

CITY OF WINDSOR

SUPPLEMENTARY SPECIFICATIONS

AND

MANDATORY PROCEDURES AND PRACTICES

JUNE 2017

REVISED: JUNE 20, 2017

BOOK OF SUPPLEMENTARY SPECIFICATIONS AND MANDATORY PROCEDURES AND PRACTICES

The specifications, procedures, and practices contained in this document shall be used on all City contracts and take precedent over City of Windsor General Specifications and Ontario Provincial Standard Specifications.

These specifications, procedures, and practices shall not be revised or altered without the expressed consent of the City Engineer.

Where these specifications, procedures, and practices do not meet a site-specific condition, in whole or in part, that portion or portions of the specification, procedure, or practice shall be altered and placed in the Special Provisions for that contract only.

To avoid future ambiguity, these supplementary specifications shall be referred to as Supplementary Specifications I, (SS 1, SS 2, SS 3, etc.) These specifications shall be reviewed periodically.

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1. REVISED STANDARD SPECIFICATIONS AND GENERAL CONDITIONS (June 2017)

2. As of June 2017, the City of Windsor Standard Specifications and AS-drawings are all released through the following website, with the revision dates.

<http://www.citywindsor.ca/business/buildersanddevelopers/Pages/Standard-Specifications.aspx>

<http://www.citywindsor.ca/business/buildersanddevelopers/Pages/Standard-Engineering-Drawings.aspx>

The latest revisions shall apply to any City of Windsor Contracts that is signed after the Specification and AS-drawing revision dates.

2. UNIT OF PAYMENT (December 2012)

The following contract items and their corresponding units shall be paid under the unit price bid in the Schedule of Unit Prices, as follows:

<u>CONTRACT ITEMS</u>	<u>UNITS OF MEASUREMENT</u>
<i>Earth excavation</i>	<i>cubic metre</i>
<i>Hard surface removal</i>	<i>square metre</i>
<i>All concrete pavements, driveways and sidewalks</i>	<i>square metre</i>
<i>Sewer placement, including private drain connections</i>	<i>linear metre</i>
<i>Curb and gutter removal</i>	<i>linear metre</i>
<i>Curb and gutter placement</i>	<i>linear metre</i>
<i>Landscaping restoration</i>	<i>square metre</i>
<i>Topsoil placement</i>	<i>cubic metre</i>
<i>Granular material</i>	<i>tonne</i>
<i>Asphalt pavements and driveways</i>	<i>tonne</i>
<i>Manholes</i>	<i>each</i> <i>(lump sum, including adjustment and frame and cover)</i>
<i>Catchbasin</i>	<i>each</i> <i>(lump sum, including adjustment and frame and cover)</i>
<i>Existing manhole and catch basin adjustment</i>	<i>each</i>

CONTRACT ITEMS

UNITS OF MEASUREMENT

<i>Water</i>	<i>cubic metre</i>
<i>Dust control.....</i>	<i>calcium chloride – tonne</i>
<i>Saw cutting</i>	<i>linear metre</i>
<i>Milling</i>	<i>square metre</i>

The above is a guideline designed for payment. However, specific projects may combine these items or modify units as design warrants.

3. EARTH EXCAVATION (Basis of Payment) (February 2015)

To eliminate the need of establishing the actual thickness of overlaying hard surfaces prior to and during construction, the volume of any excavation quantity measured for payment shall include the void within the established lines of the excavation which results from the removal or partial removal of any structure, with the exception of a bridge, and shall include the volume of any pavement, concrete base, sidewalk, curb and gutter or similar item which overlies and which is removed in conjunction with such excavation. For bridge related removal, the Contractor shall follow the specifications in the contract documents.

4. HARD SURFACE REMOVAL (Basis of Payment) (February 2015)

The removal of all hard surface features encountered in construction, such as pavements, alleys, driveways and sidewalks shall be by the square metre. When any curb and gutter are removed in conjunction with a hard surface, it shall be included in the square metre measurement and shall not be measured and paid separately. Saw cutting costs in conjunction with a hard surface removal shall be included in the hard surface removal unit price with the exception of sewer & watermain trench work unless otherwise identified in the tender.

For sewer construction, the trench must be sawcut and will be paid for under its own item or as per the description of the contract documents. Breaking the asphalt shall not be permitted.

All other curb and gutter shall be measured separately and paid by linear metre.

5. THE USE OF BULK WATER FILL STATIONS (BWFS) (February 2015)

The Contractor is reminded that the use of fire hydrants WILL NOT be permitted for any construction related activities. In lieu of fire hydrants, the Contractor is to use Bulk Water Fill Stations (BWFS) at EnWin’s Rhodes Drive Operating Centre and other available locations.

Separate Payment will NOT be made for water required during sewer and road construction including compaction of all backfill & base material, pavement, curbs & gutters, driveways, sidewalks or any other structures. The water usage for these items shall be included in the unit prices for each item.

The water application for dust control & placed sod will be paid by unit price respectively.

6. GRANULAR MATERIAL (Basis of Payment) (February 2015)

All granular material shall be paid by the metric tonne. The quantity of Granular "A" material shall only include required Granular "A" for road base. The usage of Granular "A" materials in sidewalk, concrete & asphalt driveways, leadwalks, subdrain and catchbasin construction shall be excluded from Granular "A" unit price and shall be included in the unit price for respective items in the tender.

The quantity shall exclude any granular materials used for sewer, water, and utility trench backfill prior to the road cut, which shall be paid under the sewer and utility installation unit price.

The quantity shall be based on granular tickets collected on site. The Engineer reserves the right to monitor the supply of this material through theoretical calculation and to make a decision based on the review outcome. The Engineer reserves the right to verify the density of granular materials including water content.

7. BACKFILL PRACTICES (February 2015)

The Contractor shall follow the City of Windsor Standard Drawings AS-536, AS-310A, B & C and specific requirements shown in the tender documentation for the material use and backfilling method unless specified otherwise in the next paragraphs.

Sewer Trench Backfill

If full granular backfill is required at any section between two manholes of one sewer run, that entire run shall be backfilled with the same granular material, with the exception of the following case.

Full granular material backfill is required while sewer trench crossing a road intersection even if the sewer trench is deep enough for native backfill as per AS-536. In this case, the granular backfill shall continue to the end of curving section of the intersection as shown on the tender drawings and then change back to required native backfill as per AS-536.

Maintenance Stone over Trench Area

All underground work shall be completed prior to the start of road cutting. This shall be applicable to all underground work including sewer main, catchbasin leads, private drain connections, and watermain and water services.

The Contractor will be required to backfill all sewer trench excavations within the roadway and the sidewalk to an elevation of 100mm (4") below the existing surface elevation with granular trench backfill material as per AS-536. The Contractor shall complete the top 100mm (4") backfilling by placing, compacting, and maintaining Granular "A" material or other approved materials to match existing surface grade before the road cut.

The cost for these materials shall be included in the unit bid price for the sewer main, watermain, catchbasin leads, and/or connections installed and shall be compensated in full for all labour, equipment and materials required to execute the work as specified herewith. There will be no payment for the maintenance of the materials above the sub-grade.

Unshrinkable Backfill

The Contractor shall refer to City of Windsor specification S-24 and OPSS 1359 – Material Specification for Unshrinkable Backfill and Appendix 1359-A for the unshrinkable backfill practice.

8. RECYCLED AGGREGATE PROGRAM AND QUALITY CONTROL (February 2013)

The Contractor should take a notice that the City of Windsor is currently streamlining the City of Windsor's Operating Manual Recycled Aggregate Program and Quality Control, revised in July 2006. The Contractor is solely responsible to the Corporation in ensuring that recycled aggregate meets the requirements of the Ontario Provincial Standard Specifications and this Supplementary Specification.

Prior to the use of recycled materials on any project, the following procedures are to be implemented:

1. Application to use recycled aggregate is completed and submitted to the Field Services Office prior to any usage of the material.
2. The City will no longer be requiring the Bill of Lading tickets.
3. Environmental testing (leachate) to be submitted for approval annually per source pile under procedures for leachate extraction in Regulation 309 of the Environmental Protection Act. If additional materials added to the tested stockpile or a new stockpile is generated, a new submission and approval shall be required. .
4. Sieve analysis testing, percentage coated asphalt particles, and plasticity index analysis shall be submitted for approval from the stockpile specifically for that project.

In the event that the recycled aggregate is not satisfactory to the Corporation, the Contractor's attention is brought to Clauses GC 5.02 and GC 5.03 of the General Conditions.

Any load of recycled material may be rejected in the field based on visual detection of deleterious materials. Such a rejection will result in the requirement for additional testing of the source stockpile.

The use of recycled materials for road base or any frost susceptible application shall not be permitted.

Under no circumstances shall material designated as hazardous waste be accepted. This shall further include testing for leachate toxic waste if the material is suspect and so requested by the Engineer.

9. ASPHALT ESCALATION (December 2012)

The payment for liquid asphalt will be adjusted based on the Ministry of Transportation's (MTO) performance graded asphalt cement price index. The price index will be published monthly on MTO Contract Bulletin and displayed on the Ontario Hot Mix Producers Association (OHMPA)

website (www.ohmpa.org). The price index will be used to calculate the amount of the payment adjustment per tonne of new asphalt cement accepted into the Work.

The price index will be based on the price, excluding taxes, Freight on Board (FOB) the depots in the Toronto area, of asphalt cement grade PG 58-28 or equivalent. One index will be used to establish and calculate the payment adjustment for all grades.

A payment price adjustment per tonne of new asphalt cement (AC) will be established for each month in which paving occurs when the price index for the month differs by more than \$15 from the price index for the month prior to Tender Opening. When the price index differential is less than \$15, there will be no payment adjustment for that month. Payment adjustments due to changes in the price index are independent of any other payment adjustments made to the hot mix tender items.

The payment adjustment per tonne will apply to the quantity of new asphalt cement in the hot mix accepted into the Work during the month for which it is established.

The payment adjustment for the month will be calculated by the following formulae:

ASPHALT CEMENT PRICE ADJUSTMENT, PA	
I_p	Paving within Approved Contract Time
$I_p > I_{TO} + 15$	$PA = (I_p - I_{TO} - 15) \times T_{AC}$
$I_p < I_{TO} - 15$	$PA = (I_{TO} - I_p - 15) \times T_{AC}$

Where:

- PA** = Payment adjustment for new asphalt cement, in dollars.
- I_{TO}** = Performance graded asphalt cement price index for the month prior to Tender Opening
- I_p** = Performance graded asphalt cement price index for the month in which paving occurs
- T_{AC}** = Quantity of new asphalt cement in tonnes

The quantity of asphalt cement includes all grades of **new** asphalt cement supplied by the Contractor with and without polymer modifiers. For each month in which a payment adjustment has been established, the quantity of the escalation/de-escalation will be calculated using the hot mix quantity accepted in the Work and its corresponding asphalt cement content as required by the job mix formula. The Recycled Asphalt Product (RAP) component of the job mix formula shall not be included.

Two calculation examples are listed below including the deduction of AC content in the RAP and the payment adjustment for either the Contractor or the Owner.

	Example One ($I_P > I_{TO} + 15$)	Example Two ($I_P < I_{TO} - 15$)
Mix Type	HL4	HL4
Total Tonnes	100	100
% AC Total	5%	5%
%RAP used	15%	15%
%AC in RAP	4.0%	4.0%
Total Tonnes AC in Mix	$100 \times 5\% = 5$	$100 \times 5\% = 5$
Tonnes AC in RAP	$100 \times 15\% \times 4\% = 0.6$	$100 \times 15\% \times 4\% = 0.6$
Tonnes New AC (T_{AC})	Total AC – AC in RAP = $5 - 0.6 = 4.4$	Total AC – AC in RAP = $5 - 0.6 = 4.4$
Price Index I_{TO}	\$624.25 (Feb. 2011 Index)	\$679.25 (Jul. 2011 Index)
Price Index I_P	\$688.75 (Jun. 2011 Index)	\$641.50 (Sep. 2011 Index)
Payment Adjustment	$PA = (I_P - I_{TO} - 15) \times T_{AC} =$ $(688.75 - 624.25 - 15) \times 4.4 = \217.80	$PA = (I_{TO} - I_P - 15) \times T_{AC} =$ $(679.25 - 641.50 - 15) \times 4.4 = \100.10
Money to	Contractor ($I_P > I_{TO} - 15$)	Owner ($I_P < I_{TO} - 15$)

For mixes containing a liquid anti-stripping additive, the quantity of anti-stripping additive will be deducted from the quantity of new asphalt cement. No other deductions will be made for any other additives.

For progress payment purpose, payment adjustments will be made on the monthly progress payment certificate for the months in which hot mix paving occurs.

10. WINTER PROTECTION FOR CONCRETE (May 2017)

In addition to the City of Windsor Standard Specification S-9, the required starting date for the application of winter protection for concrete is after November 1 of each year according to historical weather record in Windsor area, unless otherwise directed by the City Engineer. Where it is predetermined that application will likely be necessary, a separate item per lineal metre and/or square metre shall be tendered. In other cases, where despite the Contractor’s reasonable construction methods and efforts, this application becomes necessary, a price shall be mutually agreed between the Engineer and Contractor. In all cases, the applications shall be at the Engineer’s discretion.

11. CONNECTIONS TO CONCRETE PIPE (December 2012)

Concrete pipe 375mm (15”) diameter and larger may be field tapped in place. Field tapping of concrete pipe smaller than 375mm in diameter shall not be allowed. Such a connection requires the removal of a section of pipe and the installation of a plant manufactured concrete

tee using mechanical couplings that conform to CSA Standard B602 to ensure a sound and watertight joint.

All allowed connection methods require that the proper sized core hole is machine drilled into the pipe. "Hammer taps" shall not be allowed.

Detailed installation requirements refer to City of Windsor Standard Drawing AS-313, Note 2b, and City of Windsor Standard Specification S-35.06.01(d)

12. CONCRETE PIPE STRUCTURAL REPAIRS (December 2012)

Concrete pipe longitudinal crack widths in the range of 0.25 – 2.5 mm (0.01 – 0.1 inch) shall be repaired by a method approved by the City Engineer prior to the acceptance of the work.

Concrete pipe longitudinal cracks larger than 2.5mm (0.10 inch) in width shall require structural repairs. Concrete pipe longitudinal cracks larger than 5 mm (whether stable or not) OR larger than 2.5 mm and that are unstable shall be removed and replaced. Circumferential cracks that allow inflow but are not offset vertically shall be repaired to provide a water-tight seal. Circumferential cracks that are offset vertically shall be repaired structurally.

Before structural repairs are undertaken on an installed RCP/CP, the pipe shall be structurally evaluated to determine if the installed pipe system has reached equilibrium and the pipe has proven to have capability to support the load.

Acceptable repair actions for a crack that needs structural repairs could include the following:

- Link-pipe or
- Cured in place pipe (CIPP) or
- Grout the cracks with sodium silicate based or epoxy based resin materials.

All above listed criteria and repair methods are subject to the review & approval of the City Engineer in each specific project.

13. PRIVATE DRAIN AND CATCHBASIN CONNECTIONS (May 2017)

Location of the Private Drain/Catchbasin Connections

The locations of existing private drain/catchbasin connections, as shown on the Contract Drawings, are in accordance with the most current information available and are NOT certified to be accurate. The Contractor shall expose an existing private drain/catchbasin connection before commencing sewer construction in order to determine its exact location if necessary. The cost of this work shall be included in the unit price bid per metre of sanitary or storm private drain connections.

In addition, the Contractor shall ensure that all buildings and catch basins on a construction project have been reconnected to the proper sewers. This shall be achieved by either dye or smoke testing, or by use of a mini-camera or C.C.T.V. inspection if necessary.

Number of Private Drain Connections

The number of sanitary and storm private drain connections listed in the Schedule of Unit Prices are estimated. The intent of this specification is to aid the Contractor in preparing the bid. No claim for an extra will be made by the Contractor on the basis of a variation in the number of connections unless under the approval of the City Engineer.

14. SALVAGE OF METAL MATERIALS (February 2013)

Where City of Windsor manhole and catchbasin frames and covers require replacement, the Contractor shall remove the old frames and covers and transport them to the City of Windsor Operations yard at 1531 Crawford Avenue.

Any miscellaneous metals encountered or removed during construction, on this contract, shall remain the property of the City of Windsor and shall also be transported to the City of Windsor Operations Yard at 1531 Crawford Avenue. **Proof of delivery (signature of City of Windsor employee at Crawford Yard) shall be provided by the Contractor.**

The cost for the above salvage and transportation shall be included as part of the unit prices bid in the Schedule of Unit Prices, as no additional cost for this work will be paid.

15. MAINTENANCE OF FLOW IN SEWERS (February 2015)

The Contractor shall maintain the flow from all sewers, private drain connections and catch basin leads during the construction of the works. The Contractor shall be prepared to pump, divert, or find other means of maintaining flows during construction. The Contractor shall submit to the Engineer for review, the proposed construction method, which shall include the equipment to be used to maintain the flow in the sewers and connections.

The unit price bid in the schedule of unit prices for construction of sewers, manholes, private drain connections and catch basin leads shall include all costs to maintain flows in sewers and connections as no additional remuneration will be paid.

16. LAYOUT (February 2015)

The Contractor will be provided with a benchmark and points of reference for setting out. The Contractor is responsible for maintaining these points and using them for locating all structures and grade stakes required for the proper location and installation of the work.

17. BOULEVARD RESTORATION (February 2015)

Boulevard restoration affected by road reconstruction

For a road work only project, the boulevard restoration shall be limited to 2 metres from the back of curb or to where a sidewalk exists from the back of curb to the front of sidewalk or where a sidewalk is constructed or reconstructed from the back of curb to 0.5 metre beyond the back edge of the sidewalk.

This boulevard restoration and that resulting from driveway and lead walk reconstruction shall be paid under boulevard restoration items in the contract.

Boulevard areas affected by both road construction and pits for private drain connections (PDC) and affected private water services

On total rehabilitation projects where all services, including roads, sewers, sewer connections, watermains, and water services are constructed to property line, the area of restoration shall be from property line to property line.

It is anticipated that surface restoration of boulevard areas affected by road construction will overlap surface restoration of pits for private drain connections and affected private water services located on the public right-of-way in a full reconstruction project. Hence, payment for surface restoration for the pits for private drain connections and private water services shall be made in accordance with the respective items for boulevard restoration due to road construction in the Unit Pricing Schedule.

The Contractor shall note that this payment provision does not apply to pits for private drain connections and affected private water services located on private property. In this case, payment for surface restoration shall be included in the price bid for the construction of private drain connections and private water services.

Where areas outside these limits are disturbed through no fault of the Contractor's construction method, the Engineer shall determine payment for restoration. Restoration outside the project limit and limits noted above caused by the placement of the project site office, tool trailer, the storing of material and equipment shall be the responsibility of the Contractor.

18. EXCAVATIONS IN THE VICINITY OF GAS LINES (December 2008)

All excavations in the vicinity of gas lines shall be carried out in accordance with:

1. The Occupational Health and Safety Act and Regulations which apply under this Act, including regulations for construction projects; and
2. The Technical Standards and Safety Act and Regulations that apply under this Act.

The Contractor is referred to the "Guidelines for Excavations in the Vicinity of Gas Lines", prepared by the Technical Standards and Safety Authority. The procedures described herein are prepared in the interest of safety to the general public, the workers carrying out the excavation, and the prevention of damage to gas lines and property.

19. BACKFILL AROUND GAS MAINS (March 2015)

The Contractor shall be responsible to backfill around all gas mains uncovered during the course of construction in accordance with City of Windsor Standard Specification S-39 Backfill Around Utilities, or any other superseding standard of Union Gas, unless otherwise directed by Union Gas, in writing. The above specification shall govern work around gas lines.

20. STREETLIGHTING INFRASTRUCTURE

Any and all materials, labour, approvals, drawings, and equipment required for the purpose of replacing existing street lighting poles are to be fully included in the lump sum tender price. The mast arms and luminaries on the existing poles are to be transferred to the new poles unless otherwise specified in the contract documents. The removed poles are to be delivered to EnWin Utilities as directed by the City Engineer.

Approval

The Contractor is to provide a shop drawing that meets all the requirements for final review and approval by the City Engineer. Once approved, a notice in writing will be sent to the Contractor for the implement.

Construction Completion

When construction is complete, the Contractor will be responsible to obtain ESA approval and contact Tech Services to provide final connection. The Contractor must also supply an as-built drawing prior to the connection. The cost for ESA approval shall be included in the unit price.

If construction matches the design, the Issue-for-Construction drawing will be acceptable with the confirmation notice "as-built" made by the Contractor on the drawing.

21. TREE PROTECTION AND FINES

Tree Protection

All City trees must be protected during the construction of the project. Tree protection fencing shall be installed around the perimeter of the tree's drip line to protect the critical root zone of the tree and their main stem (trunk) from mechanical damage. The installation and positioning of the tree protection fencing by the contractor shall be assessed and approved by the City Forester or his designate prior to the commencement of the project. It is prohibited to move or reposition the tree protection fencing during the construction of the project unless authorization by the City Forester or his designate is obtained.

Fines and Enforcement

No trees shall be destroyed or injured along the City of Windsor Right-of-Way or on any lands owned by the Corporation.

The contractor or corporation will be held liable for any trees injured or destroyed during the construction of the project. Tree protection fencing that is altered or moved without authorization as well as trees that are injured or destroyed, will be assessed and fines will range from \$1,000 to \$50,000 for a first incident and from \$5,000 to \$100,000 for a subsequent incident.

