

Regional Municipality of Halton



**AMENDMENTS TO THE
ONTARIO PROVINCIAL STANDARD
SPECIFICATIONS
(OPSS)**

Tracking Changes to OPSS Amendments

NOTE: These amendments apply to and are to be read in conjunction with the latest Ontario Provincial Standard Specifications & Drawings.

Cancelled/Removed	Revised/New	Remarks/Comments
Release of OPSS - November 2018		
	Electrical Work OPSS.Muni 106	<ul style="list-style-type: none"> • Changed OPSS 106 to OPSS.Muni 106 as OPS changed the Specification Location
	Explosives OPSS.Muni 120	<ul style="list-style-type: none"> • Changed OPSS 120 to OPSS.Muni 120 as OPS changed the Specification Location
	Borrow OPSS.Muni 212	<ul style="list-style-type: none"> • Changed OPSS 212 to OPSS.Muni 212 as OPS changed the Specification Location
	Hot Mix Asphalt OPSS.Muni 310	<ul style="list-style-type: none"> • Changed OPSS 310 to OPSS.Muni 310 as OPS changed the Specification Location
	Asphalt Sidewalk, Driveway, and Boulevard and for Sidewalk Resurfacing OPSS.Muni 311	<ul style="list-style-type: none"> • Changed OPSS 311 to OPSS.Muni 311 as OPS changed the Specification Location
	Concrete Curb and Gutter OPSS.Muni 353	<ul style="list-style-type: none"> • Changed OPSS 353 to OPSS.Muni 353 as OPS changed the Specification Location
	Support Systems OPSS.Muni 404.10.01	<ul style="list-style-type: none"> • Changed OPSS 404.10.01 to OPSS.Muni 404.10.01 as OPS changed the Specification Location
	Pipe Subdrain OPSS.Muni 405.07.08	<ul style="list-style-type: none"> • Changed OPSS 405.07.08 to OPSS.Muni 405.07.08 as OPS changed the Specification Location
	Adjusting or Rebuilding Maintenance Holes, Catch Basins, Ditch Inlets and Valve Chambers OPSS 408	<ul style="list-style-type: none"> • Changed OPSS 407.07.15 to OPSS 408 as OPS changed the Specification Location • Changed section title
	Closed-Circuit Television Inspection of Pipelines OPSS.Muni 409	<ul style="list-style-type: none"> • Changed OPSS 409 to OPSS.Muni 409 as OPS changed the Specification Location
	Pipe Installation OPSS.Muni 410.07.12.01	<ul style="list-style-type: none"> • Changed OPSS 410.07.12.01 to OPSS.Muni 410.07.12.01 as OPS changed the Specification Location
	Pipe Installation OPSS.Muni 410.07.13	<ul style="list-style-type: none"> • Changed OPSS 410.07.13 to OPSS.Muni 410.07.13 as OPS changed the Specification Location • Removed Inspection Chamber/Cleanout Required (RH 304.01)

Revised April 2019

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	Pipe Installation OPSS.Muni 410.07.16.05	<ul style="list-style-type: none"> Changed OPSS 410.07.16.05 to OPSS.Muni 410.07.16.05 as OPS changed the Specification Location
	Sewage Forcemain Installation in Open Cut OPSS.Muni 412.05.06	<ul style="list-style-type: none"> Changed OPSS 412.05.06 to OPSS.Muni 412.05.06 as OPS changed the Specification Location
	Sewage Forcemain Installation in Open Cut OPSS.Muni 412.05.07.01	<ul style="list-style-type: none"> Changed OPSS 412.05.07.01 to OPSS.Muni 412.05.07.01 as OPS changed the Specification Location Replaced "Type 316 stainless steel nuts, bolts & stud" with "Restraining Rods and T-Head Bolt with nut are Corrosion-Resistant, Fluoropolymer Coated, High Strength Low-Alloy Steel that conforms to ANSI/AWWA C111/A21.11"
	Sewage Forcemain Installation in Open Cut OPSS.Muni 412.05.07.04	<ul style="list-style-type: none"> Changed OPSS 412.05.07.04 to OPSS.Muni 412.05.07.04 as OPS changed the Specification Location
	Sewage Forcemain Installation in Open Cut OPSS.Muni 412.05.10	<ul style="list-style-type: none"> Changed OPSS 412.05.10 to OPSS.Muni 412.05.10 as OPS changed the Specification Location
	Sewage Forcemain Installation in Open Cut OPSS.Muni 412.07.12.06	<ul style="list-style-type: none"> Changed OPSS 412.07.12.06 to OPSS.Muni 412.07.12.06 as OPS changed the Specification Location
	Sewage Forcemain Installation in Open Cut OPSS.Muni 412.07.14.03	<ul style="list-style-type: none"> Changed OPSS 412.07.14.03 to OPSS.Muni 412.07.14.03 as OPS changed the Specification Location
	Pipeline and Utility Installation by Tunnelling OPSS.Muni 415.07.04	<ul style="list-style-type: none"> Changed OPSS 415.07.04 to OPSS.Muni 415.07.04 as OPS changed the Specification Location
	Pipeline and Utility Installation by Jacking and Boring OPSS.Muni 416.07.05	<ul style="list-style-type: none"> Changed OPSS 416.07.05 to OPSS.Muni 416.07.05 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.05.08	<ul style="list-style-type: none"> Changed OPSS 441.05.08 to OPSS.Muni 441.05.08 as OPS changed the Specification Location

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	Watermain Installation in Open Cut OPSS.Muni 441.05.09	<ul style="list-style-type: none"> • Changed OPSS 441.05.09 to OPSS.Muni 441.05.09 as OPS changed the Specification Location • Replaced “Type 316 stainless steel nuts, bolts & stud” with “Restraining Rods and T-Head Bolt with nut are Corrosion-Resistant, Fluoropolymer Coated, High Strength Low-Alloy Steel that conforms to ANSI/AWWA C111/A21.11”
	Watermain Installation in Open Cut OPSS.Muni 441.05.10	<ul style="list-style-type: none"> • Changed OPSS 441.05.10 to OPSS.Muni 441.05.10 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.05.12	<ul style="list-style-type: none"> • Changed OPSS 441.05.12 to OPSS.Muni 441.05.12 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.05.13	<ul style="list-style-type: none"> • Changed OPSS 441.05.13 to OPSS.Muni 441.05.13 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.07	<ul style="list-style-type: none"> • Changed OPSS 441.07.07 to OPSS.Muni 441.07.07 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.14	<ul style="list-style-type: none"> • Changed OPSS 441.07.14 to OPSS.Muni 441.07.14 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.15.04	<ul style="list-style-type: none"> • Changed OPSS 441.07.15.04 to OPSS.Muni 441.07.15.04 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.17.01	<ul style="list-style-type: none"> • Changed OPSS 441.07.17.01 to OPSS.Muni 441.07.17.01 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.17.03	<ul style="list-style-type: none"> • Changed OPSS 441.07.17.03 to OPSS.Muni 441.07.17.03 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.18	<ul style="list-style-type: none"> • Changed OPSS 441.07.18 to OPSS.Muni 441.07.18 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.19	<ul style="list-style-type: none"> • Changed OPSS 441.07.19 to OPSS.Muni 441.07.19 as OPS changed the Specification Location

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	Watermain Installation in Open Cut OPSS.Muni 441.07.20	<ul style="list-style-type: none"> Changed OPSS 441.07.20 to OPSS.Muni 441.07.20 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.21	<ul style="list-style-type: none"> Changed OPSS 441.07.21 to OPSS.Muni 441.07.21 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.23	<ul style="list-style-type: none"> Changed OPSS 441.07.23 to OPSS.Muni 441.07.23 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.24	<ul style="list-style-type: none"> Changed OPSS 441.07.24 to OPSS.Muni 441.07.24 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.24.01	<ul style="list-style-type: none"> Changed OPSS 441.07.24.01 to OPSS.Muni 441.07.24.01 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.24.03	<ul style="list-style-type: none"> Changed OPSS 441.07.24.03 to OPSS.Muni 441.07.24.03 as OPS changed the Specification Location
	Watermain Installation in Open Cut OPSS.Muni 441.07.25	<ul style="list-style-type: none"> Changed OPSS 441.07.25 to OPSS.Muni 441.07.25 as OPS changed the Specification Location
	Corrosion Protection of New and Existing Watermains OPSS.Muni 442.05.01.01	<ul style="list-style-type: none"> Changed OPSS 442.05.01.01 to OPSS.Muni 442.05.01.01 as OPS changed the Specification Location
	Corrosion Protection of New and Existing Watermains OPSS.Muni 442.07.04	<ul style="list-style-type: none"> Changed OPSS 442.07 to OPSS.Muni 442.07.04 as OPS changed the Specification Location
	Pipeline and Utility and Installation in Soil by Horizontal Directional Drilling OPSS.Muni 450.04	<ul style="list-style-type: none"> Changed OPSS 450.04 to OPSS.Muni 450.04 as OPS changed the Specification Location
	Pipeline and Utility and Installation in Soil by Horizontal Directional Drilling OPSS.Muni 450.07.10	<ul style="list-style-type: none"> Changed OPSS 450.07.10 to OPSS.Muni 450.07.10 as OPS changed the Specification Location

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	Pipeline and Utility and Installation in Soil by Horizontal Directional Drilling OPSS.Muni 450.05.03	<ul style="list-style-type: none"> Changed OPSS 450.05.03 to OPSS.Muni 450.05.03 as OPS changed the Specification Location
	Pipeline and Utility and Installation in Soil by Horizontal Directional Drilling OPSS.Muni 450.07.12.01	<ul style="list-style-type: none"> Changed OPSS 450.07.12.01 to OPSS.Muni 450.07.12.01 as OPS changed the Specification Location
	Pipeline Rehabilitation by Cured-In-Place Pipe OPSS.Muni 460.04.02	<ul style="list-style-type: none"> Changed OPSS 460.04.02 to OPSS.Muni 460.04.02 as OPS changed the Specification Location
	Pipeline Rehabilitation by Cured-In-Place Pipe OPSS.Muni 460.07.01	<ul style="list-style-type: none"> Changed OPSS 460.07.01 to OPSS.Muni 460.07.01 as OPS changed the Specification Location
	Pipeline Rehabilitation by Cured-In-Place Pipe OPSS.Muni 460.07.10	<ul style="list-style-type: none"> Changed OPSS 460.07.12 to OPSS.Muni 460.07.10 as OPS changed the Specification Location
	Pipeline Rehabilitation by Cured-In-Place Pipe OPSS.Muni 460.07.12	<ul style="list-style-type: none"> Changed OPSS 460.07.14 to OPSS.Muni 460.07.12 as OPS changed the Specification Location
	Pipeline and Conduit Installation by Pipe Bursting OPSS.Muni 463.07.17	<ul style="list-style-type: none"> All CCTV inspections shall follow Halton Regional Specifications
Temporary Potable Water Supply Services OPSS 493.07.01		<ul style="list-style-type: none"> Removed Amendment. OPSS 493.07.01 already states 48 hours.
	Dust Suppressants OPSS.Muni 506.10	<ul style="list-style-type: none"> Changed OPSS 506.10 to OPSS.Muni 506.10 as OPS changed the Specification Location
	Removal OPSS.Muni 510	<ul style="list-style-type: none"> Changed OPSS 510 to OPSS.Muni 510 as OPS changed the Specification Location
	Removal OPSS.Muni 510.07.03.11	<ul style="list-style-type: none"> Changed OPSS 510.07.03.11 to OPSS.Muni 510.07.03.11 as OPS changed the Specification Location
	Traffic Control Signing OPSS.Muni 706.07.05	<ul style="list-style-type: none"> Changed OPSS 706.07.03 to OPSS.Muni 706.07.05 as OPS changed the Specification Location

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	Steel Beam Guide Rail and Cable Guide Rail OPSS.Muni 721	<ul style="list-style-type: none"> Changed OPSS 721 to OPSS.Muni 721 as OPS changed the Specification Location
	Protection of Trees OPSS.Muni 801	<ul style="list-style-type: none"> Changed OPSS 801 to OPSS.Muni 801 as OPS changed the Specification Location
	Protection of Trees OPSS.Muni 801.07	<ul style="list-style-type: none"> Changed OPSS 801.07 to OPSS.Muni 801.07 as OPS changed the Specification Location
	Protection of Trees OPSS.Muni 801.09	<ul style="list-style-type: none"> Changed OPSS 801.09 to OPSS.Muni 801.09 as OPS changed the Specification Location
	Sodding OPSS.Muni 803.07.05	<ul style="list-style-type: none"> Changed OPSS 803.07.05 to OPSS.Muni 803.07.05 as OPS changed the Specification Location
	Sodding OPSS.Muni 803.10.01	<ul style="list-style-type: none"> Changed OPSS 803.10.01 to OPSS.Muni 803.10.01 as OPS changed the Specification Location
	Seed and Cover OPSS.Muni 804.07.02	<ul style="list-style-type: none"> Changed OPSS 804.07.02 to OPSS.Muni 804.07.02 as OPS changed the Specification Location
	Seed and Cover OPSS.Muni 804.09	<ul style="list-style-type: none"> Changed OPSS 804.09 to OPSS.Muni 804.09 as OPS changed the Specification Location
	Temporary Erosion and Sediment Control Measures OPSS.Muni 805.07.02	<ul style="list-style-type: none"> Changed OPSS 805.07.03 to OPSS.Muni 805.07.02 as OPS changed the Specification Location
	Temporary Erosion and Sediment Control Measures OPSS.Muni 805.07.03	<ul style="list-style-type: none"> Changed OPSS 805.07.04 to OPSS.Muni 805.07.03 as OPS changed the Specification Location
	Temporary Erosion and Sediment Control Measures OPSS.Muni 805.07.05.01	<ul style="list-style-type: none"> Changed OPSS 805.07.05.01 to OPSS.Muni as OPS 805.07.05.01 changed the Specification Location

SECTION	OPSS No.	REVISIONS OR ADDITIONS
ELECTRICAL WORK	OPSS.Muni. 106	<p>GENERAL</p> <ul style="list-style-type: none"> For all amendments to section 106, please refer to the current version of "Uniform Traffic Control Specifications and Standards for Operating Authorities Within the Region of Halton"
EXPLOSIVES	OPSS.Muni 120	<p>GENERAL</p> <ul style="list-style-type: none"> Use of explosives are not permitted without prior approval from the regulating authority and the Region of Halton
BORROW	OPSS.Muni 212	<p>GENERAL</p> <ul style="list-style-type: none"> Halton will accept select Subgrade Material conforming to OPSS Muni.1010, Table 2
HOT MIX ASPHALT	OPSS.Muni 310	<p>GENERAL</p> <ul style="list-style-type: none"> Halton Region's "SPECIFICATIONS FOR HOT MIX ASPHALT PAVING, MATERIALS, SAMPLING, AND TESTING" takes precedence over this specification
ASPHALT SIDEWALK, DRIVEWAY, AND BOULEVARD AND FOR SIDEWALK RESURFACING	OPSS.Muni 311	<p>GENERAL</p> <ul style="list-style-type: none"> Halton Region's "SPECIFICATIONS FOR HOT MIX ASPHALT PAVING, MATERIALS, SAMPLING, AND TESTING" takes precedence over this specification
CONCRETE FOR PAVEMENT AND CONCRETE BASE	OPSS 350	<p>GENERAL</p> <ul style="list-style-type: none"> Should Halton permit work to be done when the temperature is at about or below 0 degrees Celsius, the contractor shall furnish all necessary equipment and fuel for heating all materials required. The contractor shall also adequately protect the work from damage by frost during and after laying or placing to the entire satisfaction of the Region. Cold weather concrete work shall be done in accordance with the latest revision of OPSS 350.

SECTION	OPSS No.	REVISIONS OR ADDITIONS
CONCRETE SIDEWALK	OPSS 351	<p>GENERAL</p> <ul style="list-style-type: none"> Should Halton permit work to be done when the temperature is at about or below 0 degrees Celsius, the contractor shall furnish all necessary equipment and fuel for heating all materials required. The contractor shall also adequately protect the work from damage by frost during and after laying or placing to the entire satisfaction of the Region. Cold weather concrete work shall be done in accordance with the latest revision of OPSS 350.
CONCRETE CURB AND GUTTER SYSTEMS	OPSS.Muni 353	<p>GENERAL</p> <ul style="list-style-type: none"> Should Halton permit work to be done when the temperature is at about or below 0 degrees Celsius, the contractor shall furnish all necessary equipment and fuel for heating all materials required. The contractor shall also adequately protect the work from damage by frost during and after laying or placing to the entire satisfaction of the Region. Cold weather concrete work shall be done in accordance with the latest revision of OPSS 350.
SUPPORT SYSTEMS	OPSS.Muni 404.10.01	<p>SUPPORT SYSTEMS</p> <ul style="list-style-type: none"> Payment will be made for ordinary sheeting and for all braces, shores and stringers or whaling strips and for all sheet piling left in place by written order of the Engineer for the length and the amount actually left at the current market rate to be set and reviewed by the Engineer.
PIPE SUBDRAINS	OPSS.Muni 405.07.08	<p>CLOSED-CIRCUIT TELEVISION INSPECTION</p> <ul style="list-style-type: none"> CCTV shall be done in accordance with Halton Region specifications and not OPSS.Muni 409
MAINTENANCE HOLE, CATCH BASIN, DITCH INLET, AND VALVE CHAMBER INSTALLATION	OPSS 407.05.08 OPSS 407.07.17	<p>ALUMINUM SAFETY PLATFORMS & INSTALLATION OF ALUMINUM SAFETY PLATFORMS</p> <ul style="list-style-type: none"> Halton Region does not permit safety platforms in Manholes
	OPSS 407.10.01	<p>MAINTENANCE HOLES, "TYPE, SIZE" - ITEM CATCH BASINS "TYPE, SIZE" - ITEM DITCH INLETS "SIZE" - ITEM VALVE CHAMBERS "SIZE" - ITEM MAINTENANCE HOLE LEAKAGE TESTING - ITEM</p> <ul style="list-style-type: none"> Replace 150 mm with 300 mm.

SECTION	OPSS No.	REVISIONS OR ADDITIONS
ADJUSTING OR REBUILDING MAINTENANCE HOLES, CATCH BASINS, DITCH INLETS, AND VALVE CHAMBERS	OPSS 408	INSTALLATION OF ADJUSTMENT UNITS <ul style="list-style-type: none"> Halton permits the use of Butyl tape or any other approved tape or coating, for adjustment units.
	OPSS 408.05.08 OPSS 408.07.01	ALUMINUM SAFETY PLATFORMS & CONSTRUCTION – GENERAL <ul style="list-style-type: none"> Halton Region does not permit safety platforms in Manholes
CLOSED-CIRCUIT TELEVISION INSPECTION OF PIPELINES	OPSS.Muni 409	GENERAL <ul style="list-style-type: none"> CCTV shall be done in accordance with Halton Region specifications and not OPSS.Muni 409 All sewers and service connections installed are subject to inspection by closed circuit television. Halton may carry out a TV inspection and the contractor shall provide, at no additional cost, such assistance as the Engineer may require. Halton will bear the cost of the first TV inspection, operators, equipment rental and any other costs related to this operation. All debris and crust shall be removed from the pipe and manhole interior before closed circuit TV inspection. In case the TV inspection reveals any defects in the work, the contractor will repair the same at his cost to the entire satisfaction of the Engineer. Any second or subsequent inspection shall be at the cost of the contractor
PIPE INSTALLATION	OPSS.Muni 410.07.12.01	GENERAL <ul style="list-style-type: none"> All tees or stubs shall be plugged with flexible jointing caps or acceptable alternate securely fastened to withstand the internal test pressure. Such plugs or caps shall be readily removable and their removal shall provide a socket suitable for making a flexible jointed service connection or extension. Replace 150 mm with 300 mm
	OPSS.Muni 410.07.13	SERVICE CONNECTIONS <ul style="list-style-type: none"> Halton requires a minimum grade of 2% to be maintained. Wyes are NOT permitted in Halton Region All plugs required shall be mechanical stoppers and shall be approved by the Engineer

SECTION	OPSS No.	REVISIONS OR ADDITIONS
	OPSS.Muni 410.07.16.05	DEFLECTION TESTING OF PIPE SEWERS <ul style="list-style-type: none"> • The maximum pipe deflection shall be 70% of the pipe manufacturer's recommendation or a maximum of 5% whichever less is.
SEWAGE FORCEMAIN INSTALLATION IN OPEN CUT	OPSS.Muni 412.05.06	STEEL PIPE <ul style="list-style-type: none"> • Steel pipe is not permitted in Halton Region
SEWAGE FORCEMAIN INSTALLATION IN OPEN CUT Cont'd	OPSS.Muni 412.05.07.01	VALVES – GENERAL - SIZES 100 MM TO 300 MM <ul style="list-style-type: none"> • All drain valves shall conform to AWWA C509 or C515 • Intended position of valve in line is vertical. • Operation nut is to be 49.2 mm square at top, 50 mm square at base, and 45 mm high. The nuts shall have flanged base upon which is cast an arrow to indicate the direction to open. • Restraining Rods and T-Head Bolt with nut are Corrosion-Resistant, Fluoropolymer Coated, High Strength Low-Alloy Steel that conforms to ANSI/AWWA C111/A21.11 are required on all valves used in chambers
	OPSS.Muni 412.05.07.04	KNIFE GATE VALVES <ul style="list-style-type: none"> • Knife gate valves are not permitted in Halton Region.
	OPSS.Muni 412.05.10	STAINLESS STEEL STRAPS, TIE-RODS, ANGLES, NUTS, AND BOLTS <ul style="list-style-type: none"> • Concrete thrust blocks are not permitted in Halton Region.
	OPSS.Muni 412.07.12.06	STEEL PIPE <ul style="list-style-type: none"> • Steel pipe is not permitted in Halton Region.
	OPSS.Muni 412.07.14.03	POLYVINYL CHLORIDE (PVC) PRESSURE PIPE <ul style="list-style-type: none"> • Maximum of 50% of the pipe manufacturer's recommendation for pipe deflection. • Fusible PVC pipe is allowed in Halton
PIPELINE AND UTILITY INSTALLATION BY TUNNELLING	OPSS.Muni 415.07.04	TUNNELLING <ul style="list-style-type: none"> • The tunnelling supervisor must have a minimum of 3 years of supervisory tunnelling experience.
PIPELINE AND UTILITY INSTALLATION BY JACKING AND BORING	OPSS.Muni 416.07.05	PIPELINE INSTALLATION <ul style="list-style-type: none"> • The space between the casing pipe and the carrier pipe shall be filled according to the Contract Documents • The carrier pipe shall be supported according to the Contract Documents • Reference Drawing RH 412.010

SECTION	OPSS No.	REVISIONS OR ADDITIONS
WATERMAIN INSTALLATION IN OPEN CUT	OPSS.Muni 441.05.08	<p>COMPOSITE PIPE</p> <ul style="list-style-type: none"> Composite pipe is not permitted in Halton Region.
WATERMAIN INSTALLATION IN OPEN CUT Cont'd	OPSS.Muni 441.05.09	<p>VALVES</p> <ul style="list-style-type: none"> All valves shall conform to AWWA C509 & C515 Operating nut is to be 49.2 mm square at top, 50 mm square at base and 45 mm high. The nut shall have a flanged base upon which is cast an arrow to indicate the direction to open. All direct bury valves shall be mechanical joint, valves in chambers shall be flanged Restraining Rods and T-Head Bolt with nut are Corrosion-Resistant, Fluoropolymer Coated, High Strength Low-Alloy Steel that conforms to ANSI/AWWA C111/A21.11 are required on all valves used in chambers
	OPSS.Muni 441.05.10	<p>HYDRANTS</p> <ul style="list-style-type: none"> Hydrants shall include the following standards: <ul style="list-style-type: none"> <u>Nozzles - Hose Nozzles</u> 2 - 63.5 mm CSA hose nozzles 63.5 mm I.D. 79.4 mm O.D. 5 threads per 25 mm 31.75 mm square operating nut <u>Storz Pumper Connection</u> 1-100 mm Storz Pumper Connection (CAN/ULC #S-520) 31.75 mm square operating nut Storz Cap painted black <p>COLOUR CODING</p> <ul style="list-style-type: none"> All hydrants shall be colour coded as follows: <ul style="list-style-type: none"> Barrel below ground to be a non-toxic bituminous black coating. Barrel above ground to be painted fire red. Bonnets and nozzle caps to be painted danger yellow. Storz Nozzle Cap to be painted black. All hydrants with bottom drains sealed or plugged shall have a blue band painted around the top flange <p>PAINT COLOURS</p> <ul style="list-style-type: none"> Ferox Instant Dry Metal Coat Paints to be used or an approved equivalent.

SECTION	OPSS No.	REVISIONS OR ADDITIONS
WATERMAIN INSTALLATION IN OPEN CUT Cont'd	OPSS.Muni. 441.05.12	SERVICE CONNECTION FITTINGS AND APPURTENANCES <ul style="list-style-type: none"> Tapping sleeves shall be used on all PVC pipe installations. All main stops, curb stops and couplings shall be lead free.
	OPSS.Muni 441.05.13	CONCRETE <ul style="list-style-type: none"> Concrete thrust blocks are not permitted in Halton Region.
	OPSS.Muni 441.07.07	TRANSPORTING, UNLOADING, STORING, AND HANDLING PIPE <ul style="list-style-type: none"> Remove "up to and including 600 mm diameter".
	OPSS.Muni 441.07.14	INSTALLATION OF PIPE <ul style="list-style-type: none"> Replace 150 mm with 300 mm.
	OPSS.Muni 441.07.15.04	POLYVINYL CHLORIDE PRESSURE PIPE - PVC AND PVCO <ul style="list-style-type: none"> Halton allows the use thermal butt fusion of PVC pipe.
	OPSS.Muni 441.07.17.01	DUCTILE IRON PIPE <ul style="list-style-type: none"> Halton permits 50% of the manufacturers recommended deflections in pipe jointing.
	OPSS.Muni 441.07.17.03	POLYVINYL CHLORIDE PIPE - PVC AND PVCO <ul style="list-style-type: none"> Halton permits 50% of the manufacturers recommended deflections.
	OPSS.Muni 441.07.18	INSTALLATION OF VALVES AND FITTINGS <ul style="list-style-type: none"> Intended position of valve in line is to be vertical.
	OPSS.Muni 441.07.19	INSTALLATION OF HYDRANT SETS <ul style="list-style-type: none"> The entire length of the hydrant lateral shall be mechanically restrained RAISING HYDRANTS <ul style="list-style-type: none"> For new or existing non-conforming hydrants, extensions must be made from the bottom of the hydrant, at the boot, as to not affect the length of the operating rod.
	OPSS.Muni 441.07.20	INSTALLATION OF SERVICE CONNECTIONS <ul style="list-style-type: none"> Halton requires a vertical "goose neck" on services 20 mm and 25 mm
OPSS.Muni 441.07.21	SHUTTING DOWN OR CHARGING MAINS <ul style="list-style-type: none"> Only Halton Water Distribution staff shall operate valves and hydrants on the existing water distribution system. 	

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WATERMAIN INSTALLATION IN OPEN CUT Cont'd	OPSS.Muni 441.07.23	THRUST RESTRAINTS <ul style="list-style-type: none"> Halton only accepts mechanical joint thrust restraints. 																			
	OPSS.Muni 441.07.24	HYDROSTATIC TESTING <ul style="list-style-type: none"> Water used to be supplied by Halton. Cross connection prevention measures must be used to protect the live system. 																			
	OPSS.Muni 441.07.24.01	GENERAL <ul style="list-style-type: none"> Change "2" hours to "3" hours. 																			
	OPSS.Muni 441.07.24.03	OTHER PIPE <ul style="list-style-type: none"> Change "2" hours to "3" hours Change "0.082 litres per millimetre" to 0.123" litres per millimetre". 																			
	OPSS.Muni 441.07.25	FLUSHING AND DISINFECTING WATERMAINS <ul style="list-style-type: none"> Care should be exercised to ensure that the flushed wastewater shall be disposed of in such a manner to protect the environment. Dosage charge for Dry Granular Hypochlorite (based on 65% available chlorine). <table border="0" data-bbox="743 1066 1382 1373"> <thead> <tr> <th style="text-align: left;"><u>Watermain Size</u></th> <th style="text-align: right;"><u>Quantity per 50 m of Pipe</u></th> </tr> </thead> <tbody> <tr><td>150 mm</td><td style="text-align: right;">50 g</td></tr> <tr><td>200 mm</td><td style="text-align: right;">95 g</td></tr> <tr><td>250 mm</td><td style="text-align: right;">140 g</td></tr> <tr><td>300 mm</td><td style="text-align: right;">185 g</td></tr> <tr><td>350 mm</td><td style="text-align: right;">280 g</td></tr> <tr><td>400 mm</td><td style="text-align: right;">325 g</td></tr> <tr><td>500 mm</td><td style="text-align: right;">515 g</td></tr> <tr><td>600 mm</td><td style="text-align: right;">750 g</td></tr> <tr><td>750 mm</td><td style="text-align: right;">1.2 kg</td></tr> </tbody> </table> <ul style="list-style-type: none"> Water used for flushing, disinfecting and testing shall be supplied by Halton. 	<u>Watermain Size</u>	<u>Quantity per 50 m of Pipe</u>	150 mm	50 g	200 mm	95 g	250 mm	140 g	300 mm	185 g	350 mm	280 g	400 mm	325 g	500 mm	515 g	600 mm	750 g	750 mm
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CORROSION PROTECTION OF NEW AND EXISTING WATERMAINS	OPSS.Muni 442.05.01.01	ZINC ANODE CASTINGS <ul style="list-style-type: none"> All zinc anodes shall be made of high grade electrolytic zinc 99.9% pure. 																			
	OPSS.Muni 442.07.04	ANODE INSTALLATION <ul style="list-style-type: none"> Metallic watermain pipes shall be fitted with a minimum anode weight of 14.5 kg and length of 500 mm. Fittings and appurtenances shall have a minimum anode weight of 11 kg. 																			

SECTION	OPSS No.	REVISIONS OR ADDITIONS
CORROSION PROTECTION OF NEW AND EXISTING WATERMAINS Cont'd	Table 4 & 5	<p>TABLE 4 & 5</p> <ul style="list-style-type: none"> For Copper services and watermains replace "Z-12-24" with "Z-24-48"
PIPELINE AND UTILITY INSTALLATION IN SOIL BY HORIZONTAL DIRECTIONAL DRILLING	OPSS.Muni 450.04	<p>DESIGN AND SUBMISSION REQUIREMENTS</p> <ul style="list-style-type: none"> The HDD supervisor must have a minimum of 3 years of supervisory HDD experience.
	OPSS.Muni 450.07.10	<p>PILOT BORE</p> <ul style="list-style-type: none"> Equipment to confirm location and depth of drilling head must be used at all times.
	OPSS.Muni 450.05.03 OPSS.Muni 450.07.12.01	<p>TRACER WIRE & PRODUCT INSTALLATION -GENERAL</p> <ul style="list-style-type: none"> Tracer Wire shall be reinforced specifically for HDD and Pipe Bursting meeting the following standards: <p>WIRE</p> <p>Material: 7x7 stranded copper clad steel</p> <p>Rating: 30 volts maximum, 4700lb. break load</p> <p>Thickness: bare outside diameter 0.208" and outside diameter including 50mil insulation 0.258"</p> <p>INSULATION</p> <p>Material: High Molecular Weight, High Density Polyethylene (HMW-HDPE)</p> <p>Thickness: 0.050" minimum (50mil)</p> <p>Rating: 600 volt maximum</p> <p>Colour: APWA Uniform Colour Code</p> <p>MARKINGS</p> <p>Surface legend print on insulation to repeat at intervals of every two linear feet.</p> <ol style="list-style-type: none"> Wire Type Insulation Material Identification Pipe Bursting and Horizontal Directional Drill Direct Burial use only
PIPELINE REHABILITATION BY CURED-IN-PLACE PIPE	OPSS.Muni 460.04.02	<p>SUBMISSION REQUIREMENTS</p> <ul style="list-style-type: none"> Change "7 Days" to "14 Days".
	OPSS.Muni 460.07.01	<p>CONSTRUCTION - GENERAL</p> <ul style="list-style-type: none"> Change "7 Days" to "14 Days" Change 24 hours to 48 hours"

SECTION	OPSS No.	REVISIONS OR ADDITIONS
PIPELINE REHABILITATION BY CURED-IN-PLACE PIPE Cont'd	OPSS.Muni 460.07.10	CLOSED-CIRCUIT TELEVISION (CCTV) INSPECTION <ul style="list-style-type: none"> Post-Lining Final Video Inspection shall be done in accordance with Halton Regional CCTV inspections Specifications.
	OPSS.Muni 460.07.12	CURING <ul style="list-style-type: none"> Halton Region accepts UV curing, if recommended by the manufacturer.
PIPELINE AND CONDUIT INSTALLATION BY PIPE BURSTING	OPSS 463.07.17	CLOSED-CIRCUIT TELEVISION INSPECTION <ul style="list-style-type: none"> All CCTV inspections shall follow Halton Regional Specifications"
DUST SUPPRESSANTS	OPSS.Muni 506.10	CALCIUM CHLORIDE FOR DUST CONTROL <ul style="list-style-type: none"> Halton does not pay for calcium chloride when used for compaction
REMOVAL	OPSS.Muni 510	GENERAL <ul style="list-style-type: none"> All materials identified for removal, unless identified for salvage, shall be disposed of by the contractor under the appropriate removal item.
	OPSS.Muni 510.07.03.11	REMOVAL OF HYDRANTS, VALVES, AND WATERMAIN APPURTENANCES <ul style="list-style-type: none"> Salvaged hydrants with boot intact shall be returned to the nearest Halton Region operations yard.
TRAFFIC CONTROL SIGNING	OPSS.Muni 706.07.05	SEASONAL SHUTDOWN <ul style="list-style-type: none"> During Seasonal Shutdowns, Contractor will be responsible for all maintenance and replacement of signs.
PAVEMENT MARKING	OPSS 710.07.04	PRE-MARKING <ul style="list-style-type: none"> Pre-markers to be reviewed and approved by contract administrator prior to permanent placement.
STEEL BEAM GUIDE RAIL AND CABLE GUIDE RAIL	OPSS.Muni 721	GENERAL <ul style="list-style-type: none"> Cable guide rail is not permitted in Halton Region.
PROTECTION OF TREES	OPSS.Muni 801	GENERAL <ul style="list-style-type: none"> When performing work on non-Regional roads and where available, Local Tree protection guidelines shall apply.
	OPSS.Muni 801.07	CONSTRUCTION <ul style="list-style-type: none"> All vegetation within the tree barrier protection zone shall be maintained, including cutting and weeding, by the contractor until the completion of the contract. The height of grass shall not exceed 100 mm.

SECTION	OPSS No.	REVISIONS OR ADDITIONS
PROTECTION OF TREES Cont'd	OPSS.Muni 801.09	<p>MEASUREMENT FOR PAYMENT</p> <ul style="list-style-type: none"> All maintenance of vegetation within the tree barrier protection zone, shall be included in the Barrier for Tree Protection Item.
TOPSOIL	OPSS 802.05.01	<p>TOPSOIL</p> <ul style="list-style-type: none"> Topsoil shall be screened to ensure no material is greater than 25 mm.
	OPSS 802.07.03	<p>PLACEMENT OF TOPSOIL</p> <ul style="list-style-type: none"> Depth of topsoil shall be 100mm when compacted.
	OPSS 802.09	<p>MEASUREMENT FOR PAYMENT</p> <ul style="list-style-type: none"> Payment for topsoil is included in the seed/sod items.
SODDING	OPSS.Muni 803.07.05	<p>MAINTENANCE OF COMPLETED SODDING</p> <ul style="list-style-type: none"> For Regional projects, sod shall be maintained, including cutting and weeding, until the completion of the contract. The height of grass shall not exceed 100 mm.
	OPSS.Muni 803.10.01	<p>SOD - ITEM</p> <ul style="list-style-type: none"> Water for sod is included in Halton's sod payment item.
SEED AND COVER	OPSS.Muni 804.07.02	<p>SURFACE PREPARATION FOR SEEDING</p> <ul style="list-style-type: none"> Depth of topsoil shall be 100mm when compacted.
	OPSS.Muni 804.09	<p>MEASUREMENT FOR PAYMENT</p> <ul style="list-style-type: none"> Water for seed and mulch is included in Halton's payment item.
TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES	OPSS.Muni 805.07.02	<p>LIGHT-DUTY SEDIMENT BARRIERS, GENERAL</p> <ul style="list-style-type: none"> Halton Region does not permit Light-Duty Sediment Barriers.
	OPSS.Muni 805.07.03	<p>HEAVY DUTY SEDIMENT BARRIERS, GENERAL</p> <ul style="list-style-type: none"> Heavy Duty Silt Fence Barrier refer to RH 200.040.
	OPSS.Muni 805.07.05.01	<p>STRAW BALE FLOW CHECK DAMS</p> <ul style="list-style-type: none"> Halton Region does not allow Straw Bale Flow Check Dams unless approved by Local Conservation Authority.