.]

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

### Sections:

#### Section 01300 – Submittals

#### Section 02511 – Watermains

#### Section 02531 – Sewage Forcemains

#### Section 15100 – Plumbing Piping

#### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

## References

### OPSS.MUNI 442, Construction Specification for Corrosion Protection of New and Existing Watermains

### Canadian Standards Association (CSA)

#### CSA Z245.30-18 Field-applied external coatings for steel pipeline systems

### American Water Works Association (AWWA)

#### AWWA C217-16 Petrolatum and Petroleum Wax Tape Coatings for the Exterior of Connections and Fittings for Steel Water Pipelines

### Surface Preparation Standards

#### SSPC-SP-1 Solvent Cleaning

#### SSPC-SP-2 Hand Tool Cleaning

#### SSPC-SP-3 Power Tool Cleaning

## Measurement for Payment

The Work outlined in this Section will be included in the unit price as indicated on the bid form per metre of [watermain] [sewage forcemain] under Section [02511 – Watermains] [02531 – Sewage Forcemains].

## General

Submit shop drawings and Product data in accordance with Section 01300 – Submittals.

# PRODUCTS

## **OPSS.MUNI 442** shall be followed with the following amendments:

**442.05 Zinc and Magnesium Anodes** is amended by addition of the following:

Anodes shall be M-17-20 7.7 kg Magnesium. [Consultant Note: Confirm anode type is suitable for soils encountered.]

**442.05.03 Petrolatum and Petroleum Wax Tape Coatings** shall be deleted and replaced with the following:

### This Section covers priming, profiling and wrapping with petrolatum products of any of the following metallic surfaces: piping, nuts, bolts, flanges, couplings, valves, dissimilar metals/materials, and mechanical equipment for below ground service.

### Apply petrolatum anti-corrosion protection system that is AWWA C217-16 and CSA Z245.30-18 compliant, and meets ISO 9001 and ISO 14001.

### Anti-corrosion materials shall consist of paste primer, profiling mastic or mastic blankets for profiling of irregular contours and low temperature (LT) tape. Applications on elevated temperature pipe and fittings above 50°C require a high temperature petrolatum tape.

### Material Description

#### Paste/Primers:

##### Paste/primer is an integral component of all petrolatum systems for the preparation of metal surfaces prior to wrapping.

##### The paste/primer shall displace moisture, passivate surface oxides, fill surface imperfections and ensure intimate contact between petrolatum tape.

##### In especially wet conditions, wet-formulated primer may be easier to apply.

#### Mastics:

##### Profiling mastic or mastic blankets (for diameters of 400mm and up) are a cold applied mastic for molding around irregular shaped fittings to provide a suitable profile for applying anti-corrosion tapes.

#### Petrolatum Tapes:

##### Petrolatum LT tapes shall be stable in composition and have plasticity over a wide temperature range.

##### The tape shall be non-hardening and non-cracking.

##### The tape shall accommodate vibration and extreme movement of substrate. Superficial oxidation renders the surface less tacky and shall be removed with a wire brush.

##### The tape shall be highly resistant to mineral acids and alkalis.

#### Compatibility & Requirement:

##### All materials must be from the same manufacturer to ensure compatibility and optimal performance and must meet AWWA, CSA and ISO requirements outlined above.

**442.05.05 Test Stations** is deleted and replaced with the following:

Test Stations are not required.

**442.05.07 Miscellaneous Materials** is amended by addition of the following:

C-Taps shall be approved by the Consultant prior to use.

# EXECUTION

## **OPSS.MUNI 442** shall be followed with the following amendments:

**442.05.03 Petrolatum and Petroleum Wax Tape Coatings** shall be followed with the following amendments:

**Petrolatum Anti-Corrosion Protection System Installation**

### Surface Preparation:

#### Remove dirt, grease and oil including excessive moisture and frost in accordance with SSPC-SP1, Solvent Cleaning.

#### Remove weld spatter, sharp points and edges.

#### Remove loose rust, paint and foreign matter by hand and/or power tools cleaning in accordance with SSPC-SP-2 Hand Tool Cleaning or SSP-SC-3 Power Tool Cleaning.

#### High pressure water blasting may be used to prepare the surface.

### Paste/Primer:

#### Apply a thin, uniform coating of paste over the entire metal fitting including 10cm on the pipe on either side of the fitting. This will displace moisture, arrest corrosion and aid in adhesion of the tape.

#### Apply a liberal coating to threads, cavities, shoulders, pits, etc.

### Profiling Mastic:

#### To protect complex surfaces and configurations such as valve bodies, flanges, couplings, etc., apply profiling mastic by filling and packing to achieve a uniform contour to which tape can be applied without bridging or voids as to avoid air pockets or cavities.

#### Place mastic firmly around sharp edges to protect against cutting the tape.

### LT Petrolatum Tape:

#### After the entire surface has been covered in primer and bolts, nuts and voids have received a filler of mastic, fittings can be wrapped either with a width of tape wide enough, that when wrapped circumferentially, enough tape will lap over the side to allow the installer to smooth it into the side of the fitting and 7.5cm onto the pipe; or take several short pieces of tape and by applying them longitudinally along the axis of the pipe up over the fitting and down the other side with a minimum of 50% overlap.

### All installations shall be approved by the Consultant prior to backfilling.

**442.07.06 Test Stations** is deleted and replaced with the following:

Test stations are not required.

**442.07.07 Thermite Weld Connections** is amended by addition of the following:

The weld shall be repeated if deemed necessary by the Consultant, at the Contractor's own expense.

**442.07.08 Thermite Weld Protection** is amended by addition of the following:

The Consultant is to certify satisfactory installation of thermite weld protection.

**442.07.09 Anode and Header Wire Splicing and Waterproofing** is amended by addition of the following:

The splicing method shall be approved by the Consultant prior to use.

**442.07.12 Anode Backfilling** is amended by addition of the following:

Supervise backfilling of protected Work and cathodic protection systems to ensure that neither is damaged in any way or that cathodic protection systems are not compromised in any way.

Place the anode a minimum of 1.0 m from the fitting and cover with native backfill.

**END OF SECTION**