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1-1. Project Title

- .1 Contract 26TW-CPI-15CWD - Cleaning and Rehabilitation of Existing Gravity Sewers and Related Works at Various Locations in the City of Toronto.

1-2. Project Location and Ward Number

- .1 Various locations in the City of Toronto, including:

Etobicoke North (1)
Etobicoke Centre (2)
Etobicoke – Lakeshore (3)
Parkdale – High Park (4)
York South – Weston (5)
York Centre (6)
Humber River – Black Creek (7)
Eglinton – Lawrence (8)
Davenport (9)
Spadina – Fort York (10)
University – Rosedale (11)
Toronto – St. Paul's (12)
Toronto Centre (13)
Toronto – Danforth (14)
Don Valley West (15)
Don Valley East (16)
Don Valley North (17)
Willowdale (18)
Beaches – East York (19)
Scarborough Southwest (20)
Scarborough Centre (21)
Scarborough – Agincourt (22)
Scarborough North (23)
Scarborough – Guildwood (24)
Scarborough – Rouge Park (25)

1-3. Project Description

- .1 This Project includes mainline cleaning and chemical grouting of gravity sewers at various locations in the City of Toronto. The Project also includes miscellaneous rehabilitation works such as open-cut repairs and Cured-in-Place Pipe Spot Repairs (CIPPSR) within the same geographical area. The Work shall be completed in accordance with City's standard specifications, special/supplementary specifications and special provisions. The following types of repairs are included in this Project:
- sewer flushing;
 - mechanical cutting/reaming;
 - trenchless point repairs;
 - excavated point repairs (EPR)

1-4. Commencement and Completion Dates

- .1 The Contract shall be deemed to be a Working Days Contract and time shall be of the essence for completion of the Work.
- .2 The Contractor shall achieve Substantial Performance of the Work, excluding Work to be completed during Warranty period, within one hundred and eighty (180) working days from the Commencement Date.
- .3 The Contractor shall be prepared to be issued with Notice in Writing to commence the Work anytime within the Bid Validity Period.
- .4 Contract Time shall commence from the Commencement Date, which shall be indicated in the Order to Commence Work which will be issued following the execution of the agreement for this Contract as per Part 2, Schedule A – Information Sheet.
- .5 Progress of the work must be maintained on a continuous basis. Intermittent progress is not acceptable.
- .6 The Contractor shall be responsible for scheduling the work to include additional crews and resources, as required to complete all Work by the stipulated completion date in a manner that satisfies all conditions of this Contract. All other measures required for and incidental to scheduling and execution of work to meet contract deadlines would be considered inclusive in the bid price without additional payment.

1-5. Construction Survey and Layout

- .1 All survey and layout required under this Contract shall be performed by the Contractor. Section 2 of this document provides further information on the requirements.

1-6. Standard Specifications, Engineering Drawings and Standard Drawings

- .1 The following lists comprise the City of Toronto Construction Standards and Specifications, Standard Drawings, and other applicable standards for the Work:

City of Toronto Standards and Specifications:

- List T1 – Standard Specifications for Roads (September 2024)
- List T2 – Standard Drawings for Roads (September 2024)
- List W1 – Standard Specifications for Sewers and Watermains (September 2024)
- List W2 – Standard Drawings for Sewers and Watermains (September 2021)
- TS 1.00 – Maintenance of Traffic (September 2024)
- TS 1010 – Material Specification for Aggregates – Base, Subbase, Select Subgrade, and Backfill Material (September 2023)
- TS 2.10 – Construction Specification General Excavation (September 2018)
- TS 3.20 – Construction Specification for Tack Coat (September 2024)
- TS 4.01 Construction Specification for Sewer Bypass Flow Pumping (September 2019)
- TS 4.02 Construction Specification for Sewer Bypass Flow Pumping for Trunk Sewers

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- (September 2019)
- TS 4.13 – Specification for Type A – Structural and Non-Structural Maintenance Hole Rehabilitation (March 2019)
 - TS 4.50 – Construction Specification for Utility Adjustments (September 2024)
 - TS 4.60 – Specification for Utility Cut and Restoration (September 2021)
 - TS 4.14 – Specification for Spray-in-Place Thermoset Plastic Flexible Lining (SIP-TPFL) for Sewers, Storms and Culverts (April 2022)
 - TS 4.15 – Specification for Spray-in-Place Cementitious Liner (SIPCL) for The Rehabilitation Of CSP/CMP And RCP Sewers and Culverts (June 2022)
 - TS 401 –Amendment to OPSS.MUNI.401 - Construction Specification for Trenching, Backfilling and Compacting (November 2022)
 - TS 501 – Amendment to OPSS.MUNI.501 - Construction Specification for Compaction (September 2022)
 - TS 407 – Amendment to OPSS.MUNI.401 - Construction Specification for New Maintenance Hole, Catch Basin, Ditch Inlet, and Valve Chamber Installation (September 2021)
 - TS 409 – Construction Specification for Closed Circuit Television Inspection of Pipelines (September 2023)
 - TS 410 – Amendment to OPSS.MUNI.410 - Construction Specification for Pipe Sewer Installation in Open Cut Material Specifications (September 2023)
 - TS 411 – Construction Specification Sewer and Maintenance Hole Cleaning (September 2019)
 - TS 441 – Amendment to OPSS.MUNI.441 - Construction Specification for Watermain Installation in Open Cut (September 2022)
 - TS 465 – Construction Specification for the Cured-In-Place Rehabilitation of Sanitary/Combined Sewer Services (September 2019)
 - TS 466 – Construction Specification for the Cured-In-Place-Pipe (CIPP) Spot Repairs in Sewers (September 2019)
 - TS 467 – Construction Specification for Type A – Structural and Non-structural Maintenance Hole Rehabilitation (September 2020)
 - TS 470 – Construction Specification for the Installation of Chemical Grout in Sewers (September 2019)
 - TS 473 – Construction Specification for the Digital Scanning of Maintenance Holes (September 2019)
 - TS 5.00 – Construction Specification Sodding (September 2017)
 - TS 5.10 – Construction Specification Growing Medium (September 2021)
 - TS 510 – Amendment to OPSS.MUNI.510 - Construction Specification for Removal (September 2022)
 - TS 7.80 – Material Specification for Large Diameter Watermains (September 2023)
 - TS 13.10 – Construction Specification Unshrinkable Fill (September 2021)

Province of Ontario Standards and Specifications:

- Ontario Provincial Standard Drawings (Latest Versions)
- Ontario Provincial Standard Specifications (Latest Versions)
- Ontario Provincial Supplemental Specifications (Latest Versions)
- MTO Traffic Control Manuals – Book 7 (Latest Version)
- MTO Roadside Safety Manual (Latest Version)

ASTM Specifications:

- ASTM D790 – Test methods for flexible properties of reinforced and unreinforced plastic and electrical insulating materials
- ASTM F1216 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
- ASTM F2304-10(2016)e1 – Standard Practice for Sealing of Sewers Using Chemical Grouting
- ASTM F2454-05(2016)e1 – Standard Practice for Sealing Lateral connections and lines from the mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting

Other Standards and Specifications:

- National Association of Sewer Companies (NASSCO) PACP Reference Manual Version 7.
- .2 The City of Toronto standard construction specification TS 4.01 Construction Specification for Sewer Bypass Flow Pumping (latest version) is amended by Section 3.1 - Special Specification Sewer Bypass contained in these contract documents.
- .3 The City of Toronto standard construction sewer specification TS 466 Specification for the Cured-In-Place Pipe Spot Repair in Sewers (latest version) is amended by Section 3.2 Special Specification Sewer CIPPSR contained in these contract documents.
- .4 Other standards and /or specification which are not listed above but included elsewhere in the tender document.

1-7. Permits and Approvals

- .1 With the exception of TRCA, MNR, Hydro One, and MTO permits, the Contractor shall determine and, at its own expense, obtain all other necessary permits and approvals where required to carry out the Work under this Contract, including but not limited to: Site Servicing Permit (Street Occupation Permit), Discharge Permits and Agreements, Noise Exemption Permit, Fire Hydrant Use Permit, Park Access Agreement, Metrolinx's Approval, and Utility Cut Permit. TRCA, MNR, Hydro One and MTO permits are excluded. It is the Contractor's responsibility to complete necessary coordination with other City projects, private properties or third parties as required to obtain approvals.
- .2 All required permits and approvals associated with this Contract is listed in List of Repairs. Without limiting the foregoing, the City reserves the right to delay award, award only part of the Work, or not award the Contract if certain permits and approvals are not secured. The Contractor shall have no claim for loss of overhead or profit should the City decide to cancel all or part of the Work.
- .3 The City is proactively seeking upfront Metrolinx approvals during the design and tendering stage of the Contract. If preliminary approvals have been obtained, the approvals will be provided to the Contractor within Appendix 1-6 of the tender or at the beginning stage of the contract and Contractor shall adhere to the construction

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timeline and terms outlined in the obtained approvals. However, due to the timeline for contract award and other ongoing works within the Metrolinx permit review corridor, it is possible that the Contractor may need to obtain Metrolinx approvals, submit set-up specific TCPs, or renew obtained approvals after the Contract begins. If this is required, the Contractor is responsible for the timely submission of the permit application including Traffic Control Plan (TCP) and proposed construction schedule adhering to Metrolinx's requirements. The Contractor shall note:

- For work within the LRT construction corridors, the application shall be submitted as soon as the Contract starts but no more than six months of the proposed mobilization date.
 - For work along subway construction corridors, the application can be submitted six months in advance of the proposed mobilization date.
- .4 For any work that is within TTC streetcar corridor where coordination with TTC is required, the Contractor shall promptly reach out to TTC staff after the contract begins and propose mobilization date and timeline for the work that require streetcar diversion and coordinate with TTC to confirm the most suitable access window. The Contractor shall work with the TTC staff to ensure all procedures regarding any needed overhead isolation and sign-off processes are completed according to TTC's requirements.
- .5 The Contractor shall be responsible for all costs associated with ensuring that conditions of the secured permits and approvals are achieved and maintained throughout the duration of the Work.

1-8. List of Confined Spaces

- .1 All of the sanitary, storm and combined sewers and associated maintenance holes that comprise the Work are confined spaces pursuant to the Occupational Safety and Health Administration.
- .2 The Contractor shall ensure that all aspects of the required work are, at all times, in full and complete compliance with the Occupational Health and Safety Act, as amended. The Contractor shall provide approved equipment and training to personnel who enter confined spaces as may be required on this project. The procedures the contractor follows for Confined Space Entry must meet or exceed the requirements outlined by the Occupational Health and Safety Act.
- .3 The Contractor shall ensure that all staff performing work involving a confined space are certified in confined space entry and shall provide valid evidence when requested. The Contractor shall be responsible for the provision and cost of all labor, machinery and equipment required for confined space entry.

1-9. List of Repairs

- .1 A complete list of the individual repairs programmed for completion in this Contract is referred to as the "List of Repairs". The List of Repairs for this Project is provided in Appendix 1-1.

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- .2 Available full or partial CCTV videos for the work segments is available for direct download via the link below until December 31st, 2026.
- Media Download Link:
<https://www.dropbox.com/scl/fo/efc7i4d970rgppf2duso6/AJiuFjiTUVjVewEOs7OM30U?rlkey=54559aeq3o8odd7b65hbpqghq&st=uih95gsx&dl=0>
 - Password: 20Maintenance26!
- .3 CCTV inspections provided at time of bidding represent the current known internal condition of the sewers. The CCTV inspection record provided with the Tender Call can be several years old. The Contractor shall acknowledge that the current sewer condition may be further deteriorated compared to the provided video and shall therefore prepare the bid with such consideration. No additional payment shall be made on account of difficulties to complete the work because the Contractor failed to consider the information supplied within the CCTV inspections during the bidding stage.
- .4 Relevant pipe and repair details (e.g., location, diameter, length, depth) for each repair are included in the List of Repairs.
- .5 Any known required additional work and available information associated with each sewer is also provided in the List of Repairs. The information is presented in the List of Repairs following the format below:
- a) **Associated Work and Special Considerations** (Open-cut, Buried MHs, MH Modifications, etc.):
- Any known required extra work or special considerations that require additional effort are listed in this section. Associated Contract Items are included in the Pricing Form for these extra work and effort. The Contractor should include all costs associated with performing the identified extra work and effort in the Pricing Form.
- b) **Items for Information Only** (Site Access & Coordination Effort, Priority Repairs, FIFA, Additional Information):
- Any identified access coordination effort or specific repair requirements listed in these columns of the List of Repairs are considered incidental to the associated repairs. Sewers that have been identified requiring the use of styrene free resin will be paid under separate price items as listed in the pricing form. No additional payment will be made for the identified effort and requirements listed in these columns. Contractor should make provision to factor all these considerations into their unit bid prices and complete the works within identified schedule constraints.
- The Contractor shall also note that there are sewer segments located in narrow laneways within this contract with tight turns which may restrict heavy-duty vehicle's maneuverability and certain equipment access. The Contractor should carefully review the provided GIS mapping and make the necessary provisions when preparing the bid in order to complete the work accordingly. No additional payment will be made for completing work in narrow laneways.
- c) **FIFA Restriction** - Contractor shall note the following FIFA related work
-

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restrictions associated for sewers and maintenance holes that are impacted by the 2026 FIFA World Cup:

- Between May 1st, 2026 to July 31st, 2026,
 1. No work shall be performed along any **arterial roads (both major and minor arterial roads)** within the area bounded by Highway 401 to the north, Lake Ontario to the south, City limit to the west, and Don Valley Pkwy to the east;
 2. No work shall be performed along any **collector roads** within the area bounded by Bloor St to the north, Lake Ontario to the south, Landsdowne Avenue to the west, and Sherbourne St to the east;
 3. No work shall be performed adjacent to **BMO stadium, Coronation Park, and Fort York area**;
 4. No work shall be performed on **collector roads (adjacent to Centennial Park)** within the area bounded by Eglinton Avenue on the north, Burnhamthorpe Road on the south, City limit on the west, and Highway 427 on the east.
- Within the area of **Liberty Village** which is bounded by King St to the north, Gardiner Expressway to the south, Dufferin Street to the west, and Strachan Avenue to the east, no work shall be performed on match days (June 12th, 17th, 20th, 23rd, 26th, and July 2nd). Contractors shall exercise caution when planning any work adjacent to match days to avoid schedule slippage into match days.

- .6 It is important to note that the List of Repairs was compiled on the basis of existing CCTV inspections, and actual conditions encountered during construction may vary. If any additional sewer deficiencies are found during preliminary inspection (i.e., in addition to those provided on the List of Repairs) which prevents the Contractor from completing the base scope repairs, these deficiencies shall be corrected using the appropriate Contract Item(s) or on a Time and Material (T&M) basis, subject to approval by the Contract Administrator. The Contractor shall not proceed with any additional repair beyond the List of Repairs without the consent of the Contract Administrator.
- .7 The information provided in the List of Repairs does not relieve the Contractor from their responsibility to review all contract documents and investigate all sites to confirm existing conditions, identify any other special considerations, requirements, or items incidental to the work which may not be listed in the List of Repairs.

1-10. GIS Viewer

- .1 An online GIS Viewer has been developed for this Project. This web-based mapping system identifies the location and details for each repair location identified in the List of Repairs and shall be used by Suppliers for general reference purposes only.
- .2 The data provided in the GIS Viewer should not be used as the only means for reviewing site specific information associated with the programmed repairs. Site conditions change from time to time and therefore the data in the GIS Viewer may not be up to date. The Contractor is solely responsible for verifying the accuracy, completeness, and usefulness of the data provided in the GIS viewer.

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- .3 The GIS Viewer is not intended to replace proper utility locates. The Contractor is responsible for confirming the alignment, potential conflicts, etc., of all utilities in the field in accordance with the contract specifications.
- .4 Access details for the GIS Viewer are as follows:
 - URL:
<https://experience.arcgis.com/experience/a5782a39dea34830b6109c61efe36a91>
 - Username: SR8912_Tendering4
 - Password: SR8912_Maintenance

1-11. AirTable

- .1 AirTable will serve as the centralized platform for all project information sharing, review and approval of select submittals, and progress tracking.
- .2 All CCTV Videos, Access Databases and PACP Reports are required to be submitted and tracked for each repair through Airtable. All V1, V2, V3 CCTV inspection videos and associated databases and report files must be uploaded to AirTable through the defined data submission process as outlined in Appendix 1-4. Detailed user instruction to complete all deliverable submissions and progress tracking is provided in Appendix 1-4.
- .3 Quantities for Contractor's monthly payment certificates must reference the payment certificate generated by AirTable. If there are any discrepancies between the Contractor's payment certificate and AirTable's payment certificate, the Contractor must notify the Contract Administrator and provide a detailed breakdown to validate the noted discrepancies prior to application for payment.
- .4 The Successful Supplier will be provided with contract-specific login information for AirTable to review and submit all required information during the performance of the Work.

1-12. Order of Precedence

- .1 In the event of any inconsistency or conflict in the contents of Part 3, which form part of the Contract Documents, such documents shall take precedence and govern in the following order of highest to lowest priority:
 - **Part 3 Section 1 – Summary of the Work**
 - **Part 3 Section 4 – Special Provisions**
 - **Part 3 Section 3 – Special Specifications**
 - **Part 3 Section 2 – General and Supplementary Specifications**
- .2 Notwithstanding the order of precedence for Part 3 Clause 1-12-1, any provision within the Part 2 Construction Agreement establishing a higher standard of safety, reliability, durability, performance, service or quality shall take precedence over a provision establishing a lower standard of safety, reliability, durability, performance, service or quality.

1-13. Submittals Required Prior to Commencement of Work

- .1 The Contractor shall submit the following items within 10 working days following the Commencement Date for review and acceptance by the Contract Administrator.

CIPPSR Standard Design Submittals

- .2 The Contractor shall prepare and submit standard designs using provided pipe depths information in Appendix 1-1 and in compliance with applicable specifications (TS 466 and Section 3.2 for CIPPSR,). All submitted designs shall be completed and stamped by a Professional Engineer licensed in Ontario.
- .3 In the event that a standard design is found not to be in compliance with applicable specifications, it shall be returned to the Contractor for revision and resubmission.
- .4 No spot repair work shall commence until approval of ALL standard designs has been granted by the Contract Administrator. The Contract Administrator requires a minimum of 3 working days to complete the review of each submitted liner design.
- .5 With the stamped standard designs, the Contractor shall provide a summary of design thickness and associated proposed nominal tube thickness by pipe section as provided in Appendix 1-1 List of Repairs.
- .6 For each design submitted, as per .2) above, submit a corresponding comparative flow analysis demonstrating that the lined pipeline section or zone will match or exceed existing flow capacity.

Resin Manufacturer's Information (CIPPSR)

- .1 The Contractor shall provide:
- Resin manufacturer, type and identification number
 - Resin to felt ratio and excess resin percentage in accordance with ASTM 1216-22.
 - A certified original copy (complete with supporting literature) from the resin manufacturer of the infrared spectrograph of the catalyzed resin mixture proposed for this contract.
 - A certified original copy from the resin manufacture of the cure temperature requirements and example resin volume calculation along with example cure time calculation.

1-14. Contractor's Installation Processes for CIPPSR

- .1 A summary of the Contractor's proposed CIPPSR liner installation procedure including one example of the liner wet-out process sheet and one example of the liner curing process sheet shall be submitted to the Contract Administrator within 10 working days following the Commencement Date.
- .2 The Contractor shall provide a typical flow control plan for local sewer flow control. For

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flow control utilizing temporary bypass pumping of local sewer section(s) shall include a drawing showing flow pick up location(s), flow discharge location(s) and example route of bypass conduit(s).

- .3 The Contractor shall include styrene management procedures within the installation procedure as part of the submission.
- .4 The submission shall be in sufficient detail to allow the Contract Administrator to verify that the proposed CIPPSR, installation and associated work will meet the requirements of this Tender.

1-15. NASSCO PACP Certification of CCTV

- .1 CCTV inspections (V1, V2, and V3) and defect coding shall be carried out by operators and reviewers with valid NASSCO PACP Certification. The Contractor must submit valid NASSCO certificates to the Contract Administrator within 10 working days following the Commencement Date.

1-16. MOE License

- .1 In accordance with the requirements of Section 27 of the Environmental Protection Act and subject to all terms and conditions related to Waste Management, the Contractor will be responsible for the complete removal and disposal off site, of all foreign materials flushed, scraped, or cut out of the sewer line. Flushing and abandoning of debris in sewer lines is not permitted.

1-17. Communication Plan

- .1 The Contractor shall submit a communication plan within 10 working days following the Commencement Date outlining the communication protocols between all personnel (including sub-contractors), the Contract Administrator, Field Ambassador and Site Inspectors.

1-18. Example CCTV and MH Inspection Videos

- .1 Example CCTV and MH inspection videos shall be submitted to the Contract Administrator within 10 working days following the Commencement Date. CCTV inspections shall be in accordance with TS 409. Maintenance hole shall be inspected in accordance with TS 473. The Contractor shall submit a trial sewer.mdb and manhole.mdb file and sample V1, V2, and V3 videos and MH panoramic inspection video.

Appendix 1-1: List of Repairs

Please refer to spreadsheet attachment: Part 3 – Appendix 1-1 Repair
List_2026.04.22.xlsx

Appendix 1-2: Repair Codes

Repair Code	Repair Type	Comments
CLEAN_FLUSH	Flushing	High pressure jetting to remove loose flushable debris or grease.
CLEAN_MECH	Mechanical	Use of mechanical tools or robotic cutters to remove attached/non-flushable debris.
CHEM_GROUT	Chemical Grouting	Grouting and sealing of holes/voids/infiltration in sewer pipe.
EPR	External Point Repair	Open cut repair on a sewer.
CON_REPLACE	Connection Replacement	Replace sewer service connection.
TPR	Trenchless Point Repair	Spot CIPP unless otherwise specified in scope.

Appendix 1-3: City of Toronto Events

Refer to City of Toronto's website below for latest proposed events for 2026.

<https://www.toronto.ca/explore-enjoy/festivals-events/>

Appendix 1-4: AirTable User Manual

Please refer to separate PDF attachment: Part 3_Appendix 1-4 - AirTable User Manual.pdf

Appendix 1-5: RFI Submission Template

RFI Submission #	
Contractor:	_____
Consultant:	_____
Purpose:	_____

	(Title or description)
Submittal No:	_____
Date:	_____
Contract No:	_____
Asset ID:	_____
Contract Specification:	_____
RFI Description and Photos:	
Latest CCTV Video Link:	
Issued:	
Name: _____	Date: _____
Title: _____	
Owner's Response:	
Response:	
Name: _____	Date: _____
Title: _____	

Appendix 1-6: Permits

Please refer to separate PDF attachment: Part 3_Appendix 1-6 - Permits.pdf

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Sub Section 2.1 – General Specifications

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GS-1. Cutting, Remedial Work and Blasting

- 1.1. The Contractor shall perform the coring, cutting and remedial Work required to make the affected parts of the Work come together properly.
- 1.2. The Contractor shall co-ordinate the Work to ensure that the coring, cutting and remedial Work is kept to a minimum.
- 1.3. Should the Owner, the Contract Administrator, other contractors, or anyone employed by them be responsible for ill-timed Work necessitating cutting or remedial Work to be performed, the cost of such cutting or remedial Work shall be valued as provided in GC 7.1 - OWNER'S RIGHT TO MAKE CHANGES, GC 7.2 - CHANGE ORDER and GC 7.3 - CHANGE DIRECTIVE.
- 1.4. Coring, cutting, x-rays, scanning and remedial Work shall be performed by specialists familiar with the Products and Owner Supplied Material affected and shall be performed in a manner to neither damage nor endanger the Work and in accordance with the Specifications and other Agreement documents.
- 1.5. The Contractor shall not carry out any blasting operation except with the prior written consent of the Contract Administrator, provided that any consent so granted shall not, under any circumstances, relieve the Contractor of the liabilities and obligations assumed by the Contractor under the Agreement.

GS-2. Cleanup

- 2.1. The Contractor shall maintain the Work and the Site in a safe and tidy condition and free from the accumulation of waste products and debris, other than that caused by the Owner, other contractors or their employees.
- 2.2. Before applying for Substantial Performance of the Work as provided in GC 5.5 - SUBSTANTIAL PERFORMANCE OF THE WORK, the Contractor shall remove waste products and debris, other than that resulting from the work of the Owner, other contractors or their employees, and shall leave the Site clean and suitable for use or occupancy by the Owner. The Contractor shall remove products, Construction Equipment, and Temporary Work not required for the performance of the remaining Work all to the satisfaction of the Contract Administrator and the Owner, acting reasonably.
- 2.3. Prior to the final Application for the Payment, the Contractor shall remove any remaining products, Construction Equipment, Temporary Work, and waste products and debris, other than those resulting from the work of the Owner, other contractors or their employees.
- 2.4. Contractor shall complete all maintenance and cleanup of the Work and Site within 24 hours of written notice from the Owner or Contractor Administrator of such. If such maintenance and cleanup is not completed within 24 hours of such written notice, the Owner shall be entitled to, or to engage others to, perform such maintenance and cleanup, at the Contractor's expense and set-off the costs thereof in accordance with GC 5.10 – OWNER'S SET-OFF.

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- 2.5. Contractor shall repair all damage to the Site caused by the Contractor's, Subcontractor's, Supplier's or Sub-subcontractor's transportation in and out of the Site within five (5) Working Days of written notice from the Owner or Contractor Administrator to repair or before final payment, whichever is earlier. If such repair is not completed within the required time period, the Owner shall be entitled to, or to engage others to, perform such repair, at the Contractor's expense and set-off the costs thereof in accordance with GC 5.10 – OWNER'S SET-OFF.

GS-3. Layout

- 3.1. The Contract Administrator shall provide baseline and benchmark information for the general location, alignment, and elevation of the Work. The Owner shall be responsible only for the correctness of such information provided by the Contract Administrator.
- 3.2. Where the Agreement provides for the Contractor to lay out the Work, this section 3.1 shall apply.
- 3.2.1. Prior to commencement of construction, the Contract Administrator and the Contractor shall locate on site those property bars, baselines and benchmarks that are necessary to delineate the Site and to lay out the Work, all as shown on the Drawings.
- 3.2.2. The Contractor shall be responsible for the preservation of all property bars while the Work is in progress, except those property bars that must be removed to facilitate the Work. Any other property bars disturbed, damaged or removed by the Contractor's operations shall be replaced by an Ontario land surveyor, at the Contractor's cost.
- 3.2.3. At no extra cost to the Owner, the Contractor shall provide the Contract Administrator with such materials and devices as may be necessary to lay out the baseline and benchmarks, and as may be necessary for the inspection of the Work.
- 3.2.4. The Contractor shall provide qualified Personnel to lay out and establish all lines and grades necessary for construction. Such Personnel shall include a licensed land surveyor responsible for conducting a survey to verify the locations of all key structures. The Contractor shall notify the Contract Administrator of any layout Work carried out, so that the same may be checked by the Contract Administrator.
- 3.2.5. The Contractor shall install and maintain substantial alignment markers and secondary benchmarks as may be required for the proper execution and inspection of the Work. The Contractor shall supply one copy of all alignment and grade sheets to the Contract Administrator.
- 3.2.6. The Contractor shall assume full responsibility for alignment, elevations and dimensions of each and all parts of the Work, regardless of whether the Contractor's layout Work has been checked by the Contract

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Administrator. All stakes, marks and reference points shall be carefully preserved by the Contractor. In the case of their destruction or removal, for any reason, before the date of the Substantial Performance of the Work, such stakes, marks and reference points shall be replaced, to the satisfaction of the Contract Administrator, at the Contractor's cost.

- 3.3. Where the Agreement provides for the Owner to lay out the Work, this section 3.3 shall apply.
- 3.3.1. The Owner shall be responsible for setting out the line and setting out the required elevation of the specific parts of the Work identified in the Agreement.
- 3.3.2. The Owner shall supply a copy of the alignment and grade sheets to the Contractor to facilitate the construction of the Work in accordance with the Agreement.
- 3.3.3. The Owner shall install and maintain substantial alignment markers and secondary benchmarks as may be required for the proper execution and inspection of the Work.
- 3.3.4. All stakes, marks and reference points provided by the Owner shall be carefully preserved by the Contractor. In the case of the destruction or removal as a result of the Contractor's operations, such stakes, marks and reference points shall be replaced by the Owner at the Contractor's cost.
- 3.3.5. The Contractor shall give the Owner at least 24 hours' notice before requiring levels, lines or stakes, on any portion of the Work and the Contractor shall clearly state in such notice the exact locality or localities where such are needed for use.
- 3.3.6. The Contractor must satisfy itself before commencing Work at any point as to the meaning and accuracy of all stakes and marks, and no Claim shall be considered by the Owner for or on account of any alleged inaccuracies or for any alterations subsequently rendered necessary on account of any such alleged inaccuracies, unless the Contractor notifies the Owner thereof in writing before commencing the Work.
- 3.3.7. The Contractor shall be responsible for the preservation of all property bars while the Work is in progress, except those property bars which must be removed to facilitate the Work. Any other property bars disturbed, damaged or removed by the Contractor's operations shall be replaced by an Ontario land surveyor, at the Contractor's cost.

GS-4. Site and Drainage

- 4.1. The Contractor's sheds, site offices, toilets, other temporary structures and storage areas for material and equipment shall be grouped in a compact manner and maintained in a neat and orderly condition at all times.
- 4.2. The Contractor shall keep all portions of the Work well, properly and efficiently

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drained, to at least the same degree as that of the existing drainage conditions, during construction and until the Work is completed. The Contractor shall be solely responsible for all Losses caused by, or resulting from, water backing up or flowing over, under, through, from, on or along any part of the Work or which any of the Work may cause to flow elsewhere and shall, at the Contractor's sole cost, repair such damage and without any extension of the Contract Time.

GS-5. Work Affecting the Property of Others

- 5.1. Before Work is carried out that may affect the property or operations of any Ministry or agency of government or any Person, including a municipal corporation or any board or commission thereof, and in addition to such notices of the commencement of specified operations as are prescribed elsewhere in the Agreement, the Contractor shall give at least 48 hours' advance written notice of the date of commencement of such Ministry or agency of government or Person so affected.

GS-6. Quality Assurance and Quality Control

- 6.1. The QA/QC Plan required by GC 3.13.2 shall be prepared and delivered to the Contract Administrator for review by the Contract Administrator and Owner within thirty (30) Days after the Effective Date and, after acceptance by the Contract Administrator and Owner, shall form a part of the Agreement.
- 6.2. The QA/QC Plan shall:
- 6.2.1. be based on the standards and requirements set out in the Agreement;
 - 6.2.2. monitor, identify and rectify all non-compliance items within the Construction Schedule
- 6.3. The Contractor shall implement and perform the Work in accordance with, and in compliance with, the QA/QC Plan accepted by the Owner. The implementation of the QA/QC Plan may be subject to quality assurance audit and acceptance by the Contract Administrator and Owner. The Contract Administrator and the Owner may perform surveillance for compliance with the QA/QC Plan and examine the Work, wherever situate, for conformance.

GS-7. Project Controls and Reporting Requirements

- 7.1. The Contractor shall perform the following obligations and comply with the following requirements:
- 7.1.1. Such obligations and requirements shall apply to all Work, unless otherwise specified in the Agreement.
- 7.2. The Owner may at any time and from time to time waive the requirement to include any particular item in any report in connection with the Work or may reduce the frequency of any report but in such event shall have the right to reinstate any item and increase the frequency of reporting to the times provided in the Agreement.

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- 7.3. For clarity, nothing in this section 7 shall relieve the Contractor from its obligation to execute the Work to completion in accordance with the Construction Schedule or other requirements of the Agreement.

GS-8. Owner Supplied Material

- 8.1. The Owner Supplied Material shall be:

8.1.1. No Owner supplied materials are anticipated for this project.

GS-9. Traffic, Maintaining Roadways and Detours

- 9.1. Except as otherwise noted in the Agreement, the Contractor assumes all the risks and responsibilities arising out of any traffic related obstruction encountered in the performance of the Work and any traffic conditions, including traffic conditions on any Highway or road giving access to the Site caused by such obstructions, and the Contractor shall not make any Claim against the Owner for any delay or Losses occasioned thereby.
- 9.2. If the Agreement require the Contractor to maintain a Highway, the Contractor shall comply with all maintenance standards and other obligations under Laws relating Highways, including the *City of Toronto Act, 2006*.
- 9.3. The Contractor shall designate an individual to be responsible for traffic control and work zone safety. The designated individual shall be a competent worker who is qualified because of knowledge, training, and experience to perform the duties, is familiar with Book 7 of the Ontario Traffic Manual and has knowledge of all potential or actual danger to workers and motorists. Prior to the commencement of construction, the Contractor shall notify the Contract Administrator of the name, address, position, cell phone, pager, and telephone numbers of the designated individual, and update as necessary.
- 9.4. Where an existing Roadway is affected by construction, it shall, at all times, be kept open to traffic. The Contractor shall, at no additional cost to the Owner, be responsible for providing and maintaining, for the duration of the Work an alternative route for both pedestrian and vehicular traffic through the Site in accordance with the Ontario Traffic Manual, whether along the existing Highway under construction or on a detour road beside or adjacent to the Highway under construction.
- 9.5. Subject to the prior written approval of the Contract Administrator, the Contractor may block traffic for short periods of time to facilitate construction of the Work in accordance with the Ontario Traffic Manual. Any temporary lane closures shall be kept to a minimum.
- 9.6. The Contractor shall maintain, to the satisfaction of the Owner and the Contract Administrator, a road through the Site. The road through the Site shall include any detour constructed in accordance with the Agreement or required by the Contract Administrator. The cost of blading required to maintain the surface of such roads and detours shall be deemed to be included in the Fixed Price or

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Unit Price, as applicable. The Contractor shall not be required to apply de-icing chemicals or abrasives or carry out snowplowing unless otherwise specified in the Agreement.

- 9.7. Where localized and separated sections of a Highway are affected by the Contractor's operations, the Contractor shall not be required to maintain intervening sections of that Highway until such times as these sections are located within the limits of the Highway affected by the Contractor's general operations under the Agreement. Nothing in this section shall be taken as limiting the Contractor's obligation to maintain all areas of a Highway affected by the traffic control measures undertaken in relation to the Work and to fulfill all traffic control responsibilities thereon.
- 9.8. Where the Agreement provides for, or the Contract Administrator requires, detours at specific locations, payment for the construction of the detours, and if required, for the subsequent removal of the detours, shall be made at the Contract Prices appropriate to such Work.
- 9.9. Where Work is discontinued for any extended period including seasonal shutdown, the Contractor shall, when directed by the Contract Administrator, open and place the Highway and detours in a passable, safe and satisfactory condition for public travel.
- 9.10. Where the Contractor constructs a detour that is not specifically provided for in the Agreement or required by the Contract Administrator, the construction of the detour and, if required, the subsequent removal shall be performed at the Contractor's sole expense. The detour shall be constructed and maintained to structural and geometric standards approved by the Contract Administrator. Removal and site restoration shall be performed as directed by the Contract Administrator.
- 9.11. Where, with the prior written approval of the Contract Administrator, a Highway is closed and the traffic diverted entirely off the Highway to any other Highway, the Contractor shall, at no extra cost to the Owner, supply, erect and maintain traffic control devices in accordance with the Ontario Traffic Manual.
- 9.12. Compliance with the foregoing provisions shall in no way relieve the Contractor of obligations under GC 4.1 - PROTECTION OF WORK AND PROPERTY, dealing with the Contractor's responsibility for damage claims, except for claims arising on sections of a Highway within the Site that are being maintained by others.

GS-10. Roadway Work

- 10.1. If at any time, in the opinion of the Contract Administrator, damage is being done or is likely to be done to any Roadway or any improvement thereon, outside the Site, by the Contractor's vehicles or other equipment, whether licensed or unlicensed equipment, the Contractor shall, on the direction of the Contract Administrator, and at no extra cost to the Owner and without an extension in Contract Time, make changes or substitutions for such vehicles or

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equipment, and shall alter loadings, or in some other manner, remove the cause of such damage to the satisfaction of the Contract Administrator.

- 10.2. The Contractor shall provide and ensure, at all times, and at no extra cost to the Owner:
- 10.2.1. safe and adequate pedestrian and vehicular access;
 - 10.2.2. continuity of utility services; and
 - 10.2.3. access for any and all emergency response vehicles and services, to any and all properties adjoining the Site.

GS-11. Working Drawings

- 11.1. Working Drawings or Working Plans means any Drawings or Plans prepared by the Contractor for the execution of the Work and may, without limiting the generality thereof, include formwork, falsework and shoring plans, roadway (that part of the Highway designed or intended for use by vehicular traffic and includes the Shoulders.) protection plans, Shop Drawings, shop plans or erection diagrams.
- 11.2. The Contractor shall arrange for the preparation of clearly identified and dated Working Drawings as called for by the Contract Documents.
- 11.3. The Contractor shall submit Working Drawings to the Contract Administrator in accordance with an agreed upon schedule or otherwise with reasonable promptness and in orderly sequence so as to not cause delay in the Work. If either the Contractor or the Contract Administrator so requests, they shall jointly prepare a schedule fixing the dates for submission and return of Working Drawings. Working Drawings shall be submitted in printed form. At the time of submission, the Contractor shall notify the Contract Administrator in writing of any deviations from the Contract Documents that exist in the Working Drawings.
- 11.4. The Contract Administrator shall review and return Working Drawings in accordance with an agreed upon schedule, or otherwise, with reasonable promptness so as not to cause delay.
- 11.5. The Contract Administrator's review shall check for conformity with 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.
- 11.6. The Contractor shall make any changes in Working Drawings that the Contract Administrator may require to make the Working Drawings consistent with the Contract Documents and resubmit unless otherwise directed by the Contract Administrator. When resubmitting, the Contractor shall notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator.

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- 11.7. Work related to the Working Drawings shall not proceed until the Working Drawings have been signed and dated by the Contract Administrator and marked with the words "*Reviewed. Permission to construct granted*".
- 11.8. The Contractor shall keep one set of the reviewed Working Drawings, marked as above, at the Site at all times.

GS-12. Confined Spaces

- 12.1 The City has identified "confined spaces" as defined under the regulations under the OHSA. All of the sanitary, storm and combined sewers and maintenance holes that comprise the work are considered "confined space" pursuant to the occupational safety and health administration. This list of confined spaces was developed by the City for its own internal purposes in accordance with requirements related to confined spaces under the OHSA. The City makes no representations or warranties regarding the accuracy or completeness of this list of confined spaces. Without limiting the foregoing, the identification of confined spaces by the City was based on certain conditions that existed at the time the assessment was conducted, which conditions may be different or may change during the course of the performance of the Work under the Contract. The City assumes no liability whatsoever arising out of or in connection with this list of confined spaces or any reliance thereon.
- 12.2 Clause 14.1 above, the provision of this list of confined spaces in no way limits the Contractor's obligations as employer and, where applicable, as constructor under the OHSA, in particular those obligations with respect to confined spaces. The Contractor, at no additional cost to the City, shall be responsible for making its own assessment as to which spaces are confined spaces at the project site, including any new confined spaces that are created from time to time as construction progresses. Without limiting the foregoing, the Contractor shall not make any claims for delays or extra costs as a result of having to perform its obligations under the OHSA with respect to confined spaces.
- 12.3 The Contractor shall keep available for inspection at the project site every assessment, plan, co-ordination document, training record, entry permit, inspection record, and test record as required under the OHSA. Such documents shall be made available to designated City staff and consultants at the project site in the event that any City staff or consultants wish to enter any confined spaces at the project site for inspection and quality control purposes. The Contractor shall also provide to the Contract Administrator its own list of any confined spaces it has identified at the project site before the Work begins, and shall immediately notify the Contract Administrator in writing of any changes to this list from time to time during the course of the construction, and on completion of the project.

GS-13. Asbestos

- 13.1 Where the Work includes removal of asbestos, the Contractor shall:
- 13.1.1 ensure, through appropriate air testing and such other measures

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as may be appropriate and necessary, that the Work site and adjacent areas not been contaminated with asbestos during the performance of the Work; and

- 13.1.2 prior to dismantling any barriers erected to contain asbestos and asbestos-containing materials, the Contractor shall provide written confirmation to the Consultant that, after conducting proper air testing and other due diligence measures, the area is safe in accordance with the requirements of the OHSA.

- 13.2 If, during the course of the Work, the Contractor or any of the subcontractors or suppliers engaged by the Contractor, disturb material that is believed to be asbestos containing material, separate and apart from asbestos abatement work forming part of the Contract, the Contractor shall act in strict compliance with the OHSA, including but not limited to the Asbestos Regulation, and without limiting the generality of the foregoing, shall:

- 13.2.1 Stop work and evacuate the area where the asbestos containing material is believed to have been disturbed and take all precautions or actions mandated by the OHSA and notify the City immediately;
- 13.2.2 Notify the Contract Administrator via telephone, with written notification to follow as soon as possible; and
- 13.2.3 Refrain from entering the work area for any reason whatsoever until safe to do so, in accordance with the requirements of the OHSA and, prior to re-entry, notify the Contract Administrator for approval to recommence Work.

GS-14. Coordination and Meetings

- 14.1 The Contractor shall attend regular meetings with the City of Toronto and others, including but not limited to, Toronto Transit Commission, Bell Canada, Enbridge, Toronto Hydro, and business organizations as may be required by the Contract Administrator to co-ordinate services affected by the Contract and to monitor on-going administration and progress of the contract.

GS-15. Standard Specifications and Standard Drawings

- 15.1 The City's Standard Specifications and Standard Drawings that apply to the Work shall be those that can be found on-line at www.toronto.ca/ecs-standards as of the date the tender for the Work is issued.
- 15.2 Any other required work, for which no specifications are contained herein, shall conform to the City of Toronto Standard Construction Specifications and Drawings for Road Works, the City of Toronto Standard Construction
- 15.3 Specifications and Drawings for Sewers and Watermains, the Ontario Provincial Standard Specifications and the Ontario Provincial Standard Drawings.
- 15.4 This Agreement may also refer to Ontario Provincial Standards (OPS)

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specifications and drawings. In such case, Suppliers shall acquire the applicable specifications and drawings from OPS. Information about OPS can be found at www.ops.on.ca.

GS-16. Payroll Burden Rate for Work on a Time and Material Basis

16.1 Standard Rate (40%)

16.1.1 The Owner will pay the Contractor's Payroll Burden at a standard 40 per cent of the wages and salary portion of the Cost of Labour for change in the work in the Contract that is carried out on a Time and Material basis.

16.2 Option for Contractor's Actual Payroll Burden Rate

16.3 Alternatively, the Owner will consider paying at the Contractor's actual payroll burden rate. To be considered for this option, the Contractor MUST submit their actual payroll burden rate on the Owner's prescribed Contractor's Payroll Burden Form ("Form") prior to the commencement of any work on a Time and Material basis, preferably at the pre-construction meeting.

16.4 The Form is available from the Contract Administrator upon request and it shall be completed, certified and signed by the Contractor's external auditor. The Payroll Burden rate shall be calculated from the total expenditures of wages, salaries and benefits for all of the Contractor's employees paid during the previous 12-month calendar year (i.e. January 1st to December 31st). All permitted expenses in relation to labour costs are included on the prescribed Form.

16.5 If accepted, the submitted Form shall be effective until January 31st of the following year and the payroll burden rate will apply to all Time and Material works carried out within the effective period of the Form. If the Contractor fails to submit a signed Form before the commencement of any work on a Time and Material basis, or if the submitted Form is not acceptable to the Owner, the Owner will apply the 40 per cent standard payroll burden rate for all works that are carried out on a Time and Material basis under this Contract until a Form is submitted by the Contractor and accepted by the Owner.

16.6 During the Contract period, the Contractor must submit an updated Form by January 31st of a new calendar year. If accepted, the updated Form shall be effective until January 31st of the following year. If the Contractor failed to submit an updated Form or the submitted Form is not acceptable, the Owner will apply the standard 40 per cent payroll burden rate to all Time and Material works carried out under this Contract until an updated Form is submitted by the Contractor and accepted by the Owner.

16.7 The Owner reserves the right to terminate the application of the Contractor's actual payroll burden rate and apply the standard 40 per cent payroll burden rate if the Form is found to be not accurately completed after its acceptance.

16.8 Contractor's labour rates used in the work based on a Time and Material basis

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are subject to verification by the City's Fair Wage Office.

- 16.9 All information in relation to Contractor's Payroll Burden may be audited at the Owner's discretion. The Contractor agrees to keep complete and accurate books, payrolls, accounts and employment records and make the records available for audit by the Owner upon request. The Owner reserves the right to recover any overpayment to the Contractor affected by the audit.

GS-17. Organization of Work and Work Restrictions

- 17.1. It is the Contractor's responsibility to implement all required measures (e.g. fences, enclosures, etc.) in order to strictly control the pedestrian traffic in the construction area and to prevent any pedestrian approaching into the areas of construction hazard, or any other dangerous area.
- 17.2. The Contractor shall be attentive to the needs of pedestrians that are visually or physically impaired, and the Contractor must be prepared at all times to assist in the safe and comfortable passage of these pedestrians.
- 17.3. The Contractor shall note that a number of existing utilities and services are located below the area of reconstruction and others in the near vicinity. The Contractor shall examine the site to identify potential problems associated with the accessibility, transportability and constructability of their proposed methods.
- 17.4. The Contractor shall, from time to time, adopt such approved construction or operating methods in carrying out the work as may be called for due to changing conditions that may be encountered during the progress thereof.

GS-18. Construction Survey and Layout

- 18.1. If the Drawings and Specifications requires the Contractor to perform the survey and layout of the project, the service shall be performed in accordance with "GS-3. Layout" and the Special Specifications. Sub-clauses pertaining to layout by the Owner are not applicable.
- 18.2. The survey and layout shall be performed or supervised by a competent surveyor with a minimum of five years related field experience (the "Surveyor"). The Contractor shall ensure the Surveyor attends a pre-construction meeting and other meetings as requested by the Contract Administrator.
- 18.3. The Contractor shall be responsible for ensuring the Surveyor prepares grade sheets and keeps proper digital records, notes and sketches of the survey and layout. A copy of the records (including but not limited to survey notes and sketches) shall be kept on site and accessible to the Contract Administrator at any time. The grade sheets shall be submitted to the Contract Administrator within 7 calendar days of production.
- 18.4. The Contractor shall produce a set of redlined Contract Drawings ("As-Built Field Record") marked with as-built information of the Project. The As-Built Field Record and all other records produced must be submitted to the

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Contract Administrator within 60 calendar days of Substantial Performance.

- 18.5. The compensation for the survey and layout shall be based on the lump sum amount for the tender item for the survey and layout identified in the Pricing Form. The lump sum amount for survey and layout shall not exceed 5 per cent of the Total Bid Price in the Pricing Form.
- 18.6. Eighty percent (80%) of the lump sum amount for the survey and layout shall be paid over the duration of the Contract in proportion to the value of the works completed as a percentage of the Total Bid Price. No payment will be made until the grade sheets are received by the Contract Administrator.
- 18.7. Twenty percent (20%) of the lump sum amount for the survey and layout shall be withheld and paid upon receipt and acceptance of the As-built Field Record. Should the Contractor fail to submit the As-built Field Record or if the submitted As-Built Field Record is not satisfactory to the Contract Administrator, this withheld amount may be used by the Contract Administrator to pay for an independent contractor to produce the As-built Field Record. If the cost to produce the As-built Field Record by the independent contractor exceeds the withheld amount, the Owner may exercise its right of set off under GC 5.10 – OWNER'S SET-OFF and deduct the additional cost from funds due and payable to the Contractor.
- 18.8. The Contractor must report to the Contract Administrator immediately any conflict, inconsistencies, errors, omissions, and/or discrepancies found between the Contract Drawing(s) and the existing physical conditions. Immediately upon becoming aware of such conflict, inconsistencies, errors, omissions and/or discrepancies, the Contractor shall stop survey and layout work until further directed by the Contract Administrator. The City shall not be responsible for any additional cost or time delay due to a failure of the Contractor or the Contractor's Surveyor to report in a timely manner such conflict or inconsistencies found, or due to a failure to suspend the survey and layout work pending direction from the Contract Administrator.
- 18.9. The Owner may conduct quality assurance verifications of the survey and layout as it deems necessary. The Owner's quality assurance process shall not relieve the Contractor of its responsibilities and obligations under this Contract. Any deficiency, omission or error identified by the Owner in the quality assurance process will be reported to the Contractor within two (2) Working Days. The Contractor shall verify the information provided by the Owner, and make adjustments or corrections where necessary. There shall be no additional compensation or extension of Contract Time for correction of the Contractor's deficiencies, omissions or errors.
- 18.10. Adjustments or corrections to the survey and layout required due to conflicts, inconsistencies, errors, omissions, and/or discrepancies between the Contract Drawing(s) provided by the Owner and the existing physical conditions will be compensated on a Time and Material basis in accordance with Schedule E - CHANGES IN THE WORK ON A TIME AND MATERIAL BASIS – LINEAR APPROACH. This compensation shall be limited to the cost of survey crew only.

GS-19. Disposal of Surplus Excavated Material and Removals

- 19.1. All surplus excavated materials, removals, grindings and all other debris, including that from sewer flushing and catch basin cleaning, shall be disposed of, off site. No separate payment shall be made for the costs associated with this work.
- 19.2. The City of Toronto will not make arrangements for the disposal of surplus materials or supply bills of lading.
- 19.3. The Contractor shall assume full ownership of the surplus excavated material and shall be solely responsible for its removal and disposal.
- 19.4. Stockpiling of excavated material within the City street allowance is not permitted. The Contractor shall dispose of all excavated material off site immediately upon removal. No additional payment will be made for costs incurred as a result of this requirement.

GS-20. Smog Alert Response Plans

- 20.1. The Contractor, when notified by the Consultant that the City's Smog Alert Response Plan has been implemented, shall, where applicable:
 - suspend use of oil based products except for roadway line painting required to address safety concerns or to reduce traffic congestion;
 - suspend all pesticide spraying;
 - suspend grass cutting operations;
 - not allow refueling during daytime hours;
 - reduce equipment and vehicle idling as much as practical;
 - curtail the use of two-stroke engines as much as practical;
 - suspend normal street sweeping of all roadways during daytime hours except where there is an urgent need for clean-up, i.e. following a special event such as Caribana;
 - suspend the operation of loop cutting tar pots; and
 - suspend any non-essential planned traffic control device installation or modification work which will require lane closures or require complete deactivation of the traffic control device. Work that is required to address safety concerns or to reduce traffic congestion may continue.
- 20.2. Asphalt paving operations using SS-1 tack coat (water based) may continue.
- 20.3. A Smog Alert may be preceded by a Smog Watch. A Smog Watch is issued when there is a 50 percent chance that a smog day is coming within the next three (3) days. The Contractor shall not be entitled to any additional payment or extension of Contract Time due to the implementation of the Smog Alert Response Plans.

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- 20.4. Notwithstanding the above, if it is necessary and the Contract Administrator ordered the suspension of paving operations, payment and/or extension of the Contract for the suspension of asphalt paving operations shall only be made if notification by the Chief Engineer and Executive Director or General Manager to suspend work is made in less than four hours prior to starting of such operations, and if such suspension has detrimentally impacted on the Contractor's work schedule. The Contractor shall provide supporting documentation identifying the impact and associated fair and reasonable costs in accordance with GC 2.6 – CONTRACTOR RECORDS and any delay in accordance with GC 7.5 - DELAYS.
- 20.5. Payment for this work, at actual costs incurred, shall be made under the appropriate provisional item(s) identified in the Pricing Form (if applicable), or otherwise and in accordance with Schedule E - CHANGES IN THE WORK ON A TIME AND MATERIAL BASIS – LINEAR APPROACH with the exception of any mark ups.

GS-21. Security and Construction Sign(s)

- 21.1. The Contractor shall be responsible for the security of the work of this Contract from the time the job site is turned over to him until all work has been completed.
- 21.2. The Contractor shall take all necessary precautions to ensure that the construction site does not pose a hazard to the public for the duration of the project. Appropriate safety and warning signs must be posted. All such site security measures shall be removed from the site at the completion of the project.
- 21.3. The Contractor shall supply construction signage as per section 4.2.2.1- capital Improvement Project Construction Sign -GN101SP and detail given in Appendix 4.1-1.
- 21.4. Project information for the sign(s), if not specified in this Request for Tender, shall be provided by the Contract Administrator. The number of signs required is specified in the Pricing Form.
- 21.5. The costs for providing, installing, removing and disposing the signs shall be included in the Supplier's Pricing Form submission. No additional separate payment will be made for such work and provisions.

GS-22. Material and Truck Weighing

- 22.1. The City reserves the right to randomly verify the quantity of materials supplied in connection with this Contract. Prior to unloading of materials that are priced on a unit weight basis ("unit weight materials"), the weight tickets must be provided to the Contract Administrator (or in their absence, the City's inspector). Material weight tickets that are not provided to the Contract Administrator or the City's inspector prior to unloading will not be accepted later for payment.
- 22.2. When directed by the Contract Administrator or the City's inspector, trucks carrying unit weight materials shall proceed immediately to a City's weighing facility as specified by the Contractor Administrator or the inspector. After

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passing through the City's weight scale and unloading the materials, the empty truck shall return to the same facility to verify the vehicle tare if so directed by the Contract Administrator or the City's inspector.

- 22.3. Should the weight verification show that the verified weight of the material is less than what is shown on the Contractor's weight ticket by more than 1.0 per cent, the payment for the affected load shall be made based on the weight measured by the City's weighing facility.
- 22.4. City staff will also adjust the method of measurement for all following loads that are not weight-verified but have been delivered to the site before a new weight verification process can prove the Contractor had rectified the weight inconsistency. The weight of the following loads will be adjusted based on an adjustment factor determined from the most recently weight-verified load
- 22.5. The City will not compensate the Contractor for any cost associated with the weight verification process.

GS-23. Noise Regulations

- 23.1. The Contractor shall ensure the following:
- 23.2. Equipment shall be maintained in an operating condition that prevents unnecessary noise, including but not limited to proper muffler systems, properly secured components and the lubrication of all moving parts;
- 23.3. Idling of equipment shall be restricted to the minimum necessary for the proper performance of the specified work.
- 23.4. Where necessary, place noise attenuation devices (barriers) around Contractor's construction equipment.

GS-24. Traffic Signal and Street Lighting Installations

- 24.1. The Ontario Electrical Safety Code requires all "electrical installations", as defined in *Ontario Amendments to the Canadian Electrical Code Part I C22.1-02*, be inspected by the Electrical Safety Authority (ESA).
- 24.2. The Contractor shall file an application with the inspection department of the ESA 48 hours prior to the commencement of the work that requires the inspections. Information on inspection requirements and application for inspection can be found at www.esasafe.com/Contractors/ or by calling ESA at 1-877-esa-safe.
- 24.3. The Contractor shall provide an ESA issued "Certificate of Inspection" to the Contract Administrator prior to the Substantial Performance of the Contract.
- 24.4. The inspection fee shall be included in the appropriate bid items.

Sub Section 2.2 – Supplementary Specifications

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SS-1 Access to Site – GN103SS

Supplementary Specification

October 2016

The Contractor shall be responsible for all re-grading of existing roads, landscaping and access routes to suit the purposes for site access. The Contractor shall also be responsible for the restoration of all existing roads, fencing, guide rails and landscaping to pre-construction conditions or better. Any damage to trees or other property caused by the Contractor's site access shall be corrected at no extra cost to the City.

Equipment and Material shall be stored in designated areas. Notwithstanding the foregoing, the Contractor shall at no extra cost to the City remove any Equipment or Material, which in the Contract Administrator's opinion, constitute a hazard to traffic or pedestrians.

The Contractor shall plan and schedule the routes of construction and delivery vehicles to, from and within the job site, so that vehicular movements are accommodated with minimum interference and interruptions to public traffic. Access routes shall be established to allow vehicles to merge with public traffic to avoid crossing traffic lanes.

The Contractor shall obtain the Contract Administrator's prior approval for the location of any construction access points. The Contract Administrator reserves the right to alter, reject or close same, as considered necessary. The Contractor shall provide suppliers of Equipment and Material with the location and proper use of the access points.

The Contractor is advised that no construction equipment or vehicles shall be permitted on any adjacent lands unless the Contractor has obtained written permission from the applicable property owners. All areas used by the Contractor for access or storage shall be restored to their original condition at no extra cost to the City.

Basis of Payment

All costs associated with this Work shall be considered incidental to all related items of Work. No separate payment shall be made.

SS-2 Access to Properties – GN104SS

Supplementary Specification

October 2019

Further to GS-10 Roadway Work and General Conditions clauses GC 3.4, GC 3.15, GC 4.1 and GC 9.1, the Contractor shall direct their operations to minimize any inconvenience to the owners or occupants of the affected properties. The Contractor shall supply, place and compact granular material or hot mix asphalt or both to provide ramps for temporary driveway access

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and to provide safe and pothole-free access along roadways under construction.

In the event that in providing vehicular access, the installation of the sidewalk, driveway aprons and related road curb is carried out half driveway at a time, the Contractor shall not be compensated for any hand labour or concrete under-load charges.

Basis of Payment

All costs associated with this Work shall be considered incidental to all related items of Work. No separate payment shall be made.

SS-3 Safety Cranes and Manlifts – GN107SS

Supplementary Specification

October 2016

When work requiring the use of a crane, boom or similar equipment is undertaken in close proximity to hydro or transit overhead lines, regardless of line voltage, the Contractor shall give the appropriate authority 48-hours advance notice.

The authority will decide whether protection devices are required. Any charges for the protection shall be the responsibility of the Contractor.

Basis of Payment

All costs associated with this Work shall be considered incidental to all related items of Work. No separate payment shall be made.

SS-4 Collection of Garbage – GN108SS

Supplementary Specification

Sept 2017

Amendment to TS 1.20, April 2014

TS 1.20.09 MEASUREMENT FOR PAYMENT

TS 1.20.09.01 Garbage Collection

Subsection 1.20.09.01 of TS 1.20 is deleted in its entirety.

TS 1.20.10 BASIS OF PAYMENT

TS 1.20.10 Basis of Payment

Subsection 1.20.10 of TS 1.20 is deleted in its entirety and replaced with the following:

All costs associated with this Work shall be considered incidental to all related items of Work. No separate payment shall be made.

SS-5 Geotechnical Investigations – GN110SS

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Supplementary Specification

October 2016

The geotechnical investigation reports are provided for general information only, and no engineering characteristics, or extent of the soil types found, are implied or suggested. The Contractor is solely responsible for the interpretation of the information contained in the report, and shall satisfy themselves as to sub-surface conditions before submitting their Bid. The City makes no assertion as to the geotechnical characteristics, including soils, road and groundwater conditions that will be encountered within the Working Area.

SS-6 Quality Control – GN111SS

Supplementary Specification

February 2018

The Contractor shall be responsible for all quality control sampling and testing of all supplied material. The Contractor shall prepare and submit a Quality Control Plan no later than 7 Days prior to the commencement of Work. The results of any tests performed shall be submitted within 3 Days after completion of the specific test being performed to the Contract Administrator.

SS-7 Utility Locates – GN112SS

Supplementary Specification

October 2016

In addition to any other utility locating requirements contained in legislation and the Contract, the Contractor shall be responsible for obtaining satisfactory utility locates from all applicable utilities as necessary to complete the Contract Work. Under no circumstances shall the Contractor commence any excavation prior to obtaining the locations of all utilities that may be affected by the Contract Work. The Contractor shall provide the Contract Administrator with a copy of the locate sheets supplied by the utility locators, prior to construction.

Not all utilities subscribe to Ontario One Call. It is therefore the Contractor's responsibility to obtain all necessary utility stakeouts, whether from Ontario One Call, the individual utility owners or by hiring private utility locating companies or both to ensure that all utilities are identified and located in a timely fashion. Regardless of the method(s) used to locate utilities, it is the Contractor's responsibility to ensure that all Contract Work is completed within the number of Working Days or within the schedule outlined in the Contract. No extension of Contract Time shall be permitted for meeting the requirements of this Supplementary Specification, nor shall any delay claim be considered by the City if the Contractor fails to meet this responsibility.

Once the locates have been completed, the Contractor shall be responsible for verifying the location, size and depth of all underground services, including any abandoned services, with the applicable utility companies. The Contractor shall notify the Contract Administrator

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immediately in writing of any discrepancies between the information obtained by the Contractor and the information contained in the Contract Documents.

Before excavating across or along any utility or service, the Contractor shall determine its exact location and elevation. The utility or service shall be exposed by hand excavation and shall be adequately supported and/or protected before proceeding with machine excavation.

Basis of Payment

All costs associated with this Work shall be considered incidental to all related items of Work. No separate payment shall be made for costs incurred in obtaining utility locates.

SS-8 Provisional Items – GN123SS

Supplementary Specification

October 2016

Tender items for this Contract may be identified in the Tender Call as provisional items. The Contract Administrator may cancel provisional items at any time during the Contract. The Contractor shall have no claim for loss of overhead or profit should the Contract Administrator decide to delete any or all provisional item(s).

SS-9 Excavation Work – GN125SS

Supplementary Specification

October 2016

It is strongly recommended that the Contractor follow the best practices with respect to any and all work requiring excavation as set out in the document titled, *Ontario Regional Common Ground Alliance Best Practices 8.0 – June 2014* ("Best Practices") which is available at www.orcga.com/Publications/Best-Practices . In the event of a conflict or inconsistency between the "Best Practices" and any other specification, provision or requirement of the Contract, the Contractor shall comply with the specification, provision or requirement of the Contract.

SS-10 Restoration Work – GN121SS

Supplementary Specification

October 2021

Restoration of Driveways, Sidewalks and Private Walkways

Driveway thicknesses for residential, industrial and commercial properties shall be according to T-310-050-8. The base of driveways, sidewalks and private walks shall be restored with a 150 mm depth of Granular A or Granular A RCM according to TS 1010 compacted to 100% of maximum dry density.

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All driveways and sidewalks shall be saw cut in a straight line. All asphalt or concrete driveways shall be paved for the full width of the driveway so that driveways will have only one straight joint. If short services are located within the asphalt or concrete driveway, the driveway shall be paved from the service connection pit to the curb or from the connection pit to the back of sidewalk, so that driveways will only have one straight joint.

Asphalt, concrete and interlocking stone driveways disturbed during construction shall be restored to equal condition or better. Driveway concrete curbs, including curb returns, sidewalks, retaining walls and private walkways impacted by construction shall be reconstructed to original condition or better.

The Contractor shall permanently restore driveways of all types and sidewalks from expansion joint to expansion joint—minimum three bays— that will be affected due to the underground infrastructure construction.

Permanent restoration for driveways, sidewalks and private walkways shall be completed within 3 Working Days after the completion of the underground services of each block.

Keyhole repair according to TS 4.70 – Construction Specification for Keyhole Excavation and Permanent Reinstatement of Keyhole Cores shall not be permitted.

Basis of Payment

All costs associated with this Work shall be included in the Contract Price for underground infrastructure installation. No separate payment shall be made.

Boulevard Sodded Areas

Within sodded boulevards, all trenches and excavations backfilled with Granular B Type II or select native material shall be restored with 100 mm topsoil and sod according to TS 5.10 – Construction Specification for Growing Medium and TS 5.00 – Construction Specification for Sodding, respectively. The Work includes the removal and disposal of an equivalent amount of materials.

Basis of Payment

All costs associated with this Work shall be included in the Contract Price for underground infrastructure construction. No separate payment shall be made.

Restoration of Landscaping Features

Where retaining walls, fences or other landscaping features including river stone, gardens, decorative rocks, vegetation, interlock stone or lock stone and unit pavers that could require restoration and are fronting any lots the Contractor shall, if machine usage is not possible, remove the existing sidewalk/boulevard by hand. If any damage occurs to the retaining wall, fence or landscaping features during construction, then the Contractor shall repair it to its

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original condition or better at no extra cost to the City.

Subdrains

The Contractor shall make permanent repairs to all existing subdrains to match existing conditions or better.

Basis of Payment

All costs associated with this Work shall be included in the Contract Price for underground infrastructure installation. No separate payment shall be made.

Retaining Wall

Any retaining wall or structure that could require reconstruction or replacement as a result of the installation of the sanitary sewer laterals, storm sewer laterals or water services shall be constructed to the original details, including foundation and new compacted granular backfill, to the satisfaction of both the property owner and the Contract Administrator.

The Contractor shall review all existing retaining walls to determine the work necessary prior to submitting a Bid.

Basis of Payment

All costs associated with this Work shall be included in the Contract Price for sanitary sewer laterals, storm sewer laterals or water service installation. No separate payment shall be made.

Temporary Trench Restoration

Temporary restoration of trenches within roadways, driveways, sidewalks, and intersections shall be completed within 24 hours after backfilling of the trench with unshrinkable fill according to TS 13.10 – Construction Specification for Unshrinkable Fill with a 80 mm lift of Superpave 19.0, Traffic Category B, PG 58-28 asphalt mix to the top of the existing asphalt surface for maintenance of traffic.

Basis of Payment

All costs for temporary trench restoration shall be included in the Contract Price for linear underground infrastructure installation items. No separate payment shall be made.

Permanent Trench Restoration

Within the paved roadway, all trenches and excavations shall be restored according to TS 4.60 – Construction Specification for Utility Cut and Restoration and according to the existing roadway structure as indicated in the geotechnical report and the appropriate permanent trench restoration detail as specified in the Contract Documents. The trench restoration shall include a stepped joint for both composite and flexible pavements.

The permanent asphalt trench restoration thicknesses shall be the greater of the depths

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shown in the Contract Documents, or match existing asphalt thickness.

The asphalt base course, concrete base, and edges of the existing pavement are to be tack coated with SS-1 emulsified asphalt. Cost of supplying and application of the tack coat shall be incidental.

The Contractor is advised that the City will not consider additional payment for the restoration of any over breaks that might occur at the edges of the trenches. This work shall be included in the Contract Price. No separate payment shall be made.

The Contractor shall permanently restore all roadways, concrete and granular road base, curbs, curb and gutters, driveways and sidewalks. For sidewalks, the restoration shall be from expansion joint to expansion joint (minimum three bays). For curbs, curbs and gutters, the repairs shall be at minimum 3 metres. If the required repairs exceeds 3 metres or if the adjacent curb results in a length of under 3 metres joint to joint, the curb, and curb and gutter shall be replaced joint to joint.

When restored with concrete and composite pavement, trench restoration shall include up to the top surface. The width of trench shall include the outer diameter of the pipe plus 300 mm on either side of the pipe. Dowelling to from existing to new concrete during restoration of composite pavement should be according to T-508.010-1.

Permanent restoration of roadway asphalt pavement on each street shall be completed within 14 Working Days after the completion of the underground infrastructure installation on that street unless otherwise approved by the Contract Administrator.

Basis of Payment

All costs for permanent restoration work when affected by linear underground infrastructure construction shall be included in the respective Contract Price for linear underground infrastructure item.

A separate payment shall be made for asphalt milling, placement of base course asphalt and top course asphalt over the trench, utility adjustments and pavement markings for the permanent restoration over the trench shall be paid according to the Contract Price.

Supplemental costs for trench restoration when asphalt containing asbestos, composite pavement over flexible pavement and concrete pavement over flexible pavement shall be paid under the respective item.

SS-11 Dust and Mud Control – GN105SS

Supplementary Specification

October 2016

The Contractor shall be responsible for taking all necessary measures required to keep the job site clean from dust and mud from construction operations and under no circumstances

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shall it cause inconvenience to adjacent properties and the general public. Should the Contractor fail to comply with this requirement, the Contract Administrator may, 12 hours after having given notice in writing to the Contractor, arrange for the necessary work to be undertaken. The costs of such Work shall be completed at the Contractor's expense and at no extra cost to the City.

Where conditions are such that mud is tracked onto existing pavement or sidewalk or onto adjacent streets, the Contractor shall clean all fouled pavement and sidewalk at least daily to the satisfaction of the Contract Administrator.

Basis of Payment

All costs associated with this Work shall be considered incidental to all related items of Work. No separate payment shall be made.

SS-12 Saw Cutting – GN106SS

Supplementary Specification

October 2016

Basis of Payment

All saw cutting required to complete the work as specified in the Contract Documents shall be considered incidental to all related items of Work. No separate payment shall be made.

SS-13 Tree Protection – GN128SS

Supplementary Specification

October 2022

Tree Protection

Where work will be undertaken within the vicinity of trees, adhering to the Tree Protection Policy and Specifications for Construction Near Trees

www.toronto.ca/data/parks/pdf/trees/tree-protection-specs.pdf may not be feasible. In these situations, the following tree protection guidelines shall be followed:

1. The Contractor shall conduct operations in such a manner as to not cause damage to trees, above or below grade.

If required, any pruning of roots or crown must be done using best arboricultural practices.

All arboricultural work, including pruning of roots or limbs greater than 5 cm in diameter, shall be completed by an arborist who has one of the following qualifications: qualified by the Ontario Training and Adjustment Board Apprenticeship and Client Services Branch, is a certified arborist qualified by the International Society of Arboriculture, is a consulting arborist registered with the American Society of Consulting Arborists, is a registered professional forester or a person with other similar qualifications as approved by the General Manager, Parks, Forestry & Recreation.

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Roots requiring pruning by an arborist must first be exposed using pneumatic (air) excavation, by hand digging or by using a low pressure hydraulic (water) excavation. The water pressure, less than 3500 Kpa for hydraulic excavation must be low enough that root bark is not damaged or removed. This will allow a proper pruning cut and minimize tearing of the roots.

No storage of equipment, materials, excavated soil, construction waste or debris is permitted within the Tree Protection Zone.

Hording shall be erected around trees in areas of high volumes of construction traffic, for example where there are storage areas, site trailers and so on.

When working in the vicinity of trees, a barrier should be used such as plywood or fast fence to prevent accidental damage to the trees.

No compaction of soil is permitted within the Tree Protection Zone. If equipment is required to travel within the Tree Protection Zone, horizontal hoarding must be utilized to prevent soil compaction.

Roots that have been exposed and pruned by an arborist must be watered daily until backfilled.

All roots and branches pruned by an arborist shall be removed from public view immediately and must be removed from the project site by the end of each work day.

Permits will be required for privately-owned trees, protected under the Toronto Municipal Code, Chapter 813, Trees, Article III, Private Tree Protection and Chapter 658, Ravine and Natural Feature Protection bylaws, where work is proposed within the Tree Protection Zone of the private trees in question.

In the event a tree is damaged in any way, including mechanical injury to the main stem, tearing of limbs or roots with a diameter of 5 cm or greater, the damage must be reported to the Contract Administrator immediately. All work in the area must cease until the Contractor has the damage assessed by an arborist and any remedial work recommended by the arborist is completed. The arborist shall submit a report of the incident and actions taken to the Contract Administrator.

If proper tree protection practices are not in place and tree damage has occurred as a result of the Contractor's negligence, the City may issue stop work orders. Orders to comply may include the need to erect hording around trees in accordance with the *Tree Protection Policy and Specifications for Construction Near Trees* and require the submission of contravention inspection fees.

The Contractor shall be responsible to reimburse the City for financial damages caused to trees through negligence or careless practices.

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Basis of Payment

All costs associated with this work, including the cost of an approved arborist, and supply, erection and removal of hording is considered incidental to all Work. No separate payment shall be made.

SS-14 Locating Existing Water Services – All Sizes – WM205SS

Supplementary Specification

October 2016

Toronto Water division does not stake out existing water services. The Contractor or their Subcontractor shall equip themselves with the appropriate Equipment and methods to locate all existing water services within the contract limits even if they may not be shown on the Contract

Drawings. The location of existing water services cannot necessarily be determined by the location of existing curb stops. Also, some abandoned water services may be connected to the existing watermain but are still active.

Repairs to existing water services and watermains due to the Contractor's failure to locate the existing water services shall be at no extra cost to the City.

Basis of Payment

All costs associated with this Work shall be included in the Contract Price for watermain and water service installation. No separate payment shall be made.

SS-15 Private Side Water Service Replacement – WM208SS

Supplementary Specification

October 2016

During the course of the water service replacement work under this Contract, the Contractor may be approached by individual property owners asking about private water service replacement outside of the road allowance. The City Construction Notice delivered to individual property owners states that they may contact the Contractor to request a quote for the replacement of the private water service. The City does not require the Contractor to undertake any private water service replacement and under no circumstances shall the City be involved in negotiating, approving or administrating any pricing with regard to private side water service replacement.

No extension of Contract Time shall be permitted nor shall any delay claim be considered by the City if the Contactor elects to undertake this additional work.

All work carried out by the Contractor on a private basis is strictly between the Contractor and

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the private property owner.

SS-16 Operating Valves – WM209SS

Supplementary Specification

October 2021

No valve, hydrant or other control on the existing water distribution system shall be operated, for any purpose, by the Contractor. When required, the Contractor shall provide 3 Working Days advanced notice to the Contract Administrator to make the necessary arrangements for the operation of existing valves and appurtenances.

SS-17 Private Side Sewer Service Replacement – SW304SS

Supplementary Specification

October 2016

During the course of the replacement work for the sanitary sewer or storm sewer or both under this Contract, the Contractor may be approached by individual property owners asking about private sewer service replacement outside of the road allowance. Under no circumstances shall the City be involved in negotiating, approving or administering any pricing with regard to private side sewer service replacement.

No extension of Contract Time will be permitted nor any delay claim will be considered by the City if the Contractor elects to undertake this additional work.

All work carried out by the Contractor on a private basis is strictly between the Contractor and the private property owner.

SS-18 Cleanouts – SW306SS

Supplementary Specification

October 2016

Sanitary and storm service cleanouts shall be provided at street line for each sanitary and storm service connection. Cleanouts should be installed according to T-708.01-5 and T-708.01-6.

Basis of Payment

The cost to supply and install the cast iron cleanout covers shall be included in the Contract Price for the sewer service connection. No separate payment shall be made.

SS-19 Cold Weather Work – RD414SS

Supplementary Specification

October 2016

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Based on the schedule for the Work of this Contract, the Contractor is instructed that cold weather precautions may be required according to OPSS.MUNI 904 – *Construction Specification for Concrete Structures*.

Basis of Payment

All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

**SS-20 Reduction of Volatile Organic Compound (VOC) Emissions –
RD423SS**

Supplementary Specification

September 2017

Environment and Climate Change Canada released a *Code of Practice for the Reduction of Volatile Organic Compound (VOC) Emissions from Cutback and Emulsified Asphalt* in February 2017. The objective is to reduce VOC emissions and generating environmental and health benefits from reducing the intensity and frequency of smog events.

The code of practice details recommended practices regarding the use to cutback and emulsified asphalt during the ozone season, record keeping and reporting. TS 3.20 – *Construction Specification for Tack Coat* is modified to reflect these new code practices.

For more detailed information and to download a copy go to:

<https://www.canada.ca/content/dam/eccc/migration/main/lcpe-cepa/bbd8ad11-b189-4409-938f-76dfc03b096f/code-20of-20practice-20final-20final-20-en-202017.04.26.pdf>

SS-21 Utility Adjustment – RD422SS

Supplementary Specification

September 2019

Amendment to TS 4.50, September 2017

TS 4.50.02 REFERENCES

Ontario Provincial Standard Specifications

Subsection 4.50.02 of TS 4.50 is amended by the addition of the following: OPSS.MUNI 510 Construction Specification for Removal

TS 4.50.03 DEFINITIONS

Section 4.50.03 of TS 4.50 is amended by the addition of the following definitions:

Large Frame Utility Adjustments means adjustments to frame and covers that are not owned by the City and are in excess of 1000 mm any dimension.

Metro Frame and Cover means the large former Metro frame and covers including OPSP

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402.030 for the large meter and valve chambers.

TS 4.50.05 MATERIALS

TS 4.50.05.03 Precast Adjustment Units

Subsection 4.50.05.03 of TS 4.50 is amended by the addition of the following to the title:

TS 4.50.05.03 Precast Adjustment Units

Precast Risers

Subsection 4.50.05.03 of TS 4.50 is amended by deleting the first paragraph in its entirety and replacing it with the following:

Adjustment units and risers for maintenance holes, valve chambers and catch basins shall be according to OPSS 1351.

TS 4.50.07 CONSTRUCTION

TS 4.50.07.01 General

Subsection 4.50.07.01 of TS 4.50 is amended by deleting the second paragraph in its entirety and replacing it with the following:

The adjustment of all appurtenances belonging to utility companies shall only be performed by Contractors approved by the appropriate utility company. The Contractor shall be responsible to contact the appropriate utility companies to seek approval for their subcontractors and to organize the work and make arrangements for any new components that may be required. The material supplied by the utility company shall be at no cost to the Contractor, but they may be required to pick up new components from the utility company's yard.

Subsection 4.50.07.01 of TS 4.50 is amended by deleting the fifth paragraph in its entirety and replacing it with the following:

For precast or poured in place maintenance holes, valve chambers and catch basins, adjustment units shall consist of brick and mortar or precast concrete adjustment units. The total depth of existing and new adjustment units shall not exceed 300 mm. Where the total depth exceeds 300 mm, the Contractor shall remove all adjustment units down to the top of the sound structure and install precast concrete or poured in place concrete risers. The top of the riser shall allow for 50 mm to 100 mm depth of adjustment units to be installed between the riser and the underside of the frame.

For maintenance holes, valve chambers and catch basins that are constructed of brick, the Contractor shall remove all loose and broken bricks and reinstate the brick structure using brick and mortar. Precast concrete adjustment units may only be used if directed by the Contract Administrator.

TS 4.50.07.03 Concrete Risers

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Subsection 4.50.07.03 of TS 4.50 is amended by renaming the title and deleting the first paragraph in its entirety and replacing it with the following:

For poured in place risers, formwork shall be used on all sides of the extension. The top of the concrete on the existing structure shall be thoroughly cleaned and roughened to ensure a satisfactory bond.

For precast risers, the top of the concrete on the existing structure shall be thoroughly cleaned and smoothed to allow the proper installation of tape sealer.

For catch basins, lateral adjustments may be made by sloping the concrete riser to conform to the curb alignment. The slope shall be limited to 100 mm horizontal to 300 mm vertical, and the resulting opening shall not be less than 375 measured at right angles to the curb.

TS 4.50.07.04 Concrete Collars

Section 4.50.07 of TS 4.50 is amended by the addition of following subsection:

Valve frame and covers, within the roadway, whose width or diameter of the frame is less than 200 mm shall require the installation of a concrete collar to stabilize the adjustment. Enbridge Gas frame and covers are exempt from the requirement for concrete collars. All collars shall be constructed of concrete meeting the specifications of TS 1350 for road base, except that 37.5 mm aggregate is not permitted. All collars shall be formed using 300 mm diameter sonotube.

10M stainless steel rebar bent into a circular shape, with a minimum overlap of 150 mm. The diameter of the rebar circle shall be so that the cover is equal on both sides—that is 150 mm cover shall have rebar of diameter 225 mm. The rebar shall be placed with a minimum of 50 mm cover, but no greater than 65 mm, from the top of the collar. All pieces of rebar shall be wired together prior to the concrete placement.

The finished surface shall be flush with the frame and cover and the surrounding asphalt surface. The frame and cover and concrete collar shall be fully protected during the Work, especially when milling and paving base course asphalt.

In flexible pavement, the concrete collar shall be a minimum 250 mm thick regardless of the depth of asphalt and placed on compacted granular material. In composite pavement, the collar shall be poured monolithic with the concrete base. If the composite pavement is not to be replaced, the Contractor shall remove a minimum 350 mm square section of concrete road based centred on the valve frame in order to facilitate the installation of the collar.

TS 4.50.08 QUALITY ASSURANCE

Section 4.50.08 of TS 4.50 is amended by deleting the sixth paragraph in its entirety and

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replacing it with the following:

If the adjustment is rejected, after the placement of the final lift of asphalt, it shall be made good by the Contractor at no extra cost to the City.

TS 4.50.09 MEASUREMENT FOR PAYMENT
TS 4.50.09.01 Utility Adjustments

Subsection 4.50.09.01 of TS 4.50 is amended by deleting the subsection in its entirety and replacing it with the following:

TS 4.50.09.01 Utility Adjustments

Large Frame Utility Adjustments

For measurement purposes, a count shall be made of the number of adjustments performed, including those adjustments that required new frame and covers. The height of the adjustment shall be measured from the top of the concrete structure or remaining adjustment units to the bottom of the frame and cover. Adjustment heights of 300 mm or less will be paid at the specified rate. For changes in height of more than 300 mm, the rate will be prorated based on a height of 300 mm, including any necessary concrete risers. Measurements will be made to the nearest 10 mm increment.

All utility adjustments, except for Large Frame Utility Adjustments shall be prorated in accordance with Table 2. Large Frame Utility Adjustments shall be paid at a rate of one each.

Table 2: Adjustment distance and rate

Utility	Rate
Standard frame and covers whose width or diameter of the frame is between 500 mm and 1000 mm	1
Small frame and covers whose width or diameter of the frame is less than 500 mm without concrete collars	1/3
Small frame and covers whose width or diameter of the frame is less than 500 mm with concrete collars	1/2
Metro Frame and Covers	3

TS 4.50.09.02 Concrete Extension

Subsection 4.50.09.02 of TS 4.50 is amended by the deletion of the subsection in its entirety.

TS 4.50.09.03 New Frame and Covers

Subsection 4.50.09.03 of TS 4.50 is amended by deleting the subsection in its entirety and replacing it with the following:

TS 4.50.09.03 New Frame and Covers

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New Metro Frame and Covers

For measurement purposes, a count shall be made of the number of new frame and covers installed on City owned infrastructure.

New utility frame and covers supplied by the utility companies shall be considered incidental to the adjustments. No separate measurement shall be made.

TS 4.50.10 BASIS OF PAYMENT

TS 4.50.10.01 Utility Adjustments – Item

Subsection 4.50.10.01 of TS 4.50 is amended by deleting the first paragraph in its entirety and replacing it with the following:

Payment at the Contract Price shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the removal and disposal of loose brick and other debris, the supplying and placing of brick or precast adjustment units, supply and installation of concrete risers, supply and installation of any necessary steps, the coordination of utility owners with the contract staging and the cleaning of all utility chambers, maintenance holes, valve boxes and catch basins within the contract limits.

TS 4.50.10.02 Concrete Extension – Item

Subsection 4.50.10.02 of TS 4.50 is amended by the deletion of the subsection in its entirety and replacing it with the following:

TS 4.50.10.02 Large Frame Utility Adjustments – Item

Payment at the Contract Price shall be full compensation for all labour, Equipment and Material to do the work. Payment shall include the removal and disposal of loose brick and other debris, the supplying and placing of brick or precast adjustment units, supply and installation of concrete risers, supply and installation of any necessary steps, the coordination of utility owners with the contract staging, picking up and delivering to the site any new frame and covers, completing work by approved contractors and the cleaning of all utility chambers, maintenance holes, valve boxes and catch basins within the contract limits.

No additional payment shall be made for any interim adjustments to raise or lower the appurtenance, in order to perform the work.

Adjustment of any valves, utility frame and covers within the sidewalk areas shall be considered part of the Contract Price. No separate payment shall be made.

TS 4.50.10.03 New Frame and Covers – Item

Subsection 4.50.10.03 of TS 4.50 is amended by deleting the first paragraph in its entirety and replacing it with the following:

Payment at the Contract Price shall be full compensation for all labour, Equipment and

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Material to do the work.

New utility frame and covers supplied by the utility companies shall be considered incidental to the adjustments. No separate payment shall be made.

SS-22 Additional Constructor Requirements with Respect to TTC Work
– TR501SS

Supplementary Specification

October 2019

Additional Constructor requirements with respect to TTC Work under *Occupational Health and Safety Act* and *Regulations for Construction Projects (Ontario Regulation 213/91)*.

This project requires the laying and installation of rail (the "TTC Work") by the Toronto Transit Commission (TTC). This TTC Work must be undertaken by TTC directly, using its own employees or service providers or both.

The Contractor shall maintain control over the project site and manage site access and all other safety aspects in accordance with this Supplementary Specification as well as the *Occupational Health and Safety Act (OSHA)* and corresponding regulations.

In addition to any other health and safety obligations in this Contract, the Contractor shall determine when and where the TTC Work will take place on the project site and assume overall responsibility for compliance with all applicable health and safety legislation, including at all times assuming the role of "constructor" as defined in the *Occupational Health and Safety Act* for the TTC Work.

For greater clarity, the provisions pertaining to the Contractor's obligations as "constructor" in Schedule D, General Conditions apply to the Contractor in respect of the work of the TTC.

Prior to the commencement of the project, the Contractor shall identify its representative responsible for health and safety co-ordination of the project (the "Co-ordinator") to TTC and all persons working on the project.

Prior to commencing work on the project, the Contractor's Co-ordinator will review the project with a representative from TTC, for the purpose of jointly identifying specific risks and hazards related to completion of the project, to review applicable TTC health and safety policies as well as the risks and hazards associated with all work associated with TTC's infrastructure in order for the Contractor to appropriately manage these risks and hazards as constructor.

The Contractor shall throughout the duration of the project regularly review the project with TTC to account for any changes to site conditions, equipment, materials, methods and manpower.

Any Work related to the obligations of the Contractor as "constructor" including those set out in

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this Supplementary Specification shall be priced in accordance with Item "Additional Constructor

Requirements with Respect to TTC Work" of the Pricing Form in the Tender Submission Package for this Contract.

Scope of Work

The Contractor's responsibilities as Constructor include:

- Organization and recording of minutes for all safety meetings.
- Make health and safety site inspections and written reports available to the TTC and Contractor staff within one day of each inspection.
- Providing work zone protection plans, record placement and maintenance of all traffic control.
- Determine distinct working zones for TTC crews and the Contractor's forces or Subcontractors or both for the different phases and segments throughout the duration of the contract. These zones to include access and egress zones for material and equipment delivery and removal.
- Compliance with the latest revision of the document entitled Constructor Guideline published by the Ontario Ministry of Labour.

TTC's responsibilities include:

- Providing the Constructor with a Form 1000 to identify that TTC staff or service providers or both shall be on site.
- Abide by the direction of the Contractor with respect to health and safety and scheduling.
- Provide key staff to attend regular health and safety inspections and meetings, as deemed necessary by the Contractor.
- Ensuring that TTC staff work solely within the construction zones determined by the Contractor. Transporting material or equipment or both through the Contractor's work zone is prohibited.
- Ensuring that TTC staff do not relocate or alter any traffic control devices.

Execution

Construction Procedures

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The typical procedures listed below may vary depending on the terms of the Contract or the actual site conditions of a particular project and are intended as a guideline only to assist the Contractor in planning and scheduling the Work:

- Contractor to remove existing track allowance.
- Contractor to prepare the granular sub-base including drainage components as required.
- Contractor to install TTC electrical and communications conduit.
- Contractor to install pole bases, including any grounding devices required.
- Contractor to install concrete foundation slab.
- TTC to install rails, ties and associate rail components.
- TTC to spray the exposed rail components through their service provider.
- Contractor to install drainage catchment components, including track drains, switch drains and catch basins.
- Contractor to place concrete infill to lock in the rails and associated components.
- Contractor to place concrete surface to complete the track allowance.
- Contractor responsible to install all conduit and wiring required at signalized intersections, for traffic control, including transit priority components.
- Contractor to install poles.
- TTC to install electrical power wiring through the ducts installed by the Contractor, to and from any supply point, including the pole risers.
- TTC to install negative power returns, where applicable.
- TTC to install overhead wiring and hangers on poles installed by the Contractor.
- Contractor to provide backup documentation and pictures required for the underground components installed by the Contractor required to secure any required permits for permanent connections.
- TTC to secure all permits related to the TTC power and negative cable.
- Contractor to secure all other permits.

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Basis of Payment

Payment at the Contract Price for the above item shall be full compensation for all labour Equipment and Material to do the Work. For progress payment, the balance shall be prorated over the balance of the working period.

**SS-23 Restoration of Concrete Road Base, Adjacent To TTC Tracks –
TR502SS**

Supplementary Specification

September 2017

The following Work shall be done under the item regardless of any other item description in the Tender Call.

Excavation and dispose off-site of over break to provide space for the placement of full depth forms;

Remove and dispose off-site all loose and foreign material from the form trenches;

Supply and place bituminous fibreboard 12 mm wide and for the full depth of the concrete;

Place unshrinkable fill to the bottom of concrete road base;

Construct 32 MPa concrete (7days) 250 mm road base, vibrated into place up to 90 mm lower from the roadway surface (match existing concrete road base grade);

Clean thoroughly the entire area of future paving with compressor;

Apply tack coat to newly placed concrete including the edge of the track margin;

On a temporary basis, supply, place and compact 50 mm (minimum thick) Superpave 19.0 asphalt to match existing grades. This work shall be done within 200 mm of the edge of track margin;

The restoration within the full width roadway reconstruction areas will not be paid under this item. The above noted tasks from (1) to (4) within the road reconstruction limits shall be part of the concrete road base construction item and the Supplier shall price the tender items accordingly.

Measurement for Payment

Measurement of concrete road base shall be by length in metres of concrete road base restored.

Basis of Payment

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Payment at the Contract Price shall be full compensation for of all labour, Equipment and Material to do the Work.

SS-24 TTC Transit Signal Priority – Rail Crossing – TR505SS

Supplementary Specification

October 2016

The Contractor shall supply and install 25 mm diameter rigid conduit according to TTS 810 – *Construction Specification for Traffic Actuation Equipment* and TTS 803 – *Construction Specification for Duct Installation* within the track allowance for the TTC Transit Signal Priority turn-ups, as shown on the Contract Drawings. The conduit shall be placed from one side of the rail to the other, under the rail and above the foundation slab.

Measurement for Payment

Measurement of the duct installation shall be by length in meters along the horizontal centreline of the duct. Turn-ups shall be considered incidental to the item.

Basis of Payment

Payment at the Contract Price shall be full compensation for all labour, Equipment and Material to do the Work.

SS-25 TTC Track and Sidewalk Hand Well – TR506SS

Supplementary Specification

October 2016

The Contractor shall pick up the 300 mm diameter track hand well or sidewalk hand well or both supplied by TTC from the TTC yard.

Basis of Payment

All costs associated with this Work shall be incidental to all related items of Work. No separate payment shall be made.

4.2.2 Special Provisions

SS-26 Capital Improvement Project Construction Sign – GN101SP

Special Provision

September 2017

The Contractor is responsible for the fabrication, installation, relocation, maintenance and removal of the project construction sign. The signs must be in place prior to the commencement of the Work. Signs should be located near entry and exit points or at the beginning and end locations of the project. Signs should be posted in the area where the work is taking place and visible to the public. The Contractor shall in consultation with the Contract

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Administrator, determine the appropriate location taking into account obstructions and sight lines.

Upon the completion of the project, the Contractor shall remove and dispose of the signs.

The following information shall be shown on the construction sign and shall be specialized for each project location:

Field: Description	Text
1: Project Title	(Two lines preferred) Line 1: Project Type (primary work) e.g., "Watermain Replacement" Line 2: Primary Street where work is taking place e.g., "Bloor Street West" Maximum 28 Characters per line
2: Project Details	Provide limits of project e.g., "Bay Street to Avenue Road" Maximum 34 characters per line
3: Start Date	Season + Year or Month + Year
4: End Date	Season + Year or Month + Year
5: Contract Number	(as per contract)

The size of the construction sign shall be 1200 mm x 1200 mm

The design layout and specifications for the Capital Construction / Improvement Sign can be found In Appendix 4.1-2.

Measurement for Payment

For measurement purposes, a count shall be made of the number of new capital improvement project construction signs fabricated and installed.

Basis of Payment

Payment at the Contract Price shall be full compensation for all labour, Equipment and Material to do the Work.

SS-27 Construction and Traffic Constraints – GN102SP

Special Provision

January 2021

- 1) The Contractor shall schedule to complete the work in accordance with Toronto Municipal Code, Chapter 743-18, as amended, and the constraints outlined below by the contract Completion Date.
- 2) Working hours during construction shall be restricted in accordance with the table below. No extension of Contract Time shall be permitted nor shall any delay claim be considered by the City due to adherence to these hours.

Table 1 – Standard Working Hours Summary

Day	Working Hours*
Weekday (Arterial (excluding Downtown) and Collector Roads**)	9:00 to 16:00, unless approved exemption is granted
Weekday (Local Roads**)	07:00 to 19:00, unless approved exemption is granted
Weekend (Arterial, Local and Collector Roads)	Not permitted, unless approved exemption is granted
Arterial (Downtown)	Queen St to the north, Jarvis St to the east, Lake Shore Blvd to the south and Bathurst St to the west, with the exception of King St E, from Bathurst St to Roncesvalles Ave (All occupations must abide by the posted rush hour restrictions, unless approved exemption is granted).
Statutory Holidays	Not permitted, unless Emergency Work is required.

Notes: () Afterhours/weekend work may be approved by the Transportation Services Division under special circumstances, or as identified herein the Tender documents and Addenda. Baseline schedule should only reflect standard working hours and identified exemptions.*

*(**) A complete list of Road Classifications can be found online at:
<https://www.toronto.ca/services-payments/streets-parking-transportation/traffic-management/road-classification-system/2012-update-to-the-road-classification-system/>*

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- 3) In addition to the restriction identified in the table above, a guideline for Work on Toronto Expressways, including working hours, can be found here: https://www.toronto.ca/wp-content/uploads/2017/11/9184-0_RoDARS-City-Expressway-Closure-Guidelines-a.pdf
- 4) For any work located within 300 m of a provincial expressway interchange additional restrictions may apply. The Contractor shall consult with Transportation Division in advance of a formal access request to identify site specific restrictions.
- 5) The cost of all after hour or weekend work where permitted shall be included in the appropriate bid prices.
- 6) The Contractor shall deploy multiple work crews simultaneously for each type of work as necessary to complete all of the Work within the stipulated Contract Time.
- 7) Where the Contractor works past daylight hours, all provisions must be made to ensure a safe working environment including portable lights and generators, lighting equipped barriers as necessary.
 - a) The Contractor may make an exemption request for any Work that is to be undertaken outside of standard working hours, along with detailed justification, to the Contract Administrator at least five (5) Days in advance for review. If the request is determined to be reasonable by the Contract Administrator, the Contractor shall include the modified working hours within their formal road disruption approval request to Transportation Services Division.
- 8) If Emergency Work is required as determined by the Contract Administrator, the Emergency Work must be completed immediately and continuously and may occur outside of normal working hours. Emergency work is defined as work which must be completed immediately due to health and safety concerns, or where the interruption or potential interruption of essential services is imminent.
- 9) The Contractor shall not have active work during religious faith days of worship, including the Jewish High Holy Days of Rosh Hashanah and Yom Kippur, the Islam Holy Day of the Hajj, and the Hinduism, Buddhism, Jainism, Sikhism Holy Day of Diwali, within 350 metres of a place of worship. The Contractor should divert the work crews to other projects on these days and coordinate their work accordingly. These days shall be considered Working Days.
- 10) The following traffic restrictions shall apply:
- 11) Safe vehicle, pedestrian and bicycle traffic shall be maintained at all times during construction. Pedestrians and cyclists pathways shall be a minimum width of 1.5 m and shall be separated from the construction activities with temporary fast fence or equivalent. Under special circumstances, any proposed closures of pedestrian or cyclist pathways

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shall be clearly identified in the Traffic Control Plan for review and approval by the designated Work Zone Traffic Coordinator.

- 12) The Contractor shall maintain access to all driveway/lane or alley at all times for emergency vehicles. Any temporary obstruction shall be coordinated by the Contractor at least two (2) business days in advance with the affected private property owner(s) or tenant(s).
- 13) The Contractor shall maintain uninterrupted TTC bus routes including WheelTrans services at all times during construction. Under special circumstances, any proposed interruption of TTC bus routes shall be clearly identified in the Traffic Control Plan for review and approval by TTC and Transportation. In this regard, the Contractor shall be responsible for coordination with the TTC for temporary bus stop(s) locations and provide adequate temporary signage if requested by the TTC or the City. Coordination with TTC shall be initiated by the Contractor at minimum 48 hour or 10 business days in advance of a bus stop relocation or bus route diversion, respectively. TTC coordination forms can be found at the following links:

[Work Request Form](#)

[Stop Adjustment Request Form](#)

- 14) The Contractor shall be responsible to obtain approval from the Transportation Division and submit a Road Disruption Activity Reporting System (RoDARS) Notification Form prior to mobilizing to each Work location that is located within the Public Right of Way where a roadway will be restricted. A detailed overview of the approval and RoDARS submission process is provided in the attached "Road Disruption Approval Process Guide". The Contractor shall notify the Transportation Division immediately if the authorized access dates are changed or work is completed early.
- 15) The Contractor shall have no claim for delay or any cost or expense arising out of:
 - a) a rejection by the City of a request to close lanes other than as provided in this Special Provision,
 - b) cancellation of any scheduled closure of lanes due to inclement weather or unforeseen circumstances, or
 - c) parking infractions due to construction.
- 16) All Work that require open-cut excavation shall comply with requirements outlined under Special Specification GN125SS.

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- 17) Lane widths shall be restricted to a minimum of 3.3 metres for lanes with a bus route or 3.0 metres otherwise and maintained during construction with "narrow lane" warning signage posted. Lanes shall be shifted and repainted if required.
- 18) For all long duration works over 24 hours on arterial roads, the Contractor shall provide, install and maintain 1200 mm x 2400 mm traffic advisory signs as per OTM Book 7 and OPSS 2001. Signs and posts to be removed upon completion. Wording, locations, and design of the signage will be provided by the Contract Administrator. The Contractor shall give the Contract Administrator at least seven (7) Day notice before installing the signs. All work shall be deemed included in lump sum price for traffic control. No separate payment shall be made.
- 19) For Work on roadways immediately adjacent/flanking a School property, the Contractor must adhere to the "Guidelines for Construction Zones in School Areas", attached.
- 20) Should any unforeseen conditions arise, the Contract Administrator will have the right to direct the Contractor to re-schedule construction in a manner that minimizes the effects thereof.
- 21) Contract specific traffic constraints and/or exemptions, if applicable, are attached.
- 22) Should the Contractor receive an unfulfilled Paid Duty Officer (PDO) request, the work must be rescheduled for a later date. Alternatively, a revised Traffic Management Plan with Traffic Control Persons may provide traffic control services in lieu of a Paid Duty Officer, subject to approval by the Construction Liaison Officer (Toronto Police Services). Similarly, the contractor shall seek direction and an approval from Toronto Police Services for resuming work without a PDO in case of a last-minute cancellation by the same.

Basis of Payment

All costs associated with this Work shall be incidental to all related items of Work. No separate payment shall be made.

Attachments:

Attachment A - Road Disruption Approval Process Guide
Attachment B - Guidelines for Construction Zones in School Areas

Attachment A - Road Disruption Approval Process Guide

Road Disruption Activity Reporting System Approval (RoDARS) Process Guideline

This Guideline provides an overview of the Contractor's responsibility in obtaining approval from Transportation Services Division and submitting a RoDARS for each roadway occupation period and is intended to supplement the conditions of the Site Servicing Permit (formerly Temporary Street Occupancy Permit) and RoDARS Notification Form. All topics outlined below as well as further information can be found on the official RoDARS webpage: <https://www.toronto.ca/services-payments/streets-parking-transportation/road-restrictions-closures/road-disruption-activity-reporting-system-rodars/>.

Due to the RoDARS process may have routine updates, the Contractor is expected to review the official RoDARS webpage before submitting all applications to ensure the applications are properly completed, additional fees are not incurred and delays to the project are avoided.

1) Application pre-requisites:

- (a) Prior to any road occupation requests, the Contractor must hold a valid blanket Site Servicing Permit. The blanket permit is valid for all Work locations city-wide within the contract for the period of one (1) calendar year and must be renewed on an annual basis. The Permit and subsequent renewal applications will be completed and paid for by Toronto Water on behalf of the Contractor, as the Applicant. The application and review process may take up to ten (10) business days prior to a Permit being issued.
- (b) If the proposed work or event is within the Metrolinx Review Zone or Metrolinx Corridor Development area, then a Metrolinx Corridor Development Permit or No Conflict Response Letter must be obtained and attached to the RoDARS application being submitted.

2) Following receipt of the Site Servicing Permit (and Metrolinx Corridor Development Permit or No Conflict Response Letter, if applicable), the Contractor shall complete a RoDARS Notification Form Number 5 for each occupied roadway period. The form can be found under “Applications” and “City Initiated Projects” on the official webpage:

<https://www.toronto.ca/services-payments/streets-parking-transportation/road-restrictions-closures/road-disruption-activity-reporting-system-rodars/>

- (a) As part of the RoDARS application submission process, the Contractor shall submit a site-specific Traffic Management Plan, site plan (if necessary), any necessary permit for the associated work (road cut etc.), applicant and asset owner details, proposed timeline, traffic impact, and brief explanation of the project. Once submitted, the designated Work Zone Traffic Coordinator (WZTC) will review. The WZTC will communicate via the portal for Contractor's review and revision of the application if necessary. Once approved, a permit

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package will be issued through the portal.

- (b) Application fees now apply for all RoDARS submissions. Any base RoDARS fee will be covered by the City.
- (c) The Contractor is responsible for following the submission timelines outlined by Transportation Services Division. Should the Contractor fail to submit the RoDARS application within the required timeframe, the Contractor will be subjected to an expedited application review fee of \$375.76 + HST. Note that the expedited application review does not guarantee approval before the desired start date.
- (d) The Contractor shall periodically review the RoDARS application portal regarding application status and address any outstanding issues after review by the WZTC. The Contractor shall only mobilize to site once the application is shown as approved on the RoDARS portal.
- (e) The Contractor shall always keep an approved permit package on-site with the site's supervisor. Upon request by City staff or site inspector, the Contractor shall be able to provide an approved RoDARS form with QR code for verification of the approved RoDARS application. Failure to do so will result in a fine of \$306.04 + HST per incident.
- (f) If the work area or project timeline needs to be amended, the Contractor shall use the portal to revise and seek approval prior to implementing the revised work approach. If the project timeline concludes earlier than expected, the Contractor shall also use the portal to inform the WZTC that the work is complete and the road is no longer occupied.
- (g) Each Traffic Management Plan shall include, at minimum, the following information:
 - i. Contract Number
 - ii. Contractor Name
 - iii. Contractor Project Manager name and email
 - iv. City Project Manager name and email
 - v. Work location address
 - vi. Anticipated Work Duration (ex. 8 hours, 1-3 days)
 - vii. Site-specific plan/map illustrating work zone delineation, including staging areas, street names and addresses, and traffic control setup in accordance with OTM Book 7.
- (h) When occupying any portions of a City expressway (F.G.G., DVP or Allen Rd between Eglinton Ave W and Transit Rd), the Contractor shall submit a RoDARS form at least 10 business days prior to the start of occupying the road. Any conditions of acceptance provided by the WZTC, with the exception

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of public/councillor notification requirements, shall be adhered to unless directed otherwise by the City's Project Manager.

- (i) When further coordination with WZTC is required via email for locations located along City expressway, the Contractor shall use the portal and submit an email via the “Communication Log” within the application. The email shall adhere to the requirements listed below:
- i. Email content shall include the following:
 - Work location address
 - Work Description
 - Description of any key closures (full or partial lane/bicycle or sidewalk closed, etc.)
 - Impact to TTC bus/streetcar service
 - Anticipated Work Duration (ex. 8 hours, 1-3 days)
 - Proposed Start and End Date
 - ii. The email shall contain the following attachments:
 - Site Servicing Permit
 - Detailed Construction Drawings (where applicable)
 - Traffic Management Plan (site-specific)
 - Coordination Correspondence (if applicable). It is the Contractor's responsibility to verify upfront prior to submitting to the WZTC that there is no conflict with another third parties for the requested work dates by using the available online tools provided below. Should a potential conflict be identified, the Contractor shall coordinate an access window with the third party directly via email and attach the written coordination correspondence to their request.
 - <https://www.toronto.ca/services-payments/streets-parking-transportation/road-restrictions-closures/restrictions-map/>
 - <https://map.toronto.ca/toinview/>

Attachment B - Guidelines for Construction Zones in School Areas

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Attachment 1

Guidelines for Construction Zones in School Areas

In order to obtain a Road Occupancy Permit for the installation of a work zone in the areas of schools, the applicant must contact the Work Zone Coordinator and comply with the following conditions. :

1. Work hours are generally 9:00 a.m. to 3:00 p.m., as these hours would not disrupt pickup/drop-off times. Weekend work may also be considered. Following communication with the Work Zone Coordinator, the Road Disruption Activity Reporting System (RoDARS) notice must reflect these work hours.
2. The contractor shall confirm if a School Crossing Guard is located within the proposed work zone. The list of the School Crossing Guards can be found on the following link:

https://www.toronto.ca/wp-content/uploads/2019/08/8e48-TS_School-Crossing-Guard-Location-List.pdf
3. The contractor must fully complete and deliver a "Notice of Construction Work Zone", signed by both the Work Zone Coordinator and the contractor, to the school principal at least 48 hours prior to the start of construction.
4. Depending on the scope of work, additional pedestrian control measures may be required (e.g. barricades, sidewalk protection, etc.). Refer to Transportation Services', "Guidelines for Covered Walkways".
5. If there is a possibility that the work could interfere with any loading zones around the school, the Work Zone Coordinator, at his/her discretion, will require that the contractor arrange for a police officer to assist with vehicular and pedestrian traffic. No substitution for a police officer, such as traffic control persons, crossing guards or school safety patrollers, will be accepted.
6. If Capital Works projects are planned around schools, we ask that this work be done in July and August, wherever possible.
7. The need for heightened attention to school children must be highlighted in communication between the Work Zone Coordinator and the contractor.
8. Contractors must make all efforts possible to plan road closures and delivery routes away from the main school access routes.
9. Construction site protection standards must be followed.

Attachment: Notice of Construction Work Zone

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Transportation
Services

NOTICE OF CONSTRUCTION WORK ZONE

This form must be completed and signed by both the applicant and the City and a copy must be submitted to the Principal of any school the City deems affected by the work zone, at least 48 hours prior to the start of construction.

PROJECT DESCRIPTION AND LOCATION

Project:
Street No. :
Start Date:
Work Hours:

Date:
Street Name:
Duration:

APPLICANT(S) INFORMATION

Name (s):
Mailing Address:
City:
Telephone No.:

Province:
Fax No.:

Company:
Apt/Unit No.:
Postal Code:
Mobile No.:

CITY OF TORONTO CONTACT(S) INFORMATION

Name (s):
Office Address:
Email Address:

Position:
Department:
Telephone Number:

DRAWING OF AREA (Including Work Zone and School)

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- ☐ Qualified Traffic Control Person Required. Number Required _____
- ☐ Police Officer Required. Number Required _____
- ☐ School Crossing Guard Service Impacted. Affected Location(s) _____

X

Work Zone Co-ordinator

X

Applicant

SS-28 Test Pits to Expose and Verify Existing Utilities – GN122SP

Special Provision

September 2018

The Contractor shall arrange for non-mechanical type excavations, such as Hydrovac or hand digging to undertake the exposure of the existing utilities or structures within the roadway or boulevard and as required by utility companies. A plan of the proposed locations of all test pits is to be supplied by the Contractor to the Contract Administrator. Prior to proceeding with the proposed test pits approval from the Contract Administrator is required.

The test pits to expose and verify utilities shall include the following:

- all traffic control;
- excavation, sheathing, shoring, trench dewatering;
- the removal and disposal off site of asphalt pavement, concrete road base, brick gutter, concrete or asphalt curb, curb and gutter, monolithic curb and sidewalk, sidewalk, crosswalks, walkways, flag stone, boulevards, driveways and entrances (all thicknesses);
- the removal and disposal off site of asphalt pavement containing asbestos in accordance with Ontario Regulation 278/05, Type I;
- remove and salvage existing unit pavers and interlock stone;
- protecting and supporting of adjacent components that shall remain during and after the work including existing structures, sewers, laterals and watermains, services and utilities, light poles, hydro and traffic signal poles, hand wells, maintenance holes, catch basins, retaining walls, curbs, road base, driveways, sidewalks, crosswalks, walkways, valve boxes, signs and posts, fences, bollards, gardens, decorative stones, garden edging and vegetation, residential sprinkler systems and lighting systems. Any damage to existing components shall be properly repaired at no extra cost to the City;
- disposal of excavated material off site;
- the supply, placing and compacting of unshrinkable fill according to TS 13.10 under hard surfaces such as asphalt, concrete, interlock stone and Granular B Type II or select native material at other locations for backfilling;
- the installation and maintenance of permanent restoration for concrete and asphalt sidewalks, curb and roadway; and

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- permanent restoration of all existing landscaping, sodding, fences, river stone, gardens, decorative rocks, vegetation, interlock stone or lock stone, unit pavers, concrete and asphalt walkways or driveways (all types), sodding to pre-construction conditions or better.

A minimum of 300 mm of compacted Granular A (free of RAP; reclaimed asphalt pavement) material shall be placed around any water services before unshrinkable fill is placed. For gas mains, a minimum of 150 mm of sand padding must be placed over the pipe for protection. The gas main and valve assemblies must be sand padded before placement of the unshrinkable fill. The Contractor must ensure that placement of the unshrinkable fill does not displace the sand padding or directly contact the pipeline.

Test pits agreed to or requested by the Contract Administrator shall be at the Contract Price for test pits as specified in the Contract Documents. Test pits required by the Contractor to confirm locates are not payable.

Measurement for Payment

For measurement purposes, a count shall be made of the number of test pits completed.

Basis of Payment

Payment at the Contract Price shall be full compensation for all labour, Equipment and Material to do the Work.

Where the removal, disposal, backfill and restoration for the test pits are included in other tender items, the payment for the work shall be under the appropriate tender items.

SS-29 Construction Survey and Layout – GN126SP

Special Provision

October 2019

This special provision for survey and layout is supplemental Clause GS-3 Layout and Clause GS-23 Construction Survey and Layout of Section 2.1

The survey and layout shall be performed or supervised by a competent surveyor with a minimum of five years related field experience (the "Surveyor"). The Contractor shall ensure the Surveyor attends a pre-construction meeting and other meetings as requested by the Contract Administrator.

The Contractor shall provide a hard copy of the Contract Drawings to the Surveyor who will conduct or supervise the construction survey and layout.

The City will provide to the Surveyor a digital copy of the Contract Drawings in a read only format for the purpose of creating layout reports to enable field layout of the Project.

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Prior to the commencement of the survey and layout, the Contractor, the Surveyor and the City shall meet to review, establish and confirm the following:

1. staging of construction;
2. layout sequencing, optimum location and preservation of all reference points; and
3. sequencing of construction, that is to say the order of removal and replacement of surface and sub-surface services and infrastructures.

Use of Global Positioning System (GPS) technology for the performance of survey and layout is not permitted.

Layout survey must be integrated into the existing horizontal and vertical control network and must be geographically referenced to the Ontario Coordinate System (MTM NAD27/CGS 1928).

The control and sub-control points established during the pre-engineering phase of the Project shall be used, and all of which must be verified and preserved over the course of the Contract.

The horizontal and vertical stations along the alignment shall be established at an appropriate offset and frequency to enable the accurate construction of the proposed features. The grade layout shall be carried out at no further apart than 20 m and where grade/direction changes occur.

All match points shall be verified and align with the existing conditions.

The grades of the constructed features shall be confirmed before proceeding to the next stage of work.

Any conflict or inconsistencies found between the Contract Drawings and the existing physical conditions shall be reported to the Contract Administrator immediately, and the survey and layout work shall be suspended until further directed by the Contract Administrator.

All readings and measurements taken during the survey and layout, including the following, must be properly recorded—in digital format with supplemental hard copy where necessary—and maintained for verification and future reference:

1. all control and sub-control points;
2. all horizontal and vertical stations;
3. layout/offset points;
4. grade sheets and field notes; and

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5. information required for the preparation of as-built drawings ("Survey" column of *Field Services Manual Appendix E– As-built Features Requirements*, attached in Appendix 2.2-1).

6. A copy of the records produced shall be stored by the Contractor on site and be accessible to the Contract Administrator at any time.

The Contractor shall submit grade sheets to the Contract Administrator within 7 days of completion of layout.

Crosswalk Layout

Layout of the crosswalk boundary lines shall be at a minimum of three locations for each line. One location must be the centreline of the road and the other two shall be within 1.5 m of the new curb line, on each side, so that all three marks form a straight line that can be seen from both boulevards. Additional marks may be required for wider roads or obstructed views. The City will then use these intersection points to determine and mark out the area of removal of existing curb, curb and gutter, and sidewalk to facilitate the construction of new sidewalks with tactile walking surface indicator, where shown on the Contract Drawings. These marks shall be maintained until the new curb and sidewalk has been installed. The marks shall then be transferred to the curb prior to milling so that the alignment can be reinstated after the pavement has been placed.

Basis of Payment

All costs associated with this work shall be considered incidental to all related items of work. No separate payment shall be made.

SS-30 Pedestrian Safety Considerations – GN134SS

Special Provision

April 2023

Safety of pedestrians and cyclists, including those with disabilities, children and older adults shall be addressed in all construction work zone temporary conditions. Temporary traffic control plans shall include clearly signed accommodation for pedestrians and cyclists in each construction phase, including ensuring continuous access for people using wheeled mobility devices and cane-detectable tapping surfaces for people with visual impairments, unless pedestrians and cyclists are expressly prohibited, that is to say on a limited access highway or if the roadway is closed to all users.

Pedestrian Safety and Accessibility

Pedestrians shall be provided with a safe, convenient, accessible and clearly delineated travel path according to OTM Book 7 (April 2022) Section 3.7.1 *Pedestrian Safety Considerations*

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and the Toronto Accessibility Design Guidelines (TADG). This includes designating routes using positive protection as described in OTM Book 7 Section 4. It is not acceptable in any situation to designate pedestrian routes using mesh fencing, caution tape, cones or other materials that do not provide positive pedestrian protection.

Pedestrians shall be protected from all potential hazards associated with the work zone. These hazards and potential mitigations shall be according to OTM Book 7 (April 2022) Section 3.7.1.1 *Pedestrian Protection from the Work Zone* and Section 3.7.1.2 *Pedestrian Travel Path*.

Section 3.7.1 requires that the characteristics of the existing sidewalk(s) or footpaths(s) are replicated as closely as possible. Note that the TADG defines wider sidewalk width than OTM Book 7 and is the standard to be followed. A clear sidewalk width of minimum 2.1 m should be provided for all collector roads and major and minor arterial roads. On local roads, 2.1 m is the minimum, especially in locations where it may not be possible for two people using wheelchairs or mobility devices to pass one another; width can be reduced to 1.8 m on roads with low pedestrian volumes and low vehicles speeds and volumes. Additional pedestrian accommodations are required in certain cases, including well-travelled pedestrian routes, as noted in OTM Book 7. Sidewalks of less than 1.8 m but no less than 1.2 m may be permitted at the discretion of the Work Zone Coordinator on sidewalks with lower volumes of pedestrians where larger widths are infeasible.

According to TADG (Figure 4.1.2-B), where the head room clearance is less than 2.1 m over a portion of the pedestrian path, a rail or other barrier with a leading edge that is cane detectable must be provided around the object that is obstructing the head room clearance.

Where a pedestrian path of 1.2 m or greater cannot be maintained, the Contractor shall consider safe and clearly signed options directing pedestrians to use the sidewalk on the opposite side of the road. According to OTM Book 7 (April 2022), Section 3.7.1.2. *Pedestrian Travel Path*, directional signage must be located at the closest controlled crossing points from all directions of approach and access must be maintained to all businesses, services and residences.

Ramps

Any work taking place in or near an intersection shall ensure that at least one safe pedestrian crossing is provided in each direction, for example north-south; east-west. Contractor shall select one of the following two choices.

1. Curb Ramps

Curb ramps – hand formed – means a ramp that is built up to a curb. Curb ramps shall have the following requirements

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- Ramp maximum slope of 1:10 where elevation is 75 mm or greater and 200 mm or less
- Maximum cross slope of 1:50
- Maximum slope on flared side no more than 1:10
- Minimum clear width of 1200 mm, exclusive of any flared sides
- Constructed of asphalt

2. Boardwalk Ramp

Boardwalk ramps – commercially available device – shall be used where temporary access routes cross curbs at locations other than permanent sidewalk crossings. Boardwalk ramps shall have the following features

- Ramp slope of 1:12
- Guidance for canes and walkers and handrails
- Slip-resistant surface lumber and metal surfaces
- Water drainage
- Approach plates 1220 mm W x 457 mm L with slip-resistant surface
- Ramp rated for 360 kg.

Other AODA compliant devices may be used and include the following:

2. Boardwalk Platform

Boardwalk platform shall be used with the boardwalk ramp when the alternate pedestrian pathway is parallel to the curb or sidewalk. Boardwalk platform shall have the following features

- Ramp slope of 1:12
- Guidance for canes and walkers and handrails
- Slip-resistant surface lumber and metal surfaces
- Water drainage
- Approach plates 1220 mm W x 457 mm L with slip-resistant surface
- Ramp rated for 360 kg
- Platform is 1220 mm x 1525 mm and wheelchair friendly
- Screw jacks to support the platform and can accommodate curb heights from 50 mm to 350 mm.

3. Boardwalk Bridge

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Boardwalk bridge shall be used when temporary pathways over curbs in sidewalk work zones or obstructions such as an open trench that is perpendicular to the sidewalk and street.

Boardwalk bridge shall have the following features:

- Ramp slope of 1:12
- Guidance for canes and walkers and handrails
- Slip-resistant surface lumber and metal surfaces
- Water drainage
- Approach plates 1220 mm W x 457 mm L with slip-resistant surface
- Ramp rated for 360 kg
- Platform is 1220 mm x 1525 mm and wheelchair friendly
- Screw jacks to support the platform and can accommodate curb heights from 50 mm to 350 mm.

Cyclist Safety Considerations

Cyclist safety considerations shall be applied in all cases, including on roads that do not have a bike lane, cycle track or other bicycle facility. Safety measures shall be according to OTM Book 7 (April 2022) Section 3.7.2 *Cyclist Safety Considerations*.

Where construction work or traffic management arrangements adjacent to construction zones or both encroach on existing bicycle lanes, cycle tracks or multi-use paths, every effort must be given to provide a modified or temporary cycling facility consistent with existing infrastructure in terms of width, surface and physical separation, according to OTM Book 7 (April 2022) Section 3.7.2.2 *Modified/Temporary Cycling Facility*.

Some conditions, such as loose gravel, sand and mud, uneven road surface and debris will pose hazards to cyclists but not to motorists. Minimization, identification and mitigation of those hazards shall be according to OTM Book 7 (April 2022) Section 3.7.2.1 *Cyclist Protection in the Work Zone*.

If the roadway surface is unsuitable or unsafe for cyclists, an alternate cycling detour or route shall be provided using cycling infrastructure or more suitable roadways. Dismount signage is not to be used unless the entire roadway is closed to all traffic.

The crossing of streetcar tracks and left turns across traffic, especially at signalized intersections shall be minimized for cycling routes and detours.

Where the overhead clearance above a permanent or detoured cycling facility is reduced to less than 3 m, signage shall be provided to warn of low headroom or the cycling facility shall be routed around such obstacles.

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Work Zone Accommodation Prioritization

Space for pedestrians and accommodations for cyclists shall be maintained and considered a higher priority than motor vehicle accommodations. Reducing the number of motor vehicle lanes, narrowing motor vehicle lanes and temporarily removing motor vehicle parking should be considered before the reduction in pedestrian and cycling facilities. In rarer situations, where space is too constrained to provide alternative routes for both pedestrians and cyclists, temporary traffic control shall prioritize continuous, accessible and separated routes for pedestrians, with accommodations and signage to enhance safety of cyclists in shared lanes with motorists.

Basis of Payment

All costs associated with this Work shall be considered incidental to all related items of Work. No separate payment shall be made.

If the submission of Traffic Control Plan does not include pedestrian and cyclist safety considerations, the Traffic Control Plan will be rejected. The Traffic Control Plan shall be revised and resubmitted to the Contract Administrator and Work Zone Traffic Coordinator for review and approval before the start of the Work.

SS-31 Sewer and Sewer Service Installation – SW301SP

Special Provision

September 2018

Installation

The installation of sewer pipe, maintenance holes, catch basins, catch basin leads and sewer laterals shall include:

excavation, sheathing, shoring, and trench dewatering;

- a. the removal and disposal off site of asphalt pavement, concrete road base, brick gutter, concrete or asphalt curb, curb and gutter, monolithic curb and sidewalk, sidewalk, crosswalks, walkways, flag stone, boulevards, driveways and entrances (all thicknesses);
- b. remove and salvage existing unit pavers and interlock stone;
- c. protecting and supporting of adjacent components that shall remain during and after the work including, existing structures, sewers, laterals and watermain, services and utilities, light poles, hydro and traffic signal poles, hand wells, maintenance holes, catch basins, retaining walls, curbs, road base, driveways, sidewalks, crosswalks, walkways, valve boxes, signs and posts, fences, landscaping walls, bollards, gardens, decorative stones, garden edging and

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vegetation, residential sprinkler systems and lighting systems, any damage to existing components shall be repaired at no extra cost to the City;

- d. removal and disposal off-site of trench excavation including unshrinkable fill or concrete bedding according to TS 2.10 – Construction Specification for General Excavation;
- e. removal and disposal of existing sewer pipe, maintenance holes, catch basins and other appurtenances where indicated on the Contract Drawings or encountered during installation of new sewers or both;
- f. control of sewage flow during construction with bypass pumping shall be according to TS4.01 – Construction Specification for Sewer Bypass Flow Pumping;
- g. supply and installation of sewer pipe, maintenance holes, catch basins and catch basin leads complete with gaskets and fittings;
- h. supply and installation of sewer laterals by open cut or augering;
- i. supply and installation of all tees for services, couplings, adopters, Kor-N-Seals and all components and pieces of pipes in various locations;
- j. connect service connections to new sewers according to TS 410 – Amendment to OPSS 410 (September 2023) – Construction Specification for Pipe Sewer Installation in Open Cut;
- k. coring into existing maintenance holes, catchbasins and existing sewers shall be according to TS 410 – Amendment to OPSS 410 (September 2023) – Construction Specification for Pipe Sewer Installation in Open Cut;
- l. connections to maintenance holes, catch basins and sewers shall be by core drilling;
- m. connecting sewer laterals to existing sewers shall be with vertical bends;
- n. supply and placement of embedment or bedding material, cover material and backfill as specified in the Contract Documents (**Note:** Where Granular A material is specified in this special provision, it shall be from a source that is free of reclaimed asphalt pavement (RAP) and according to TS 1010 – Amendment to OPSS.MUNI 1010 – Material Specification for Aggregates – Base, Subbase, Select Subgrade and Backfill Material (April 2013));
- o. supply and placement of unshrinkable fill according to TS 13.10 – Construction Specification for Unshrinkable Fill;
- p. the installation and maintenance of permanent restoration for concrete and asphalt

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sidewalks, curb and roadway; and

- q. permanent restoration of all existing landscaping, sod, fences, river stone, gardens, decorative rocks, vegetation, interlock stone or lock stone, unit pavers, concrete and asphalt walkways or driveways (all types), to pre-construction conditions or better.

Flexible Pipe

Embedment material as it relates to flexible pipe from the bottom of the trench to the bottom of the backfill shall be Granular A Native or Granular A RCM according to TS 1010 – *Amendment to OPSS.MUNI 1010 – Material Specification for Aggregates - Base, Subbase, Select Subgrade, and Backfill Material (April 2013)*. The embedment material shall extend a minimum 200 mm below the pipe invert and extend 300 mm above the top of the pipe. The material shall be worked carefully under the sides of the pipe and compacted in 150 mm layers to 98% of maximum dry density with light equipment by hand so as not to damage the pipe or alter its installation in anyway. Recycled granular material shall not be used for embedment material.

The embedment and backfill shall be according to OPSD 802.010 Type 4 soil.

Rigid Pipe

Bedding material used to support rigid pipe shall be Granular A Native or Granular A RCM according to TS 1010 – *Amendment to OPSS.MUNI 1010 – Material Specification for Aggregates - Base, Subbase, Select Subgrade, and Backfill Material (April 2013)*. The bedding material shall be compacted by approved mechanical means in 150 mm layers to 98% of maximum dry density.

The pipe bedding, cover and backfill shall be according to OPSD 802.031 Class B bedding.

Cover Material

Cover material placed from the top of the bedding to the bottom of the backfill for rigid pipe shall be Granular A compacted by approved mechanical means in 150 mm layers to 95% of maximum dry density.

Backfill Material

Backfill material used above the embedment or cover material and below the lower of the subgrade or finished grade or the ground shall be unshrinkable fill when under concrete and asphalt sidewalks, curb and roadway. Backfill material in other areas other than roadway shall be Granular B Type II according to TS 1010 compacted by approved mechanical means in 150 mm layers to 98% of maximum dry density.

Trench Box

The use of trench boxes is permitted within the roadway on this Contract.

Sewer Service Installation and Connections

Prior to installing the sewer service lateral tees in the sewer mainline pipe, the Contractor shall confirm the location of all existing sewer service laterals.

During the installation of new sewer service connections, the Contractor shall ensure that the sewerage flow in the connection is free flowing, so that no sewage flows back into the houses. Should sewage backup into the houses, all damage caused shall be rectified at the Contractor's own expense. Prior to the installation of any sewer service connection, the Contractor shall ensure that the sewer service connection upstream of the new connection is clear of all debris and free flowing.

All existing dual connections (wye connections) shall be removed and two separate connections shall be installed in two separate trenches. New sanitary service connections to single family and semi-detached dwellings shall be individual service connections. No dual connections are permitted.

Minimum trench widths shall be as specified in the Contract Documents.

The Contractor shall install a cleanout for each service connection at the property line and extend the proposed sewer service lateral to meet the existing sewer lateral inside the private property. The Contractor shall co-ordinate with the affect property owners regarding this construction. The additional cost to plug and disconnect the existing lateral and install a bend where the proposed lateral meets the existing lateral shall be included in the Contract Price for the sewer service lateral installation. No separate payment shall be made.

The Contractor shall excavate the trench using non-mechanical methods where utility congestion is present. The cost for non-mechanical excavation shall be included in the cost for sewer service lateral connection installation. No separate payment shall be made.

Any existing water service requiring replacement shall be installed to maintain a minimum 2.5 m horizontal or 0.5 m vertical clearance from the sewer service lateral. No separate payment shall be made for adhering to this requirement.

Temporary Restoration

The Contractor shall complete temporary restoration of all roadways including curb, and curb and gutter upon completion of the sewer installation and backfill operation at end of each Working Day of sewer construction, even before work is started on installation of the sewer services.

For more requirements on temporary and permanent trench restoration see supplementary specification GN121SS.

Measurement for Payment

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Measurement for payment shall be according to TS 410.

Basis of Payment

Payment at the Contract Price shall be full compensation for all labour, Equipment and Material to do the Work. Where the removal, disposal, backfill and restoration for the test pits are included in other tender items, the payment for the work shall be under the appropriate tender items.

SS-32 Trench Stabilization – SW305SP

Special Provision

October 2016

Should the Contractor encounter an unstable trench condition, the Contractor must immediately stop their operation, notify the Contract Administrator of the condition, and only proceed when approved to do so by the Contract Administrator.

The work of trench stabilization shall include:

1. Additional sub-excavation;
2. Supply and placement of Terrafix 270R non-woven geotextile overlapped a minimum of 600 mm;
3. Granular A (free of RAP; reclaimed asphalt pavement) according to TS 1010 to a depth of 300 mm for the full width of the trench; and
4. Disposal of excess material.

Basis of Payment

All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

SS-33 Water Supply Interruptions – WM211SS

Special Provision

October 2021

There may be large residential, industrial, commercial or institutional properties within the construction limits, and any interruption in water, building drains or utility interruptions would cause major inconvenience to the operations of these facilities.

Watermain and water service connections shall be scheduled in such a sequence as to minimize water supply disruption to the affected properties. The Contractor shall be required to provide a work plan and schedule for all watermain and water service connections that require water shut-offs, paying particular attention to the scheduling for any large apartment buildings and commercial establishments.

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For all watermain and water service connections, the Contractor shall provide at least 72 hours advance notice of any building service interruptions and schedule such operations at a time, either during normal working hours, off normal working hours, night work on weekdays or on weekends that least inconveniences the building operations as some businesses may require water during day time hours.

The Contractor shall initiate meetings and coordinate with the affected property owners for setting up work plans and schedules including the preparation and the delivery of the required construction notice to the affected parties prior to the commencement of work.

Basis of Payment

All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

Appendix 2.2-1
Field Services Manual Appendix E– As-built
Features Requirements

Appendix E – As-built Features Requirements

This section is to be read in conjunction with the as-built drawing sections in Chapters 4 & 5 of the Field Services Manual

In the case of rehabilitating existing sewers, maintenance holes, appurtenances, and structures, capture the dimensions after rehabilitation.

Storm Drainage

Storm drainage features are intended to move rainwater and groundwater. As-built drawings will indicate all necessary information about the storm drainage system to evaluate whether the constructed features will be able to function as intended by the design. Information will be field verified or surveyed or both as outlined in the following table. The following table indicates what features are required and by whom should provide the information.

Table: Storm drainage features

Storm drainage features	Field verify (inspector)	Survey (engineering surveys unit or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer)
pipe	size, material, class of pipe, bedding type, drop pipe size	inverts, drop pipe inverts, location of end of stub or bulkhead	Redraw pipe on drawing if pipe has moved more than 300 mm horizontally or 150 mm or more vertically. Recalculate slope on record length and surveyed inverts. Indicate new information on plans such as slope, length, and diameter and so on.
catchbasins, maintenance holes, outfalls, inlet structures	size, type, cover type, safety platforms, flow regulator, overflow, weir, grate type	rim elevation location of feature, overflow weir invert inlet /outlet inverts	Redraw structure on drawings if it moved 300 mm or more. Indicate new information on plans such as size, type and so on.
culverts	size, material, shape, seepage collars	location of ends of culverts and inverts	Redraw culvert on drawings if has moved more than 300 mm. Recalculate slope based on recorded length and surveyed inverts. Indicate new information on plans such as slope, length, and diameter and so on.
subdrains	pipe locations, material, and size		Redraw subdrains on drawings if it moved 300 mm or more.
laterals	size, material, class, bedding		Indicate locations on plan.
other drainage features			Redraw feature on drawings if it moved 300 mm or more.

Stormwater Management

Stormwater management features are intended to capture and control the rate and quality of the rainwater runoff. As-built drawings will indicate all necessary information about the stormwater management system to evaluate whether the constructed features will be able to function as intended by the design. Information will be field verified or surveyed or both as outlined in the following table. The following table indicates what features are required and by whom should provide the information.

Table: Stormwater management features

Stormwater management features	Field Verify (inspector)	Survey (engineering surveys unit or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer)
storage tanks	material, type, size, control systems such as orifice size and weir dimensions	control structure location, control elevations such as orifice inverts, weir elevations bottom elevations and access locations	Redraw structure on drawing if moved more than 300 mm horizontally or 150 mm or more vertically. Indicate new information on plans such as size, type and so on.
ponds	size, shape	control structure location, control elevations such as orifice inverts and weir elevations overflow elevation topographic survey including bottom elevations final volumes	Redraw pond on drawing if moved more than 3.0 m or more. Recalculate volume Indicate new information on plans such as size, type, volume and so on. Permanent pool elevation, Pond max. water elevation, flow monitor MH and sampling MH locations
wetlands		boundary of created or modified wetlands	Redraw wetland on drawings if moved more than 3.0 m or more. Recalculate volume based on water surface shape and depth. Indicate new information on plans such as size, type, volume and so on.

Table: Stormwater management features (continued)

Stormwater management features	Field Verify (inspector)	Survey (engineering surveys unit or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer)
Grease interceptor oil/grit separation	size, material, vault, dimensions	horizontal location of four corners of vault where applicable	Indicate vault dimensions and size, inverts.
Infiltration systems, French drains	material, size, pipe such as size, type and diameter	inlet invert outlet invert	Redraw feature on drawings if it moved 300 mm or more.

Water Distribution Systems

Water system features are intended to move or hold potable water. As-built drawings will indicate all necessary information about the water system to evaluate whether the constructed features will be able to function as intended by the design. Information will be field verified or surveyed or both as outlined in the following table. The following table indicates what features are required and by whom should provide the information.

Table: Water distribution systems features

Water distribution features	Field verify (inspector)	Survey (engineering surveys unit or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer)
pipe and fittings	<p>manufacture—material, size, class, bedding, joint type, fittings</p> <p>measure distance between fittings—centre of tees, crosses, bends</p> <p>crossing invert—location and invert of any utility crossings</p> <p>depth of pipes during installation at every fitting and appurtenances, vertical bends</p> <p>location where insulation used</p>	<p>top of pipe, location of valve, horizontal location of bends, tees and crosses</p>	<p>Redraw pipe on drawing if pipe has moved more than 300 mm horizontally or 150 mm or more vertically.</p> <p>Recalculate slope on record length and surveyed inverts.</p> <p>Indicate new information on plans such as slope, length, and diameter and so on.</p>
valves in chamber such as gate valve, air valve, and butterfly valve			<p>Redraw structure on drawings if it moved 300 mm or more.</p> <p>Indicate new information on plans such as size, type and so on.</p>

Table: Water distribution systems features (continued)

Water distribution features	Field verify (inspector)	Survey (engineering surveys unit or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer)
hydrants	manufacturer hydrant bury depth	horizontal location of hydrant—centre of valve of stem top of hydrant elevation	Redraw hydrant on drawings if it moved 300 mm or more. Indicate new information on plans.
water service lines	material, size, type (fire / domestic), location	curb stop valve location	Redraw service line on drawings if it moved 300 mm or more. Indicate new information on plans, for example existing size, type, and so on.
mainline flow meters chambers	type, size, vault or box and size	horizontal location of centre of box, horizontal location of four corners of vault, location of lid, rim elevation	Redraw vault or box on drawings if it moved 300 mm or more. Indicate new information on plans, for example, size, type, and so on.
pressure reducing valve chamber	size, vault size, vault drain data	horizontal location of four corners of vault, location of lid, rim elevation	Redraw vault on drawings if it moved 300 mm or more. Indicate new information on plans, for example, size, type, and so on.
backflow devices at street line—exterior to building	device brand type, size, service line size, location of drain	horizontal location of four corners of vault or centre of box	Redraw vault or box on drawings if it moved 300 mm or more. Indicate new information on plans, for example, size, type, and so on.
backflow devices—interior to building	device brand, type, size, service line size, general location within building		

Sanitary or Combined Sewer

Sanitary or combined sewer system features are intended to transport sanitary waste into a collection system. As-built drawings will indicate all necessary information about the water system to evaluate whether the constructed features will be able to function as intended by the design. Information will be field verified or surveyed or both as outlined in the following table. The following table indicates what features are required and by whom should provide the information.

Table: Sanitary or combined sewer features

Sanitary combined sewer features	Field verify (inspector)	Survey (engineering surveys unit or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer)
maintenance holes	maintenance hole diameter, type, manufacturer, safety platform, flow restrictors, overflow	horizontal location of centre of manhole, horizontal location of centre of lid, rim elevations and all invert elevations, overflow weir invert	Note all changes and correct elevations.
pipe–gravity sewer main	size, material, class of pipe, bedding type, drop pipe size	length–horizontal length of pipe from centre of manhole to centre of manhole. Inverts, drop pipe inverts, locations of end of stub/bulkhead inverts, drop pipe inverts, location of end of stub or bulkhead	Redraw pipe on drawing if pipe has moved more than 300 mm horizontally or 150 mm or more vertically. Recalculate slope on record length and surveyed inverts. Indicate new information on plans such as slope, length, and diameter and so on.

Table: Sanitary or combined sewer features (continued)

Sanitary combined sewer features	Field verify (inspector)	Survey (engineering surveys unit or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer)
pipe and fittings—force main	<p>manufacturer—material, size, class, bedding, joint type, fittings</p> <p>measure distance between fittings—centre of tees, crosses, bends</p> <p>crossing invert—location and invert of any utility crossings</p> <p>depth of pipes during installations at every fitting and appurtenance.</p>	horizontal location of main:	<p>Redraw pipe on drawings if it moved 300 mm or more.</p> <p>Indicate new information on plans, for example, slope, length, size, and so on.</p>
laterals	material, size, locations, backflow valve		Indicate location on plans.
cleanouts	Size, material, location	rim elevations, centre of box, horizontal location of centre of box	Redraw structure on drawings if it moved 300 mm or more indicate new information on plans.
grease interceptor or oil grit separators	pipe materials, size, vault dimensions and size	horizontal location of four corners of the vault and inverts	Show vault dimensions and size. Show pipe elevations.

Transportation

Transportation system features are intended to transport vehicle and pedestrian traffic. As-built drawings will indicate all necessary information about the transportation system to evaluate whether the constructed features will be able to function as intended by the design. Information will be field verified or surveyed or both as outlined in the following table. The following table indicates what features are required and by whom should provide the information.

Included but not limited to all surface features impacted by the construction.

Table: Transportation features

Trans- portation features	Field verify (inspector)	Survey (engineering surveys or consultant's surveyors)	Indicate on as-built drawing (drawing preparer or engineer) Redraw on record drawing any and all transportation features listed if moved 300 mm or more.
pavement	material, depth, width, type – rigid or flexible	elevations	Note all changes and correct locations indicated locations on plans
curb and gutter	location of face curb		
driveways	location, width, type – commercial or domestic		
signage	location, size, type of sign		
sidewalk	location, type - light or heavy, material, width	elevations	
street lighting	height, wattage, material		
monument	location, materials		
conduit	location, depth, materials, size, owner		
handwell	location, conduit entrance, type – street lighting, traffic		

Other Utilities

As-built drawings will indicate all necessary information about other utilities to evaluate whether the constructed features will be able to function as intended by the design. Information will be field verified or surveyed or both as outlined in the following table. The following table indicates what features are required and by whom should provide the information.

Table: Other utilities features

Other utilities features	Field verify (inspector)	Survey (engineering surveys unit or consultant's surveyor)	Indicate on as-built drawing (drawing preparer or engineer)
other utilities	identify location and depth of all existing utilities encountered and new utilities constructed		Show utilities encountered and their depth.

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- Sub section 3.2 – Sewer CIPPSR
- Sub section 3.3 – Polyurethane Injection
- Sub section 3.4 – Construction Specification for Utility Cut and Restoration

Sub Section 3.1 – Sewer Bypass

City of Toronto standard specification TS 4.01 – Construction Specification for Sewer Bypass Flow Pumping (September 2019) shall apply for the Work undertaken under this Contract.

Additional requirements for Sewer By-pass are outlined in this section and shall take precedence over TS 4.01.

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TS 4.01.01 Scope

Delete in entirety and replace with the following:

This specification covers the requirements related to sewer bypass flow pumping required for the temporary conveyance of sanitary or combined sewage flows during rehabilitation of the sewer or when the sewer has been taken out of service.

The Work shall include the following: design of a fully operational temporary sewer bypass system; obtaining regulatory approvals for the bypass installation, commissioning, operation and maintenance, monitoring, decommissioning and removal; spill prevention and cleanup; protection of traffic, road, rail, and water body or crossings as required.

TS 4.01.04 Design and Submission Requirements

Delete in entirety and replace with the following:

The Contractor shall prepare and submit the following:

- (a) A Temporary Sewer Bypass Plan for each temporary bypass location demonstrating there is sufficient capacity to convey the flow rates as required by the Contract Documents at all times during the bypass operation; and
- (b) A Spill Response Plan acceptable to the Contract Administrator, relevant regulatory agencies, if applicable, and the City.
- (c) A Flood Control Plan when working within floodplains which provides protection for construction equipment, workers, shafts, exposed sewers, and which ensures no spills due to potential washout of the temporary bypasses during storm events. Such plan to be acceptable to the Contract Administrator, Toronto Region Conservation Authority (if applicable), any other regulatory agencies and the City.

The Contractor shall not procure or install any temporary bypass system, until the Temporary Sewer Bypass Plan, the Spill Response Plan and Flood Control Plan are accepted by the Contract Administrator and the City. The Contractor acknowledges that multiple iterations of submission and review may be required if the plan submitted by the contractor does not meet the requirements listed in this specification and the Contract Documents.

The Sewer Bypass Plan, Spill Response Plan and Flood Control Plan shall be submitted to the Contract Administrator not less than four weeks prior to the planned start of construction.

TS 4.01.04.01 Sewer Bypass Plan

Delete in entirety and replace with the following;

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Section 3 – Special Specifications

Sub Section 3.1 – Sewer Bypass

The Sewer Bypass Plan shall include all of the following:

- flow rates as determined by the Contractor;
- size of the sewer to be bypassed;
- bypass connection proposed;
- site and equipment monitoring procedure for duration of operation;
- staging areas for pumps, generators and refueling equipment;
- duration of each phase of the work;
- sewer plugging method, type and size of plugs;
- location of maintenance holes or access points for suction and discharge piping shown on a suitable site map;
- size, material, location and method of installation of suction and discharge piping;
- characteristics of bypass pumps and standby pumps including nominal size, capacity and power rating;
- calculations of static lift, discharge head, friction losses and flow velocity;
- system curves showing pump operating range;
- standby power generator(s) size and location, and refueling requirements or restrictions;
- method of protecting discharge maintenance holes or structures from erosion and damage;
- method of noise control for each pump and generator;
- details of bypass pipe crossings, for example driveways and sidewalks;
- engineering plans depicting the work; and
- all provisions and precautions that will be taken during the bypass operations to prevent sewage backups, overflows and spills.

The Contract Administrator will provide existing flow data if available.

Where the contractor has determined that the bypass requires capacities exceeding 4,540 L/min (1200 USGPM), the Sewer Bypass Plan shall be stamped by a Professional Engineer licensed to practice Engineering in the Province of Ontario.

Add the following:

TS 4.01.04.04 Flow Monitoring

Where the Contractor has identified existing flows in excess of 4,540 L/min the Contractor shall undertake flow monitoring for a minimum period of fourteen (14) Calendar Days prior to design and submission of the Sewer Bypass Plan. This period shall be extended as necessary to capture a minimum of ten (10) Calendar Days of normal dry weather flows.

Where existing sewer flows meet the criteria for flow monitoring, the Contractor shall notify the Contractor Administrator in writing and receive written authorization to proceed prior to undertaking the flow monitoring.

Flow monitoring shall consist of instrumentation capable of recording flows in the upstream sewer of sufficient accuracy to design the flow bypass system. The

equipment shall automatically record flows throughout the monitoring period in a datalogger that can be downloaded and analyzed.

The Contractor shall provide recorded flow data to the Contract Administrator along with the submitted flow control plan.

TS 4.01.06.01 Pumps

Add the following:

All bypass pumps and related equipment must be silenced equipment or contained within an acceptable sound reduction structure (below 75 dBA at 10 m).

TS 4.01.07 Construction

Add the following:

Where the Contractor is required to bury flow control conduits (such as for road crossings or other purposes) or to install MHs for flow control, the Contractor shall be responsible for locating and avoiding other utilities that may be in the path of the buried flow control conduit(s) or MH(s). Wherever any excavations are required for flow control installations, the Contractor shall locate all existing utilities prior to making any excavation. The Contractor shall be responsible for the protection, maintenance and repair of any damage related to any effected utilities.

Add the following:

TS 4.01.07.07 Cold Weather Operation

The Contractor shall prevent freezing of the flow control system including any bypass pumps and discharge conduits. The Contractor should consider the use of fully operational winterization system for any bypass works utilized from November to March, or at anytime during the year when the temperature is expected to be at or below zero Celsius. The Contractor is solely responsible for any Bypass Operations or equipment failure due to cold weather.

Discharge conduits shall be equipped with provisions for blowing out or otherwise draining all conduits in the event that a shutdown of the bypass is required during freezing weather conditions.

Add the following:

TS 4.01.07.08 Responsibility for Leaks, Spills and Backups

The Contractor shall be responsible for all leaks, spills and backups, should they occur and shall take immediate action to restore flow control/bypass integrity and cleanup of any leak, spill or backup. Any leaks or spills shall be immediately reported to the Contract Administrator.

TS 4.01.07.02 Bypass Equipment and Piping

Add the following:

For bypass of the local sewer main provide one (1) additional standby pump of capacity equal to or greater than the capacity of the duty pump. The standby pump to be connected to the bypass system shall be ready for immediate use in the event of a failure of the primary pump.

For bypass of the local sewer main provide one (1) additional bypass pipe of capacity equal to or exceeding the capacity of one (1) of the main bypass pipes, connected to the bypass system ready for immediate use in the event of damage or failure of one (1) of the main bypass pipes.

Water for leakage testing shall be discharged into the sanitary sewer. Test water must not be discharged into the water course.

TS 4.01.07.04 Plugging

Add the following:

Sewers to be bypassed shall be double plugged with the primary plug located in the outgoing pipe of the pumping chamber and a secondary plug in the incoming pipe of the upstream maintenance hole of the sewer section under bypass.

Sewer plugs shall be anchored to a fixed point aboveground at all times to prevent the plug being washed down the sewer.

TS 4.01.07.06 Removal, Cleanup and Restoration

Add the following:

The Contractor is responsible for removing or otherwise handling any sewage that must be removed or controlled during setup and removal of flow control system.

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Sub Section 3.2 – Sewer CIPPSR

City of Toronto standard specification TS 466 – Construction Specification for Cured-In-Place Pipe Spot Repairs in Sewers (September 2019) shall apply for the Work undertaken under this Contract.

Additional requirements outlined in this section shall take precedence over TS 466.

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TS 466.01 Scope

Delete in entirety and replace with the following:

This specification is for Cured-in-Place Pipe Spot Repair (CIPPSR) for sewers. A CIPPSR is a short length of CIPP installed in a mainline sewer at a location between adjacent maintenance holes. The sewers may include sanitary sewers, storm sewers and combined sewers. The purpose of the CIPPSR is to address a localized problem within the maintenance hole to maintenance hole section.

The work to be performed shall include all labour, equipment, tools, materials, engineering design, testing and supervision to structurally rehabilitate the sewers using Cured-in-Place Pipe (CIPPSR) method. Hot water or steam curing methods are acceptable. Ambient air curing is not acceptable. The following items are considered incidental to the spot repair work unless specified otherwise in the special provisions:

- Traffic control (OTM Book 7);
- Flow control and/or flow bypass;
- Notification to the public;
- Site investigations;
- Measuring the size and length of the sewer section to be lined to confirm spot repair design parameters;
- Spot repair design and determination of any changed design parameters for CIPPSR Liners;
- Preliminary CCTV inspection of the sewer section to confirm sewer current conditions, V1;
- Any flushing, reaming, cutting, grinding, debris removal, and SC cutting work that is necessary to remove debris, obstructions or foreign objects in order to fully prepare the sewer section for spot repair;
- Any grouting that is necessary to stop infiltrations in order to fully prepare the sewer section for spot repair;
- Any necessary void filling at all locations in order to complete the spot repair work;
- CCTV inspection of the sewer section after cleaning and preparation and before spot repair, V2;
- Spot repair installation and curing;
- Service connection record keeping and reinstatement of affected service connections (if any);
- CCTV inspection of completed sewer section rehabilitation, V3;
- Obtaining and testing samples of the completed CIPP by an accredited Laboratory;
- All associated work required for and incidental to the foregoing.

The work involved requires special equipment to be handled by persons experienced in all phases of the Work.

TS 466.04.02 Existing Video Inspection Records and Drawings

Add the following:

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Sub Section 3.2 – Sewer CIPPSR

CCTV inspections provided at time of bidding represent the current known internal condition of the sewers. The CCTV inspection record provided with the Tender Call can be several years old. The Contractor shall acknowledge that the current sewer condition may be further deteriorated compared to the provided video and shall therefore prepare the bid with such consideration. No additional payment shall be made on account of difficulties to complete the work because the Contractor failed to take into account the information supplied within the CCTV inspections during the bidding stage.

For circumstances where a background CCTV survey is not available or incomplete, the Contractor shall include the cost of one (1) full working day (10-hours each) spent on reaming, cutting, and flushing to properly clean and prepare the sewer for spot repair in accordance with this specification. Request for additional payment shall only be considered for time and effort spent over and above this amount for sewers where background CCTV surveys are not available or incomplete during the bid stage.

TS 466.04.04 Size and Length Requirements

Add the following:

The required spot repair length may exceed the listed maximum length in Table. Contractor shall review the required spot repair length as shown in the Pricing Form for each repair location.

TS 466.04.05 Sizing

Add the following:

For the purpose of the contract, a nominal sewer size shall include actual sizes within the range shown in table below:

Table - Nominal Sewer Size Tolerance

Nominal Sewer Size (mm)	Lower Limit of Actual ID (mm)	Upper Limit of Actual ID (mm)
200	> 178	≤ 216
225	> 216	≤ 241
250	> 241	≤ 279
300	> 279	≤ 343
375	> 343	≤ 419
450	> 419	≤ 483
500	> 483	≤ 521
525	> 521	≤ 572
600	> 572	≤ 648
675	> 648	≤ 724

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Nominal Sewer Size (mm)	Lower Limit of Actual ID (mm)	Upper Limit of Actual ID (mm)
750	> 724	≤ 800
825	> 800	≤ 876
900	>876	≤950

TS 466.04.06 Design Requirements

Delete the CIPPSR Liner Flexural Modulus used for design referenced in Table 1 and replace with the following:

Property	For all pipe sizes	Test Method
Flexural Modulus (Short Term Values)	2,400 MPa	ASTM D790 or ISO 11296

TS 466.05.02 Resin

Add the following:

Where specified in the contract, non styrene-based resin is required to be used for spot repair in storm sewers that have direct connection to surface drainage courses or facilities.

TS 466.07.03 CCTV Inspections and Reports

Delete in entirety and replace with the following:

CCTV inspections for V1, V2, and V3 assessments shall be in accordance with TS 409.

Inspection Data Submission

When a required CCTV inspection has been completed, it shall be submitted to the Contract Administrator using the centralized online data submission process as detailed in the contract. The submission for a sewer shall include the video file, inspection report in PDF format and NASSCO PACP access database.

Prior to the regular contract required submissions of CCTV inspections/reports, the Contractor shall submit a trial inspection video, inspection report in PDF format and access database using the centralized online data submission process to ensure the clear understanding of the submission process and for approval by the Contract Administrator.

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TS 466.07.04 Preliminary CCTV Inspection - V1

Delete the following:

NASSCO PACP defect coding is not required for the V1.

Replace with the following:

Sewer defect coding is required for V1. Coding for V1 inspection will not be evaluated or used as grounds for rejection.

TS 466.07.08 Sewer Cleaning and Preparation

Delete the following:

At the location of the CIPPSR, over the length of the final position of the CIPPSR and at least 1.5 m past each end of the CIPPSR, the sewer shall be cleaned to remove foreign materials prior to CIPPSR installation by means of a controlled hydro pressure sewer cleaner.

Replace with the following:

The Contractor shall clean the entire sewer section to remove foreign materials prior to CIPPSR by means of a controlled hydro pressure sewer cleaner. The sewer cleaning and debris removal effort should be performed sufficiently to prepare the entire sewer for CIPPSR installation and CIPPSR equipment access.

Delete the following:

The City believes that the sewer sections where CIPPSRs are to be installed are in an interior condition that will allow passage by the Contractor's equipment from a maintenance hole to the location(s) of the CIPPSR(s). However, there may be sewer sections with interior conditions that prevent reasonable passage of the Contractor's equipment to the CIPPSR location(s). Where this is the case, the Contractor shall proceed as follows.

- 1) Where initial V1 CCTV inspection reveals that the sewer section condition will not allow reasonable passage of the Contractor's equipment to the CIPPSR location(s), the Contractor shall advise the Contract Administrator of this situation and record the V1 CCTV inspection of the sewer section as support for this conclusion.
 - 2) The Contract Administrator could request the Contractor to provide an estimated time and cost to adequately clean the sewer section to allow passage of the Contractor's CIPPSR equipment. The Contractor shall provide a cost estimate based on applicable Contract Price. With the approval of the Contract Administrator, the Contractor shall clean the sewer section and shall be paid for this Work under applicable Contract Price. After cleaning of the sewer section, the Contractor shall proceed with the CIPPSR installation(s).
 - 3) Alternately, the City may cancel the CIPPSR installations in the sewer section,
-

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in which case, the Contractor will be paid for the V1 CCTV inspection according to the tender item for V1 inspection.

Add the following:

The Contractor shall seal any active infiltration at the spot repair location that may cause a defective installation.

All sewer cleaning and preparation effort, including any flushing, debris removal, infiltration sealing and protruding lateral trimming is considered incidental to the lining work.

The contractor shall complete all necessary cleaning and preparation work (including any flushing, debris removal, infiltration sealing) prior to V2 CCTV inspection.

TS 466.07.09 Sewer Reaming, Cutting and Grinding

Delete the following:

At the location of the CIPPSR plus 1.5 m past each end of the CIPPSR the sewer section shall be reamed to remove fixed debris such as deposits and protrusions.

Replace with the following:

The Contractor shall perform reaming, cutting, and grinding the entire sewer section to remove any fixed debris such as deposits and protrusions as necessary to enable CIPPSR installation. The sewer reaming, cutting and grinding effort should be performed sufficiently to prepare the entire sewer for CIPPSR installation and CIPPSR equipment access.

Add the following:

All sewer reaming, cutting and grinding effort is considered incidental to the spot repair work.

The contractor shall complete all necessary reaming, cutting and grinding work prior to V2 CCTV inspection.

TS 466.07.12 Filling of Voids

Add the following:

A void is a volume of space starting at the outside wall surface of the existing sewer where there is an absence of soil or ground material. Depending on its size and geometry, the void may represent a structural weakness in the pipe/soil system. A void will often be evidenced by missing sewer pipe wall that has allowed the ground material to escape into the sewer, exacerbated by ground water infiltration. Where a void is deemed to create a significant structural weakness in the lined pipe, the void requires filling to re-establish the soil/ground support around the sewer.

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All voids captured in the provided CCTV inspections are considered voids identified for filling in the contract. The contractor shall make provision to fill identified voids as needed in order to complete the spot repair work unless the size of the void is significant enough that requires open-cut repair as agreed upon by the Contract Administrator.

Void filling in small diameter (non entry) sewers may be undertaken using remote technology such as pressure grouting. Void filling in large diameter (entry) sewers maybe undertaken using confined space entry procedure using approved method and material as approved by the Contract Administrator.

The contractor shall complete all necessary void filling work prior to V2 CCTV inspection.

TS 466.07.14 Reinstatement of Sewer Service Connections

Add the following:

The Contractors should not reinstate any clearly capped or abandoned service connections during reinstatement of service connections.

TS 466.07.19 Inspection of Completed Rehabilitation – V3

Add the following:

Prior to recording V3, the Contractor shall employ necessary cleaning and flushing to ensure the pipe is free of milling dust.

Delete the following:

NASSCO PACP defect coding is not required for the V3.

TS 466.08.02.03 Remedial Action

Add the following:

Where deficiencies are identified, the Contractor shall perform the accepted remedial action without unreasonable delay and at no extra cost to City.

For urgent deficiencies that will severely impact sewer or service connection's normal operation and could lead to sewer back-ups and overflows (example: unopened service connection, large wrinkles/fins in invert or lifts/bulges significantly reducing sewer's cross-sectional area by more than 20%), or presents imminent health and safety risk to the general public, such deficiencies must be rectified immediately by the Contractor without waiting for the acceptance on remedial method from the Contract Administrator. Payment will not be processed until such urgent deficiencies are addressed and accepted by the Contract Administrator.

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TS 466.10 Basis of Payment

Delete in its entirety and replace with the following:

Deductions for deficiencies apply. Refer to contract specific special provisions for basis of payment.

Sub Section 3.3 – Polyurethane Injection

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Sub Section 3.3 – Polyurethane Injection

3.3.01. SCOPE

General

1. This specification is for undertaking polyurethane joint and crack injection to seal infiltration in existing sewers and maintenance holes (MH). The sewers may include sanitary sewers, storm sewers and combined sewers.
2. The Work shall include performing the following operations: clean and prepare the sewers prior to undertaking polyurethane injection work, set up sufficient flow control to permit the work, locate, prepare, acid flush, test for watertightness, and inject with polyurethane injection resin and accelerator mixture non-watertight cracks, joints and pipe penetrations designated for repair, remove packers and ports and patch remaining holes, return of the sewer to regular service plus any other work required for and incidental to the foregoing.
3. The work involved requires special equipment to be handled by persons experienced in all phases of the Work.

Terminology and Abbreviations

4. A brief listing of terminology and abbreviation used in this document is provided below. Where terms or abbreviations are not on this list or may require further clarification, questions should be addressed to the Contract Administrator (CA).

Table 1 Terminology and Abbreviations

ANSI	American National Standards Institute
CA	Contract Administrator
NSF	National Sanitation Foundation
MH	Maintenance Hole

3.3.02. MATERIALS

Products

1. Acid Flushing Solution
 - Acid flushing solution shall be pre-mixed solution of food grade phosphoric acid, diluted to a 5%±0.5% solution, by volume, with potable water prior to delivery to site. Diluting concentrated (>5%) phosphoric acid solution on site is prohibited.
2. Polyurethane Injection Resin
 - Polyurethane injection resin shall be single component

Diphenylmethane Diisocyanate (MDI) based, water-activated, hydrophobic type Specton Flex F1000 Polyurethane Resin and Accelerator by Specton Construction Chemicals Ltd., Spetec LF/PUR F1000 Flexible Resin and Accelerator by Tecinvest NV, Belgium, or Hydro Active Flex LV and Hydro Active Flex Cat by DeNeef Construction Chemicals (U.S.) Inc. or approved equal.

3. Surface Seal

- Surface seal material shall be polymer modified mortar SikaTop 122 PLUS or SikaTop 123 PLUS by Sika Canada Inc., epoxy based Sikadur 31 Hi-Mod Gel or Sikadur Injection Gel by Sika Canada Inc., cementitious based Thoro Waterplug by Harris Specialty Chemicals Canada Inc., or approved equal.

4. Injection Packers and Ports

- Injection packers and ports shall be as recommended by the manufacturer of the polyurethane injection resin. Injection packers and ports shall be supplied with a removable zerk coupling, or other one- way ball or check valve.

5. Injection Pump Cleaner

- Injection pump cleaner shall be as recommended by the manufacturer of the polyurethane injection resin. Injection pump cleaner shall not contain acetone, toluene, MEK, or other flammable petroleum solvents.

Equipment

6. Polyurethane Injection Equipment

- Polyurethane injection resin shall be installed using a positive displacement type pump. The polyurethane injection equipment shall be equipped with pail heater(s) suitable for plastic pails capable of maintaining the polyurethane resin and accelerator mixture between 10° and 70° Celsius. A thermometer shall be provided with each pump for monitoring the temperature of the polyurethane resin. All polyurethane injection equipment shall be removed from the sewer and maintenance hole upon completion of the work.

3.3.03. SUBMITTALS

1. Product Literature

- The Contractor shall submit product literature consisting of general

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product brochure, technical data sheet(s), Material Safety Data Sheet(s), mixing instructions, and installation instructions for the

patching repair material to the CA prior in accordance with the tender documents.

3.3.04. METHODS

General

1. The Contractor shall confirm the extents of the injection work with the CA following the V1 inspection, including joints and longitudinal requiring repair prior to completing the polyurethane injection work.
2. The Contractor shall clean and prepare the sewer as specified prior to undertaking the polyurethane injection work.
3. The Contractor shall setup sufficient flow control to permit the work to be undertaken.
4. The Contractor shall locate, prepare, acid flush, test for watertightness, and inject with polyurethane injection resin and accelerator mixture non-watertight cracks, joints and pipe penetrations designated for repair.
5. The Contractor shall carry out the injection work in a manner consistent with achieving the objective of a watertight repair.
6. Once the drill holes for watertightness testing and injection have been installed along cracks, joints and pipe penetrations, the interior surface shall be kept clean and free of dirt and standing water until the injection work has been completed.
7. All excess unused polyurethane materials shall be removed from the work area.

Contractor's Flow Control Plan

8. The Contractor shall provide the CA with a Flow Control Plan in accordance with TS 4.01 and Section 3.1.

Flow Control Included - Limit Provision

9. Standard flow control shall be included as part of the lining items up to and including a capacity of 4,540 L/min (1200 USGPM). Standard flow control and pumping/by-passing should include all necessary piping/fitting, fuel, traffic protection, road crossing devices and monitoring. The Contractor shall be responsible for determining the bypass capacity.

10. Where the Contractor has determined that the bypass requires capacities exceeding 4,540 L/min (1200 USGPM), the Contractor shall advise the CA of the requirement and submit a flow bypass plan in accordance with TS 4.01, Section 3.1, and as modified herein.

Drilling Holes for Watertightness Testing and Injection

11. Drill holes shall be installed along cracks, joints and pipe penetrations designated for repair to test the watertightness of the cracks and joints as required to meet the performance requirements for injection where the cracks and joints are found to be non-watertight.
12. The requirements for installing drill holes for watertightness testing and injection provided below represent acceptable minimum standards of practice.
13. The drill holes for watertightness testing and injection shall be drilled at an angle between forty-five (45) degrees and thirty (30) degrees from perpendicular to the surface of the concrete and perpendicular to the alignment of the cracks or joints.
14. For drill holes for pipe penetrations, drill holes shall not penetrate beyond the pipeline concrete coating. Drill holes shall be drilled around the perimeter of the pipe, a minimum of 100 millimeters from the outside diameter of the pipe.
15. The drill holes shall intersect the cracks at the midpoint of the concrete section and intersect the joints at the midpoint between the waterstop and interior concrete surface, except as noted otherwise.
16. The drill holes shall be located on alternate sides of the crack or joint where possible, unless the orientation of the crack or joint is known or has been verified by non-destructive testing techniques or core drilling.
17. The spacing of the drill holes shall not exceed 300 millimetres, except as noted otherwise. The location and angle of the drill holes shall be adjusted to suit the orientation of the crack or joint and at locations where a crack intersects with the crack or joint.
18. Measures shall be taken to assist in locating the drill holes at the required distance from the crack or joint and at the required angle, such as using a template, during the Work especially at the commencement of drilling holes for watertightness testing and injection and at the beginning of each subsequent shift.
19. Measures shall be taken to prevent drilling the holes for watertightness testing and injection too shallow, too deep, and/or damaging the existing

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waterstop in the joints.

20. Dust and debris in the drill holes and on the interior surface of the arch and invert slab resulting from the drilling operation, shall be removed by flushing with water prior to installing the injection packers or ports.
21. Install injection packers or ports in the drill holes in accordance with the manufacturer's printed instructions with the zerk coupling, or other one-way ball or check valve, to permit testing for watertightness and acid flushing of the cracks and joints.

Water tightness Testing and Acid Flushing of Cracks and Joints

22. Test the water tightness and flush the cracks and joints with the acid flushing solution at a pressure of 7 MPa (1000 psi), or the resin injection pressure, whichever is greater. The acid flushing solution shall be applied for a sufficient duration to test the water tightness of the cracks and joints. Where the cracks and joints are found to be non-watertight, the acid flushing solution shall be permitted to penetrate the full depth and length of the cracks or joints.
23. Following the acid flushing, the cracks and joints shall be flushed with copious quantities of potable water at a pressure of 7 MPa (1000 psi), or the resin injection pressure, whichever is greater, until there is no more evidence of acid flushing solution visible in the flush water.
24. At locations where the cracks or joints are determined to be watertight, remove the injection packers or ports, and repair the drill holes with patching repair material.
25. Where the cracks or joints are determined to be non-watertight, carry out injection work to satisfy the performance requirements of the Specification.
26. Drill holes located along cracks or joints that are found to be watertight shall be clearly identified by means of a chalk mark alongside the drill hole.
27. The worker who is carrying out the acid flushing operations shall be clearly identified by wearing a reflective safety vest and signs indicating "Acid Flushing".
28. The portion of the work area where acid flushing is being carried out shall be clearly identified by signs and isolated by placing orange pylons, or other temporary barriers, and signs indicating "Acid Flushing" at either end of the siphon.

Application of Surface Seal along Cracks and Joints

29. Apply a surface seal along the length of the cracks and joints found to be non-watertight in order to contain the polyurethane injection resin and accelerator mixture during injection.
30. A smooth trowel or sponge float finish shall be provided on the surface seal to provide a uniform surface free of projections. At locations where the required finish is not provided, re-finish by grinding or other suitable means.
31. Cure the surface seal in accordance with manufacturer's printed instructions.

Polyurethane Injection Resin and Accelerator Mixture

32. Add accelerator to the polyurethane injection resin at the required dosage to produce a cured polyurethane material meeting the performance requirements, and mix thoroughly in accordance with the manufacturer's printed instructions until a homogeneous mixture is obtained.
33. Heat the polyurethane injection resin and accelerator materials prior to and during the mixing and injection to a temperature between 30° and 55° Celsius. Injection shall not take place when the polyurethane injection resin and accelerator mixture is less than 30° Celsius or more than 55° Celsius.

Injection of Cracks and Joints

34. Inject the polyurethane injection resin and accelerator mixture with water, or in a neat form into cracks and joints in a sequential manner, and re- inject as required, to meet the performance requirements.
35. The procedure suggested below for injection of invert cracks has been found to be effective in meeting the performance requirements during previous repairs, as it permits excess water, dirt, and other residue present in the crack to be vented out through adjacent injection packers or ports. Prior to commencing the injection work along an invert crack, remove the zerk couplings from the injection packers or ports except for the two packers located where the injection work will commence. Commence injection work in the first two packers. Once clean polyurethane resin is vented from the third injection packer, cease injection at the first packer, and install the zerk coupling and commence injection at the third packer. Repeat the process for the fourth and subsequent packers until the full length of the invert crack has been injected.

Repair of Isolated Locations of Infiltration

36. Drill holes for injection, acid flush, apply surface seal, and carry out injection work as detailed herein above.
37. At locations where the infiltration is significant, apply cementitious based surface seal in accordance with manufacturer's printed instructions to minimize the infiltration prior to commencing the injection work.
38. Carry out multiple injections as required to meet the performance requirement.

Removal of Packers and Ports and Patching

39. Following the completion of the injection work, the Contractor shall remove the remaining injection packers and ports, and patch the remaining holes with the patching

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Sub Section 3.4 – Construction Specification for Utility Cut and Restoration

Revisions outlined below shall take precedence over TS 4.60.

TS 4.60.07 Construction

Replace Table 1: Repair responsibility according to surface types in its entirety with the following:

Table 1: Repair responsibility according to surface types

Surface type	Material	Repair responsibility	
		Temporary repair	Permanent repair
road pavement	asphalt	Applicant	City
	concrete	Applicant	City
sidewalk	asphalt	- - -	Applicant
	concrete	Applicant	City
curb	asphalt	- - -	Applicant
	concrete	Applicant	City
boulevard	asphalt	- - -	Applicant
	concrete	Applicant	City
	interlocking bricks/flagstone on a granular base	- - -	Applicant
	interlocking bricks/flagstone on a concrete base	Applicant	City
	sod	- - -	Applicant
	gravel or soil	- - -	Applicant
driveway	asphalt with abutting concrete repair	Applicant	City
	asphalt with no abutting concrete repair	Applicant	Applicant
	concrete	Applicant	City

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interlocking bricks/flagstone on a granular base	- - -	Applicant
interlocking bricks/flagstone on a concrete base	Applicant	City

Notes: Any repairs on private property shall be the responsibility of the Applicant.

All work performed by the Applicant or its contractor shall be carried out according to City standards and specifications.

Restoration of areas with decorative or specialized surfaces, landscaping, and subsurface treatments such as patterned / impressed concrete, snow melting systems, sprinkler systems, granite pavers and so forth shall be the responsibility of the Applicant.

Where interlocking bricks/flagstone on a granular base are adjacent to sidewalk that must be replaced as a result of the Applicant's work, the City will remove and relay the interlocking bricks/flagstone at the Applicant's expense as part of the restoration work.

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Part A General

4.1-1 Item A.01 - Mobilization and Notice Distribution for Entire Contract Duration

Scope

- .1 The Contractor shall mobilize at all repair locations as required to complete the Work in accordance with the Technical Specifications and demobilize from the sites once the Work is complete. Based on the Contractor's means and methods, multiple mobilizations may be required at each repair location.
- .2 The contractor shall provide notification to affected parties in accordance with the Notice Delivery Protocol included in Appendix 4.1-1 Notice Delivery Protocol and as modified by the contract documents.
- .3 Affected Parties shall include all residents, businesses and any other occupants in the work zone and the surrounding 150 m.
- .4 Notices shall be of form and content approved by the City or the Contract Administrator and shall be hand-delivered by the Contractor or by other means accepted by the City or Contract Administrator.
- .5 Notification shall be repeated by the Contractor if commencement of any work is expected to change materially from the date(s) indicated in any preceding notice at no additional cost to the City.
- .6 The site inspector will perform regular checks on the Contractor's timely delivery of notices according to Appendix 4.1-1's protocols. No cleaning work shall commence until all affected properties are duly notified.
- .7 The Contractor shall prepare and maintain a Notices log, to facilitate tracking and monitoring of the related work and submitted to the Contract Administrator for review on a monthly basis along with the monthly invoice.
- .8 The Contractor shall prepare and submit an updated project schedule indicating upcoming project work to facilitate tracking and monitoring of the related work and submitted to the Contract Administrator for review on a monthly basis along with the monthly invoice.

Measurement and Payment

- .1 Payment shall be one lump sum price for all Project Sites where Work is identified as being required.
- .2 The total value for this bid item shall not exceed **5%** of the overall tender value.
- .3 Payment shall be full compensation for all labour, equipment and material for all mobilizations and demobilizations and notice delivery to complete all specified work items.

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- .4 Payment of the lump sum price shall be pro-rated across the contract duration per the Contractor's baseline schedule to completion. No separate payment shall be made for additional mobilization costs associated with any delay.

4.1-2 Item A.02 – Special Site Specific Liner Design (SSLD)

Scope

- .1 The Contractor shall prepare and submit engineered designs for the site-specific parameters clearly showing the design thickness and proposed liner thickness to be installed for all CIPPSR where actual site conditions exceed the provided design parameters. The actual site conditions to be checked shall include deepest depth to invert, ovality of the existing sewer and live load conditions.
- .2 The designs for CIPPSR spot repairs shall be prepared in accordance with the requirements of TS 466 and Section 3.2 and as modified by these contract documents.
- .3 Each engineered design shall be prepared, reviewed, and bear the seal and signature, of an Engineer authorized to perform such work by Professional Engineers Ontario (PEO).
- .4 Engineered designs shall be submitted to the Contract Administrator for acceptance. No CIPP liner, CIPPSR shall be installed without an accepted engineered design.

Measurement and Payment

- .1 Measurement for payment shall be for each design.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .3 Non-compliant submissions returned for correction shall be corrected and resubmitted at no expense to the City.

4.1-3 Item A.03 - Supply, Install and Maintain “Capital Improvement Project” Construction Signs

Scope

- .1 The Contractor shall supply, install and maintain construction signs in accordance with GN101SP and detail given in Appendix 4.1-2.

Measurement and Payment

- .1 Measurement for payment shall be per each sign.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.

Part B Standalone Repairs & Maintenance Work

Part B.1 Standalone Maintenance Work (Flushing and Debris Removal)

4.1-4 Items (B.01.1 to B.01.2) – Flushing and Debris Removal (200mm – 600mm DIA, 675mm – 825mm DIA)

Scope

- .1 For all sewers identified under this item, the Contractor shall complete a preliminary CCTV inspection (V1) of the full length, from maintenance hole to maintenance hole. Then the sewer section shall be flushed from the maintenance hole to maintenance hole to remove and dispose all foreign materials by means of a controlled hydro pressure sewer cleaner. Upon completion of the cleaning, a CCTV inspection (V2) of the full length of the sewer section shall be performed. Work shall be done in accordance with TS 411 and as modified by these contract documents.
- .2 All debris resulting from the work shall be removed at the nearest downstream maintenance hole. Back flushing maybe required if the downstream maintenance hole cannot be accessed. Passing material from maintenance hole section to maintenance hole section shall not be permitted. The Contractor shall employ a screen and a vacuum unit in the nearest downstream maintenance hole in order to prevent any debris or other material from migrating downstream. Such debris or material from the maintenance hole shall be removed and properly disposed.
- .3 The Contractor shall sufficiently consider all required efforts to access the sewer, flush, and remove all debris to the approval of the Contract Administrator. The Contractor may consider trailing the hose or make use of easement machines to facilitate the cleaning activities where vehicle access is limited. The Contractor shall also refer to any additional considerations as listed in the List of Repairs.
- .4 For circumstances where a background CCTV survey is not available or is less than 80% complete, the Contractor shall include in its base scope pricing to provide up to 1 full shift (up to 10 hours) of sewer flushing effort for each sewer segment. Any additional sewer cleaning effort required beyond the 10 hour shift base scope requirement will be paid using separate provisional allowance item.

Measurement and Payment

- .1 Measurement for payment for the specified mainline sewer nominal diameter shall be per meter for the actual length of pipeline inspected as determined from the chainage indication on the V2 post-cleaning CCTV video.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.

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- .3 Payment will be made according to the following schedule:
- 70% of payment to be made upon completion, submission and acceptance of V1 and performance of the cleaning activity in field;
 - 30% of payment to be made upon completion and full acceptance of V2.
- .4 If a deficiency in the cleaning is identified after completion of the V2, the V2 shall be redone by the Contractor at no cost to the City after the deficiency has been remedied.

4.1-5 Items (B.01.3 to B.01.11) – Special Pipe Size and Shape Flushing and Debris Removal including Disposal

Scope

- .1 For the following pipes, the Contractor shall note the special pipe size, shape, and the debris amount and sufficiently consider the required effort to access the sewer and perform the required flushing and debris removal work.
- Item B.01.3 - SL4177937 (825mm x 600mm egg-shaped brick combined sewer)
 - Item B.01.4 – SL1478220 (900mm x 600mm egg-shaped brick combined sewer)
 - Item B.01.5 - SL1454513 (900mm x 600mm egg-shaped brick combined sewer)
 - Item B.01.6 – SL1454515 (900mm x 600mm egg-shaped brick combined sewer)
 - Item B.01.7 – SL1421929 (1050mm circular concrete combined sewer)
 - Item B.01.8 – SL2012729 (1200mm square concrete storm sewer)
 - Item B.01.9 – SL2012748 (1200mm circular concrete storm sewer)
 - Item B.01.10 – SL4006710 (1200mm circular concrete storm sewer)
 - Item B.01.11 – SL3008623 (1500mm circular concrete storm sewer)
- .2 The Contractor shall fully review available inspection videos and perform needed site visits during bid preparation stage to confirm the current condition and fully consider all required effort to perform the work and include all costs in the respective item. Given the size and shape of the sewers, the Contractor may consider necessary means other than traditional flushing to access the sewer in order to complete cleaning and debris removal based on its own preferred means and methods. The Contractor may consider trailing the hose or make use of easement machines to facilitate the cleaning activities where vehicle access is limited. The Contractor shall also refer to any additional considerations as listed in the List of Repairs.
- .3 The Contractor shall complete a preliminary CCTV inspection (V1) of the full length, from maintenance hole to maintenance hole. Then the sewer section shall be cleaned (flushing or with man-entry assistance if needed) to remove all deposits and blockages using an accepted method. All debris shall be removed and disposed. Upon completion of the cleaning, a CCTV inspection

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(V2) of the full length of the sewer section shall be performed. Work shall be done in accordance with TS 411 and as modified by these contract documents.

- .4 All debris resulting from work shall be removed at the nearest maintenance hole using feasible means. Back flushing maybe required if the downstream maintenance hole cannot be accessed. Passing material from maintenance hole section shall not be permitted. The Contractor shall employ a screen and a vacuum unit in the nearest downstream maintenance hole in order to prevent any debris or other material from migrating downstream. Such debris or material from the maintenance hole shall be removed and property disposed.
- .5 The Contractor shall sufficiently consider all required efforts to access the sewer, flush, and remove all debris to the approval of the Contract Administrator. No separate payment shall be made for any other additional efforts to achieve full cleaning of these sewer segments.

Measurement and Payment

- .1 Measurement for payment for the specified mainline sewer nominal diameter shall be per meter for the actual length of pipeline inspected as determined from the chainage indication on the V2 post-cleaning CCTV video.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .3 Payment will be made according to the following schedule:
- 70% of payment to be made upon completion, submission and acceptance of V1 and performance of the cleaning activity in field;
 - 30% of payment to be made upon completion and full acceptance of V2.
- .4 If a deficiency in the cleaning is identified after completion of the V2, the V2 shall be redone by the Contractor at no cost to the City after the deficiency has been remedied.

Part B.2 Standalone Maintenance Work (Mechanical Cleaning)

4.1-6 Items (B.02.1 to B.02.2) – Mechanical Cleaning and Debris Removal (200mm – 600mm DIA, 675mm – 750mm DIA)

Scope

- .1 The Contractor shall complete a preliminary CCTV inspection (V1) of the full length, from maintenance hole to maintenance hole. Then the sewer section shall be mechanically cleaned (using man-entry methods if needed) to remove all encrustation, roots, deposits, and blockages using an accepted reaming, cutting, grinding, or man-entry method. Upon completion of the cleaning, a CCTV inspection (V2) of the full length of the sewer section shall be

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performed. Work shall be done in accordance with TS 411 and as modified by these contract documents.

- .2 All hard deposits (any encrustation, concrete, brick, grout, compact debris), roots, protrusions or other foreign materials such as grease the entire length of the sewer that are resistant to sewer cleaning operations is to be removed by mechanical method accepted by the Contract Administrator. The sewer shall be mechanically cleaned so that no more than 30 mm of obstruction exists within the sewer.
- .3 Robotic cutting shall be utilized in lieu of reaming for all vitrified clay pipes.
- .4 All debris resulting from the work shall be removed at the nearest maintenance hole. Passing material from maintenance hole section to maintenance hole section shall not be permitted. The Contractor shall employ a screen and a vacuum unit in the nearest downstream maintenance hole in order to prevent any debris or other material from migrating downstream. Such debris or material from the maintenance hole shall be removed and properly disposed.
- .6 The Contractor shall sufficiently consider all required efforts to access the sewer, clean, and remove all debris to the approval of the Contract Administrator. The Contractor may consider trailing the hose or make use of easement machines to facilitate the cleaning activities where vehicle access is limited. The Contractor shall also refer to any additional considerations as listed in the List of Repairs.
- .7 For circumstances where a background CCTV survey is not available or is less than 80% complete, the Contractor shall include in its base scope pricing up to 1 full shift (up to 10 hours) of sewer reaming, cutting, and grinding effort. Any additional sewer mechanical cleaning effort required beyond the 10 hour shift base scope requirement will be paid using separate provisional allowance item.

Measurement and Payment

- .1 Measurement for payment for the specified mainline sewer nominal diameter shall be per meter for the actual length of pipeline inspected as determined from the chainage indication on the V2 post-cleaning CCTV video.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .3 Payment will be made according to the following schedule:
- 70% of payment to be made upon completion, submission and acceptance of V1 and performance of the cleaning activity in field;
 - 30% of payment to be made upon completion and full acceptance of V2.
- .4 If a deficiency in the cleaning is identified after completion of the V2, the V2

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shall be redone by the Contractor at no cost to the City after the deficiency has been remedied.

4.1-7 Items (B.02.3 to B.02.7) – Special Pipe Size and Shape
Mechanical Cleaning and Debris Removal including Disposal

Scope

- .1 For the following pipes, the Contractor shall note the special pipe size, shape, and the debris amount and sufficiently consider the required effort to access the sewer and perform the required mechanical cleaning and debris removal work.
 - Item B.02.3 - SL1447323 (1200mm circular brick combined sewer)
 - Item B.02.4 – SL1440268 (900mm x 600mm egg-shaped brick combined sewer)
 - Item B.02.5 – SL1452155 (900mm x 600mm egg-shaped brick combined sewer)
 - Item B.02.6 – SL1474515 (900mm circular concrete storm sewer)
 - Item B.02.7 – SL1473550 (900mm circular concrete storm sewer)
- .2 The Contractor shall perform needed site visits during bid preparation stage to confirm the current condition and fully consider all required effort to perform the work and include all costs in the respective item. Given the size and shape of the sewers, the Contractor may consider necessary means other than traditional mechanical cleaning methods to access the sewer in order to complete cleaning and debris removal based on its own preferred means and methods. The Contractor shall also refer to any additional considerations as listed in the List of Repairs.
- .3 The Contractor shall complete a preliminary CCTV inspection (V1) of the full length, from maintenance hole to maintenance hole. Then the sewer section shall be cleaned (using man-entry assistance if needed) to remove all deposits and blockages using an accepted reaming, cutting, grinding, or man-entry method. All debris shall be removed and disposed. Upon completion of the cleaning, a CCTV inspection (V2) of the full length of the sewer section shall be performed. Work shall be done in accordance with TS 411 and as modified by these contract documents.
- .4 All hard deposits (any encrustation, concrete, brick, grout, compact debris, roots, protrusions, or other foreign materials such as grease found throughout the entire length of the sewer that are resistant to sewer cleaning operations) is to be removed by mechanical method accepted by the Contract Administrator. The sewer shall be mechanically cleaned so that no more than 30 mm of obstruction exists within the sewer.
- .5 All debris resulting from work shall be removed at the nearest maintenance hole using feasible means. Passing material from maintenance hole section shall not be permitted. The Contractor shall employ a screen and a vacuum unit in the nearest downstream maintenance hole in order to prevent any

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debris or other material from migrating downstream. Such debris or material from the maintenance hole shall be removed and properly disposed.

- .6 The Contractor shall sufficiently consider all required efforts to access the sewer, clean, and remove all debris to the approval of the Contract Administrator. No separate payment shall be made for any other additional efforts to achieve full cleaning of these sewers.

Measurement and Payment

- .1 Measurement for payment for the specified mainline sewer nominal diameter shall be per meter for the actual length of pipeline inspected as determined from the chainage indication on the V2 post-cleaning CCTV video.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .3 Payment will be made according to the following schedule:
- 70% of payment to be made upon completion, submission and acceptance of V1 and performance of the cleaning activity in field;
 - 30% of payment to be made upon completion and full acceptance of V2.
- .4 If a deficiency in the cleaning is identified after completion of the V2, the V2 shall be redone by the Contractor at no cost to the City after the deficiency has been remedied.

Part B.3 Standalone Repairs (TPR)

4.1-8 Item B.03.1 – Trenchless Spot Repairs (CIPPSR)

Scope

- .1 At all locations identified in the contract documents or by the Contract Administrator, a Cured-in-Place Pipe Spot Repair (CIPPSR) shall be installed within a sewer section in accordance with the requirements of TS 466 and Section 3.2.
- .2 The work shall include traffic control, notification to public, CCTV inspections, determining sewer and CIPPSR dimensions, determining/confirming design parameters for CIPPSRs, flow control and bypass pumping, cleaning and preparation of the full length of the sewers for CIPPSR installation, installation and curing of the CIPPSR, reinstatement of sewer service connections, return of the sewer with CIPPSRs to regular service plus any other work required for and incidental to the foregoing.
- .3 Any required cost for the modification of the maintenance hole frame, adjuster, and chimney and subsequent restoration to facilitate CIPPSR shall be included within the associated price items.

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- .4 The Contractor shall determine the precise location of the defect by CCTV or other means accepted by the Contract Administrator.
- .5 The Contractor shall check and determine that actual field conditions for any CIPPSR installation correspond with the standard design for that installation. The field conditions to be checked shall include deepest depth to invert, ovality of the existing sewer and live load situation.
- .6 Installed CIPPSR tube nominal thickness for installations shall be in accordance with the Contractor's approved design.

Measurement and Payment

- .1 Measurement for payment shall be by Lump Sum.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .3 Payment will be made on a cumulative basis according to the following schedule:
- 5% of payment to be made upon completion, submission and acceptance of V1;
 - 25% of payment to be made upon completion of all pipe preparation works, submission and acceptance of V2;
 - 50% of payment to be made upon completion of the supply and installation of the liner, submission and acceptance of V3;
 - 20% of payment to be made upon full acceptance of all QA/QC submissions (sample testing report)

Part B.4 Standalone Excavated Point Repair / Connection Replacement

4.1-9 Items (B.04.1 to B.04.3) – Excavated Point Repair (EPR)/Connection Replacement (CON REPLACE)

Scope

- .1 At locations identified in the contract documents or by the Contract Administrator, the mainline sewer shall be repaired by open-cut construction in accordance with the requirements of TS 4.60, TS 510, TS 401, TS 501 and TS 410, and as modified in this section.
- .2 The work shall include all materials, labour, equipment and services necessary for open cut removal, disposal and replacement of the defective pipe sections. This includes any required traffic control, site preparation, removals, preservation and protection of existing facilities and utilities, flow control and bypass pumping, excavation, support systems, dewatering, protection systems, supply of all materials and equipment, backfilling and compacting, disposal of all waste and surplus or unsuitable excavated material, testing and site restoration, all as may be required plus any other work required for and incidental to the foregoing.

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- .3 The Contractor shall submit their work plan for the work 20 working days prior to the undertaking, including shoring plan and shop drawings or sketches for all construction, with accurate dimensions and details to relate the proposed Work to surrounding and adjacent features and utilities, to document their means, methods, techniques, sequences and procedures to facilitate safe completion of the Work, for acceptance by the Contract Administrator.
- .4 The Contractor shall note that the EPR/CON_REPLACE locations specified in the Contract Documents are approximate and are provided for information only; the accuracy and completeness of the information indicating the location of EPR/CON_REPLACE is not guaranteed nor shall the Contract Administrator or the City be held liable for incorrectness or inadequacy thereof. The Contractor shall be responsible for determining the exact location of the specified EPR/CON_REPLACE. No separate payment shall be made as a result of the Contractor failing to satisfy themselves of the proposed EPR location prior to excavation.
- .5 Pipe replacements shall only be carried out upon completion of preliminary sewer CCTV inspections (V1) in order to confirm there is no change in existing conditions with respect to the length of pipe requiring EPR. The Vendor shall be responsible for all costs associated with EPRs of greater length than that specified in the Pricing Form should the existing sewer be damaged during open-cut excavation work.
- .6 All removals shall be in accordance with TS 510. Open cut sewer pipe installation shall be according to TS 410 and backfilled and compacted as per TS 401 and TS 501. Embedment and backfill shall be in accordance with OPSD 802.010. Trench shall not be backfilled until they have been inspected and measurements of location have been taken by the resident Site Inspector.
- .7 Replacement pipe shall be of equivalent diameter (to existing) Polyvinyl Chloride (PVC), DR 35 pipe in accordance with OPSS 1841.
- .8 Replacement pipe shall be laid at a uniform gradient between the elevations of the pipe on either side with no offset at the inverts at adjoining ends.
- .9 Mechanical couplings shall consist of elastomer material with stainless steel hardware that is specifically designed to join mainline sewer pipes of various materials to provide a watertight seal. Approved products include Fernco Couplings or approved equivalent. Mechanical coupling installations shall be according to manufacturer's recommendations.
- .10 The Contractor shall review each proposed EPR/CON_REPLACE location and include all necessary restoration costs associated with restoring the surface of the EPR/CON_REPLACE location to equal or better condition prior to excavation.
- .11 Restoration shall be completed in accordance with TS 4.60 and Section 3.4. All restoration cost shall be included in these items.

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- .12 All of the identified EPR/CON_REPLACE works are standalone work assignments, and do NOT require post-EPR lining.
- .13 The final QAQC acceptance of the EPR/CON_REPLACE works is also subject to the completion of the V3 CCTV inspection and acceptance by the Contract Administrator.

Measurement and Payment

- .1 Measurement for payment shall be Lump Sum, for the specified location, regardless of the diameter of mainline sewer, depth of construction and length of repair.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .3 Payment will be made on a cumulative basis according to the following schedule:
- 10% product submittal/ Work Plan approval
 - 70% Supply and Installation
 - 20% acceptance of final surface restoration and V3 CCTV inspection on the associated line.

Part B.5 Standalone Repairs (Grouting)

4.1-10 Items (B.05.1 to B.05.48) – Chemical Grouting

Scope

- .1 At all locations identified in the contract documents or by the Contract Administrator, the defects in the sewer wall or joint shall be sealed by packer injection grouting in accordance with TS 470, ASTM F2304-10(2016)e1 and requirements below or using polyurethane injection methods in accordance to Section 3.3. Contractor shall note the size of the mainline sewer and choose appropriate method to perform the required work.
- .2 When the Contractor performs V1 inspection, if the specified location of the infiltration is different, the Contractor shall notify the CA regarding the difference in observation and wait for CA's instruction prior to completing any further work. The CA reserves the right to instruct the Contractor to complete chemical grouting at a different location than the specified location at the same unit rate. If additional infiltration spots are observed, the CA also reserves the right to instruct the Contractor to complete additional chemical grouting at the same unit rate.
- .3 The work shall include traffic control, notification to public, CCTV inspections (V1, V2 and V3), flow control and bypass pumping, cleaning and preparation of the full length of the sewers, reinstatement of sewer service connections, return of the sewer with to regular service plus any other work required for and incidental to the foregoing.

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- .4 The Contractor shall determine the precise location of the defect by CCTV or other means accepted by the Contract Administrator.
- .5 Packer injection grouting shall be accomplished by pressure injection of chemical grout into the soils encompassing the exterior of the pipe joint. Chemical grouts shall be designed to be injected into the soil surrounding the pipe, which stabilizes the soil and forms a permanent impermeable seal called a grout/soil ring. Adequate volumes of grout must be injected to form an effective seal. Adequate amounts of grout are based generally upon pipe size and field conditions. This application will be through structurally sound joints from within the pipe by using the packer method in tandem with a CCTV inspection system.
- .6 The mainline sewer shall be cleaned sufficiently for seating a packer in the mainline sewer and inserting and seating an inflatable sealing bladder in the sewer. The sewer shall be cleaned of obstructions and roots on the length to be sealed, plus a seating distance of 300 mm.
- .7 Services protruding more than 12 mm into the mainline sewer shall be cut back or otherwise removed to avoid interference with the testing and sealing equipment. The cutting of the protruding laterals is considered incidental to the grouting work.
- .8 Chemical grout shall be a two-component chemical grout sealant in accordance with ASTM F2304-10(2016)e1 and shall be subject to acceptance by the Contract Administrator.
- .9 Chemical grout shall be injected using positive displacement metering pumps under continual pressure until a void pressure point of refusal is reached.
- .10 The method of repair shall be such that the original cross-sectional area and shape of the sewer shall not be permanently reduced or changed. Sealing materials that set to a hard, rigid product that might intrude into the sewer will not be acceptable.
- .11 All excess grout shall be removed from the mainline sewer. Excess grout shall be defined as a thickness of grout greater than 12 mm or such amount deemed by the Contract Administrator that given its location, size and geometry, could impede operational flow. Excess grout shall be flushed or pushed forward to the next downstream maintenance hole, removed from the sewer system, and properly disposed.
- .12 The work shall include traffic control, notification to public, CCTV inspections, flow control and bypass pumping, cleaning and preparation of the sewers for the repair, completion of the repair plus any other work required for and incidental to the foregoing.

Measurement and Payment

- .1 Measurement for payment shall be per each, for each mainline sewer pipe identified in the contract documents.

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- .2 No additional payment shall be made for repetitive cycles of pumping and curing ("staging") in an effort to reach void pressure point of refusal.
- .3 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .4 Payment will be made on a cumulative basis according to the following schedule:
- 5% of payment to be made upon completion, submission and acceptance of V1;
 - 25% of payment to be made upon completion of all pipe preparation works, submission and acceptance of V2;
 - 50% of payment to be made upon completion of the supply and installation;
 - 20% of payment to be made upon full acceptance of V3 and all QA/QC submissions.

Part C Provisional Items

Part C.1 Miscellaneous

4.1-11 Item C.01.1 – Paid-Duty Police Officer and Vehicle

Scope

- .1 The Contractor will be compensated for Paid-Duty Police Officers in the event that and any work or equipment is located within 30 m of a signalized intersection or in location with onerous or extenuating traffic safety concerns.
- .2 The Contractor shall make reasonable efforts to avoid working within 30 m of a signalized intersection by setting up or staging their efforts at an alternative location wherever possible.
- .3 This allowance is established to allow the Contractor to utilize Paid-Duty Policer Officer both with and without a vehicle on an as-needed basis.
- .4 Any work to be performed and paid under this item shall be accepted by the Contract Administrator before the work commences.

Measurement and Payment

- .1 Payment shall be full compensation for the Paid-Duty Officer invoices Contractor received plus an additional 10% as Contractor markup. Paid-Duty Officer invoices shall be submitted as back-ups.
- .2 Any additional Contractor mark-up will not be accepted.

4.1-12 Item C.01.2 – Traffic Control Person

Scope

- .1 Traffic control requirements, including the use of Traffic Control Persons (TCPs), shall be in accordance with the requirements prescribed in TS 1.00 and OTM Book 7.
- .2 In the event that traffic control requirements required by a Work Zone Traffic Coordinator or as directed by the Contract Administrator are more onerous than prescribed as above, then such additional traffic control requirements shall be compensated using this item, or as a Change in the Work pursuant to GC 7 as appropriate.
- .3 Traffic control shall be in accordance with Ministry of Labour Policies, the Occupational Health and Safety Act, and the procedures outlined in the IHSA Handbook for Construction Traffic Control Persons.
- .4 All Traffic Control Persons shall have appropriate personal protective equipment and traffic control equipment in accordance with high visibility

standards and shall be appropriately trained with adequate written and oral instructions in a language that they understand with respect to directing vehicular traffic and the signals that are to be used.

Measurement and Payment

- .1 If TCPs are approved by the Work Zone Traffic Coordinator, payment shall be full compensation for the Traffic Control Person invoices the Contractor receives if the Contractor uses a third party to provide the service plus an additional 10% as Contractor markup. Third-party invoices shall be submitted as back-ups. If the Contractor uses internal staff for this role, the Contractor shall invoice the City at a rate no more than 15% of the published City of Toronto's Fair Wage Schedule for Sewer and Watermain Construction Work for Traffic Control Person and Casual Watchperson.
- .2 Payment at the contract price shall be full compensation for all labour, and incidental costs to perform the work.

4.1-13 Item C.01.3 – Additional Crew Cost for After Hours Work (Night Work)

Scope

- .1 The Contractor shall plan to submit all initial RoDARS application to the WZTC for delivery of the work during regular day hours.
- .2 The Contract Administrator reserves the right to require all or part of any works to be undertaken at night due to sewer flow or traffic conditions to avoid disrupting the normal operation of schools, day cares, businesses, industries, etc.
- .3 After hours (outside allowable working hours defined in GN102SP) work during the week from Monday to Friday is covered under this item only when ordered by the Contract Administrator or the Work Zone Traffic Coordinator. Night work starting on Sunday night into Monday morning is also considered to be after hours work during the week and will be covered under this item only when ordered by the Contract Administrator or the Work Zone Traffic Coordinator.
- .4 Hours of operation on arterial roads will be as directed by the City of Toronto Traffic Operations section.
- .5 Should the Contractor work past daylight hours, all provisions must be made to ensure a safe working environment, including portable lights and generators, as necessary.

Measurement and Payment

- .1 Measurement for payment shall be per hour for sewer cleaning/preparation crew (minimally one flushing truck/mechanical cleaning truck, and one CCTV truck and all associated staff) or CIPPSR crew (minimally one CCTV truck, one flushing truck, required boiler truck(s), reefer truck, and any other required support vehicles and all associated staff), or for an EPR crew (minimally one

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backhoe/excavator, one dump truck, one truck for backfill, and any other required support vehicles and all associated staff) for a minimum of four (4) hours.

- .2 This item will only be paid when regular day hour work is rejected by the Work Zone Traffic Coordinator and request the Contractor to complete the work at night. No payment will be applied for work extended beyond the normal working hours that is requested by the Contractor.

4.1-14 Item C.01.4 – Investigate, Locate, and Raise Maintenance Hole Cover

Scope

- .1 This item shall only be used to raise any buried maintenance hole(s) which have not been identified but deemed necessary by the Contractor in order to complete base scope work. Provisional work shall be identified by the Contractor following the V1 CCTV inspections and associated site reconnaissance and submitted to the Contract Administrator for review and acceptance prior to undertaking the work.
- .2 The work shall include initial investigation, locate, excavation, removal, installation of new adjustment units, and reinstatement of buried maintenance hole frames and covers where required to facilitate rehabilitation work in accordance with TS 407 and as modified by these contract documents.
- .3 The work shall include traffic control, site preparation, removals, preservation and protection of existing facilities and utilities, flow control and bypass pumping, excavation, support systems, dewatering, protection systems, supply of all materials and equipment, backfilling and compacting, disposal of all waste and surplus or unsuitable excavated material, testing and site restoration including paving as applicable, all as may be required plus any other work required for and incidental to the foregoing. The existing frame with cover or grate shall be carefully removed and salvaged. Suitability of the salvaged frame with cover or grate for reuse shall be determined by the Contract Administrator. If the existing frame and cover cannot be salvaged a new frame and cover shall be installed at the bid unit price for remove and replace maintenance hole frame and cover.
- .4 Where applicable for the particular site, the Contractor may also choose to reinstall the adjuster, and frame and cover using the IFC system as per T-1120.09-1 and T-1120.09-3.
- .5 Restoration shall be completed in accordance with TS 4.60 and Section 3.4. All restoration cost shall be included in these items.
- .6 Any debris resulting from the work shall not be permitted to enter the sewer system.
- .7 The Contractor shall employ a screen or other method accepted by the Contract Administrator to prevent any debris or material from entering the sewer. Such debris or material from the maintenance hole shall be removed

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and properly disposed.

Measurement and Payment

- .1 Measurement for payment shall be per each maintenance hole.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work. Payment is limited to a maximum riser replacement height of 0.60 m.
- .3 Payment will be made on a cumulative basis according to the following schedule:
 - 10% product submittal/ Work Plan approval;
 - 70% Supply and Installation;
 - 20% acceptance of final surface restoration.

4.1-15 Items (C.01.5 to C.01.6) – Additional Mechanical Cleaning

Scope

- .1 These items will only be used for any pipes where the pipe has no available background inspection video or the background inspection video is less than 80% complete and the Contractor has already spent one (1) full working day (10-hour shift) to flush or mechanical clean the sewer. Any subsequent pipe preparation effort beyond the above will be paid using this item on a meter basis.
- .2 If the sewer was found to be filled with concrete/grout type of hard material, the Contractor shall abandon the work and report to the Contract Administrator.
- .3 All debris resulting from the work shall be removed at the nearest downstream maintenance hole. Passing material from maintenance hole section to maintenance hole section shall not be permitted. The Contractor shall employ a screen and a vacuum unit in the nearest downstream maintenance hole in order to prevent any debris or other material from migrating downstream. Such debris or material from the maintenance hole shall be removed and properly disposed.

Measurement and Payment

- .1 Measurement for payment for the specified mainline sewer nominal diameter shall be per meter for the actual length of solid debris removal performed. Each time when this item is being utilized, the Contractor shall provide clear evidence to the CA that sewer is not part of the base scope identified in the contract documents.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.

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- .3 Payment will be made according to the following schedule:
- 100% of payment to be made upon completion, submission and acceptance of V2 inspection video
- .4 If a deficiency in the cleaning is identified after completion of the V2, the V2 shall be redone by the Contractor at no cost to the City after the deficiency has been remedied.

4.1-16 Item C.01.7 – Additional Chemical Grouting (200mm – 600mm DIA)

Scope

- .1 This item will only be used for chemical grouting of additional pipes that are beyond the current base scope identified in Appendix 1-1 List of Repairs or as directed by the Contract Administrator.
- .2 If the sewer was found to be filled with concrete/grout type of hard material, the Contractor shall abandon the work and report to the Contract Administrator.
- .3 All identified defects in the sewer wall or joint shall be sealed by packer injection grouting in accordance with TS 470, ASTM F2304-10(2016)e1 and requirements below or using polyurethane injection methods in accordance to Section 3.4. Contractor shall note the size of the mainline sewer and choose appropriate method to perform the required work.
- .4 All debris resulting from the work shall be removed at the nearest downstream maintenance hole. Passing material from maintenance hole section to maintenance hole section shall not be permitted. The Contractor shall employ a screen and a vacuum unit in the nearest downstream maintenance hole in order to prevent any debris or other material from migrating downstream. Such debris or material from the maintenance hole shall be removed and properly disposed.
- .5 All excess grout shall be removed from the mainline sewer. Excess grout shall be defined as a thickness of grout greater than 12 mm or such amount deemed by the Contract Administrator that given its location, size and geometry, could impede operational flow. Excess grout shall be flushed or pushed forward to the next downstream maintenance hole, removed from the sewer system, and properly disposed.
- .6 The work shall include traffic control, notification to public, CCTV inspections, flow control and bypass pumping, cleaning and preparation of the sewers for the repair, completion of the repair plus any other work required for and incidental to the foregoing.

Measurement and Payment

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| .1 | Measurement for payment shall be per each, for each mainline sewer pipe diameter as identified. Each time when this item is being utilized, the Contractor shall provide clear evidence to the CA that sewer is not part of the base scope identified in the contract documents. |
| .2 | No additional payment shall be made for repetitive cycles of pumping and curing (“staging”) in an effort to reach void pressure point of refusal. |
| .3 | Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work. |
| .4 | Payment will be made on a cumulative basis according to the following schedule: <ul style="list-style-type: none">• 5% of payment to be made upon completion, submission and acceptance of V1;• 25% of payment to be made upon completion of all pipe preparation works, submission and acceptance of V2;• 50% of payment to be made upon completion of the supply and installation;• 20% of payment to be made upon full acceptance of V3 and all QA/QC submissions. |

4.1-17 Item C.01.8 – Additional Chemical Grouting (Man-Entry Method for Various Sizes)

Scope

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| .1 | This item will only be used for chemical grouting of additional pipes that are beyond the current base scope identified in Appendix 1-1 List of Repairs or as directed by the Contract Administrator. |
| .2 | All identified defects in the sewer wall or joint shall be sealed by injection grouting using man-entry method in accordance with TS 470, ASTM F2304-10(2016)e1 and requirements below or using polyurethane injection methods in accordance to Section 3.3. Contractor shall note the size of the mainline sewer and choose appropriate method to perform the required work. |
| .3 | All debris resulting from the work shall be removed at the nearest downstream maintenance hole. Passing material from maintenance hole section to maintenance hole section shall not be permitted. The Contractor shall employ a screen and a vacuum unit in the nearest downstream maintenance hole in order to prevent any debris or other material from migrating downstream. Such debris or material from the maintenance hole shall be removed and properly disposed. |
| .4 | All excess grout shall be removed from the mainline sewer. Excess grout shall be defined as a thickness of grout greater than 12 mm or such amount deemed by the Contract Administrator that given its location, size and geometry, could impede operational flow. Excess grout shall be flushed or pushed forward to the next downstream maintenance hole, removed from the |

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sewer system, and properly disposed.

- .5 The work shall include traffic control, notification to public, CCTV inspections, flow control and bypass pumping, cleaning and preparation of the sewers for the repair, completion of the repair plus any other work required for and incidental to the foregoing.

Measurement and Payment

- .1 Measurement for payment shall be per each, for each mainline sewer pipe diameter as identified. Each time when this item is being utilized, the Contractor shall provide clear evidence to the CA that sewer is not part of the base scope identified in the contract documents.
- .2 No additional payment shall be made for repetitive cycles of pumping and curing ("staging") in an effort to reach void pressure point of refusal.
- .3 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .4 Payment will be made on a cumulative basis according to the following schedule:
- 5% of payment to be made upon completion, submission and acceptance of V1;
 - 25% of payment to be made upon completion of all pipe preparation works, submission and acceptance of V2;
 - 50% of payment to be made upon completion of the supply and installation;
 - 20% of payment to be made upon full acceptance of V3 and all QA/QC submissions.

4.1-18 Item C.01.9 – Additional CIPPSR (200mm – 600mm) up to 2m length

Scope

- .1 This item will only be used for CIPPSR of additional pipes that are beyond the current base scope identified in Appendix 1-1 List of Repairs or as directed by the Contract Administrator for pipes 200mm to 600mm in diameter up to 2m in length. A Cured-in-Place Pipe Spot Repair (CIPPSR) shall be installed within a sewer section in accordance with the requirements of TS 466 and Section 3.2.
- .2 The work shall include traffic control, notification to public, CCTV inspections, determining sewer and CIPPSR dimensions, determining/confirming design parameters for CIPPSRs, flow control and bypass pumping, cleaning and preparation of the full length of the sewers for CIPPSR installation, installation and curing of the CIPPSR, reinstatement of sewer service connections, return of the sewer with CIPPSRs to regular service plus any other work required for and incidental to the foregoing.

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| .3 | Any required cost for the modification of the maintenance hole frame, adjuster, and chimney and subsequent restoration to facilitate CIPPSR shall be included within the associated price items. |
| .4 | The Contractor shall determine the precise location of the defect by CCTV or other means accepted by the Contract Administrator. |
| .5 | The Contractor shall check and determine that actual field conditions for any CIPPSR installation correspond with the standard design for that installation. The field conditions to be checked shall include deepest depth to invert, ovality of the existing sewer and live load situation. |
| .6 | Installed CIPPSR tube nominal thickness for installations shall be in accordance with the Contractor's approved design. |

Measurement and Payment

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| .1 | Measurement for payment shall be per each CIPPSR installed up to 2m in length. |
| .2 | Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work. |
| .3 | Payment will be made on a cumulative basis according to the following schedule: <ul style="list-style-type: none">• 5% of payment to be made upon completion, submission and acceptance of V1;• 25% of payment to be made upon completion of all pipe preparation works, submission and acceptance of V2;• 50% of payment to be made upon completion of the supply and installation of the liner, submission and acceptance of V3;• 20% of payment to be made upon full acceptance of all QA/QC submissions (sample testing report) |

4.1-19 Item C.01.10 – Utility Test Pits (Up to 5m)

Scope

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| .1 | This item shall only be used when the Contractor deems it is necessary to field verify the location of existing utilities when the proposed excavation work requires new infrastructure being installed. |
| .2 | Contractor shall perform the utility test pits excavation through hydro-excavation following City of Toronto Standard TS 4.7. |
| .3 | Unit price includes all costs related to hydro/vactor excavation, including removal and disposal of all material hydro/vactor excavated, backfilling and surface restoration. All costs for testing required for disposal of the material collected shall be at the Contractor's expense and shall be included in unit rate supplied. |

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Measurement and Payment

- .1 Measurement for payment shall be per each test pit.
- .2 Payment at the contract price shall be full compensation for all labour, equipment and material to perform the work.
- .3 Payment will be made on a cumulative basis according to the following schedule:
 - 80% when test pits are performed.
 - 20% acceptance of final surface restoration (surface photo).

Appendix 4.1-1

Notice Delivery Protocol

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Appendix 4.1-1: Notice Delivery Protocol

Contractor Notices				
Scope of Work	Sewer Cleaning Notice	48 Hour Odour Notice	48 Hour Service Disruption Notice	Specialized Messaging
Sanitary/Combined Sewer Mainline Open-Cut Spot Repair				•
Sanitary/Combined Trenchless Spot Repair		•*	•*	•
Sewer Flushing/Mechanical Cleaning	•			•
	• Notice to be delivered			

*Note: Applies if the spot repair will affect specific service connection.

Sewer Cleaning Notice

The Contractor shall provide advanced work notification to all properties and affected parties including residents, businesses, and any other occupants 50m upstream of the work zone and 50m downstream of the work zone at least 48 hours prior to but no more than 1 month ahead of its planned sewer cleaning activities. Contractor shall prepare and submit a sample notification letter to the CA for review and approval prior to start delivering the notice letters.

48-Hour Odour Notice

The Contractor shall provide advanced odour notification to all properties and affected parties including residents, businesses, and any other occupants 50m upstream of the work zone and 100m downstream of the work zone. The delivery of odour notices is to happen exactly 48-hours prior to the planned lining date by the Contractor.

For businesses or institutions such as schools and day cares that are not operating during the time of the notice delivery, the Contractor shall make attempt to deliver the notice during normal business hours. Notification to affected parties shall be repeated by the Contractor if commencement of work is expected to change materially from the date(s) indicated in any preceding notice. The City's odour notice is attached below.

The Contractor shall have Toronto Public Health's styrene fact sheet readily available if requested by the any affected parties when work is being performed or during odour notice distribution. The City's styrene fact sheet is available through link: <https://www.toronto.ca/wp-content/uploads/2019/09/96e9-TPH-fact-sheet-styrene.pdf>

48-Hour Service Disruption Notice

The Contractor must hand deliver 48-hour Service Disruption Notice to all affecting parties including residents, businesses, group of properties, and any other occupants. The Contractor shall submit to the Contract Administrator a draft service disruption notice for review prior to delivery of the service disruption notice.

Specialized Messaging

On a case-by-case basis, the Contractor maybe required to hand deliver 48-hour key messaging notices for coordination purposes to all affecting parties including residents, businesses, group of properties, and any other occupants. Examples of specialized messaging include residential or commercial or multi-residential water shut-offs, parking restrictions, driveway access, tree removals, TTC service change and so on.



Update Notice

Odours Related to Sewer Upgrades

The City of Toronto is currently rehabilitating the sewer pipes in your area using a trenchless process called Cured-In-Place Pipe (CIPP). Trenchless technology requires minimal digging and therefore involves less construction disturbance to the neighbourhood.

The process involves inserting a liner containing a styrene resin into the sewer pipe where it cures to form a new sewer pipe wall. This project is part of the Toronto City Council-approved Capital Works Program to renew Toronto's aging infrastructure, reduce the risk of leaks, and ensure continued long-term reliable sewer service.

You are receiving this notice because you may experience short-term odours while the sewer is being relined during construction.

To help stop odours from entering your home or business, please take the following action described below.

POSSIBLE ODOUR DURING CONSTRUCTION



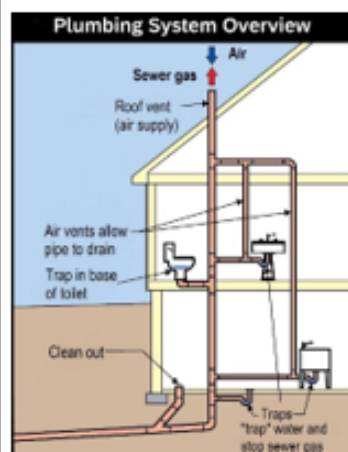
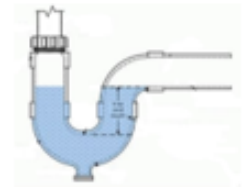
Odour: You may experience "plastic or glue-like" short-term odours while the sewer is being relined during this phase of construction.

To reduce the odour, it is recommended that you pour at least one to two litres of water down every drain (i.e. sinks, showers, bathtub, floor drains) for the next two days in order to maintain a water barrier. Do not continuously run your taps.

If a strong odour is present and persists after taking the above noted action, please contact the Field Ambassador indicated at the bottom of this notice for assistance.

More information on odours and how to prevent them:

Drain pipes are designed as per Ontario Building Code to retain water after each use, in order to create a water barrier that prevents odours from entering your home (see illustration to the right).



Residents should not smell odours in their house if they follow the instructions provided above and have a plumbing system that adheres to the current Ontario Building Code. If odours are present, you may have an internal plumbing issue (such as blocked roof vent stack, no vent, no trap, etc.). You may choose to hire a private plumber to investigate.



Update Notice

NEED MORE INFORMATION?

If you have questions about the work, please contact us.

Field Ambassador	Email: fieldambassador@andrews.engineer Phone: 647-362-9464
TTY Hearing Impaired Service	416-338-0889 (7 Days a week, 8:00 a.m. – 5:00 p.m., closed holidays)
General inquiries	3-1-1

Thank you for your patience. Building a great city takes time. Better infrastructure for all of us is worth the wait.

Appendix 4.1-2

Construction Sign Detail

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Sub Section 4.1 – Contract Items



Header:

Fixed Toronto Primary Logo (Corporate Identity Program 2.1) and slogan text
Pantone 647 blue (with reversed white logos/text)

Body:

- 1 Project Title** (two lines preferred)
Univers 65 bold - 250 pt, Pantone 647 blue, upper/lower case
Line 1: Project type (primary work) e.g., "Watermain Replacement"
Line 2: Primary street where work is taking place e.g., "Bloor Street West"
28 characters maximum per line
- 2 Project Details** (one or two lines preferred may use three)
Univers 55 Roman - 200 pt, Black, upper/lower case
Provide limits of project e.g., " Bay Street to Avenue Road"
34 characters maximum per line
- 3 Start**
Univers 65 - 150 pt, Black, upper/lower case
"Spring" + Year or "Summer" + Year or "Fall" + Year or "Winter"+ Year or Month + Year
- 4 End**
Univers 65 - 150 pt, Black, upper/lower case
"Spring" + Year or "Summer" + Year or "Fall" + Year or "Winter"+ Year or Month + Year
- 5 Contract Number** (two lines)
Line 1 Univers 55 Roman Bold - 150 pt, Black, upper/lower case
Line 2 Univers 55 Roman - 150 pt, Black, upper/lower case

Footer:

Fixed standard Call 311 identifier and City of Toronto web address, Pantone 647 Blue (with reversed white logo/text)

Notes:

- Only **1, 2, 3, 4, 5** are fields in which text can be specific to each job.
- Project title and information should use clear language and avoid technical jargon and reflect Construction Notices.

Drawing specifications also found at: www.toronto.ca/ecs-standards

Sub Section 4.2 –Rehabilitation Program Specific Specials

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4.2-1 General

- .1 Payment for work not specifically detailed as part of any one item and without specified details of payment shall be deemed to be included in the item or items with which the work is associated.
- .2 Except as expressly provided in Special Provisions – Contract Items, there shall be no separate payment for the Work contemplated in this specification.

4.2-2 Submittals

- .1 At the pre-construction meeting, the Contractor shall provide the Contract Administrator with a submittal schedule which identifies when each of the required submittals will be submitted.
- .2 All submittals shall have a cover page that includes, at a minimum, the Contractor's name, contact name, contact title, submittal title, submittal number, related specification, and date submitted.
- .3 The Contractor shall not commence with any Work affected by a submittal until the submittal has been reviewed by the Contract Administrator. Work shall not proceed unless the related submittal has been returned to the Contractor marked "Reviewed" or "Reviewed As Noted." Submittals marked "Reviewed As Noted" shall only proceed with the changes noted. Submittals marked "Revise and Re-submit" shall be revised and re-submitted within 5 working days.
- .4 Unless otherwise noted, the Contractor shall allow for 10 working days for the Contract Administrator to review each submission or re-submission and shall plan accordingly, as to not delay the Work. Any delays or costs associated with submittal review shall be borne by the Contractor.
- .5 The Contract Administrator's review of the Contractor's submittals shall be for the purpose of determining general conformity with the requirements of the Contract Documents. The Contract Administrator's review does not warrant or represent that the information contained in the Contractor's submittals are accurate nor does it relieve the Contractor of the responsibility for the proper installation and performance of any material, system, or product.
- .6 The Contract Administrator reserves the right to reject any contract deviations proposed by the Contractor. Upon request, the Contractor shall provide the necessary information required by the Contract Administrator in order to evaluate any proposed alternatives. The Contract Administrator's review in no way relieves the Contractor, their supplier or sub-contractor from the long-term performance of the proposed alternative. Any additional costs related to alternative materials or methods shall be borne by the Contractor.
- .7 All costs associated with preparing submittals shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-3 Schedule & Coordination

Scheduling General

- .1 Within ten (10) working days after the Commencement Date, the Contractor shall submit for review and approval a detailed work Schedule which subdivides major activity into phases or stages which will be employed to complete the work.
- .2 The Schedule shall take into account the sequence of construction, identified Priority Repairs and any already identified construction conflict shown in T.O. INview. The Contractor shall consult its sub-Contractors to obtain realistic schedule when preparing the overall schedule.
- T.O. INview** – (<https://map.toronto.ca/toinview/>) T.O. INview illustrates the location, type and timing of constructions that are planned across the city each year. T.O. INview (Toronto INfrastructure viewer) is an online map showing work planned by the City, utilities, and other agencies, including Metrolinx and the TTC, and is accessed through the Major Capital Infrastructure Coordination Office's website.
- For any identified potential construction conflict, it is the Contractor's responsibility to verify the accuracy of the construction timeline provided in T.O.INview prior to mobilization.
- .3 Where any Work under this Contract overlaps with a project or contract that includes road reconstruction, road rehabilitation or re-paving, the Work under this contract requiring excavation shall be completed in advance of the other construction project(s).
- .4 There are also numerous and various festivals and events are permitted to occur within areas of this Contract, on and around City streets where the potential that these events will overlap with the Contracted Work. The Contractor shall be responsible for reviewing the Festivals and Events Calendar published by the City (<https://www.toronto.ca/explore-enjoy/festivals-events/>) to ensure Work is executed without conflict under this Contract and not conflict with any significant events or other street closures.
- .5 The Contractor shall not be permitted to undertake any Work at or proximate to any location identified in the Festival and Events Calendar, or at such other location as may be identified by the City with reasonable notice, for a period of at least one (1) week preceding and one (1) week following the specified dates. The City reserves the right to identify additional Significant Events or Closures requiring coordination. The City reserves the right to identify additional Significant Events or Closures requiring coordination.
- .6 The Contractor shall schedule the Work at least six (6) weeks in advance and make all reasonable efforts to avoid conflicts in time or space between the Work and any other construction activity or Festival and Events expected to occur at the same location or within the vicinity as the Work.
- .7 The purpose of the Schedule is to allow the City to understand and assist in the timely completion of the Project. The City shall review the Schedule and

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when approved, it will be used to plan and execute the work, to measure the progress of the work, and to provide the basis for all progress payments. The City reserves the right to order specific work to be completed at times other than shown in the Schedule if, in their opinion, this action is necessary.

- .8 The Schedule shall comply with all contractually specified milestones and completion dates, with all coordination requirements, and with all other constraints, restraints, or sequences identified in the Contract.
- .9 The Schedule shall be developed and submitted in Microsoft Project format.
- .10 The Schedule shall be updated by the Contractor not less frequently than monthly for review and approval by the City. Failure to update and maintain the Schedule in an approved status may result in the City withholding progress payments until the Schedule is approved.
- .11 The Contractor shall provide a two-week Look Ahead Schedule on a weekly basis by 17:00 each Friday. The Look Ahead Schedule will be based on current project activities and will show only those activities that are in progress or scheduled to occur in the upcoming two-week period.

Coordination General

- .12 The nature of the Work requires the Contractor to engage in construction activity at many and various locations in one or more service districts in the City of Toronto. The work locations may have another contractor, utility or third party seeking to undertake construction activity at the same location or within the vicinity as the Work contemplated in this Contract.
- .13 The Contractor shall coordinate with other contractors, utilities or third parties, and schedule the Work to occur without conflict with these other construction contracts and activities or as otherwise directed by the Contract Administrator. When the Contractor does not receive timely response from the project manager of other construction projects within 5 working days, the Contractor shall notify the Contract Administrator immediately for assistance in coordination.
- .14 The Contractor shall not be permitted to undertake any Work or occupy any working area at the same time as any other contractor, utility or third party undertaking any construction activity.
- .15 There will be times or locations where the Work contemplated in this Contract must be sequenced appropriately to occur before or after the work of another contractor, utility or third party especially due to emergency or short-term work.
- .16 T.O. INview shows planned capital work, but not emergency or short-term work. To find and coordinate with this information, the Contractor shall visit the City's Road Restrictions website.
<https://www.toronto.ca/services-payments/streets-parking-transportation/road-restrictions-closures/restrictions-map/>
- .17 The Contractor shall notify the Contract Administrator immediately upon

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reasonable awareness of any current or impending conflict in time or space between the Work and any other construction activity occurring or expected to occur at the same location or within the vicinity as the Work.

- .18 The City reserves the right to identify additional contracts and construction activities requiring coordination.

Measurement and Payment

- .19 All costs associated with this scheduling and coordination work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-4 Priority Repairs & Interim Completion Date

Priority Repairs

- .1 The Contractor's attention is drawn to the Priority Repairs that have been identified in the List of Repairs (Appendix 1-1). The Priority Repairs have been established by the City to avoid known construction or access conflict(s). All Priority Repairs need to be completed prior to the defined completion date.
- .2 The City reserves the right to establish additional priorities for sewer lining or any other Work. This would only occur when specific coordination with other construction projects or time sensitive activities requires the City to prioritize certain repairs within this Contract to be carried out to minimize disruption.
- .3 Unless due to any unforeseen conflict occurring after the award of the Contract, the Contractor shall complete all listed priority works prior to listed dates of completion for the priority repairs identified in the List of Repair (Appendix 1-1)
- .4 Liquidated Damages for delay (not penalty) due to failure to meet the priority repair completion dates in the amount of THREE THOUSAND FIVE HUNDRED DOLLARS (\$3,500.00) shall be paid by the Contractor to the City for each working day from the priority repair completion date to the actual completion of all related Work.

Interim Completion Date

- .5 For this Project, the "Interim Completion Date" is defined as one hundred (100) working days from Commencement Date. The only exception to this date is any other specific date(s) as indicated in the Priority Repairs within the List of Repairs (Appendix 1-1).
- .6 Unless due to any unforeseen conflict occurring after the award of the Contract, the Contractor shall complete the following work prior to the Interim Completion Date:
- All Priority Repairs (as per defined completion date listed in the List of Repairs in Appendix 1-1);
 - All V1 CCTV inspections for all CIPPSR work;
 - All Open-cut repairs (EPR, REPLACE, CON_REPLACE, etc.);

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- Locate and raise all buried MHs;

- .7 Liquidated Damages for delay (not penalty) due to failure to meet the Interim Completion Date in the amount of THREE THOUSAND FIVE HUNDRED DOLLARS (\$3,500.00) shall be paid by the Contractor to the City for each working day from the Interim Completion Date to the actual completion of the related Work. Any additional repair(s) added after the award of the contract is not subject to the liquidated damages.

Measurement and Payment

- .8 All costs associated with this completing the priority repairs and meeting the Interim Completion Date shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-5 Meetings

- .1 Prior to commencement of the Work, a pre-construction meeting will be conducted by the City or the Contract Administrator. The Contractor shall ensure that his project manager, project supervisor, designated safety representative and a representative for each sub-contractor, as determined by either the City or the Contractor, are in attendance.
- .2 Bi-weekly job progress meetings will be conducted by the City or the Contract Administrator. The Contractor shall ensure that his project manager, project supervisor, designated safety representative and a representative for each sub- contractor, as determined by either the City or the Contractor, are in attendance.
- .3 Other meetings may be conducted from time to time at the discretion of the City or the Contract Administrator. The Contractor shall ensure that his project manager, project supervisor, designated safety representative and a representative for each sub-contractor, as determined by either the City or the Contractor, are in attendance.
- .4 All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-6 Existing Utilities & Crossbore

- .1 There are various utilities within the contract limits. It shall be the Contractor's responsibility to contact the local utility authorities to determine the exact locations of these utilities.
- .2 No responsibility will be assumed by the City or the Contract Administrator for the correctness or completeness of any drawings with respect to existing utilities, pipes or other objects, either underground or on the surface and neither the City nor the Contract Administrator shall be liable for the incorrectness or inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of such utilities, pipes or other objects. All costs of working around and supporting utilities and services (i.e. Including all excavation methods deemed appropriate such as vacuum excavation, hand

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digging etc. as per local utility requirements) must be included in the tender price bid for the applicable contract item; no separate payment will be made.

- .3 All existing water main and water service connections shall be located and toned by the Contractor as the City of will not provide this service. For any work that requires water main or water service disconnection, the Contractor shall provide sufficient notice and contact Toronto Water's operation services and follow operation procedure if water shut-off is required in order to isolate the water main or water service prior to completing the work. No separate measurement or payment will be made for any additional expense to the Contractor in terms of coordinating and following required coordination and notification procedure.

Enbridge Gas Company Mains and Services

- .4 The Contractor shall comply with Third Party Requirements in the Vicinity of (Enbridge) Natural Gas Facilities.
- .5 Contractors (and inspectors) are advised that under no circumstances shall unshrinkable fill be placed directly in contact with Enbridge gas mains. A minimum of 300 mm of compacted granular material shall be placed around any gas mains or services before unshrinkable fill is placed.

Utility Support Specifications

- .6 The Contractor must be familiar and comply with the most up to date support specifications for the support of the various utilities in the vicinity of excavations. Field personnel will be enforcing these support specifications.

Crossbore

- .7 It is the City's intent to perform planned repairs where known crossbore presents and the crossbore's utility type is confirmed. For all known crossbores encountered in the project, the City has completed initial investigations and identified the known crossbore's location within the provided List of Repairs.
- .8 Upon commencement of the contract, the Contractor is responsible for verifying provided crossbore details (the type of utility). Upon verification of the crossbore utility type by the Contractor, the Contractor shall assess the feasibility of completing the repairs, underneath or over the existing crossbore. The Contractor shall report to the Contract Administrator whether the planned repair is feasible or not with the known crossbore's presence and Contractor's planned risk mitigation measures. If the planned repair is deemed not feasible by the Contractor, the Contractor shall provide specific rationale to the Contract Administrator and discuss feasible alternatives if exists.
- .9 For any CIPP lining work, the City intends to line over such crossbores (only when known crossbores are sewer pipes / sewer laterals) if the crossbore is only crossing through the obvert of the pipe and the lining operation can be completed without adverse effect on the existing utility. Localized wrinkles and fins are expected at the crossbore location. The Contractor shall remove any

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excessive wrinkles and fins to the extent feasible without damaging the crossbore upon completion of lining.

- .10 For all non CIPP lining works (flushing, mechanical cleaning, TPR, etc.) where known crossbores present, the repairs must be completed with cautionary measure in place, including the use of CCTV assistance during repair, to ensure no damage on the crossbore.
- .11 The City reserves the right to remove from the scope of work any section of sewer with known crossbore.
- .12 For any previously unknown crossbore, the Contractor shall notify the Contract Administrator immediately and cease further work on the sewer until direction is provided by the Contract Administrator.
- .13 The City reserves the right to remove from the scope of work any section of sewer with previously unknown crossbore.
- .14 No separate measurement or payment will be made for any additional expense to the Contractor as a result of complying with the requirements and carrying out the work described above.

4.2-7 School/Day Care Areas

- .1 For work being undertaken within the immediate vicinity of schools or day cares, the Contractor shall make provision for attendants to continuously monitor the movement of mobile construction equipment in order to ensure the safety of children passing within the immediate vicinity of the work.
- .2 The Contractor shall provide security fencing to the off-side (side where construction access is not required to progress the work) of any open excavation in order to prevent direct access by children to the work area.
- .3 The Contractor shall schedule their work to mitigate against styrene odour complaints. For any work being undertaken within 100 m of a school and/or day care, the Contractor shall not use a styrenated resin system, unless all lining work can occur at times when school or day care is fully vacant.
- .4 The Contractor shall follow the process outlined in Attachment B of the Construction and Traffic Constraints – GN102SP to provide adequate notification to the school or day care.
- .5 No separate measurement or payment will be made for any additional expense to the Contractor as a result of complying with the requirements and carrying out the work described above.

4.2-8 Private Property & Public Relations

- .1 It is crucial in undertaking this contract that good public relations be maintained between Toronto Water and its customers. Enquiries, complaints and problems are to be responded to immediately by the Contractor.

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- .2 The Contractor shall ensure that all agents or employees carry identification when entering private premises or contacting the public. This identification shall be in the form of laminated and numbered identification cards, complete with photographs indicating that the holder of the card is an authorized representative of the Contractor working for Toronto Water. The names, addresses and telephone numbers of all employees involved in undertaking this contract must be provided to Toronto Water. All cards shall be returned to the Project Manager of Toronto Water following completion of the contract.
- .3 Sewers may be located in easements through private property or City owned parklands and rights-of-way where no paved access may exist. It will be the Contractor's responsibility to identify these sewers and arrange for access and to restore any surface damage to private and City owned property to the satisfaction of the Contract Administrator.
- .4 In entering any premises during the course of the work the Contractor shall take all necessary measures to ensure that the premises are protected against damage or soiling and upon completion are restored to their original condition. Any claims arising out of the Contractor's failure to adequately protect the premises shall be the responsibility of the Contractor.
- .5 The Contractor shall provide 24 hours a day 7 days a week contact on the odour notice and is responsible to respond, investigate and act immediately on any odour complaint that may occur including after work hours and weekend.
- .6 The Contractor shall respond to any styrene odour related inquiry and complaints immediately upon receiving the inquiry or complaint. The Contractor shall notify the Site Inspector and Field Ambassador regarding the specific location, time and person whom inquired and the time when responded to each inquiry or complaint.
- .7 For any styrene odour related inquiry received after odour notice delivery or complaints received during or shortly after lining operation, the Contractor shall duly instruct the resident regarding appropriate methods to properly ventilate the property and provide the resident with ventilation fans to help with reducing the odour levels within the properties upon receiving resident's approval.
- .8 The Contractor shall offer alternate accommodation to residents who have concerns regarding styrene odour impact or complains about styrene odour during lining operation. If the resident chooses to temporarily relocate to an alternate accommodation, the Contractor shall assist the resident in securing suitable accommodation at the nearest location of reasonable cost. When such arrangement is made, the Contractor shall duly notify the Contract Administrator regarding such occurrence and provide backup invoices for reimbursement via a Change Order request. All effort and cost associated with responding to a styrene odour inquiry or complaint, supporting the resident and providing means of ventilation, and assisting the resident in securing alternate accommodation are considered base scope. All alternate accommodation costs will be paid without any mark-ups by the City.

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- .9 Sewer backup or “blow-back” on private property resulting from cleaning or inspection activities is not acceptable and shall be avoided at all costs. It is expected that where this possibility exists the Contractor shall take appropriate measures such as making modifications to cleaning equipment or taking additional time to clean such sewers.
- .10 Where actual sewage or “grey water” has flooded private property, the Contractor shall immediately clean and disinfect all affected areas as well as flush all weeping tile. The Contractor shall immediately hire an independent IICRC certified water damage or flood restoration contractor to assess any damage to contaminated building materials such as drywall, insulation, carpets, weeping tile or sub-floors, and immediately make any required repairs.
- .11 The Contractor shall notify the Contract Administrator immediately when damage to property occurs. All damage to City and private property caused by cleaning or inspection operations is the responsibility of the Contractor. The Contractor shall repair all damaged property to the satisfaction of the Contract Administrator. All costs associated with these repairs shall be at the Contractor’s own expense.
- .12 The Contractor shall provide written reports to the Contract Administrator for each property attended for investigation of damage. Reports shall include photographs of all damage, dates and times, verbal or written agreements with property owner and all actions taken or proposed to rectify the damage. Reports shall be submitted to the Contract Administrator within 24 hours of attending the property.
- .13 Clean-up of affected residences shall be done by cleaning professionals. Under no circumstances are cleaning equipment operators to enter residences unless they are neat and presentable and the Contract Administrator has received a Criminal Record Search for that individual.
- .14 The Contractor shall provide the Contract Administrator with a 24-hour contact number to arrange for immediate clean-up and repair of private property.
- .15 If a residence is uninhabitable as a result of a sewer back-up the Contractor shall pay for reasonable hotel accommodations and meals for all affected residents.
- .16 All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-9 Traffic Control & Work Zone Coordination and Approval

- .1 The Contractor shall adhere to the requirements of OTM Book 7 and TS 1.00.
- .2 Unless otherwise specified, the Contractor shall include all associated costs for the maintenance of traffic in unit rates.
- .3 The Contractor must follow the Road Disruption Activity Reporting System

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Approval (RoDARS) Process as outlined in the Construction and Traffic Constraints – GN102SP (Section 2.2 SS-27) to submit RoDARS Notification Form and obtain approval from the Transportation Department prior to mobilizing to each Work location.

- .4 If the Contractor has not received a response ten (10) days of their Work Zone Request, the Contractor shall advise the Contract Administrator regarding the delay in obtaining the necessary approval needed to set-up.

4.2-10 Standard Flow Control, Pumping or By-Passing

- .1 For any repairs within the contract that does not have specific flow control requirements specified, the Contractor shall be prepared to implement standard flow control as needed to facilitate the repair. Standard flow for the contract includes flow control up to and including a capacity of 4,540 litre/minute (1200 USGPM) to facilitate the repair as needed. Standard flow control and pumping/by-passing shall include all necessary piping/fitting, fuel, temporary bypass plans, traffic protection, road crossing devices and monitoring. The Contractor shall be responsible for determining the required bypass capacity.
- .2 For every standard flow control installation, the Contractor needs to complete a temporary bypass plan, spill response plan and flood control plan in accordance with TS 4.01 and Section 3.1. The plans do not need to be stamped and/or sealed by a professional engineer. The plans must be submitted to the Contract Administrator according to the standard submission process. The documents must be maintained on-site at all times.
- .3 Where the Contractor has determined that the bypass requires capacities exceeding 4,540 litre/minute (1200 USGPM), the Contractor shall advise the Contract Administrator of the requirement and submit a flow bypass plan, spill response plan and flood control in accordance with TS 4.01 and Section 3.1. The plans shall be stamped and sealed by a professional engineer licensed to practice engineering in the province of Ontario qualified in Municipal Engineering.
- .4 For sewers that require additional flow control when flows are exceeding 4,540 litre/minute (1200 USGPM), the Contractor will be compensated through the provisional unit price bid for additional bypass pumping.

4.2-11 Noise and Vibration Control

Noise and vibration shall be minimized in the work area as follows:

- .1 The Contractor shall abide by all applicable noise control by-laws and regulations.
- .2 The Contractor shall endeavor to schedule all excessively noisy and vibratory construction operations to times when least disruptive to the site location.
- .3 All engines and pneumatic devices shall be fitted with effective muffling

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devices, and be kept in good order.

- .4 Idling of equipment shall be kept to a minimum.
- .5 The Contractor shall limit any queues of trucks to a maximum of three (3) trucks.
- .6 Audible warning devices and horns shall be limited to matters of safety, and shall not be used as a means of communication.
- .7 Tailgate slamming of dump trucks shall be prohibited on this project. The Contractor shall inform all drivers of this requirement.
- .8 The Contractor shall report any complaints regarding construction noise to the Contract Administrator immediately upon receiving the complaint. The City reserves the right to order the Contractor to terminate the use of equipment and/or personnel who do not observe the above-noted noise and vibration protocol.

4.2-12 Water Use

- .1 Water for hydro-cleaning and other components of the Work will be available from the City at no cost to the Contractor. The water must be drawn from a designated hydrant.
- .2 The Contractor is not permitted to operate any hydrant or any part of the water distribution system except as authorized by Toronto Water.
- .3 Prior to the use of any hydrant, a hydrant use permit must be obtained from the City of Toronto District Operation Sections, Toronto Water. When water from fire hydrants is used, care shall be taken to ensure water is conserved and not used unnecessarily.
- .4 No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.
- .5 At all times backflow preventers must be employed when drawing water from any hydrant and proper ramps must be employed for all vehicular and pedestrian traffic traversing any hose or pipework.
- .6 All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-13 Snow Removal

- .1 Based on the schedule for the Work of this Contract, the Contractor is instructed that the period of completion for the Contract may extend into and through cold weather conditions.
- .2 It shall be the responsibility of the Contractor to appropriately coordinate work which may be impacted by cold weather conditions in order to avoid potential schedule impacts.

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- .3 Any snow removal required to facilitate access to or undertaking of the Work will be considered incidental to the Work and no separate payment or additional compensation shall be made.

4.2-14 Use of Recycled Material in Aggregates

- .1 All damage to City and private property caused by cleaning or inspection operations is the responsibility of the Contractor. The Contractor shall repair all damaged property to the satisfaction of the Contract Administrator. All costs associated with these repairs shall be at the Contractor's own expense. The City of Toronto has adopted OPSS 1010 (April 2004) "Material Specification for Aggregates - Base, Sub- base, Select Subgrade, and Backfill Material" with amendments issued in Toronto Specification TS 1010. The City of Toronto will accept aggregates, including aggregates containing recycled material, for use in base, sub-base, selected subgrade, granular surface, shouldering and backfill conforming to TS 1010.
- .2 The Contractor shall be responsible for all Quality Control sampling and testing of the aggregates in accordance with the requirements outlined in TS 1010. As noted in TS 1010, the Quality Control testing records shall be made available to the City's Contractor Administrator at least five (5) working days before the delivery of the aggregates.
- .3 Further to the Quality Assurance requirements stated in TS 1010, the City's geotechnical consultant will carry out quality assurance tests on recycling materials stockpiled at the storage facility/quarry as well as performing random quality assurance tests on the recycled material/aggregates delivered to the site as required by the City's Contract Administrator.
- .4 As stated in TS 1010.08.04, if the Quality Assurance test results show the aggregates do not meet the applicable requirements of TS 1010, the contractor shall cease using the non-complying aggregates immediately. The contractor shall remove the unacceptable aggregates stockpiled on site and, at the discretion of the Contract Administrator, remove the unacceptable aggregates that have already been placed and compacted offsite, at the contractor's expense.
- .5 The City's Contract Administrator reserves the right to discontinue the use of aggregates with recycled material in the contract on the basis of unsatisfactory Quality Assurance test results that do not meet the requirements of TS 1010, and select to use crushed limestone instead at the unit price submitted by the contractor in the Pricing Form.

4.2-15 Record of Alteration

- .1 Records of Alteration is only required when new maintenance holes or catch basins are constructed, or for sewers that have been abandoned.
- .2 Water or Sewer Service Cards are only required for replaced service lines/laterals and are not required for other trenchless or excavated Repairs. Water or Sewer Service cards do not need to be stamped by a professional

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engineer and can be sketched by hand.

- .3 As-built drawings are only required for sewers that have been replaced. CAD version of the existing drawings will not be provided.
- .4 All other Repairs do not require an as-built plan, Service Card or Record of Alteration. A CCTV Inspection (V3) and associated PACP or MACP database shall be sufficient.
- .5 Sample Records of Alteration and Service Cards will be provided to the Contractor upon request to the Contract Administrator.
- .6 Completed Records of Alteration and as-built drawings for each Repair shall be submitted to the Contract Administrator in hard copy and digital format within 14 days of completion of the Work at the Site.
- .7 All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-16 Warranty Holdback

- .1 In addition to the Statutory Holdback and any amount retained under this Contract two percent (2%) of all monies due to the Contractor in accordance with the Progress Payment Certificates shall be retained by the City and shall be termed Warranty Holdback.
- .2 Upon application by the Contractor and approval by the Contract Administrator, contract items may be removed from the aggregate value of work complete for which the warranty holdback applies.
- .3 The warranty holdback shall be paid to the Contractor less deductions for amounts owing to the City, upon the completion of the Warranty Period and satisfaction of all obligations of the Contractor at the expiration of the Warranty Period and upon issuance of the final Certificate of Completion.
- .4 The City may apply the Warranty Holdback against any amount owing by the Contractor to the City during the Warranty Period.
- .5 The Warranty Holdback is not held in trust for the Contractor, property of the Contractor, earned by the Contractor or due and payable by the City until the conditions for release of the Warranty Holdback are satisfied.
- .6 The Contractor as an alternative to the retention of the Warranty Holdback may propose to the City to provide either a clean irrevocable standby letter of credit from a financial institution in Canada in a form acceptable to the City, or another form of performance security acceptable to the City. If the City accepts the proposal, the City will upon receipt of the performance security release the value of the Warranty Holdback to the Contractor.

4.2-17 Contractor's Fleet Tracking Global Positioning System (GPS)

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- .1 The Contractor shall be equipped with, and maintain in good working order, a Fleet Tracking GPS for all crews working on the project for the duration of the contract. The system shall be capable of providing real-time location information of crews, visible on a web-based online portal with shareable login information to facilitate site inspection services.
- .2 At the pre-construction meeting, the Contractor shall provide login information to the Contract Administrator for tracking system's online portal and provide written authorization for the Owner and Contract Administrator to access crew location information for the duration of the Contract.
- .3 No work shall be carried out without a fully functioning fleet tracking GPS system provided by the Contractor.
- .4 All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-18 Daily Work Location Protocol

- .1 The Contractor shall send a daily location email to the City's designated staff, Contract Administrator, Site Inspector, and the City's capital works delivery email (CWDLocations@toronto.ca) no later than 7 AM on each working day during the contract.
- .2 The daily location email shall include the following information:
 - Sewer/Maintenance Hole Asset ID
 - Street name
 - Type of work planned
 - Type of shift (Day or Night).
- .3 The Contractor shall also send out any updates regarding any change in work location and work type to the Contract Administrator and the Site Inspector throughout the working day.
- .4 All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-19 Overhead Lines

- .1 When work requiring the use of crane boom or similar equipment is undertaken in close proximity to hydro power lines, regardless of line voltage, the Contractor shall give the appropriate authority advance notice prior to mobilization onsite.
- .2 Where interferences are possible, the Contractor shall be responsible for coordinating with the respective utility companies to relocate overhead utilities.

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- .3 The need for cable insulation/protection shall be determined at the sole discretion of the authority.
- .4 The Contractor shall comply with the latest TSSA, ESA, and City of Toronto Health & Safety Guidelines for working with or near overhead powerlines.

4.2-20 Pre-Construction Site Inspection

- .1 Prior to the commencement of Work at sites 1 - 9 identified, the Contractor shall arrange a joint pre-construction site inspection with the Contract Administrator in order to document existing conditions.
- .2 The Contract Administrator shall document the existing condition of all public or private property in and around the construction limits that may be affected by construction activity using video or still photography. This includes but is not limited to sidewalks, curbs, roadways, driveways, pathways, sod, plants, trees, landscape features and structures.
- .3 All media captured shall be provided in digital format following the visit.
- .4 The documentation of existing condition will be used by the Contract Administrator to verify that all affected areas are restored to pre-construction condition or better upon completion of the Work.
- .5 In addition to the joint site inspection, the Contractor is responsible for conducting their own site investigations to confirm existing ground levels, invert elevations and other information necessary for undertaking the Work in accordance with the Contract Documents.
- .6 All costs associated with this work shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-21 Construction Limits and Constraints

- .1 The Contractor shall limit all construction activity located in and around private properties, water courses, and City right-of-way to the areas shown on the permit mapping.
- .2 The Contractor shall ensure that no damage is caused to adjacent properties, structures, roadways, utility services or similar items for the duration of the Work. Any such damage caused as a result of the Work shall be repaired to the satisfaction of the Contract Administrator and at the expense of the Contractor.
- .3 The Contractor shall confine all construction operations within the designated work areas for staging, laydown and access.
- .4 The Contractor shall assess all site access individually to determine the most

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appropriate means and methods for access and work required to complete the associated sewer rehabilitation works under this Contract. Should the Contractor require additional work areas outside of those limits, the Contractor shall submit working drawings with proposed additions or extensions of work areas to the Contract Administrator for approval, prior to the start of Work. Any additional cost related to work area extensions or additions shall be borne by the Contractor; no separate payment shall be made.

- .5 Construction site access shall only be through the designated access points indicated in the tender. The Contractor shall plan the delivery of materials and movement of equipment to, from, and within the job site in a manner that does not interfere with the flow of public traffic. Furthermore, truck routing for entry and exit from designated access points shall be established such that construction equipment and vehicles merge off and onto adjacent roadways in order to avoid crossing traffic lanes.
- .6 Where recreational trails or sidewalks may be temporarily occupied during the progress of the Work, the Contractor shall not obstruct any trail or sidewalk longer or to any greater extent than absolutely necessary. Furthermore, the Contractor shall be responsible for providing safe and convenient means of alternate pedestrian access in the event that trails and/or sidewalks are temporarily obstructed.
- .7 Where the City has procured access agreements from private property owners, the Contractor shall comply with the access agreement details and limitations. The Contractor shall notify property owners prior to entering.
- .8 Material storage and stockpile areas shall be located at least 15 meters away from the top of watercourse banks. Vehicle washing and refueling are restricted to areas at least 30 meters away from watercourses.
- .9 At some sites within the contract, maintenance holes or outfalls associated with the proposed sewer rehabilitation works may not have access for machinery and/or vehicles off of the roadway such as pick-up trucks and tractor trailers. Alternate means and methods to access these assets such as, but not limited to, travel by foot or use of All-Terrain Vehicle (ATV) and use of wheelbarrow or trailer to transport equipment and/or materials to the work site are necessary.
- .10 Additional known location specific constraints and considerations are listed in Appendix 1-1 List of Repairs' Items for Information columns. Contractor shall consider all location specific constraints and considerations and factor in all costs associated accordingly.
- .11 All costs associated with this requirement shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-22 Tree Removals and Pruning

- .1 For all work locations that feature natural and landscaped areas with trees in

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close proximity to the proposed work, the Contractor shall adhere to all requirements in the City's Tree Protection Specification GN128SS.

- .2 It is the responsibility of the Contractor to determine which, if any, trees require additional tree removal or pruning. The Contractor's arborist shall attend a tree walk site meeting at the start of the contract, prior to commencement of work, in order to identify additional tree removals and/or pruning requirements that may arise during construction.
- .3 Additional tree removal or pruning deemed necessary to permit construction work shall be subject to the approval of the Contract Administrator and shall be carried out by a certified arborist.
- .4 The Contractor shall obtain all necessary permits and approvals prior to any additional tree removal.
- .5 Should the Contractor require additional pruning, it shall be kept to the minimum required to allow for construction to proceed.
- .6 The removal and disposal of brush, or trees with a diameter at breast height of 15cm (6 inches) or less is considered incidental to the work and shall be included in the bid price. No separate payment shall be made.
- .7 Damage to tree roots, trunks, or limbs shall be reported to the Contract Administrator immediately. The Contractor shall be responsible for rectifying damages resulting from tree by-law violations including fines, replanting, remedial works, and all other penalties associated with the violation at their own expense; no separate payment shall be made.
- .8 The Contractor shall comply with the Migratory Bird Convention Act when carrying out the Work. No tree removal or vegetation clearing shall occur during the breeding bird season (April 1st – August 31st).

4.2-23 Erosion and Sediment Control

- .1 The Contractor shall be responsible for the supply, installation, maintenance, and removal for all erosion protection and sediment control measures (including silt sock and sediment control fence) as per locations indicated on the permit.
- .2 Silt Sock shall be SiltSoxx™, or approved equivalent. Geotextile for sediment control fence shall be according to OPSS 1860, Table 3.
- .3 Any construction work including excavation shall not cause adverse impacts to slopes within the limits of construction or in the surrounding areas. The Contractor shall take all necessary precautions to prevent this.
- .4 The Contractor shall, prior to the start of any construction activity, place non-woven geotextile fabric filter between the frames and covers of all catch basins, catch basin manholes and ditch inlets within the immediate area to

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prevent the entry of construction dirt and debris.

- .5 All erosion and sediment control measures should be installed securely and maintained in good condition. The Contractor shall regularly inspect the erosion and control measures to ensure all measures are functioning as intended. The Contractor shall repair or replace defective erosion and sediment control measures immediately at no additional cost to the Owner.

4.2-24 Dewatering

- .1 The Contractor shall control the ingress ground water and prevent surface run-off from entering excavations.
- .2 Where dewatering is necessary to properly conduct excavation related Work, the Contractor shall provide appropriate dewatering procedures for the period of time required to successfully complete the Work in accordance with the Contract Documents.
- .3 In addition to the requirements of this specifications, all dewatering and control of water from dewatering operations to be in accordance with OPSS 517 and OPSS 518, respectively.
- .4 Prior to discharge, the Contractor shall be responsible for ensuring that water from dewatering operations meets the discharge criteria outlined in The Corporation of the City of Toronto Sewer Use Bylaw Chapter 681 and the Ministry of the Environment and Energy's (MOEE's) Provincial Water Quality Objectives for discharge to the surrounding environment. The Contractor shall also comply with the following TRCA requirements for discharge from dewatering operations.

4.2-25 Temporary Sandbag Dikes

- .1 Construction of temporary sandbag dikes shall be undertaken as indicated on the permit to retain or hold back water from creek and river environments near storm sewer inlets or downstream of storm sewer outfalls for the purpose of isolating work areas from water course, capturing materials/debris resulting from the rehabilitation work, and spill prevention.
- .2 The Contractor shall be responsible for installation, maintenance, and removal of the temporary sandbag dikes. The Contractor shall determine and install the required number of sandbags to construct temporary sandbag dikes which perform according to their intended purpose.
- .3 The Contractor shall be responsible for the replacement and addition of sandbags if they are, in the opinion of the Contract Administrator, deemed defective, damaged, or insufficient at no cost to the City.
- .4 Prior to sandbag dike installation, the Contractor shall remove any rocks, boulders, vegetation or other material in the stream bed and bank affecting

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proper installation of the temporary coffer dam.

- .5 The spawning window for aquatic species is from March 15 to July 15. Installation of temporary sandbag dikes shall not occur within this timing window.
- .6 In the event construction of a temporary coffer dam is required within an active watercourse, construction shall be performed during low flow conditions.
- .7 Water accumulated inside any temporary sandbag dike installed in an active watercourse shall only be pumped out to the streambed after proper sediment filtering. The geotextile for the filter bag shall be non-woven, polypropylene, Class I according to Table 1 of OPSS 1860.

4.2-26 Restoration

- .1 The Contractor shall exercise due care and diligence to protect all fixtures and plantings near the work area. The Contractor shall carefully remove and replace/relocate any landscaping walls, fences, rocks, hedges and other features that may be in the way of the construction. Damage to all driveways, grassed boulevards, ditches, road, sidewalk, curb, retaining walls, and landscaping shall be restored to original condition or better. All damage to any private and City-owned fences, walls and other fixtures or plantings caused by the Contractor is to be repaired by the Contractor to the satisfaction of the City and the property owners.
- .2 In general, any damage to private or public property as a result of construction activity, shall be repaired to the preconstruction condition or better to the satisfaction of the Contract Administrator at the Contractor's own expense. This applies to all sites, for all affected areas within or beyond the limits of disturbance, wherever impacts to the surrounding environment occur as a result of construction activity. This includes but is not limited to the restoration of all existing driveway roads, asphalt pathways, hardscape, and other landscape features to preconstruction conditions or better.
- .3 For areas located within the TRCA regulated areas that require restoration, the Contractor shall provide a restoration plan to the Contract Administrator and for TRCA review and comment prior to site restoration.
- .4 For any disturbed soil, the soil surface should be seeded with native, non-invasive seed mix (CVC 3 Seed Mix or approved equivalent) and stabilized to the satisfaction of the Contract Administrator.
- .5 All costs associated with this requirement shall be considered incidental to all related items of Work. No separate payment shall be made.

4.2-27 Disposal of Excess Materials

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- .1 All excess materials not required for execution of the Work shall be managed by the Contractor in accordance with OPSS 180.
- .2 All excess materials not required for re-use on the project shall be disposed off-site. Prior to removing excess material, the Vendor shall provide OPSS 180 release forms. No form other than those included in OPSS 180 shall be acceptable unless authorized by the City or the Contract Administrator. Costs to import material for backfilling and restoration shall be considered inclusive of the unit rate or lump sum provided for the work and additional payment for importing material to replace removed material will not be considered.
- .3 Only Class 1 Soil Management Facilities or landfill sites shall be considered accepted disposal locations. Prior to commencement of excavation activities, the Vendor shall submit MOECP issued ECA license of the proposed site to the City and Contract Administrator for their records.
- .4 The Contractor shall provide for and pay for any chemical testing or other soils analyses if required by the Contractor's proposed disposal site. The Contractor shall also be responsible for the preparation, handling, dewatering, separation, treatment, transportation, and disposal costs; no separate payment shall be made.
- .5 All excavated shale and limestone, siltstone, and sandstone shall be removed from the site as excess material and shall not be used as backfill.
- .6 The Contractor shall ensure that the preparation, handling, transportation, and disposal of excavated material complies with all relevant Federal, Provincial, and Municipal Laws, Acts, Regulations, and Bylaws that may apply to the work.
- .7 The Contractor shall be responsible for ensuring the operator of any vehicle used for transporting excess soil from a source site to where the soil will be disposed maintain hauling records with the following information is available at all times during transport:
 - Location, date, and time at which the excess soil was loaded for transport.
 - Quality and quantity of excess soil in the load.
 - Contract information for individual responding to inquiries regarding the load.
 - Name of the company transporting the excess soil, name of driver, and number plates issued for the vehicle under the Highway Traffic Act.
 - Location at which excess soil is to be deposited.
 - Date, time, and name of owner, operator or representative who inspected the load to ensure it is appropriate for depositing at the site.
 - Date and time the load was deposited at disposal site.
 - Contact information of individual at disposal site who acknowledges that the excess soil was deposited.
 - Declaration of the individual who acknowledged soil was deposited.

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- A copy of the completed hauling record to be provided to the individual who acknowledged the soil was deposited.
- .8 The Contractor shall indemnify the City from and against all claims, losses, expenses, costs, damages, actions, suits, or proceedings by third parties directly or indirectly arising, or alleged to arise out of the disposal activities.