

The Town of Plympton-Wyoming
546 Niagara Street
Wyoming, ON
NON 1T0

January 9, 2026

Your Worship and Councillors:

Re: Toronto Street Drain - Niagara Street East and Thames Street East Branch Drains

The Town of Plympton-Wyoming is improving a portion of the Barnes Drain 1943, reconstructing Thames Street (from Toronto Street 330 m east), and reconstructing Niagara Street (from Toronto Street 250m east).

In accordance with your instructions, M. Gerrits Consulting Inc. has undertaken an examination of the Toronto Street Drain, with respect to extending a Thames Street Branch Drain, 95m east of the Toronto Street Drain, and extending Niagara Street Branch Drain, 85m east of the Toronto Street Drain.

Authorization Under the Drainage Act

This Engineer's Report has been prepared, under Section 4 (1c) of the Drainage Act. The Thames Street East Branch Drains and Niagara Street East Branch Drains have been completed under Section 4 (1c) of the Drainage Act, as per the petition of the road authority.

History

- W. G. Ingram, P. Eng., prepared a report for the Toronto Street Drain, dated September 1968. The report was for the construction of the Toronto Street Drain, from Erie Street to Zone Street, where the drain outlets to the Stonehouse Drain, in the Town of Plympton-Wyoming.

Onsite Meeting

An onsite meeting was held on December 16, 2025, at the Town of Plympton-Wyoming Municipal Offices. No landowners were present at the meeting. After the meeting, C. McCallum contacted M. Gerrits to discuss drainage on his lands.

Investigation

B.M. Ross and Associates Ltd. has been retained by the Town of Plympton-Wyoming to complete the following:

- Reconstruction of Thames Street east of Toronto Street.
- Reconstruction of Niagara Street east of Toronto Street.

M. Gerrits Consulting Inc. completed a site visit on September 9, 2025, to review the B.M. Ross and Associates Ltd. plans, watershed map, and overall drainage patterns.

Existing Conditions

In the opinion of M. Gerrits Consulting Inc., the proposed works will have very little effect on the Toronto Street Drain, since the proposed improvements are within the limits of the Toronto Street Drain watershed, and the limits of the existing watershed remained unchanged under this report.

Design

B.M. Ross and Associates Ltd. has been retained by the Town of Plympton-Wyoming to complete the detail design of the roadworks, and drainage works. B.M. Ross and Associates Ltd. has confirmed the proposed storm sewer system has been designed to accommodate the 2-year design flow, in accordance with the MOECP requirements.

All survey information, storm sewer designs, watershed plans, street reconstruction plans, street reconstruction profiles, and the estimate of cost, were provided by B.M. Ross and Associates Ltd., and are incorporated into this report.

Recommendations

M. Gerrits Consulting Inc. recommends that a new drain report be prepared for a drainage works to be known as the Toronto Street Drain - Niagara Street East and Thames Street East Branch Drains. The report includes the following:

- Toronto Street Drain – Incorporate the appended Town of Plympton-Wyoming, Thames St. East Reconstruction, Niagara St East Reconstruction, and drawings 1 of 8, and 3 of 8, Revision 3, prepared by B.M. Ross and Associates Ltd., dated January 2026, into this report for the following sections of the drain.
 - Toronto Street Drain – Thames Street East Branch Drain - Stations 2+025 to 2+120.
 - Toronto Street Drain – Niagara Street East Branch Drain - Stations 3+026 to 3+111.
- Provide future maintenance specifications for the drain.
- Prepare Schedules of Maintenance for the drain.
- Future land use changes will be subject to any applicable Section 65 Changes in Assessment reports.

Drain Classification

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Agricultural mapping, and the 2004 St. Clair Regional Conservation Authority (SCRCA) classification mapping have not currently rated the Toronto Street Drain.

Approvals

All construction will be completed in accordance with the Department of Fisheries and Oceans (DFO) regulations, and the applicable Conservation Authority permits.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying specification of work and profile, that form a part of this report. An Estimate of Cost has been prepared in the amount of \$171,190, which includes engineering fees, but does not include work beyond the preparation of the report, such as inspection during construction.

A plan has been prepared, which shows the location of the work, and the approximate drainage area. Profiles have been prepared, which show the depths and grades of the proposed work.

Assessment

As per Section 21 of the Drainage Act, a Schedule of Assessment for the lands and roads affected by the Barnes Drain (2025) and Associated Branch Drains has been prepared.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works, may be assessed for benefit (Section 22).

Lands and roads that use the drainage works as an outlet, for which the drainage works are constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse, may be assessed for outlet (Section 23-1). The assessment for outlet shall be based on the volume and the rate of flow of the water artificially caused to flow into the drainage works, from the lands and roads liable for such assessments. Outlet assessments are generally based on equivalent hectares (Eq. Ha), which are determined by the land use. Typical Ha to Eq. ha ratio are listed below:

Agricultural Lands – 1 Ha = 1Eq. Ha

Residential Lands – 1 Ha = 1.5-2.0 Eq. Ha

Gravel Roads – 1 Ha = 3 Eq. Ha

Paved Roads – 1 Ha = 4 -6 Eq. Ha

Subsurface Drainage – 1Ha = 0.5 Eq. Ha

Surface Drainage – 1Ha = 0.5 Eq. Ha

If, from any land or road, water is artificially caused by any means to flow upon and injure any other land or road, the land or road from which the water is caused to flow, may be assessed for injuring liability, with respect to a drainage works, to relieve the injury so caused to such other land or road (Section 23-2).

The Engineer may assess for special benefit, any lands for which special benefits have been provided by the drainage works (Section 24).

Assessments may be made against any Public Utility or Road Authority, as per Section 26 of the Drainage Act, for any increased cost for locating, special backfill or construction, or for the removal or relocation of any of its facilities or plants, that may be necessary for the construction or maintenance of the drainage works. Items to be assessed under Section 26 shall be tendered separately, and the Utility or Road Authority shall be assessed the actual construction costs, plus the associated overhead and engineering costs (20% of the construction costs). Section 26 assessments are detailed in Table 1 as follows:

Description		Item	Quantity	Unit	Total Cost (\$)	Fixed Cost (\$)	Special Benefit Cost (\$)	Engineering (20%) (\$)	Net H.S.T. (1.76%) (\$)	Total Special Benefit (\$)
Toronto Street Drain										
Niagara Street	250 mm PVC DR35 catchbasin leads	1 h)	9.0	m	\$ 2,250	-	\$ 2,250	\$ 450	\$ 48	\$ 2,748
East Branch	200 mm PVC DR35 catchbasin leads	1 i)	9.0	m	\$ 2,025	-	\$ 2,025	\$ 405	\$ 43	\$ 2,473
	600 mm x 600 mm (OPSD 705.010)	2 a)	2.0	Ea.	\$ 5,300	-	\$ 5,300	\$ 1,060	\$ 112	\$ 6,472
	600 mm x 1450 mm (OPSD 705.020)	2 a)	2.0	Ea.	\$ 7,300	-	\$ 7,300	\$ 1,460	\$ 154	\$ 8,914
										\$ 20,607
Thames Street	250 mm PVC DR35 catchbasin leads	1 h)	8.5	m	\$ 2,125	-	\$ 2,125	\$ 425	\$ 45	\$ 2,595
East Branch	150 mm PVC DR28 catchbasin leads	1 j)	8.0	m	\$ 1,600	-	\$ 1,600	\$ 320	\$ 34	\$ 1,954
	600 mm x 600 mm (OPSD 705.010)	2 a)	1.0	Ea.	\$ 2,650	-	\$ 2,650	\$ 530	\$ 56	\$ 3,236
	600 mm x 1450 mm (OPSD 705.020)	2 a)	2.0	Ea.	\$ 7,300	-	\$ 7,300	\$ 1,460	\$ 154	\$ 8,914
										\$ 16,699

All final costs included in the cost estimate of this report, except the special benefits as identified above, shall be pro-rated based on the Schedule of Assessment.

The estimated cost of the drainage works has been assessed in the following manner:

- The drain has been assessed with 62% of the cost less any Section 26 assessments, as a benefit assessment, and 38% of the cost as an outlet assessment, based on equivalent hectares. A benefit assessment of \$2,800 has been assessed to all private properties abutting and connecting to the drain. The assessment includes the cost associated with a storm service connection, from the landowner's lot line to the drain.
- The additional cost to work within the road allowance, has been assessed as a Section 26 assessment to the affected road authority.
- The cost to work around utilities, has not been assessed as a Section 26 assessment to the affected utility, as they will form part of the road works costs, and not the drain costs.

Allowances

Allowances may be made under the Drainage Act for drainage works constructed on private properties for damages, and right-of-way. For this project, all works will be constructed on public lands within the Thames Street and Niagara Street road allowances, and therefore, no allowances are applicable.

Access and Working Area

Access to the work site shall be from the Thames Street road allowance, and the Niagara Street road allowance. The working area shall be the Thames Street road allowance, and Niagara Street road allowance.

Restrictions

Following construction, no trees or shrubs shall be planted, nor shall permanent structures be erected within the working area, without prior written permission of Council, unless otherwise specified in this report.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refers to a landowner's responsibility regarding obstruction of a drainage works, the removal of obstructions in a drain, and the damage caused to a drain by an obstruction.

Maintenance

Upon completion of the work, the drainage works shall be repaired and maintained by the Town of Plympton-Wyoming, under the provisions of the Drainage Act, as per the applicable Schedule of Assessment for Maintenance enclosed in this report, until said maintenance assessment is varied, in accordance with the provisions of the Drainage Act as outlined below. The Schedules of Assessment for Maintenance are for the future maintenance of the Drain, and have been prepared based on a hypothetical maintenance cost of \$10,000.

Future connections by a landowner or Road Authority within the established watershed, will be at the cost of the connecting landowner or Road Authority.

Maintenance costs are limited to the storm drain and private drain services, located within the road allowance, and does not include any necessary road reconstruction items, such as curb, granular materials, import fill, or pavement, which shall be assessed to the Road Authority as a Section 26 assessment. Maintenance of private services may be with trenchless technologies, or by conventional construction methods. Conventional construction methods shall include service piping and fittings. Future service maintenance costs shall be assessed with 50% of the cost to the benefiting landowner (s), and 50% of the cost to the Road Authority.

Yours truly,


26-03
Jan 9, 2026



Michael Gerrits, P. Eng.
M. Gerrits Consulting Inc.

Toronto Street Drain - Niagara Street East &
Thames Street East Branch Drains
Town of Plympton-Wyoming
Janaury 9, 2026

**Toronto Street Drain - Niagara Street East Branch and Thames Street East Branch Drains
Cost Estimate - Summary**

Description	Amount
1 Toronto Street Drain - Niagara Street East Branch	\$ 81,793
2 Toronto Street Drain - Thames Street East Branch	\$ 89,397
Total Estimate	\$ 171,190

Toronto Street Drain - Niagara Street East &
Thames Street East Branch Drains
Town of Plympton-Wyoming
Janaury 9, 2026

Toronto Street Drain - Niagara Street East Branch Cost Estimate

Item	OPSS #	Description	Qty.	Unit	Price	Amount
1	401, 409, 410, 492, 517, 518	Supply, excavate for and place storm pipe sewers, including bedding, native backfill, and restoration				
	f)	375 mm PVC DR35 storm sewer	85.10	m	\$350	\$29,785
	h)	250 mm PVC DR35 catchbasin leads	9.00	m	\$250	\$2,250
	i)	200 mm PVC DR35 catchbasin leads	9.00	m	\$225	\$2,025
2	402, 407, 517, 518	Supply, excavate for, place and backfill catchbasins and/or twin inlet catchbasins, including frames and grates				
	a)	600 mm x 600 mm (OPSD 705.010)	2.00	Ea.	\$2,650	\$5,300
	a)	600 mm x 1450 mm (OPSD 705.020)	2.00	Ea.	\$3,650	\$7,300
3	402, 407, 517, 518	Supply, excavate for, place and backfill precast maintenance holes, and maintenance holes catchbasins, including frames and grates				
	a)	1200 mm manhole (701.010)	1.00	Ea.	\$5,750	\$5,750
6	510	Remove existing storm sewer				
	a)	375/450mm dia. (or any size) all material except for AC pipe	47.00	m	\$55	\$2,585
7	401, 410, 492, 517, 518	Supply, excavate for and place PVC SDR-28 storm service pipe, including bedding, native backfill				
	a)	150 mm dia.	80.00	m	\$180	\$14,400
8	401, 410	Storm service cleanout	7.00	Ea.	\$525	\$3,675
Subtotal - Toronto Street Drain Niagara Street East Branch Drain Miscellaneous Engineering Net UST						\$73,070 \$3,654 \$3,654 \$1,415

Toronto Street Drain - Niagara Street East &
 Thames Street East Branch Drains
 Town of Plympton-Wyoming
 Janauary 9, 2026

**Toronto Street Drain - Thames Street East Branch
 Cost Estimate**

Item	OPSS #	Description	Qty.	Unit	Price	Amount
1	401, 409, 410, 492, 517, 518	Supply, excavate for and place storm pipe sewers inlcuding bedding, native backfill and restoration				
	f)	375 mm PVC DR35 storm sewer	94.90	m	\$350	\$33,215
	h)	250 mm PVC DR35 catchbasin leads	8.50	m	\$250	\$2,125
	j)	150 mm PVC DR28 catchbasin leads	8.00	m	\$200	\$1,600
2	402, 407, 517, 518	Supply, excavate for, place and backfill cacthbaisins and/or twin inlet catchbasins, including frames and grates				
	a)	600 mm x 600 mm (OPSD 705.010)	1.00	Ea.	\$2,650	\$2,650
	a)	600 mm x 1450 mm (OPSD 705.020)	2.00	Ea.	\$3,650	\$7,300
3	402, 407, 517, 518	Supply, excavate for, place and backfill precast maintenance holes and maintenance holes catchbasins, including frames and grates				
	a)	1200 mm manhole (701.010)	1.00	Ea.	\$5,750	\$5,750
6	510	Remove existing storm sewer				
	b)	375mm dia. (or any size) Asbestos Cement pipe	50.00	m	\$180	\$9,000
7	401, 410, 492, 517, 518	Supply, excavate for and place PVC SDR-28 storm service pipe, including bedding, native backfill				
	a)	150 mm dia.	75.00	m	\$180	\$13,500
8	401, 410	Storm service cleanout	9.00	Ea.	\$525	\$4,725

Subtotal - Toronto Street Drain Thames Street East Branch Drain	\$79,865
Miscellaneous	\$3,994
Engineering	\$3,994
Net HST	\$1,544
Total Estimate	\$89,397

Toronto Street Drain - Niagara Street East &
Thames Street East Branch Drains
Town of Plympton-Wyoming
January 9, 2026

SCHEDULE OF ASSESSMENT FOR THE TORONTO STREET DRAIN - NIAGARA STREET EAST BRANCH DRAIN

Description	Aff. Hect. (Ha)	Roll No.	Landowner Identification Number	Owner	Address of Affected Lands	Special Benefit	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Area (Ha)
<u>Non-Agricultural Lands</u>										
PI 2 Blk T Lot 1 - 2	0.08	383536000118400	2-04	H. Naus	515 Niagara Street	-	2,800	988	3,788	0.16
PI 2 Blk T Lot 20 - 21	0.13	383536000119000	2-05	J. Hammond	511 Niagara Street	-	2,800	1,449	4,249	0.24
PI 2 Blk T Lot 19 Pt Lot 18 RP 25R2078 Pt 1	0.07	383536000118909	2-06	G. Wilkins	509 Niagara Street	-	2,800	922	3,722	0.15
PI 2 Blk U Lot 1 Pt Lot 2 PR 25R5953 Pt 1	0.04	83536000117600	3-01	C. McCallum	617 Toronto Street	-	2,800	492	3,292	0.08
PI 2 Blk U Pt Lot 2 Pt Lot 3 RP 25R5953 Pt 2	0.08	383536000117601	3-02	M. Dukeshire	514 Niagara Street	-	2,800	922	3,722	0.15
PI 2 Blk U Lot 4 E Pt Lot 3	0.07	383536000117700	3-03	H.E.A.R. Solutions Heating and Cooling	510 Niagara Street	-	2,800	863	3,663	0.14
PI 2 Blk U Lot 5 W Pt Lot 6	0.10	383536000117800	3-04	D. Ridley	508 Niagara Street	-	2,800	1,180	3,980	0.19
						-	19,600	6,816	26,416	
						Total Special Benefit	-			
						Total Benefit	19,600			
						Total Outlet	6,816			
						Total - Non-Agricultural Lands	26,416			
<u>Public Lands</u>										
Niagara Street	0.21			Town of Plympton-Wyoming		20,607	14,549	18,489	53,645	0.84
Rear Yard Alley (East of Toronto St.)	0.02			Town of Plympton-Wyoming		-	1,573	159	1,732	0.02
						20,607	16,122	18,648	55,377	
						Total Special Benefit	20,607			
						Total Benefit	16,122			
						Total Outlet	18,648			
						Total - Public Lands	55,377			
						Total - Non-Agricultural Lands	26,416			
						Total - Public Lands	55,377			
						Total Assessment	81,793			

Toronto Street Drain - Niagara Street East &
Thames Street East Branch Drains
Town of Plympton-Wyoming
January 9, 2026

SCHEDULE OF ASSESSMENT FOR THE TORONTO STREET DRAIN - THAMES STREET EAST BRANCH DRAIN

Description	Aff. Hect. (Ha)	Roll No.	Landowner Identification Number	Owner	Address of Affected Lands	Special Benefit	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Area (Ha)
<u>Non-Agricultural Lands</u>										
PI 2 Blk M Lot 18	0.03	383536000119800	1-01	T. Napper	519 Thames Street	-	2,800	369	3,169	0.06
PI 2 Blk Lot 17	0.06	383536000119704	1-02	W. Ramsay	513 Thames Street	-	2,800	787	3,587	0.13
PI 2 Blk M Lot 16	0.06	383536000119703	1-03	J. Wierenga	511 Thames Street	-	2,800	787	3,587	0.13
PI 2 Blk Lot 15	0.06	383536000119702	1-04	J. Thomson	509 Thames Street	-	2,800	787	3,587	0.13
PI 2 Blk M Lot 14	0.06	383536000119701	1-05	M. Vansteenkiste	507 Thames Street	-	2,800	787	3,587	0.13
PI 2 Blk M Lot 13	0.06	383536000119700	1-06	C. Kerrigan-Chafe	505 Thames Street	-	2,800	787	3,587	0.13
PI 2 Blk Lot 6 - 7	0.03	383536000118600	2-01	T. Stronghill	637 Toronto Street	-	2,800	369	3,169	0.06
PI 2 Blk T Lot 8 with Easement Blk T S Pt Lot 6	0.07	383536000118700	2-02	R. Woods	512 Thames Street	-	2,800	855	3,655	0.14
PI 2 Blk T Lot 9 W Pt Lot 10	0.07	383536000118701	2-03	K. Singh	510 Thames Street	-	2,800	855	3,655	0.14

Total Special Benefit

Total Benefit

Total Outlet 6,383

Total - Non-Agricultural Lands 31,583

Public Lands

Thames Street	0.18	Town of Plympton-Wyoming	16,699	20,420	20,695	57,814	0.72
			16,699	20,420	20,695	57,814	

Total Special Benefit 16,699

Total Benefit 20,420

Total Outlet 20,695

Total - Public Lands 57,814

Total - Non-Agricultural Lands 31,583

Total - Public Lands 57,814

Total Assessment - Thames Street East Branch Drain \$ 89,397

Toronto Street Drain – Niagara Street East and
Thames Street East Branch Drains
Town of Plympton-Wyoming
January 9, 2026

SPECIFICATION OF WORK

The specifications included in this report are to be read in conjunction with the appended Special Provisions, titled Toronto St. Drain – Niagara St. East and Thames St. East Branch Drains and drawings 1 of 8, and 3 of 8, titled Town of Plympton-Wyoming, Thames St. East Reconstruction, Niagara St East Reconstruction, Revision 3, prepared by B.M. Ross and Associates Ltd., dated January 2026.

Plans and Specifications

These specifications shall apply and be a part of the Contract, along with the appended Special Provisions, titled Toronto St. Drain – Niagara St. East and Thames St. East Branch Drains and drawings 1 of 8, and 3 of 8, titled Town of Plympton-Wyoming, Thames St. East Reconstruction, Niagara St East Reconstruction, Revision 3, prepared by B.M. Ross and Associates Ltd., dated January 2026.

Any work not described in these specifications, shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

APPENDIX

B.M. Ross and Associates Ltd. – Special Provisions, titled Toronto St. Drain – Niagara St. East and Thames St. East Branch Drains and drawings 1, and 3,
titled Town of Plympton-Wyoming, Thames St. East Reconstruction,
Niagara St East Reconstruction, Revision 3

TORONTO ST DRAIN - NIAGARA ST EAST & THAMES ST EAST BRANCH DRAINS SPECIAL PROVISIONS

SUPPLY, EXCAVATE FOR, PLACE AND BACKFILL STORM PIPE SEWERS

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation and testing of the storm sewers in accordance with OPSS.MUNI 401 – Construction Specification for Trenching, Backfilling, and Compacting; OPSS.MUNI.410 Construction Specification for Pipe Sewer Installation in Open Cut; and as indicated on the contract drawings. The sizes of the sewers as well as the backfill material are as noted on the Form of Tender and on the contract drawing.

Pipe Material

OPSS 410.05 materials is amended to accept the following pipe material for storm sewers:

- (a) Concrete Sewer Pipe (Rigid)
 - 150 mm to njhh250 mm non-reinforced Class 3 – CSA certified to A257.1
 - 300 mm or greater reinforced Pipe Class 65D (min) or as specified in the tender form – CSA certified to A257.2
- (b) Polyvinyl Chloride (PVC) Pipe (Flexible)
 - Class SDR 35 or Class V (320 kPa)
 - Annular ribbed profile for ribbed pipe
 - 200mm to 375mm Inclusive Class SDR35 or Class V (320kPa)
- (c) Catch Basins Laterals Polyvinyl Chloride (PVC) Pipe (Flexible)
 - 150mm to 250mm as specified in the Form of Tender – CSA Certified SDR35

If pipe material selected differs from that specified in the Form of Tender, the Contractor shall, upon request, supply the Contract Administrator with proof of CSA certification for both the pipe and the elastomeric gaskets, all at the expense of the Contractor.

Watertight Lateral Connection

HDPE, PVC Mains 450mm dia or less

- Factory manufactured tees.

HDPE and PVC Mains 525mm dia or greater

- Inserta Tee® Fittings in general conformance with to ASTM D3034, F1336 and F477.

Concrete Main, lateral connections up to 250mm dia

- Core Bell Adapter Couplings for sewer laterals from 100mm to 250mm in size.

Table 1: Watertight Lateral Connections

Main Line Sewer	Lateral Diameter	Main Line Pipe Material		
		HDPE	PVC	Concrete

Up to 450mm dia	100mm to 250mm dia	Manufactured Tee	Manufactured Tee	Core Bell Adapter
Greater than 525mm dia	100mm to 250mm dia	Inserta-Tee	Inserta-Tee	Core Bell Adapter

Storm Sewer Watertight Lateral Connection – General

The storm sewer tee, fitting or adapter shall include all required pipe coring, bends, fittings, and couplers required to connect the lateral sewer pipe required. The manufactured tee, fitting or adapter shall be installed as per manufacturer's recommendations. Care shall be taken to avoid installation of the PVC hub into the rubber gasket, beyond the painted alignment markings, which may restrict the passage of a mandrel through the pipe.

Storm Sewer Outlet Grate

- Steel CSA G40.21 M-300W, Hot Dipped galvanized G-164M after fabrication
- Welding shall conform to CSA W47.1 & CSA W59 Latest Edition
- Welding surfaces remain as welded 6mm Fill all around

Repair Coupling Dissimilar Materials (100mm to 375mm - Concrete, Clay, Steel, HDPE, PVC excl Ribbed PVC)

- Fernco Flexible Coupling

Repair Coupling – Dissimilar Materials (450mm dia and greater and all Ribbed PVC sizes)

- MarMac Dissimilar Pipe Couplers (DP Couplers)

Repair Coupling – HDPE to HDPE, HDPE to CSP (450mm to 900mm)

- Water-Tight, Gasketed, Bell-Bell Coupler

Filter Fabric

- Filter wrap (non-woven type) such as Terrafix 270R or approved equivalent

Construction

For pipes with a nominal pipe diameter of 900mm or less, the trench shall allow for a minimum side clearance of 300mm.

For pipes with a nominal pipe diameter greater than 900mm, the trench shall allow for a minimum side clearance of 500mm.

Rigid Pipe – Bedding

Bedding shall be Class B as per OPSD 802.030, 802.031, 802.032, 802.033 or 802.034 for rigid pipe and whichever soil type is applicable.

The minimum bedding depth, below the pipe, shall be $0.15 \times$ diameter of the pipe. In no case shall the bedding depth be less than 150mm or greater than 300mm.

Bedding material shall be Granular A.

Bedding shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to a minimum of 95% of the S.P.M.D.D. before a subsequent layer is placed.

Rigid Pipe - Cover

Cover material shall be approved granular material or select native granular material to a minimum of 300 mm above the top of pipe.

Cover shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to a minimum of 95% of the S.P.M.D.D. before a subsequent layer is placed.

Flexible Pipe - Embedment

Embedment shall be as per OPSD 802.010, 802.013, or 802.014 for **flexible pipe** and whichever soil type is applicable.

The minimum bedding depth, below the pipe, shall be 150mm.

Bedding material shall be Granular A.

Embedment shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to a minimum of 95% of the S.P.M.D.D. before a subsequent layer is placed.

Rigid Pipe and Flexible Pipe - Backfill

Backfill shall be as specified in the Form of Tender.

- If select native material is specified, backfill shall be compacted to a minimum of 95% of the S.P.M.D.D.. Backfill beneath areas to be developed as pavements shall be compacted to 98% S.P.M.D.D. for 1.0m below the granular roadbed.
- If granular material is specified, it shall be compacted to a minimum of 100% of the S.P.M.D.D.

OPSS 401.07.10.05 Backfill, has been amended as follows:

Backfill material shall be placed in uniform layers not exceeding 300mm in thickness, loose measurement, for the full width of the trench and each layer shall be compacted to the specified density before a subsequent layer is placed.

Power operated tractors or rolling equipment shall not be used for compacting until backfill material has been placed to a minimum of 900mm above the crown of the pipe.

The unit price bid shall include the cost of all granular bedding, embedment cover material and the backfilling noted herein.

All excavated material not required for backfill shall be disposed as outlined under the General SP – Management of Excess Materials. The cost of this work shall be included in the unit price bid of sewer.

Should the Contractor decide to use stone bedding to assist with trench stabilization it shall be at the Contractor's expense and the stone bedding material must be completely wrapped with a filter wrap (non-woven type). Edges of the filter wrap must be overlapped 300mm minimum with no gaps for fines to migrate. It is also to be noted that the use of stone may result in settlements; as such, the Contractor shall assume all risk in its use. Clear stone material which is not completely wrapped in approved filter wrap material will not be permitted for this project.

OPSS.MUNI 410.07.12 – Pipe Installation has been amended with the addition of the following:

410.07.12.01-General

Pipe shall be laid within the following horizontal alignment and vertical grade tolerances:

1. All pipe sections, within a sewer run, shall have positive slope towards the outlet.
2. Maximum vertical and horizontal alignments shall not exceed manufacturer's allowable deflections.
3. Maximum vertical and horizontal joint deflections shall not exceed manufacturers allowable deflections.
4. Should the installed grade deviate by more than 10% of the indicated installation grade, the sewer shall be re-laid.
5. Passing of a mandrel test does not supersede the need to be in compliance with the grade tolerances.

Installation of Repair Coupling

The selection of a pipe coupler is dependent upon the pipe materials and the diameters of the pipe to be coupled together. The Contractor shall refer to the Materials list in this Special Provision for the approved pipe couplers for this project.

In all cases, the ends of each pipe to be coupled, shall be clean and free of debris. The coupler shall be installed as per the manufacturer's recommendations.

Care shall also be taken to vertically align the pipes so that the invert of the upstream pipe section matches or is slightly above the invert of the downstream pipe section.

For pipe diameters 375mm or less, the Contractor shall carefully compact the granular around the pipe to provide vertical and lateral support of the joint.

For pipe diameters greater than 375mm dia., a concrete collar shall be poured around the entire pipe joint to provide vertical and lateral support to the joint. The collar shall be a minimum of 150mm thick under the pipe joint

Compaction – General

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Trench widths shall be sufficiently wide enough, but no greater than necessary, to ensure working room to properly and safely place and compact haunching and other embedment materials. The space between the pipe and trench wall must be wider than the compaction equipment used in the pipe zone.

In pipe trenches, to 900mm above the crown of the pipe, small, hand-held or walk-behind compactors are required, not only to preclude damage to the pipe, but to ensure thorough compaction in the confined areas around the pipe and along the trench wall.

Power operated tractors or rolling equipment shall not be used for compacting until backfill material has been placed to a minimum of 900mm above the crown of the pipe.

All costs of compaction and water used for compaction shall be included in the unit price for sewer.

Removing Existing Sewers, Watermains and Minor Structures

The unit price bid shall include the cost of removing existing sewers, watermains, or minor structures encountered in the trench excavation where applicable.

Disposal of existing sewers, watermains and/or minor structures shall be as outlined under the General SP- Management of Excess Materials.

Abandoning Sewers

The unit price bid shall include the cost of plugging up, by means of brick and mortar and to the satisfaction of the Contract Administrator, certain existing sewers or drains that are to be abandoned due to being intercepted by the installation of new sewer(s).

Connect To Existing

The Contractor shall make all connections to new and existing catch basins, maintenance holes, culverts or sewers (regardless of pipe material) in a manner set out in the contract drawings or as determined by the Contract Administrator at the time of construction.

The Contractor shall fill the void between the sewer pipe and the concrete structure with grout. The grout shall be trowelled smooth on both the inside and the outside of the structure.

Connections between new sewers and existing sewers to be made using a manufactured repair coupling.

Upon completion of the connection to the structure, the floor of the structures shall be cleaned out by the Contractor.

Break Into and Connect To Existing Structures

The Contractor shall saw cut or core an opening in the existing catch basins, maintenance hole, large enough to insert the sewer pipe, in a manner set out in the contract drawings or as determined by the Contract Administrator at the time of construction.

The Contractor shall fill the void between the sewer pipe and the concrete structure with grout. The grout shall be trowelled smooth on both the inside and the outside of the structure.

Upon completion of the connection, the floor of the structures shall be cleaned out by the Contractor.

Maintenance of Flow

The Contractor shall provide for the maintenance of flow in all sewers and maintenance holes at all times.

Management of Excess Materials

Management of excess materials shall be as outlined under the General Special Provision - Management of Excess Materials.

Restoration

Restoration shall be as outlined under General SP - Restoration.

Inspection and Testing

OPSS.MUNI 410.07.16 – Field Testing has been amended with the addition/clarification as follows:

410.07.16.02 - Prequalification Leakage Tests are not a requirement when sewers are active.

410.07.16.03 - Infiltration Tests are not a requirement when sewers are active.

410.07.16.04 - Exfiltration Tests are not a requirement when sewers are active.

410.07.16.05 – Deflection testing **shall** be performed on all pipe sewers constructed using flexible pipe.

Included in the unit price bid for the sewer, the Contractor shall supply all labour, equipment and materials to flush, clean and perform mandrel deflection testing on the sewers as per OPSS 438.MUNI - Construction Specification for Mandrel Deflection Inspections as well as OPSS 411.MUNI-Construction Specification for the Cleaning and Flushing of Culverts, Wall Drains, Pipe Sewers, Catch Basins, Maintenance Holes, Ditch Inlets, and Oil/Grit Separators.

The deflection testing device shall be pulled manually through the pipe not sooner than 30 Days after the completion of backfilling (unless authorized by the Contract Administrator) and installation of service connections and shall be before placement of asphalt or concrete.

410.07.16.06 Closed-Circuit Television (CCTV) Inspection Pipe sewers shall be performed on all sewers and services.

Included in the unit price bid for the sewer, the Contractor shall supply all labour, equipment and materials to flush, clean and perform a high quality, CCTV inspection of the sewers complete with a digital submission of the video and report as per OPSS 409.MUNI – Construction Specification for Closed-Circuit Television (CCTV) Inspection of Pipelines as well as OPSS 411.MUNI Construction Specification for the Cleaning and Flushing of Culverts, Wall Drains, Pipe Sewers, Catch Basins, Maintenance Holes, Ditch Inlets, and Oil/Grit Separators.

The CCTV inspection shall be performed not sooner than 30 Days after the completion of backfilling (unless authorized by the Contract Administrator) and installation of service connections and shall be before placement of asphalt or concrete.

Should deficiencies be identified upon review of the camera inspection video or a failed deflection test, the deficiencies shall be promptly corrected and re-inspected with CCTV inspection. All costs associated with the correction of the deficiencies, restoration and additional CCTV inspections shall be borne by the Contractor.

Measurement for Payment

410.09 Measurement for Payment has been amended as follows:

410.09.01.01 Pipe Sewers

Measurement of pipe sewers shall be by length in metres along the horizontal centreline length of the pipe from the centre of one drainage structure to the centre of another drainage structure or outlet end of the pipe sewer. Included in the lineal metres of sewer, are any service tees.

When bends are used on concrete sewers, the measurement for the pipe sewer shall include the length of the bend.

If there is a pay item for a pipe bend, a count shall be made of the number of bends used.

There will be no measurement for the dewatering.

Basis of Payment

410.10 Basis of Payment

Payment at the Contract price for sewer pipe shall be full compensation for all labour, equipment, and material required to supply and install the gravity sewers, bends, tees, grates etc.

Payment at the Contract price for Connect to Existing Sewers shall be full compensation for all labour, equipment, and material required to make the connection.

Payment at the Contract price for the Breaking Into Existing Structures shall be full compensation for all labour, equipment, and material required to do the work.

No additional payment will be made for dewatering. Should dewatering be required, the Contract price for the installation of pipe sewers, shall include full compensation for all labour, equipment, and material to do the dewatering.

The unit price bid for the storm sewers, shall include all costs for labour, equipment and materials to perform the dewatering.

The unit price bid shall include all labour, equipment, and material to do the deflection testing and the CCTV investigation.

SUPPLY, EXCAVATE FOR, PLACE AND BACKFILL CATCH BASINS

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the structures as indicated on the contract drawings and in accordance with OPSS.MUNI 407. The sizes of the structures are as noted on the Form of Tender and on the contract drawing.

The Contractor shall excavate to the required grade, supply the necessary granular bedding and backfill and compact the material in accordance with OPSS.MUNI 402.

The Contractor shall supply and install frame and grates as listed on the contract drawings to the grade established at the time of construction. Adjustment of the frame and grate to grade shall be achieved using precast concrete adjustment. The contractor shall place caulking or approved alternative between each adjustment unit. The contractor shall include the cost of connecting new basins to existing sewers as determined at the time of construction.

Design and Submissions Required

407.04.01 Submission Requirements shall be amended with the following addition:

- c) Working Drawings for all precast structures shall be submitted no later than 10 Business Days prior to construction. Contractors shall note that the review of the working drawings may take some time depending on the volume of drawings submitted. Contractors are advised to prioritize the working drawing submissions, with the highest priority being submitted first. Contractor claims for loss time due to working drawing review will not be considered.

- d) The Contractor shall confirm in writing to the Contract Administrator that the means of connecting sewers to the maintenance holes is appropriate for the materials being used and for the site conditions.

As noted in GC 3.02. Working Drawings

04. The Contract Administrator's review shall be to check for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the Working Drawings or of responsibility for meeting all requirements of the Contract Documents, unless a deviation on the Working Drawings has been approved in writing by the Contract Administrator.

Parging

The adjustment units will be grouted into place by means of an approved mortar mix and shall be parged inside and outside at the top of each structure where the adjustment unit is placed and the underside of frame after final adjustment.

The outside of the adjustment units shall be completely wrapped with Denso LT Tape/Denso Paste. The Denso material shall completely cover the adjustment units and overlap onto the frame and concrete structure. All Denso products shall be applied as per the Manufacturer's recommendations.

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Payment for the structure shall be 80% of the unit price for the installation and the remaining 20% of the unit price upon completion of parging and removal of debris from the bottom of the structure.

When the surface course of asphalt is to be placed at a later date, the unit price bid shall also include ramping of the structure, and the installation of 50 mm diameter PVC drains as per BMROSS Standard Drawing 702. The installation of the 50 mm dia. drain shall be done prior to or during the concrete curb installation, if applicable.

SUPPLY, EXCAVATE FOR, PLACE AND BACKFILL PRECAST MAINTENANCE HOLES AND MAINTENANCE HOLE-CATCH BASINS, INCLUDING FRAMES AND GRATES

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the structures and in accordance with OPSS.MUNI 407. The sizes of the structures are as noted on the Form of Tender and on the contract drawing.

Design and Submissions Required

407.04.01 Submission Requirements shall be amended with the following addition:

c) Working Drawings for all precast structures shall be submitted no later than 10 Business Days prior to construction. Contractors shall note that the review of the working drawings may take some time depending on the volume of drawings submitted. Contractors are advised to prioritize the working drawing submissions, with the highest priority being submitted first. Contractor claims for loss time due to working drawing review will not be considered.

d) The Contractor shall confirm in writing to the Contract Administrator that the means of connecting sewers to the maintenance holes is appropriate for the materials being used and for the site conditions.

As noted in GC 3.02. Working Drawings

04. The Contract Administrator's review shall be to check for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the Working Drawings or of responsibility for meeting all requirements of the Contract Documents, unless a deviation on the Working Drawings has been approved in writing by the Contract Administrator.

The Contractor shall excavate to the required grade, supply the necessary granular bedding and backfill and compact the material in accordance with OPSS.MUNI 402.

Steel reinforcement shall be according to OPSS.MUNI.1440. Steel reinforcement for precast concrete components shall be:

- a) Steel bars, 400MPa minimum yield strength
- b) Welded steel wire, 500 MPa minimum yield strength
- c) Welded deformed steel wire, 500 MPa minimum yield strength

The Contractor shall supply and install frames and grates as listed on the drawings to the grade established at the time of construction. Adjustment of the frame and grate to grade shall be achieved using precast concrete adjustment. The contractor shall place caulking or approved alternative between each adjustment unit. The Contractor shall supply ladder rungs and all materials to make all connections to existing sewers.

Also, when required, included in the unit price bid, the Contractor shall include the benching of all storm maintenance holes designated, as per OPSD 701.021.

Where new maintenance holes are to be constructed on existing sewers, the Contractor will be required to maintain the sewage flow by either piping through the maintenance hole location or providing by-pass pumping around the maintenance hole site. Prior to the commencement of work, the Contract Administrator shall approve the method proposed by the Contractor for maintaining flow.

The Contractor shall confirm in writing to the Contract Administrator that the means of connecting storm sewers to the storm manholes is appropriate for the materials being used and for the site conditions.

Waterproofing – Adjustment Units

The outside of the precast adjustment units shall be completely wrapped with a waterproofing membrane. The waterproofing membrane shall completely cover the adjustment units and overlap onto the frame and concrete structure. The waterproof membrane shall be Mel-Rol or approved equivalent for the maintenance hole joints and shall be a minimum of 300mm wide, extending a minimum of 150mm above and below each joint. The Contractor shall ensure that the concrete surface is cleaned and the manufacturer recommended primer is applied prior to installing the waterproofing membrane.

Installation shall be as per BMROSS Standard Drawing 720 – Waterproofing Membrane - Storm and Sanitary Structures and the membrane manufacturers recommendations.

Parging

The precast adjustment units will be grouted into place by means of an approved mortar mix and shall be parged inside and outside at the top of each structure where the adjustment unit is placed and the underside of frame after final adjustment.

The outside of the precast adjustment units shall be completely wrapped with Denso LT Tape/Denso Paste. The Denso material shall completely cover the adjustment units and overlap onto the frame and concrete structure. All Denso products shall be applied as per the Manufacturer's recommendations.

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

Payment for the structure shall be 80% of the unit price for the installation and 20% of unit price upon completion of parging, removal of debris from the bottom of the structure and benching when applicable.

RECONNECT EXISTING DRAINS AND SERVICES (up to 250 mm dia.)

For the unit price bid, the Contractor shall supply all labour, equipment and material to excavate for, supply and install, reconnect and backfill all existing drains and/or services encountered at the time of construction. All connections shall be made with approved couplings (Fernco or equivalent).

Payment under this item will only be paid when it is determined by the Contract Administrator that the work is required to:

- Relocate drains and services that conflict with the sewer and/or watermain in horizontal or vertical alignment.
- Repair any drains and services encountered that have not been shown on the drawings.

The Contractor is responsible for replacing all other broken or damaged drains and services encountered in the excavation.

Pipe Material

Pipe material for repairs shall be PVC SDR-28 for 100 mm – 150 mm diameter and PVC SDR-35 for 200 mm – 250 mm diameter.

Bedding, Embedment and Backfill

Embedment shall be as per OPSD 802.010, OPSD 802.013 or 802.014 for flexible pipe and whichever soil type is applicable.

Embedment material shall be Granular A to 300 mm (min) above the top of the pipe.

SUPPLY AND PLACE 150 mm FILTER WRAPPED PERFORATED SUBDRAIN INCLUDING EXCAVATION

For the unit price bid, the Contractor shall excavate for, supply and install the subdrain, including filter wrap (non-woven type) Class 1 with a Filter Opening Size (FOS) of 130-100 μm as indicated on the contract drawings or to the limits established by the Contract Administrator at the time of construction.

The supply and backfilling of granular backfill shall be paid for with the granular item for the roadbed.

Pipe Material

OPSS 405.05 Materials is amended to accept the following material for pipe subdrains.

- (a) Perforated, corrugated high density polyethylene subdrain with 210kPa pipe stiffness for continuous subdrains behind the curb.
- (b) Polyethylene Big “O” Boss 2000 or equivalent for maintenance holes subdrains.
Installation as per OPSD.809.010 (6m length).

The filter wrap geotextile shall be in accordance with OPSS 1860.

The maximum stone size for the granular backfill shall be 50 mm dia.

REMOVE EXISTING STORM SEWER

For the unit price bid the Contractor shall supply all labour, equipment and materials to remove and backfill existing storm sewers as indicated on the contract drawings and as determined by the Contract Administrator at the time of construction.

The unit price bid shall also include the granular backfill material. Backfill to be compacted to a minimum dry density of 100%. Payment of this item will only be made where the existing sewer being removed is outside of the excavated trench for the other proposed works in the opinion of the Contract Administrator.

Excavated material and storm sewer pipe shall be managed by the Contractor with the cost of this work being included in the unit price bid.

INSTALLATION OF STORM SERVICES

For the unit price bid, the Contractor shall supply all labour, equipment and materials for the complete installation of the storm services as indicated on the contract drawings. The sizes of the services are as noted on the Form of Tender. The unit price bid shall also include the cost of the main line service tee and end cap required for each service.

Service tees for use with flexible mainline sewer pipe shall be factory manufactured tees. Service tees for use with rigid mainline sewer to be factory installed “Inserta” tees or approved equal. Inserta tees to be the same diameter or larger than the servicing piping. All required reducers shall be included in the unit price bid for this item.

The service connections shall be as per OPSD 1006.010 for sewer service connections for main pipe sewer.

Pipe Material

Pipe material for storm sewer services shall be polyvinyl chloride (PVC) SDR-28 **green colour**.

Bedding and Backfill

Bedding and cover shall be as per OPSD 1006.010 for service connections. Backfill shall be as noted on the Form of Tender.

Bedding and embedment material shall be Granular A. Cover material shall be approved granular material or select native granular material to 300 mm above the top of pipe. Bedding, embedment and cover shall be placed in uniform layers not exceeding 200 mm in thickness, loose measurement, and compacted to 95% of the maximum dry density before a subsequent layer is placed.

Backfill of storm service under the road platform shall match mainline storm sewer backfill material. Backfill beyond the road platform shall be as specified in the Form of Tender. If select native material is specified, it shall be compacted to a minimum dry density of 95%. If granular material is specified, it shall be compacted to a minimum dry density of 100%. Backfill shall be placed in uniform layers not exceeding 300 mm in thickness for the full width of the trench and compacted to the specified density before a subsequent layer is placed.

All excavated material not required for backfill shall be disposed as outlined under the General SP – Management of Excess Materials. The cost of this work shall be included in the unit price bid.

Should the Contractor decide to use stone bedding to assist with trench stabilization it shall be at the Contractor's expense. It is also to be noted that the use of stone may result in settlement of the installed piping; as such, the Contractor shall assume all risk in its use.

Compaction shall be as per OPSS.MUNI 501 – Construction Specification for Compacting. The type of compaction equipment used shall be suited to the material to be compacted, degree of compaction required, and space available. Selection of compaction equipment shall be determined by the Contractor with a list of the proposed equipment being submitted at the pre-construction meeting.

All bedding, embedment, cover and backfill materials shall be placed in layers prior to compacting in accordance with OPSS.MUNI 401.07.10.

Installation of Services

For the unit price bid, the Contractor shall include the cost of connecting to existing storm services with the approved fittings and material to make the connection (Fernco or equivalent). The unit price bid shall include all restoration outside the limits of the grading operations of the road reconstruction part of the project, when applicable.

All services to vacant lots or previously unserviced lots, shall include an end cap and the ends of all services shall be marked by a 50 mm x 100 mm wood post extending from the service to 300 mm above the surface of the ground with the top section painted fluorescent green. The post shall be supplied and placed by the Contractor.

Closed Circuit Television Inspection of Pipelines

All work shall be in accordance with OPSS 409-Construction Specification for Closed-Circuit Television Inspection of Pipelines. The unit price bid for the service installation shall include the cost of the CCTV inspection.

The Contractor will engage a Closed Circuit Television Inspection Contractor and co-ordinate the work to have it completed prior to **achieving substantial performance** for the contract.

The General Contractor will be responsible for hiring the Closed Circuit Television Inspection Contractor directly; however, the Closed Circuit Television inspection work will be carried out to the satisfaction of, the Contract Administrator.

Should deficiencies be identified upon review of the camera inspection video, the deficiencies shall be promptly corrected and a re-inspected with CCTV inspection. All costs associated with the CCTV inspections shall be borne by the Contractor.

Restoration

Restoration shall be as outlined under General SP - Restoration.

STORM SEWER SERVICE CLEANOUT

For the unit price bid, the Contractor shall supply all labour and materials for the complete installation of service cleanouts as shown on the BMROSS Standard Drawing 1000C.

Cleanouts located within a lawn area, shall have a 100 mm diameter, cast iron, MCO #DF44 c/w solvent weld bushing or approved equivalent. Adaptors to be provided as required.

Cleanouts located within driveways or sidewalks, shall have a cast iron, 100 mm diameter, Sigma Corporation Model No. VB-SCO4L cover or approved equivalent that meets H20 Loading Standards. Adaptors to be provided as required.

Each cleanout, for a vacant lot or previously unserviced lot, shall be clearly marked with a minimum of 2.0 m of 50 x 100 wooden post. Each cleanout for an occupied property shall be terminated with the cover flush to the surrounding surface.

Basis of Payment

Payment shall be as follows:

- 80% for all piping
- 20% for the installation of the cleanout cap to finish grade

NOTES:

1. WATERMAN AND SEWERS INSTALLED IN PARALLEL, TO HAVE A MINIMUM SEPARATION FROM 4' HORIZONTAL, FROM PIPE EDGE TO PIPE EDGE, FOR CROSSING LOCATIONS. WATERMANS SHALL PASS OVER SEWERS, WHERE WATERMAN MUST PASS UNDER SEWER TO AVOID FROST PROTECTION REQUIREMENTS.
2. CONTRACTOR TO VERIFY THE EXACT LOCATION AND INVERT ELEVATION OF EXISTING UNDERGROUND SERVICES AND UTILITIES PRIOR TO STARTING CONSTRUCTION.
3. CONTRACTOR SHALL FULLY PROTECT AND SUPPORT UTILITIES, POLES, SEWERS, WATERMANS AND SERVICES DURING CONSTRUCTION.
4. NO WATER SERVICE COUPLERS WILL BE PERMITTED BETWEEN MAIN STOP AND CURT STOP.
5. PROPOSED SERVICE OPEN SIZES ARE 25mm CTX PEX UNLESS NOTED OTHERWISE AND BE INSTALLED USING COLD GROUT TRENCHES UNLESS NOTED OTHERWISE.
6. ENBRIDGE WILL DEFECT SECTIONS OF GASMAN AND SERVICES WHERE DEFECTS ARE IDENTIFIED DUE TO EXISTING CONDITIONS, AND STORM SEWER WORK SHOULD BE COMPLETED IN APRIL 2006 AND IS TO BE COMPLETED BY MAY 2006.

EXISTING C.B. DATA				
No.	Station	O/S	Material	Length
CB-2	3+055.00	BLVD	CONC	K
CB-1	3+066.80	LT	CONC	REMOVED
CBM-2	3+066.80	RT	CONC	REMOVED
CB-3	3+078.50	BLVD	CONC	K

PROPOSED C.B. D.			
No.	Station	O/S	Desc.
DCB9	3+065.30	LT	705.020
DCB10	3+065.30	RT	705.020
CB11	3+111.00	LT	705.010
CB12	3+111.00	RT	705.010

PROPOSED C.B.		
No.	Size	Type
DCB0	250mm	PVC
DCB10	250mm	PVC
CB11	200mm	PVC
CB12	200mm	PVC

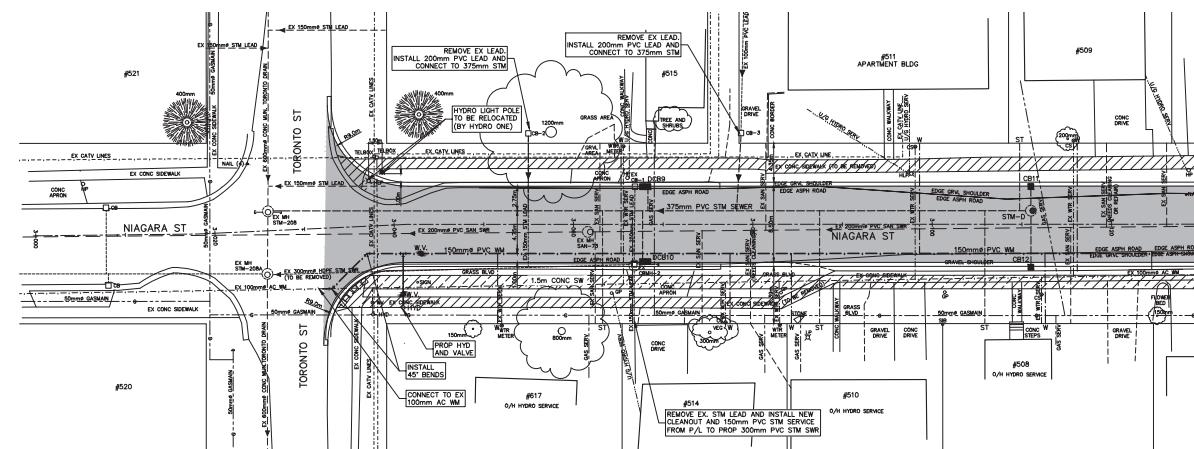
ADS DATA		EXISTING STATION	
Class	Length	No.	Station
DR35	2.75m	STM-208	3+025.90
DR35	5.75m	STM-208	3+025.90
DR28	2.75m		
DR28	5.75m		

M.H. DATA		PROPS	
Material	Info	No.	Station
CONC	KEEP	STM-D	3+111.00
CONC	KEEP	*ALL STORM M.H.'s	

STORM M.H. DATA		
Desc.	Grate	T/Grate
701.010	401.010	215.145
BE BENCHED		

EXISTING STORM SEWER DATA				
No.	Size	Type	Length	Info
1	300mm	HDPE	41.0m	REMOVED

PROPOSED STORM SEWER DATA



NOTE

BENCHMARK INFORMATION

B.M. Elev. 215.578
Top spindle of fire hydrant located at the south-east corner of the intersection between Niagara St and Toronto St.

Design By: T.G.M. Checked By: A.E.

