



PORT COLBORNE

**MUNICIPAL CONSENT
PERMIT**

**CONSTRUCTION
SPECIFICATIONS & DETAILS**

GUIDELINES TO BE UTILIZED BY:

- RESIDENT\OWNER\BUSINESS
 - CONTRACTOR
 - PUBLIC UTILITY

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

GENERAL NOTES:

It is the purpose of this document to aid anyone with the intention of completing construction within the City of Port Colborne on the Public Right-of-Way (ROW). From the property line toward the street.

The following items listed should be used as general in their purpose and exclude any items for which a permit is required under the Ontario Building Code Act (Building Permits can be obtained from the Building Department located at 66 Charlotte Street), if any amenities required have not been listed below please contact the Engineering & Operations Department for any questions/concerns regarding the permitting process.

The following, but not limited to, the type of Construction taking place within the Public Right-of-Way (ROW) will require Municipal Consent prior to commencement of any construction works. Any works commencing without the application of a Municipal Consent Permit may be subject to fine.

- Installation/Replacement of a Culvert/Frontage Tile
- Installation/Extension of a Driveway Including
 - Curb Cuts
 - Sidewalk thickness upgrades
 - Paved driveway approaches
- Installation/Replacement of a Water Service
- Installation/Replacement of a Sanitary Service
- Installation/Replacement of a Storm Service
- Any work completed by a Public Utility
- Others items not listed contact the Engineering & Operations Department

When using this document, which utilizes the latest revision of the **Niagara Peninsula Standard Contract Document** is available on the internet at the "Tenders" section of the Regional Municipality of Niagara website www.niagararegion.ca. Once acquired, the **Standard Document** can be utilized on all projects which clearly indicate reference and use of the **Niagara Peninsula Standard Contract Document**. The **Standard Document** is intended to be used as a reference specification.

Contact for Inquiries:

Engineering & Operations Department
City of Port Colborne
66 Charlotte Street
Port Colborne, Ontario
L3K 3C8

Ph: 905-835-2900

Fax: 905-835-2939

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COMMENCEMENT OF CONSTRUCTION & INSPECTION:

This check list should be utilized as an aid to anyone with the intention of completing construction within the Public ROW.

Have you:	Yes
Submitted your application for Municipal Consent	
Permit approved	
Upon approval, the following items are required for submission prior to the release of the permit:	
<ul style="list-style-type: none"> • WSIB Clearance (for contractors) 	
<ul style="list-style-type: none"> • Insurance 	
<ul style="list-style-type: none"> • Traffic Plan (if applicable) 	
<ul style="list-style-type: none"> • Fee + Deposit 	

Now that the Permit has been obtained, and approved, all of the required paper work submitted, the first step is to call for locates:

Ontario One Call (Bell, Cable, Gas & NRBN)
 Canadian Niagara Power (Hydro)
 City of Port Colborne (Water, Sanitary & Storm)
 Niagara Region (Traffic Signals)
 Niagara Region (Water, Sanitary & Storm)

After locates have been completed construction may commence. The following list is an approximate schedule of when inspection is required depending on the nature of works to take place. Please allow 48hrs notice when scheduling inspections, and 72hrs notice when scheduling connections. 905-835-2900

Type	Inspection Required When	Contact Person & Extension
Installation/Replacement of a Culvert/Frontage Tile	During Construction, Upon Completion	Drainage Superintendent (213)
Installation/Extension of a Driveway Including:	Upon Completion	Drainage Superintendent (213)
<ul style="list-style-type: none"> ▪ Curb Cuts 	Upon Completion	Construction Inspector (225)
<ul style="list-style-type: none"> ▪ Sidewalk thickness upgrades 	During Construction	Construction Inspector (225)
<ul style="list-style-type: none"> ▪ Paved driveway approaches 	Upon Completion	Survey Technologist (291)
Installation/Replacement of a Water Service	During Construction, Upon Completion	Construction Inspector (225)
Installation/Replacement of a Sanitary Service	During Construction, Upon Completion	Construction Inspector (225)
Installation/Replacement of a Storm Service	During Construction, Upon Completion	Construction Inspector (225)
Any work completed by a Public Utility	Upon Completion	Design Technologist (220)

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GLOSSARY OF TERMS FOUND WITHIN THIS DOCUMENT:

City:

- *City of Port Colborne*

Region:

- *Regional Municipality of Niagara*

MOL:

- *Ministry of Labour*

MOE:

- *Ministry of Environment*

MTO:

- *Ministry of Transportation Ontario*

WSIB:

- *Workers Safety & Insurance Board*

OHSA:

- *Ontario Health & Safety Act*

Engineering & Operations Department:

- *the City's department responsible for: approvals, inspections and fee collection of MCP's.*

Inspector:

- *means a representative of the City's Engineering & Operations Department.*

Contractor:

- *the company, firm, utility or person undertaking the works.*

ORO:

- *Overall Responsible Operator.*

MCP:

- *Municipal Consent Permit, a permit required for any work taking place within the Public ROW.*

ROW:

- *Right-of-Way the area located from the property line toward the street.*

OPSS:

- *Ontario Provincial Standard Specifications*

OPSD:

- *Ontario Provincial Standard Drawings*

SPCD:

- *Special Provisions Standard Document (Region)*

GC:

- *General Conditions (City)*

IUC:

- *Items Utilized for Construction (City)*

OTM:

- *Ontario Traffic Manual*

CSA:

- *Canadian Standards Association*

ASTM:

- *American Standards for Testing Materials*

ANSI:

- *American National Standards Institute*

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NSF:

- *National Science Foundation*

AWWA:

- *American Water Works Association*

TYPICAL ACRONYMS RELATED TO ENGINEERING DESIGNS/DETAILS

WAT:

- *Watermain*

SAN:

- *Sanitary Sewer*

STM:

- *Storm Sewer*

MH:

- *Maintenance Hole*

WV:

- *Water Valve*

FH:

- *Fire Hydrant*

CB:

- *Catch Basin (Storm)*

CO:

- *Clean Out (Sanitary)*

CS:

- *Curb Stop (Water)*

PL:

- *Property Line*

CL:

- *Centre Line of Road*

EP:

- *Edge of Pavement*

PIPE MATERIAL TYPES

PVC:

- *Polyvinylchloride*

CI:

- *Cast Iron*

AC:

- *Asbestos Cement*

VC:

- *Vitrified Clay*

For the full set of Construction Specifications and Details please visit the City's website at http://www.portcolborne.ca/page/Downloads_Engineering. If you are unable to access the City website you may obtain a copy of the required documents at Second Floor counter of City Hall.

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GENERAL CONDITIONS

The following conditions shall be utilized as a guide and must be strictly adhered to for any works taking place within the Public ROW. Any work taking place which does not conform to the conditions will be redone to the satisfaction of the Engineering & Operations Department.

In locations indicating "*the contractor*" - this notation shall be general and it's definition shall be the persons undertaking or completing the work.

GC-1

The City does not insure the accuracy, correctness or completeness of any plans with respect to existing underground or aboveground services, or other objects, such as utilities, watermains, forcemains, pipes, manholes, catchbasins, chambers, communications, and process piping. The Contractor shall not make any claim against the City for damages or extra work caused or occurring by his relying upon such services, reports or information either as a whole or in part. Prior to construction the Contractor shall obtain the services of a private locator to verify locations of the utilities and underground services on private property.

The Owner shall not be liable for any loss, damage, delay or claim whatsoever resulting or arising from incorrect locates.

Preservation of existing utilities shall be as per OPSS 504. For utilities greater than 300mm diameter the contractor shall submit shop drawings, stamped by a Professional Engineer licensed to participate in Ontario, to the Engineering & Operations Department detailing the temporary and permanent support. The Contractor shall also advise the Utility owner when he will be working in the vicinity of their plant. All procedures in the "Safe Work Procedures for Excavating in the Vicinity of Underground Electrical Plant" guide book must be adhered to.

The Contractor shall take all necessary precautions during construction, to prevent damage to any utility services (hydro, gas, bell, fibre optic etc.) The Contractor shall adhere to the safety requirements of the local authorities while working in the vicinity of the utility services. All costs associated with any repairs from undue damage, or supporting poles, cables, bracing etc. shall be the responsibility of the Contractor.

GC-2

When a trench box is needed for support of the trench wall, its removal shall be as per OPSS section 538.07.02.

GC-3

All construction activities must comply with the Ministry of Labour and the Occupational Health & Safety Act. A vertical cut trench complying with the current regulations shall be

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employed. Vertical trench shall mean vertical trench walls up to the existing ground surface.

GC-4

The contractor shall be responsible for the removal and disposal of all surplus excavated material. All acceptable excavated materials suitable for trench backfill, as approved by the Engineering & Operations Department may be stockpiled and reused as required.

Any other debris removed from the area of excavation, ie. pipe, valve boxes, catch basins, etc. are the property of the contractor.

GC-5

The Contractor shall also be responsible for the supply, installation, maintenance and removal of all de-watering equipment, and any other materials or equipment which may be required to cope with the ground conditions in order to complete the work. It will also be the Contractors responsibility for reinstatement of such areas which were disturbed by their operations to their original condition.

GC-6

For sanitary & storm servicing and general excavation: Installation shall include: excavation of all types of soil, including asphalt, road base etc., all de-watering, sheathing, shoring and bracing required for the vertical trench, pipe installation and bedding including all connections to existing or new pipes. All connections must be completed under the supervision of a Certified Operator from the City or Region.

GC-7

For water servicing: The contractor shall provide a chlorine residual and bacteriological test sampling plan for approval as stipulated in the Niagara Peninsula Standard Contract Documents upon the issuance of the Municipal Consent Permit. All work completed by the Contractor on any existing water system shall be done in accordance with the Safe Drinking Water Act, 2002, Section 12. Section 12 requires that *"No person shall operate a municipal drinking water system or a regulated non-municipal drinking water system unless the person holds a valid operator's certificate issued in accordance with the regulations."* Certified City/Region Operators must be present to directly supervise all work completed on any drinking water system, and only Certified City/Region Operators shall operate valves on that system. In addition, disconnection/reconnection of water services must be completed under the supervision of a Certified City/Region Operator.

GC-8

The Contractor shall protect and maintain all service crossings including but not limited to sanitary sewer laterals, water services, storm sewer leads, existing water/sewer mains etc. All damaged services shall be repaired by the Contractor to original condition or better and to the satisfaction of the Engineering & Operations Department with no cost to the City/Region.

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GC-9

The contractor shall schedule construction operations in such a manner that a storm drainage outlet will always be available. This is to ensure that the exposed sub-grade or granular base will not be subjected to flooding and ponding problems.

GC-10

The contractor shall make due allowance to include root protection to existing trees. This work will consist of cutting all tree roots, of any size to sound wood by lopping shears or sawn cut. They will then be properly sprayed with an approved tree paint. The paint shall be properly dried, prior to any backfilling. Should backfilling not take place immediately, the tree root system shall be covered to protect against root system dying out immediately.

GC-11

A representative from the Engineering & Operations Department shall inspect all materials and appurtenances prior to their installation. Any items deemed unacceptable are to be tagged or otherwise identified as "unacceptable", and removed from site immediately. Replacement item(s) shall be examined for conformance to specifications by a representative from the Engineering & Operations Department.

GC-12

Any damage to lawns, driveways, etc. shall be repaired or replaced immediately by the contractor at their expense.

GC-13

After the work has been completed, all debris, excess materials etc., shall be removed by the Contractor from the site and disposed of to the satisfaction of the Engineering & Operations Department. The site shall be left in a safe, neat and workmanlike condition as applicable to any present regulations.

GC-14

The Contractor shall give notice to residents/businesses prior to their driveway entrance being temporarily interrupted by construction. (Temporary being not in excess of 3 working days pertaining specifically to sidewalk and curb placement.) At the conclusion of each days work, all affected driveways must be made passable. The contractor **must** maintain safe pedestrian/vehicular access to all abutting businesses/residences at any time during construction.

GC-15

The Contractor shall be responsible for providing on site washroom facilities for all staff, and provide power for all construction work activities, as per MOE guidelines.

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GC-16

The Contractor is responsible for keeping the roads within the limits of construction graded and free of potholes. The construction site must be checked each night prior to the contractor leaving for the day, any potholes found must be filled at that time unless directed otherwise.

GC-17

The Contractor shall be required to submit the following: WSIB eClearance certification, a copy of their Insurance with the City of Port Colborne listed as additional insured.

Certain instances will also require the submission of a traffic plan which will require review and approval by the Engineering & Operations Department.

All items will be required for submission with the Permit Fee in order to receive the approved Municipal Consent Permit prior to commencement of construction.

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ITEMS UTILIZED FOR CONSTRUCTION

The following items listed shall be utilized as a guide and must be strictly adhered to for any works taking place within the Public ROW. Any work taking place which does not conform to the conditions will be redone to the satisfaction of the Engineering & Operations Department.

In locations indicating "*the Contractor*" - this notation shall be general and it's definition shall be the persons completing the work.

Any notations with a specific SPCD reference are to be utilized in conjunction with the **Niagara Peninsula Standard Contract Document**.

<http://www.niagararegion.ca/business/tenders/npscd/default.aspx>

Any notations with a specific OPSS or OPSD reference are to be utilized in conjunction with the Ministry of Transportation Standards and Specifications.

<https://www.raqsa.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage>

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GENERAL

IUC-1

SPCD-A8

ALLOWANCE FOR CONSTRUCTION SIGNS, TRAFFIC CONTROL, AND TRAFFIC MANAGEMENT PLAN

The Contractor shall provide copies of the Traffic Control Plan for review and approval by the Engineering & Operations Department for any works taking place within the Public ROW prior to the commencement of construction.

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

In addition to the Traffic Protection Plan required under the O.H.S.A., O.T.M. Book 7 and the M.O.L., Contractor shall be responsible for the preparation of a traffic management plan, to be provided to the Engineering & Operations Department for review prior to permit approval. It shall conform to all necessary regulations. This plan shall have details for the following requirements but shall not be limited to:

- traffic flows with regards to work schedule
- traffic management during peak traffic flows
- maximum delay time
- number of flagpersons and communication devices (minimum two)

This may include for traffic control flagging throughout the duration of the project and in accordance with the Manual of Uniform Traffic Control Devices and the requirements of the Construction Safety Association of Ontario if required. The Contractor shall stage his operations to ensure that one lane of traffic remains open at all times. Vehicular and pedestrian access to all businesses, homes and side streets must be maintained at all times. Road closures will not be allowed, unless granted approval by City Council. Co-ordination and co-operation from the Contractor will be required to ensure minimum disruption during all phases of construction.

The Contractor is responsible for the installation and removal of all construction signage and daily maintenance of all signs throughout the duration of the contract.

It shall be the responsibility of the Contractor to notify Emergency Services, the Niagara Region (for household waste and recycling pick up), any school boards or Canada Post, all which may be affected, when necessary, as to the current status of construction as it pertains to safe passage of traffic within the construction limits.

The Contractor must provide copies of their staffing certification for traffic control and traffic protection training certification, prior to the commencement of construction.

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WATER

IUC-2

SPCD-D1

WATERMANS

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Prior to any works being completed by a Contractor on the City's distribution system the Contractor must have all staff doing the work complete the *Information for Contractors performing work on the Port Colborne Distribution System* training provided by the, Engineering & Operations Department, Water/Wastewater Compliance Coordinator.

The Contractor shall be competent in their understanding of *The City of Port Colborne – Private Watermain Commissioning Protocol*. For any watermain/services larger than 50mm.

See ICU-8 For Watermain Testing Protocols.

All watermans and water service installation shall include saw cutting of the asphalt pavement prior to the excavation of the trench. If the existing asphalt is undermined by the trench excavation, saw cutting shall be repeated prior to the asphalt reinstatement of the trench.

All PVC watermans shall conform to the current AWWA standards and shall be Class 150, DR 18 or Class 235, DR 18 as required, with bell and spigot joints and rubber rings conforming to the requirements of CSA B137.3 and to ASTM B 88. Watermans and services will be installed using the Open Cut Method (OPSS 701). Minimum pipe cover to mains and services shall be 1.50 metres.

All fitting types are to be mechanical joint fitting and must conform to the current AWWA standards, as well as all fittings shall be in accordance with OPSS 701.05.04. Bolts and nuts for fittings shall consist of corrosion resisting materials such as Cor-Blue T Bolt, 703 Annealed Stelco Roy Rod or approved equivalent. 24lb anodes are required on each watermain fitting. Should the Contractor choose, zinc anode caps such as Cor-Cap® or approved equivalent are also an acceptable means of corrosion protection in place of using a 24lb anode per fitting.

The Contractor shall note that the pressure testing, charging and flushing of the watermain and water services is required as part of this works. If the new watermain "fails" any of the required testing it will be the responsibility of the Contractor to rectify the situation as soon as possible. Watermans which do not pass any of the required testing will not be permitted to connect to the City's distribution system.

All sampling point connections shall be removed upon successful sample completion, and the excavation restored by the Contractor to the saddle and plugged complete.

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When connecting to the existing system after all testing has been completed and signed off by the ORO, the existing watermain and water services must remain in operation until all water services have been connected to the new mains, except during transfer periods. When requesting shutdowns for connections (connections/shutdowns must be completed by certified water operators) 24 hours notice must be given to each home/business owner affected by the shut down. It will be the Contractor's responsibility to distribute notice to all of the necessary parties who may be affected by any of the work, a minimum of 48 hours notice must be given before any work is to take place. A list of contact names and numbers will be made available to the Contractor, of parties required for notification.

Connections to the existing watermains shall be as per OPSS 701.07.15, 701.07.20. All piping and fittings used shall be disinfected, flushed and de-chlorinated by an approved method. As well the charging of the watermain by an approved method.

The Contractor shall note that any organics shown in the soils report in the watermain trench are to be removed and replaced with Granular.

In accordance with the City's Quality Management System, requirements regarding essential supplier and services, the Contractor shall supply documentation to the Contract Administrator for all materials/fittings etc. ordered, showing that the material/fittings meet the Specifications.

IUC-3

SPCD-D4, SPCD-D5, SPCD-D6, SPCD-D7 & SPCD-D8

WATER SERVICES, CURB STOPS, CURB BOXES & MAIN STOPS

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

See ICU-8 For Watermain Testing Protocols.

OPSS 701.05.01 and 701.07.17 shall also apply to this item.

For new Residential water services the minimum size shall be 25mm.

For Commercial or Industrial water/fire service installations size shall be determined depending on demand and as required by an Engineer. Engineered drawings will be required for all Commercial or Industrial installations.

Water services shall be Municipex (PEXa) pipe conforming to CSA B137.5 and NSF Standard 14 & 61, and current AWWA standards. Installation of this product will be in accordance with manufacturers specifications, or equivalent, previously approved by the Engineering & Operations Department, prior to installation.

For non-metallic services, the Contractor shall include the installation of a 10-gauge, 7 strand insulated wire placed along the spring-line of the service and connect it to the fittings as specified by the manufacturer.

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All water services shall have an approved zinc anode installed. (12lb anodes on curb boxes are required.)

The Contractor is to note that Granular 'A' will be used for backfill in shoulders, driveways, sidewalks and travelled roadways. Native material is to be used in all other areas.

Water services shall require swabbing and de-chlorination complete.

For connection to the new watermain the Contractor shall use the required diameter PVC couplings with pre-tapped outlets complete, or stainless steel service saddle with double stainless steel bolts, both include the municipal main stop. OPSS 701 also applies.

Curb stops shall be inverted key type stops. All curb stops will use stainless steel stems to operate the valves. EMCO 17053, or an approved equivalent.

The following is a list of curb stop and main stop parts which have been approved for use by Contractors.

MAIN STOP

All main stops consisting of or containing bronze or brass material must conform to AWWA C800-05 and ANSI/NSF61.

Main Stops shall be bronze and the same size as the new service line.

1 INCH MAIN STOP

Shall be Plug Style

Manufacturer	
Ford	Cambridge Brass
Part Number	Part Number
F1000-4-TW-Q	302-A4HE4

1 ½ and 2 INCH MAIN STOPS

Shall be Ball Style

Size	Manufacturer	
	Ford	Cambridge Brass
	Part Number	Part Number
1 ½ inch	FB1000-6-TW-Q	301-A6HE6
2 inch	FB1000-7-TW-Q	301-A7HE7

CURB STOP

All Curb stops consisting of or containing bronze or brass material must conform to AWWA C800-05 and ANSI/NSF61

Curb stops to be the same size as the new service line.

Ball - type valve only.

All curb stops on the open end must be protected with the use of a plastic cap or plug.

Manufacturer

Revision: 4

Revised: June 21, 2012

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	Ford	Cambridge Brass
Size	Part Number	Part Number
1 inch	B44-444-TW-Q	202-H4HE4
1 ½ inch	B44-666-TW-Q	202-H6HE6
2 inch	B44-777-TW-Q	202-H7HE7

IUC-4

SPCD-D2

WATER VALVES, TAPPING VALVES & VALVE BOXES

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

All valves are to conform to the current applicable AWWA standards according to their specified type as specified on the Contract drawings or documents.

All pipe sizing and material at tapping valves are to be field verified by the Contractor prior to commencement of installation.

24lb anodes are required on each water valve. Should the Contractor choose, zinc anode caps such as Cor-Cap® or approved equivalent are also an acceptable means of corrosion protection in place of using a 24lb anode per valve.

All fitting types are specified on the Contract Drawings, where a type has not been specified it is assumed to use mechanical joint fitting.

All flanged valves shall have flanges as specified for the line into which they are to be installed. As a minimum standard a Class 125 rating will be required.

Air release valves are to be automatic float valves designed to exhaust large quantities of air during the filling of the system and allow air to enter during the draining of the system.

Tapping sleeve and valve assemblies shall be installed complete by certified water operators, and will also require hydrostatic testing prior to commissioning of the valve. 72hrs notice will be required for any tapping valve installations in order to arrange for other forces to complete the work. Any costs associated with Tapping Valves will be the responsibility of the Contractor.

VALVE CHAMBERS

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Materials and installation shall be in accordance with all applicable O.P.S.S.'s and O.P.S.D.'s. Shop drawings are required for approval by the Engineering & Operations Department prior to installation of any valve chamber.

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All precast chambers must be watertight. Waterproofing type must be approved by the Engineering & Operations Department prior to application to the chamber. Any and all leaks shall be repaired by the Contractor at no additional cost to the Owner.

All parging required for the chambers is to be included in the unit rate.

Valve box locations in chambers to be cored after installation of valve to ensure stem is vertical and plumb. Valve boxes to be sealed and made watertight. Valve operator in accordance with OPSD 1101.020. To be marked *WATER*.

Frame and cover shall be in accordance with OPSD 402.030, install a "Rainstopper" inflow dish under all covers (or equivalent).

IUC-5 SPCD-D3 HYDRANT SETS

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Hydrant installation shall include the secondary valve and all required fittings and materials and shall be complete of connecting the hydrant to the new main using a 150 mm diameter PVC watermain, Class 150, DR 18 pipe lead.

The following is a list of hydrant specifications which have been approved for use by Contractors.

Hydrant Sets:

Hydrants shall be either:

- 1) Darling Century
- 2) McAvity M-67-B: (Brigadier)
- 3) American AVK (2708)

Hydrant Specifications:

Shall be manufactured in accordance with AWWA Standard C502.

Dry barrel

Compression Type

Traffic model, complete with safety flanges and stem couplings

Base to Bottom flange (grade 304 Stainless Steel) bolts and nuts

All Hydrant drains: plugged

Hydrant opens: left

Operating Nut Shape: (Square)

Operating Nut Size: (1 ¼ inch)

Cap Chains: None

Colour: Chrome yellow

Depth of bury: 1.8m (6 Ft)

Inlet Connection: shall be 6 inch (MJ) Mechanical Joint

Boot: to be epoxy coated internally and externally.

Dry Barrel: shall be epoxy coated in compliance with AWWA Standard C502

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Nozzle Configuration

Two 64mm / 2 1/2 inch hose outlets with CSA threads

One 100mm / 4 inch STORZ pumper outlet complete with cap: (cap painted black)

Finish grade of hydrants: not less than 4 inch and no more than 6 inch below the ground line / traffic flange.

Where hydrants do not conform to the finished grade the proper length extension will be installed either at the drain ring flange before backfilling or the ground line flange with the proper rod extension. Extensions must be installed in strict accordance to manufacturer's specification.

Should the hydrant require a shorter barrel due to a necessary grade change in the main the proper length barrel will be installed before backfilling the hydrant trench.

All hydrants shall be bagged with a hydrant bag when not in service.

All hydrant sets shall have installed any approved zinc anodes. 24lb anodes on hydrant sets are required.

IUC-6

SPCD-D10

CATHODIC PROTECTION

The conditions stipulated in the **Niagara Peninsula Standard Contract Documents** shall apply to this item.

IUC-7

SPCD-D11

ABANDONMENT & REMOVAL OF WATERMAINS & APPURTENANCES

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

OPSS 510 and any related applicable IUC's shall apply as reinstatements are required to match existing.

IUC-8

SPCD-D13

WATERMAIN DISINFECTION & TESTING

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

The provisions of OPSS 701 and AWWA C651-05 shall also apply except as amended or extended herein.

The Contractor must provide 24 hour notice of when tests will be made.

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All methods used for any testing must be outlined to the Construction Inspector and approved prior to the Contractor starting any testing.

The new main or service shall be kept isolated from the active Distribution System by means of a gate valve that can only be operated by a Certified City/Region Operator and can only be left in the open position when water is being discharged by means of hydrants or a blow-off at the end of the new main or service. The gate valve must be kept closed at all times when water is not being discharged from the new main or service prior to being commissioned. For security purposes, the gate valve must be provided with a lock device to prevent unauthorized personnel from opening the gate valve to prevent cross contamination to the active Distribution System.

The Contractor must perform all swabbing, flushing, hydrostatic testing, and disinfection of the new watermain, under the direct supervision of the Engineering & Operations Department and/or a Certified Operator.

All sections of watermain shall be wet swabbed, using a minimum of 4 (four) new foam swabs. Swabs shall be polyurethane with a density of 24.7kg/m³ and shall have a minimum diameter 50mm larger than the diameter of the watermain, and have a minimum length of 1½ times its diameter. Swabs shall be propelled through the watermain using potable water. The swabbing shall continue until discharge water runs clear within ten seconds of the last swab exiting the discharge point. The Contractor shall ensure that water is discharged to an approved outlet ensuring all required erosion and sediment control and de-chlorination measures are followed.

The Contractor is responsible for supplying and installing all fittings and taps for introducing the swabs, filling the main, pressure testing and chlorination. The Contractor is responsible for removing the fittings and taps at completion.

The Contractor shall be liable for the cost associated with damage caused by and retrieving swabs that, for whatever reason, escape into the existing water distribution system. The Contractor shall co-sign the form provided by the Engineering & Operations Department that all swabs were retrieved.

Water required for initial swabbing, filling, pressure testing, chlorination and flushing of the new mains will be provided at no cost to the Contractor. If additional water is required as a result of failure of the initial procedures to provide acceptable results, the additional cost will be charged to the Contractor at the prevailing bulk water charge rate.

The Contractor must furnish all required materials, equipment and labour necessary for completing the tests.

The new main or service shall be kept isolated from the active Distribution System using a physical separation as illustrated per AWWA Standards C651-05 Disinfecting Watermains. The temporary connection between the Distribution System (Hydrant) and the new main or service shall include a cross connection control device (backflow preventer) and shall be disconnected, physically separated from the new main during the hydrostatic pressure test and during the disinfection process.

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

To disinfect the watermain, disinfection shall be carried out in accordance with AWWA C651-05. The free chlorine concentration at any point in the piping shall not exceed 100mg/L. Once the appropriate free chlorine level has been achieved, the piping shall be left charged with the chlorine for a 24 hour period, during which time new valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances. At the end of the 24 hour period, the treated water in all portions of the main shall have a residual of not less than 10 mg/L of free chlorine.

Once it has been verified that at least 10mg/L of free chlorine remains in the watermain after 24 hours, flush the treated, super-chlorinated water from the main, with water from the existing distribution system until the free chlorine levels are similar to those found in the distribution system (approx. 0-20mg/L). Water exiting the main, must be de-chlorinated prior to release to the sanitary sewer, using an approved de-chlorination method, to meet the current MOE criteria is a free chlorine residual level. The Engineering & Operations Department will monitor the free chlorine in the discharge of wastewater. Should tests show total chlorine residuals greater than allowable levels, the discharge shall be ceased immediately and the neutralization procedure modified to reduce the residual to a level less than the allowable maximum value. If the Contractor plans to discharge the flushing operation into the sanitary sewer system, a minimum of 1 working day notice shall be given to the receiving wastewater treatment plant.

Once the system has been flushed and free chlorine levels are similar to the distribution system are achieved, the water is held for another 24 hours prior to beginning bacteriological testing.

Sample points are to be installed in the new main to ensure a maximum separation of 350 metres between sample points. Water services may be used in lieu of separate sample points, subject to Engineering & Operations Department approval.

Sample points not located in chambers are to be installed by tapping the watermain utilizing approved service saddles and main stops. The Contractor shall install sufficient water service pipe to allow sampling of the watermain from the surface.

Upon successful completion of the disinfection and bacteriological testing, the Contractor shall properly remove and plug all mainstops used for all sample points while under the supervision on a Certified Operator.

At each sampling location, the water must satisfy the bacteriological requirements as summarized below:

Membrane Filtration			
Total Coliforms	E.Coli	Background	Heterotrophic Plate Count (HPC)
0	0	< 80	< 200

Bacteriological samples must be taken as outlined on the sampling plan. All sampling and handling shall be as per Safe Drinking Water Act, Ontario Regulation 170/03.

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

Certified City/Region Operators will take chlorine residual and bacteriological samples. It will be the Contractor's responsibility to provide the Engineering & Operations Department with sufficient notification when arranging for testing to be conducted by the Certified Operator.

All bacteriological samples for analysis shall be submitted to a testing laboratory approved by the City, and shall be accompanied with the appropriate paper work required by the lab. The laboratory shall be contacted by City staff at least 24 hours in advance of the sampling submission.

The Municipality will absorb analytical fees and costs associated with gathering samples for the initial sampling rounds. The Contractor will be responsible for fees related to additional samples submitted due to failed results, plus any costs associated with providing additional water.

The City will review the results of the laboratory testing and shall inform the Contractor. The City shall approve all sampling results prior to the new watermain being connected to the existing system.

The commissioning of the new watermain and services will be determined through microbiological water sample test results from both the new watermain and from the existing watermain that was utilized to charge the new watermain. Sampling of the existing main is to be conducted during the process of charging the new main.

The Contractor is advised that the City has the authority to request a third round of water samples for bacteriological analysis after the final connection has been made to the existing water distribution system to confirm continued quality of the water. In the event that adverse water samples occur, the City will take corrective action. The Contractor shall cooperate and participate fully in the corrective actions.

IUC-9

SPCD-D9

INSULATION OF SERVICES AND WATERMAINS

In addition all applicable conditions stipulated in the Niagara Peninsula Standard Contract Document, as illustrated in the contract documents, the following shall also apply.

This item shall include the insulation of the watermain as shown on the drawings, or as directed by the Engineering & Operations Department.

Where less than the minimum 1.5 metres of cover cannot be obtained, only with approval from the Engineering & Operations Department, the Contractor may insulate to prevent freezing of the specified watermain.

The width and thickness of insulation used shall be as directed by the Construction Inspector:

Minimum thickness of insulation (mm) - 75mm

Revision: 4

Revised: June 21, 2012

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

The insulation material shall be styrofoam HI 40 as manufactured by the Dow Chemical Company or approved equal. The material shall be rigid type high density board with minimum compressive strength of 240kPa as tested in accordance with ASTM D1621-64 or latest revision thereof, and manufactured by the extrusion of expanded polystyrene to produce a board with a maximum water absorption of 0.7% by volume when tested in accordance with ASTM D2842. When installed, the insulation shall be protected on both faces by a layer of 6mm ppt plywood, unless installed against a formed surface.

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

SEWER - SANITARY & STORM

IUC-10

SPCD-C1, SPCD-C2 & SPCD-C5

STORM & SANITARY SEWERS, CULVERTS & FRONTAGE TILE

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

For all sanitary and storm sewers and sanitary and storm lateral installation shall include saw cutting of the asphalt pavement prior to the excavation of the trench. If the existing asphalt is undermined by the trench excavation saw cutting shall be repeated prior to the asphalt reinstatement of the trench. Including all connections to existing and new manholes and catch basins.

Storm sewer mains, leads and laterals shall consist of Ring-Tite PVC, DR35, and Concrete Class 50D. Storm sewer pipe conforming to CSA B182.2 and OPSS 1841 and OPSD 806.4, and any other applicable specifications. Catch basin leads shall be a minimum of 300 mm in diameter Ring-Tite PVC, DR35 unless otherwise specified.

Residential Storm lateral size shall be a minimum 125mm.

Sanitary sewer mains and laterals shall be PVC, SDR 35 or approved equivalent. Sanitary Sewer size shall be determined depending on demand and as required by an Engineer. Engineered drawings will be required for all Commercial or Industrial installations.

Residential Sanitary lateral size shall be a minimum 100mm.

Pipes shall be supplied complete with all required prefabricated fittings to complete the sewer installation in its entirety.

The Contractor shall flush and CCTV all installed sewers prior to the City taking ownership of the work.

For all culverts/frontage tile Material type shall be Challenger Series 3000 HDPE or an approved equivalent; Minimum culvert size shall be 450mm diameter, larger sizes will require approval from the Engineering & Operations Department prior to installation.

All fittings to be of an external snap-on type or an approved equivalent.

IUC-11

SPCD-C1

SANITARY FORCEMAINS

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

For all sanitary forcemain installation shall include saw cutting of the asphalt pavement prior to the excavation of the trench. If the existing asphalt is undermined by the trench excavation saw cutting shall be repeated prior to the asphalt reinstatement of the trench.

Sanitary forcemains shall be HDPE, DR11. Sanitary Sewer size shall be determined depending on demand and as required by an Engineer. Engineered drawings will be required for all Commercial or Industrial installations. Hydrostatic testing will be required prior to connection to the City's Sanitary System.

IUC-12

SPCD-C6

PRE-CAST MANHOLES & CATCH BASINS

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Materials and installation shall be in accordance with all applicable O.P.S.S.'s and O.P.S.D's.

This shall be for the installation of a new item in each case.

Connections to all storm/sanitary manholes and storm catch basins are to be parged with non-shrink grout inside and outside. If manholes are pre-benched, the cavity between the pipe shall be filled and parged flush with the manhole walls. In addition, all manhole rings and risers shall be parged with non-shrink grout inside and outside.

RESTORATION

IUC-14

SPCD-B3

GRANULAR 'A'

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Revision: 4

Revised: June 21, 2012

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

This item is to include material for bedding, cover and backfill of all items for the water distribution system and sewer system, also included in this item are trench backfill under the travelled portion of road, shoulders, sidewalks and driveways all of which shall be Granular 'A' compacted to 100% Standard Proctor Density and placed at a depth as specified, or as directed by the Engineering & Operations Department. Select native material will be allowed for all other areas and shall be compacted to 95% Standard Proctor Density.

Backfill around all maintenance holes and catch basins shall be Granular 'A' compacted in 300mm lifts to 100% Standard Proctor Density. Trenching, backfilling and compacting shall also be in accordance with OPSS 514.

Granular materials shall be subject to OPSS 314, Construction Specification and Material Specification OPSS 1010.

Materials and workmanship shall comply to OPSS 314, and 1010.

The Contractor will be responsible for maintaining the granular until the restoration work is carried out.

No roadway granular is to be placed until the subgrade elevation has been checked.

The Contractor shall note that any organics/abnormalities shown in the soils report in the trench or found in the field are to be removed at the direction of the Engineering & Operations Department.

IUC-15 SPCD-B11 ASPHALT MILLING

In addition to the conditions stipulated in the Niagara Peninsula Standard Contract Document, the following shall also apply.

Disposal of asphalt millings shall be the responsibility of the Contractor.

The depth of milling is to be 50mm across the entire roadway area unless otherwise directed.

For step joints, the asphalt milled area should be for a width of 300mm from asphalt removal area to provide a step joint meeting OPSD 509.010 requirements, at specific locations.

Further to this item, no road surfaces shall be left milled for not more than five (5) working days prior to asphalt placement.

IUC-16 SPCD-B14 & SPCD B15 HOT-MIX ASPHALT FOR ROADS & DRIVEWAYS

Revision: 4

Revised: June 21, 2012

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Upon completion of the milled areas asphalt works shall take place in 2 lifts, the first being base asphalt specified as HL8 HS shall be placed in all trenches to a thickness of 50 millimetres or match existing whichever is greater. 40 millimetres of top asphalt specified as HL3 HS shall be placed in all trenches for restoration of the roadway.

After placement and compaction of asphalt, the Contractor shall ensure that all structure covers and grates are free of asphalt and can open with minimal effort.

For asphalt restoration of all driveways, aprons, approaches or walkways shall be top asphalt specified as HL3A with a minimum thickness of 75mm.

IUC-17 SPCD-B17 INTERLOCKING PAVING STONE

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Non shrink grout is the approved base required for the interlocking paving.

IUC-18 SPCD-B16, SPCD-B8 CONCRETE SIDEWALKS, HOUSE WALKS, DRIVEWAYS & CURBS

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

The Contractor shall take due precaution to protect the finished surface of freshly placed concrete from being damaged, marred or defaced. In the event that the freshly placed concrete is damaged, marred or defaced, or any way in which the Engineering & Operations Department finds the work unsatisfactory, the work shall be replaced immediately at the Contractor's expense.

The work shall include but not be limited to, excavation, sub-grade, forming, pouring, finishing and curing of 30MPa concrete.

Sidewalk thicknesses are 150mm at driveway entrances and 100mm on all others.

House walks and driveways will be constructed to match existing depths and grades. Commercial driveways shall be 150mm thick and also include reinforcing.

All concrete inlaid brick work shall match existing. Mortar colours are to match existing. This shall include for the supply of new bricks (which match as close to the existing as possible) for inlay where the old brick could not be salvaged.

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

All barrier-free ramp installation at all areas to be designated by the Engineering & Operations Department, and shall comply with OPSS 310.03.

All work is to be completed in compliance with OPSS 351 and any applicable standard drawings.

Concrete curbs are to conform with OPSS 600.03 & OPSS 600.04.

IUC-19

COLD MIX ASPHALT

In addition all applicable conditions stipulated in the **Niagara Peninsula Standard Contract Document**, as illustrated in the contract documents, the following shall also apply.

This shall include all work, materials and equipment required to install the cold mix asphalt in the winter, and its removal, prior to any permanent reinstatements.

IUC-20

SPCD-B21

TOPSOIL & SODDING

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

The Contractor shall include all work required to ensure growth within the one year maintenance period.

IUC-21

ROCK EXCAVATION BY HOE RAMMING

In addition to the conditions stipulated in the Niagara Peninsula Standard Documents and OPSS 515 and 514, the following shall also apply.

Blasting **will not** be permitted.

Excavated rock material **will** be allowed to be used for trench backfill, provided that the maximum size does not exceed 150mm in any direction and is approved prior to use by the Engineering & Operations Department.

IUC-22

SPCD-B3

GRANULAR 'M' SHOULDERING

In addition to the conditions stipulated in the **Niagara Peninsula Standard Contract Document**, the following shall also apply.

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

This item is to include material for granular shouldering, all of which shall be Granular 'M' compacted and placed at a depth of 150mm and a width of 300mm, or as directed by the Engineering & Operations Department.

All restoration work, materials and workmanship shall comply with OPSS 314, and OPSS 1010.

IUC-23

SPCD-B24

APPLICATION OF WATER FOR DUST CONTROL

The conditions stipulated in the **Niagara Peninsula Standard Contract Documents** shall apply to this item.

IUC-24

SPCD-B13

ADJUSTMENT OF EXISTING APPURTENANCES

In addition to the conditions stipulated in the Niagara Peninsula Standard Documents, the following shall also apply.

IUC-25

LINE PAINTING

In addition all applicable conditions stipulated in the **Niagara Peninsula Standard Contract Document**, as illustrated in the contract documents, the following shall also apply.

Pavement marking shall comply to the Manual of Uniform Traffic Control Devices, Ontario Traffic Manual - Book 11 as well as OPSS 710 and Municipal Standards except as amended herein.

Pavement markings shall be installed as indicated by the Engineering & Operations Department.

All surface preparation shall be in accordance with OPSS 710. It shall be the Contractors discretion as to the method used to achieve a "clean and dry" surface for which to administer the pavement marking.

Paint used shall be an approved yellow and white WATER-BORNE TRAFFIC PAINT, it shall be non-coning high temperature traffic paint, or approved equivalent. OPSS 1716 and OPSS 1750 shall be applicable.

It shall be the Contractor's discretion to choose, as he may deem best, to carry the pavement marking during day or night hours.

Freshly painted lines shall be protected to prevent vehicles from unnecessarily crossing the lines. The Contractor shall be fully responsible for any and all damages caused by his operations to public or private property, and shall, at his own cost reinstate fully or compensate all such damages.

Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

IUC-26

UNSHRINKABLE FILL

In addition all applicable conditions stipulated in the **Niagara Peninsula Standard Contract Document**, as illustrated in the contract documents, the following shall also apply.

All materials shall conform to the requirements of OPSS Form 1350 and the following:

- cement type - normal Portland
- minimum 24 hour strength - 0.07MPa
- maximum 28 day strength - 0.4MPa
- class of exposure - n/a
- size of coarse aggregate - 20mm - 40mm
- slump at point of discharge - 150mm - 300mm

Admixtures shall conform to OPSS Form 1303 and latest MTO designated source list. Admixtures and air entrainment must be approved prior to order placement by the Engineering & Operations Department.

Mix proportions shall be selected in accordance with the latest revision of Section 14 of CSA Specification can/CSA-A23.1-M90, where applicable. Prior to the production of unshrinkable fill for use, the Contractor shall provide a certificate from an independent testing facility stating that the unshrinkable fill to be supplied conforms with the above requirements.

IUC-27

SPCD-B20

HAND LAID RIPRAP WITH FILTER CLOTH

The provisions of OPSS 511 shall apply except as otherwise amended or extended herein.

This item shall include the following:

Riprap shall be placed as shown on the contract drawings, and as directed by the Contract Administrator. Riprap shall be 200-250 mm in size and to be placed to a minimum depth of 300 mm over filter fabric. Wherever riprap is to be placed, the ground is to be over excavated, so that the finished surface of the riprap is even with the adjacent surface. All fallen trees and debris are to be removed from area of riprap before placement of filter fabric. Filter fabric shall extend at least 300 mm beyond the edge of riprap and shall be towed into a depth of 300 mm at the edges. Filter fabric to be 270 g/m², or heavier.

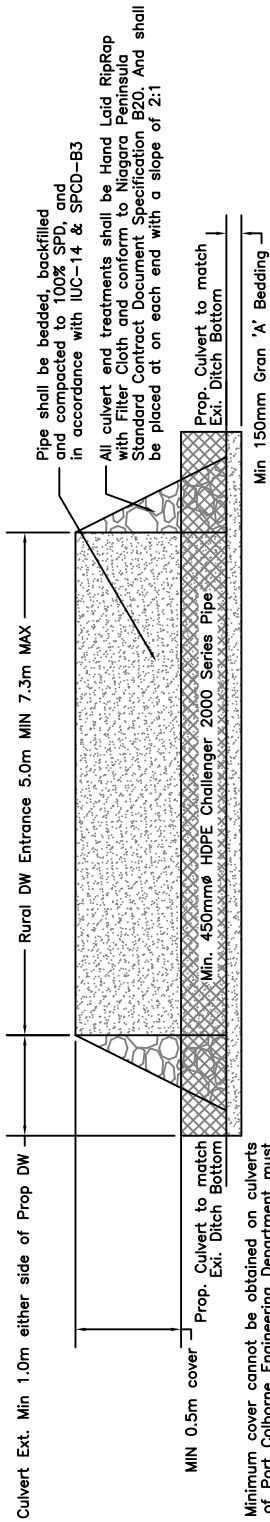
Municipal Consent Permit

Construction Specifications & Details

Guidelines to be Utilized by: Resident\Owner\Business, Contractor & Public Utilities

STANDARD DRAWINGS (If Applicable)

Q



TYPICAL
CULVERT
INSTALLATION
N.T.S.

Where Minimum cover cannot be obtained on culverts
The City of Port Colborne Engineering Department must
be contacted for modifications and recommendations are
required.

NOTES

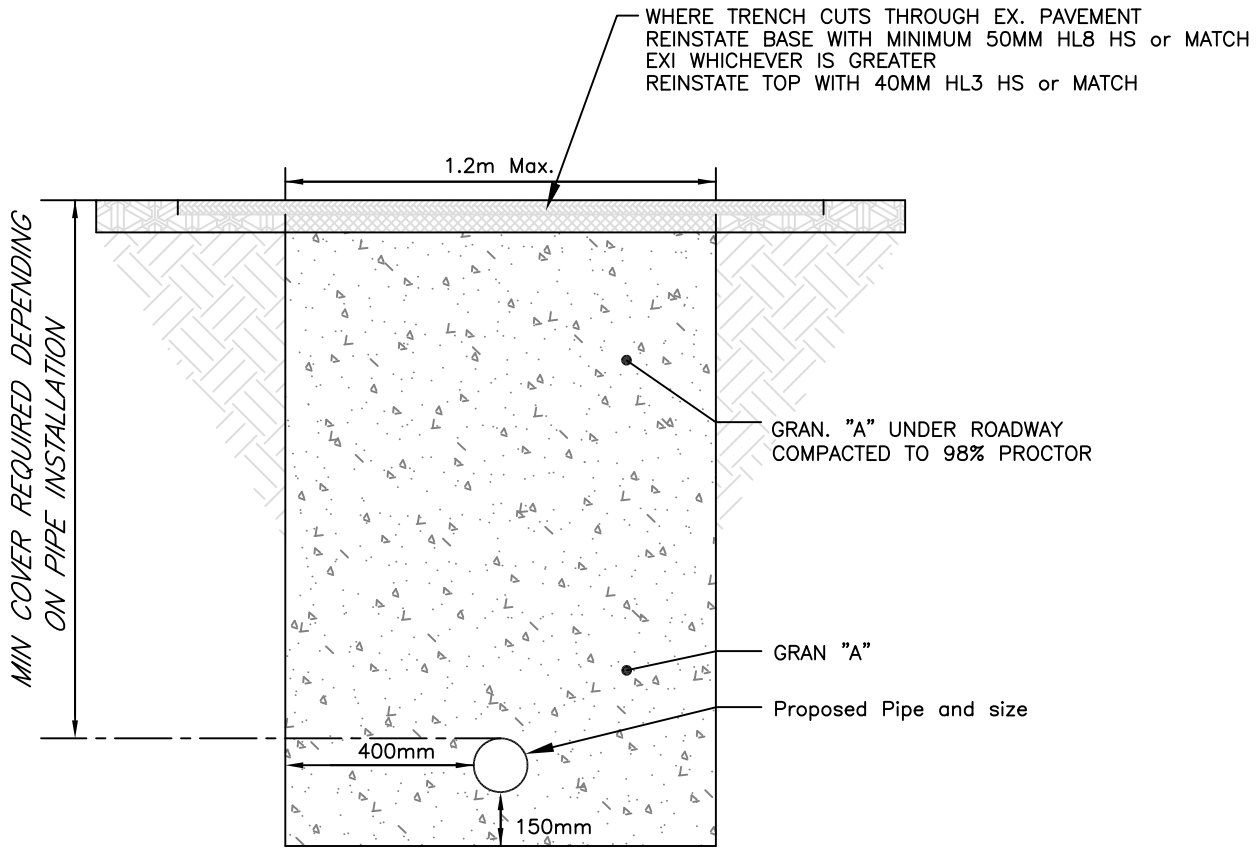
- 1) THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY ON THE CONSTRUCTION DRAWINGS AND WHERE SHOWN THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- 2) BEFORE STARTING THE WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
- 3) HYDRO AND BELL POLES ARE TO BE ANCHORED TO THE GROUND WHERE REQUIRED SO AS TO ENSURE THE STABILITY OF THE POLE LINES.
- 4) THE CONTRACTOR IS TO CHECK WITH ALL THE UTILITIES INVOLVED.
- 5) ALL MANHOLE FRAMES, CATCH BASIN FRAMES, WATER VALVES AND GAS VALVES TO BE ADJUSTED TO THEIR GRADE.

REVISIONS

DATE	BY	REVISION
	S.H.	C.L.
	NTS	NTS
	NTS	NOV 29/2011



CONTRACT/QUOTE NO.	DWG. NO.
	2



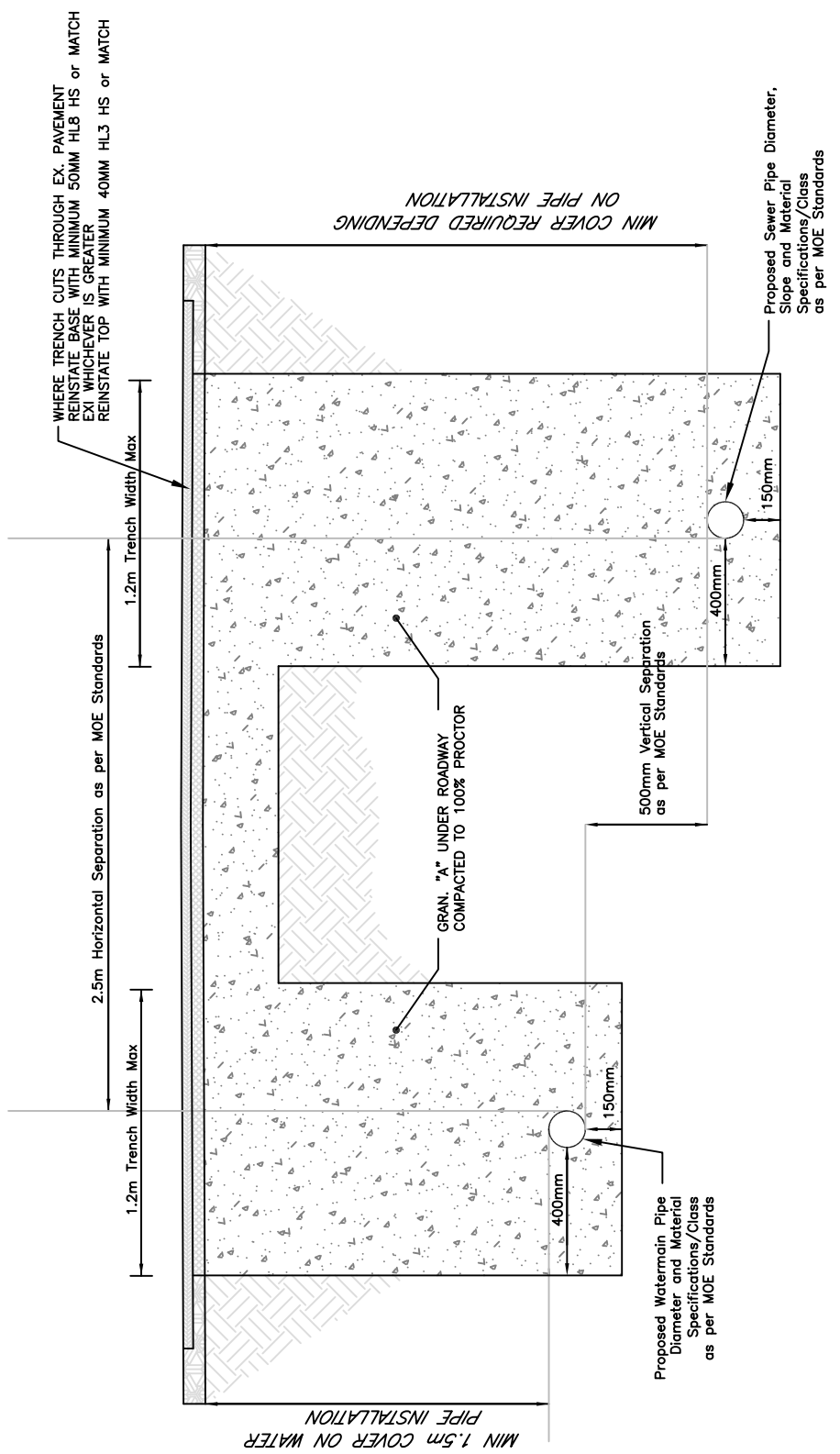
TYPICAL TRENCH DETAIL FOR
CUTS IN ROADWAY
NOT TO SCALE

- NOTES
- 1) THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY ON THE CONSTRUCTION DRAWINGS, AND WHERE SHOWN THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
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REVISION	
DRAWING	CHECKED
S.H.	C.L.
SCALE	DATE
NTS NTS	SEPT 15/2011

PORT COLBORNE
CITY OF PORT COLBORNE
DETAIL

CONTRACT/QUANTITY	REVISED
	I



TYPICAL TRENCH DETAIL FOR
WATER & SEWER
AS PER MOE STANDARDS
NOT TO SCALE

NOTES

- 1) THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY ON THE CONSTRUCTION DRAWINGS AND WHERE SHOWN THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
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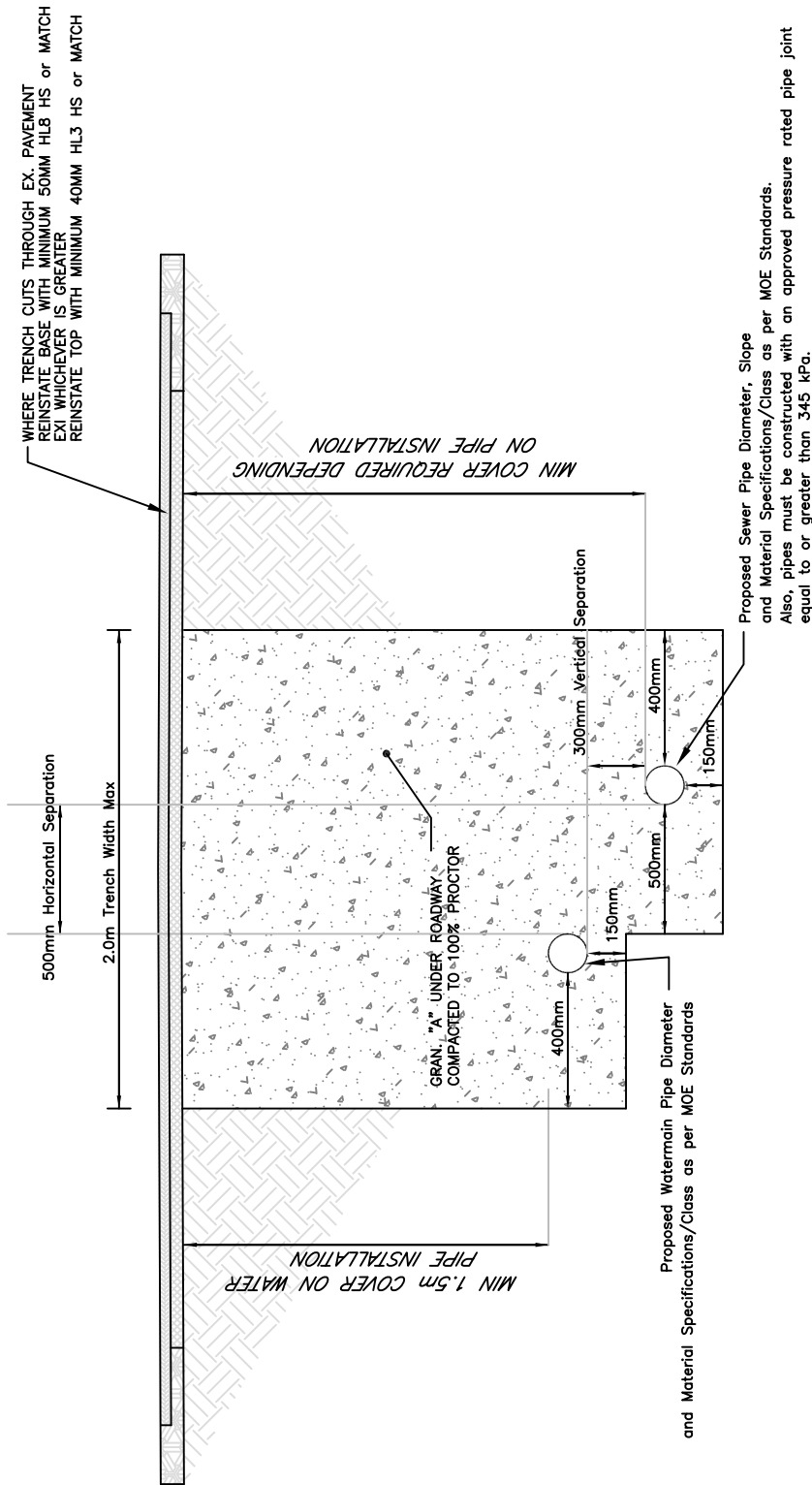
REVISIONS

DATE	DESCRIPTION

DRAWING	CHECKED
S.H.	C.L.
SCALE	DATE
NTS NTS	SEPT 15/2011

PORT COLBORNE
CITY OF PORT COLBORNE
DETAIL

CONTRACT/QUANTITY	DATE
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NOTE:
The above shown criteria MUST be met in order to utilize the Special Consideration for Water & Sewer Trenching Detail, and must be Approved prior to commencement of construction. Otherwise all MOE Standard specifications will be enforced and special consideration WILL NOT be granted.

TYPICAL TRENCH DETAIL
SPECIAL CONSIDERATION FOR
WATER & SEWER
WHEN SEPARATION CAN NOT
BE ACHIEVED
NOT TO SCALE

- NOTES
- 1) THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY ON THE CONSTRUCTION DRAWINGS, AND WHERE SHOWN THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
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REVISION	
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S.H.	C.L.
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NTS NTS	SEPT 15/2011

PORT COLBORNE
CITY OF PORT COLBORNE
DETAIL

CONTRACT/QUANTITY: I