Ontario

MINISTRY OF TRANSPORTATION

TENDER CLOSING DATE IS 11:00:00 A.M. LOCAL (TORONTO) TIME APRIL 02, 2019

TENDER

FOR **Grading, Drainage, Granular, Hot Mix Paving, Electrical, and Structural**

(A) NECESSARY AVAILABLE FINANCIAL RATING IS $6,000,000 IN (GR)

NECESSARY AVAILABLE MAXIMUM WORKLOAD RATING IS $6,000,000

AT HWY. 3

From east limit of Simcoe (Ireland Road) to 0.3 km east of Norfolk Road 5 (Cockshutt Road)

5.7 km West Region

UNDER CONTRACT NO. 2018-3010

(B) THIS CONTRACT IS APPLICABLE TO QUALIFIED CONTRACTORS ONLY

BY

NAME OF FIRM OR INDIVIDUAL (HEREAFTER REFERRED TO AS "CONTRACT CONTRACTOR")

ADDRESS

NAME OF PERSON SIGNING FOR FIRM

OFFICE OF PERSON SIGNING FOR FIRM

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TENDER ITEM LIST

Grading

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
1	0201-0015	Clearing	m2 (P)	5,917		
2	0201-0075	Grubbing	m2 (P)	176		
3	0201-0080	Grubbing	each (P)	5		
4	0206-0010	Earth Excavation, Grading	m3 (P)	1,688		
5	0299-0015 SP	Earth Ditch Cleanout	m (P)	4,140		
6	0305-0015 SP	Granular Sealing (m2)	m2 (P)	396		
7	0308-0010 SP	Tack Coat	m2 (P)	113,769		
8	0312-0030	Asphalt Spillways	m (P)	5		
9	0313-1376 SP	Superpave 19.0	t	15,512		
10	0313-1535	Superpave 12.5 - 40 mm Lift Thickness	m2 (P)	4,066		
11	0313-1536	Superpave 12.5 - 50 mm Lift Thickness	m2 (P)	2,232		
12	0313-1537	Superpave 12.5 - 60 mm Lift Thickness	m2 (P)	6,199		
13	0313-1540 SP	Superpave 12.5FC 1 - 40 mm Lift Thickness	m2 (P)	53,885		
14	0314-0071	Granular A	t	25,020		
15	0330-0010	In-Place Full Depth Reclamation of Bituminous Pavement and Underlying Granular	m2 (P)	41,573		
16	0353-0011 SP	Concrete Curb and Gutter	m (P)	235		
17	0353-0020	Concrete Gutter Outlets	each (P)	4		
18	0421-0405	400 mm Pipe Culvert	m (P)	139		
19	0421-0505	500 mm Pipe Culvert	m (P)	422		
20	0421-0605	600 mm Pipe Culvert	m (P)	146		
21	0421-0805	800 mm Pipe Culvert	m (P)	66		
22	0421-0905	900 mm Pipe Culvert	m (P)	55		
23	0421-1205	1200 mm Pipe Culvert	m (P)	28		
24	0499-4071 SP	Clean Out Catch Basins, Maintenance Holes and Ditch Inlets	each (P)	7		
25	0510-3133	Removal of Asphalt Pavement	m2 (P)	11,011		
26	0510-3137	Removal of Asphalt Pavement, Partial-Depth	m2 (P)	47,821		
27	0510-3532	Removal of Concrete Curb and Gutter	m (P)	199		
28	0510-4210	Removal of Pipes and Culverts	m (P)	843		
29	0510-5523	Removal of Cable Guide Rail	m (P)	317		
30	0510-5526	Removal of Anchor Blocks	each (P)	4		
31	0510-9030	Removal of Concrete	m3 (P)	274		
32	0511-0145	Rip-Rap	m2 (P)	246		
33	0511-0150	Geotextile	m2 (P)	304		
34	0517-0020 SP	Temporary Flow Passage System	lump sum	100 %		
35	0703-0020	Small Signs, Ground Mounted, New	each (P)	85		

36	0703-0022 SP	Small Signs, Removal	each (P)	72		
37	0706-0015 SP	Temporary Traffic Control Signs	lump sum	100 %		
38	0706-0045	Road Closing / Restriction Notice Signs (TC-64)	each (P)	4		
39	0710-0010 SP	Pavement Marking	m (P)	15,769		
40	0710-0030 SP	Pavement Marking, Durable	m (P)	5,103		
41	0710-0040	Pavement Marking Symbols, Durable	each (P)	28		
42	0799-8010 SP	High Tension Three Cable Guide Rail - Shoulder Installation	m (P)	338		
43	0799-8020 SP	High Tension Cable Guide Rail Terminal System	each (P)	4		
44	0802-0030	Topsoil, Imported	m3	1,901		
45	0804-0052	Seed and Erosion Control Blanket	m2 (P)	985		
46	0804-0053	Seed and Matrix	m2 (P)	39,502		
47	0805-0065 SP	Heavy-Duty Wire-Backed Silt Fence Barriers	m (P)	160		
48	0805-0105 SP	Fibre Roll Flow Check Dams	each (P)	54		
49	0899-5406 SP	Coniferous Tree, 1.0 m Height	each (P)	1,655		
50	9999-4067 SP	Clean Out Sewers	m (P)	350		
51	9999-4209 SP	Clean Out of Pipe Culverts	each (P)	3		

Precast Concrete Box Culverts

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
52	0422-0100 SP	1800 mm x 900 mm Precast Concrete Box Culvert	m (P)	80.1		
53	0902-0010	Earth Excavation for Structure	m3 (P)	6,861		
54	0902-0030	Dewatering Structure Excavations	lump sum	100 %		
55	0904-0035 SP	Mass Concrete	m3 (P)	38		
56	9999-4262 SP	Precast Concrete Box Culvert, Structural (Span > 3 m)	m (P)	40.2		
57	9999-8004 SP	Placement of Streambed Material	m3	34		
58	9999-9140 SP	Culvert Waterproofing	m2 (P)	543		

Electrical

Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
59	0610-0010	Removal of Electrical Equipment	lump sum	100 %		
60	0617-0022 SP	LED Roadway Lighting Luminaires and Bracket Assemblies	each (P)	4		
61	0620-0020	Single Member Arms and Signal Hangers	each (P)	5		
62	0620-0050	Highway Type Signal Heads	each (P)	16		
63	0622-0020 SP	Traffic Signal Controllers	each (P)	2		
64	0623-0020 SP	Loop Detectors	each (P)	14		
65	0623-0035	Traffic Count Station	each (P)	1		
66	9999-6036 SP	Maintenance of Highway Lighting and Traffic Signal Systems	lump sum	100 %		

		Grand Total:				

INSTRUCTIONS TO BIDDERS

1.0 DEFINITIONS

Bidder means a person, sole proprietorship, firm, partnership, corporation, or any other business venture that submits a Bid to the Ministry.

Bonds means both the Contract Bonds and the Statutory Bonds prescribed in the Tender Documents.

Business Day means any Day which is not: a) A Saturday or a Sunday or b) A Day observed as a holiday under the laws of the Province of Ontario or the federal laws of Canada applicable to the Province of Ontario.

Contract Bonds means the surety bonds executed by the Contactor and its Surety prescribed in the Tender Documents, but does not include Statutory Bonds.

Contractor Registration Form or CRF means the Ministry approved form supplied by the Ministry and completed by the Bidder to submit information in support of a contractor's basic financial rating.

Contract Tender Form or CTF means the Ministry approved form detailing the contract tender information for an advertised contract.

Day means a calendar day.

Itemized Bid Form means the Ministry approved form that the Bidder is to use to price the items specified in the tender documents to perform the Work.

Late Bid means a Bid received by the Ministry's Service Provider after the Tender Closing.

Late Bid Notification is a statement sent by the Ministry's Service Provider to a Bidder notifying the Bidder that their Bid is a Late Bid and will not be considered and is rejected.

MERX means the company engaged by the Ministry to provide electronic tendering services in respect of this Bid, which is a subsidiary of Mediagrif Interactive Technologies Inc.

No Bid Statement means a 'No Bid' selection on a Summary Bid Submission Form submitted to the Ministry's Service Provider from a Bidder who has an approved Tender Registration Form, but who does not intend on submitting a Summary Bid Submission Form containing a summary Bid prior to the Tender Closing, or intends to withdraw a summary Bid submitted on a Summary Bid Submission Form submitted to the Ministry prior to Tender Opening.

Non-Rated Contractor means a Contractor who does not have a basic financial rating or maximum workload rating in accordance with the Ministry's Qualification Procedures for Contractors.

Non-Resident Contractor means any Contractor residing outside of the Province of Ontario and with respect to a corporate contractor, not being incorporated pursuant to the laws of Ontario and who has not maintained a permanent place of business in Ontario continuously for twelve months prior to Tender Closing.

Non-Qualified Tender Registration Form (NQ-TRF) means the Ministry approved form supplied by the Ministry completed by the Bidder to notify the Ministry of its intention to submit a Bid on a contract in accordance with the Instructions to Bidders.

Qualified Contract means a contract that is tendered in accordance with the Ministry's Qualification Procedures for Contractors.

Qualification Procedures for Contractors means the administrative routine established by the Ministry to determine that contractors have the financial, managerial, and technical capability to perform the work in accordance with the contract.

RAQS is an abbreviation for Registry Appraisal and Qualification System.

RAQS/MERX is an abbreviation for the Ministry's tendering system replacing RAQS.

Rated Contractor means a contractor who has been granted a basic financial rating or maximum workload rating in accordance with the Ministry's Qualification Procedures for Contractors.

Service Provider means the person appointed by the Ministry to provide electronic tendering services on behalf of the Ministry.

Statutory Bonds means the surety bonds executed by the Contactor and its Surety and required to be furnished by Part XI.1 of the Construction Act, R.S.O. 1990, c.30, as amended.

Summary Bid Submission Form means the electronic form obtained from the Ministry's Service Provider prior to Tender Closing that the Bidder is to use to summarize the lump sum offer to perform the Work.

Tender or Bid can be used interchangeably and means the offer submitted by a Bidder to perform the work required of the Tender Documents at the prices set out in the offer, which offer shall be set out in the forms approved by the Ministry and in accordance with the procedures more particularly described in these Instructions to Bidders. More particularly, the forms shall include, among other things, the Summary Bid Submission Form and the Itemized Bid Form.

Tender Closing or **Tender Opening** can be used interchangeably and mean the last date and time that the Ministry will receive Bids.

Tender Documents means the Tender, MTO General Conditions of Contract, Standard Specifications and Drawings, Special Provisions, Contract Drawings, Addenda incorporated into any aforementioned document, and documents referenced in the aforementioned documents, but excludes the Qualification Procedures for Contractors.

Tender Registration Form (TRF) means the Ministry approved form supplied by the Ministry completed by Bidders to pre-qualify for Qualified Contracts in accordance with the procedures set out in the Qualification Procedures for Contractors.

Unbalanced Bid means a Bid containing a lump sum or unit prices, which does not reflect reasonable actual costs to do the work as described in the Tender Documents, plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs, and other indirect costs which are anticipated for the performance of the work.

2.0 COMPLIANCE WITH INSTRUCTIONS

2.1 Bidders must comply with these Instructions to Bidders and those failing to do so may have their Bid rejected, unless otherwise stated.

3.0 ENQUIRIES DURING TENDERING PERIOD

3.1 Enquiries are to be submitted electronically through the RAQS/MERX website. All public enquiries and responses to enquiries will be posted through the RAQS/MERX website.

3.2 Unless addressed through an addendum to the Tender Documents issued by the Ministry, all responses to Bid enquiries shall not be incorporated as part of the Contract or in any way change the Contract.

4.0 JOINT VENTURES

4.1 Rated Contractors are permitted to Bid on tenders as a joint venture. Joint ventures are defined as persons or corporations not associated or related by common ownership. All joint ventures must, on a joint and several bases, absolutely, unconditionally and irrevocably be responsible for all obligations described in the Tender Documents. If the joint venture does not form a corporation, all the joint venture entities must sign the contract upon award of the Tender.

4.2 Rated Contractors shall in accordance with the Ministry's Qualification Procedures for Contractors notify the Ministry of their intent to form a joint venture. Upon approval by the ministry, the lead contractor must submit the TRF on behalf of the joint venture.

5.0 TENDER REGISTRATION

5.1 An approved Non-Qualified Tender Registration Form (NQ-TRF) or Tender Registration Form (TRF) is required for the submission of a Bid in respect of the work anticipated by the Tender Documents.

5.2 A Non-Rated Contractor must have a Ministry approved NQ-TRF for the submission of a Bid.

5.3 A Rated Contractor must have either a Ministry approved NQ-TRF or a TRF in the case of a Qualified Contract for the submission of a Bid.

5.4 Qualified Contracts are applicable to Rated Contractors only and require an approved TRF for the submission of a Bid.

6.0 STATUTORY BONDS

6.1 If the Total Bid Price is **$500,000.00 or more** the Contractor shall furnish the Ministry with the Statutory Bonds in the prescribed form that satisfies the requirements of the Construction Act, R.S.O. 1990, c.C.30, as amended. In this regard, the Contractor shall deliver and maintain a labour and material payment bond using Form 31 and a performance bond using Form 32 prescribed by the Construction Act from a surety company that is an insurer licensed under the Insurance Act to write

surety and fidelity insurance. Such bonds shall name Her Majesty the Queen in right of the Province of Ontario as represented by the Minister of Transportation as an obligee. Each such bond shall have a coverage limit of at least 50 per cent of the tender price.

7.0 ELECTRONIC BID SUBMISSION PROCEDURES

7.1 All Bidders must have a valid user ID and password to access the RAQS/MERX website and must have a Ministry approved CRF and a Ministry approved TRF for Qualified Contracts or Ministry approved NQ-TRF for all other contracts for the submission of a Bid in respect of this Tender. Failure to obtain either an approved TRF or NQ-TRF will disallow the Bidder from submitting a Bid on the basis of failing to comply with the Instructions to Bidders without any consideration by the Ministry.

7.2 The Bidder's TRF or NQ-TRF must be completed as of the date specified on the contract tender form. The Ministry will not approve any TRF's or NQ-TRF's received after 12:00 noon of the last Business day of the preceding week prior to the Tender Closing (generally, the Friday before Tender Closing).

7.3 Bidders must complete an on-line Summary Bid Submission Form. Only a Bidder with an approved TRF or NQ-TRF for the advertised Tender is able to complete and submit a Summary Bid Submission Form to the Ministry.

7.4 All Bids must be received by the Ministry before the Tender Closing date and time specified in the Tender Documents.

7.5 Bidders may submit a revised on-line Summary Bid Submission Form up until Tender Closing. The Ministry will only consider the last Summary Bid Submission Form received by the Ministry prior to Tender Closing. A No Bid Statement may be received from any Bidder on-line up until Tender Closing.

7.6 Upon successfully submitting an on-line Summary Bid Submission Form, Bidders will receive an on-line notification for information purposes that the Ministry has received their Summary Bid Submission Form.

7.7 The Itemized Bid Form will be available to pre-qualified Bidders for on-line data entry 24 hours prior to Tender Closing.

7.8 After Tender Closing, Bidders will receive an electronic notification from the Ministry's Service Provider, advising them that Tender Opening has occurred.

7.9 The Ministry's Service Provider will notify all Bidders electronically and will publish a Bidders list showing tender results on the RAQS/MERX website.

7.10 The three lowest Bidders will be advised to submit the Itemized Bid Form within 24 hours after the Bids are published. Failure to submit the Itemized Bid Form within the specified time may result in rejection of the Bid and/or may be referred to the Qualification Committee. The Itemized Bid Form shall not be changed once submitted.

8.0 COMPUTER SYSTEM FAILURE

8.1 The Ministry will only accept Bids submitted electronically through RAQS/MERX. Any Bid received through any other format will not be considered and is deemed rejected without consideration.

8.2 The Ministry accepts no responsibility for any reason whatsoever, including computer system failures of either the Bidder or the Ministry Service Provider, if the Bidder is unable to submit its Bid before Tender Closing and the Bidder agrees that the Ministry shall have no liability for delays caused by internet/network traffic, degraded operation or failure of any computer system element, including, but not limited to: any computer system, power supply, telephone or data connection or system or software or browser of any type whatsoever.

8.3 It is the sole responsibility of the Bidder to ensure that it can access and exchange data with the Ministry Service Provider's computer systems electronically and that it allows sufficient time to successfully access and share data with the Ministry Service Provider's computer systems, having regard to the possibility of delays caused by internet/network traffic. Bidders are solely responsible to ensure that they plan their access to the Ministry Service Provider's computer/servers, so that the Bidders can reach the Ministry Service Provider's computers/servers before Tender Closing.

9.0 UNBALANCED TENDERS AND DISCREPANCIES

9.1 Bidders that submit Tenders that contain a lump sum or unit prices that appear to be an Unbalanced Bid may be referred to the Ministry's Qualification Committee and any Tenders that are so Unbalanced to the potential detriment of the Ministry, may be rejected.

9.2 The Ministry will not allow any Bidder to adjust the total Tender amount after Tender Closing.

9.3 In the event of a mathematical error or discrepancy in the Itemized Bid Form, the Ministry may request the Bidder to resubmit the Itemized Bid Form without changing the total Tender amount.

10.0 ACCEPTANCE OR REJECTIONS OF TENDERS

10.1 The Ministry reserves the right to reject any or all Tenders, and to waive formalities as the interests of the Ministry may require without stating reasons, therefore, the lowest or any Tender may not necessarily be accepted.

10.2 The Ministry shall not be liable for any costs, expenses, loss or damage incurred, sustained or suffered by any Bidder prior, or subsequent to, or by reason of the acceptance or the non-acceptance by the Ministry of any Tender, or by reason of any delay in the acceptance of a Tender, except as provided in the Tender Documents.

10.3 The Tender shall be irrevocable for a period of 30 days following the date of Tender Opening.

11.0 CONTRACT AWARD PROCEDURES

11.1 The Ministry will notify a Bidder that the Tender has been accepted within 30 days of the Tender Opening.

11.2 Immediately after the notification, the Ministry will send the standard form contract agreement and other such forms and documents as are necessary to the selected Bidder for execution by the Bidder.

11.3 The selected Bidder shall fully execute and return the contract agreement and other such forms and documents, including the required bonds, if applicable, required certificates and declarations as directed in the notification of acceptance of Tender within seven Business days of the date the documents are received.

11.4 Following receipt of all properly executed forms and documentation, the Bidder will receive written authority to proceed with the work.

12.0 FAILURE TO PROVIDE DOCUMENTS OR ENTER INTO CONTRACT

12.1 If the Bidder is a Rated Contractor and fails to return the applicable documents as directed in the notification of acceptance of Tender, within seven Business days of receipt of such notification, the Ministry may reject the Bid on written notice to the Bidder and refer the matter to the Ministry's Qualification Committee without prejudice to any right or remedy the Ministry may have in law.

12.2 If the Bidder is a Rated Contractor and fails for any reason to enter into the contract within the specified time, then it shall not be allowed to work on the contract as a subcontractor or be allowed to supply any material, equipment or labour to the contract and the matter shall be referred to the Ministry's Qualification Committee without prejudice to any right or remedy the Ministry may have in law.

12.3 If the Bidder is a Non-Rated Contractor and fails to return the applicable documents as directed in the notification of acceptance of Tender, within seven Business days of receipt, the Ministry may reject the Bid, on written notice to the Bidder without prejudice to any right or remedy the Ministry may have in law, and the Ministry may revoke the Bidder's bidding privileges with the Ministry on future Ministry contracts for a period of up to 2 years.

12.4 If the Bidder is a Non-Rated Contractor and fails for any reason to enter into the contract within the specified time, then it shall not be allowed to work on the contract as a subcontractor or be allowed to supply any material, equipment or labour to the contract and the Ministry may revoke the Bidder's bidding privileges on future Ministry contracts for a period of up to 2 years without prejudice to any right or remedy the Ministry may have in law.

13.0 NON-RESIDENT CONTRACTORS REQUIREMENTS

13.1 Non-resident Contractors must provide a retail sales tax "Letter of Compliance" from the Ministry of Finance, failing which the non-resident Contractor shall satisfy the Retail Sales Tax Act and its regulations (as amended from time to time) in lieu therefore.

13.2 Non-resident Contractors must provide a copy of their approved Workplace Safety and Insurance Board registration form titled "Registration of Constructors and Employers Engaged in Construction" with their executed documents.

CONFLICT OF INTEREST

1. Each bidder must include in its bid submissions confirmation of the following:

    1.1 That the bidder does not and will not have any conflict of interest (actual or potential) in submitting its bid or, if selected, with the contractual obligations of the bidder as supplier/consultant under the Contract. Where applicable, a Bidder must declare in its bid any situation that may be a conflict of interest in submitting its bid or, if selected, with the contractual obligations of the bidder as supplier/consultant under the Contract; and

    1.2 That the bidder neither has nor has had, access to any Confidential Information as defined below;

    "**Confidential Information"** refers to the confidential information of the Crown (other than confidential information which is disclosed to the bidders in the normal course of the Tender); the Confidential Information is relevant to the Services required by the Tender, or their pricing and the disclosure for which could result in prejudice to the Crown or an unfair advantage to the Bidder.

2. In addition, each Bid shall include the following information:

    2.1 A list of the names, addresses and telephone number of the persons who participated in the development of the bid; and

    2.2 A list of the names of any former employees of the Ontario Public Service, their job classifications and the particular ministries where these individuals were working immediately prior to their leaving the Crown that the bidder has either appointed to its Board of Directors or employed since April 23, 1997.

The submission of any bidder may be disqualified where the bidder fails to provide confirmation of the foregoing or makes misrepresentations regarding any of the above. Further, the Minister shall have the right to rescind any contract with the selected bidder in the event that the Minister at his/her sole discretion determines that the selected bidder has made a misrepresentation regarding any of the above, in addition to or in lieu of any other remedies that the Minister has in law or in equity.

PART 1(a)

CERTIFICATION - CONFLICT OF INTEREST
(Complete Part 1(a) or 1(b) - Do Not Complete Both)

I/we hereby certify that there is not nor was there any actual or potential conflict of interest or unfair advantage in our submitting the Bid or performing the Work/Services required by the Contract.

In submitting the Bid, our company has no knowledge of or the ability to avail ourselves of confidential information of the Crown (other than confidential information which may be been disclosed by the Minister to the Bidders in the normal course of the Tender) where the confidential information would be relevant to the Work/Services, their pricing or the Tender evaluation process.

Name	**Signature**
Position	**Date**

The person who signs this declaration must be an authorised representative of the Tenderer and must have authority to bind the Tenderer.

PART 1(b)

CERTIFICATION - CONFLICT OF INTEREST
(Complete Part 1(a) or 1(b) - Do Not Complete Both)

In submitting our Bid, the Bidder declares that the attached is a list of situations, each of which may be a conflict of interest, or appears as potentially a conflict of interest in our company submitting the Bid or performing the contractual obligations of the Supplier/Consultant under the Contract. **(Strike out Paragraph if not Applicable)**

In submitting the Bid, our company has/has no **(Strike out the inapplicable portion)** knowledge of or the ability to avail ourselves of confidential information of the Crown (other than confidential information which may have been disclosed by the Minister to the Bidders in the normal course of the Tender) where the confidential information would be relevant to the Work/Services, their pricing, or the Tender evaluation process and where access to such additional information may prejudice the Crown or be an unfair advantage to the Bidder.

(If declaring that the Bidder <u>has</u> access to additional information that may be confidential, other than confidential information which may be disclosed by the Minister to the Bidders in the normal course of the Tender, please attach an explanation describing the additional information and how you access to it.)

With the exception of those situations and/or access to additional information disclosed on the list attached, I/we hereby certify that there is not nor was there any other actual or potential conflict of interest or unfair advantage in our submitting the Bid or performing the Work/Services required by the Contract.

I/We hereby acknowledge that the Minister at his/her sole discretion shall have the right to determine whether or not the declared situations do constitute an actual or potential conflict of interest or whether access to additional confidential information does constitute an unfair advantage over other bidders.

I/We acknowledge that in the event that the Minister finds the situations to be a conflict of interest or access to the additional confidential information to be an unfair advantage that our Bid may be rejected.

Name	**Signature**
Position	**Date**

The person who signs this declaration must be an authorised representative of the Tenderer and must have authority to bind the Tenderer.

PART 2

DISCLOSURE - CONFLICT OF INTEREST

PERSONS WHO PARTICIPATED IN THE PREPARATION OF THE TENDER			
NAME:	ADDRESS:	TELEPHONE NUMBER:	CONTRIBUTION OR % OF WORK:

The work specified in the Contract shall be performed in strict accordance with the following Provisions, Contract Plans, Specifications and Conditions for **CONTRACT NO. 2018-3010**

SCHEDULE OF PROVISIONS, CONTRACT PLANS, STANDARD DRAWINGS, SPECIFICATIONS AND GENERAL CONDITIONS

A. SPECIAL PROVISIONS

a) SPECIAL PROVISIONS FOR CONTRACT NO. 2018-3010 ATTACHED
b) SPECIAL PROVISIONS FOR LABOUR CONDITIONS ATTACHED
c) LIQUIDATED DAMAGES FOR CONTRACT NO. 2018-3010 ATTACHED

B. PLANS

Contract Drawing Book(s), Foundation Investigation Report.

C. STANDARD DRAWINGS

OPSD

Dwg No.	Issue Date	Dwg No.	Issue Date	Dwg No.	Issue Date	Dwg No.	Issue Date
0100.0100	Nov 2009	0100.0110	Nov 2006	0100.0120	Nov 2009	0100.0130	Nov 2009
0100.0140	Nov 2002	0100.0500	Nov 2006	0100.0600	Nov 2006	0101.0100	Nov 2006
0101.0110	Nov 2006	0101.0120	Nov 2006	0101.0130	Nov 2006	0101.0140	Nov 2006
0101.0150	Nov 2006	0101.0160	Nov 2006	0101.0170	Nov 2007	0102.0100	Nov 2006
0103.0100	Nov 2006	0103.0110	Nov 2006	0104.0100	Nov 2007	0200.0100	Nov 2009
0202.0100	Nov 2009	0202.0300	Nov 2009	0205.0100	Nov 2009	0205.0600	Nov 2009
0206.0100	Nov 2009	0210.0100	Nov 2010	0210.0700	Nov 2008	0219.1910	Nov 2015
0300.0100	Nov 2011	0300.0200	Nov 2011	0301.0100	Nov 2010	0301.0200	Nov 2010
0304.0100	Nov 2009	0400.0200	Nov 2007	0600.0600	Nov 2012	0605.0300	Nov 2012
0605.0400	Nov 2013	0608.0100	Nov 2012	0610.0100	Nov 2009	0708.0200	Nov 2006
0708.0300	Nov 2006	0801.0100	Nov 2012	0801.0200	Nov 2012	0802.0100	Nov 2010
0802.0300	Nov 2010	0802.0310	Nov 2010	0802.0320	Nov 2010	0803.0100	Nov 2010
0803.0300	Nov 2010	0803.0310	Nov 2010	0805.0100	Nov 2009	0805.0300	Nov 2009
0807.0400	Nov 2010	0810.0100	Nov 2013	0985.1100	Nov 2013	0985.2100	Nov 2013
0985.2200	Nov 2013	0989.1100	Nov 2013	0989.2100	Nov 2013	0990.1100	Nov 2014
2000.0010	Nov 2009	2011.1010	Nov 2009	2011.2010	Nov 2009	2011.6010	Nov 2013
2011.7010	Nov 2016	2012.1010	Nov 2009	2013.1010	Nov 2009	2013.2010	Nov 2009
2255.0200	Nov 2013	2501.0100	Nov 2011	2501.0200	Nov 2011	2502.0110	Nov 2007
2520.0100	Nov 2012	2520.0200	Nov 2012	2530.0100	Nov 2013		

MTOD

Dwg No.	Issue Date	Dwg No.	Issue Date	Dwg No.	Issue Date	Dwg No.	Issue Date
0101.0700	Apr 1994	0202.0410	Dec 2016	0504.0100	Feb 2016	0803.0210	May 1994
0805.0600	Jul 2013	0806.0210	Jul 2013	0806.0230	May 2014	0913.2210	Mar 2017
0913.2220	Dec 2016	0913.2260	Dec 2016	0913.2500	Nov 2018	0913.2530	Dec 2016

0984.2060	Dec 2016	0984.2070	Dec 2016	0986.1010	Jan 2014	0986.1050	Jan 2014
0986.3010	Jan 2014	0987.1010	Jul 2018	0987.1100	Jul 2018	0987.2100	Jul 2018
0987.3100	Jul 2018	2901.0210	Jan 2013	2901.4010	Oct 2008	2901.4020	Jan 2013
2901.4030	Oct 2008	2901.5210	Jan 2013	3941.2100	May 2018		

SSD

N / A

The following notes refer to Standard Drawing numbers in Section C above.

1. OPSDs are available for viewing and download from the Technical Publications website at www.raqs.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage.

   OPSDs that do not coincide with the most recent version published by OPS can be found in the archives section by selecting the “Go to Archives” tab.

2. MTODs are available for viewing and download from the Technical Publications website at www.raqs.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage under the applicable tabs located to the left of the screen.

   MTODs that do not coincide with the most recent version published by MTO can be found in the archives section of the above noted locations by selecting the “Go to Archives” tab.

3. Copies of all applicable Structural Standard Drawings (SSDs) are contained within the Contract Documents.

D. GENERAL SPECIAL PROVISIONS

Special No.	Issue Date	Special No.	Issue Date	Special No.	Issue Date
100S02	Mar 2018	100F08M	Jun 2017	100S15	May 2017
100S17	Mar 2018	100S59	Nov 2016	101S04	Jan 2017
101S06	Mar 2018	101S18	Apr 1994	101F21	Nov 2014
101F23	Apr 2017	102S05	May 2017	103F03	Oct 2018
103S05	Oct 2018	103F31	Jun 2017	104S06	Dec 2017
105S22	Jun 2016	106S16	Mar 2018	106S18	Mar 2018
107S02	Feb 2017	107S05	Apr 2017	109S12	Aug 2018
109F16	Feb 2009	109S17	Mar 2018	110F10	Sep 2001
110S16	May 2017	110S17	Aug 2018	111F06	Oct 2018
111F09	Aug 2018	113S03	Dec 2004	114S06	Jun 2017
118S03	Feb 2017	118S08	May 2018	199F03	May 2016
199F12	Nov 2014	199F14	Aug 2018	199F31	Apr 2016
199F33	Jun 2013	199S38	Mar 2017	199F43	Mar 2018
199S44	Jan 2001	199S54	Feb 2018	199S55	May 2004
199S56	Sep 2005	199F57	Dec 2017	199F59	Dec 2017
199S60	Oct 2009	199S64	Jul 2016	199S65	Dec 2016
199S66	Mar 2018				

E. ITEM SPECIFIC SPECIAL PROVISIONS

Special No.	Date	Item No.
299F11	Sep 2011	5
305S03	Mar 2017	6
308F02	Feb 2017	7
353S02	Jul 2007	16
422S01	Jul 2011	52
499S02M	Mar 2012	24
517F01	Jul 2017	34
617F03	Feb 2014	60
622F03	May 2017	63
703S01	Jul 2018	36
710S01	Sep 2011	39, 40
710S02	Sep 2011	39
799S05	Oct 2018	42, 43
799S15	Dec 2016	42, 43
805F01	Dec 2018	47, 48
999S31	Mar 2018	56

The following notes refer to Standard Special Provision (SSP) numbers in Sections D and E above.

1. Special Provisions with an "S" identifier are available for viewing and download from the Technical Publications website at www.raqs.mto.gov.on.ca/techpubs/cdedsp.nsf under the applicable tabs located to the left of the screen.

   Special Provisions with an "S" identifier, that do not coincide with the most recent version published by MTO can be found in the archives section of the above noted locations by selecting the "Go to Archives" tab.

2. Special Provisions with an "F" identifier signifies that additional fill-in information has been added to the standard published version of the Special Provision. The entire text of fill-in Special Provisions shall be obtained directly from Section "A" of the Contract Documents.

3. Special Provisions with an "M" identifier signifies that the standard published version of the Special Provision has been modified. The entire text of modified Special Provisions shall be obtained directly from Section "A" of the Contract Documents.

F. STANDARD SPECIFICATIONS

OPSS

No.	Date	No.	Date	No.	Date	No.	Date
0102	Oct 1992	0201	Nov 2011	0353	Sep 1996	0422	Apr 2004
0617	Nov 2013	0703	Nov 2014	0710	Nov 2010	0802	Nov 2010
0902	Nov 2010						

OPSS - Provincial

No.	Date	No.	Date	No.	Date	No.	Date
0100	Nov 2016	0106	Apr 2017	0127	Apr 2018	0180	Nov 2016
0182	Apr 2017	0206	Nov 2014	0305	Nov 2016	0308	Apr 2012
0312	Apr 2018	0313	Nov 2016	0314	Nov 2015	0330	Nov 2014
0421	Nov 2015	0510	Nov 2014	0511	Nov 2018	0517	Nov 2016
0610	Nov 2016	0620	Apr 2017	0622	Apr 2017	0623	Nov 2018
0706	Nov 2016	0721	Nov 2015	0804	Nov 2014	0805	Nov 2018
0904	Nov 2014	0905	Nov 2014				

G. REFERENCED STANDARD SPECIFICATIONS

The standard OPS specifications in the following list are applicable to the Contract when referenced by the Contract Documents.

No.	Type	Date	No.	Type	Date	No.	Type	Date
0100	Prov	Nov 2016	0102	Comm	Oct 1992	0106	Prov	Apr 2017
0120	Prov	Nov 2014	0127	Prov	Apr 2018	0180	Prov	Nov 2016
0182	Prov	Apr 2017	0201	Comm	Nov 2011	0202	Prov	Nov 2013
0203	Prov	Nov 2014	0206	Prov	Nov 2014	0209	Prov	Nov 2014
0212	Prov	Nov 2013	0220	Prov	Nov 2014	0301	Prov	Nov 2018
0304	Comm	Nov 2006	0305	Prov	Nov 2016	0307	Prov	Nov 2017
0308	Prov	Apr 2012	0311	Comm	Sep 1988	0312	Prov	Apr 2018
0313	Prov	Nov 2016	0314	Prov	Nov 2015	0316	Prov	Nov 2018
0320	Prov	Nov 2018	0330	Prov	Nov 2014	0331	Prov	Nov 2015
0332	Prov	Nov 2016	0333	Prov	Nov 2015	0335	Prov	Nov 2015
0336	Prov	Nov 2018	0337	Prov	Nov 2017	0341	Prov	Apr 2018
0342	Prov	Nov 2015	0350	Comm	Mar 1998	0351	Comm	Nov 2015
0353	Comm	Sep 1996	0355	Prov	Nov 2014	0363	Prov	Nov 2014
0365	Prov	Nov 2014	0366	Prov	Apr 2017	0369	Comm	Nov 2008
0401	Prov	Nov 2015	0402	Prov	Apr 2017	0403	Prov	Apr 2017
0404	Prov	Nov 2017	0405	Prov	Nov 2017	0407	MTC	Mar 1984
0409	Prov	Nov 2017	0410	Prov	Nov 2015	0415	Comm	Feb 1990
0416	Comm	Feb 1990	0421	Prov	Nov 2015	0422	Comm	Apr 2004
0441	Prov	Apr 2017	0490	Prov	Nov 2018	0491	Prov	Nov 2017
0492	Prov	Nov 2018	0493	Comm	Nov 2009	0501	Prov	Nov 2014
0510	Prov	Nov 2014	0511	Prov	Nov 2018	0512	Prov	Nov 2014
0517	Prov	Nov 2016	0539	Prov	Nov 2014	0578	Prov	Apr 2017
0602	Prov	Nov 2017	0603	Prov	Nov 2017	0604	Prov	Nov 2017
0609	Comm	Nov 2012	0610	Prov	Nov 2016	0611	Comm	Nov 2013
0614	Comm	Nov 2012	0615	Prov	Apr 2017	0616	Prov	Apr 2018
0617	Comm	Nov 2013	0620	Prov	Apr 2017	0621	Prov	Nov 2018
0622	Prov	Apr 2017	0623	Prov	Nov 2018	0630	Prov	Nov 2016

0631	Comm	Nov 2015	0703	Comm	Nov 2014	0704	Comm	Nov 2014
0705	Comm	Nov 2014	0706	Prov	Nov 2016	0707	Comm	Nov 2015
0708	Prov	Nov 2016	0709	Prov	Nov 2018	0710	Comm	Nov 2010
0721	Prov	Nov 2015	0723	Prov	Nov 2015	0732	Prov	Apr 2016
0733	Prov	Nov 2017	0740	Comm	Nov 2010	0741	Comm	Nov 2014
0753	Comm	Nov 2013	0760	Comm	Nov 2014	0771	Prov	Nov 2017
0772	Prov	Nov 2017	0791	Comm	Nov 2014	0801	Comm	Nov 2010
0802	Comm	Nov 2010	0803	Prov	Apr 2018	0804	Prov	Nov 2014
0805	Prov	Nov 2018	0810	Prov	Apr 2017	0811	Prov	Apr 2017
0812	Prov	Apr 2017	0820	Prov	Apr 2017	0821	Prov	Apr 2017
0822	Prov	Apr 2017	0823	Prov	Apr 2017	0824	Prov	Apr 2017
0830	Prov	Apr 2017	0902	Comm	Nov 2010	0903	Prov	Apr 2016
0904	Prov	Nov 2014	0905	Prov	Nov 2014	0906	Comm	Nov 2012
0907	Comm	Apr 2011	0908	Prov	Nov 2014	0909	Prov	Nov 2016
0910	Prov	Apr 2008	0911	Prov	Nov 2014	0913	Prov	Nov 2017
0914	Prov	Nov 2014	0915	Prov	Nov 2014	0918	Prov	Apr 2017
0919	Comm	Nov 2011	0920	Prov	Nov 2016	0922	Prov	Nov 2016
0928	Prov	Apr 2012	0929	Prov	Nov 2017	0930	Prov	Nov 2014
0931	Comm	May 1994	0932	Comm	Nov 2009	0935	Prov	Nov 2014
0942	Comm	Nov 2009	1001	Prov	Nov 2018	1002	Prov	Apr 2018
1003	Prov	Nov 2017	1004	Prov	Nov 2012	1005	Prov	Apr 2017
1006	Prov	Apr 2017	1010	Prov	Apr 2013	1101	Prov	Nov 2014
1102	Prov	Apr 2017	1103	Prov	Nov 2016	1151	Prov	Nov 2016
1152	Prov	Nov 2016	1153	Prov	Nov 2016	1202	Prov	Nov 2016
1203	Prov	Nov 2016	1204	Comm	Nov 2003	1205	Prov	Apr 2015
1210	Prov	Nov 2016	1212	Comm	Nov 2003	1213	Comm	Mar 1998
1215	Comm	Mar 1998	1301	Comm	Sep 1996	1302	Comm	Sep 1996
1303	Prov	Nov 2014	1305	Comm	Nov 2008	1306	Comm	Nov 2011
1308	Comm	Nov 2003	1315	Comm	Sep 1996	1350	Prov	Nov 2016
1351	Comm	Nov 2004	1352	Comm	Nov 1989	1430	Prov	Nov 2017
1440	Prov	Nov 2014	1441	Prov	Nov 2017	1442	Comm	May 1994
1443	Comm	May 1994	1503	Comm	Nov 2010	1504	Prov	Apr 2017
1505	Prov	Apr 2017	1540	Prov	Nov 2017	1541	Prov	Nov 2017
1601	Prov	Nov 2014	1605	Prov	Nov 2018	1704	Prov	Nov 2014
1712	Comm	Feb 1991	1713	Comm	Feb 1991	1714	Comm	Feb 1991
1715	Comm	Feb 1991	1716	Comm	Feb 1991	1750	Comm	Dec 1983
1801	Prov	Apr 2018	1802	Prov	Apr 2018	1820	Prov	Nov 2014
1821	Comm	May 1993	1840	Prov	Nov 2018	1841	Prov	Nov 2018
1842	Prov	Nov 2018	1843	Prov	Apr 2018	1850	Prov	Apr 2018
1854	Prov	Apr 2018	1860	Prov	Apr 2018	2001	Comm	Nov 2014
2301	Prov	Nov 2014	2401	Prov	Nov 2018	2409	Prov	Nov 2018
2410	Prov	Nov 2017	2414	Comm	Nov 2014	2420	Prov	Nov 2018

2421	Prov	Nov 2017	2422	Prov	Nov 2016	2423	Prov	Apr 2017
2426	Prov	Nov 2017	2428	Prov	Nov 2017	2432	Prov	Nov 2017
2434	Prov	Nov 2016	2452	Prov	Nov 2018	2453	Prov	Nov 2016
2460	Prov	Nov 2018	2461	Prov	Apr 2017	2471	Prov	Nov 2016
2474	Prov	Nov 2016	2475	Prov	Apr 2017	2476	Comm	Nov 2010
2479	Prov	Nov 2017	2485	Prov	Nov 2017	2502	Prov	Apr 2017
2510	Prov	Nov 2017						

The following notes refer to Ontario Provincial Standard Specification (OPSS) numbers in Sections F and G above.

1. OPSSs are available for viewing and download from the Technical Publications website at www.raqs.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage.

   OPSSs that do not coincide with the most recent version published by OPS can be found in the archives section by selecting the "Go to Archives" tab.

H. GENERAL CONDITIONS

OPSS.PROV 100, MTO General Conditions of Contract, November 2016

This document is available for viewing and download from the Technical Publications website at www.raqs.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage under the heading OPS Volume 5 – MTO General Conditions of Contract and General & Construction Specifications.

SIGNED STATEMENT BY BIDDER THAT THE BID IS PREPARED AND SUBMITTED WITHOUT COLLUSION OR DECEIT

The Bidder expressly warrants that the prices contained in his tender whether as unit prices or lump sums, and whether for transportation or supply of materials or for services, are quoted in utmost good faith on his part, without any collusive arrangement or agreement with any other person or partnership or corporation.

The Bidder expressly represents that he is not party or privy to any deceit tending to mislead the Ministry into accepting his tender as a truly competitive tender whether to the prejudice, injury or benefit of the Ministry.

THE CONTRACTOR BY THIS TENDER OFFERS TO COMPLETE THIS CONTRACT IN ACCORDANCE WITH THE PRICES QUOTED AND TERMS CONTAINED HERE IN.

Tax Compliance Declaration

The Ontario Government expects all suppliers to pay their provincial taxes on a timely basis. In this regard, bidders are advised that any contract with the Ontario Government will require a declaration from the successful bidder that his/her company's provincial taxes are in good standing.

In order for a company to be considered for a contract award, the bidder must submit the following statement of the company's tax compliance status:

I/we hereby certify that _____ at the time of
(legal name of company)
submitting this bid, is in full compliance with all tax status administered by the Ministry of Finance for Ontario and that, in particular, all returns required to be filed under all provincial tax statutes have been filed and all taxes due and payable under those statutes have been paid or satisfactory arrangements for their payment have been made and maintained.

Dated at _____ this _____ day of _____ 20__

_____
(An authorized signing officer)

_____
(Title)

_____
(Phone Number)

SECTION A
SPECIAL PROVISIONS
FOR

CONTRACT NO. 2018-3010

NOTICE TO CONTRACTOR - Fairness in Procurement

Special Provision

Contractors shall adhere to the Fairness in Procurement Act, 2018 and Suppliers from New York Regulation which set out specific mandatory requirements related to the Fairness in Procurement regulation.

Any structural iron used or supplied in the performance of this Contract and permanently incorporated in the surface road or bridge shall be fabricated in a jurisdiction other than New York.

Structural Iron means a product that is made of either wrought iron or cast iron or both and that is designed to carry a load, but does not include a product that contains any form of steel.

NOTICE TO CONTRACTOR - Emergency Contractor Contact Person

Special Provision

The Contractor shall provide at least one emergency contact person (ECP) who shall be available for the duration of the Contract, excluding winter shutdown periods, to receive direction from the Contract Administrator (CA) for any emergency situations that may occur within the limits of the Contract.

The ECP shall be the Contractor's main point of contact for the CA or MTO West Region Communication Centre or both to report emergency situations.

The ECP provided by the Contractor shall have the following minimum qualifications:

a) Be accessible 24/7 for the duration of the Contract to receive and record emergency calls.
b) Return all calls within 60 minutes.
c) Have the required level of authority within the Contractor's organization to immediately respond to the emergency response direction received from the CA. This includes having the authority to immediately organize and approve all required resources to carry out the specified emergency response direction.
d) Be knowledgeable of the contract scope of work, timing and traffic control.

Immediately after receiving emergency response direction from the CA, the ECP shall implement the necessary actions to resolve the emergency situation.

The ECP shall record details of all emergency calls received in a hard bound journal addressing the time of the call, name, address and phone number of the caller, description of the emergency, direction received from the CA and the action taken by the Contractor to resolve the emergency situation.

The Contractor shall provide a hard copy of this information to the CA within 24 hours from the time that each emergency call is received.

NOTICE TO CONTRACTOR - Areas of Archaeological Concern and Archaeological Material

Special Provision

AREAS OF ARCHAEOLOGICAL CONCERN

Lands outside of the MTO ROW within the contract limits have not been assessed for archaeological potential. These areas may be sensitive to land disturbance, including construction related activities such as the establishment of Contractor's yards, crushing plants, mobile asphalt plants and the storage and placement of surplus and unsuitable materials, and should be avoided. In the event that these areas cannot be avoided, the Ministry of Tourism, Culture and Sport requires an assessment of these areas by a licensed archaeologist in advance of any disturbance. Depending on the findings of the assessment:

a) any sites identified as significant will be prohibited from any land disturbance or excavated and documented to the satisfaction of the Ministry of Tourism, Culture and Sport; or

b) lands with no archaeological potential will be cleared of further archaeological concerns by Ministry of Tourism, Culture and Sport.

The Ministry of Tourism, Culture and Sport, Regional Archaeology Office (Telephone: 519-675-7742, Fax: 519-675-7777) should be contacted for further information on how to meet the Ministry's requirements in areas of archaeological concern.

ARCHAEOLOGICAL MATERIAL

During construction there is always the chance of encountering deeply buried archaeological material. If this occurs, the Ministry of Tourism, Culture and Sport should be informed and work in the area shall stop. In addition, if unmarked human remains are encountered, the provisions of the Ontario Cemeteries Act apply. Construction activities in the area should cease and contact should be made with the Regional Archaeology Review Officer of the Ministry of Tourism, Culture and Sport (Shari Prowse, 519-675-6898) and the Cemeteries Regulation Unit of the Ministry of Consumer Services (416-326-8393).

NOTICE TO CONTRACTOR – Non-Hazardous Earth

Special Provision

The Contractor is advised that investigations completed within the project limits identified impacted materials that have been contaminated with metals and petroleum hydrocarbons. All of the excavated impacted material shall be removed and managed as per the Contract Documents. The impacted material is classified as non-

hazardous earth. However, Toxicity Characteristic Leaching Procedure (TCLP) analysis is required to classify the material to ensure appropriate disposal in accordance with R.R.O. 1990 Regulation 347 (as amended).

Impacted material that is anticipated to be excavated according to the Contract Documents has been found below the existing highway at the following location:

- Northeast corner of the intersection of Highway 3 and Cockshutt Road (Norfolk Road 5)

The report entitled *Scoped Subsurface Investigation: MTO ROW Northeast of the Intersection of Highway 3 and Cockshutt Road/Norfolk County Road 5, Renton, Ontario, MTO Assignment No. 3015-E-0015 (#18),* dated November 13, 2018, provides an overview of the materials to be managed as part of this contract.

AMENDMENT TO MTO GENERAL CONDITIONS OF CONTRACT, NOVEMBER 2016 - Use of WBCMS for Administering the Contract

Special Provision

GC 1.07 Definitions

Subsection GC 1.07 of the MTO General Conditions of Contract is amended by the addition of the following definition:

Web-Based Contract Management Services (WBCMS) means a browser based solution that provides an electronic means to record, collect, transmit and store Contract data.

GC 1.09 Interpretation of Certain Words

Subsection GC 1.09 of the MTO General Conditions of Contract is amended by the addition of the following:

03. Any reference in the Contract Documents to "Owner Standard Form" or "PH-CC" shall be deemed to mean the electronic equivalent of that form within WBCMS.

.04 The words "write", "notify", "submit", "issue", "provide", "execute", "report", "give", "furnish", "return", "apply" and their variations, and other words referring to a communication from the Contractor to the Contract Administrator, or from the Contract Administrator to the Contractor, shall mean the word "electronically using WBCMS" (e.g., "writing electronically using WBCMS", "notify electronically using WBCMS").

.05 When administering Contract data, references to the term "Service Provider" in WBCMS shall mean the "Contractor".

GC 3.0 ADMINISTRATION OF THE CONTRACT

Section GC 3.0 of the MTO General Conditions of Contract, is amended by the addition of the following subsection:

GC 3.15 Use of WBCMS

.01 WBCMS shall be used to administer Contract data. After Contract award, submissions shall only be accepted by the Ministry through WBCMS.

.02 WBCMS is replacing paper copies therefore it is mandatory to fill the electronic records with all necessary data and attaching a scanned paper version is not acceptable.

.03 The Owner shall provide subscription information to the Contractor, including purchasing instructions, at the time of Contract award. The following requirements shall apply:

a) The Work shall not commence until WBCMS subscriptions have been purchased.

b) The Contractor shall ensure that a subscription is in place for each role within 5 Business Days of notification and maintained until issuance of the Contract Completion Certificate.

c) The Contractor shall agree to the WBCMS terms of service at the time of purchasing subscriptions, and abide by the terms and conditions for the duration of the Contract.

d) The Contractor shall purchase an annual subscription for each user in a role for each awarded Contract.

e) The Contractor shall maintain 1 Approval Role subscription until receipt of the Release from Warranty Certificate.

f) Subscriptions cost $1350 plus HST per user, per role, per year, and are valid for one year from the date of purchase. There shall be no additional costs to the Owner for using or accessing WBCMS.

g) It is the sole responsibility of the Contractor to ensure that internet access is continuously available to all their users at the work location during construction operations. There shall be no additional costs to the Owner for ensuring internet services are available at the work location.

h) The Contractor shall use Microsoft Internet Explorer 11 (IE11) as this is the Ministry supported browser.

i) The Contractor shall record all activities using WBCMS and the information must be entered on a daily basis. There shall be no additional costs to the Owner for using or accessing WBCMS.

.04 The roles and responsibilities within WBCMS are defined as;

a) Company User Administrator - Administers subscriptions, user profiles and assigns staff roles. This role does not require an annual subscription and cannot enter or review Contract data.

b) Field Role - Enters Contract data at the work location.

c) Office Role - Enters and reviews Contract data.

d) Approval Role - Reviews and approves field and office data. Any user in this role has the ability to bind the Contractor.

.05 When the Contract Documents require the submission of multiple copies of a document, and the document is to be submitted using WBCMS, then only the electronic submission is required.

.06 A document signed and sealed by one or more Engineer, Ontario Land Surveyor, Professional Geoscientist, or other professional licenced according to federal or provincial legislation shall be submitted electronically using WBCMS. In addition to the electronic submission, within 5 Business Days of the electronic submission using WBCMS, an original signed and sealed copy of the document shall be submitted by hand or by mail to the Contract Administrator.

.07 Submission of records using WBCMS shall be the legal equivalent of a delivery of original signed documents or information by hand by an authorized representative of the Contractor or the Contract Administrator.

AMENDMENT TO MTO GENERAL CONDITIONS OF CONTRACT, NOVEMBER 2016

Special Provision

GC 1.07 Definitions

Subsection GC 1.07 of the MTO General Conditions of Contract is amended by the addition of the following definitions:

Bonds means both the Contract Bonds and the Statutory Bonds prescribed in the Tender Documents.

Construction Act means the *Construction Act*, R.S.O. 1990, c.C.30, as amended.

Contract Bonds means the surety bonds executed by the Contractor and its Surety prescribed in the Tender Documents, but does not include Statutory Bonds.

Finishing Holdback means the 10% statutory holdback related to Finishing Work required to be retained pursuant to the *Construction Act*.

Finishing Work means the Work to be completed after submission of Form 9 of Ontario Regulation 303/18 of the *Construction Act* and prior to and necessary to be supplied or performed to complete the Contract.

Finishing Work Deficiency List means a list of deficiencies and Work yet to be completed identified, independently, by the Contractor and the Contract Administrator.

Statutory Bonds means the surety bonds executed by the Contactor and its Surety and required to be furnished by Part XI.1 of the *Construction Act*.

Total Bid Price means the price submitted by the Contractor at close of the tender.

Written Notice of Lien means a written notice of lien in the prescribed form pursuant to the *Construction Act*, R.S.O. 1990, c.30, as amended, given by a person with a lien that identifies the payer and identifies the premises, and states the amount that the person has not been paid and is owed to the person by the payer.

GC 1.08 Substantial Performance

Paragraph GC 1.08.01 of the MTO General Conditions of Contract is amended by deleting point b) in its entirety and replacing it with the following:

b) When the Work to be performed under the Contract is capable of completion or, where there is a known defect, correction, at a cost of not more than:

i. 3% of the first $1,000,000 of the Contract price,
ii. 2% of the next $1,000,000 of the Contract price, and
iii. 1% of the balance of the Contract price

Paragraph GC 1.08.02 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.02 For the purposes of this Contract, when the Work or a substantial part thereof is ready for use or is being used for the purposes intended and the Owner and the Contractor agree not to complete the Work expeditiously, the price of the services or materials remaining to be supplied and required to complete the Work shall be deducted from the Contract price in determining substantial performance.

GC 1.10 Liens

Subsection GC 1.10 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.01 A lien is preserved when the claimant has given the Owner a copy of the claim for lien before the lien has expired pursuant to the *Construction Act*.

.02 A preserved lien is perfected when the claimant commences an action in the courts to enforce the lien prior to the end of the period specified in Section 36 of the *Construction Act*.

.03 A preserved lien becomes a perfected lien by sheltering under a perfected lien in accordance with the rules of sheltering specified in Subsection 36(4) of the *Construction Act*.

.04 The Owner shall retain an amount sufficient to satisfy the amount of a lien set out in a written notice of lien Form 1 of Ontario Regulation 303/18 of the *Construction Act* in accordance with Subsection 24(2) of the *Construction Act*.

GC 4.10 Termination of the Contract

Subsection GC 4.10 of the MTO General Conditions of Contract is amended by the addition of the following paragraph:

.03 If the Contract is terminated, the Owner shall publish the statutory notice of termination prescribed by Form 8 of Ontario Regulation 303/18 of the *Construction Act*, in a construction trade newspaper, and the date of the termination of the Contract shall be the date specified in the statutory notice of termination for the Contract.

GC 4.12 Use of Performance Bond

Subsection GC 4.12 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

GC 4.12 Use of Performance Bonds

.01 If the Contractor is in default of the Contract and the Contractor has provided a performance bond, the Owner may rely upon the performance bond and its conditions along with the Contract Documents.

GC 6.02 Indemnification

Paragraph GC 6.02.01 of the MTO General Conditions of Contract is amended by deleting point c) in its entirety and replacing it with the following:

c) Made in writing within a period of 6 years from the date of Substantial Performance of the Work as set out in Certificate of Substantial Performance of Contract, being Form 9 of Ontario Regulation 303/18 of the *Construction Act* for the Work or, where so specified in the Contract from the date of the Contract Completion Certificate.

GC 6.04 Bonding

Subsection GC 6.04 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

GC 6.04.01 General

.01 If the Total Bid Price exceeds $500,000.00, the Contractor shall furnish the Owner with Statutory Bonds, being a performance bond and labour and material payment bond in accordance with the *Construction Act*.

.02 Such Statutory Bonds shall be obtained from a surety company or companies that is an insurer licenced under the *Insurance Act* to write surety and fidelity insurance.

GC 6.04.02 Performance Bond

.01 With respect to the Statutory Bond for a performance bond, the Contractor shall furnish a Performance Bond using Form 32 of Ontario Regulation 303/18 of the *Construction Act* that is conditioned on the due performance of the terms of the Contract for the amount of 50% of the Total Bid Price.

.02 With respect to the Contract Bond, the Contractor shall furnish a Performance Bond satisfactory to the Owner.

GC 6.04.03 Labour and Material Payment Bond

.01 With respect to the Statutory Bond, the Contractor shall furnish a Labour and Material Payment Bond using Form 31 of Ontario Regulation 303/18 of the *Construction Act* that extends or guarantees payment protections to the Subcontractor and persons supplying labour and Material to the Contract for the amount of 50% of the Total Bid Price.

.02 With respect to the Contract Bond, the Contractor shall furnish a Material and Labour Payment Bond satisfactory to the Owner.

GC 8.02.04.03 Certification of Subcontract Completion

Clause GC 8.02.04.03 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.01 Before the Work has reached the stage of Substantial Performance, the Contractor shall notify the Contract Administrator using Form 7 of Ontario Regulation 303/18 of the *Construction Act* that a subcontract is completed satisfactorily and request the Contract Administrator to certify the completion of the subcontract.

.02 The Contract Administrator shall investigate to determine if the subcontract has been satisfactorily completed with all required inspections and testing required for the subcontract work and, if the Contract Administrator so determines, shall certify completion using Form 10 of Ontario Regulation 303/18 of the *Construction Act*.

.03 Within 7 Days of the date the subcontract is certified complete, the Contract Administrator shall give a copy of the certificate to the Contractor and to the Subcontractor concerned.

GC 8.02.04.04 Subcontract Statutory Holdback Release Certificate and Payment

Paragraph GC 8.02.04.04.01 of the MTO General Conditions of Contract is amended by deleting point b) in its entirety and replacing it with the following:

b) Mail to the Contractor, the subcontract completion payment certificate within 10 Days of the date the subcontract was certified complete, for the Contractor to sign and return within 5 further Days. The Contract Administrator shall pay the Contractor the amount of the 10% holdback retained by the Owner in respect of the subcontract work after being certified completed and providing that all lien claims that may be claimed against the holdback for the subcontract work have been expired or been satisfied or discharged, or otherwise provided for under the *Construction Act*, and providing that the Contractor has furnished to the Contract Administrator a statutory declaration in a form supplied by the Owner that the said Subcontractor has discharged all liabilities incurred by the Subcontractor in carrying out the said subcontract.

Paragraph GC 8.02.04.04 of the MTO General Conditions of Contract is amended by the addition of the following:

.05 Payment for subcontracts certified complete pursuant to the Contract and the *Construction Act*, including the payment of the statutory holdback shall be made when all the liens have been satisfied in accordance with Section 25 of the *Construction Act*.

GC 8.02.04.05 Certificate of Substantial Performance

Paragraph GC 8.02.04.05.02 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.02 Upon written application by the Contractor for Substantial Performance using Form 9 of Ontario Regulation 303/18 of the *Construction Act*, the Contract Administrator shall conduct an inspection of

the Work to determine if the Work is substantially performed and the date for Substantial Performance. The Contractor's application shall detail non-conformances, defects to be rectified, and Work yet to be completed. After inspection, the Contract Administrator shall provide a list of deficiencies and Work yet to be completed in addition to the Contractor's list. The Contractor's list of non-conformances, defects, and Work yet to be completed together with the Contract Administrator's list of same shall be combined and referred to as Finishing Work. All deficiencies and Work to be completed from the Finishing Work Deficiency List shall be completed prior to Contract Completion. Any additional defects and deficiencies for Work previously accepted as substantially performed shall be completed within 60 Days of Contract Completion, unless prevented by winter weather conditions; in such case, the defects and deficiencies shall be corrected by June 15th of the following year. Defects and deficiencies on Work completed after Substantial Performance shall be completed prior to Contract Completion.

Paragraph GC 8.02.04.05.04 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.04 Upon receipt of a copy of the Certificate of Substantial Performance using Form 9 of Ontario Regulation 303/18 of the *Construction Act*, the Contractor shall arrange to have the certificate published in a construction trade newspaper and the Contractor shall provide to the Contract Administrator proof that the certificate was published. Where the Contractor fails to publish a Certificate of Substantial Performance within 7 Days of receiving the certificate, the Owner shall publish the certificate in a construction trade newspaper and charge the Contractor $1,000 for the costs of advertising and administration. Subject to the *Construction Act*, the 60-Day lien period shall start on the date the Certificate of Substantial Performance is published in a construction trade newspaper.

Paragraph GC 8.02.04.05.05 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.05 Except as otherwise provided for in Section 31 of the *Construction Act*, the 60-Day lien period prior to the payment of statutory holdback shall commence from the date of publication of the Certificate of Substantial Performance as provided for in paragraph GC 8.02.04.05.04.

GC 8.02.04.06 Substantial Performance Payment and Statutory Holdback Release Payment Certificates

Clause GC 8.02.04.06 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.01 Upon receipt of the application for payment at Substantial Performance, the Contract Administrator shall check the invoice and advise the Contractor of any discrepancies. Any of these discrepancies that are unresolved prior to the expiry of the lien period shall be treated as set-offs.

.02 Subject to any outstanding liens and permissible set-offs, the Owner shall issue payment, including the release of the holdback on the Work done, within 28 Days after the expiration of the 60-Day lien period.

.03 In addition to any permissible set-offs, holdback shall continue at the rate of 10%, on all Work performed after the date of the Certificate of Substantial Performance.

.04 If this Contract extends over more than one construction season and there are no outstanding liens, the Owner may issue payment to reduce the holdback

.05 The holdback may not be released to the Contractor within the timeline under GC 8.02.04.06 when Form 6 of Ontario Regulation 303/18 of the *Construction Act* is provided to the Contractor and published by the Owner in a construction trade newspaper as provided in Section 27.1 of the *Construction Act*. The Contract Administrator shall notify the Contractor, in writing, of its publication no later than 3 days after the publication of the notice of non-payment.

.06 Within 3 days after receiving Form 6 of Ontario Regulation 303/18 of the *Construction Act* from the Contract Administrator, the Contractor shall notify the affected Subcontractor(s) providing a copy of the notice.

.07 Payments for Work certified as substantially performed, including release of holdback, shall be made within 120 Days of the date of publication of substantial performance. The Owner shall release the holdback at the end of the 60-Day lien period providing all liens are expired or been satisfied, discharged or otherwise provided under the *Construction Act*. This payment shall be made within 28 Days of the expiry of the 60-Day lien period and subject to Subsection 26.1 of the *Construction Act*.

GC 8.02.04.07 Certificate of Contract Completion

Paragraph GC 8.02.04.07.02 of the MTO General Conditions of Contract is deleted in its entirety.

Paragraph GC 8.02.04.07.03 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.03 Upon receipt of a copy of the Certificate of Contract Completion, the Contractor shall arrange to have the Certificate of Contract Completion published in a construction trade newspaper and the Contractor shall provide to the Contract Administrator proof that the certificate was published. Where the Contractor fails to publish a Certificate of Contract Completion within 7 Days of receiving the certificate, the Owner shall publish the certificate in a construction trade newspaper and charge the Contractor $1,000 for the costs of advertising and administration. Subject to the *Construction Act*, the 60-Day lien period shall start on the date the certificate is published in a construction trade newspaper.

Paragraph GC 8.02.04.07.04 of the MTO General Conditions of Contract is deleted in its entirety

Paragraph GC 8.02.04.07.05 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.05 Upon receipt of the application for payment at Contract Completion, the Contract Administrator shall check the invoice and advise the Contractor of any discrepancies. Any of these discrepancies that are unresolved prior to the expiry of the 60-Day lien period shall be treated as a set-off.

Paragraph GC 8.02.04.07.06 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.06 Upon conclusion of the 60-Day lien period, and provided no liens have been received, all remaining holdback, exclusive of set-offs, shall be paid by the Owner, within 28 Days.

GC 8.02.04.11 Owner's Set-Off

Clause GC 8.02.04.11 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.01 Subject to Section 26 and Subsection 27.1 of the *Construction Act* and pursuant to Section 12 of the *Construction Act*, the Owner shall retain from monies owing to the Contractor under the Contract an amount sufficient to cover all debts, claims or damages related to the Contract, any outstanding or disputed liabilities the cost to remedy deficiencies, the reduction in value of substandard portions of the Work, claims for damages by third parties that have not been determined in writing by the Contractor's insurer, undetermined claims by the Owner under paragraph GC 8.01.02, a), and any assessment due the Workplace Safety and Insurance Board.

.02 Under these circumstances the Owner shall give the Contractor notice.

GC 8.02.04.12 Contract Completion and Statutory Holdback Release Payments

Clause GC 8.02.04.12 of the MTO General Conditions of Contract is deleted in its entirety and replaced with the following:

.01 Final payment including payment of statutory holdback shall be made upon the expiry of all liens or upon the liens being satisfied, discharged or otherwise provided for pursuant to the *Construction Act*.

.02 If the contract holdback is required to be paid prior to the time periods stated in clause GC 8.02.04 or the *Construction Act*, upon the Contractor's request in writing, the holdback may be paid with letter of credit in Form 4 of Ontario Regulation 303/18 of the *Construction Act* or with a purchase of holdback repayment bond in lieu of completing Form 5 of Ontario Regulation 303/18 of the *Construction Act*. The early payment of holdback does not relieve the Contractor from any liabilities under the Contract.

.03 If the contract schedule is longer than one year and the Total Bid Price is greater than ten million dollars ($10,000,000), the holdback may be paid in accordance with Section 26.1 of the *Construction Act*, provided that the conditions prescribed in either Subsection 26.1 or Subsection 26.2 of the *Construction Act* are met.

.04 The Owner shall release the Finishing Holdback so as to discharge all claims in respect of the Finishing Holdback where all liens that may be claimed against the Finishing Holdback have expired or been satisfied, discharged or otherwise provided under the *Construction Act*.

GC 8.02.04.13 Liens Filed Late

Clause GC 8.02.04.13 of the MTO General Conditions of Contract is deleted in its entirety.

AMENDMENT TO OPSS 1350, NOVEMBER 2016 - Greenhouse Gas Reduction Initiative

Special Provision No. 113S11 February 2019

1350.02 REFERENCES

Section 1350.02 of OPSS 1350 is amended by the addition of the following to **CSA Standards**:

A23.1 Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete

1350.03 DEFINITIONS

Section 1350.03 is amended by the addition of the following definitions:

Limestone Filler means divided limestone powder that may be used in concrete, as an aggregate, for the purpose of reducing the total amount of Portland cement used. Its use is limited to appropriate applications and exposure conditions after its suitability is determined through physical, chemical and mineralogical testing.

Portland Limestone Cement means cement obtained by intergrinding limestone with Portland cement clinker, as defined in CAN/CSA A3001.

1350.05 MATERIALS

1350.05.01 Cementing Materials

Subsection 1350.05.01 of OPSS 1350 is amended by the addition of the following to the first paragraph:

c) Portland limestone cement may be used in place of Portland cement only when the supplier of the Portland limestone cement is included in the Designated Sources for Material listing for Hydraulic Cements and Supplementary Materials. Concrete made with Portland cement and Portland limestone cement shall not be used in the same component. Portland limestone cement shall not be used in combination with limestone filler.

1350.05.02 Aggregates

Subsection 1350.05.02 of OPSS 1350 is amended by the addition of the following clause:

1350.05.02.01 Limestone Filler

Limestone filler shall comply with the following:

a) The requirements of OPSS 1002 for mineral filler with the exception that use of limestone filler is not confined to self-consolidating concrete.

b) The requirements of CSA A23.1, Annex L, L2 Organic Impurities.

c) The requirements of CSA A 3001, Clause 4.4.3 a) for calcium carbonate content.

Limestone filler shall be restricted to a maximum of 15% of the cement by mass.

1350.05.05 Concrete

Subsection 1350.05.05 of OPSS 1350 is amended by the addition of the following:

The selection of materials and design of the concrete mix shall be optimized to achieve GHG reduction of a minimum of 10% while maintaining the concrete performance requirements for the application and environment.

The 10% GHG reduction shall be obtained through the use of one or a combination of the following options:

1) Use of Portland-limestone cement.

2) Use of ground granulated blast furnace slag or fly ash to replace at least 10% of the cement content of the mix.

3) Use of limestone filler to reduce the cement content of the mix by at least 10% through enhanced particle packing, optimized aggregate gradation or other means.

1350.07 PRODUCTION

1350.07.05 Material Sampling and Testing

1350.07.05.02 Sampling of Water, Admixtures and Cementing Materials

Clause 1350.07.05.02 of OPSS 1350 is deleted in its entirety and replaced with the following:

1350.07.05.02 Sampling of Water, Admixtures, Limestone Filler and Cementing Materials

The Contractor shall obtain samples of all cementing materials, admixtures, limestone filler and water (when other than municipal drinking water is used) according to the frequencies as shown in Table 8, for testing by the Owner.

The Contractor shall deliver samples of admixtures and water to the Regional Quality Assurance laboratory.

The Contractor shall deliver samples of cementing materials and limestone filler to:

Head, Concrete Section, Ontario Ministry of Transportation
Room 15, 145 Sir William Hearst Avenue,
Downsview, ON M3M 0B6

Samples of admixtures and water shall be protected from freezing and high temperatures. Cementing materials samples shall be protected from moisture.

Table 8 of OPSS 1350 is amended by the addition of:

a) The words “Portland Limestone Cement” to the list of Cementing Materials in the column “Material”, and

b) Note 3. Minimum sampling and testing frequencies for limestone filler shall be the same as those shown for Cementing Materials.

<u>OPERATIONAL CONSTRAINT</u> - Illumination for Night Work

Floodlighting used for night work operations shall be adjusted so as to not interfere with the vision of drivers on the affected or opposing lane and also so as to not be directed towards residences adjacent to the highway.

OPERATIONAL CONSTRAINT - Maintenance of Traffic

Special Provision

Construction operations shall be carried out in such a manner as to maximize safety and minimize disruption to highway traffic.

Lane widths of no less than 3.50 metres and offsets between traffic and temporary concrete barrier of no less than 0.50 metres must be maintained at all times during construction staging.

OPERATIONAL CONSTRAINT - Construction / Traffic Management at Culvert Replacements

Special Provision

Culvert Replacements

All culvert replacements shall be completed prior to upper binder and surface course paving operations.

A temporary trench restoration, level with adjacent top of pavement, is permitted with Granular A at the Contractor's expense subject to all other constraints identified in the Contract Documents.

Black Creek Centreline Culvert Replacement at Station 16+069

The Contractor is permitted to replace the Black Creek centreline culvert at Station 16+069 utilizing a full highway closure and detour route. The closure of the Highway is permitted over 14 Days. Operations shall be scheduled such that all work required to re-open Highway 3 to traffic on lower binder is completed within 14 Days following commencement of work at this location.

This work shall be completed prior to September 1st, 2019, and is not permitted to take place over a weekend with a holiday, during the Norfolk County Fair and Horse Show (October 2 – 8, 2019), or during Friday the 13th events, which include Thursday, September 12th – 15th, 2019 and December 12th – 15th, 2019. Notice of the highway closure shall be installed two weeks in advance of the closure, and the temporary signage for the detour route shall be installed at least 2 Business Days in advance and temporarily covered.

In advance of the highway closure, the contractor shall notify all local EMS providers, public works, etc., at the time of the advance notice sign installation. As part of the notice, the contractor shall note to all agencies the limits of the detour and excavation by listing the 911 numbers impacted by the highway closure, and noting which side of Highway 3 the emergency vehicles must access the property (by eastbound Hwy 3 to excavation or by westbound Hwy 3 to excavation).

OPERATIONAL CONSTRAINT – Continuous Single Lane Closure at Hwy 3 Centreline Culvert Replacements

Special Provision

With the exception of the Black Creek centreline culvert at STA 16+069, the Contractor is permitted to complete centreline culvert replacement work on Highway 3 under two-way single lane traffic operation with flagging within a continuous 24-hour period over a maximum workzone length of 500m. The Contractor shall be permitted to employ more than one continuous 24-hour closure period over the duration of the contract but not more than one culvert replacement workzone requiring single lane operation shall occur or shall be permitted in the same 24-hour period. When a continuous single lane closure is in effect, no other single lane closures are permitted at the same time.

The Contractor will be required to complete all culvert replacement work including trench reinstatement within a single workzone such that two lanes of traffic shall be operational at the end of the permitted single lane closure period and such that there is no longitudinal drop between the existing and/or reconstructed traffic lanes. The Contractor shall be required to complete all culvert replacement work within the permitted 500m workzone prior to commencing work at another culvert site in another workzone. The Contractor is advised that there could be multiple culvert replacements within a single 500m workzone.

The Contractor shall monitor weather forecasts and schedule the work for periods when rain is not anticipated.

All culvert replacement work shall be completed prior to final upper binder and surface course paving.

OPERATIONAL CONSTRAINT – Lane Closure Restrictions

Special Provision

With the exception of continuous 24-hour single lane closures for the centreline culvert replacements, the maximum length of a single lane closure on Highway 3 shall be 1000 m. A maximum of 3 single lane closures will be permitted during the same time period and there must be a minimum 1000 m separation between the closures.

OPERATIONAL CONSTRAINT - Placing of Asphalt

Special Provision

The Contractor shall place the lower binder course and the upper binder course asphalt on the in-place full depth reclamation surface within five Working Days of the completion of the in-place full depth reclamation at any location.

OPERATIONAL CONSTRAINT – Driving Surface Restrictions

Special Provision

A granular driving surface shall be considered as any unbound mixture of gravel, sand, asphalt coated particles, or other loose materials travelled on by public traffic.

The maximum permissible duration for public traffic operation on granular driving surfaces shall be 5 consecutive calendar days. The Contractor is advised that operation of public traffic on lower binder will be permitted to meet this restriction. In addition, public traffic operations on granular driving surfaces shall be scheduled such that they do not occur on Highway 3 on a Friday before a Statutory Holiday or Civic Holiday, or a Saturday and Sunday of a holiday weekend or for any weekend of any given month where the 13th falls on a Friday.

OPERATIONAL CONSTRAINT - Entrances and Mailboxes

Special Provision

All entrance access within the contract limits are to be maintained at all times. The Contractor shall co-ordinate any temporary entrance closures with the occupant requiring access to the property. The Contractor shall advise the Contract Administrator of all arrangements made with the occupant.

The Contractor shall permit access to maintain existing mail service within the contract limits and will be required to remove and reinstall existing mailboxes as the work progresses.

OPERATIONAL CONSTRAINT - Interception of Agricultural Field Tiles

Special Provision

Agricultural field tiles inadvertently intercepted during the Contractor's operations, shall be plugged and/or repaired in accordance with the following procedures:

a) When field tiles are intercepted, the Contractor shall immediately notify the Contract Administrator.

b) Until repairs have been made, and/or permanent plugs or outlets have been provided, the following shall be ensured:
    i. Entry of soil and/or debris into the tile system shall be prevented; and
    ii. Outflow from the point of interception shall not be obstructed.

c) Field tiles that are intercepted, but are not designated to remain severed, shall be repaired to the satisfaction of the Contract Administrator.

d) Field tiles that are intercepted, and are designated to remain severed, shall be treated as follows:

i. Where the flow is directed away from the right-of-way, the severed field tiles shall be securely fixed and sealed at a point not less than 300 mm outside the right-of-way with either 15 MPa concrete in accordance with OPSS 904, or a wooden plug treated with wood preservative.
ii. Where the flow is directed toward to right-of-way, the severed field tiles shall be provided with subdrain outlets in accordance with OPSS 405.

Payment for the plugging or repairing of intercepted agricultural field tile, as described above, shall be according to the Change in the Work clauses of the MTO General Conditions of Contract.

OPERATIONAL CONSTRAINT - Protection of Hazards

Special Provision

The Contractor shall arrange his schedule of Work such that work under all removal of guide rail items shall not be carried out until the new, permanent guide rail can be placed to maintain shielding of the hazards.

Alternatively, with the Contract Administrator's approval, and at the Contractor's expense, temporary concrete barriers may be used to shield the hazards until the new, permanent guide rail can be placed. Under no circumstances shall hazards be left exposed without shielding during the seasonal shut-down.

OPERATIONAL CONSTRAINT - Seasonal Shutdown

Special Provision

Prior to the Contractor's "seasonal shutdown", all permanent highway lanes, shoulders, structures and interchange ramps which were in place prior to the start of construction, or their reconstructed counterparts, shall be paved, reinstated as defined elsewhere in the contract and opened to traffic. They shall remain unrestricted at all times to public traffic from the last Friday in November to the first Monday in April (referred to as "seasonal shutdown" for the purposes of this Special Provision). This Special Provision shall be read in conjunction with other components of this contract package.

Prior to "seasonal shutdown", the Contractor shall complete all partial depth pavement removal and paving operations on all lanes, shoulders, structures and ramps.

The Contractor shall schedule his operations such that the minimum acceptable pavement structure for "seasonal shutdown" will be either the existing full depth pavement structure or the new proposed pavement structure up to and including the upper binder course. No pavement drop-offs will be permitted.

All pavement markings, pavement marking obliteration and guide rail systems shall be in place to the satisfaction of the Contract Administrator and as follows:

a) Any pavement markings that will be in place during "seasonal shutdown" shall be painted markings only and shall have had a second application of paint in accordance with the requirements specified elsewhere in the contract.
b) All pavement marking obliteration that is required to remove painted temporary line markings shall be

obliterated using "grinding or soft abrasive system" if the markings are on a binder course or a "soft abrasive system", if the temporary line markings are on the final surface course.

c) All guide rail systems that are to remain in place during "seasonal shutdown" shall be installed to the elevation requirements for the pavement surface that will be in place during "seasonal shutdown". The shoulders shall be graded to reflect the required guide rail height. Sufficient room on the posts shall be left to allow for adjustment to final guide rail height.

The Contractor shall schedule and carry out his operations in accordance with these requirements, using any required acceleration. Compensation for all such work shall be deemed to be included in the Contract price for the appropriate tender items and no additional payment shall be made.

"Seasonal shutdown" requirements, as contained in this Special Provision, shall not relieve the Contractor of any other requirements contained in the contract, without the express written approval of the Contract Administrator. All hot mix paving work performed by the Contractor to meet seasonal shutdown requirements, that do not meet the full requirements of OPSS 313, shall be considered temporary paving and all costs associated with the placement and subsequent removal of the temporary pavement shall be at the Contractor's expense.

The Contractor's Critical Path Schedule shall at all times reflect the "Seasonal Shutdown" contract requirements as defined in this Special Provision.

OPERATIONAL CONSTRAINT – Utilities Protection/Coordination

Special Provision

Utilities Coordination

The Contractor is hereby notified that Utilities are present within the Contract limits. The approximate locations of the utilities are shown on the Contract Drawings. The Contractor shall arrange with the appropriate utility authority for the locate of all underground utilities and service connections that may be affected by the work.

The following utilities within the Contract limits include but are not limited to:

1. Aerial/buried Bell Canada
2. Buried Union Gas
3. Buried Watermain & Sanitary Sewer (Norfolk County)
4. Aerial/buried Hydro One

Utilities Protection

The Contractor is advised that there are utilities in close proximity to the work. The Contractor is also advised that a buried Bell service runs parallel to Highway 3 between the existing roadway and the MTO Right-of-Way adjacent to the centreline culvert at STA 15+154, and the work may require alternative methods of excavation such as hydro excavation or hand digging. It is the contractor's responsibility to take the necessary measures to ensure that these utilities are not damaged during the construction operations. The buried Bell service running parallel to the Black Creek Culvert (STA 16+169) has been abandoned.

Utilities at culvert replacements shall be supported as required with the approval of the applicable utility company. It is anticipated that hydro pole support may be required at the following entrance culvert replacement locations depending on the contractor's excavation limits:

STA 16+645 LT
STA 16+768 LT
STA 16+811 LT

Should any of the contractor's proposed excavations occur at or within 3.0 m of the base of a utility pole, the contractor shall provide that utility company a minimum of three weeks' notice of the work and confirm the requirement for pole support. Costs associated with the pole support will be billed to the ministry.

Any damage to the active utilities as a result of the Contractor's construction activities shall be the sole responsibility of the Contractor with no additional expense to the ministry.

It is the Contractor's responsibility as "Constructor" under the provisions of the Occupational Health and Safety Act (OHSA) to coordinate the activities of all employers and subcontractors and works operating within the contract limits to ensure that the requirements of the OHSA are satisfied. The Contractor shall ensure that each utility authority operating within the contract limits is included in this process.

Utility contacts will be provided to the successful contractor.

OPERATIONAL CONSTRAINT (ELECTRICAL) – Coordination with MTO Electrical Services

Special Provision

The Contractor shall notify MTO Electrical Services Coordinator a minimum of 5 working days prior to commencing any pavement milling work in the vicinity of all signalized intersections within the Contract limits.

The Contractor shall ensure that, prior to milling of the pavement where the traffic signal loops are located (refer to Electrical Layout drawings), the signal timing has been appropriately modified by MTO.

Upon reinstatement of the loops, the Contractor shall notify MTO immediately and request the reinstatement of the signal timing.

The Contractor shall notify MTO Electrical Services Coordinator two weeks prior to commencing any other electrical work.

Contact:

West Region Electrical Services
Ministry of Transportation
659 Exeter Road
London, Ontario N6E 1L3
Tel.: (519) 873-4147

OPERATIONAL CONSTRAINT (ENVIRONMENTAL) - Erosion and Sedimentation Control

Special Provision

Unless otherwise specified in Table M, the time interval between commencement and completion of any work that disturbs earth surfaces shall be a maximum of 45 Days. Commencement of such work shall be considered to have occurred when the original stabilizing ground cover has been removed, including grubbing, or has been covered with fill material. Completion of such work shall be considered to have occurred when the specified cover material (seed and mulch, seed and erosion control blanket, sod, riprap, etc.) has been applied.

Unless otherwise specified in Table M, the period in which the time interval is permitted shall be determined by the Contractor. In addition, this period shall be in compliance with any timing constraints specified elsewhere in the Contract for the application of the specified cover.

Table M

AREA #	AREA BOUNDED BY			TIMING CONSTRAINTS	
	STATION	OFFSET LEFT	OFFSET RIGHT	TIME INTERVAL IN CALENDAR DAYS FROM COMMENCEMENT TO COMPLETION	PERMITTED PERIOD FOR TIME INTERVAL BETWEEN COMMENCEMENT & COMPLETION
Throughout Contract	Within 200 m of watercourse or wetland			15 Days	Cover must be completed no later than October 30th

These timing constraints apply regardless of timing of Contract award.

Where interceptor ditches or subsurface drains are specified in the Contract, they shall be constructed before commencement of any related cut or fill.

Run-off from construction materials and any stockpiles shall be contained and discharged so as to prevent entry of sediment to watercourses.

Where dewatering is required, and where culverts are cleaned by hydraulic means, effluent shall be discharged so as to prevent entry of sediment to watercourses.

Erosion and sedimentation control measures shall not be placed in watercourses unless otherwise specified in the Contract, or directed by the Contract Administrator.

A 200 m stand-by supply of prefabricated silt fence barrier, in addition to silt fence barrier which may be specified elsewhere in the Contract, shall be maintained at the Contract site prior to commencement of grading operations and throughout the duration of the Contract.

OPERATIONAL CONSTRAINT (ENVIRONMENTAL) - Migratory Bird Protection

Special Provision

The Contractor shall not destroy the active nests (nests with eggs or young birds), or wound or kill birds, of species protected under the Migratory Birds Convention Act, 1994 and/or Regulations under that Act. If active nests are encountered during construction, work in the vicinity must cease and the Contract Administrator must be notified.

OPERATIONAL CONSTRAINT (ENVIRONMENTAL) - Protection of Species at Risk

Special Provision

Species at Risk (SAR) listed as endangered or threatened under the provincial Endangered Species Act, 2007 or the federal Species at Risk Act, 2002 and identified in Table A to be present within the contract limits shall be protected by implementing the corresponding mitigation measures specified in Table A.

Table A

SAR	Mitigation Measures	Related OPSS/SP/ Tender Item Code	Location of Mitigation Measures
Eastern Meadowlark	Timing Restriction - No vegetation shall be cleared for work at the noted stations between April 1st and August 31st.	Environmentally Sensitive Areas (199F12)	Hwy 3, Woodhouse Twp Sta. 16+350 RT to Sta. 16+750 RT
Eastern Meadowlark	Habitat Protection - Maintain all construction activities within the highway right-of-way and minimize removal/disturbance of herbaceous vegetation.	Environmentally Sensitive Areas (199F12)	Hwy 3, Woodhouse Twp Sta. 16+350 RT to Sta. 16+750 RT
Barn Swallow	Habitat Protection - Conduct a precautionary inspection of culverts for the presence of nests prior to beginning work. If nests are found, report to the Contract Administrator and await further instruction.		Hwy 3 Throughout project limits

Where Table A specifies that a Qualified Person is required, the name of the person shall be provided to the Contract Administrator a minimum of 10 Business Days prior to the commencement of work.

Unless specified elsewhere in the Contract Documents, a record shall be kept of all encounters with SAR that includes the date, location (GPS coordinates preferred), species, a photo of the species encountered, if possible, and any actions taken to protect SAR including but not limited to measures identified in Table A. A copy of the record shall be provided to the Contract Administrator upon contract completion.

OPERATIONAL CONSTRAINT (ENVIRONMENTAL) – Timing Constraint for Clearing

Special Provision

Clearing and removal of trees and shrubs shall not occur between April 1st and August 31st of any calendar year to avoid the usual nesting period for birds.

The Contract Administrator shall be notified if active nests (nests with eggs or young birds) are encountered.

OPERATIONAL CONSTRAINT (ENVIRONMENTAL) – Control of Invasive Phragmites During Ditch Excavation

Special Provision

Invasive Common Reed (*Phragmites australis*) may be found growing in dense patches in ditches within the project limits. This grass species may be identified by its feathery seed heads, wide bluish-green leaves, height (frequently over 2m, can be up to 5m), and growth pattern (forms dense, monocultural stands).

Where ditching or other excavation will occur within *Phragmites* stands, measures shall be taken to limit the spread of this invasive species:

- Prior to leaving an area containing *Phragmites*, excavation equipment shall be cleaned manually (without the use of water or chemicals) on-site and workers shall brush off their clothing to prevent the transfer of seeds and rhizomes to new areas.

For further information, please refer to "Invasive *Phragmites* – Best Management Practices", 2011, published by the Ontario Ministry of Natural Resources and Forestry.

OPERATIONAL CONSTRAINT (ENVIRONMENTAL) - Management of Excess Earth With Salt Impacts

Special Provision

The Contractor shall note that excess earth from highway construction projects may contain elevated concentrations of chloride and sodium and may have elevated values for Electrical Conductivity and Sodium Adsorption Ratio. For the purpose of this Contract, excess earth with salt impacts is not considered to be "contaminated" within the meaning of Table 1 in OPSS 180.

Where the Contractor manages excess earth as disposable fill, the Contractor shall take into account the possibility of salt impacts and ensure that the material is managed responsibly and in an environmentally appropriate manner. Where the Contractor intends to manage the excess earth that may be salt impacted on private property, the Contractor shall make the Property Owner aware that it may be salt impacted by using the attached Property Owner's Release in place of OPSF 180-3.

The Contractor is responsible for conducting such sampling and testing as may be necessary to comply with any requirements imposed by the Property Owner as a condition of accepting the excess earth.

PROPERTY OWNER'S RELEASE

Contract No: _____

Work Description: _____

_____

I/We being the owner(s) of Lot_____, Concession _____, Township of _____, and County/Region/District of _____, verify that the Contractor for the above noted work has placed excess material from the above noted Contract on my/our property with my/our permission. I/We have been advised by the Contractor of the Conditions on Management described in OPS Forms 180-1, Site Selection Notification for Stockpiling Materials Managed Through Re-Use, or 180-2, Site Selection Notification for Material Managed as Disposable Fill, or both, and have been assured by the Contractor that these conditions have been met.

Where materials are managed as disposable fill, I/we understand that excess earth from a highway project may contain elevated concentrations of chloride and sodium and may have elevated values for Electrical Conductivity and Sodium Adsorption Ratio and I/we agree to be responsible for any subsequent relocation and management of the material so placed.

Where materials are to be stockpiled, I/we agree that the stockpile(s) will be removed by the date(s) herein noted.

Dated this _____ day of _____ 20____

_____
Property Owner's Signature

_____
Print Contractor's Name & Field Representative's Name

_____
Contractor's Field Representative Signature

cc: Contract Administrator, Property Owner(s), Contractor

PROTECTION OF PUBLIC TRAFFIC

Special Provision No. 100F08M June 2017

Open Excavations

The Contractor shall schedule the Work so that there will be no open excavation adjacent to a lane carrying traffic overnight and on non Working Days except where a traffic barrier designed to restrain errant vehicles is located between the traffic and the excavation. Excavations within 4 m of lanes carrying traffic shall be backfilled with the specified material up to profile grade and compacted prior to closing down operations each day.

Location and Storage of Materials and Equipment

Materials shall not be stored within 4 m of the traveled portion of any roadway except in the medians where the minimum clearance required is 2.5 m. Equipment shall not be stored within 4 m of the traveled portion of any roadway.

Notwithstanding the foregoing, the Contractor shall, at the Contractor's expense, remove any vehicle, equipment or material which, in the opinion of the Contract Administrator, constitutes a traffic hazard or obstruction to maintenance operations.

Delivery and Trucking

The Contractor shall plan and schedule the routes of vehicles transporting all materials to, from or within the job, so that vehicular movements are accomplished with minimum interference and interruptions to traffic according to the sections entitled “Restrictions on Construction Operations” and “Permitted Times for Lane and Ramp Closures”. This will necessitate vehicles to “slip-off” or “slip-on” in the direction of traffic, in order to merge with and thereby avoid crossing traffic lanes.

Access to and from the highway right-of-way will be restricted to ramps at the interchanges unless otherwise provided for in the Contract.

Median cross-overs shall not be used except where single axle vehicles are entering a passing lane that is closed to traffic.

The Contractor shall obtain the Contract Administrator's prior approval for the location of any "slip-off" or "slip-ons". The Contract Administrator reserves the right to alter, reject or close same as considered necessary. The Contractor shall notify suppliers of materials and equipment of the above requirements.

Restrictions on Construction Operations

The use of construction accesses, shoulder closures and the loading and unloading of materials and construction equipment onto and from the traveled portion of the highway shall not be carried out on days identified under the section entitled “Holiday Restrictions”, or during the following periods:

Location	Monday or a Day Following a Holiday	Tuesday to Thursday Except on Days Following and Preceding Holidays	Friday or a Day Preceding a Holiday	Saturday	Sunday
Highway 3	15:00 – 18:00	15:00 – 18:00	11:00 – 18:00	11:00 – 14:00	Not Permitted

Holiday Restrictions

The use of construction accesses, shoulder closures, lane closures, ramp closures, and the loading and unloading of materials and construction equipment onto and from the traveled portion of the highway shall not be carried out on the following Canadian or U.S. Statutory/Civic Holidays; or when applicable, after noon on days immediately preceding a Holiday, as shown in the following table:

Name of Holiday	Date	After Noon on the Following Date Preceding the Holiday
Good Friday	April 19, 2019	April 18, 2019
Easter Monday	April 22, 2019	April 18, 2019
Victoria Day	May 20, 2019	May 17, 2019
Canada Day	July 1, 2019	June 28, 2019
Civic Holiday	August 5, 2019	August 2, 2019
Labor Day	September 2, 2019	August 30, 2019
Thanksgiving	October 14, 2019	October 11, 2019

Permitted Times for Lane and Ramp Closures

Lane closures and ramp closures for construction will only be allowed during the following times, subject to the additional restrictions covered under the section entitled “Holiday Restrictions”:

Lane Closures

Section Description: Highway 3

Closure	Monday or a Day Following a Holiday	Tuesday to Thursday Except on Days Following and Preceding Holidays	Friday or a Day Preceding a Holiday	Saturday	Sunday
One Lane	00:00 – 15:00 18:00 – 24:00	00:00 – 15:00 18:00 – 24:00	00:00 – 11:00 18:00 – 24:00	00:00 – 11:00 14:00 – 24:00	Not Permitted
Full Closure	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Not Permitted

Note 1: Lane closures shall not be permitted during Friday the 13th events, which include Thursday, September 12th – 15th, 2019 and December 12th – 15th, 2019.

Note 2: Long duration lane closures with temporary concrete barrier will be permitted as specified elsewhere in the Contract Documents.

A single full mainline closure for the replacement of the Black Creek centreline culvert at STA 16+069 is permitted as detailed elsewhere in the Contract.

Continuous single lane closures at Highway 3 centreline culvert replacements (excluding the Black Creek culvert at STA 16+069) are permitted as detailed elsewhere in the Contract.

Penalty for Early Closing

On each occasion when the Contractor closes lanes to traffic earlier than the specified times, the Contract Administrator will assess the Contractor an initial penalty of $ 500.00.

Thereafter, a further penalty of $ 50.00 per minute will be assessed against the Contractor for every minute outside the permitted closure window that the traffic lanes are not open to traffic. The Contract Administrator will be the sole judge of the length of time of the delay.

Penalty for Late Opening

On each occasion when the Contractor fails to reopen the traffic lanes by the specified time, the Contract Administrator will assess the Contractor an initial penalty of $ 500.00.

If traffic lanes are not open within 15 minutes of the specified time, a further penalty of $ 500.00 will be assessed against the Contractor.

Thereafter, a further penalty of $ 50.00 per minute will be assessed against the Contractor for every minute that the traffic lanes are not open to traffic. The Contract Administrator will be the sole judge of the length of time of the delay.

Closure Notification

Prior to the Contractor closing lanes and/or shoulders, the Contractor shall:

1. Inform the Contract Administrator of any closure, 1 week prior to the start date of the closure.

2. Inform the Contract Administrator of any closure lasting more than one week, at least 2 weeks prior to the start date of the closure.

3. Inform the Contract Administrator of emergency closures as soon as any details are known.

4. Obtain a Closure Notification Number from the Contract Administrator for each closure.

5. Inform the Contract Administrator of any closure that is being canceled subsequent to 1. and 2. above.

6. Field Work Notification Form must be filled out and sent in at least 24 hours prior to the work commencing. This may be faxed to 519-873-4443 or e-mail to WestRegion.TOC@ontario.ca

7. Notify the West Region Traffic Operations Centre by phone (519-873-4223) immediately prior to the set-up of lane closure.

8. Notify the West Region Traffic Operations Centre immediately of any changes to the closure or anticipated problems that may delay the opening time, stating details of the changes and or problems with

the closure.

9. Notify the West Region Traffic Operations Centre immediately upon removing the closure.

Lane Closures by OPP Officers (Paid Duty)

In addition to the requirements listed in the Ontario Traffic Manual (OTM), Book 7, Temporary Conditions, the Contractor has the option to use O.P.P. assisted lane closures in order to execute the work.

Basis of Payment

Section 706.10 of OPSS 706 is amended in that payment for all costs associated with O.P.P assisted lane closures as described above is deemed to be included in the Temporary Traffic Control Signs item and no additional payment will be made.

Any additional OPP-assisted lane closures that result from the Contractor's chosen sequence and/or method of operation are deemed to be included in the Temporary Traffic Control Signs item and no additional payment will be made.

If an authorized third party stipulates that additional OPP-assisted lane closures are required, the Owner will compensate the Contractor for the cost of the OPP services as a Change in the Work.

OCCUPATIONAL HEALTH AND SAFETY ACT COMPLIANCE

Special Provision No. 101F21 November 2014

List of Designated Substances

In accordance with the *Occupational Health and Safety Act, R.S.O. 1990, c. 0.1*, the Contractor is advised of the presence of the following Designated Substance(s):

Substance	Location
Arsenic	None identified
Asbestos on Construction Projects and in Buildings and Repair Operations (O. Reg. 278/05)	None identified
Lead	None identified
Silica	None identified
Benzene	None identified
Vinyl Chloride, Coke Oven Emissions, Ethylene Oxide, Acrylonitrile and Isocyanates	None identified
Mercury	None identified

AMENDMENT TO OPSS 182, APRIL 2017

Special Provision No. 101F23 April 2017

Timing of In-Water Works, Oversight Requirements, and Measures to Avoid Harm to Fish

182.07.08.01 Timing of In-Water Works

Clause 182.07.08.01 of OPSS 182 is amended by deleting the first paragraph in its entirety and replacing it with the following:

In-water work where fish and/or fish habitat are present is permitted during times specified in Table A for each waterbody and station listed.

Table A
Timing of In-Water Work

Waterbody	Station	Timing Window For When In-Water Work Can Occur
Surface drainage (to Black Creek tributary)	15+154 CL	July 1 – March 31
Surface drainage (to Black Creek tributary)	15+857 CL	July 1 – March 31
Black Creek tributary	16+069 CL	July 1 – March 31

182.07.08 Fish Protection

Subsection 182.07.08 of OPSS 182 is amended by the addition of the following clause:

182.07.08.06 Additional Measures to Avoid Harm to Fish

Measures listed in Table C shall be implemented at the specified locations.

Table C
Additional Measures to Avoid Harm to Fish

Waterbody	Type of Work	Additional Measures to Avoid Harm
▪ Surface drainage (to Black Creek tributary) at 15+154 ▪ Surface drainage (to Black Creek tributary) at 15+857 ▪ Black Creek tributary at 16+069	Culvert replacement	Operational constraints and protection measures in the Best Management Practice for Like-for-Like Culvert Replacement found here: http://www.raqsa.mto.gov.on.ca/techpubs/eps.nsf/0/1dc69a8606b3b071852580a500620ffb/$FILE/LikeforLikeCulvertBMP%20final%202017.pdf
	Ditch cleanout and new ditching	Operational constraints and protection measures in the Best Management Practice for Ditch Maintenance within 30 m of a Waterbody as per the "MTO Best Management Practices Manual for Fisheries" found here: http://www.raqsa.mto.gov.on.ca/techpubs/eps.nsf/cdedwv?openview&start=1&count=1000&searchorder=4

AMENDMENT TO OPSS 313, NOVEMBER 2016

Special Provision No. 103F03 October 2018

OPSS 313, November 2016, Construction Specification for Hot Mix Asphalt - End Result, is deleted in its entirety and replaced with the following:

313.01 SCOPE

This specification covers the requirements for the placement, compaction, and acceptance of hot mix asphalt (HMA).

This specification also covers the requirements for the placement, compaction, and acceptance of HMA produced using warm mix asphalt (WMA) technology when the item title includes "Warm Mix".

313.02 REFERENCES

This specification refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Construction

OPSS 308 Tack Coat

Ontario Provincial Standard Specifications, Material

OPSS 1101 Performance Graded Asphalt Cement
OPSS 1151 Superpave and Stone Mastic Asphalt Mixtures

Ontario Ministry of Transportation Publications

MTO Laboratory Testing Manual
LS-100 Rounding-Off of Test Data and Other Numbers
LS-101 Calculation of Per Cent within Limits
LS-262 Bulk Relative Density of Compacted Bituminous Mixtures
LS-264 Theoretical Maximum Relative Density of Bituminous Paving Mixtures
LS-265 Determination of Percent Air Voids in Compacted Dense Bituminous Pavement Mixtures
LS-266 Determination of VMA in Compacted Bituminous Mixtures
LS-282 Quantitative Extraction of Asphalt Cement and Analysis of Extracted Aggregate from Bituminous Paving Mixtures
LS-291 Quantitative Extraction of Asphalt Cement and Mechanical Analysis of Extracted Aggregate from Bituminous Paving Mixtures - Ontario Procedure
LS-292 Quantitative Determination of Asphalt Cement Content by Ignition and Analysis of Remaining Aggregate from Bituminous Paving Mixtures
LS-294 Measuring Pavement Lift Thickness
LS-306 Bulk Relative Density of Compacted Bituminous Mixtures Using Paraffin Coated Specimens
LS-317 Determination of the Severity of a Segregated Asphalt Pavement Surface
LS-604 Relative Density and Absorption of Coarse Aggregate
LS-605 Relative Density and Absorption of Fine Aggregate

ASTM International

D 6752-11 Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method
E 178-16 Standard Practice for Dealing with Outlying Observations

American Association of State Highway and Transportation Officials (AASHTO)

M 320-17 Standard Specification for Performance Graded Asphalt Binder
R 35-17 Superpave Volumetric Design for Hot - Mix Asphalt
T 166-16 Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens
T 283-14 Standard Method of Test for Resistance of Compacted Asphalt Mixtures to Moisture-Induced Damage
T 305-14 Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures
T 312-15 Standard Method of Test for Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

313.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Ambient Air Temperature means the air temperature measured in the shade and away from the paving operations.

Anti-Stripping Treatment (AST) means a treatment used to minimize stripping of asphalt cement from HMA aggregates as defined in OPSS 1151.

Asphalt Cement (AC) means asphalt binder as defined in OPSS 1101.

Attribute means one of the following properties: designated large sieve (DLS), 4.75 mm sieve, 75 µm sieve, AC content, air voids, lift thickness, VMA, draindown, or compaction.

Binder Course means a HMA course between a surface course and either a granular base course or stabilized base course, an existing pavement, or another HMA binder course.

Crack means a break in the pavement surface, a separation of the pavement or aggregates at the surface of the pavement, and separation of pavement joints, and includes breaks and separations previously repaired by sealing.

Design Lift Thickness (T_D) means the thickness in millimetres as specified in the Contract Documents of:
a) A specified lift of asphalt mix measured by square metres, or
b) For multiple binder course lifts of the same mix type, it means the combined specified thicknesses in millimetres of the successive binder course lifts of the same mix type, at the same location measured by square metres.

Designated Large Sieve (DLS) means a sieve size specifically designated for each mix type for gradation testing. The designated sieve for the following mix types is:
a) 25.0 mm for Superpave 37.5;
b) 19.0 mm for Superpave 25.0;
c) 12.5 mm for SMA 19.0 and Superpave 19.0;
d) 9.5 mm for SMA 12.5 and Superpave 12.5, 12.5FC 1 and 12.5FC 2; and
e) 4.75 mm for SMA 9.5 and Superpave 9.5.

Draindown means that portion of SMA mixture, fines and AC, that separates and flows downwards through the mixture.

Fat Spot means an area of pavement where asphalt mastic has migrated to the surface creating a substantially blacker area than the surrounding pavement.

Field Adjustment to the JMF means a change in the target gradation, AC content, or both of a mix, within limits as specified in the Contract Documents without a redesign of the HMA, resulting in an adjusted JMF.

Hot Mix Asphalt (HMA) means hot mixed, hot laid asphaltic concrete and includes mix produced using WMA technologies. HMA may include recycled or specialty mixes.

Hot Mix Asphalt Miscellaneous means HMA that is placed in areas other than the roadway as specified in the Contract Documents.

Job Mix Formula (JMF) means the percentage passing on each designated sieve of the total mass of aggregate and the amount of AC as a percentage by mass of the mixture that are based on mix design procedures as specified in the Contract Documents.

Joint means a vertical contact between a HMA pavement course and any HMA pavement or any rigid object that exists at the time the HMA is laid.

Levelling Course means a HMA course of variable thickness used for correcting crossfall and profile deficiencies in the existing pavement prior to placing an HMA binder or surface course. Levelling course may also be referred to as a padding course.

Lift Thickness means the thickness in millimetres of: a) A single lift of asphalt mix measured by square metres, or b) For multiple binder course lifts of the same mix type, it means the combined thickness of all placed and compacted successive binder course lifts of the same mix type, at the same location measured by square metres.

Loose Mix means a representative sample of uncompacted HMA for testing mix properties.

Lot means a specific quantity of Material or a specific amount of construction.

Mean means the arithmetic average of the test results within a lot.

Mid-Lane Segregation means a continuous or discontinuous longitudinal "streak" of segregation, typically no greater than 300 mm in width located anywhere across the width of the lane.

Mix Properties means the AC content, gradation, air voids, and VMA.

Other Segregation means discrete areas or patches of regular, irregular, or chevron shape segregation.

Outlier means a test result that for a specific significance level is determined by statistical analysis not to be part of the test result population.

Padding means a HMA layer used to eliminate transverse and longitudinal irregularities on an existing surface before placing the binder or surface course.

Paving in Echelon means two or more pavers are used to pave multiple adjacent lanes simultaneously.

Payment Adjustment Sieves means the DLS, 4.75 mm, and 75 µm gradation sieves.

Per Cent within Limits (PWL) means an estimate of the percentage of the lot that is within specification limits, determined by using the mean and standard deviation of the lot.

Performance Graded Asphalt Cement (PGAC) means an asphalt binder that is produced from petroleum residue, either with or without the addition of non-particulate modifiers, according to AASHTO M 320.

Quality Assurance (QA) means a system or series of activities carried out by the Owner to ensure that Materials received from the Contractor meet the requirements as specified in the Contract Documents.

Quality Control (QC) means a system or series of activities carried out by the Contractor to ensure that Materials supplied to the Owner meet the requirements as specified in the Contract Documents.

Random Sample means a sample from a location chosen by the Contract Administrator based on random numbers such that any portion of a lot or sublot has an equal probability of being selected.

Reclaimed Asphalt Pavement (RAP) means the processed HMA material that is recovered by partial or full depth removal.

Roof Shingle Tabs (RST) means ground roof shingle scrap generated when new shingles are trimmed during production.

Segregation means a condition of the pavement characterized by areas with comparatively coarser or finer texture than that of the surrounding pavement, with severity levels:

a) Slight Segregation - a pavement matrix is in place between the coarse aggregate particles; however, there are slightly more, coarse aggregate particles in comparison with the surrounding acceptable mix.
b) Medium Segregation - the pavement has significantly more, coarse aggregate particles than the surrounding acceptable mat and usually exhibits some lack of surface matrix.
c) Severe Segregation - the pavement appears very coarse, with coarse aggregate particle against coarse aggregate particle and the pavement has little or no matrix.

Standard Deviation means the square root of the value determined by summing the squares of the difference between each test result and the mean of the test results divided by the number of test results minus one.

Stone Mastic Asphalt (SMA) means HMA consisting of a gap graded, stone-on-stone coarse aggregate skeleton with an asphalt cement-rich mortar.

SMA Mixes means SMA 9.5, SMA 12.5, and SMA 19.0.

Straight Edge means a straight edge made of metal with a level recessed in its upper surface parallel to the lower edge.

Superpave means a system for specifying material components and asphalt mix design using the Superpave gyratory compactor. It is an acronym for Superior Performing Asphalt Pavements.

Surface Course means the HMA wearing course of any flexible or composite pavement.

Through Lane means a traffic lane not intended for entering or exiting the roadway and does not include shoulders. Where there is more than one roadway, through lane refers to the traffic lane for the higher-class roadway.

Vertical Surface means all edges of concrete curbs, catch basins, appurtenances, longitudinal joints, and transverse joints for application of joint painting material.

Voids means air voids and voids in mineral aggregate (VMA).

Warm Mix Asphalt (WMA) means warm mixed, warm laid asphaltic concrete produced using technologies that allow for the mixing, handling and compaction of the asphaltic concrete mixture at a temperature typically 20 to 50 °C lower than conventional HMA.

313.04 DESIGN AND SUBMISSION REQUIREMENTS

313.04.01 Submission Requirements

Prior to the start of paving, the purchase price of the AC, in the form of a purchase order or other document signed by the Contractor's senior financial officer, shall be submitted to the Contract Administrator.

If the Contractor intends to store hot mix production in a silo, the planned times of hot mix production shall be provided to the Contract Administrator with 1 Business Day advance notice.

Prior to the start of paving on bridge decks, the mass of the rollers, except for Class V rollers, to be used on bridge decks, shall be submitted to the Contract Administrator in writing. The minimum compaction temperature for HMA or WMA recommended by the AC supplier shall also be submitted to the Contract Administrator in writing.

A copy of the Technical Data Sheet and Safety Data Sheet of the release agent(s) shall be submitted to the Contract Administrator.

313.05 MATERIALS

313.05.01 Hot Mix Asphalt

HMA shall be according to OPSS 1151. Asphalt cement, tack coat, anti-stripping treatments, release agents, and other additives shall be compatible with the other components of the hot mix asphalt.

313.05.02 Tack Coat

Tack coat shall be according to OPSS 308.

313.05.03 Release Agents

No release agents shall be used that may adversely affect the quality or performance of the HMA. Release agents shall be used according to the proprietary requirements.

Petroleum based release agents, excess water, or excess release agents shall not be used.

313.05.04 Warm Mix Asphalt

WMA shall be according to OPSS 1151 and the following:

The mix shall be produced at a facility capable of producing the mix according to the WMA technology supplier's instructions for the use of their WMA technology. All information required for the proper preparation, handling, storage, and use of the WMA materials shall be obtained from the WMA technology supplier.

313.05.05 Grit for Stone Mastic Asphalt

Grit for SMA shall be as specified in the Contract Documents.

313.06 EQUIPMENT

313.06.01 Rollers

A Class R Roller is a self-propelled pneumatic-tired roller.

A Class S Roller is self-propelled steel-drum, tandem, or three-wheel roller.

A Class V Roller is a self-propelled vibratory roller specifically designed for HMA compaction having either dual vibratory rolls or a combination of vibratory roll and pneumatic tires with a contact area equal to or greater than 70% of the roll width.

313.06.01.01 Rollers for Granular Grade Preparation

Finish rolling for granular grade shall be accomplished using, as a minimum:

a) A Class S roller with a minimum mass of 7 tonnes and minimum mass of 3.5 kg per mm total roll width, or
b) A Class V roller with a drum width of at least 1.2 m.

313.06.01.02 Rollers on Bridge Decks

Compaction shall be accomplished using, as a minimum:

a) A Class S roller with a minimum mass of 9 tonnes and minimum mass of 4.5 kg per mm total roll width, and
b) A Class R roller with a minimum mass of 18 tonnes and minimum mass of 2,500 kg per tire.

If Class V rollers are used, they shall be used in static mode.

At the Contract Administrator's request, rollers shall be weighed in the presence of the Contract Administrator or a representative.

313.06.02 Diamond Grinding

A diamond grinder shall be power-driven, self-propelled, and designed for grinding HMA. It shall be equipped with a grinding head with at least 50 diamond blades per 300 mm of shaft. The grinding head shall be at least 0.9 m wide. The grinder shall be equipped with the capability to adjust the depth, slope, and crossfall to remove HMA to the required profile and shall also include a slurry pick-up system.

313.07 CONSTRUCTION

313.07.01 Quality Control

QC procedures shall be conducted to ensure HMA meets the requirements of the Contract Documents. Interpretation of QC inspections, test results, and measurements and the determination of any action to be taken shall be carried out to ensure that the work is according to the requirements of the Contract Documents.

A single sample for QC purposes may be obtained at the same time and location as QA acceptance samples. No additional loose mix samples shall be taken from the placed mix.

If the Contractor wishes to obtain additional samples for QC purposes, up to three cores may be taken in each surface lot. For binder courses, the Contractor shall be permitted to obtain one thickness core for their use from each sublot for each binder lift, prior to placement of the surface course. Cores shall not be spaced closer than 1 m from any other core. If further additional samples are required, a written request shall be made to the Contract Administrator, and samples shall only be taken upon written approval of the Contract Administrator. All sample locations shall be restored as specified in the Contract Documents.

313.07.02 Laboratory Correlations

On request, the Contract Administrator shall provide the opportunity to conduct a correlation of mix properties or compaction or both between the QA and QC laboratories prior to placement of HMA. The correlation may occur once for each mix type and shall be a maximum of 3 samples per mix type.

The Contract Administrator shall be provided with the samples and all information required to conduct the correlation testing. The Contract Administrator shall provide the QA test results on completion of the correlation testing.

313.07.03 Preparation of Foundation and Existing Pavement

Prior to placing any course of HMA on:

a) A granular grade, a Class S roller or an equivalent Class V roller shall be used to finish roll the grade ahead of the paver. The granular grade after rolling shall be a compacted, smooth, float-free surface, free from contamination of foreign materials. Any distortion that will impact the specified thickness of the pavement to be placed shall be repaired.

b) HMA or concrete surfaces, the HMA and concrete surfaces shall be clean and free of all loose, broken, and foreign materials.

c) Milled surfaces, the milled surface shall be clean of all loose, broken, and foreign materials and shall be swept with a power broom.

The Contractor shall be responsible for preparing the existing surface to be paved by milling or padding or a combination, as the Contractor deems necessary, to place and compact each lift to the thickness as specified in the Contract Documents, provided such corrections do not reduce the thickness of existing pavement materials or underlying materials by more than 5 mm below the general profile of the surrounding existing unground or unmilled pavement surface.

313.07.04 Correction of Pavement Beneath Surface Courses

Unless otherwise specified in the Contract Documents, the Contractor may correct any pavement course underlying the surface course by padding, milling, grinding or a combination, in order to meet the surface smoothness requirements. Padding shall be completed using a mix type acceptable to the Owner. The thickness of those pavements after milling or grinding shall not be reduced by more than 5 mm below the general profile of the surrounding unground or unmilled pavement surface. The milled surface shall not exceed 25 mm from ridge to ridge, and the ridge to valley depth of the milled surface shall not exceed 10 mm.

313.07.05 Tack Coat

Tack coat shall be applied to surfaces according to OPSS 308 prior to placing HMA.

313.07.06 Transportation of Hot Mix Asphalt

Truck boxes used to transport HMA shall be clean and, if required, lightly coated with a uniform application of a release agent. Truck boxes shall be drained after each application and before loading.

313.07.07 Placing Hot Mix Asphalt

313.07.07.01 Operational Constraints

Paving shall not be carried out if the roadbed is frozen. When placing the mixture on a granular grade, the granular grade shall not be saturated and shall be free of standing water. The surface of a pavement upon which HMA is to be placed shall be clean and dry at the time of HMA placement.

For paving on bridge decks, an HMA course shall not be placed over the waterproofing membrane and protection board until a minimum 4 hours has elapsed following completion of the waterproofing system or,

until the waterproofing system has set sufficiently that the integrity of the waterproofing system is not jeopardized.

An HMA course shall not be placed upon a previously laid course until the temperature of the previous course is 50 °C or less. For a HMA lift thickness of 60 mm or less, this temperature shall be measured at the surface. For a HMA lift thickness greater than 60 mm, this temperature shall be measured internally.

HMA binder courses shall be not placed unless the ambient air temperature is at least 2 °C. HMA surface courses shall not be placed unless the ambient air temperature is at least 7 °C.

Public traffic shall not be permitted on freshly laid HMA until the temperature of the mat is 50 °C or less.

When WMA is used, the WMA technology supplier's recommendations for placing the WMA mix shall be followed. Placement and compaction temperatures of WMA shall be according to the WMA technology supplier's recommendations but shall also meet the operational constraints listed in this clause.

313.07.07.02 Paving

313.07.07.02.01 General

Levelling, binder, and surface courses shall be laid by means of mechanical self-propelled pavers. Prior to roller compaction, obvious defects in the HMA placed shall be corrected. Irregularities in the alignment and grade along the outside edges shall be corrected. Excess HMA shall not be cast onto the surface of the freshly laid mat. After final compaction of each course the surface shall be smooth and true to the established crown and grade, uniform in texture and shall be free of any defects including segregation, fat spots, oil spills, chatter, and roller marks.

If the Contractor's actions fail to prevent continued medium or severe segregation regardless of cause, the Contract Administrator may instruct the Contractor to cease paving until the problem has been corrected.

All through lane paving courses shall be completed prior to the placement of adjacent sideroads, speed change lanes, and other paved areas.

HMA shall be placed and compacted to the thickness as specified in the Contract Documents for each lift.

At the end of each completed portion of the lanes and prior to opening them to traffic, the ends of completed sections of HMA course shall be temporarily ramped down to the existing pavement according to the Temporary

If paving is being carried out under lane closures, paving shall be completed to the same station for the full pavement width, including paved shoulders, prior to the roadway being reopened to traffic except as noted in the Partial Paving of Full Pavement Width clause.

313.07.07.02.02 Paving in Echelon

For the purpose of laying levelling, binder and surface courses as required under this Contract, paving in echelon shall not be used for the whole Contract.

When paving in echelon, the pavers shall be operated at the same time within 60 m of the next paver so that a hot joint is obtained between the lanes of HMA being placed. Should one paver break down while placing

levelling, binder, or surface course, the Contract Administrator may permit the day's work to be completed with the remaining paver only.

313.07.07.02.03 Paving on Bridge Decks

The temperature of the HMA immediately after spreading shall be equal to or greater than the minimum temperature recommended by the AC supplier. When the HMA is produced using WMA technology, the temperature of the WMA immediately after spreading shall be equal to or greater than the minimum temperature recommended by the WMA technology supplier. Breakdown rolling shall commence immediately after spreading.

313.07.07.02.04 Paving Widenings and Irregular Sections

The HMA shall be placed in widenings such that the top of the compacted HMA is placed to the top of the existing pavement. When stepped joints are specified in the Contract Documents, the layers placed in the widening shall be placed to the top of each step in separate operations. HMA shall be placed in the widening using equipment specially designed for this purpose.

In turnouts, driveways, and other irregular sections, other methods may be used to spread and finish the HMA.

313.07.07.02.05 Partial Paving of Full Pavement Width

Partial paving of the full pavement width is permitted except with the conditions listed below.

Partial paving of the full pavement width is not permitted when one or more of the following conditions exist:

a) When the ramping height would be greater than 50 mm,

b) At the longitudinal edges that will form the hot joint of lanes to be paved in echelon when specified under the Paving in Echelon clause, or

c) The pavement slope would cause water to accumulate at the edge of the ramping and extend onto an adjacent lane or shoulder that will be open to traffic.

When partial paving of the full pavement width is permitted, temporary longitudinal and transverse ramp downs shall be placed regardless of the difference in height elevations between adjacent pavement surfaces.

313.07.07.02.06 Temporary Ramp Downs

HMA courses shall be temporarily ramped down to the existing pavement at a slope of 120H:1V transversely. Transverse ramps downs shall not form part of the permanent pavement and shall be removed prior to paving of the adjacent section.

Where longitudinal ramp downs are permitted or if, due to unforeseen circumstances such as equipment breakdown occurring during paving, paving cannot be completed to the same station across the full pavement width, the HMA course shall be temporarily ramped down to the existing pavement at a slope of 10H:1V. Only one temporary longitudinal ramp down shall be in place across the width of the pavement at any time. The temporary longitudinal ramp down shall not form part of the permanent pavement and shall be removed prior to paving the adjacent section. The adjacent paving shall be completed such that the ramping is not in place more than 5 Days.

Loose particles generated during construction of the longitudinal or transverse ramp downs or both shall be removed from the roadway surface prior to re-opening the roadway to traffic. Temporary ramp downs shall remain intact and in place until they are removed prior to paving the adjacent section.

Temporary ramp downs shall be removed to produce a straight clean vertical surface for the full depth of the course prior to paving the adjacent lane or shoulder. After removal of the temporary longitudinal ramp down, traffic shall not be permitted to cross over the vertical surface at the longitudinal edge before the adjacent paving is completed.

313.07.07.03 Longitudinal and Transverse Joints

313.07.07.03.01 General

All joints shall be made to obtain a complete bond between the two pavement edges and a smooth riding surface. The existing or previously placed pavement edge shall be a straight clean vertical surface for the full depth of the course. Where ramping or damage has occurred, trimming shall be required. All dirt or other foreign material and all loose material shall be removed from all vertical surfaces.

313.07.07.03.02 Longitudinal Joints

The longitudinal joints shall be parallel to the lane and visually uniform longitudinally. The width of subsequent courses shall be staggered to an offset of 150 to 300 mm so that longitudinal joints do not coincide. The longitudinal joints in the surface course shall be offset 50 mm from the edge of the demarcation between the lanes as specified in the Contract Documents.

313.07.07.03.03 Transverse Joints at Limits of Paving

Joints between HMA pavement laid under this Contract and existing HMA courses not laid under the Contract shall be constructed as follows:

a) Where a binder course is placed flush against an existing HMA pavement and a butt joint is to be made, the existing pavement shall be trimmed back to form a straight vertical surface.

b) Where a surface course is placed flush against an existing HMA pavement, a butt joint shall be prepared by removing the existing pavement to the full depth of the existing surface course, to form a straight vertical surface, and for a longitudinal distance not less than 5 m so that the surface course placed has a thickness equal to the full depth of the existing surface course over the 5 m section.

c) Where a binder course and surface course are not placed flush against an existing HMA pavement, the binder course shall be feathered out removing the existing surface course to a minimum depth of not less than 40 mm, to form a straight vertical surface, and for a longitudinal distance not less than 5 m so that the surface course placed has a minimum thickness of 40 mm over the 5 m section.

d) Where multiple courses are placed flush against an existing HMA pavement, the joint for each course shall be offset at least 150 mm from the joint on the course below.

313.07.07.04 Compaction

Compaction of the HMA shall be conducted using appropriate methods and equipment to provide a uniformly compacted mat according to the requirements of this Contract. Class R rollers shall not be used to compact SMA.

At all places not accessible to rollers, the HMA shall be compacted by mechanical self-powered gas-, electric-, or air-powered equipment.

313.07.07.05 Gritting of Stone Mastic Asphalt

Hot grit shall be embedded in the SMA surface as specified in the Contract Documents.

313.07.08 Field Adjustments to the Job Mix Formula

The Contractor shall be permitted to adjust the JMF to more closely reflect the mix being produced. The number of field adjustments to the JMF shall be limited to three for each mix design submitted, one prior to the start of production and a maximum of two during production. Field adjustments to the JMF shall be limited in scope such that the net impact of all field adjustments to the JMF does not exceed any of the maximum field adjustments to the JMF in Table 1 in comparison to the original JMF submitted under the current mix design.

JMF adjustments shall not be accepted once placement of the specific mix type has been completed. The adjusted JMF shall be submitted in writing on a form supplied by the Contract Administrator. Upon receipt of the JMF adjustment submission, the Contract Administrator shall give a written confirmation of receipt of the adjusted JMF. Within 1 Business Day of receipt of the JMF adjustment, the Contract Administrator shall give written notice confirming conformance to the Contract requirements or advising of any non-conformance. The revised JMF may be applied to the lot being placed at the time the confirmation of receipt of the revised JMF is issued and the previous lot, if requested by the Contractor as part of the written submission for a JMF change. If this request is not made, the revised JMF shall only apply to mix placed subsequent to the receipt of the revised JMF.

313.07.09 Sampling

313.07.09.01 Asphalt Cement

Samples of the AC shall be taken according to OPSS 1101.

When the selected WMA technology requires that additives be added to the AC, the samples for acceptance of the AC shall be taken after the additive has been added to the AC.

313.07.09.02 Hot Mix Asphalt Aggregates for Density Testing

The Contractor shall procure samples for RAP and the aggregates identified in the mix design for each mix type using methods as specified in the Contract Documents. The first set of samples shall be taken no later than 10 Days prior to the start of production of the first lot of HMA. Subsequent samples shall be taken immediately following the completion of 15,000 tonnes ± 1,000 tonnes of mix production, and thereafter at further intervals of 20,000 tonnes as required. The aggregate and RAP sampling program shall be established in consultation with the Contract Administrator prior to paving. If the Contractor determines that a sampling interval needs to be reduced to reflect changes in the aggregate properties, the Contract Administrator shall be notified, and samples shall be taken as warranted.

A set of two samples shall be taken. One of these samples shall be for QA testing and the other shall be for referee testing. Samples for QA and referee testing shall be obtained concurrently.

Each sample shall be clearly identified as to the date of sampling, the lot number, and the item hot mix tonnage being produced when the sample was taken.

313.07.09.03 Hot Mix Asphalt Mix Properties

Samples shall be appropriately labelled with the Contract number, highway number, Region, lot number, sublot number, mix type, lift number, station, and date and time of sampling.

The Contract Administrator shall advise the Contractor of each random sample location or the tonnage from which the sample is to be taken. A set of two samples shall be taken as per Table 2. One of these samples shall be for QA testing and the other shall be for referee testing. Samples for QA and referee testing shall be obtained concurrently.

When the mass of the sample does not meet the requirements of Table 2, the sample shall be discarded and a new one taken immediately.

The SMA sample for draindown testing shall coincide with one of the other sublot samples as designated by the Contract Administrator. The samples shall be transferred to a clean stainless steel bowl or pan of suitable size, immediately after splitting, for delivery to the QA laboratory.

If the Owner's QA laboratory chooses LS-292, the Contractor shall provide, for each mix design, two sets of samples consisting of:

a) 2 one-litre cans of AC,
b) 25 kilograms of each aggregate type, and
c) 1 kilogram of baghouse fines, if used in the mix design.

One sample is for Owner's QA testing and the other for referee testing for the purpose of ignition oven calibration, including aggregate correction factors. The samples shall be submitted to the Owner's QA laboratory at least 5 Business Days prior to the start of paving with the applicable HMA type. If materials have changed from the mix design, an additional two sets of samples, as detailed above shall be provided.

313.07.09.04 Compaction

Upon completion of each sublot, the Contract Administrator shall provide notification of each random sample location in writing. Pavement core samples shall be obtained in duplicate, from each sublot no later than the next Business Day after the completion of the sublot. Each core shall have a minimum nominal diameter of 150 mm and a maximum nominal diameter of 200 mm, and shall consist of the full layer being sampled and at least one underlying layer, if one is present. Cores shall not be taken within 250 mm of a longitudinal or transverse joint or the edge of pavement. Cores for compaction shall not be taken on bridge decks.

Each set of samples shall be taken from the same lane, same transverse offset, and at a spacing of 1.0 m ± 0.1 m between each individual core edge.

Care shall be taken to ensure that cores are not damaged during coring operations or in transit. If a core is damaged, a replacement core shall be extracted at a location adjacent to the original core.

Core samples shall also include design lift thickness on the label. The lot and sublot numbers shall be clearly marked with a permanent marker on all compaction cores.

HMA and compaction requirements for filling the sample holes shall be the same as the adjacent undisturbed pavement. Sample holes shall be cleaned, dried, and filled and then compacted using a mechanical self-powered gas-, electric-, or air-powered compactor immediately after sampling.

A 1 litre sample of the release agent(s) shall be delivered to the Contract Administrator upon request.

313.07.09.05 Warm Mix Asphalt

Samples of WMA shall be obtained at the paver from sublots according to Table 2 for moisture sensitivity testing. The sublots are to be selected randomly from the sublots identified for mix properties by the Contract Administrator. These samples shall be designated for QA testing for moisture sensitivity as per AASHTO T 283. A complete sample data sheet shall accompany the samples. The data sheet shall also identify corresponding mix properties lot/sublot number and that the samples are for moisture sensitivity testing. Moisture sensitivity testing is required for information only.

313.07.09.06 Lift Thickness

For HMA items measured by square metres, single cores consisting of all lifts placed shall be used to evaluate the lift thickness of all lifts. Sample locations shall be determined based on the surface area of the upper most lift placed on the Contract.

All areas of hot mix paving within the Contract limits, including paved shoulders, shall be sampled for lift thickness with the following exceptions:

a) Detours and other temporary pavement.
b) Miscellaneous hot mix.
c) Bridge decks.

Upon completion of each sublot, the Contract Administrator shall provide notification in writing of the location to be used for sampling. One pavement core sample shall be obtained from each sublot not later than the next Day after the completion of the sublot. This one core shall be used for both QA and referee testing.

Each core shall have a nominal diameter of 50 mm and shall consist of all the hot mix lifts placed in the sublot and at least one underlying hot mix layer if one exists. Each core shall have its vertical side cored perpendicular to the upper surface of the core. Each sample shall be placed in a suitable container to protect the sample integrity during transport and until testing. The sublot number shall be clearly marked with a permanent marker on each core. In addition, the sample documentation as specified elsewhere in the Contract Documents shall also note the number of lifts for which the thickness measurements are required and mix type for each.

No replacement thickness cores shall be obtained for QA or referee testing. When a core thickness is reported as “indeterminate”, a new 150 mm core shall be taken centred over the sublot’s previously taken 50 mm core.

Holes resulting from the removal of thickness core samples shall be cleaned, dried and filled with a material acceptable to the Contract Administrator immediately after sampling.

313.07.10 Identification of Warm Mix Asphalt Paving Limits

When WMA is used, GPS coordinates for the WMA paving limits shall be submitted to the Contract Administrator no later than 7 Days after completion of WMA paving.

313.07.11 Management of Excess Material

Management of excess material shall be according to the Contract Documents.

313.08 QUALITY ASSURANCE

313.08.01 Acceptance Criteria

Acceptance of HMA shall be based on the following criteria:

a) AC Physical Requirements
b) Mix Properties and Compaction
c) Surface Tolerance
d) Surface Appearance
e) Surface Smoothness
f) Lift Thickness
g) Geometrics and Longitudinal Joint Location

313.08.01.01 Asphalt Cement Physical Requirements

The Contract Administrator shall determine the acceptability of the AC according to OPSS 1101 and requirements specified elsewhere in the Contract Documents.

When the selected WMA technology requires that additives be added to the AC, acceptance of the AC shall be based on the samples that contain the WMA additive subject to the conditions as specified in the Contract Documents. The Contractor may request that an allowance be made for the impact of the WMA and AST on a PGAC grade for QA or referee purposes provided that when production begins the Contractor submits to the Contract Administrator complete AASHTO M 320 test results for the following:

a) AC with WMA and AST at the percentage identified in the mix design.
b) AC without the additives.

The combined allowance shall be limited to maximum 2 °C colder than the high temperature grade or maximum 2 °C warmer than the low temperature grade.

313.08.01.02 Mix Properties and Compaction

313.08.01.02.01 Lot Size

313.08.01.02.01.01 General

The Contract Administrator shall determine the size and location of the lots and sublots, after discussion with the Contractor and before HMA production for the tender item starts. Guidelines for the breakdown of the tender item quantity into lots are as listed in Table 3.

When only one or two sublots are completed at the end of paving for the tender item due to a change in the JMF or when a delay of more than 20 Business Days occurs in placing the complete lot, the test results obtained shall be considered as part of the previous lot and the previous lot shall then have 11 or 12 sublots. When only 3 to 9 sublots are completed due to the above circumstances, then the 3 to 9 sublots shall be considered as a lot.

When a delay of more than 20 Business Days occurs in placing the complete lot and this lot shall be completed during the same calendar year, the Contractor may, prior to the end of the 20 Business Days, request in writing to the Contract Administrator that the lot be continued upon the resumption of paving for that tender item. If the request is not made or is not accepted by the Contract Administrator, the lot shall be terminated and evaluated for acceptance.

313.08.01.02.01.02 Optional Surface Trial

When the surface hot mix tender item is 5,000 tonnes or more, an optional trial of one lot, not exceeding 500 tonnes, with one sublot shall be permitted. The trial shall be placed in a binder course, and the lift thickness shall not be greater than 60 mm. If the Contractor elects to place this optional trial, the Contract Administrator shall be advised in writing prior to placing the trial lot. The optional trial shall not be placed in a critical location such as bridge decks. The optional trial lot will be treated as a small quantity lot for basis of acceptance and payment.

313.08.01.02.01.03 Lot Size for Bridge Decks

Hot mix placed on a bridge deck should be treated as a separate lot. Where hot mix is placed in multiple stages, each stage shall be treated as a separate lot.

The lot shall be either a single sublot or divided into 3 approximately equal sublots as determined by the Contract Administrator, in consultation with the Contractor.

313.08.01.02.01.04 Lot Size for Tonnage Items

Lot size is generally 5,000 tonnes. Sublots are generally 500 tonnes, however, sublot sizes may be adjusted to ensure a minimum of 3 sublots per lot.

When the tendered item quantity is less than 1,000 tonnes, the sublots shall be determined by the Contract Administrator based upon such testing as is deemed necessary by the Contract Administrator to determine substantial conformance with the Contract.

313.08.01.02.01.05 Lot Size for Square Metre Items

For lift thicknesses in the order of 40 to 50 mm, lot size is generally 40,000 m^2 with sublots of 4,000 m^2, however, sublot sizes may be adjusted to ensure a minimum of 3 sublots per lot. For lift thicknesses in the order of 60 to 80 mm, the lot size would generally be adjusted to 25,000 m^2 with sublots of 2,500 m^2.

When the tendered item quantity is less than 4,000 m^2, the sublots shall be determined by the Contract Administrator based upon such testing as is deemed necessary by the Contract Administrator to determine substantial conformance with the Contract.

313.08.01.02.02 Acceptance Testing

The Owner shall conduct tests, carry out calculations and provide values according to Table 4. The Contractor shall be provided with results from the completed tests.

The QA laboratory shall conduct density tests for RAP and aggregates identified in the mix design for each mix type using methods as specified in the Contract Documents.

When new aggregate samples are received, QA testing on the new aggregate samples shall be conducted and the calculation of VMA for the subsequent lot(s) shall be based on the most recent samples submitted. When the Contractor notes a change in aggregate density and requests that new samples be obtained between routine random samples, the Contractor shall state in the sample request if the current lot will be closed, or if the lot will be completed and the new density tests results will not be used for calculation of VMA until the next lot.

313.08.01.02.03 Basis of Acceptance

Acceptance for all mixes for mix properties and compaction is based on the lot PWL for each attribute, excluding VMA. PWL shall be determined using lot test results, LS-101, and lower and upper limits as specified in Table 5. The PWL of the lot for each criterion shall be used to determine the payment adjustment factor from Table 6. If the PWL is less than 50% for AC content, air voids or compaction, or less than 25% for any payment adjustment sieve, the lot is rejectable and shall be subject to repair or payment adjustment. VMA shall meet the minimum mix design requirements according to OPSS 1151 for each lot and payment shall be based on the lot mean as specified in the Payment Factor for Voids clause. If the VMA payment factor is less than 0.500, the lot shall be considered rejectable. SMA lots shall be considered rejectable if the draindown is more than 0.3%.

When the tendered item quantity is less than 1,000 tonnes, the HMA may be accepted by the Contract Administrator based upon such testing as is deemed necessary by the Contract Administrator to determine substantial conformance with the Contract. When 3 or more tests have been completed for a lot the Material shall be accepted at the full Contract price, subjected to a payment adjustment or rejected as specified in Contract Documents.

Any lot comprised of one or two sublots, shall not be subject to payment adjustment unless the mix is rejectable. Acceptance for these lots shall be on a sublot by sublot basis. The sublot shall be considered acceptable if the AC content, gradation, air voids, and compaction of each sublot comply with the limits specified in Table 5, and the VMA shall be no more than 0.50% below the design minimum. Mix that does not comply with the requirements shall be considered rejectable.

The Contract Administrator shall determine if a rejectable lot may remain in the work without repairs. When the Contract Administrator has determined that a rejectable lot may remain in the work without repair, the lot shall be subjected to an additional payment adjustment reflecting the extent of the non-conformance as determined by the Contract Administrator. If the Contractor elects to repair the lot in lieu of a payment adjustment, or if the Contract Administrator determines that a rejectable lot requires repair, the lot shall be repaired and re-evaluated as specified in the Repairs for Mix Properties and Compaction clause.

313.08.01.02.04 Referee Testing

A single request for referee testing for a given lot can only be invoked by the Contractor within 5 Business Days of the Contractor receiving the Contract Administrator's calculated QA payment factors for that lot. Referee testing for aggregate density can only be invoked by the Contractor within 5 Business Days of the Contractor receiving the test results for aggregate density.

For mix properties and compaction, the Contractor may request testing by a referee laboratory for the entire lot, or a maximum of two sublots from that lot. Referee testing shall fall into one of three categories:

a) Mix properties only,
b) Compaction only, or
c) Mix properties and compaction.

The Contractor may request referee testing for determining the draindown of a SMA sample.

The referee laboratory shall use the same test method as the QA laboratory except that when the QA laboratory chooses LS-292, the referee laboratory shall use that method provided the calibration requirements are met. If they are not met, the referee laboratory shall use LS-282.

When referee testing of mix properties is invoked, the referee laboratory shall conduct all necessary testing, with the exception of the combined aggregate density which shall be supplied by the Contact Administrator.

When referee testing for compaction is invoked, the referee laboratory shall determine the MRD of the loose mix sample for the sublot, and this value shall be used in the calculation of compaction for the referee core.

The results generated by the referee laboratory shall be used to re-evaluate the lot to determine the payment factors for the acceptance of the disputed properties for the disputed lots of HMA. The referee test results are binding on both the Owner and the Contractor.

313.08.01.02.05 Outliers in Referee Results

Where an entire lot of 3 or more sublots has been referee tested, the Contractor may question an individual value for any attribute of a sublot's test result, excluding VMA. The request shall be made within 3 Business Days of the Contractor receiving all of the test results for the lot, and only when the payment factor for the attribute with an outlier is less than 1.0. The validity of the questioned attribute shall be ascertained in accordance with ASTM E 178 using a T test at a 10% significance level.

If the T test procedure shows that the questioned value of the attribute is not an outlier, then the test result shall be used in the calculations. If the T test procedure shows that the questioned value of the attribute is an outlier, then the test result for the sublot shall be checked for mathematical errors. If there are no mathematical errors, the sublot with the outlier is treated as a lot with one sublot and the remaining sublots shall form a separate lot with no further consideration for outliers.

If only two sublots remain, the two sublots shall be treated as two separate lots each with one sublot.

313.08.01.03 Surface Tolerance

The surface tolerances of any pavement surface shall be such that when tested with a 3 m straight edge placed anywhere, including the edge of the pavement, in any direction on the surface, except across the crown or drainage gutters, there shall not be a gap between the bottom of the straight edge and the surface of the pavement:

a) Greater than 6 mm for all binder courses, levelling courses and padding, or
b) Greater than 3 mm for all surface courses.

The Contractor shall provide all traffic control, as required, for the Owner to conduct surface tolerance measurements. All tolerance-related repairs shall be carried out according to the Repairs subsection.

Longitudinal joints shall be constructed such that the elevation difference across the longitudinal joints shall not exceed 5 mm, when measured with a straight edge placed on the asphalt surface with the higher elevation and overhanging the joint by not more than 50 mm. All joints which exceed the 5 mm tolerance shall be repaired such that the tolerance is met.

313.08.01.04 Surface Appearance

HMA deemed by visual appearance to have flushing, bleeding, segregation, fat spot, surface damage, cracking, chatter, or surface contamination but not limited to these, shall be considered deficient material or work. The Contractor shall provide traffic control, for all surface appearance assessments. Deficient material, mixture, and work shall be removed and replaced or repaired or assessed a payment reduction.

313.08.01.04.01 Segregation

HMA exhibiting medium or severe mid-lane segregation shall be assessed a payment reduction or shall be repaired at the discretion of the Contract Administrator.

From the time the Contract Administrator provides notification of mid-lane segregation, a maximum of 500 tonnes of HMA may be placed, to demonstrate the effectiveness of any repairs or adjustments or both made to a defective paver. The repairs or adjustments or both shall be demonstrated to the Contract Administrator. If the repairs or adjustments or both to the paver do not eliminate midlane segregation to the satisfaction of the Contract Administrator within the allowable 500 tonnes of HMA, then the use of that paver shall be discontinued.

Other segregation shall be addressed in accordance with the following:

a) Slightly segregated mix shall be accepted into the work with no payment reduction.

b) Medium segregation in levelling courses or padding with a thickness greater than 40 mm, and binder courses shall normally be left in place with no payment reduction. However, any areas of medium segregation that deteriorates prior to being overlaid by another pavement course shall be repaired at no cost to the Owner.

c) Medium segregation in surface courses shall be assessed a payment reduction or repaired at the discretion of the Contract Administrator.

d) Severely segregated mix shall be repaired by removal and replacement.

Levelling courses and padding with a total thickness less than 40 mm, bullnoses, and tapers that were not machine-laid and any areas of handwork shall not be assessed on the basis of segregation but on the basis of other workmanship-related problems. However, if they deteriorate prior to being overlaid by another pavement course, the Contract Administrator shall assess the causes of the deterioration before determining responsibility for the cost of repairs.

313.08.01.04.02 Challenging Severity of Segregation

The Contractor may challenge, in writing, the severity of any segregated area assessed as either medium or severe, within 5 Business Days of receiving the Owner's first visual assessment. The written challenge shall list the dimensions and the Contractor's assessment of the severity of each disputed area.

For Contracts with up to 30,000 tonnes of HMA, the Contractor shall be allowed a maximum of two separate written challenges for each tender item. However, for Contracts with more than 30,000 tonnes of HMA, the Contractor shall be allowed a maximum of four separate written challenges for each tender item. Each written challenge may involve more than one disputed segregated area.

A representative of the Owner, who did not carry out the original assessment and who is not the Contract Administrator shall make a second visual assessment of the disputed areas. This second visual assessment shall be carried out within 5 Business Days after the Contract Administrator has received the Contractor's written challenge and the results of that second visual assessment shall be binding on both the Owner and Contractor.

The Contractor may further challenge the Owner's second visual assessment of the segregation severity, if the segregation has occurred in any one of the mixes listed in Table 7. Such a challenge shall be resolved by a representative of the Owner determining the Macrotexture Ratio, according to LS-317. Table 7 shall be used with the Macrotexture Ratio to determine the degree of severity and the disposition of the disputed area of segregation. The results of that testing shall be binding on both the Owner and the Contractor.

313.08.01.05 Acceptance Criteria for Surface Smoothness

The acceptability of surface smoothness shall be as specified in the Contract Documents.

313.08.01.06 Lift Thickness for Square Metre Items

313.08.01.06.01 Lot Size

The Contract Administrator shall determine the size and location of the lots and sublots before hot mix production for the item starts. Generally, there shall be one lot of the total pavement quantity. When the number of lifts is different or the tender item for any of the lifts is different, there shall generally be a separate lot for each of these areas. Each lot shall be divided into sublots, corresponding to the upper most lift of hot mix thickness sublots, which generally is the surface course. Sublots shall normally be 2,000 m^2 in size. A minimum of 3 sublots are required for each lot.

313.08.01.06.02 Acceptance Testing

The Owner shall conduct tests, carry out calculations, and provide values according to Table 4. The Contract Administrator shall provide the Contractor with a copy of each lift thickness measurement for each lift placed at each sample location upon completion of the sublot measurement.

313.08.01.06.03 Basis of Acceptance

The acceptance of lift thickness is based on lift thickness measurements. The Contract Administrator shall calculate the thickness payment adjustment for the lot once all measurements for the lot have been completed.

Sublot measurements shall be acceptable if they are equal to or greater than the minimum sublot lift thickness as specified in Table 8 for the item's T_D.

The sublot shall be deemed rejectable and shall be repaired if:

a) The lift thickness measurement is less than the minimum sublot lift thickness as specified in Table 8, or

b) For successive binder lifts of the same mix type, the combined lift thickness for these successive lifts is less than the minimum sublot lift thickness as specified in Table 8, or

c) Both a) and b) apply.

In addition, when a core taken for compaction testing does not meet the minimum lift thickness as specified in Table 8, the thickness sublot in which the compaction core was located shall be rejectable and shall be repaired.

When a lot contains any sublot that is deemed rejectable, the lot is rejectable until the sublot has been repaired and re-evaluated as acceptable. When the Contract Administrator allows a rejectable sublot to remain in place without repair, the Contractor shall receive a payment reduction for the sublot according to the Payment Adjustment for Lift Thickness clause. A sublot lift thickness measurement for a rejectable sublot that receives a payment reduction shall not be used to assess the lot mean.

The Contract Administrator shall calculate the lot mean to one decimal point and the lot thickness payment adjustment based on all the sublot lift thickness measurements in the lot, according to LS-101 and Table 9. If the lot mean is less than 85% of the T_D the lot is rejectable.

The Contract Administrator shall determine if a rejectable surface course lot may remain in the work without repairs. When the Contract Administrator has determined that a rejectable surface course lot may remain in the work without repair, the lot shall be subjected to a payment adjustment as determined by the Contract Administrator.

313.08.01.06.04 Referee Testing

The Contractor may only challenge an individual lift thickness measurement by requesting referee testing within 5 Business Days of the Contractor receiving the sublot lift thickness measurement and shall submit the request in writing to the Contract Administrator. The Contractor shall then have the opportunity to view the re-measurement of the QA designated pavement core for that sublot at an alternative Owner designated QA laboratory together with the Owner's representative. The re-measurement shall include the individual lift thickness that was challenged and shall also include any other lifts or combination of lifts in the core. The re-measured lift thickness measurements shall be considered binding and shall replace the original lift thickness measurements for assessment of all lifts measured for the core.

313.08.01.07 Geometrics and Longitudinal Joint Location

313.08.01.07.01 General

After final compaction, the HMA shall be smooth and true to the design profile and cross-section and constructed to the design width.

313.08.01.07.02 Pavement Width

The Contract Administrator shall conduct random spot checks of the width of each binder and surface course HMA lift for acceptance. The Contractor shall provide and maintain offset stakes on both sides of the

roadway, or other identifiers acceptable to the Contract Administrator, for use in checking the pavement width at 25 m maximum intervals until the Contract Administrator advises the Contractor that the stakes or identifiers are no longer required.

The width of each lift shall be accepted provided:

a) The outside edges of the lanes and the paved shoulders are parallel to the centreline and visually uniform.

b) The width across all the adjacent lanes from the outside edge to outside edge is not less than the sum of the specified lane widths, and

c) The width of the paved shoulders is not less than the paved shoulder width as specified in the Contract Documents.

If the width is not acceptable at any location, the Contract Administrator shall notify the Contractor in writing that the pavement is rejectable, and the Contractor shall submit a written proposal for corrective action to the Contract Administrator within 3 Business Days of receiving the notification.

313.08.01.07.03 Longitudinal Joint Location

Longitudinal joints not meeting the Contract requirements shall be removed and replaced, or assessed a payment reduction.

313.08.02 Repairs

313.08.02.01 General

The Contractor shall perform all repairs at no cost to the Owner.

All transverse joints in surface course repairs shall butt up to a full depth vertical surface. Repairs shall consist of the removal and replacement of the full thickness of the hot mix lift or the placement of an overlay when permitted by the Contract Administrator. A paver shall be used in carrying out the repair.

Repairs shall be full lane or full shoulder width except where localized repairs are allowed as specified in the Contract Documents.

The materials and the construction of repairs shall meet the requirements as specified in the Contract Documents.

The limits and type of repairs shall be subject to the approval of the Contract Administrator and shall be approved prior to the repair being carried out.

Repairs of an urgent nature, including moderate to very severe aggregate loss, moderate to very severe flushing, and wheel track rutting 16 mm in depth or greater shall be repaired within 7 Days, unless extended by mutual agreement.

With the exception of urgent repairs, repairs shall be completed within 60 Days or prior to seasonal shutdown each year, whichever is the lesser, unless extended by mutual agreement.

313.08.02.02 Repairs for Mix Properties and Compaction

The Contractor may elect to carry out repairs in lieu of accepting a payment adjustment, if the lot is not rejectable and the total payment factor for the lot is less than 0.940. When the Contract Administrator requires a rejectable lot to be repaired or the Contractor elects to carry out repairs in lieu of accepting a payment adjustment, the Contractor shall determine what areas of HMA in a lot are to be repaired subject to the minimum lengths and widths as specified in the Contract Documents. Each repair area shall include at least one of the loose mix or core sample locations or both representing that sublot.

The minimum length of a single-repair to one lane shall be 250 m. The minimum length of a single-repair that extends over more than one lane shall be 250 lane-metres and no portion of the single-repair in a lane shall be less than 125 m in length.

The minimum limits of each repair shall be at least 125 lane-metres from the location of the loose mix or compaction core or both that represents the sublot; otherwise, a repair limit shall coincide with one end of the sublot when the sample location is less than 125 lane-metres from it. If the proposed limit of a single-repair falls within the proposed limit of another single-repair, the overlap shall count towards the 250 lane-metre minimum for both repairs. Repair areas within a single lane shall be separated by at least 100 m. If the delineation of repair areas results in patches less than 100 m apart, these repair areas shall be re-established to form a continuous repair.

The Contractor shall submit a list and sketch identifying the proposed locations of the repairs to the Contract Administrator for review at least 5 Business Days prior to the intended start of the repair work. Each sublot and single-repair shall be uniquely labelled. Overlapping repair areas and discontinuous portions of a single-repair shall be labelled so that they are readily identified with their single-repair.

Prior to the repair, the Contractor shall take slab samples or cores for testing of mix properties or compaction or both in the unrepaired area within 1 m of the limits of each end of the repair area. The Contractor shall not be permitted to take additional samples or cores beyond these locations until after QA or referee testing demonstrates that the remaining Material in the sublot proposed for repair is deemed to be rejectable. If the proposed repair limit coincides with the beginning of a sublot that is being left unrepaired, samples are not required at this location. Sufficient material shall be obtained for testing by the Owner's QA laboratory and for possible referee testing.

Testing shall demonstrate that the remaining Material in the sublot proposed for repair is not rejectable. To determine if the mix is rejectable, the mix properties and compaction shall comply with the basis of acceptance of lots with one or two sublots. If the Material is deemed to be rejectable, the proposed limit of the repair shall be extended by a minimum of 25 m, and the sampling and testing repeated. The repair area selected by the Contractor shall incorporate the location used for obtaining samples that shall be used to confirm that the remaining mix is not rejectable. If the contractor's repair proposal results in the removal of at least half the sublot tonnage, the Contract Administrator may waive testing demonstrating the suitability of the remainder of that sublot.

The unrepaired sublots combined with the unrepaired areas of any repaired sublots shall comprise one lot and shall be assessed on the basis of the loose mix or core samples or both representing the unrepaired sublots. If there are only one or two sublots in a lot that are not repaired, the Contract Administrator shall include those sublots as part of the previous or next lot.

The mix used for the repair shall comprise a separate lot or the Contract Administrator in conjunction with the Contractor may decide to include it as part of the current lot being produced. The repaired area shall be tested for all criteria.

The two reconfigured lots shall be accepted at the full Contract price, subjected to a payment adjustment according to the Payment Adjustment for Mix Properties and Compaction clause, or rejected.

313.08.02.03 Repairs for Surface Tolerance

All areas not meeting the surface tolerance requirements shall be repaired by diamond grinding to a maximum of 5 mm or removed and replaced. Slurry produced from diamond grinding shall be removed from the site by the Contractor and managed as specified in the Contract Documents.

313.08.02.04 Repairs for Segregation

Repairs for segregation shall meet the requirements of the General Repairs clause. In binder courses, localized repairs for mid-lane segregation less than 300 mm in width are permitted.

313.08.02.05 Repairs for Thickness

The Contractor shall not be permitted to make any repairs solely to correct for excess lift thickness.

The minimum length of a repair is the entire length of the sublot being repaired.

Acceptance for lift thickness of the repaired sublot shall be based on the individual sublot lift thickness measurement and the lot thickness payment adjustment shall be calculated based on the re-evaluated sublot measurement.

313.09 MEASUREMENT FOR PAYMENT

313.09.01 Actual Measurement

313.09.01.01

SMA 9.5
SMA 9.5 - ... mm Lift Thickness
SMA 12.5
SMA 12.5 - ... mm Lift Thickness
SMA 19.0
SMA 19.0 - ... mm Lift Thickness
Superpave 4.75
Superpave 9.5
Superpave 9.5 - ... mm Lift Thickness
Superpave 12.5
Superpave 12.5 - ... mm Lift Thickness
Superpave 12.5 - Warm Mix
Superpave 12.5 - Warm Mix - ... mm Lift Thickness
Superpave 12.5FC 1
Superpave 12.5FC 1 - ... mm Lift Thickness
Superpave 12.5FC 1 - Warm Mix
Superpave 12.5FC 1 - Warm Mix - ... mm Lift Thickness
Superpave 12.5FC 2
Superpave 12.5FC 2 - ... mm Lift Thickness
Superpave 12.5FC 2 - Warm Mix
Superpave 12.5FC 2 - Warm Mix - ... mm Lift Thickness
Superpave 19.0

Superpave 19.0 - ... mm Lift Thickness
Superpave 19.0 - Warm Mix
Superpave 19.0 - Warm Mix - ... mm Lift Thickness
Superpave 25.0
Superpave 25.0 - ... mm Lift Thickness
Superpave 25.0 - Warm Mix
Superpave 25.0 - Warm Mix - ... mm Lift Thickness
Superpave 37.5
Hot Mix Asphalt Miscellaneous

313.09.01.01.01 By Area

Measurement of HMA by area shall be the horizontal area in square metres in place.

The quantities of HMA used for temporary ramping shall not be measured for payment. The removal of HMA used for temporary ramping shall not be measured for payment.

313.09.01.01.02 Tonne to Square Metre Conversion

When the unit of measure for a HMA tender item is square metres, and the Contract Documents refer to a quantity of mix for that tender item in tonnes and the Contract Documents do not already modify the quantity to relate to square metres, the Contract Administrator shall determine the theoretical HMA quantity in square metres (Q_A) that shall replace the non-payment tonnage quantity (Q_t) references as follows:

$$Q_A = Q_t / [0.975 \times BRD_{MD} \times (T_D/1000)] \quad \text{(Formula 1)}$$

Where:

BRD_{MD} = the bulk relative density in t/m^3, provided in the HMA design submitted for mix, the Q_A is calculated for
T_D = the design thickness, in millimetres, of the mix
Q_t = non-payment tonnage quantity referred to elsewhere in the Contract Documents for the mix under the measurement by square metre item

313.09.01.01.03 By Mass

Measurement of HMA by mass shall be in tonnes according to the requirements of the Contract Documents.

The quantities of HMA used for temporary ramping shall not be measured for payment. The removal of HMA used for temporary ramping shall not be measured for payment.

313.09.01.02 Hot Mix Asphalt Miscellaneous

Measurement of HMA Miscellaneous shall be by area in square metres, regardless of the number of lifts placed.

313.09.02 Plan Quantity Measurement

When measurement is by Plan Quantity, such measurement is based on the units shown in the clauses under Actual Measurement. The Plan Quantity shall not be adjusted due to any of the exceptions specified in the Lift Thickness clause under the Sampling clause.

313.10 BASIS OF PAYMENT

313.10.01 Hot Mix

313.10.01.01

SMA 9.5 - Item
SMA 9.5 - ... mm Lift Thickness - Item
SMA 12.5 - Item
SMA 12.5 - ... mm Lift Thickness - Item
SMA 19.0 - Item
SMA 19.0 - ... mm Lift Thickness - Item
Superpave 4.75 - Item
Superpave 9.5 - Item
Superpave 9.5 - ... mm Lift Thickness - Item
Superpave 12.5 - Item
Superpave 12.5 - ... mm Lift Thickness - Item
Superpave 12.5 - Warm Mix - Item
Superpave 12.5 - Warm Mix - ... mm Lift Thickness - Item
Superpave 12.5FC 1 - Item
Superpave 12.5FC 1 - ... mm Lift Thickness - Item
Superpave 12.5FC 1 - Warm Mix - Item
Superpave 12.5FC 1 - Warm Mix - ... mm Lift Thickness - Item
Superpave 12.5FC 2 - Item
Superpave 12.5FC 2 - ... mm Lift Thickness - Item
Superpave 12.5FC 2 - Warm Mix - Item
Superpave 12.5FC 2 - Warm Mix - ... mm Lift Thickness - Item
Superpave 19.0 - Item
Superpave 19.0 - ... mm Lift Thickness - Item
Superpave 19.0 - Warm Mix - Item
Superpave 19.0 - Warm Mix - ... mm Lift Thickness - Item
Superpave 25.0 - Item
Superpave 25.0 - ... mm Lift Thickness - Item
Superpave 25.0 - Warm Mix - Item
Superpave 25.0 - Warm Mix - ... mm Lift Thickness - Item
Superpave 37.5 - Item
Hot Mix Asphalt Miscellaneous - Item

Payment at the Contract price for the above tender items shall include full compensation for all labour, Equipment, and Materials required to do the work (including the HMA quantities used for temporary ramping), the removal of HMA used for temporary ramping, and the applicable payment adjustments.

When repairing HMA, the Contractor shall be responsible for and shall carry out all associated work and replace or restore all associated damage and removals at no cost to the Owner.

When the Contract Administrator instructs the Contractor to cease paving due to continued medium or severe segregation regardless of cause, the Owner shall not be held responsible for any additional costs that the Contractor may incur.

The preparation and correction of existing surfaces and pavement beneath surface courses carried out in order to meet the requirements of the Contract Documents, including milling, padding, and diamond grinding, shall be at no cost to the Owner.

313.10.01.02 Payment Adjustment for Mix Properties and Compaction

For all mixes, when the Contractor is not required to or does not elect to repair a lot, the payment adjustment for that lot due to mix properties and compaction requirements shall be:

PA_{MC} = lot quantity x price x [PF_{MC} - 1.000] (Formula 2)

Where:

PA_{MC} = payment adjustment for mix properties and compaction

lot quantity = the quantity of the mix in the lot. For SMA 19.0, SMA 12.5, SMA 9.5, Superpave 12.5FC 1, and Superpave 12.5FC 2 items measured by tonnage, the lot quantity is the quantity of the mix in the lot multiplied by the applicable mass multiplier factor (MF) in the Payment Adjustment for Aggregate Density clause.

price = the Contract price of the hot mix tender item

PF_{MC} = payment factor for mix properties and compaction

For all mixes, when the PF_{MC} is:

a) Less than 1.000, there shall be a reduction in payment, and
b) Equal to 1.000 there shall be no adjustment.

313.10.01.02.01 Calculations

313.10.01.02.01.01 General

The PF_{MC} shall be based on the individual payment factors obtained from Table 6, based on PWL, determined for gradation, AC content, voids, and compaction using LS-101, Table 5, and the formulae in the Payment Factor for Gradation clause, the Payment Factor for Combined Gradation and Asphalt Cement Content clause, the Payment Factor for Voids clause, the Payment Factor for Combined Mix Properties clause, and the Payment Factor for Combined Mix Properties and Compaction clause. Rounding-off procedures for all calculations shall follow LS-100.

When there is no sampling or testing specified in the Contract Documents for an attribute or when the requirement for sampling or testing for an attribute is waived by the Owner, the payment factor for that attribute shall be equal to the payment factor it is added to in Formulae 5, 10, 11 or 12.

313.10.01.02.01.02 Payment Factor for Gradation

The payment factor for gradation shall be calculated using the following formulae:

For Superpave 37.5, Superpave 25.0, Superpave 19.0, Superpave 12.5, Superpave 12.5FC 1, Superpave 12.5FC 2, SMA 19.0, and SMA12.5:

$PF_G = (PF_{DLS} + PF_{4.75} + PF_{75}) / 3$ (Formula 3)

For Superpave 9.5, Superpave 4.75, and SMA 9.5:

$PF_G = (PF_{4.75} + PF_{75}) / 2$ (Formula 4)

Where:
PF_G = payment factor for gradation
PF_{DLS} = payment factor for designated large sieve
$PF_{4.75}$ = payment factor for the 4.75 mm sieve
PF_{75} = payment factor for the 75 µm sieve

313.10.01.02.01.03 Payment Factor for Combined Gradation and Asphalt Cement Content

The payment factor for combined gradation and AC content shall be calculated using the following formula:

$PF_{GAC} = (PF_G + PF_{AC}) / 2$ (Formula 5)

Where:
PF_{AC} = payment factor for AC content
PF_{GAC} = payment factor for combined gradation and AC content

313.10.01.02.01.04 Payment Factor for Voids

For Superpave mixes, if the lot mean VMA is not more than 0.5 per cent below the minimum VMA as specified in the Contract Documents for mix design purposes, the payment factor for VMA is 1.000. For lot mean VMA results more than 0.5 per cent lower than the minimum specified for mix design purposes, a payment factor for the subject lot shall be calculated in accordance with the following:

If $(VMA_{min} - VMA_{mean}) \geq 2.5$, then $PF_{VMA} = 0.0$ (Formula 6)
If $(VMA_{min} - VMA_{mean}) < 2.5$ then, $PF_{VMA} = 0.8000 - 0.4 \times (VMA_{min} - 0.5 - VMA_{mean})$ (Formula 7)

Where:
PF_{VMA} = payment factor for VMA
VMA_{mean} = lot mean VMA
VMA_{min} = minimum VMA specified for mix design

For Superpave mixes, the payment factor for VMA shall be compared to the payment factor for air voids and the lesser of the two is the payment factor for voids (PF_{VOIDS}).

For SMA mixes, if the lot mean VMA is not more than 1.0 per cent below the minimum VMA as specified in the Contract Documents for mix design purposes, the payment factor for VMA is 1.000. For lot mean VMA results more than 1.0 per cent lower than the minimum specified for mix design purposes, a payment factor for the subject lot shall be calculated in accordance with the following:

If $(VMA_{min} - VMA_{mean}) \geq 3.0$, then $PF_{VMA} = 0.0$ (Formula 8)
If $(VMA_{min} - VMA_{mean}) < 3.0$ then, $PF_{VMA} = 0.8000 - 0.4 \times (VMA_{min} - 1.0 - VMA_{mean})$ (Formula 9)

Where:
PF_{VMA} = payment factor for VMA
VMA_{mean} = lot mean VMA
VMA_{min} = minimum VMA specified for mix design

For SMA mixes, the payment factor for VMA shall be compared to the payment factor for air voids and the lesser of the two is the payment factor for voids (PF_{VOIDS}).

313.10.01.02.01.05 Payment Factor for Combined Mix Properties

The payment factor for combined mix properties shall be calculated using the following formula:

$PF_M = (PF_{GAC} + PF_{VOIDS}) / 2$ (Formula 10)

Where:
PF_M = payment factor for combined mix properties

313.10.01.02.01.06 Payment Factor for Combined Mix Properties and Compaction

The payment factor for combined mix properties and compaction shall be calculated using Formula 11.

$PF_{MC} = (PF_C + PF_M) / 2$ (Formula 11)

Where:
PF_C = payment factor for compaction

The PF_{MC} shall be rounded and reported to four decimal places.

When the Contract Administrator decides that the unrepaired area of an original lot that has been partially repaired shall not be resampled, the PF_{MC} for the unrepaired area shall be 1.000.

313.10.01.02.01.07 Small Quantity Lots

For any lot comprised of one or two sublots, each sublot shall be assigned a PF_{MC} of 1.000 if the sublot is not rejectable. If the sublot is determined to be rejectable, it shall be administered as described in the Repairs for Mix Properties and Compaction clause. When the Contract Administrator has determined that a rejectable sublot may remain in the work without repair, the lot shall be subjected to a payment adjustment reflecting the extent of the non-conformance as determined by the Contract Administrator.

313.10.01.03 Payment Adjustment for Surface Smoothness

Payment adjustment for surface smoothness shall be as specified in the Contract Documents.

313.10.01.04 Payment Adjustment for Segregated HMA

For all surface courses, where payment reduction for segregation is allowed in lieu of repairs, the payment reduction shall be calculated as follows:

a) $2,000 once for each applicable surface course tender item,
b) An additional payment reduction of $2.50/m for mid-lane segregation, and
c) An additional payment reduction of $5.00/m² for other segregation. The area of repair shall be computed by multiplying the full lane width by the length of the repair and rounded to the next whole square metre.

313.10.01.05 Payment Adjustment for Aggregate Density

For Superpave 12.5FC 1, Superpave 12.5FC 2, SMA 19.0, SMA 12.5, and SMA 9.5 items measured in tonnes, the tender quantity is based on reference densities according to Table 10. A payment adjustment for aggregate density for each lot for these tender items shall be calculated by the following formulae:

$MF = D_R/(BRD_{mix})$ (Formula 12)

$PA_{AD} = M_{mix}$ x Contract Price x [MF - 1.000] (Formula 13)

Where:

D_R	=	the reference density in t/m³, as specified in Table 10
BRD_{mix}	=	the lot average bulk relative density in t/m³, calculated from values obtained in the testing of bulk samples obtained during production. The values shall be the same as those used in calculating the final air voids payment factor for the lot.
PA_{AD}	=	payment adjustment for aggregate density
M_{mix}	=	the weighed mass of the mix in the lot incorporated into the work
MF	=	the mass multiplier factor calculated to 3 decimal places
Contract Price	=	the Contract price of the tender item for the mix

For all mixes, when the mass multiplier factor is:

a) Less than 1.000 there shall be a reduction in payment,
b) Equal to 1.000 there shall be no adjustment, and
c) Greater than 1.000 there shall be an increase in payment for the lot.

There shall be no payment adjustment for aggregate density for HMA items measured by square metres.

313.10.01.06 Payment Adjustment for Asphalt Cement Content and Changes in the Price Index

313.10.01.06.01 Hot Mix Asphalt Quantity Calculation

The quantity of HMA for use in the calculations (T_{mix}) shall be the tonnage of HMA accepted into the work.

When the unit of measure is square metres, T_{mix} shall be determined using the theoretical tonnage. The theoretical tonnage shall be calculated by the Contract Administrator as follows and rounded to one decimal according to LS-100:

$T_{mix} = [0.975 \times BRD_{mix} \times (T_D/1000) \times A_{mix}]$ (Formula 14)

Where:

BRD_{mix}	=	the lot average bulk relative density in t/m³, calculated from values obtained in the testing of bulk samples obtained during production of the first complete lot of at least 3 sublots of HMA placed in the work. The values shall be the same as those used in calculating the final payment factor for air voids for the lot.
T_D	=	the design thickness, in millimetres, of the HMA
A_{mix}	=	area of hot mix placed in square metres

313.10.01.06.02 Payment Adjustment for Asphalt Cement Content

The payment adjustment for AC content shall be calculated using the following formula:

$PA_{AC} = T_{mix} \times [Price_{AC} \times (AC_{ERS} - AC_{BID})/100]$ (Formula 15)

Where:

PA_{AC} = payment adjustment for asphalt cement content

T_{mix} = the quantity of the HMA accepted into the lot according to the Hot Mix Asphalt Quantity Calculation clause

$Price_{AC}$ = the purchase price per tonne of the AC used in the mix according to the invoice submitted as per the Submission Requirements subsection

AC_{ERS} = the average percentage by mass of AC in the lot

AC_{BID} = the percentage by mass of AC specified for bidding purposes elsewhere in the Contract Documents

For progress payment purposes, payment adjustments are made on the monthly progress payment certificate for the months in which hot mix paving occurs.

313.10.01.06.03 Payment Adjustment for Changes in the Asphalt Cement Price Index

A payment adjustment is applied based on changes to the Ministry's PGAC price index unless the Contractor opts out by notifying the Ministry in writing within 5 Business Days of receiving permission to start work. Once the Contractor has opted out of payment adjustments based on the price index, the Contractor shall not be permitted to opt back in. The price index is published monthly in the Contract Bulletin. The price index is used to calculate the amount of the payment adjustment per tonne of new AC accepted into the Work.

The price index is based on the price, excluding taxes, FOB the depots in the Toronto area, of AC grade PG 58-28 or equivalent. One index is used to establish and calculate the payment adjustment for all grades.

A payment adjustment per tonne of new AC is established for each month in which paving occurs when the price index for the month differs by more than 5% from the price index for the month prior to Tender Opening. When the price index differential is less than 5%, there is no payment adjustment established 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 for the month is calculated from the formulae in Table 11.

The payment adjustment per tonne applies to the quantity of new AC in the HMA accepted into the Work during the month for which it is established. The quantity of new AC includes all grades of AC supplied by the Contractor with and without polymer modifiers.

For each month in which a payment adjustment has been established, the quantity is calculated using the HMA quantity accepted into the Work and its corresponding AC content as required by the JMF except for mixes which contain reclaimed asphalt pavement.

For mixes which contain reclaimed asphalt pavement the percentage of new AC is determined from the difference between the AC content required by the JMF and the AC content of the reclaimed asphalt pavement incorporated into the HMA, as calculated by the Contract Administrator.

For mixes containing an AST-AC, the percentage of AST-AC is deducted from the percentage of new AC. No other deductions are made for any other additives.

For progress payment purposes, payment adjustments are made on the monthly progress payment certificate for the months in which HMA paving occurs.

313.10.01.07 Payment Adjustment for Lift Thickness

The payment adjustment for lift thickness shall apply to all placed and compacted HMA measured by square metre items using the horizontal area of the surface course in the lot or overlying the lot. When the thickness payment adjustment is determined using a T_L calculated using a combination of tender items of the same mix type, the thickness payment adjustment shall apply to each binder course tender item included in T_L. The thickness payment adjustment shall be a reduction in payment. The formulae provided in Table 9 shall be used to calculate the thickness payment adjustment.

When a rejectable sublot remains in the work without repair, the sublot shall be subject to a payment adjustment. The payment adjustment shall be a reduction in payment. The sublot thickness payment adjustment shall be:

$PA_T = 0.5 \times (\text{sublot quantity} \times \text{Contract price})$ (Formula 16)

Where:

PA_T	=	payment adjustment for lift thickness
sublot quantity	=	the area of the sublot
Contract price	=	the Contract price of the tender item for the mix

313.10.02 Anti-Stripping Treatments

When aggregates have been processed from commercial sources for use in hot mix surface course paving, payment at the Contract price for the applicable HMA tender item shall be full compensation for all labour, Equipment, and Materials required to test, supply, and incorporate, the AST.

When aggregates have been processed from MTO/Crown, Wayside, and/or Letter of Approval quarries for use in hot mix surface course paving and the use of an AST was required, payment at the Contract price for the applicable HMA tender item shall be full compensation for all Labour, Equipment, and Materials required to test, supply, and incorporate the AST. When hydrated lime is used as the AST, payment includes full compensation for the amount up to 1.0% by mass of total dry aggregate. When an alternate AST-AGG is used as the AST, payment includes full compensation for the amount up to the listed minimum dosage from the DSM listing for Anti-Stripping Treatments by mass of aggregate. When an AST-AC is used as the AST, payment includes full compensation for the amount up to the listed minimum dosage from the DSM listing for Anti-Stripping Treatments by mass of AC. Payment for additional AST above the listed minimum dosages shall be administered as a Change in the Work.

313.10.03 Hot Mix Asphalt Miscellaneous

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment, and Materials to do the work except that the HMA Material shall be paid for under the appropriate HMA tender item.

313.10.04 Tack Coat

Where there is no separate tender item for tack coat, payment at the Contract price for the applicable HMA tender item to be placed on the tack coat shall be full compensation for all labour, Equipment, and Materials for the tack coating.

313.10.05 Repair

No payment shall be made for the:

a) Quantity of HMA that is removed and replaced, overlaid, or otherwise repaired; or
b) For additional shouldering, traffic control, and other work such as zone painting or bridge deck waterproofing,

when:

a) In lieu of a reduction in payment, the Contractor repairs the lot, sublot, or visually defective HMA; or
b) The Contract Administrator has determined that a rejectable lot or sublot requires repair.

The Contractor shall be charged for all additional testing resulting from a repair to a lot at the rates established by the Owner for the year in which the testing was carried out.

313.10.06 Referee Testing and Segregation Challenge

313.10.06.01 Mix Properties and Compaction

If the referee test results show that the referee payment factor for compaction or mix properties is higher than the payment factor for compaction or mix properties based on the original QA test results by more than 0.025 and the referee results show that the lot is not rejectable, the Owner shall bear the cost of the referee testing for that attribute.

If the referee test results show that the lot is rejectable or the referee test results show that the referee payment factor for compaction or mix properties is not higher than the payment factor for compaction or mix properties based on the original QA test results by more than 0.025, the Contractor shall be charged the cost of the referee testing.

For density testing of aggregates, if referee testing is invoked, the cost of referee testing is assigned as follows:

a) If the combined aggregate density as determined by the referee laboratory is within 0.010 of the result determined by the QA laboratory, the cost of referee testing shall be borne by the Contractor.

b) If the referee result is between 0.011 and 0.020 of the QA result, the cost of referee testing shall be shared equally between the Contractor and Owner.

c) If the difference in results is equal to or in excess of 0.020, the cost of referee testing shall be borne by the Owner.

When there is an outlier in the referee test results, the Contractor shall be charged 50% of the total cost for referee testing of all sublots in the original lot.

The cost of the referee testing shall be based on the referee testing rates as specified elsewhere in the Contract Documents.

313.10.06.02 Lift Thickness

If the referee test result is at least 3 mm greater than the original QA test result, the Owner shall bear the cost of the thickness measurement referee testing. If the referee test result is not 3.0 mm or greater than the original QA test result for the sublot retested, the Contractor shall be charged the cost of the referee testing.

313.10.06.03 Segregation Challenge

If, under a challenge, as described in the Challenging Severity of Segregation clause, the Contractor is successful, the Owner shall pay for the cost of the traffic control, if the traffic control was not necessary for any other reason. The Owner shall not be responsible for any other costs associated with the second visual assessment, including the cost of delays.

If the Contractor is not successful, the Contractor shall be responsible for all costs associated with the second visual assessment, including the cost of traffic control and delays.

TABLE 1
Maximum Field Adjustments for JMF

JMF Properties	**Maximum Field Adjustment** **%** (Notes 1 and 2)
AC content (all mixes except SMA mixes)	± 0.2
AC content (SMA mixes only)	± 0.4
Per cent RAP	- 5.0
Per cent passing 26.5 mm, 25.0 mm, 19.0 mm, and 16.0 mm sieves	± 5.0
Per cent passing 13.2 mm, 12.5 mm, and 9.5 mm sieves	± 4.0
Per cent passing 4.75 mm, 2.36 mm, and 1.18 mm sieves	± 3.0
Per cent passing 300, and 150 µm sieves	No limits
Per cent passing 75 µm sieve (all mixes except SMA mixes)	± 1.0
Per cent passing 75 µm sieve (SMA mixes only)	± 2.0

Notes:
1. The maximum field adjustment is applied against the original JMF submitted with the mix design.
2. The adjusted JMF shall meet the requirements of the Contract, including AC content and gradation on all sieves.

TABLE 2
Sample Size and Frequency

Material	Sample Size	Frequency of Sampling
SMA mixes, Superpave 9.5, 12.5, 12.5FC 1, 12.5FC 2, and 19.0 (Note 1)	20 to 30 kg or 30 to 40 kg (Note 2)	Every sublot
Superpave 25.0 and 37.5 (Note 1)	25 to 35 kg or 35 to 45 kg (Note 2)	Every sublot
HMA Compaction Cores	150 to 200 mm diameter	Every mix properties sublot
HMA Thickness Cores	50 mm diameter	Every thickness sublot
HMA Aggregates for Density Testing	Coarse aggregate 10 kg Fine aggregate, RAP 5 kg	Every 20,000 tonnes or when new samples requested
SMA mixes for draindown testing	3 to 5 kg	Once per lot
WMA for moisture sensitivity testing (Note 1)	50 kg	3 sublots per mix type

Notes:
1. Each material sample receptacle shall have a maximum mass of 30 kg. For ease of handling, especially when the larger sample size is required, splitting of material at the paving site is permitted such that a sample is contained in a maximum of two receptacles whose total mass does not exceed the maximum specified above. Once delivered to testing laboratories, combining of the material from the two receptacles is only mandatory if a single receptacle contains insufficient material to carry out the full suite of tests required.
2. The larger sample size shall be applicable when samples are designated for testing to the maximum number of gyrations. The frequency of the larger samples shall be one per lot, as designated by the Contract Administrator.

TABLE 3
Breakdown of the Tender Item Quantity into Lots for Mix Properties and Compaction

Number of Tonnes	Quantity of Square Metres		Number of Lots
	40 to 50 mm Lift Thickness	60 to 80 mm Lift Thickness	
< 5,000	40,000	25,000	1
5,000 to 10,000	40,000 to 80,000	25,000 to 50,000	2
10,000 to 12,000	80,000 to 100,000	50,000 to 60,000	2 or 3 (Note 1)
> 12,000	> 100,000	> 60,000	3 +

Notes:
1. As determined by the Contract Administrator in consultation with the Contractor.

TABLE 4
Testing Requirements

Properties and Attributes	Testing Method	Calculations, Values, and Results Required
Mix Properties		
AC Content and Aggregate Gradation for mix samples	LS-291, LS-282, or LS-292	% AC, % passing DLS sieve, 4.75 mm sieve, 75 μm sieve
Volumetric Properties		
Laboratory Compaction to: i. Design number of gyrations (N_{des}) ii. Maximum number of gyrations (N_{max}) Maximum Theoretical Specific Gravity (G_{mm})	AASHTO T 166 using the same laboratory compaction protocol as was used in mix design. (Note 1) AASHTO T 312, LS-264 Superpave Mixes only: in addition to compacting all samples to the design number of gyrations, one sample from each lot of HMA shall be compacted to the maximum number of gyrations. Bulk Relative Density for mix samples, BRD_m	BRD_m BRD at N_{des} BRD at N_{ini} BRD at N_{max} G_{mm} $\%G_{mm}$ @ N_{ini} $\%G_{mm}$ @ N_{des} $\%G_{mm}$ @ N_{max}
Voids in Mineral Aggregate (VMA)	LS-604, LS-605, LS-266 (Note 2)	VMA
Voids Filled with Asphalt (VFA)	AASHTO R 35	VFA
Air voids for mix (V_a)	LS-265	V_a
Dust to Binder Ratio (D_P) for Superpave mixes	AASHTO R 35	D_P
Compaction		
Compaction and Thickness of Cores	BRD_c = Bulk Relative Density for core samples, LS-262 (Note 1) $MRD_m = G_{mm}$ (Maximum Relative Density for loose mix samples, LS-264) % Compaction = ($100 \times BRD_c/MRD_m$)	Thickness of Core % Compaction
Lift Thickness		
Thickness of Cores	LS-294	Lift Thickness
SMA Mix Properties		
Draindown for mix	AASHTO T 305	% Draindown
WMA Mix Properties		
WMA Moisture Sensitivity	AASHTO T 283 including Table 1	TSR Visual Stripping Rating

Notes:
1. For all gyratory-compacted specimens and cores of SMA mixes and Superpave mixes, if the per cent water absorbed by the specimen is found to exceed 2% by volume, as described in AASHTO T 166, then the bulk relative density shall be determined using either LS-306 or ASTM D 6752
2. Calculate to two decimal places for each sublot using the BRD_m for the sublot, and the combined aggregate densities of the blended coarse and blended fine aggregate, as specified in the Contract Documents, to provide a lot mean VMA to one decimal place.
3. The rounding-off procedure, for all values, shall be according to LS-100.

TABLE 5
Specification Limits for HMA Acceptance Attributes

Attributes	HMA Type	Lower Limit (LL) %	Upper Limit (UL) %
AC Content	All HMA types	JMF - 0.40 (Note 1)	JMF + 0.50
Designated Large Sieve	All HMA types	JMF - 5.0	JMF + 5.0
4.75 mm Sieve	All HMA types	JMF - 5.0	JMF + 5.0
75 µm Sieve	All HMA types	JMF - 2.0	JMF + 2.0
Air Voids	All HMA types	2.5	5.5
Pavement Compaction	Superpave 37.5, 25.0, 19.0,12.5, 9.5 and 12.5FC 1	92.0	97.0
	Superpave 12.5FC 2	92.0	98.0
	SMA	93.0	98.0

Notes:
1. When a JMF change results in a decrease in the design AC content, the lower limit (LL) shall be set at the revised JMF minus 0.3% for all lots to which the JMF change applies.

TABLE 6
Payment Factors Based on Per Cent Within Limits

PWL	Designated Large Sieve	4.75 mm Sieve	75 µm Sieve	AC Content	Air Voids	Compaction
100	1.000	1.000	1.000	1.000	1.000	1.000
99	1.000	1.000	1.000	1.000	1.000	1.000
98	1.000	1.000	1.000	1.000	1.000	1.000
97	1.000	1.000	1.000	1.000	1.000	1.000
96	1.000	1.000	1.000	1.000	1.000	1.000
95	1.000	1.000	1.000	1.000	1.000	1.000
94	1.000	1.000	1.000	1.000	1.000	1.000
93	1.000	1.000	1.000	1.000	1.000	1.000
92	1.000	1.000	1.000	1.000	1.000	1.000
91	1.000	1.000	1.000	1.000	1.000	1.000
90	1.000	1.000	1.000	1.000	1.000	1.000
89	1.000	1.000	1.000	1.000	1.000	0.991
88	1.000	1.000	1.000	1.000	1.000	0.983
87	1.000	1.000	1.000	1.000	1.000	0.974
86	1.000	1.000	1.000	1.000	1.000	0.965
85	1.000	1.000	1.000	1.000	1.000	0.956
84	0.997	0.997	0.997	0.992	1.000	0.948
83	0.994	0.994	0.994	0.984	1.000	0.939
82	0.992	0.992	0.992	0.976	1.000	0.930
81	0.989	0.989	0.989	0.968	1.000	0.921

PWL	Designated Large Sieve	4.75 mm Sieve	75 µm Sieve	AC Content	Air Voids	Compaction
80	0.986	0.986	0.986	0.960	1.000	0.913
79	0.983	0.983	0.983	0.952	0.999	0.904
78	0.980	0.980	0.980	0.944	0.998	0.895
77	0.977	0.977	0.977	0.936	0.995	0.886
76	0.974	0.974	0.974	0.928	0.991	0.878
75	0.972	0.972	0.972	0.920	0.986	0.869
74	0.969	0.969	0.969	0.912	0.980	0.860
73	0.966	0.966	0.966	0.904	0.973	0.851
72	0.963	0.963	0.963	0.896	0.964	0.843
71	0.960	0.960	0.960	0.888	0.955	0.834
70	0.957	0.957	0.957	0.880	0.944	0.825
69	0.954	0.954	0.954	0.872	0.933	0.816
68	0.951	0.951	0.951	0.864	0.920	0.808
67	0.949	0.949	0.949	0.856	0.906	0.799
66	0.946	0.946	0.946	0.848	0.891	0.790
65	0.943	0.943	0.943	0.840	0.875	0.781
64	0.940	0.940	0.940	0.832	0.858	0.773
63	0.937	0.937	0.937	0.824	0.839	0.764
62	0.934	0.934	0.934	0.816	0.820	0.755
61	0.931	0.931	0.931	0.808	0.799	0.746
60	0.929	0.929	0.929	0.800	0.778	0.738
59	0.926	0.926	0.926	0.790	0.755	0.729
58	0.923	0.923	0.923	0.780	0.731	0.720
57	0.920	0.920	0.920	0.770	0.706	0.711
56	0.917	0.917	0.917	0.760	0.680	0.703
55	0.914	0.914	0.914	0.750	0.653	0.694
54	0.911	0.911	0.911	0.740	0.624	0.685
53	0.909	0.909	0.909	0.730	0.595	0.676
52	0.906	0.906	0.906	0.720	0.564	0.668
51	0.903	0.903	0.903	0.710	0.533	0.659
50	0.900	0.900	0.900	0.700	0.500	0.650
49	0.882	0.882	0.882	0.686	0.490	0.637
48	0.864	0.864	0.864	0.672	0.480	0.624
47	0.846	0.846	0.846	0.658	0.470	0.611
46	0.828	0.828	0.828	0.644	0.460	0.598
45	0.810	0.810	0.810	0.630	0.450	0.585
44	0.792	0.792	0.792	0.616	0.440	0.572
43	0.774	0.774	0.774	0.602	0.430	0.559
42	0.756	0.756	0.756	0.588	0.420	0.546
41	0.738	0.738	0.738	0.574	0.410	0.533
40	0.720	0.720	0.720	0.560	0.400	0.520

PWL	Designated Large Sieve	4.75 mm Sieve	75 µm Sieve	AC Content	Air Voids	Compaction
39	0.702	0.702	0.702	0.546	0.390	0.507
38	0.684	0.684	0.684	0.532	0.380	0.494
37	0.666	0.666	0.666	0.518	0.370	0.481
36	0.648	0.648	0.648	0.504	0.360	0.468
35	0.630	0.630	0.630	0.490	0.350	0.455
34	0.612	0.612	0.612	0.476	0.340	0.442
33	0.594	0.594	0.594	0.462	0.330	0.429
32	0.576	0.576	0.576	0.448	0.320	0.416
31	0.558	0.558	0.558	0.434	0.310	0.403
30	0.540	0.540	0.540	0.420	0.300	0.390
29	0.522	0.522	0.522	0.406	0.290	0.377
28	0.504	0.504	0.504	0.392	0.280	0.364
27	0.486	0.486	0.486	0.378	0.270	0.351
26	0.468	0.468	0.468	0.364	0.260	0.338
25	0.450	0.450	0.450	0.350	0.250	0.325
24	0.432	0.432	0.432	0.336	0.240	0.312
23	0.414	0.414	0.414	0.322	0.230	0.299
22	0.396	0.396	0.396	0.308	0.220	0.286
21	0.378	0.378	0.378	0.294	0.210	0.273
20	0.360	0.360	0.360	0.280	0.200	0.260
19	0.342	0.342	0.342	0.266	0.190	0.247
18	0.324	0.324	0.324	0.252	0.180	0.234
17	0.306	0.306	0.306	0.238	0.170	0.221
16	0.288	0.288	0.288	0.224	0.160	0.208
15	0.270	0.270	0.270	0.210	0.150	0.195
14	0.252	0.252	0.252	0.196	0.140	0.182
13	0.234	0.234	0.234	0.182	0.130	0.169
12	0.216	0.216	0.216	0.168	0.120	0.156
11	0.198	0.198	0.198	0.154	0.110	0.143
10	0.180	0.180	0.180	0.140	0.100	0.130
9	0.162	0.162	0.162	0.126	0.090	0.117
8	0.144	0.144	0.144	0.112	0.080	0.104
7	0.126	0.126	0.126	0.098	0.070	0.091
6	0.108	0.108	0.108	0.084	0.060	0.078
5	0.090	0.090	0.090	0.070	0.050	0.065
4	0.072	0.072	0.072	0.056	0.040	0.052
3	0.054	0.054	0.054	0.042	0.030	0.039
2	0.036	0.036	0.036	0.028	0.020	0.026
1	0.018	0.018	0.018	0.014	0.010	0.013
0	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 7
Allowable Macrotexture Ratios for Various Mixes

Mix Type	Macrotexture Ratio (M_R)		
	Degree of Segregation		
	Slight	Medium	Severe
Superpave 12.5, 12.5FC 1, 12.5FC 2	< 1.6	1.6 to 2.2	> 2.2
Superpave 19.0	< 1.8	1.8 to 2.6	> 2.6
Superpave 25.0	< 2.0	2.0 to 3.5	> 3.5

TABLE 8
Minimum Sublot Lift Thickness

Mix Course	Design Lift Thickness (T_D) mm	Minimum Sublot Lift Thickness mm
All Courses	25 to 39	T_D - 7
	40 to 59	T_D - 10
Surface Course	60 and greater	T_D - 15
Binder Courses	60 and greater	0.70 x T_D

TABLE 9
Lot Thickness Payment Adjustment

Course	T_L	Thickness Payment Adjustment, PA_T
Surface Course (Note 1)	$T_L \geq [0.85 \times T_D]$	PA_T = lot quantity x price x {[1.000 - (T_L / T_D)] x 2.0}
Binder Course	$T_L \geq [0.95 \times T_D]$	PA_T = lot quantity x price x {[1.000 - (T_L /T_D)]}
	$[0.95 \times T_D] > T_L \geq [0.85 \times T_D]$	PA_T = lot quantity x price x {[1.000 - (T_L /T_D)] x 2.0}
	$T_L < [0.85 \times T_D]$	PA_T = lot quantity x price x {[1.000 - (T_L /T_D)] x 3.0}

Where:
T_L = lot mean, if lot mean is less than or equal to T_D (see definition), or
$T_L = T_D$, if lot mean is greater than T_D
lot quantity = the horizontal area of the upper most lift of hot mix in the lot (normally surface course)
price = the Contract price of the hot mix tender item

Notes:
1. A lot is rejectable when $T_L < [0.85 \times T_D]$. When the Contract Administrator has determined that a rejectable surface course lot may remain in the work without repair, the lot shall be subjected to a payment adjustment as determined by the Contract Administrator.

TABLE 10
Reference Densities, D_R

Region	Reference Densities, D_R tonnes/m³
West Region	2.530
Central Region Northeastern Region Northwestern Region	2.520
Eastern Region	2.390

TABLE 11
AC Price Adjustment

I_P	AC Price Adjustment, PA
$I_P > 1.05\ I_{TO}$	$PA = (I_P - 1.05\ I_{TO}) \times T_{AC}$
$I_P < 0.95\ I_{TO}$	$PA = (0.95\ I_{TO} - I_P) \times T_{AC}$

Note:
If $I_P > 1.05\ I_{TO}$ the Contractor receives compensation; however, if $I_P < 0.95\ I_{TO}$ the Owner receives a rebate.
Where:
PA = payment adjustment for new AC, in dollars
I_{TO} = PGAC price index for the month prior to Tender Opening
I_P = PGAC price index for the month in which paving occurs
T_{AC} = quantity of new AC in tonnes
T_{AC}, shall be calculated as follows:
$T_{AC} = [AC_{new} /100] \times T_{mix_mnth}$
Where:
AC_{new} = the percentage of new AC in the mix as required by the JMF.
T_{mix_mnth} = the tonnage of HMA, as calculated in the Hot Mix Quantity Calculation clause, accepted into the work during the month for which the payment adjustment was calculated.

ASPHALTIC CONCRETE SURFACE SMOOTHNESS - Asphaltic Concrete Payment Adjustment for Surface Smoothness Based on Quality Assurance Measurements Taken by an Inertial Profiler

Special Provision No. 103F31 June 2017

1.0 SCOPE

This Special Provision covers all surface smoothness requirements for hot mix asphalt construction.

2.0 REFERENCES

Ontario Provincial Standard Specifications, Construction

OPSS 313 Hot Mix Asphalt – End Result

Ontario Ministry of Transportation Publications

LS-100 Rounding-Off of Test Data and Other Numbers
LS-296 Method of Test for Calibrating, Correlating and Conducting Surface Smoothness Measurements Using an Inertial Profiler

American Association of State Highway and Transportation Officials (AASHTO)

M 328 Standard Specification for Inertial Profiler
R 56 Standard Practice for Certification of Inertial Profiling Systems
R 57 Standard Practice for Operating Inertial Profiling Systems

ASTM International

E 950 Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference

3.0 DEFINITIONS

For the purpose of this Special Provision, the definitions in OPSS 313 and the following definitions apply:

Category B Pavement Treatment means the application of one lift of HMA after:
a) Milling; or
b) Cold in-place recycling; or
c) Full depth reclamation.

Existing Surface means the original pavement surface prior to construction under the Contract.

Expanded Asphalt Mix (EAM) means "Full Depth Reclamation with Expanded Asphalt Stabilization" which is a mixture of reclaimed existing asphalt pavement, granular base, corrective aggregate if required, and expanded asphalt.

Final Measurements means the set of three measurements used for acceptance purposes.

Inertial Profiler means a device used for surface smoothness measurements conforming to requirements of a Class 1 Profilometer according to ASTM E 950 and meeting the additional requirements stated in LS-296.

Initial Measurements means the first set of three measurements taken by an inertial profiler on a given pavement section.

International Roughness Index (IRI) means a specific mathematical transform of a true profile in which a low pass filter (usually consisting of a moving average with a 250 mm base length) followed by a "Quarter Car Filter" are applied to the true profile then the absolute values of the vertical vibration of the "Quarter Car Filter" are accumulated and divided by the sublot length. It's expressed in units of m/km.

Localized Roughness is calculated using smoothness assurance module of ProVAL based on MRI Ride Quality Index and Short Continuous Analysis with 7.62 m baselength. Incident of Localized Roughness is a location where localized roughness has been identified at stations that are within ± 2 m of one another in at least two of the three runs that were measured by the applicable inertial profilers. Its station and average MRI shall respectively be considered to be the average station and the average MRI for the individual localized roughness locations that were identified in the 2 or 3 applicable runs.

Mean Roughness Index (MRI) means the number calculated by averaging the IRI values from the two wheel path profiles.

Profiler Operator means any person who has been adequately trained by the manufacturer of an inertial profiler to operate the inertial profiler and to use ProVAL software and has received a certificate of training.

Quarter Car Filter calculates the suspension deflection of a simulated mechanical system with a response similar to one corner (a quarter) of a passenger car travelling at 80 km/hr.

Sublot means a continuous traffic lane of pavement; excluding the shoulder, which has been measured by inertial profiler for purposes of repairs/payment adjustments and normally having a length of 100 m.

Subsequent Measurements means any measurements by an inertial profiler taken after the initial measurements.

Unfiltered Data File means a data file representing the profile of a pavement surface taken by the inertial profiler before any user-controlled filtering is applied.

Wheel path means 0.9 m on each side of the centreline of the actual trafficked lane. The trafficked lane does not include adjacent paved areas such as paved shoulders or tapers.

4.0 DESIGN AND SUBMISSION REQUIREMENTS - Not Used

5.0 MATERIALS - Not Used

6.0 EQUIPMENT

6.01 Inertial Profiler

The Owner shall measure smoothness using an inertial profiler.

7.0 CONSTRUCTION - Not Used

8.0 QUALITY ASSURANCE

8.01 Surface Smoothness

8.01.01 Lot Size

A lot for surface smoothness shall consist of the total pavement quantity in a given surface course Contract item that was measured by the QA inertial profiler. Each lot shall generally be divided into 100 metre single lane sublots. Lot acceptance for surface smoothness shall be based on measurements of IRI and incident(s) of localized roughness.

8.01.02 Surface Smoothness Measurement

The Owner shall measure all through lane pavement surfaces using an approved inertial profiler, with the following exceptions:

a) Where the posted speed is 60 km/hour or less.

b) Where a single lift is placed on an existing surface.

c) Within 10 m of the end of a placement where the paving Contractor is not responsible for the adjoining surface.

d) Bridge decks and within 10 m of bridge deck expansion joints.

e) Detours and other temporary pavement that shall be removed or overlaid under this Contract.

f) The first adjacent lane consisting of one or more lifts of hot mix asphalt where the Contractor must match to an existing surface that is not being resurfaced under this Contract.

g) Within 10 m of any access holes, water valves, or similar structures which are located within the lane or within 1.5 m of the outside edge of the lane.

h) Lanes less than 400 m in length.

i) Curves with a centerline radius of less than 300 m and pavement within the superelevation transition, i.e. slope changes, of such curves.

j) 100 m either side of a stop bar at signalized intersections.

k) 100 m either side of a stop bar at stop controlled intersections for the lanes being measured for smoothness.

8.01.02.01 Sublots to be Measured

The Contract Administrator shall provide a draft sketch to the Contractor at the pre-paving meeting showing the proposed details for the numbering and stations of each sublot to be measured. During preparation of the sublot sketch, when the last sublot is less than 50 m in length, it shall be added to the previous sublot in the lane. The sketch shall be finalized by the Contract Administrator before the beginning of surface course paving. Prior to beginning the construction of the surface course, the Contractor may propose changes to the sketch or any areas for consideration by the Contract Administrator.

8.01.02.02 Inertial Profiler Acceptance Testing

The Contractor shall notify the Contract Administrator, in writing, when the surface course is ready for QA inertial profiler acceptance testing. The Owner shall perform QA inertial profiler acceptance testing only when, regardless of the number of surface course tender items involved, the surface course has been completed to one of the following milestones:

a) 50% completed; or

b) Once within a given calendar year; or

c) Surface course completed.

Prior to testing, the sublot number and the station at the beginning of each sublot shall be clearly marked out by the Contractor in a manner that remains visible to the QA profiler operator until the final measurements are completed and accepted.

Within 10 Business Days of receiving the Contractor's written notification that QA testing can begin and, the Contract Administrator is fully satisfied that the locations of the sublots that are to be measured have been properly marked out, surface smoothness acceptance testing with the inertial profiler shall begin. When weather conditions as determined by the manufacturer of the inertial profiler will not provide reliable results, the testing shall be suspended and not resume until reliable results can be obtained.

When reflectors are used for QA or referee measurements, the Contractor shall obtain the reflectors from the profiler operator and place them on the left/right shoulder or the highway median at the beginning and end of each profile run as required by the profiler operator. After smoothness measurements are completed each day, the Contractor shall remove the reflectors and return them to the profiler operator.

When Global Position System-Distance Measuring Instrument (GPS-DMI) technology is used for QA or referee measurements, the profiler operator shall collect static GPS coordinates while stopped on the shoulder. Traffic protection for the collection of static GPS coordinates shall be provided by the Contractor.

An inertial profiler shall be required to do three runs of any particular pavement section. However, when the profiler operator deems that the results for one or more sublots within a particular run are invalid, due to technical difficulties or other reasons, then the profiler operator, after consultation with the Contract Administrator, shall be allowed to repeat that run and the data file for the repeated run shall be used to calculate the IRI for all of the sublots and all of the localized roughness that are identified within that run.

The profiler operator shall run all of the applicable unfiltered data files through the ProVAL Version 3.40 or 3.50, according to the procedures specified in LS-296. After the measurements by the QA inertial profiler are analyzed, all areas to be repaired due to rejectable sublots and/or incidents of localized roughness shall be marked on the pavement surface by the Contractor at the direction of the Contract Administrator and prior to the Contractor doing any corrective work.

The Contract Administrator shall provide the following information to the Contractor within 7 Business Days after the surface smoothness measurements have been completed to any of the milestones listed above:

a) All of the unfiltered data files from the final measurements that are generated by the inertial profiler in ppf or erd format for each profile run;

b) A summary of the longitudinal reference lines and offsets that were used for each profile run;

c) A summary of all "lead-in" distances that the inertial profiler required, prior to the start of the first sublot being measured in every profile run;

d) Summaries of all IRI measurements and the locations and values of all localized roughness in both wheel paths for each run of each sublot, as determined by the ProVAL software in accordance with LS-296, in Microsoft Excel spreadsheet file(s).

The information shall be provided to the Contractor on CD's or DVD's for use by IBM compatible personal computers or by email.

8.01.03 Referee Testing

For each measurement results taken by the QA inertial profiler at any milestone identified in Inertial Profiler Measurements clause , the Contractor may make a single written request for "Referee testing" no more than 5 Business Days after the Contractor has received all of the summary sheets and the QA profiler's applicable files. Each request shall state the sublots that are to be re-measured. The referee inertial profiler shall be chosen from a list of certified profilers maintained by the Ministry.

All sublots that are requested for referee testing shall be re-measured three times using a "referee inertial profiler", within 15 Business Days of the Contract Administrator receiving the Contractor's written request for referee testing.

When weather conditions as determined by the manufacturer of the inertial profiler will not provide reliable results, the testing shall be suspended and not resume until reliable results can be obtained. The disposition of all of the re-measured sublots and all incident(s) of localized roughness that are located within those sublots shall be based on the Referee measurements and the results shall be binding on both the Contractor and the Owner.

8.01.04 Damage to Existing Pavement Surface after Preparation or Damage to Surface Course Prior to Smoothness Measurements

The Contractor shall provide written documentation to the Contract Administrator within 1 Business Day of becoming aware of the damage to areas of:

a) existing pavement surfaces underlying a sublot, which have been milled and/or padded; or

b) surface course within a sublot;

when such damage was due to circumstances beyond the Contractor's control and occurred prior to measurement for surface smoothness.

The Contractor shall not cover the affected area with hot mix asphalt until a decision is made by the Contract Administrator. The Contract Administrator shall evaluate the Contractor's submission and may exclude all or part of the affected area from the final calculation for the payment factor.

8.01.05 Repairs and Redecisioning

8.01.05.01 General

Smoothness-related or surface tolerance-related repairs are not allowed prior to initial smoothness measurements.

Any incident of localized roughness shall either be repaired or receive a payment adjustment according to the requirements given in Table 2.

For any sublot with an IRI which is greater than 1.25 m/km, the sublot is rejected and the Contractor shall repair at least a portion of the sublot.

All repairs and redecisioning of all sublots which are constructed in a given construction season shall be completed within 30 Days of the Contractor receiving written notice from the Contract Administrator that the last set of measurements had indicated repairs for those sublots. However, if such repairs cannot be made,

due to rapid changes in weather or other issues that are no fault of the Contractor, then, at the discretion of the Contract Administrator, the Contractor may be requested to delay those repairs until the beginning of the next construction season, at no additional cost to the Owner.

The Contractor shall inform the Contract Administrator, in writing, when the repaired sublots are ready for QA inertial profiler acceptance re-testing. The Contractor shall be responsible for the cost of QA inertial profiler acceptance re-testing.

8.01.05.02 Repairs

8.01.05.02.01 General

At least 5 Business Days prior to beginning any surface smoothness-related or tolerance-related repairs, the Contractor shall submit a written proposal to the Contract Administrator with the sublot and repair locations including the appropriate stations, length of each repair area, distance between the ends of the repair areas on the same lane that are within 100 m of each other, and the method(s) of repair that the Contractor intends to use for each repair area. The Contractor shall not start repairs unless the Contract Administrator has given written permission. If permission is denied, then the Contract Administrator shall provide the Contractor with the reason(s) in writing.

Surface smoothness-related or tolerance-related repairs shall consist of one or more of the following corrective measures:

a) Diamond grinding;

b) A hot mix asphalt overlay, where permitted;

c) Remove and replace; and/or

d) Other methods of repair, if approved by the Contract Administrator, in consultation with the Ministry.

8.01.05.02.02 Diamond Grinding

Diamond grinding shall not be allowed in any area of the surface course where that area:

a) Consists of a single lift of hot mix asphalt placed on a granular surface, Expanded Asphalt Mix (EAM) base or on pulverized grade; or

b) Will be reduced by more than 5 mm below the general profile of the surrounding pavement surface after the repair.

A sublot shall be limited to no more than three separate diamond ground repair areas. If additional repair areas are identified within a sublot, then other methods of repair shall be used, subject to approval by the Contract Administrator.

The slurry produced from diamond grinding shall be removed from the site by the Contractor and managed as specified elsewhere in the Contract Documents.

8.01.05.02.03 Hot Mix Asphalt Overlay / Remove and Replace

Overlays on traffic lanes beneath structures may be allowed, if clearances between the pavement surface and the underside of the structure after overlay meet the established minimum requirements. Overlays on traffic lanes adjacent to curb-and-gutter or on bridge decks shall not be permitted.

A paver shall be used wherever corrective measures include overlay / remove and replace. Hot mix asphalt used in such repairs shall meet all of the requirements specified for the item in the Contract. The minimum width of every repair by "remove and replace" or a "hot mix asphalt overlay" shall be the width of the lane being repaired.

8.01.05.03 Redecisioning

When repairs are made to all or part(s) of any smoothness sublot, then the entire sublot shall be re-tested by the QA inertial profiler at the Contractor's cost. Re-testing by QA inertial profiler shall include at least 15 m on either side of the repaired area. If this requirement extends the testing onto an adjacent sublot, then the adjacent sublot shall also be re-tested. After such repairs to the sublot, subsequent measurements shall be used in the final calculations for the payment adjustment to the lot.

After a sublot is repaired/overlaid, then the subsequent measurements of the sublot shall have no incident(s) of localized roughness and its IRI shall be less than or equal to 1.25 m/km.

9.0 MEASUREMENT FOR PAYMENT - Not Used

10.0 BASIS OF PAYMENT

10.01 Payment Adjustment for Surface Smoothness

10.01.01 Hot Mix Asphalt Quantity Calculation

Where the unit of measure is by square metres; the quantity of HMA for use in the calculations (Q_{mix}) shall be the theoretical area of surface course in the lot using the length of pavement on which the inertial profiler measurements were made and the design widths of the finished lane; excluding any paved shoulder.

When the unit of measure is tonnes, Q_{mix} shall be determined using the theoretical tonnage. The theoretical tonnage shall be calculated by the Contract Administrator as follows and rounded to one decimal according to LS-100:

$$Q_{mix} = [0.975 \times BRD_{mix} \times (T_D/1000) \times A_{mix}] \quad \text{(Formula 1)}$$

Where:

BRD_{mix} = the lot average bulk relative density in t/m^3, calculated from values obtained in the testing of bulk samples obtained during production of the first complete lot of at least 3 sublots of HMA placed in the work. The values shall be the same as those used in calculating the final payment factor for air voids for the lot.

T_D = the design thickness, in millimetres, of surface course.

A_{mix} = theoretical area of surface course in the lot using the length of pavement on which the inertial profiler measurements were made and design widths of the finished lane; excluding any paved shoulder, in square metres.

10.01.02 Payment Adjustment Calculation

A sublot's payment factor for smoothness shall be based on the initial measurements using a QA inertial profiler, unless that sublot has been repaired or the initial quality assurance IRI has been substituted as a result of referee testing. Where a sublot has been repaired, the subsequent measurements taken after the repair shall be used in the calculation for the payment adjustment to that sublot. Subsequent measurements of IRI shall not be used to increase a payment factor, unless the sublot has been repaired. No sublot that has been repaired for any reason shall receive a payment factor greater than 1.0.

For any sublot with an initial average IRI measurement for the three runs that is greater than 1.000 m/km but less than or equal to 1.250 m/km, the Contractor may either accept the inclusion of its payment factor in the calculation for the lot or the Contractor may choose to repair at least a portion of the sublot.

The payment factors for sublots shall be determined by the Contract Administrator according to Table 1A or Table 1B, as applicable. Table 1B shall be used only for sublots consisting of Category B pavement treatment.

The sublot payment factor shall be rounded to three decimal places, according to LS-100. The payment factor for smoothness (PFS) for the entire lot shall be the lesser of the following:

a) The average of the individual payment factors for all measured sublots of surface course within the lot, rounded to three decimal places, according to LS-100, or;

b) 1.050.

If the average payment factor for the lot is equal to 1.000, the payment adjustment shall be zero.

If the average payment factor for the lot is greater than 1.000, the payment adjustment shall be:

$$(PFS - 1.000) \times Price \times Q_{mix} \qquad \text{(Formula 2)}$$

If the average payment factor for the lot is less than 1.000, the payment adjustment shall be:

$$(1.000 - PFS) \times Price \times Q_{mix} \qquad \text{(Formula 3)}$$

Where:

Price = means the Contract price of the hot mix asphalt surface course tender item.

TABLE 1A
Sublot Payment Factor Based on IRI for all Pavement Treatments Except Category B

Average IRI of both wheel paths from a set of 3 measurements taken by an Inertial Profiler in each sublot (m/km)	Sublot Payment Factor
≤ 0.500	1.200 (subject to Note 1 below)
> 0.500 to 0.600	2.2 - (2.0 x IRI) (subject to Note 1 below).
> 0.600 to 1.000	1.000
> 1.000 to 1.250	1.40 - (0.4 x IRI) (subject to Note 2 below)
> 1.250	REJECTED (Requires repairs – subject to Note 2 below)

Notes:
1. The payment factor shall not exceed 1.000 for subsequent IRI measurements which are taken after repairs regardless of the reason for the repairs.
2. Sublots with IRI's between 1.000 and 1.350 m/km and located in areas of hot-in-place recycling being used as a surface course shall receive a payment factor of 1.00. Sublots with IRI's greater than 1.350 m/km and located in areas of hot-in-place recycling being used as a surface course shall be repaired.

TABLE 1B
Sublot Payment Factor Based on IRI for Category B Pavement Treatments

Average IRI of both wheel paths from a set of 3 measurements taken by an Inertial Profiler in each sublot (m/km)	Sublot Payment Factor
≤ 0.500	1.200 (subject to Note 1 below)
> 0.500 to 0.600	2.2 - (2.0 x IRI) (subject to Note 1 below).
> 0.600 to 1.250	1.000
> 1.250	REJECTED (Requires repairs)

Notes:
1. The payment factor shall not exceed 1.000 for subsequent IRI measurements which are taken after repairs regardless of the reason for the repairs.

10.01.03 Incident(s) of Localized Roughness:

The Contractor shall either be given payment adjustments or be required to repair all incidents of localized roughness according to Table 2. However, where two or more incidents of localized roughness are found to be within 3 m of one another and they are left unrepaired, then the localized roughness at those locations shall be respectively treated as a single incident of localized roughness and the MRI of that single incident of localized roughness shall be considered to be the average MRI for all of the individual incidents of localized roughness within that 3 m for assessment of payment adjustment.

The payment adjustment for any sublot which includes any unrepaired incidents of localized roughness shall be unaffected by any payment adjustment given for such incidents of localized roughness.

TABLE 2
Payment Adjustments / Repairs for Localized Roughness

Incidents of Localized Roughness (Average MRI determined from three sets of measurements taken by an Inertial Profiler, run through ProVAL Version 3.40 or 3.50, m/km)	Payment Adjustment
2.400 to 3.499	The Contractor shall receive a payment reduction (subject to Notes 1 and 2) of $2,500 for each incident of localized roughness located in multi-lane freeways, and $2,000 for each incident of localized roughness located in all other highway types. Repairs shall be allowed for any incident of localized roughness in this amplitude range subject to Note 1.
≥ 3.500	All incidents of localized roughness shall be repaired in this range (subject to Note 1).

Notes:
1. Subject to the restrictions on repairs stated in Repairs clause, the Contractor may repair an incident of localized roughness with an average MRI greater than 2.400 m/km. If the repair removes that incident of localized roughness, then the payment adjustment for that incident of localized roughness shall be waived.
2. Payment adjustment shall be waived for any incident of localized roughness located within transition zones. Transition zone is the section of a through lane adjacent to the taper of an added or terminated new lane and includes an additional 10 m either side of the start and end of the taper.

10.01.04 Repair Costs

All repairs shall be made entirely at the Contractor's expense. Where overlays are allowed, any other associated costs such as additional granular materials for shoulders, shall also be borne by the Contractor.

10.01.05 Costs for QA Re-Testing and Referee Testing

The Contractor shall be responsible for the cost of QA inertial profiler acceptance re-testing.

If the Contractor requests Referee testing and the average IRI for the sublots tested by the referee profiler in that request is larger or less than 10% smaller than the average IRI determined from the measurements taken by the QA inertial profiler for the same sublots, then the cost of the referee testing shall be borne by the Contractor. Otherwise, the Owner shall be responsible for the costs of referee testing.

10.01.06 Tolerance/Smoothness Measurements and Associated Traffic Control

No additional payment shall be made to the Contractor for the cost of tolerance measurements that are required by the Contract Administrator.

No additional payment shall be made to the Contractor for the cost of traffic protection provided to the profiler for daily placement and removal of the reflectors or for collection of static GPS coordinates as specified in Inertial Profiler Acceptance Testing clause unless placement or removal of the reflectors or collection of static GPS coordinates requires the closure of a traffic lane, in which case, the cost of such traffic control shall be administered as a Change in the Work.

TRANSPORTATION OF STRUCTURAL COMPONENTS

Special Provision No. 109F16 February 2009

Background

Many pre-fabricated structural components used in bridge construction cannot be transported within legal weights or dimensions specified under the Highway Traffic Act (HTA). Any overdimensional/overweight vehicle transporting loads or equipment pursuant to the terms of this contract must, before operating on a public highway, obtain the necessary oversize/overweight (O/O) permit from the respective authority having jurisdiction over the route(s) to be travelled, and must abide by the conditions and restrictions set out within the permit(s).

Travel over any of the King's Highways, must be under the authority of a permit issued by the Ministry of Transportation (MTO). The maximum permitted O/O loads on the Kings Highways are as follows and subject to the approval process and the travel restrictions indicated.

For the purposes of this document, the loads have been categorized into 3 classes (A, B & C), each being subject to incrementally more stringent approval processes and travel restrictions. (Note: Dimensions include vehicle and load unless otherwise stipulated.)

(A) Routine Oversize/Overweight loads

Length: 23.0m to 36.75m, or
Width : 2.60m to 4.30m, or
Height: 4.15m

Vehicles with dimensions satisfying any of the limits given above shall require clearance approval by the MTO Oversize/Overweight Permits Section.

Weight: Gross vehicle weight in excess of HTA allowances and up to 70,000 kg; axle weight shall not exceed 11kg/mm tire width or weights shall not exceed manufacturer's rated capacities for any vehicle or tire component, or Highway Traffic Act axle weight limits plus 10,000 kg, whichever is less. (Overweight allowance will not be permitted during the reduced load period March 1 to April 30.)

Travel Restrictions

1. Transportation in congested traffic conditions will not be permitted. The MTO Oversize/Overweight Permits Section may also restrict the permitted hours of travel through any designated urban area.

2. Loads shall be moved only during hours of daylight. Loads may not be moved during periods when due to insufficient lighting or atmospheric conditions, persons and vehicles are not clearly discernable at a distance of 150m or less.

3. A permit issued by the Ministry is valid only on the King's highways specified. Transit over any highway under the jurisdiction of a municipality requires a separate permit issued by the Municipality and shall be subject to such conditions as may be imposed by the Municipality.

4. Permits shall be conditional upon axle loadings, gross weight loadings and overhang as required by the MTO Oversize/Overweight Permits Section. Requirements for flagging, warning devices and private escort vehicles may be obtained by contacting the MTO Oversize/Overweight Permit Section at 1-800-387-7736, extension 6306.

5. MTO is not responsible for any cost or delay arising from any route(s), vehicles or axle weights being rejected by the MTO Oversize/Overweight Permits Section or other authorities.

(B) Non Routine Oversize/Overweight Loads

Length: 36.76m to 55.0m, or
Width: 4.31m to 4.99m, or
Height: > 4.15m.

Vehicles with dimensions satisfying any of the limits given above shall require clearance approval by the MTO Oversize/Overweight Permits Section.

Weight: Gross vehicle weight up to 120,000 kg, subject to the Weight & Load Engineer's evaluation and approval; axle weight shall not exceed 11kg/mm tire width or weights shall not exceed manufacturer's rated capacities for any vehicle or tire component, or Highway Traffic Act axle weight limits plus 10,000 kg, whichever is less. (Overweight allowance will not be permitted during the reduced load period March 1 to April 30.)

Travel Restrictions

In addition to A, the following apply:

1. Vehicle and load exceeding 36.75m in length require one private escort vehicle. Vehicle and load, exceeding 45.74m in length or gross vehicle weight in excess of 100,000 kg, require two (2) Ontario Provincial Police (OPP) escort vehicles. Regional or municipal police may be used for short duration highway travel, with prior authorization of the OPP.

2. Contractor is responsible for escort arrangements and cost of escort.

3. No convoy moves are permitted. En route, a minimum spacing of 10 km is to be maintained.

4. Permit application shall be submitted three (3) weeks in advance to the MTO Oversize/Overweight Permit Section.

(C) Extra Heavy and/or Over-dimensional Loads

Extra heavy and/or over-dimensional loads are indivisible loads exceeding the categories (A) and (B) weight or dimension limits or large number of category (B) loads that require minimal travel separation.

Approvals for road transportation from MTO or other authorities are granted in principle, but subject to the travel restrictions documented herein.

USE OF AIR COOLED IRON BLAST FURNACE SLAG AS GRANULAR MATERIAL

Special Provision No. 110F10 September 2001

SCOPE

This special provision covers the requirements for the use of air cooled iron blast furnace slag as granular material in road construction.

DEFINITIONS

Slag: means air cooled iron blast furnace slag.

CONSTRUCTION

General Operational Constraints

For those applications permitted in this special provision, it is the Contractor's responsibility to notify the District Manager of the local District Office of the Ministry of the Environment (MOE), of the locations where slag will be utilized.

The Contractor shall prepare a contingency plan that specifically addresses management by the Contractor, during construction, of any odour and leachate which may be generated by the slag material. The plan shall include but not be limited to the following:

a. a strategy for containment, cleanup and disposal of leachate to ensure a quick and comprehensive response to any escape of leachate from the construction site;

b. a strategy for communicating with MOE and other regulatory authorities in the event of any escape of leachate;

c. a strategy to identify the project specific causes of leachate problems as well as a commitment to developing short and long term corrections; and

d. a strategy for dealing with public complaints about odour problems which may occur.

Restrictions On the Use of Slag

a. Slag is prohibited for any application below top of subgrade.

b. Slag may be applied above subgrade with the following exceptions:

Not Permitted

c. During construction, water shall not be directed, through means such as channelized flow or dewatering effluent, to areas where slag has been placed.

d. When placing slag, the Contractor shall ensure that the material is graded and placed in a manner which ensures free drainage and prevents ponding on, within or against the material.

SUBMISSION AND DESIGN REQUIREMENTS

Notification of Sites Intended to be Used for the Placement of Slag

Three weeks prior to receipt of the slag material at the job site, a completed Notification of Intended Placement of Slag Form, included in this special provision, shall be submitted to the attention of the District Manager of the appropriate local District Office of the Ministry of the Environment. The notification shall include a copy of this special provision and a copy of the contingency plan required by this special provision.

Three weeks prior to receipt of the slag material on the job site, copies of the completed Notification of Intended Placement of Slag Form and the Contractor's contingency plan for the use of slag material shall be supplied to the Contract Administrator, and to the Manager/Supervisor of the MTO Regional Environmental Office/Unit.

Notification of Intended Placement of Air Cooled Iron Blast Furnace Slag Form

Highway: _____ MTO Contract No. _____

Location of Contract: _____

Contractor: _____ Telephone: _____

Construction Administrator: _____

The following describes the Contractor's intended locations for placement of slag on the noted MTO Contract currently under construction. By signing this form the noted Contractor acknowledges to the Ministry of the Environment that all locations proposed to be used by the Contractor for the placement of slag meet the requirements of the special provision attached.

_____

1. Source of Slag

The material source is as follows:

Name and address of the commercial source;
_____
_____
_____
_____

2. Site Description

The site description includes the following:

An identification of the location of the work project including a map reference;
_____
_____
_____
_____
_____

3. Location for Placement of Slag

Attach descriptions (including station numbers) detailing the following:

a) use and location of the slag, including a detailed plan of the material placement site (and typical cross section if necessary); and

b) quantities/volume of material to be placed at the location specified.

Dated this _____ day of _____ 2___

_____
Contractor's Signature

_____
Name of Construction Company

AMENDMENT TO OPSS 1151, NOVEMBER 2016

Special Provision No. 111F06 October 2018

1151.03 DEFINITIONS

Section 1151.03 of OPSS 1151 is amended by deleting the definition of **RAP Content**.

Section 1151.03 of OPSS 1151 is further amended by the addition of the following definitions:

Binder Replacement means the asphalt cement from the RAP contributing to the total asphalt cement content in the mix, expressed as a percentage.

Roof Shingle Tabs (RST) means as defined in OPSS 313.

1151.04 DESIGN AND SUBMISSION REQUIREMENTS

1151.04.01 Design Requirements

1151.04.01.01 General

Clause 1151.04.01.01 of OPSS 1151 is deleted in its entirety and replaced with the following:

A laboratory that has current CCIL Type A certification, AMRL, or AMRL equivalent certification shall be used to conduct all mix designs and mix checks.

Superpave mixes shall be designed using the procedures specified in LS-309, with the exception of WMA mixes. WMA mixes shall be designed using the procedures specified in LS-318 at the anticipated WMA production temperature. In the mix design procedure, all references to RAP Content shall be deleted and replaced with % binder replacement.

Superpave materials, mix designs, and the JMF shall be according to the requirements specified in Tables 1, 2, 3 and 4 for the HMA mix type specified in the Contract Documents.

The use of RST is not permitted in the HMA.

SMA mixes shall be designed using the procedures specified in LS-311. SMA materials, mix designs, and the JMF shall be according to the requirements specified in Tables 1, 4, and 5 for the SMA mix type specified in the Contract Documents. Cellulose or mineral fibres shall be used as a stabilizing additive in dosage rates of 0.3% or 0.4%, respectively, by mass of the total mixture. Regardless of the type of fibre used, the manufacturer's recommendations for any product used shall be followed.

The composition of the HMA may be modified as permitted in Table 6.

The amount of RAP allowable by mass in a mix will be calculated by the Asphalt Binder Replacement method according to the following formula:

% Binder Replacement = [(% asphalt cement content of RAP x % RAP by mass of mix) / (% total asphalt cement content of mix)] x 100%

RAP as processed and ready for use in a HMA shall be tested using LS-282 or LS-292 to determine the average percentage asphalt cement and the average gradation for the extracted RAP aggregates.

Density testing of aggregates and RAP shall be conducted for the purpose of developing the mix design for each mix type in the Contract. Such testing shall be performed during production of each aggregate, RAP, or during stockpiling of the materials at the HMA plant.

In addition, if the composition of the mix is modified by including RAP, the high and low grade of PGAC required shall be lowered by 6 °C when:

% Binder Replacement > 20 %

The JMF selected for use shall produce HMA that meets all the requirements specified in the Contract Documents.

For HMA in this Contract, the mix properties, the compaction effort, and the aggregate properties specified in the Contract Documents, shall conform to the requirements for the traffic category specified in Table A. The use of a mix designed with a traffic category different than specified in Table A is not permitted.

The asphalt cement (AC) added to the hot mix types shall be performance graded asphalt cement, PGAC as specified in Table A. For bidding purposes only, the percentage by mass of asphalt cement, AC_{BID} contained in the various HMA mix types shall be as specified in Table A.

TABLE A
HMA Mix Design Criteria

HMA Type	Location in Contract	Traffic Category	PGAC Grade	AC_{BID} % (Note 1)
Superpave 12.5 FC1	Throughout	C	58-28	5.0
Superpave 12.5	Hwy 3; 11+815 to 17+530, side road surfaces, partial/full shoulder paving, commercial and private entrances	C	58-28	5.0
Superpave 19.0	Throughout	C	58-28	4.8
Note 1: For SMA Mix Types a minimum AC Content is specified in Table 5 based on combined aggregate bulk relative density.				

1151.04.02 Submission Requirements

1151.04.02.01 Mix Design

Clause 1151.04.02.01 of OPSS 1151 is amended by the addition of the following:

The % Binder Replacement shall be calculated and submitted with the mix design.

The asphalt film thickness (T_F) shall be calculated according to the procedure given in Appendix A enclosed with this specification and submitted with the mix design.

1151.05 MATERIALS

1151.05.02 Aggregates

1151.05.02.01 Reclaimed Asphalt Pavement and Roof Shingle Tabs

Clause 1151.05.02.01 of OPSS 1151 is deleted in its entirety and replaced with the following:

1151.05.02.01 Reclaimed Asphalt Pavement

The aggregate contained in the RAP, where permitted in a HMA, shall be according to the aggregate requirements of OPSS 1003 for the mix type specified in the Contract Documents.

RAP that is contaminated with deleterious material shall not be used and shall be removed from the work. RAP shall be stockpiled conforming to the stockpiling requirements for coarse aggregates according to OPSS 1001, except that when the material is stockpiled on a compacted granular pad, the top 75 mm of the pad shall be the coarse aggregate that is required for a new (virgin) mixture of the tendered hot mix item.

The use of RAP that is obtained from existing stockpiles that do not have a foundation conforming to the above paragraph shall be permitted provided that the bottom 0.3 m of the stockpile is not incorporated into the work.

Process control sampling and testing of the RAP shall be as specified in the Contract Documents.

Table 6 of OPSS 1151 is deleted in its entirety and replaced with the following:

TABLE 6
Maximum % Binder Replacement

Traffic Category (Note 1)	**Binder Course 150 mm or More Below Pavement Surface**	**Binder Course Within 150 mm of Pavement Surface**	**Surface Course**
A, B	40%	40%	0%
C, D	40%	20%	0%
E	40%	20%	0%
Note 1: Traffic category as specified in the Contract Documents.			

Table 8 of OPSS 1151 is deleted in its entirety and replaced with the following:

TABLE 8
Sample Quantities for Mix Design Monitoring

Material	**Quantity** (Note 1)
Asphalt Cement	4 litres evenly split between 2 containers
Aggregate	75 to 100 kg of each type
RAP	75 to 100 kg required when RAP contained in the mix
Fines material passing 75 μm sieve	5 to 10 kg when the mix is to be produced with a plant that returns fines to the mix
Mineral Filler	5 to 10 kg sample for SMA mixes
Any other material samples including anti-stripping agents and fibres to be used in HMA	Quantity large enough to allow for a complete mix design
Note 1: Each material sample receptacle shall have a maximum mass of 30 kg.	

Table 9 of OPSS 1151 is deleted in its entirety.

APPENDIX A
METHOD OF TEST FOR DETERMINING ASPHALT FILM THICKNESS (T_f)

The procedure for determining asphalt film thickness (T_F) was referenced from NCHRP Report 673, pages 57 to 60.

- The asphalt film thickness, T_F, is calculated using the following equation:

  $T_F = (1{,}000 \times VBE) / (S_s \times P_s \times G_{mb})$

  Where,
  T_F = Asphalt Film Thickness, µm;
  VBE = Effective asphalt cement content, % by total mix volume
  S_s = Aggregate specific surface, m^2/kg
  P_s = Total aggregate content, % by mix mass, $(100-P_b)$
  G_{mb} = Bulk specific gravity of the asphalt mix

- The aggregate specific surface, S_s, is calculated using the following equation:

  $S_s = [1 / (1{,}000 \times G_{sb})] \times [2.0 \times (P_{37.5} - P_{25}) + 2.8 \times (P_{25} - P_{19.5}) + 3.9 \times (P_{19.5} - P_{12.5}) + 5.5 \times (P_{12.5} - P_{9.5}) + 8.9 \times (P_{9.5} - P_{4.75}) + 17.9 \times (P_{4.75} - P_{2.36}) + 36.0 \times (P_{2.36} - P_{1.18}) + 71.3 \times (P_{1.18} - P_{0.60}) + 141 \times (P_{0.60} - P_{0.30}) + 283 \times (P_{0.30} - P_{0.15}) + 566 \times (P_{0.15} - P_{0.075}) + 1{,}600 \times (P_{0.075})]$

  Where,
  The P values represent the % of aggregate passing the designated sieve sizes in mm.

  For example,
  P_{25} = % of aggregate passing 25-mm sieve
  $P_{0.15}$ = % of aggregate passing 0.15-mm sieve
  Each successive pair of sieves are multiplied by a factor (2.0, 2.8, 3.9, etc.)

  G_{sb} = Average bulk specific gravity for the blended aggregate

  G_{sb} can be calculated using the following equation:

  $G_{sb} = [P_{S1/A} + P_{S2/A} + P_{S3/A} + ...] / [(P_{S1/A}/G_{sb1}) + (P_{S2/A}/G_{sb2}) + (P_{S3/A}/G_{sb3}) + \ldots]$

  Where,
  $P_{S1/A}$ = volume % of Aggregate 1 in aggregate blend
  $P_{S2/A}$ = volume % of Aggregate 2 in aggregate blend
  $P_{S3/A}$ = volume % of Aggregate 3 in aggregate blend
  G_{sb1} = bulk specific gravity for Aggregate 1
  G_{sb2} = bulk specific gravity for Aggregate 2
  G_{sb3} = bulk specific gravity for Aggregate 3

- The total aggregate content, P_s, is calculated using the following equation:

  $P_s = 100 - P_b$

  Where,
  P_b = Total asphalt cement content, % by mix mass

P_b can be calculated using the following equation:

$P_b = 100 \times [M_b / (M_s + M_b)]$

Where,
M_b = Mass of asphalt cement in specimen
M_s = Mass of aggregate in specimen

- Sequential steps to calculate the effective asphalt cement content, VBE, are detailed below:

  1. Determine the total asphalt cement content by mass, P_b, using the equation outlined above.

  2. Determine the total asphalt cement content by volume, VB, using the following equation:

     $VB = (P_b \times G_{mb}) / G_b$

     Where,
     VB = Total asphalt cement content, % by total mix volume
     P_b = Total asphalt cement content, % by mix mass
     G_{mb} = Bulk specific gravity of the asphalt mix
     G_b = Specific gravity of asphalt cement

  3. Determine the absorbed asphalt cement content, VBA, using the following equation:

     $VBA = G_{mb} \times [(P_b / G_b) + (P_s / G_{sb}) - (100 / G_{mm})]$

     Where,
     VBA = Absorbed asphalt cement content, % by total mix volume
     G_{mb} = Bulk specific gravity of the asphalt mix
     P_b = Total asphalt cement content, % by mix mass
     G_b = Specific gravity of asphalt cement
     P_s = Total aggregate content, % by mix mass, $(100-P_b)$
     G_{sb} = Average bulk specific gravity for the blended aggregate
     G_{mm} = Maximum specific gravity of the asphalt mix

  4. Determine the effective asphalt cement content, VBE, using the following equation:

     $VBE = VB - VBA$

     Where,
     VBE = Effective asphalt cement content, % by total mix volume
     VB = Total asphalt cement content, % by total mix volume
     VBA = Absorbed asphalt cement content, % by total mix volume

AMENDMENT TO OPSS 1101, NOVEMBER 2014 - Additional Test Results and Samples for Performance Graded Asphalt Cement (PGAC)

Special Provision No. 111F09 August 2018

1101.02 REFERENCES

Section 1101.02 of OPSS 1101 is amended by the addition of the following under **Ontario Ministry of Transportation Publications**:

LS-100 Method for Rounding-Off of Test Data and Other Numbers

Section 1101.02 of OPSS 1101 is amended by the deletion of the following under **American Association of State Highway and Transportation Officials (AASHTO)**:

TP 70 Multiple Stress Creep and Recovery (MSCR) of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)

Section 1101.02 of OPSS 1101 is further amended by the addition of the following under **American Association of State Highway and Transportation Officials (AASHTO)**:

T 350-14 Standard Method of Test for Multiple Stress Creep Recovery (MSCR) Test of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)

1101.04 DESIGN AND SUBMISSION REQUIREMENTS

1101.04.01 Submission Requirements

Subsection 1101.04.01 of OPSS 1101 is amended by the addition of the following clause:

1101.04.01.02 PGAC Documentation

For each grade of PGAC specified in the Contract Documents, the Contractor shall supply the following items to the Contract Administrator prior to the commencement of HMA production:

a) PGAC documentation from the asphalt cement supplier in the form of bill of lading and certificate of analysis, confirming the grade of PGAC. The bill of lading and certificate of analysis shall also be supplied for each subsequent delivery of PGAC that will be used for the HMA production.

b) Documentation identifying the PGAC storage tank that the PGAC will be supplied from for the HMA production. The Contractor shall notify the Contract Administrator and provide updated documentation prior to changing the storage tank that is being used to supply PGAC for the HMA production.

1101.08 QUALITY ASSURANCE

1101.08.02 Anti-Stripping Additive

Subsection 1101.08.02 of OPSS 1101 is deleted in its entirety and replaced with the following:

1101.08.02 Asphalt Cement Anti-Stripping Treatment

The Contractor may request that an allowance be made for the impact of the asphalt cement anti-stripping treatment on a PGAC grade for QA or referee purposes provided that when production begins the Contractor submits to the Contract Administrator complete AASHTO M 320 test results for the following:

a) Asphalt cement with anti-stripping treatment at the percentage identified in the mix design.

b) Asphalt cement without the anti-stripping treatment.

1101.08.03 Sampling

Subsection 1101.08.03 of OPSS 1101 is amended by deleting the last paragraph in its entirety and replacing it with the following:

Sampling frequency, minimum quantities and additional labelling shall be as shown in Table 2.

1101.08.06 Referee Testing

Subsection 1101.08.06 of OPSS 1101 is amended by deleting the first paragraph in its entirety and replacing it with the following:

Referee testing by an independent laboratory may be invoked by the Contractor for any lot of PGAC within 5 Days of receiving all the QA test results for the lot.

Table 1 is deleted in its entirety and replaced with the following:

Table 1
Additional Testing Requirements and Acceptance Criteria for All PGAC Grades (Notes 1 and 2)

PGAC Grade	Property and Attributes (Unit)	Test Method	Results Reported Rounded to Nearest	Acceptance Criteria	Major Borderline	Rejectable
All PGAC Grades except PG58-28	Ash Content, % by mass of residue (%)	LS-227	0.01	≤ 0.60	> 0.60 and ≤ 0.80	> 0.80
PG58-28				≤ 0.40	> 0.40 and ≤ 0.60	> 0.60
All PGAC Grades Except PG58-28 and PG52-34	Non-recoverable creep compliance at 3.2 kPa ($J_{nr-3.2}$) (kPa^{-1})	AASHTO T 350 testing conducted at 58 °C	0.01	< 4.50	N/A	≥ 4.50
	Average percent recovery at 3.2 kPa ($R_{3.2}$) (%)		0.1	> the lesser of 55.0 or [(29.371) $(J_{nr-3.2})^{-0.2633}$]	N/A	≤ the lesser of 45.0 or [(29.371) $(J_{nr-3.2})^{-0.2633}$-10]
	Percent difference in non-recoverable creep compliance between 0.1 kPa and 3.2 kPa, J_{nrdiff} (%)		0.1	Testing carried out for information purposes only		
PG70-28, PG64-28	CTOD, δ_t (mm)	LS-299	0.1	≥ 10.0	< 6.0 and ≥ 4.0	< 4.0
	Low temperature limiting grade (LTLG) (°C)	LS-308	0.1	≤ -28.0	> -25.0 and ≤ -22.0	> -22.0
	Grade Loss (°C)	LS-308	0.1	≤ 6.0	> 6.0 and ≤ 8.0	> 8.0
PG58-28	CTOD, δ_t (mm)	LS-299	0.1	≥ 6.0	N/A	< 4.0
	Low temperature limiting grade (LTLG) (°C)	LS-308	0.1	≤ -25	> -25 and ≤ -22.0	> -22.0
	Grade Loss (°C)	LS-308	0.1	≤ 4	N/A	> 6.0
PG70-34, PG64-34, PG58-34, PG52-34	CTOD, δ_t (mm)	LS-299	0.1	≥ 14.0	< 10.0 and ≥ 8.0	< 8.0
	Low temperature limiting grade (LTLG) (°C)	LS-308	0.1	≤ -34.0	> -31.0 and ≤ -28.0	> -28.0
	Grade Loss (°C)	LS-308	0.1	≤ 6.0	> 6.0 and ≤ 8.0	> 8.0
PG58-40, PG52-40	CTOD, δ_t (mm)	LS-299 (Note 3)	0.1	≥ 18.0	< 14.0 and ≥ 12.0	< 12.0
	Low temperature limiting grade (LTLG) (°C)	LS-308	0.1	≤ -37.0	> -37.0 and ≤ -34.0	> -34.0
	Grade Loss (°C)	LS-308	0.1	≤ 6.0	> 6.0 and ≤ 8.0	> 8.0

PGAC Grade	Property and Attributes (Unit)	Test Method	Results Reported Rounded to Nearest	Acceptance Criteria	Major Borderline	Rejectable

Notes:
1. PGAC grades are as specified in the Contract Documents.
2. The rounding-off procedure, for all values, shall be according to LS-100.
3. Sections 6.1 and 6.3 of LS-299 (Rev 31 dated 2017 09 01) are deleted and replaced with the following:
   6.1 After trimming, condition the samples on their base plates at 15 ± 0.5°C for 3 h ± 5 min in their molds in a temperature-controlled bath under a minimum of 25 mm of water.
   6.3 Run the test according to AASHTO T 300 at a displacement rate of 50 ± 2.5 mm/min in a bath maintained at 15 ± 0.5°C, until ductile failure is reached, or a stroke length of 1000 mm is reached.

Table 2 is deleted in its entirety and replaced with the following:

Table 2
Sampling Requirements

Samples	Frequency	Minimum Sample Quantity	Labelling
QA	Each Lot	2 litres (Note 1)	Label shall include: - Grade - Supplier
Referee	Each Lot	2 litres (Note 1)	
Samples for possible Owner testing (Note 2)	First Lot for each grade and source of asphalt cement used on the Contract and for any subsequent Lot requested by the Contract Administrator.	2 litres (Note 1)	Label shall include: - Grade - Supplier - MERO Sample

Notes:
1. Two litres shall be provided in 2 suitable one litre containers or a container able to hold a minimum of 2 litres.
2. Samples for possible Owner testing shall be delivered to:
   Materials Engineering and Research Office (MERO)
   Bituminous Laboratory, Room 15
   145 Sir William Hearst Avenue
   Downsview, Ontario M3M 0B6

PLACING HOT MIX ASPHALT BEFORE SEASONAL SHUTDOWN

Special Provision 199F03 May 2016

This Special Provision shall apply to:

the entire Contract limits.

Before seasonal shutdown or by December 1, whichever is earlier, the following work shall be completed on the above roadways on which construction operations have commenced and which are to remain open to public traffic:

a) The roadbed shall be completed to the specified grade and cross section of the granular base;

b) The roadbed shall be paved with at minimum the first two binder courses. At least the first two layers of binder course mix as designed for the roadway shall be completed, including ramping at curb and gutter, manholes and catch basins. Surface course paving may proceed, in conformance with OPSS 313, as amended by this contract provided that the underlying work conforms to the contract requirements; and

c) The shoulders shall be completed to the corresponding elevation of the top of the hot mix.

When, in order to comply with a) above, the Contractor does not comply with the restrictions on placing earth, rock or granular materials over frozen ground, ice or snow, the Contractor shall be responsible for the costs of removal and replacement of the pavement, granular and subgrade materials, subdrains, pavement markings, temporary traffic barriers, signs and other associated work and the provision of traffic control where removal and replacement is deemed necessary by the Contract Administrator.

When, in order to comply with b) above, the Contractor paves over a frozen roadbed or in violation of the temperature restrictions for paving, the Contractor shall be responsible for the costs of removal and replacement of the hot mix pavement, granular base and shouldering materials, pavement markings, temporary traffic barriers and the provision of traffic control.

The removal and replacement work shall conform to the Contract requirements and the Contractor shall comply with any other terms and conditions for carrying out the work as the Contract Administrator may declare in writing at that time.

When the Contractor has performed work which did not comply with the restrictions on placing earth, rock or granular materials over frozen ground, ice or snow, or paves over a frozen roadbed or in violation of the temperature restrictions for paving:

a) The Contractor shall be responsible for the costs incurred by the Owner in maintaining the roadway in a condition satisfactory for the travelling public during seasonal shutdown, excluding the costs of applying de-icing salts, abrasives and snow-plowing operations; and

b) Payment at the contract prices for the work will be withheld until any necessary removal and replacement of the roadway has been completed after it has thawed in the spring.

ENVIRONMENTALLY SENSITIVE AREAS

Special Provision No. 199F12 November 201

The areas formed by a line joining the points in the table below are environmentally sensitive. Entry onto or use of these areas for any purpose is prohibited, except for the specific, limited purposes specified below.

Area No.	Highway	Points				Description	Exceptions
		No.	Township	Station	Offset		
1	3	1	Townsend	11+750	12 m LT	Provincially Significant Wetland	Disturbance in ditch only as required to complete construction tasks
		2	Townsend	12+200	12 m LT		

2	3	1	Woodhouse	16+350	10 m RT	SAR habitat – Eastern Meadowlark	Disturbance only as required to complete construction tasks
		2	Woodhouse	16+750	10 m RT		

Areas may extend and other areas may be present beyond the Highway right-of-way, and may be subject to regulation.

INFORMATION TO BIDDERS REGARDING AGGREGATE SOURCES

Special Provision No. 199F14 August 2018

General

The Contractor must demonstrate the ability of aggregate sources to produce aggregate that satisfies the requirements of the Contract Documents.

During tendering, a request for approval for use of an MTO/Crown source not listed on an Aggregate Sources List (ASL) shall be made through the bid enquiry process. Any MTO/Crown sources not listed on an ASL may be used, subject to the approval of the Head, Regional Geotechnical Section. If approval is granted, the ministry's ASL Conditions of Information shall apply.

For enquiries related to Crown sources or sources under permit to MTO, Contractors may contact the appropriate Regional Geotechnical Section to request available Mineral Aggregate Inventory Data Bank (MAIDB) information.

For enquiries related to a specific commercial and/or private source, the Contractor may contact the Aggregate Unit of the appropriate Regional Geotechnical Section to access available Mineral Aggregate Inventory Data Bank (MAIDB) information provided they have written consent from the source owner.

Regional Geotechnical Section offices are located in:

Location/Office	Region	Telephone #	Fax #
Kingston	East	(613) 545-4794	(613) 540-5106
North Bay	Northeast	(705) 497-5478	(705) 497-5499
Thunder Bay	Northwest	(807) 473-2090	(807) 473-2022

For aggregate related enquiries for sources located in Central Region or West Region, please contact:

Location/Office	Region	Telephone #	Fax #
Materials Engineering and Research Office, Soils and Aggregates Section	Central	(416) 235-3736	(416) 235-4101
	West		

Access to the information in MAIDB is provided for the convenience of the Contractor only. Since MAIDB information is dated and subject to interpretation, the information is not guaranteed.

For Contracts that include concrete items, Structural Concrete Aggregate Source Lists and Concrete Base/Pavement Aggregate Source Lists, as applicable, are available on the RAQS/MERX website: www.raqs.merx.com/public/bulletin/bulletin.jsf

Earth Borrow, Rock Supply, Granular Base, and Conventional Hot Mix Aggregates

This contract does not include an Aggregate Sources List (ASL) for earth borrow, rock supply, granular base, and conventional hot mix aggregates. For information regarding commercial sources, Contractors may refer to the following sources of information:

a) Commercial Aggregate and Membership Directory, available through Ontario Stone, Sand & Gravel Association (OSSGA);

b) Aggregate License/Permit List, available through the Ministry of Natural Resources and Forestry (MNRF); www.ontario.ca/environment-and-energy/find-pits-and-quarries, and

c) Aggregate Resources Inventory Papers (ARIPs), available through the Ministry of Northern Development and Mines (MNDM). www.geologyontario.mndm.gov.on.ca/index.html

ENVIRONMENTAL EXEMPTIONS AND PERMITS

Special Provision No. 199F31 April 2016

The following environmental exemptions and permits are provided for the Work.

Exemption and Permit Identification
Noise By Law Exemption (2010-84) – Norfolk County Exemption Period: March 4, 2019 to November 30, 2019

The exemptions and permits provided above do not relieve the Contractor of other obligations imposed by statute or by municipal bylaw.

CONSTRUCTION NOISE CONSTRAINTS

Special Provision No. 199F33 June 2013

Noise Sensitive Areas

This Special Provision covers the requirements for control of construction noise produced by the Contractor's operations. With the exception of any exemptions from municipal noise control bylaws that may be specified

in the Contract Documents, these requirements do not relieve the Contractor of other obligations imposed by statute or by municipal bylaw.

Noise constraints in noise sensitive areas are as follows:

Noise Sensitive Area: Throughout Project Limits

Noise Sensitive Area Limits	
Throughout Project Limits	
Constraint	**Constraint Details**
Equipment Maintenance	Equipment shall be maintained in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts.
Equipment Operation	Idling of equipment shall be restricted to the minimum necessary to perform the specified work.

OTHER CONTRACTORS WITHIN OR ADJACENT TO THE LIMITS OF THE CONTRACT

Special Provision No. 199F43 March 2018

Other work may be in progress within or adjacent to the limits of this contract.

The Contractor shall coordinate the work with other Contractors within and/or adjacent to the project limits to ensure that they do not perform work in the same area at the same time, or adversely affect each other's work.

The Contractor shall ensure that a minimum separation of 500 m is maintained between the operation included in this contract and the work within and/or adjacent to this project, done by others.

The Contractor shall provide a written submission to the Contract Administrator explaining how the work with other Contractors will be coordinated.

The following work is ongoing, and is anticipated to be completed prior to construction:

- Bell utility relocations throughout the project limits.

  Contact:

  Christine Telfer
  Implementation Manager
  Bell Canada
  86 Market Street, P.O. Box 938
  Brantford ON N3T 2Z8
  (519) 751-3055

GENERAL REQUIREMENTS OF SAMPLES FOR QUALITY ASSURANCE, REFEREE AND OTHER TESTING BY THE OWNER OR THE OWNER'S AGENT

Special Provision No. 199F57 December 2017

Scope

This Special Provision covers the minimum requirements for the handling, identification, and delivery of samples to a laboratory for quality assurance, referee and other testing by the Owner or the Owner's agent.

Sampling and Identification

All samples shall be obtained and packaged by the Contractor, in the presence of the Contract Administrator or a designated representative. All samples shall be provided with a unique number by the Contract Administrator for identification purposes.

Sampling, handling, and storage of samples shall be as specified in the Contract Documents. Notwithstanding, the Owner may take samples for its own purposes at any time from any location. The Contractor shall furnish all reasonable assistance to the Owner and shall require its Subcontractors and suppliers to do the same.

The Contractor shall supply sample containers and all relevant Material Safety Data Sheets or Safety Data Sheets. All containers used for samples of materials controlled under the Workplace Hazardous Materials Information System shall be appropriate for the materials and shall be labelled and accompanied with the relevant Material Safety Data Sheets or Safety Data Sheets.

The Contractor shall package all samples to minimize risk of damage or contamination during transport. Once packaging is complete, the Contractor shall inspect all samples and confirm each sample and packaging is acceptable to the Contract Administrator for delivery.

After inspecting and determining that each sample is acceptable for delivery, the Contractor shall enter the sample data information. Upon the Contractor submitting the sample data information, the Contractor accepts responsibility that the information entered is accurate.

The Contractor shall place bags or containers of samples into clear polyethylene security bags supplied by the Owner when instructed by the Contract Administrator. At this point, the Contract Administrator shall take possession of, and assume responsibility for the samples. The Contract Administrator or his representative may apply security seals.

The Contractor shall be responsible for all costs associated with obtaining new samples if the original samples did not conform to the sampling requirements (e.g. weight and size) and were deemed unsuitable for testing by the laboratory or the Owner.

Sample Delivery by the Contractor

The Contractor shall be responsible for the delivery of concrete cylinders for strength and grout cubes for strength determination, and bridge bearing pads, to the laboratory designated by the Owner. All other samples shall be delivered by the Contract Administrator.

Samples delivered by the Contractor shall be within the time limits and locations specified in the Contract Documents. The Contractor shall normally deliver samples during normal business hours. Normal business hours are deemed to be from 8:00 a.m. to 5:00 p.m., each Business Day. Where a sample has to be delivered outside these hours, the Contractor shall give the laboratory one full Business Day notice. If the time limits or locations or both for delivering samples are not specified in the Contract Documents, then the sample shall be delivered by the Contractor no later than 2 Business Day(s) from the date of sampling to the regional quality assurance laboratory located within a 250 km radius of the Contract limits.

For all samples delivered by the Contractor, the Contractor shall maintain a record of the date and time of delivery, and the printed name and signature of the authorized individual receiving the sample. The Contractor shall sign the laboratory's records to confirm the date and time of delivery.

The Contractor shall be responsible for all costs associated with obtaining new samples if the original samples delivered by the Contractor are lost or deemed unsuitable for testing by the laboratory or the Owner.

The regional quality assurance laboratory shall be designated by the Owner.

NATIONAL ENERGY BOARD (NEB) REGULATED PIPELINES

Special Provision No. 199F59 December 2017

1.0 SCOPE

The Contractor shall comply with regulations pursuant to Section 112 of the National Energy Board Act when using power-operated equipment or explosives within the prescribed area.

The NEB Act and Regulations referenced below must be read in conjunction with and are intended to supplement the general requirements of the Ontario Occupational Health and Safety Act and Regulations for Construction Projects, specifically Section 228, Precautions Concerning Services.

2.0 REFERENCES

This Special Provision refers to the following publications:

National Energy Board Act 112(1) and 112(2)
NEB Pipeline Damage Prevention Regulations - Authorizations
NEB Pipeline Damage Prevention Regulations - Obligations of Pipeline Companies
NEB Pipeline Damage Prevention - Ground Disturbance, Construction and Vehicle Crossings

3.0 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Prescribed Area means a strip of land measured 30 metres perpendicularly on each side from the centreline of a pipe controlled by the NEB.

Ground Disturbance means any activity that may disturb the ground within the prescribed area.

4.0 COMPLIANCE MEASURES

The Contractor shall contact all pipeline owners listed below and request from them a copy of their technical guidelines for work adjacent to their pipelines.

Pipeline Owner	Contact Information
N/A	N/A

Activities requiring permission from the pipeline owner include;

- Construction of a facility across, on, along, or under a pipeline, including the pipeline right of way;
- Ground disturbance activities in the prescribed area;
- Ground disturbance using explosives or mechanical equipment within the prescribed area;
- Operation of a vehicle or mobile equipment across a prescribed area, outside the travelled portion of a highway or public road, or;
- Seismic/vibration activity within the prescribed area.

The Contractor shall submit a written application to the pipeline owner in accordance with the requirements of the pipeline owner, seeking permission to perform the work under this Contract.

The Contractor shall immediately submit a copy of the approved application to the Contract Administrator once received from the pipeline owner.

The Contractor shall comply with all conditions, requirements and procedures of the pipeline owner and not proceed with the work until written permission has been received.

Once the pipeline owner has given its permission, the Contractor shall comply with the following:

- Initiate a locate request at least three Working Days before the day on which the construction or ground disturbance activity is planned in the prescribed area, by calling Ontario One Call, or by calling the pipeline company where there is no Ontario One Call centre, to have the pipe located and marked.
- Witness the pipe being located and marked and become familiar with the meaning of the pipeline markings.
- Review NEB requirements with all persons working on your behalf and keep a copy of the approved application on site.
- Expose the pipe by hand digging or other acceptable excavation techniques approved by the pipeline company prior to any mechanical excavation within three metres of the pipe.
- Notify the pipeline company 24 hours prior to backfilling over the pipe or facilities, where the pipe or facilities have been exposed.
- Follow the instructions of the pipeline company’s authorized field representative.

- Immediately notify the pipeline company if any contact is made with the pipe or its coating.

The Contractor shall comply with the following rules for ground disturbance within three metres of the pipe. Ground disturbance using mechanical equipment is not permitted within three metres of the pipe except under the following conditions:

a) When the excavation runs parallel to the pipe and;

   i. the pipe has been exposed by hand at sufficient intervals to confirm the pipe's location or;

   ii. the pipeline company has used a method that would permit it to confirm the pipe's exact location and has informed the person of that location.

b) When the excavation crosses the pipe and;

   i. the pipe has been exposed by hand at the point of crossing or;

   ii. the pipeline company has used a method that would permit it to confirm the pipe's exact location, has informed the person of that location and has confirmed that the pipe is at least 60 cm deeper than the proposed excavation.

And

c) When the ground conditions render it impractical to locate the pipe using any of the methods set out in (a) and (b), the pipeline company directly supervises any excavation.

The Contractor shall not move or alter the pipe or its fittings, or in any other way interfere with the pipe without the written consent of the pipeline owner.

EARTH DITCH CLEANOUT - Item No. 5

Special Provision No. 299F11 September 2011

CONSTRUCTION SPECIFICATION FOR DITCH CLEANOUT

1.0 SCOPE

This specification covers the requirements for cleanout of earth and rock ditches to restore the maximum flow of water intended when the ditches were originally constructed.

2.0 REFERENCES – Not Used

3.0 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Deleterious substance means any substance that, if added to a waterbody, could degrade water quality or impact fish, fish habitat and aquatic wildlife.

Earth ditch means an existing ditch in earth including but not limited to a roadside ditch or a ditch lying beyond the end of a drainage structure.

Roadside ditch means a ditch with one of its sideslopes coincident with the road frontslope.

Rock ditch means an existing ditch in rock including, but not limited to a roadside ditch or a ditch lying beyond the end of a drainage structure.

Riparian vegetation means vegetation within 30 metres of a waterbody.

Waterbody includes areas inundated by water, either permanently or intermittently, for a consecutive period of time exceeding 2 weeks of the year.

Waterbody Bank means the area of slopes and flatlands bordering on or adjacent to a waterbody, extending a minimum of fifteen metres from the edge of the waterbody.

Wetland means lands such as swamps, marshes, bogs and fens that are seasonally or permanently covered by shallow water, as well as land where the water table is close to or at the surface.

4.0 DESIGN AND SUBMISSION REQUIREMENTS – Not Used

5.0 MATERIALS - Not Used

6.0 EQUIPMENT - Not Used

7.0 CONSTRUCTION

7.01 General

The work shall include removal and management of all vegetation, earth, rock, winter sand and any other debris from the inlet and ditch surfaces of all ditches specified elsewhere in the Contract Documents, in order to restore the grades and flow of water.

Cleaned ditch surfaces shall be left in as smooth a condition as is practicable. Grooves left in ditch surfaces, such as those that may result from the use of toothed excavator buckets, shall not be acceptable.

7.02 Operational Constraints

Ditch cleanout shall be carried out in accordance with the following operational constraints:

a) Ditch cleanout shall not be conducted within the receiving waterbody or within a wetland or when water in the ditch is flowing. Ditch cleanout shall be conducted in dry weather.

b) Equipment shall arrive on site in a clean condition, be maintained free of fluid leaks and be operated from the shoulder, and in a manner that minimizes disturbance to the waterbody banks of the receiving waterbody.

c) Equipment refuelling and excess materials storage shall take place at locations as far away as practicable from the receiving waterbody in a manner that prevents the entry to the waterbody of deleterious substances including sediment.

d) Disturbance of riparian vegetation shall be minimized, especially the vegetation directly adjacent to the waterbody.

7.03 Management of Removed Materials

Any suitable materials that have been removed from ditches identified below shall be managed by reuse within the ROW as follows:

N/A

Any material that has been removed from ditches that is not able to be reused within the ROW shall be managed as follows:

Management of excess materials shall be according to the Contract Documents.

8.0 QUALITY ASSURANCE

The Contract Administrator may conduct inspections of any ditch after cleanout to verify that the Contractor has adequately restored the ditch grades and flow as specified in the Contract Documents.

9.0 MEASUREMENT FOR PAYMENT

Measurement is by Plan Quantity in metres measured along the centreline of the cleaned out ditches.

10.0 BASIS OF PAYMENT

Earth Ditch Cleanout – Item
Rock Ditch Cleanout – Item

Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment and Material to do the work.

<u>TACK COAT</u> - Item No. 7

Special Provision No. 308F02 February 2017

Amendment to OPSS 308, April 2012

Painting Material, Application Options, and Samples for Testing

308.05 MATERIALS

308.05.01 Tack Coat and Joint Painting Material

Clause 308.05.01 of OPSS 308 is deleted in its entirety and replaced with the following:

Tack coat and joint painting material shall consist of SS-1 or SS-1HH emulsified asphalt diluted with an equal volume of water. The undiluted material shall be according to OPSS 1103.

308.07 CONSTRUCTION

308.07.01 Application of Tack Coat

Subsection 308.07.01 of OPSS 308 is amended by the addition of the following:

f) The surface of all binder courses
g) The surface of padding and levelling courses.

308.08 QUALITY ASSURANCE

308.08.01.03 Samples for Testing

Clause 308.08.01.03 of OPSS 308 is amended by deleting the second paragraph in its entirety and replacing it with the following:

The minimum quantity of each of the QA and referee samples shall be 1 litre.

SUPERPAVE 19.0 - Item No. 9
SUPERPAVE 12.5FC 1 - 40 MM LIFT THICKNESS - Item No. 13

Special Provision

Infrared Joint Heater

The Contractor shall use an infrared joint heater at the time of paving surface and upper binder, at the longitudinal paving joint between lanes of this Contract when paving in echelon is not being used.

The longitudinal paving joint shall be heated using an infrared joint heater capable of heating the HMA at the joint to a sufficiently hot temperature. The joint will be considered sufficiently hot if the joint HMA retains a temperature of 90° C +/- 10° C immediately prior to placement of the adjacent lane material. When the joint HMA is not sufficiently hot, the paving operation shall be adjusted to reach the required temperature. The Contractor shall stop paving if at any time the existing pavement or adjacent lane pavement at the joint:

a) reaches a temperature exceeding 150° C
b) burns
c) chars.

If paving is stopped due to high pavement temperatures, burning, or charring the Contractor shall demonstrate to the Contract Administrator that the equipment will no longer over heat, burn or char the pavement prior to paving resuming. The make, model, capacity and type of joint heater shall be provided to the Contract Administrator a minimum of 10 Business Days prior to the start of paving operations.

CLEAN OUT CATCH BASINS, MAINTENANCE HOLES AND DITCH INLETS - Item No. 24

Special Provision No. 499S02M March 2012

Management of Highway Storm Sewer Catchbasin Cleanout Material - No Receiving Site Provided

1.0 SCOPE

This Special Provision describes the requirements for management of highway storm sewer catchbasin cleanout material. These requirements are in addition to those specified elsewhere in the Contract and do not relieve the Contractor of obligations imposed by the Contractor's Certificate of Approval for a Waste System, Certificate of Approval for a Waste Disposal Site (Processing), or Certificate of Approval for a Waste Disposal Site (Mobile Processing). MTO is not providing any receiving sites for the disposal of material removed from any maintenance holes, catchbasins, ditch inlets or valve chambers.

2.0 REFERENCES - Not Used

3.0 DEFINITIONS

Dewatering Equipment means equipment, ponds, lagoons, ground surfaces etc., that receive catchbasin cleanout as a composite material which is subsequently managed by the Contractor as separate sludge and liquid components.

Receiving Site means a municipal sanitary sewer or sewage treatment plant, certified dewatering equipment, certified waste treatment facility, or certified waste disposal site.

4.0 DESIGN AND SUBMISSION REQUIREMENTS

4.01 Permission and Release of Operators of Receiving Sites

Written permission shall be obtained from the operator of any receiving site that is not designated for use in the Contract, prior to its use for disposal of catchbasin cleanout material resulting from this contract.

A copy of this permission shall be provided to the Contract Administrator a minimum of two weeks prior to the commencement of such work.

Where catchbasin cleanout material is managed by disposal as waste, a copy of the weigh tickets(s) or receipt(s) provided by the site operator shall be submitted to the Contract Administrator on a weekly basis. Where such documentation is not available, written confirmation that the waste has been received shall be obtained from the owner of the disposal site, and provided to the Contract Administrator, a maximum of two weeks after disposal activities are complete.

4.02 Permission and Release of Operators of Receiving Sites and Owners of Property

In addition to the requirements outlined elsewhere in the Contract the following applies to catchbasin cleanout operations.

Prior to their use for management of catchbasin cleanout material resulting from this Contract, written permission shall be obtained from the following:

a) the operator of any receiving site that is neither operated by the contractor nor designated for use in the Contract;

b) the owner of any property upon which portable dewatering equipment or portable waste treatment facilities are placed and operated for this contract.

A copy of this permission shall be provided to the Contract Administrator a minimum of 14 Days prior to the commencement of such work.

At the completion of the work, a copy of a release signed by the same receiving site operator or property owner shall be provided to the Contract Administrator.

4.03 Submission of Certificate of Approval

Where Section 7.0 of this Special Provision requires a Certificate of Approval for a Waste Disposal Site (Mobile Processing), or a Certificate of Approval for a Waste Management System, a copy of the Certificate(s) shall be supplied to the Contract Administrator 14 Days prior to commencement of the work.

Where Section 7.0 of this Special Provision requires a Certificate of Approval for a Waste Management System, a copy of the Certificate shall be supplied to the Contract Administrator a minimum of 14 Days prior to commencement of the work.

5.0 MATERIALS - Not Used

6.0 EQUIPMENT - Not Used

7.0 CONSTRUCTION

7.01 General

Material that is found during catchbasin cleanout to be contaminated by a spill of a pollutant shall be managed as directed by the Contract Administrator.

Catchbasin cleanout material shall otherwise be managed by one, or a combination of, the following:

a) As a composite material without dewatering; or

b) By dewatering and subsequent management of sludge component.

Where receiving sites or temporary storage sites are provided in the Contract, use of such sites shall be specified elsewhere in the Contract Documents.

Receiving sites shall be arranged for and provided by the Contractor.

It is the Contractor's responsibility to obtain any approvals, releases, and agreements that are required to implement the Contractor's strategy for the management of catchbasin cleanout material.

7.02 Management as a Composite Material Without Dewatering

Where the Contractor manages catchbasin cleanout without dewatering, the composite material shall be managed as non-hazardous solid industrial or commercial waste and shall be transported from the area designated for catchbasin cleanout directly to one of the following:

a) a landfill site with a Certificate of Approval for a Disposal Site valid for commercial and municipal waste;

b) a waste treatment facility with a Certificate of Approval for a Waste Disposal Site (Processing), or a Certificate of Approval for Waste Disposal Site (Mobile Processing) valid for commercial or municipal waste.

7.03 Dewatering and Subsequent Management as Separate Liquid and Sludge Component**s**

7.03.01 General

Where the Contractor dewaters catchbasin cleanout material, dewatering shall be by one, or a combination of, the following:

a) discharge of the liquid component directly from the vacuum truck;

b) unloading the composite material from the vacuum truck directly to dewatering equipment.

The sludge component from dewatering shall be transported to a site with a Certificate of Approval for a Disposal Site valid for commercial, non-hazardous solid, or municipal waste. The liquid component from dewatering shall be managed as specified below.

7.03.02 Dewatering by Discharge Directly from the Vacuum Truck

Where dewatering is by discharge of the liquid component directly from the vacuum truck, the liquid shall be directed to one, or a combination of, the following:

a) a municipal sanitary sewer or sewage treatment plant;

b) a waste treatment facility with Certificate of Approval for a Waste Disposal Site (Processing), or a Certificate of Approval for a Waste Disposal Site (Mobile Processing), valid for commercial or municipal waste;

c) the storm sewer system from which the material was removed, provided:

    i. the Contract does not provide access for liquid discharge to municipal sanitary sewers or sewage treatment plants, or to certified waste treatment facilities; and

ii. the municipality refuses access to the sanitary sewer or "distances to the sanitary sewer are a significant obstacle" to such dewatering.

7.03.03 Dewatering by Use of Dewatering Equipment

Where dewatering is by unloading the composite material from the vacuum truck to dewatering equipment, the liquid shall be directed to one, or a combination of, the following:

a) municipal sanitary sewers or sewage treatment plants;

b) disposal sites with a Certificate of Approval for a Disposal Site valid for liquid industrial waste.

Dewatering equipment shall have a Certificate of Approval for a Waste Disposal Site (Processing), or a Certificate of Approval for a Waste Disposal Site (Mobile Processing), valid for commercial or municipal waste.

Catchbasin cleanout material shall otherwise be dewatered as necessary. Dewatering shall be by discharge of the liquid component of catchbasin cleanout material directly to one or a combination of the following:

a) a waste treatment facility with a certificate of Approval for a Waste Disposal Site (Processing), or a Certificate of Approval for a Waste Disposal Site (Mobile Processing), valid for commercial or municipal waste;

b) the storm sewer system from which the material was removed.

The sludge or solid component of the catchbasin cleanout material shall be managed as non-hazardous solid industrial waste or commercial waste and shall be transported directly, with the exception of dewatering en route, from the area designated for catchbasin cleanout to a certified receiving site.

7.04 Responsibilities of Certified Receiving Site Operators

Responsibilities of certified receiving sites shall include, but not be limited to, the following:

a) management of waste materials produced by equipment, facility, and site operation, in accordance with the Certificate of Approval, including, but not restricted to, sludge and liquid materials;

b) generator responsibilities for waste materials produced by equipment, facility, and site operation, including, but not restricted to, generator registration and manifesting.

7.05 Carrier Certification

Where temporary storage sites are provided in the Contract, carrier certification for transportation of wastes from such sites shall be as specified elsewhere in the Contract.

The carrier of catchbasin cleanout material shall otherwise have a Certificate of Approval for a Waste Management System as follows:

a) Where sludge is transported from certified dewatering equipment to a certified disposal site, the carrier shall have a Certificate of Approval for a Waste Management System valid for commercial, non-hazardous solid industrial, or municipal waste.

b) Where liquid is transported from certified dewatering equipment or certified waste treatment facilities to a municipal sanitary sewer or sewage treatment plant, or to a certified disposal site, the carrier shall have a Certificate of Approval for a Waste Management System valid for liquid industrial waste.

A Certificate of Approval for a Waste Management System is not otherwise required.

Responsibilities of certified carriers shall include, but not be limited to, the following:

a) transportation of waste materials produced by the work in accordance with the Certificate of Approval;

b) carrier responsibilities for waste materials including, but not restricted to, manifesting of liquid industrial waste.

7.06 Certificate of Approval

Where a Certificate of Approval for a Waste Disposal Site (Processing), a Certificate of Approval for a Waste Disposal Site (Mobile Processing), a Certificate of Approval for a Waste Disposal Site, or a Certificate of Approval for a Waste Management System is required, it shall be valid for all of the following:

a) the entire period of the work;

b) the entire area within the limits of the work and the entire haul route;

c) the equipment to be utilized; and

d) the classification of the waste material managed.

8.0 QUALITY ASSURANCE - Not used

9.0 MEASUREMENT FOR PAYMENT

Measurement for Clean Out Catchbasins, Maintenance Holes and Ditch Inlet shall be by Plan Quantity. For measurement purposes a count shall be made of the number of catchbasins, maintenance holes and ditch inlets cleaned out.

10.0 BASIS OF PAYMENT

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment and Materials to do the work.

The management of material found during catchbasin cleanout operation to be contaminated by a spill of a pollutant shall be treated as a Change in the Work.

In the event that approvals, releases, agreements and verifications as required for the management of catchbasin cleanout material are not obtained, no additional payment will be made.

TEMPORARY FLOW PASSAGE SYSTEM - Item No. 34

Amendment to OPSS 517, November 2016

Design Storm Return Period and Preconstruction Survey Distance

517.01 SCOPE

Section 517.01 of OPSS 517 is deleted in its entirety and replaced with the following:

This specification covers the requirements for the design, operation, and removal of a dewatering or temporary flow passage system or both to control water during construction, and the control of the water prior to discharge to the natural environment and sewer systems.

517.04 DESIGN AND SUBMISSION REQUIREMENTS

517.04.01 Design Requirements

Subsection 517.04.01 of OPSS 517 is amended by deleting the first paragraph in its entirety and replacing it with the following:

A dewatering or temporary flow passage system or both shall be designed to control water at the locations specified in the Contract Documents and at any other location where a system is necessary to complete the work. The design of the system shall be sufficient to permit the work at each location to be carried out as specified in the Contract Documents.

Subsection 517.04.01 of OPSS 517 is further amended by deleting the second last paragraph in its entirety and replacing it with the following:

Temporary flow passage systems shall be designed, as a minimum, for a 2 year design storm return period and groundwater discharge, except for the work specified in Table A. For the work specified in Table A, the temporary flow passage system shall be designed, as a minimum, for the design storm return period specified in Table A and groundwater discharge. A longer return period shall be used when determined appropriate for the work.

Intensity-Duration Factor (IDF) curve location, site specific minimum return period, return period flow estimates, and other information is provided in Table A. The IDF information can be accessed through the MTO IDF Curve Look up Tool on the Drainage and Hydrology page of MTO's website. The return period flow estimates do not include flow volumes from groundwater discharge. The Owner specifically excludes these flow estimates from the warranty in the Reliance on Contract Documents subsection of OPSS 100, MTO General Conditions of Contract.

Table A

IDF Curve Location	Latitude: -80.262500		Longitude: 42.854167		
Temporary Flow Passage Systems					
Site Name / Station Reference	Minimum Return Period (Years)	Return Period Flow Estimates (m^3/s)			Design Engineer Requirements (Note 1)
		2 Year	5 Year	10 Year	25 Year	
STA 15+154	2	0.559	N/A	0.856	1.004	No
STA 15+387	2	0.263	N/A	0.402	0.472	No
STA 15+856	2	0.169	N/A	0.259	0.304	No
Site 20-184/C / STA 16+069	2	5.99	N/A	9.12	10.72	No
STA 16+707	2	0.111	N/A	0.170	0.200	No

Note:

1. "Yes" means the design Engineer and design-checking Engineer shall have a minimum of 5 years of experience in designing systems of similar nature and scope to the required work. "No" means a minimum experience level is not required for the design Engineer and design-checking Engineer.
2. "N/A" indicates a preconstruction survey is not required.

TEMPORARY TRAFFIC CONTROL SIGNS - Item No. 37

Special Provision

Amendment to OPSS 706, November 2016

706.01 SCOPE

Section 706.01 of OPSS 706 is amended by the addition of the following:

This specification also covers the use of TC-92 Temporary Business Access Signs as detailed elsewhere in the Contract Documents.

706.07 CONSTRUCTION

706.07.01.01 GENERAL

Clause 706.07.01.01 is amended by the addition of the following:

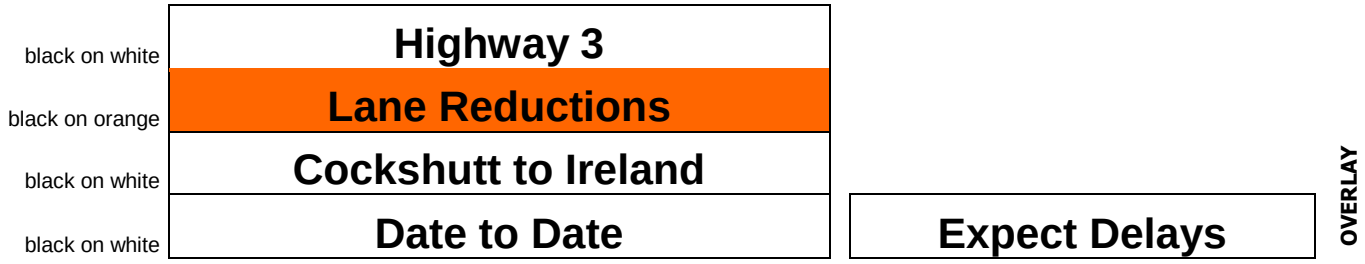
e) Installing and removing of Temporary Business Access Signs (TC-92).

706.07.02 Road Closing/Restriction Notice Sign (TC-64)

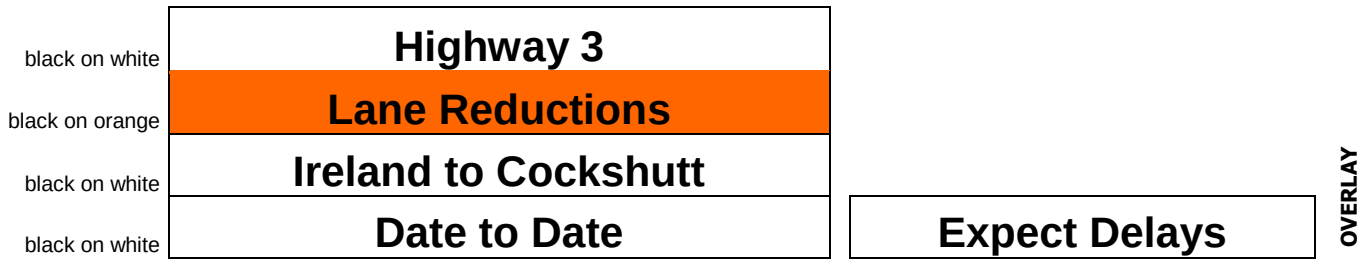
Subsection 706.07.02 of OPSS 706 is amended by deleting and replacing the first sentence with the following:

Road closing/restriction notice (TC-64) signs shall be installed as follows:

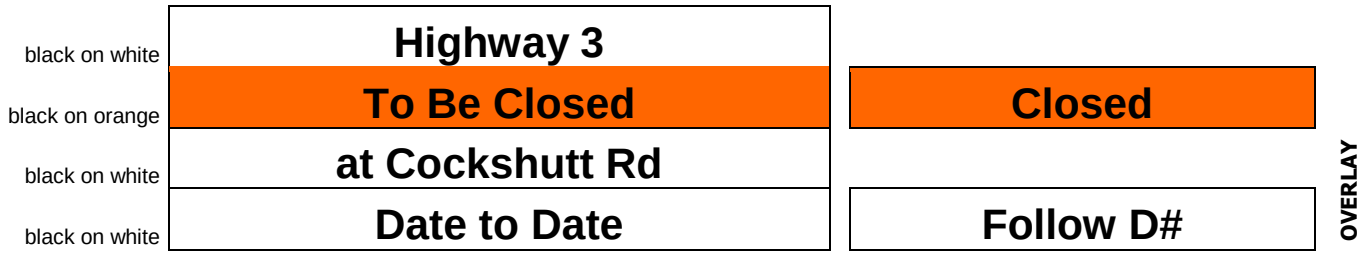
Highway 3 WB, east of Cockshutt Road



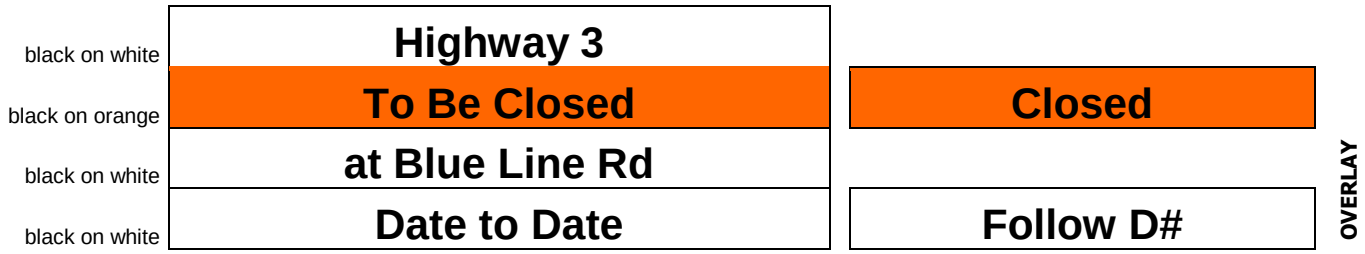
Highway 3 EB, east of Ireland Road



Highway 3 WB, east of Cockshutt Road



Highway 3 WB, west of Blue Line Road



Note: Highway 3 Closure signs are to be placed 10 days prior to full closure

HEAVY-DUTY WIRE-BACKED SILT FENCE BARRIERS - Item No. 47

Special Provision

Amendment to OPSS 805, November 2015

805.05 MATERIALS

805.05.05 Control Measure Support

Subsection 805.05.05 is amended by deleting the first paragraph and replacing it with the following:

Control measure support shall be a separate product or one bonded to silt fence geotextile, and shall meet the following specifications:

Table 1
Control Measure Support

Control Measure	Type	Size (mm)	Nominal Diameter of Coated Wire (mm)
Heavy-Duty Wire-Backed Silt Fence Barriers	Galvanized Steel	6.35	0.81

HEAVY-DUTY WIRE-BACKED SILT FENCE BARRIERS - Item No. 47
FIBRE ROLL FLOW CHECK DAMS - Item No. 48

Special Provision No. 805F01 December 2015

Amendment to OPSS 805, November 2015

805.07 CONSTRUCTION

805.07.01.06 Construction and Removal of Measures

Clause 805.07.01.06 of OPSS 805 is deleted and replaced by the following:

Further to requirements specified in the Contract Documents, the following items shall be installed and removed according to the timing constraints set out in Table A below:

Table A

Tender Item	Location	Timing Constraints	
		Installation	Removal
Heavy-duty Wire-backed Silt Fence barrier	Throughout project limits	Prior to individual or isolated ground disturbances	After the quality assurance performance measures have been met
Fibre Roll Flow Check Dams	Throughout project limits	Prior to individual or isolated ground disturbances	After the quality assurance performance measures have been met

CONIFEROUS TREE, 1.0 M HEIGHT - Item No. 49

Special Provision

SPECIFICATION FOR SNOWHEDGE AND CORRIDOR ENHANCMENT PLANTINGS OF SMALL TO MEDIUM SIZE NATIVE TREES AND SHRUBS

1.0 SCOPE

This specification covers the requirements for the planting of small to medium size trees and shrubs in significant numbers for windbreaks or corridor enhancement on sites where the specialist has determined that existing soil conditions will allow plantings to thrive without the need for soil amendments. Typically these conditions occur on highway rights-of-ways near the property limits where the topsoil has not been disturbed for several decades and on greenfields, agricultural lands and some rehabilitated sites.

2.0 REFERENCES

This specification refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Construction

OPSS 801 Protection of Trees

Other

Canadian Nursery Stock Standard, Ninth Edition
International Code of Botanical Nomenclature for Cultivated Plants
Standardized Plant Names

3.0 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Broken Bud means the point at which buds swell and bud scales split apart.

Root Crown or Root Collar means the part of the root system from which the stem arises.

Subsoil means the layer of soil under the topsoil on the surface of the ground. Like topsoil it is composed of a variable mixture of small particles such as sand, silt and/or clay, but it lacks the organic matter and humus content of topsoil.

Systemic Herbicide means a chemical substance used to destroy or inhibit the growth of plants.

Topsoil means the upper, outermost layer of soil usually the top 6 inches (15 cm) to 12 inches (30 cm).

Deciduous Tree Whip means a deciduous tree, 80 to 250 cm in height and 10 to 20 mm caliper, and normally 3 to 6 years of age depending on species.

4.0 DESIGN AND SUBMISSION REQUIREMENTS

4.01 Proof of Qualifications

Proof that all personnel performing planting and related work are qualified and experienced in doing such work shall be provided to the Contract Administrator prior to commencement of planting. This shall include proof that the crew foreman has at least five (5) years of tree planting experience and that at least one member of the crew has a diploma or degree in forestry or horticulture or similar related unless otherwise specified in the Contract Documents.

5.0 MATERIALS

5.01 Stakes

All stakes shall be new wood stakes with a hole drilled 50 mm from the top to accommodate a support wrap.

Stakes used for staking trees shall be 50 mm by 50 mm by 2 m. A minimum of 60 cm of the stake shall be underground with the stake no higher than half the height of the tree.

Stakes used for guying trees shall be 50 mm by 50 mm by 150 cm.

5.02 Support Wraps

All support wraps shall be bio-degradable fabric.

Wire and rubber hose for guying trees shall not be permitted.

5.03 Mulch

Mulch shall be shredded bark, free of twigs, leaves, branches and other foreign material in a finished product size of 20 mm to 50 mm.

5.04 Tree Guards

Tree guards to protect deciduous trees from rodent damage shall be a spiral plastic tree wrap, perforated, ultra-violet protected, and supplied in minimum 600 mm lengths.

5.05 Plant Material

Plant material shall meet specifications as described in the Canadian Nursery Stock Standard, Ninth Edition.

Only nursery grown stock that has been propagated from seed shall be utilized unless otherwise specified in the contract documents.

All nursery stock shall be correctly identified by botanical name (genus species). Botanical nomenclature shall follow currently accepted usage. Nursery stock shall be true to name and of the size or grade stated. All plant material upon arrival at the site shall be clearly identified by labels indicating species, size and supplier. Substitutions for the specified plants will not be accepted unless approved in writing by the Contract Administrator.

Plant material shall be structurally sound with leaders intact. All plant materials shall be free of disease, insect infestation, rodent damage, sun scald, frost cracks and other abrasions or scars to the bard. Plant material shall have a well-developed root system, characteristic for the species and size of plants.

Container grown plant material shall meet all specifications described in the Canadian Nursery Stock Standard, Ninth Edition.

Plant material shall not be cut back from larger sizes to meet the material requirements.

Bare root plant material shall not have broken bud at the time of planting.

Container grown and balled and burlapped plant material shall be free from weeds.

5.06 Burlap, Rope and Tie Materials

Where balled and burlapped plant material is specified, the burlap, rope, and any tie materials shall be manufactured from natural organic fibers.

Burlap used for rootballs shall be untreated and free from toxic contaminants.

5.07 Water

Water shall be free from contaminants which would adversely affect plant growth.

6.0 PLANTING

6.01 Operational Constraints

Planting shall be performed within the time periods specified in the Contract Documents.

Container grown or balled and burlapped plant material of the same species and variety may be substituted for bare root plants, at no additional cost to the Owner.

The location of trees and the perimeter of areas to be planted with shrubs shall be laid out by staking as specified in the Contract Documents a minimum of five (5) Business Days in advance of the commencement of planting for approval by the Contract Administrator. In the case of evenly spaced linear plantings such as windbreaks, staking of start and end points may be sufficient.

7.0 Transportation, Storage and Excavation

General

All plant material shall be protected from damage according to OPSS 801, and protected from environmental conditions during transport and until planted.

All plant material, including bare root, balled, burlapped and container grown, shall be kept moist at all times.

The Contract Administrator shall be notified of the source of plant material at least seven (7) Days in advance of transportation to the site. Plant material shall be made available for inspection upon arrival at the site. Approval of plant materials at source of supply shall not ensure acceptance upon arrival at the site or during the course of construction.

Labels shall not be removed from plants until they have been inspected and approved by the Contract Administrator.

Roots, trunks and branches of all trees and shrubs shall be protected from abrasion, breakage, and exposure to sun and wind during transport.

Plant materials shall be transported in enclosed vehicles or covered with a tarpaulin. The temperature during transportation shall be maintained as uniformly as possible by mechanical or other means.

All plant materials that cannot be planted immediately upon arrival on the site shall be kept moist, watered and well protected from sun and wind to prevent drying out.

Transport of plant material and excavation of planting holes shall be co-ordinated to ensure minimum time lapse between excavation and planting.

7.01 Bare Root Stock

Bare root material shall be moved and installed while dormant with the major portion of the fibrous root system provided.

Bare root material shall be cool and moist. Plants not immediately installed shall be kept in refrigerated conditions.

7.02 Balled and Burlapped or Container Grown Stock

Balled and burlapped or container grown plant material shall be according to Canadian Nursery Stock Standards, Ninth Edition.

7.03 Area Preparation

Excavation shall not commence prior to the Contract Administrator’s inspection and approval of staking.

7.04 Excavation of Planting Pits SEE PLANTING DETAILS

For bare root plant material, all planting pits shall be excavated and prepared to accommodate the size of the bare root. The minimum width of excavation shall be two times the width of the root system.

The soil at the bottom of the planting hole that the roots sit on shall not be disturbed to prevent air pockets or settlement such that the root collar remains at the proper finished grade.

7.05 Planting of Trees, Shrubs

All plant material shall be placed in the planting pit on undisturbed ground.

All trees and shrubs shall be planted so that their normal root crown is at or slightly above existing grade.

Plant material supplied in plastic containers shall be thoroughly watered before carefully removing the containers for planting. Plants with circling roots will not be accepted and shall be replaced.

Plant material supplied in fiber pots shall be thoroughly watered before removing the pot for planting. If roots have grown into fiber pot, the pot shall be left in place and slit vertically from top to bottom of pot in three locations.

Plant material supplied bare root shall be placed so that the roots lie in their natural position. Broken roots shall be pruned prior to planting.

Plant material supplied balled and burlapped shall have the burlap, ropes, and ties removed from the top of the rootball by folding down at least 100 mm into the excavated pit. All synthetic materials shall be removed prior to planting.

7.06 Backfilling of Planting Pit SEE PLANTING DETAILS

The planting pit shall be backfilled with the loosened existing native topsoil that was dug for the pit. Break-up soil clods before backfilling and remove sod and grass rhizomes. Place soil firmly in layers of 150 mm depth, taking care not to injure the root system or create air pockets.

When the planting pit has been backfilled, a small earth berm shall be formed around each planting pit. The berm may be formed from the excavated material. If the pit is on a slope, the lower edge and sides shall be built up to match the edge height on the opposite side.

7.07 Watering

All plant material shall be watered thoroughly at time of planting and before mulching and when required during the growing season.

7.08 Staking and Tying SEE PLANTING DETAILS

All trees requiring staking shall be staked or guyed immediately following planting to ensure vertical alignment and plant stability.

Plants 1.5 m in height or less generally do not require staking unless specified elsewhere in the contract documents.
All trees greater than 1.5 in height require staking unless specified elsewhere in the contract documents.

7.09 Tree Guard Installation SEE PLANTING DETAILS

Tree guards shall be installed around all deciduous trees. Deciduous trees shall be protected using a spiral, plastic, perforated tree wrap installed according to the manufacturer's instructions. Wrap should be cut short

of branches if branches are lower than the 600 mm tree guard. Tree guards shall be installed with no gaps between the wraps. Wrap shall touch the soil surface.

7.10 Mulch Application

After planting, initial watering and tree guard installation, mulch shall be applied in a uniform continuous blanket of 50 mm – 75 mm depth to the surface area surrounding each individual plant but not touching the trunk.

7.11 Management of Excess Material

Management of excess material shall be as specified in the Contract Documents.

8.0 QUALITY ASSURANCE

8.01 Prior to Planting

All plant material will be inspected by the Contract Administrator upon delivery to the site.

Plant material shall be acceptable when it is structurally sound, well furnished with living foliage, normal colour, show adequate annual growth and formation of buds and be free from blight of any description.

Roots shall be well established and uniformly spread throughout the specimen. Roots shall be free of defects, disease or evidence of girdling.

Plant material which does not meet the above requirements or which has severely "died back" and has re-grown from a bud or shoot, or been damaged by rodents, shall be rejected.

Rejected plant material shall be removed from the Working Area and replaced with acceptable material.

8.02 Establishment

A minimum thirty (30) day establishment period shall take effect immediately after all planting has been completed to allow for evidence that plantings are alive and thriving. In the case of dormant fall plantings, the 30 day establishment period shall commence May 1st of the following year.

8.03 Maintenance

Maintenance shall be provided from the time of planting to the end of the warranty period.

Maintenance shall include watering, control of weeds and grasses in all mulched areas, repairs to stakes, ties, and tree guards.
Stakes and support ties shall be maintained then removed after one full growing season. Ties shall be checked every three (3) months to ensure that they are not rubbing against the bark, and shall be loosened, repaired or replaced as necessary.

8.04 Warranty

The Warranty period shall commence immediately after planting is accepted as complete.

The warranty period shall extend for two years (24 months) and shall cover any defects in material and workmanship. Plants that fail to meet the acceptance criteria at any time during the Warranty period shall be replaced within 30 days of notification by the Contract Administrator.

Plantings shall be deemed acceptable where 95% of trees for each species planted are alive and in an acceptable healthy condition at the end of the Warranty period.

Plants damaged by ungulates are exempt from replacement.

8.05 Acceptance and Replacement

Plants may be inspected for acceptance any time after planting provided the date is prior to leaf drop or last frost. If the date is after leaf drop or frost, the inspections shall be scheduled for 30 days after the start of the next growing period. No inspections will occur after leaf drop. Plants that do not meet the acceptance criteria shall be replaced within 30 days notification by the Contract Administrator.

Plants shall be accepted when they are:

a) alive and thriving,
b) structurally sound,
c) furnished with living foliage of normal abundance, size and colour,
d) show adequate annual growth and formation of buds, and
e) are free from blight of any description.

Plants that do not meet this criteria or that have severely "died back" and regrown from a bud or shoot, or have been damaged by rodents, shall be replaced.

Replacements shall be plants of the same size and species and shall be supplied and planted as specified in the Contract Documents and this specification. The Owner reserves the right to extend the warranty responsibilities for one (1) additional year if, at the end of the initial warranty period, leaf development and growth is not sufficient to ensure future survival.

9.0 MEASUREMENT FOR PAYMENT

9.01 Actual Measurement

9.01.01

Shrub, 600 mm Height
Shrub, 1.0 m Height
Coniferous Tree, 500 mm Height
Coniferous Tree, 1.0 m Height
Deciduous Tree, Whip

For measurement purposes, a count shall be made of the number of bulbs, perennials, trees, shrubs, shrub root masses, and aquatic vegetation planted.

9.02 Plan Quantity Measurement

When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clauses under Actual Measurement.

10.0 BASIS OF PAYMENT

10.01 Shrub, 600 mm Height - Item
Shrub, 1.0 m Height - Item
Coniferous Tree, 500 mm Height - Item
Coniferous Tree, 1.0 m Height - Item
Deciduous Tree, Whip - Item

Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment, and Material to do the work.

Progress payments shall be based on the following percentages of the Contract price for milestones accepted by the Contract Administrator:

a) 50% for planting

b) 30% at the end of the establishment period

c) 20% at the end of the warranty period

Final payment for these Contract items shall occur at the end of the warranty period, provided all plant material has been properly maintained, stakes, guys and ties have been removed and unacceptable plant material properly replaced.

The replacement of plants that fail to meet the acceptance criteria shall be at no additional cost to the Owner.

Table 1 - Timing Constraints for Planting

Plant Type	
Bare Root Shrubs and Trees	Spring when the ground is not frozen until May 15.
Balled and Burlapped or Container Grown Shrubs and Trees	Spring when the ground is not frozen to May 15 and September 15 to October 31.

CLEAN OUT SEWERS - Item No. 50
CLEAN OUT OF PIPE CULVERTS - Item No. 51

Special Provision

1.0 SCOPE

This Special Provision describes the requirements for the clean out of highway culverts and sewers, as identified elsewhere in the Contract Documents, and subsequent management of the culvert and sewer cleanout material.

The material management requirements are in addition to those specified elsewhere in the Contract Documents and do not relieve the Contractor of obligations imposed by the Contractor's Certificate of Approval for a Waste System, Certificate of Approval for a Waste Disposal Site (Processing), or Certificate of Approval for a Waste Disposal Site (Mobile Processing). The Ministry of Transportation is not providing any receiving sites for disposal material removed from any culvert or sewer.

2.0 REFERENCES - Not Used

3.0 DEFINITIONS

For the purpose of this Special Provision, the following definitions apply:

Receiving Site means a municipal sanitary sewer or sewage treatment plant, certified dewatering equipment, certified waste treatment facility, or certified waste disposal site.

4.0 DESIGN AND SUBMISSION REQUIREMENTS

4.01 Submission Requirements

The Contractor shall provide the Contract Administrator with 48 hours notice prior to the cleanout of the culvert or sewer so that the culvert or sewer can be inspected once the cleanout is complete.

It is the Contractor’s responsibility to obtain any approvals, releases, and agreements that are required to implement the Contractor’s strategy for the management of cleanout material.

4.01.01 Permission and Release of Operators of Receiving Sites

Written permission shall be obtained from the operator of any receiving site that is not designated for use in the Contract, prior to its use for disposal of culvert or sewer cleanout material resulting from this contract.

A copy of this permission shall be provided to the Contract Administrator a minimum of 14 Days prior to the commencement of such work.

Where culvert or sewer cleanout material is managed by disposal as waste, a copy of the weigh tickets or receipts provided by the site operator shall be submitted to the Contract Administrator on a weekly basis. Where such documentation is not available, written confirmation that the waste has been received shall be obtained from the owner of the disposal site, and provided to the Contract Administrator, a maximum of 14 Days after disposal activities are complete.

4.01.02 Submission of Certificates of Approval

Where Section 7.0 of this Special Provision requires a Certificate of Approval for a Waste Management System, a copy of the Certificate shall be supplied to the Contract Administrator a minimum of 14 Days prior to commencement of the work.

5.0 MATERIALS - Not Used

6.0 EQUIPMENT - Not Used

7.0 CONSTRUCTION

7.01 General

Concrete pipe culverts or sewers shall be cleaned out to the bottom of the pipe, unless otherwise directed by the Contract Administrator.

Open footing concrete culverts shall be cleaned out to the level of the top of footing and closed box concrete culverts or sewers shall be cleaned out to the bottom slab level, unless otherwise directed by the Contract Administrator.

The culvert or sewer cleanout shall be performed to the extent that permits the Ministry of Transportation to inspect the interior of the culvert or sewer. The Contract Administrator shall be the sole judge of the extent of the cleanout.

7.02 Management of Cleanout Material - General

Material that is found during culvert or sewer cleanout to be contaminated by a spill of a pollutant shall be managed as directed by the Contract Administrator.

Culvert and sewer cleanout material shall otherwise be managed by one, or a combination of, the following:

a) as a composite material without dewatering; or
b) by dewatering and subsequent management of sludge component.

Receiving sites shall be arranged for and provided by the Contractor.

It is the Contractor's responsibility to obtain any approvals, releases, and agreements that are required to implement the Contractor's strategy for the management of culvert and sewer cleanout material.

7.03 Management as a Composite Material Without Dewatering

Where the Contractor manages culvert or sewer cleanout without dewatering, the composite material shall be managed as non-hazardous solid industrial or commercial waste and shall be transported from the area designated for culvert or sewer cleanout directly to one of the following:

a) a landfill site with a Certificate of Approval for a Disposal Site valid for commercial and municipal waste;
b) a waste treatment facility with a Certificate of Approval for a Waste Disposal Site (Processing), or a Certificate of Approval for Waste Disposal Site (Mobile Processing) valid for commercial or municipal waste.

7.04 Dewatering and Subsequent Management of Sludge Component

Culvert or sewer cleanout material shall otherwise be dewatered as necessary. Dewatering shall be by discharge of the liquid component of culvert or sewer cleanout material directly to one or a combination of the following:

a) a waste treatment facility with a Certificate of Approval for a Waste Disposal Site (Processing), or a Certificate of Approval for a Waste Disposal Site (Mobile Processing), valid for commercial or municipal waste;
b) the culvert or sewer from which the material was removed.

The sludge or solid component of the culvert or sewer cleanout material shall be managed as non-hazardous solid industrial waste or commercial waste and shall be transported directly, with the exception of dewatering en route, from the area designated for culvert or sewer cleanout to a certified receiving site.

Transportation of culvert or sewer cleanout material shall be by one of the following:

a) A hauler who is engaged on other work on the Contract without a Certificate of Approval for a Waste Management System, provided the waste is transported directly, with the exception of dewatering enroute, to the disposal site;
b) any other hauler, provided the hauler has a Certificate of Approval for a Waste management System that is valid for the following:
    i. the entire work period;
    ii. the entire area within the limits of the work and the entire haul route;
    iii. the equipment to be utilized, and
    iv. non-hazardous solid industrial waste, or commercial waste.

7.05 Management of Excess Material

Management of excess material shall be according to the Contract Documents.

8.0 QUALITY ASSURANCE - Not Used

9.0 MEASUREMENT FOR PAYMENT

9.01 Actual Measurement

9.01.01 Clean Out of Pipe Culverts
Clean Out of Culverts
Clean Out of Concrete Culverts

For measurement purposes, a count shall be made of the number of culverts cleaned out regardless of type, depth, or size.

9.01.02 Clean Out Sewers

Measurement for the clean out of sewers is in meters along the horizontal centreline length of the pipe cleaned from the inlet end to the outlet end of the pipe sewer. Where the grade of the pipe sewer is 10% or greater, then the above measurement is of the slope length.

9.02 Plan Quantity Measurement

When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clauses under Actual Measurement.

10.0 BASIS OF PAYMENT

10.01 **Clean Out of Pipe Culverts - Item**
Clean Out of Culverts - Item
Clean Out of Concrete Culverts – Item
Clean Out Sewers - Item

Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment, and Material to do the work, with the exception of spill-contaminated material.

Payment for the management of material found, during the culvert or sewer cleanout operation, to be contaminated by the spill of a pollutant shall be made on a Time and Material Basis.

In the event that approvals, releases, agreements and verifications as required for the management of culvert or sewer cleanout material are not obtained, no additional payment shall be made.

MASS CONCRETE - Item No. 55

Special Provision

Amendment to OPSS 904, November 2014

904.0.07.08.01 Curing, General

The required curing period of the mass concrete bedding shall be 4 hours or until the strength is sufficient to support the weight of foot traffic as approved by the Contract Administrator. The use of any curing materials or methods is not required.

Any additional bedding required to match the minimum design bedding elevations shall be Granular 'A'.

PRECAST CONCRETE BOX CULVERT, STRUCTURAL (SPAN > 3 M) - Item No. 56

Special Provision

Amendment to OPSS 422, April 2004 (Reissued November 2010) and OPSS 1821, May 1993

422.02 REFERENCES

Section 422.02 of OPSS 422 is amended by the addition of the following:

Ontario Provincial Standard Specifications, Material

OPSS 1359 Unshrinkable Backfill

CSA Standards

G164-M92 (R2003) Hot Dip Galvanizing of Irregularly Shaped Articles

ASTM International

C990-03	Standard Specifications for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants.
D75-94	Standard Practice for Random Sampling of Construction Material
D3665-94	Standard Practice for Sampling Aggregates

United States Federal Specifications:

SS-S210A	Sealing Compound Preformed Plastic for Pipe Joints

422.04 DESIGN AND SUBMISSIONS REQUIREMENTS

Section 422.04 of OPSS 422 is deleted and replaced with the following:

422.04.01 Working Drawings

The Contractor shall submit 3 sets of the box culvert Working Drawings to the Contract Administrator at least 3 weeks prior to commencement of fabrication, for information purposes only. Prior to making a submission, the seals and signatures of a design Engineer and a design-checking Engineer shall be affixed on the Working Drawings verifying that the drawings are consistent with the Contract Documents.

Where multi-discipline engineering work is depicted on the same Working Drawing and the design or design checking Engineer or both are unable to seal and sign the Working Drawing for all aspects of the work, the drawing shall be sealed and signed by as many additional design and design-checking Engineers as necessary. The Contractor shall coordinate and review all the associated required Working Drawings, including but not limited to the precast boxes and the reinforcing steel drawings for cast in place components, prior to submission to ensure that there is no conflict between various components or the required field work.

The Working Drawings shall include at least the following:

a) design details
b) fabrication details
c) assembly details
d) site number and date

422.04.02 Manufacturer’s Certificate of Conformance

A Manufacturer’s Certificate of Conformance shall be submitted to the Contract Administrator for each shipment of elements, at least 5 Business Days, prior to shipping the elements.

A Request to Proceed shall be submitted to the Contract Administrator prior to shipment from the fabrication facility prior to delivery of each shipment of elements to the site.

The elements shall not be delivered to the site until the Contract Administrator has received the Manufacturer’s Certificate of Conformance, Request to Proceed, and issued a Notice to Proceed.

422.04.02.01 Inspection after the Installation of the Units in Each Structure

A Request to Proceed shall be submitted to the Contract Administrator after the installation of all units in each structure within a construction stage.

The next operation shall not proceed until a Notice to Proceed has been received from the Contract Administrator.

422.05 MATERIALS

422.05.04 Precast Reinforced Concrete Box Units

Section 422.05.04 of OPSS 422 is deleted in its entirety and replaced with the following:

Precast reinforced concrete box units shall be according to the requirements of OPSS 1821 amended as follows:

1821.01 Scope

Section 1821.01 of OPSS 1821 is deleted and replaced with the following:

This specification covers the requirements for materials, design and fabrication of precast reinforced concrete culverts.

1821.02 REFERENCES

Section 1821.02 of OPSS 1821 is amended by the addition of the following:

CSA Standards:

CAN/CSA S6-06	Canadian Highway Bridge Design Code
CAN/CSA	S6S1-10, S6S2-11, S6S3-13, Supplements to the CAN/CSA-S6-06

Ministry of Transportation Publications:

Structural Manual - Division 1, Exceptions to the Canadian Highway Bridge Design Code

Other:

Ontario Concrete Pipe Association Publication – Prequalification Requirements for Precast Concrete Drainage Products.

1821.04 SUBMISSION AND DESIGN REQUIREMENTS

1821.04.02 Design Requirements

Subsection 1821.04.02 of OPSS 1821 is deleted and replaced with the following:

Design shall be completed in accordance with the CAN/CSA S6 and the Structural Manual, Division 1 for the appropriate placement under the fills provided for the culvert.

The minimum thickness for walls and slabs shall be 300mm.

1821.05 MATERIALS

1821.05.03 Steel Reinforcement

Subsection 1821.05.03 of OPSS 1821 is deleted and replaced with the following:

The use of welded wire fabric or welded wire mesh is not permitted.

Steel reinforcing shall conform to OPSS 1440. Welding of reinforcing steel is not permitted unless approved in writing by the Contract Administrator. Haunch reinforcement is required.

1821.05.04 Associated Hardware

Subsection 1821.05.04 of OPSS 1821 is deleted and replaced with the following:

All support systems shall be capable of withstanding the loads to be placed on them. All embedded hardware within 35 mm of exposed faces shall be hot dip galvanized in accordance with CAN/CSA G164 or be of an acceptable non-metallic material.

Any holes or recesses provided in the culvert to suit fabrication or handling, including those required to accommodate lifting lugs or support systems shall be plugged using a cementitious grout.

Tie wire shall be 1.5 mm diameter annealed wire.

1821.07 PRODUCTION

1821.07.01 Prequalification

Subsection 1821.07.01 of OPSS 1821 is amended by the addition of the following:

Precast concrete box units shall be fabricated by a manufacturer certified in conformance to Ontario Concrete Pipe Association Publication – Prequalification Requirements for Precast Concrete Drainage Products.

1821.07.02 Manufacturer's Design Dimensions

1821.07.02.01 Design Tables

Clause 1821.07.02.01, Table 1 and Figure 1 of OPSS 1821 are deleted.

1821.07.02.02 Placement of Reinforcement

Clause 1821.07.02.02 of OPSS 1821 is deleted and replaced with the following:

The clear distance of the end perimeter reinforcement shall be not less than 35 mm or more than 50 mm from the ends of the box unit. The cover to reinforcing bars shall be 50 mm ± 15 mm. Boxes shall be reinforced with steel bars and shall be assembled with single layers of reinforcement in each face in each direction. Splices in the perimeter reinforcement shall be made by lapping and reinforcing steel shall not be lapped in tension zones.

422.05.07 Mortar

Subsection 422.05.07 of OPSS 422 is amended by deleting the first sentence and replacing it with the following:

Mortar for joints shall be according to OPSS 904.

422.05.08 Preformed Gasket

Subsection 422.05.08 is deleted and replaced with the following:

Flexible preformed gaskets shall conform to U.S. Federal Specification SS-S-210. Joint surface preparation, application, connection of sections and finishing shall be in accordance with the manufacturer's recommendations.

422.05.09 Joint Sealing Compound

Subsection 422.05.09 of OPSS 422 is deleted in its entirety and replaced with the following:

Joint sealing compound shall be as specified in the Contract Documents.

422.05.13 Bedding

Subsection 422.05.13 of OPSS 422 and Table 1 is deleted and replaced with the following:

Bedding shall be as specified in the Contract Documents and according to OPSS 902.

Clear stone shall be wrapped in geotextile with minimum overlap of 0.5 m.

422.05.14 Backfill

Subsection 422.05.14 of OPSS 422 is deleted in its entirety and replaced with the following:

Backfill shall be according to OPSS 902.

422.05.15 Cover

Subsection 422.05.15 of OPSS 422 is deleted in its entirety and replaced with the following:

Cover shall be as specified in the Contract Documents. Unless otherwise specified, cover material shall be earth or granular. Cover shall not contain stones exceeding 75 mm, organic matter, debris or frozen material.

Section OPSS 422.05 of OPSS 422 is amended by the addition of the following Subsections:

422.05.16 Joints Between Box Units

The joints between adjacent precast box culvert units shall be treated as shown in the Contract Drawings.

422.05.17 Concrete Finishing

Concrete finishing shall be according to OPSS 904 with the exception of the following:

a) Use of a bridge deck finishing machine is not required.

b) The top surface of precast unit, against which new concrete is to be placed, shall be intentionally roughened while it is sufficiently plastic so that the depth of the indentations is at least 5 mm and the spacing not greater than 15 mm. All concrete surfaces against which new concrete is to be placed shall be clean, sound and free from any loose particles and laitance.

The following surface shall be abrasive blast cleaned according to OPSS 929, prior to shipping the unit:

a) Top portion of members against which new concrete is to be placed.

422.05.18 Unshrinkable Fill

Unshrinkable fill shall be according to OPSS 1359.

422.07 CONSTRUCTION

422.07.02 Excavation

Subsection 422.07.02 of OPSS 422 is amended by the addition of the following:

Lateral stability shall be maintained throughout the excavation and box unit installation. Soil cave-in into the excavation hole shall be prevented.

422.07.06 Foundations

Subsection 422.07.06 of OPSS 422 is deleted in its entirety and replaced with the following:

The box units shall be founded on competent in situ soil or compacted backfill, or as specified in the Contract Documents.

When unsuitable material is encountered during excavation for the box units' foundation, the unsuitable material shall be removed to competent stratum and replaced to the foundation grade with compacted granular material.

The final founding elevations shall be as specified in the Contract Documents or an elevation approved in writing by the Contract Administrator.

422.07.09 Installing Box Units

422.07.09.01 Box Units

Section 422.07.09.01 of OPSS 422 is amended by deleting the fourth paragraph and replacing it with the following:

All precast box unit joints shall be provided with articulated ends such as bell and spigot. The box units shall be installed to make a continuous line forming a box culvert or box sewer. The gap at the box unit joints shall not exceed 15 mm. End units shall be as specified in the Contract Documents. All other units shall be a minimum of 0.914 m in length.

As part of the work, the contractor shall include fabrication, delivery, and installation of the following:

For Culvert No. 20X-0184/CO:

a) Precast site connections, wall drains, and associated accessories;

b) Construct dowel holes at precast culvert end unit's bottom slab and apron wall for installation of dowels.

c) Precast concrete apron walls, including supply and install of dowel and non-shrink grout to connect the apron wall together with the precast concrete culvert end units;

d) Fill over-excavation behind apron walls and at interface between precast concrete box and apron walls with mass concrete.

All shall be as shown on the Contract Drawings.

422.07.09.02 Geotextile at Joints

Clause 422.07.09.02 of OPSS 422 is deleted in its entirety and replaced with the following:
Unless otherwise specified in the Contract Documents, a 900 mm wide strip of geotextile shall be placed to form a continuous barrier centered around the exterior of all buried joints.

The Contractor shall ensure that the joints are effectively covered to prevent influx of material from the backfill and/or native soil through the joints. Unless otherwise specified, material for the joint cover shall be geotextile.

Geotextile shall be free of folds, tears, and wrinkles. The geotextile shall be joined so that the material laps a minimum of 500 mm and shall be pinned together. Alternatively, the geotextile shall be joined according to the seam requirements of OPSS 1860.

422.07.11 Backfill

Subsection 422.07.11 of OPSS 422 is amended by deleting the second paragraph and replacing it with the following:

The Contractor shall be responsible for placing the backfill without any damage to or movement of the box culvert or box sewer. Backfill on each side of the box units shall be completed simultaneously. At no time shall the levels on each side differ by more than 300 mm.

422.07.12 Cover

Subsection 422.07.12 of OPSS 422 is amended by the addition of the following:

The Contractor shall be responsible for placing the cover material without any damage to or movement of the box culvert or box sewer.

Section 422.07 of OPSS 422 is amended by the addition of the following Subsections:

422.07.16 Mechanical Couplers

The end units of the precast concrete box culvert shall come complete with mechanical couplers cast integral with the units.

422.07.17 Date and Site Identification Figures

All precast concrete box culverts shall be inscribed with one set of date figures and site numbers at the exposed ends of the first and last precast elements as specified in the Contract Documents. The plastic figures and site numbers shall be obtained from the Owner.

422.10 BASIS OF PAYMENT

Subsection 422.10.01 of OPSS 422 is amended by the addition of the following items:

4200 mm x 1800 mm Precast Concrete Box Culvert – Item

PLACEMENT OF STREAMBED MATERIAL - Item No. 57

Special Provision

1.0 SCOPE

This Special Provision covers the requirements for the item Placement of Streambed Material as substrate material at the locations detailed in the Contract Documents.

2.0 REFERENCES

OPSS 1001 Aggregates – General

OPSS 1004 Aggregates - Miscellaneous

3.0 DEFINITIONS

For the purpose of this specification the following definition shall apply:

Aggregate: means uncrushed natural mineral materials produced from gravel formations.

Streambed Material: means a graded aggregate intended for use in channel lining (previously known as **River Stone**).

Washed: means clean and free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substances.

4.0 DESIGN AND SUBMISSION REQUIREMENTS – N/A

5.0 MATERIALS

Streambed material particles shall be washed and have a smooth, rounded surface texture free of fractured faces or sharp edges. The material shall be hard, durable, non-frost susceptible and free of any shale or reclaimed material.

The river stone material shall be stable, round, uncrushed, natural granular material and shall conform to the following:

Size (mm)	By Volume (%)
150	20
100	50
75	30

6.0 EQUIPMENT – N/A

7.0 CONSTRUCTION

Placement of the Streambed Material shall be as follows:

- Blending of the streambed materials shall be in accordance with the specified proportions and to the satisfaction of the Contract Administrator.

- Placement of the streambed materials shall be done in accordance with the contract drawings.

The placement of streambed material shall include any excavation required to install the material. The placement locations shall be graded to a uniform and even surface prior to material placement.

Where streambed material is to be placed on a slope with a grade greater than 2%, placement shall commence at the toe of the slope and progress up the slope from that point to the termination location as specified in the Contract Documents.

8.0 QUALITY ASSURANCE

When any change in the character of the aggregate occurs or when the performance of aggregate meeting the requirements of this specification is found to be unsatisfactory, use of the aggregate shall be discontinued until a reappraisal by the Contractor, with the approval of the Contract Administrator, proves the source to be satisfactory.

Irrespective of compliance or non-compliance with the gradation and physical property requirements of this specification, aggregates may be accepted or rejected on the basis of field performance, as determined by the Owner.

9.0 MEASUREMENT FOR PAYMENT

Measurement for payment shall be by Plan Quantity, by volume in cubic metres.

10.0 BASIS OF PAYMENT

10.01 Placement of Streambed Material - Item

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment and Material to do the work.

CULVERT WATERPROOFING - Item No. 58

Special Provision

1.0 SCOPE

This special provision covers the requirements for the surface preparation and installation of waterproofing. The waterproofing systems are separated into two distinct systems:

a) Type 1 for the exposed concrete culvert waterproofing system; and
b) Type 2 for the buried culvert waterproofing system

Type 1 waterproofing system is required to protect the exposed concrete areas and extend onto a portion of the buried surfaces. Waterproofing shall be applied to the limits shown on the Contract Drawings on the top slab (horizontal) with a minimum 1000 mm down the walls (vertical) from the top of the culvert for the following culverts:

- Culvert at Station 16+069.3 Site 20-184/C

The horizontal surface shall have an abrasive traffic layer (Heavy Duty). A smooth surface shall be used on the walls and on the 600 mm joint where it is overlain by the Type 2 waterproofing system.

Type 2 waterproofing system is required to protect the buried concrete areas and shall be applied to the limits shown on the Contract Drawings on the top slab (horizontal) with a minimum 1000 mm down the walls (vertical) from the top of the culvert for the following culverts:

- Culvert at Station 16+069.3 Site 20-184/C

2.0 REFERENCES

This Special Provision refers to the following standards, specifications, or publications:

Ontario Provincial Standards Specification, Construction

OPSS 929 Abrasive Blast Cleaning – Concrete Construction

3.0 DEFINITIONS - Not Used

4.0 DESIGN AND SUBMISSION REQUIREMENTS - Not Used

5.0 MATERIALS

5.01 Type 1 Waterproofing

The Type 1 waterproofing systems to be placed on the exposed concrete surfaces shall be selected from the systems listed below or be an approved equal. The colour of the system shall a light grey matching the concrete culvert.

a) Vulkem 350/351 Pedestrian Deck Coating System

Manufactured by:
Tremco Commercial Sealants and Waterproofing,
220 Wicksteed Avenue,
Toronto, Ontario
M4H 1G7
Telephone: (416) 421-3300 or (800) 363-3213

b) Sikalastic 180/181 System

Manufactured by:
Sika Canada Inc.,
6915 Davand Drive,
Mississauga, Ontario,
L5T 1L5
Telephone: (905) 795-3177 or (800) 933-7452

5.01.01 Joint Sealants

Joints in the sides and top of the culvert that will be exposed to air (will not have backfill material placed against them) shall be sealed prior to Type 1 waterproofing application. Joint seals exposed to air as detailed in the Contract Documents shall be installed using one of the following three modulus silicone joint sealants:

a) Dow Corning 888 Silicone Joint Sealant by Dow Corning
b) Crafco Roadsavers Silicone by Crafco Inc.
c) Spectrem 800 Low Modulus Silicone Highway and Parking Structure Sealant by Tremco

The application of the low modulus silicone joint sealants, including substrate (existing concrete surface) preparation, backer rod material/size/installation, masking of joints, depth and width of sealant for given gap dimension, installation of sealant and tooling/recessing of sealant in complete joint as required to provide protection to the sealant and the presentation of workmanlike appearance, shall be in accordance with the sealant manufacturer's recommendations.

5.02 Type 2 Waterproofing

The Type 2 waterproofing system, including the joint sealants for the buried concrete surfaces, shall be selected from the systems listed below:

Table 1 – Waterproofing Treatment Systems for Joints Where Backfill Will Be Placed

Manufacturer	**Joint Sealant**	**Self Adhesive Waterproofing Membrane**	**Waterproofing Membrane Protection System**
WR Meadows	Pointing mastic	MEL-ROL with MEL-PRIME primer	PROTECTION COURSE (PC-3 Heavy Duty)
BAKOR	Elasto-Seal LM	Blueskin WP200 with Blueskin	Recover Board (6mm

		Primer	thickness)
Grace Construction Products	Bituthene Liquid Membrane	Bituthene System 4000 with Bituthene System 4000 surface Conditioner	25mm expanded polystyrene

The joint sealant, self-adhesive waterproofing membrane, and waterproofing membrane protection system products used shall all be obtained from a single manufacturer as indicated in Table 1, and be compatible with each other.

Application of joint sealant (including backer rod material/ size/installation, and depth and width of sealant for given gap dimension) shall be according with the sealant manufacturer's specifications.

Waterproofing membrane protection materials shall be a minimum 6 mm thick and shall be secured to the culvert as per the manufacturer's specifications.

6.0 EQUIPMENT - Not Used

7.0 CONSTRUCTION

The Contractor shall field verify all dimensions. The Contractor shall coordinate installation of the system with all other construction operations. The waterproofing system shall be installed on the top surface of the culverts and a minimum 1000 mm down each side of the culverts, and additionally as shown on the Contract Drawings. The areas requiring waterproofing shall be prepared and the waterproofing installed in accordance with the manufacturer's instructions.

The exterior face of the box culvert units to receive any of the waterproofing joint treatments noted above shall be abrasive blast cleaned to remove all contaminants and laitance in accordance with OPSS 929. Any spent abrasive, dust and debris shall be removed from the joint gap and surrounding concrete surfaces using compressed air prior to applying any sealant or waterproofing treatments.

The concrete in the culverts shall be cured a minimum of 14 Days prior to waterproofing.

The surface of the concrete shall be dry at the time of waterproofing. Work shall not be scheduled following recent rainfalls.

The application limits for the Type 1 system shall be masked.

A non-slip surface shall be provided for the horizontal portions of the Type 1 system. Silica sand shall be broadcast immediately into the wet topcoat and backrolled to distribute the aggregate.

A lap joint shall be constructed at the junction between the Type 1 and Type 2 systems, as shown on the plans. The Type 1 system shall be allowed to cure a minimum of 48 hours prior to application of the Type 2 overlap.

7.01 Management of Excess Materials

Management of excess materials shall be according to the Contract Documents.

8.0 QUALITY ASSURANCE - Not Used

9.0 MEASUREMENT FOR PAYMENT

9.01 Plan Quantity Measurement

Measurement of culvert waterproofing shall be by Plan Quantity of the waterproofed area with no deductions for overlaps. The unit of measure is square metres.

10.0 BASIS OF PAYMENT

10.01 Culvert Waterproofing - Item

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment and Material to do the work.

LED ROADWAY LIGHTING LUMINAIRES AND BRACKET ASSEMBLIES - Item No. 60

Special Provision No. 617F03 February 2014

Amendment to OPSS 617, November 2013

617.05 MATERIALS

617.05.01 Luminaires

Subsection 617.05.01 of OPSS 617 is amended by the addition of the following clauses:

617.05.01.04 LED Roadway Lighting Type

LED roadway lighting luminaires shall be according to the Contract Documents and the requirements as described in Table 2.

TABLE 2
Description of LED Roadway Lighting Luminaires

Description
LED roadway lighting luminaire(s) – **153**-Watt, IES type **III** distribution, for **120**-Volt operation. Manufacturer's Name & Photometric curve(s): **Eaton Lighting Solutions ARCH-L-AF72-150-D-U-T3.ies** OR **172**-Watt, IES type **III-M** distribution, for 120-Volt operation. Manufacturer's Name & Photometric curve(s): **American Electric Lighting/Acuity Brands Lighting Canada ATB2_40BLEDE13_XXXXX_R3_4K_5K.ies** Each luminaire is with a photoelectrical cell.

617.09 MEASUREMENT FOR PAYMENT

617.09.01.01 Roadway Lighting Luminaires and Bracket Assemblies

Clause 617.09.01.01 of OPSS 617 is amended to include the following tender item:

LED Roadway Lighting Luminaires and Bracket Assemblies

617.10 BASIS OF PAYMENT

Subsection 617.10.01 of OPSS 617 is amended by the addition of the following tender items:

LED Roadway Lighting Luminaires and Bracket Assemblies - Item

TRAFFIC SIGNAL CONTROLLERS - Item No. 63

Special Provision No. 622F03 May 2017

Amendment to OPSS 622, April 2017

622.07.08 Traffic Signal Controller Programming and Timing

Subsection 622.07.08 of OPSS 622 is amended with the addition of the following clause:

622.07.08.01 Traffic Signal Controller Timing Sheet

Traffic signal timing for the controller shall be as specified in the Generic Signal Timing Sheet below:

GENERIC SIGNAL TIMING SHEET

ACTUATED [ ] PRE-TIMED [X] SIGNAL TO BE MAINTAINED BY: _____

LOCATION: Hwy 3 @ Blue Line SIGNAL TO BE OPERATED BY: _____

MAINSTREET (HWY): 3 TIMING DEVELOPED BY: MTO, West Region Traffic

DATE TIMING DEVELOPED: October 31, 2018

GENERIC TIMING IDENTIFIED HERE SHALL BE TRANSCRIBED ONTO "OFFICIAL" TIMING SHEETS FOR THE TRAFFIC SIGNAL CONTROLLER BEING USED AT THIS SIGNALIZED INTERSECTION. A COPY OF THE "OFFICIAL" LOCAL TIMING SHEETS AND COORDINATION SHEETS IF USED, SHALL BE ATTACHED TO THIS FORM AND FILED IN THE MTO REGIONAL TRAFFIC OFFICE.

OPERATIONAL NOTES:

1. All Protected/Permissive left turn movements shall be followed by parent through movements without exception.
2. If serving F2 and F6 the signal must cycle to F4 and/or F8 prior to serving a call for F1 and/or F5 if these left turn movements are protected/permissive.
3. If serving F4 and F8, the signal must cycle to F2 and/or F6 prior to serving a call for F3 and/or F7 if these left turn movements are protected/permissive.
4. Through Movements shall lag left turn movements unless otherwise specified.

FUNCTION/OPERATION	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
PERMITTED MOVEMENTS	-	X	-	X	-	X	-	X
RED LOCK	-	-	-	-	-	-	-	-
AMBER LOCK	-	-	-	-	-	-	-	-
VEHICLE RECALL	-	-	-	-	-	-	-	-
PEDESTRIAN RECALL	**na**	-	**na**	-	**na**	-	**na**	-
VEHICLE MAX RECALL	-	X	-	X	-	X	-	X
OVERLAP A	-	-	-	-	-	-	-	-
OVERLAP B	-	-	-	-	-	-	-	-
PROT/PERM LEFT TURN ARROW	-	**na**	-	**na**	-	**na**	-	**na**
PROT/PERM FAST FLASH ADVANCE GREEN	-	**na**	-	**na**	-	**na**	-	**na**
FULLY PROTECTED LEFT TURN	-	**na**	-	**na**	-	**na**	-	**na**
DISPLAY AMBER ON STARTUP	-	-	-	X	-	-	-	X
PLACE PEDESTRIAN CALLS ON STARTUP	-	-	-	-	-	-	-	-
PLACE VEHICLE CALLS ON STARTUP	-	X	-	X	-	X	-	X
REST IN WALK	**na**	-	**na**	-	**na**	-	**na**	-
MOVEMENTS MUST GAP OUT SIMUL'LY	-	X	-	X	-	X	-	X
DOUBLE ENTRY	**na**	X	**na**	X	**na**	X	**na**	X
EXCLUSIVE PHASING BY APPROACH	-	-	-	-	-	-	-	-

na --- not applicable

INTERVAL TIMES	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
WALK	**na**	-	**na**	-	**na**	-	**na**	-
FLASHING DON'T WALK	**na**	-	**na**	-	**na**	-	**na**	-
MINIMUM GREEN	-	10	-	20	-	10	-	20
VEHICLE EXTENSION (PASSAGE TIME)	-	3	-	4	-	3	-	4
MAX GREEN (INCLUDES MIN GREEN)	-	20	-	35	-	20	-	35
MAX GREEN 2 (ALTERNATE MAX GREEN)	-	-	-	-	-	-	-	-
AMBER CLEARANCE	-	5.9	-	5.9	-	5.9	-	5.9
ALL RED CLEARANCE	-	1.3	-	1.5	-	1.3	-	1.5
MAX GAP (VEH. EXTENSION)	-	3	-	4	-	3	-	4
MIN GAP (VEH. EXTENSION)	-	3	-	4	-	3	-	4
REDUCE GAP BY	-	-	-	-	-	-	-	-
REDUCE GAP EVERY	-	-	-	-	-	-	-	-
MAX INITIAL GREEN TIME (VAR. INIT)	-	-	-	-	-	-	-	-
TIME ADDED/VEHICLE (VAR. INIT)	-	-	-	-	-	-	-	-

na --- not applicable

DETECTOR SETUP	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
DELAY TIME ON PRESENCE DETECTION	-	-	-	-	-	-	-	-
DELAY TIME ON LONG DIST. DETECTION	-	-	-	-	-	-	-	-
CARRY-OVER ON PRESENCE DETECTION	-	-	-	-	-	-	-	-
CARRY-OVER ON LONG DIST. DETECTION	-	-	-	-	-	-	-	-

PRE-EMPTION	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
1ST EMERG. PRE-EMPT MOVEMENTS	-	-	-	-	-	-	-	-
1ST EMERG. PRE-EMPT DELAY TIME	-	-	-	-	-	-	-	-
1ST EMERG. PRE-EMPT CLEARANCE TIME	-	-	-	-	-	-	-	-
2ND EMERG. PRE-EMPT MOVEMENTS	-	-	-	-	-	-	-	-
2ND EMERG. PRE-EMPT DELAY TIME	-	-	-	-	-	-	-	-
2ND EMERG. PRE-EMPT CLEAR'CE TIME	-	-	-	-	-	-	-	-
RR PRE-EMPT TRACK CLEAR'CE MV'MTS	-	-	-	-	-	-	-	-
RR PRE-EMPT CLEARANCE TIME	-	-	-	-	-	-	-	-
RR PRE-EMPT DELAY TIME	-	-	-	-	-	-	-	-
RR PRE-EMPT LIMITED SERVICE MV'NTS	-	-	-	-	-	-	-	-

TIME OF DAY	TIME OF DAY		DAY OF WEEK							**MOVEMENT (FAZE)**							
OPERATIONS	[START]	[END]	S	M	T	W	T	F	S	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
PHASE OMIT			-	-	-	-	-	-	-	-	**na**	-	**na**	-	**na**	-	**na**
MAX RECALL			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PED RECALL			-	-	-	-	-	-	-	**na**	-	**na**	-	**na**	-	**na**	-
MIN RECALL			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAX GREEN 2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REST IN WALK			-	-	-	-	-	-	-	**na**	-	**na**	-	**na**	-	**na**	-
AMBER LOCK			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RED LOCK			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

na --- not applicable

GENERIC SIGNAL TIMING SHEET

ACTUATED [ ] PRE-TIMED [X] SIGNAL TO BE MAINTAINED BY: _____

LOCATION: Hwy 3 @ Haldimand 5 SIGNAL TO BE OPERATED BY: _____

MAINSTREET (HWY): Hwy 3 TIMING DEVELOPED BY: MTO, West Region Traffic

DATE TIMING DEVELOPED: October 31, 2018

GENERIC TIMING IDENTIFIED HERE SHALL BE TRANSCRIBED ONTO "OFFICIAL" TIMING SHEETS FOR THE TRAFFIC SIGNAL CONTROLLER BEING USED AT THIS SIGNALIZED INTERSECTION. A COPY OF THE "OFFICIAL" LOCAL TIMING SHEETS AND COORDINATION SHEETS IF USED, SHALL BE ATTACHED TO THIS FORM AND FILED IN THE MTO REGIONAL TRAFFIC OFFICE.

OPERATIONAL NOTES:

1. All Protected/Permissive left turn movements shall be followed by parent through movements without exception.
2. If serving F2 and F6 the signal must cycle to F4 and/or F8 prior to serving a call for F1 and/or F5 if these left turn movements are protected/permissive.
3. If serving F4 and F8, the signal must cycle to F2 and/or F6 prior to serving a call for F3 and/or F7 if these left turn movements are protected/permissive.
4. Through Movements shall lag left turn movements unless otherwise specified.

FUNCTION/OPERATION	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
PERMITTED MOVEMENTS	-	X	-	X	-	X	-	X
RED LOCK	-	-	-	-	-	-	-	-
AMBER LOCK	-	-	-	-	-	-	-	-
VEHICLE RECALL	-	-	-	-	-	-	-	-
PEDESTRIAN RECALL	**na**	-	**na**	X	**na**	-	**na**	X
VEHICLE MAX RECALL	-	X	-	X	-	X	-	X
OVERLAP A	-	-	-	-	-	-	-	-
OVERLAP B	-	-	-	-	-	-	-	-
PROT/PERM LEFT TURN ARROW	-	**na**	-	**na**	-	**na**	-	**na**
PROT/PERM FAST FLASH ADVANCE GREEN	-	**na**	-	**na**	-	**na**	-	**na**
FULLY PROTECTED LEFT TURN	-	**na**	-	**na**	-	**na**	-	**na**
DISPLAY AMBER ON STARTUP	-	-	-	X	-	-	-	X
PLACE PEDESTRIAN CALLS ON STARTUP	-	X	-	X	-	X	-	X
PLACE VEHICLE CALLS ON STARTUP	-	-	-	-	-	-	-	-
REST IN WALK	**na**	-	**na**	X	**na**	-	**na**	X
MOVEMENTS MUST GAP OUT SIMUL'LY	-	X	-	X	-	X	-	X
DOUBLE ENTRY	**na**	X	**na**	X	**na**	X	**na**	X
EXCLUSIVE PHASING BY APPROACH	-	-	-	-	-	-	-	-

na --- not applicable

INTERVAL TIMES	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
WALK	**na**	7	**na**	7	**na**	7	**na**	7
FLASHING DON'T WALK	**na**	12	**na**	17	**na**	12	**na**	17
MINIMUM GREEN	-	10	-	20	-	10	-	20
VEHICLE EXTENSION (PASSAGE TIME)	-	3	-	4	-	3	-	4
MAX GREEN (INCLUDES MIN GREEN)	-	20	-	35	-	20	-	35
MAX GREEN 2 (ALTERNATE MAX GREEN)	-	-	-	-	-	-	-	-
AMBER CLEARANCE	-	5.0	-	5.9	-	5.0	-	5.9
ALL RED CLEARANCE	-	2.3	-	1.9	-	2.3	-	1.9
MAX GAP (VEH. EXTENSION)	-	3	-	4	-	3	-	4
MIN GAP (VEH. EXTENSION)	-	3	-	4	-	3	-	4
REDUCE GAP BY	-	-	-	-	-	-	-	-
REDUCE GAP EVERY	-	-	-	-	-	-	-	-
MAX INITIAL GREEN TIME (VAR. INIT)	-	-	-	-	-	-	-	-
TIME ADDED/VEHICLE (VAR. INIT)	-	-	-	-	-	-	-	-

na --- not applicable

DETECTOR SETUP	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
DELAY TIME ON PRESENCE DETECTION	-	-	-	-	-	-	-	-
DELAY TIME ON LONG DIST. DETECTION	-	-	-	-	-	-	-	-
CARRY-OVER ON PRESENCE DETECTION	-	-	-	-	-	-	-	-
CARRY-OVER ON LONG DIST. DETECTION	-	-	-	-	-	-	-	-

PRE-EMPTION	**MOVEMENT (FAZE)**							
	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
1ST EMERG. PRE-EMPT MOVEMENTS	-	-	-	-	-	-	-	-
1ST EMERG. PRE-EMPT DELAY TIME	-	-	-	-	-	-	-	-
1ST EMERG. PRE-EMPT CLEARANCE TIME	-	-	-	-	-	-	-	-
2ND EMERG. PRE-EMPT MOVEMENTS	-	-	-	-	-	-	-	-
2ND EMERG. PRE-EMPT DELAY TIME	-	-	-	-	-	-	-	-
2ND EMERG. PRE-EMPT CLEAR'CE TIME	-	-	-	-	-	-	-	-
RR PRE-EMPT TRACK CLEAR'CE MV'MTS	-	-	-	-	-	-	-	-
RR PRE-EMPT CLEARANCE TIME	-	-	-	-	-	-	-	-
RR PRE-EMPT DELAY TIME	-	-	-	-	-	-	-	-
RR PRE-EMPT LIMITED SERVICE MV'NTS	-	-	-	-	-	-	-	-

TIME OF DAY	TIME OF DAY		DAY OF WEEK							**MOVEMENT (FAZE)**							
OPERATIONS	[START]	[END]	S	M	T	W	T	F	S	[NB LEFT]	[NB THRU]	[WB LEFT]	[WB THRU]	[SB LEFT]	[SB THRU]	[EB LEFT]	[EB THRU]
PHASE OMIT			-	-	-	-	-	-	-	-	**na**	-	**na**	-	**na**	-	**na**
MAX RECALL			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PED RECALL			-	-	-	-	-	-	-	**na**	-	**na**	-	**na**	-	**na**	-
MIN RECALL			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAX GREEN 2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REST IN WALK			-	-	-	-	-	-	-	**na**	-	**na**	-	**na**	-	**na**	-
AMBER LOCK			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RED LOCK			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

na --- not applicable

LOOP DETECTORS - Item No. 64

Special Provision

Amendment to OPSS 623, April 2017

623.07 CONSTRUCTION

623.07.01 Loop Detectors

Subsection 623.07.01 of OPSS 623 is amended by the addition of the following:

All traffic data collection detector loops which are being replaced shall be replaced up to the connection at the terminal block.

When required, the Contractor shall replace the terminal block in the terminal electric box. Terminal blocks shall be double-row barrier terminal blocks which can accommodate forks type of wire terminations, with current capacity equal to the ampacity of #14 AWG stranded copper wire. The size and number of the terminal blocks shall suit the number of the detector loop cable leads.

623.07.01.01 Layout

Clause 623.07.01.01 of OPSS 623 is amended by the addition of the following:

Vehicle detectors are to be placed, in the upper binder course, prior to construction of the final pavement surface course. All permanent pavement markings, lane lines and stop bars shall be marked and documented prior to installing vehicle detectors in the pavement.

Vehicle detector locations shall be clearly marked and documented on the final pavement surface with non-permanent materials to facilitate accurate zone painting.

MAINTENANCE OF HIGHWAY LIGHTING AND TRAFFIC SIGNAL SYSTEMS - Item No. 66

Special Provision

SCOPE

This Special Provision covers the requirements for the maintenance of highway lighting and traffic signal systems at selected locations within the limits of the Contract.

REFERENCES

This Special Provision refers to the following standards, specifications or publications:

Ontario Provincial Standard Specifications

OPSS.PROV 106 General Specification for Electrical Work

CONSTRUCTION

All highway lighting and traffic signal systems at the locations specified in Table 1 shall be maintained for the duration of the Contract. All highway lighting and traffic signal systems shall be maintained according to OPSS.PROV 106.

BASIS OF PAYMENT

Payment at the contract price for the above tender item shall be full compensation for all labour, Equipment, Material, and services required to do the work.

Progress payments shall be based on the following percentages of the Contract price for milestones accepted by the Contract Administrator:

a) 5% for each month that all highway lighting and traffic signal systems have been maintained according to OPSS.PROV 106, up to a maximum of 50% of the Contract price.

b) The remaining unpaid portion of the Contract price upon Contract Completion.

Table 1

Highway	Location
Highway 3	Intersection of Highway 3 and Blueline Road and the area within 500 metres of the limits of the intersection
Highway 3	Intersection of Highway 3 and Norfolk Road 5 (Cockshutt Road) and the area within 500 metres of the limits of the intersection

SCHEDULE OF MATERIALS TO BE SUPPLIED BY THE OWNER

Pursuant to Subsection GC 5.01, Supply of Material, this Special Provision lists all the Materials to be supplied by the Owner:

(A) The Owner supplies the following Materials F.O.B. haulage vehicles at a point within the Working Area. Deliveries to the Working Area shall be as requested by the Contractor but subject to the approval of the Contract Administrator:

Nil

The Contractor shall complete Owner's Standard Form PH-CC-765 "Contract Material Delivery Schedule", detailing the Contractor's required delivery date for each item of Material to be supplied by the Owner.

The form shall be completed in triplicate and returned to the Team Lead, Contract Tendering Section within the time limit specified by the Owner in a letter to the Contractor.

At any time following the required delivery date which the Contractor enters in Form PH-CC-765 for each item of Material, the Contractor shall either accept delivery of that Material when required by the supplier or shall make alternative arrangements satisfactory to the supplier which do not result in any additional cost to the Owner.

(B) The Owner supplies the following Materials as indicated below:

Material	Quantity	Supply Point
Site and Date Figures C/L Structural Culvert @ STA 16+069: 20X-0184-C0 2019	2 each	659 Exeter Road, London ON
Ground Mounted Signs (Small)	81 each	MTO Provincial Sign Shop, 1927 Kipling Avenue, Toronto, ON
Business Access Signs (TC-92)	7 each	MTO Provincial Sign Shop, 1927 Kipling Avenue, Toronto ON

This Special Provision shall take precedence over all other Special Provisions with respect to the supply of the above materials.

THE CONTRACTOR SHALL SUPPLY **ALL** OTHER MATERIALS FOR THIS CONTRACT.

SECTION B
FAIR WAGE PROGRAM

Labour Conditions for Road Building Contracts
(Classifications and wage rates listed in attached schedules)

DEFINITIONS

1. In these Labour conditions,

(1) "Contract" means a Contract between _____(Owner) Ministry/Crown Corporation/agent

and the Contractor for the Work at _____(location).

(2) "Contractor" refers to

_____
(name of business)

_____
(business address)

_____
(business phone no./fax no.)

(3) "Employee" means a person in the employ of the Contractor a Sub-Contractor or any other person doing or contracting to do the whole or any part of the Work contemplated by this Contract.

(4) "Employer" means the Contractor, and/or any of the Contractor's Sub-Contractors, who has control or direction of, or is directly or indirectly responsible for, the employment of a person therein.

(5) "Fair Wage" or "Fair Wage Rates" means the respective wage rates listed in the attached Schedule(s), or any revisions from time to time, for each classification of labour.

(6) "Owner" refers to the ministry, crown corporation or agent named in subsection (1) as one of the contracting parties of the Contract.

(7) "Provincial Zone" means a geographic area in the Province of Ontario which is designated by the Ontario Ministry of Labour from time to time as non-urban, for the purpose of establishing the Fair Wage Rates.

(8) "Regular rate" means

(a) the hourly rate paid to an Employee for her/his normal non-overtime work week; or

(b) in the case of an Employee to whom clause (a) does not apply, the amount obtained by dividing her/his total earnings for the week by the number of hours he or she worked in the week;

(9) "Sub-Contractor" means any person, firm or corporation having a Contract for the execution of a part or parts of the Work included in the Contract, or a person, firm or corporation furnishing material called for in the Contract and worked to a special design according to the Contract but does not include one who merely furnishes material not so worked.

(10) "Urban Zone" means a geographic area in the Province of Ontario which is designated by the Ontario Ministry of Labour from time to time as urban, for the purpose of establishing the Fair Wage Rates.

(11) "Work on roads" means the preparation, construction, finishing and construction maintenance of roads, streets, highways and parking lots and includes all work incidental thereto other than work on structures.

"Work on structures' means the construction, reconstruction, repair, alteration, remodelling, renovation or demolition of any bridge, tunnel or retaining wall and includes the preparation for and the laying of the foundation of any bridge, tunnel or retaining wall and installation of equipment and appurtenances incidental thereto.

The Ontario Minister of Labour may at his or her sole discretion determine whether any particular work is to be classified as work on roads or as work on structures and such decision may be made notwithstanding the definitions in subsection (11).

GENERAL

2. (1) These Labour Conditions are subject to the Employment Standards Act and the regulations made thereunder.

(2) These Labour Conditions are intended for application primarily to work on the Contract site. Work that is carried out at sites that are not in the immediate vicinity of the Contract site or that are not used exclusively for the purposes of Contracts including municipal contracts containing similar Labour Conditions will not be subject to these Labour Conditions.

HOURS OF WORK -- GENERAL

3. (1) Subject to section 4, the regular work week for a person employed on work on roads being done under this Contract or any other Contract subject to these or similar Labour Conditions shall not exceed fifty-five hours and all time worked by such person in excess of fifty-five hours a week shall be overtime.

(2) Subject to section 4, the regular work week for a person employed on work on structures being done under this Contract or any other Contract subject to these or similar Labour Conditions shall not exceed forty-four hours and all time worked by such person in excess of forty-four hours a week shall be overtime.

HOURS OF WORK -- PROVINCIAL ZONE

4. (1) The regular work week for a person employed on work on roads being done in the provincial zone under this Contract or any other Contract subject to these or similar Labour Conditions shall not exceed fifty-five hours and all time worked by such person in excess of fifty-five hours a week shall be overtime, except that part of the hours of work in excess of fifty-five hours a week which, together with the hours worked in the preceding week, do not exceed fifty-five hours in that preceding week, but in no case shall the number of hours that can be included in the hours of work for that preceding week exceed twenty-two hours.

(2) The regular work week for a person employed on work on structures being done in the provincial zone under this Contract or any other Contract subject to these or similar Labour Conditions shall not exceed fifty hours and all time worked by such person in excess of fifty hours a week shall be overtime, except that part of the hours of work in excess of fifty hours a week which, together with the hours worked in the preceding week, do not exceed fifty hours in that preceding week, but in no case shall the number of hours that can be included in the hours of work for that preceding week exceed twenty-two hours.

WAGES AND OVERTIME PAY

5. (1) Every person employed by the Contractor or a Sub-Contractor or other person to do any part of the work contemplated by this Contract shall be paid while employed on such work not less than the wage rate set out in the Roads and Structures Fair Wage Schedule for the appropriate classification of such work or not less than such other wage rates as, during the continuance of the work, are fixed by the Ontario Minister of Labour for hours of work that are not overtime.

(2) The Fair Wage rates apply to work performed under a Contract let by a ministry of the Ontario government, a corporation established under the Capital Investment Planning Act, 1993, a third party acting on behalf of the Ontario government as its agent, or a municipality receiving funding from the Ontario government for work performed in this Contract.

(3) The wage rates set out in the Roads and Structures Fair Wage Schedule are subject to change periodically.

(4) Any increase in costs incurred by a change in the wage rates referred to in subsection (3) shall be borne by the Contractor.

6. (1) For Urban Zones only, Fair Wage Rates represent 85% of the union rate established in the specific zone for the respective classification, as determined by the Ontario Ministry of Labour from time to time, plus 15% in lieu of non-statutory benefits.

(2) In Urban Zones, employers may pay a portion of the Fair Wage Rates, up to a maximum of 15% of the applicable Fair Wage Rate, to their Employees in non-statutory benefits, and the remainder of not less than 85% of the Fair Wage Rate shall be paid to these Employees in wages.

(3) In the Provincial Zone, employers shall pay their Employees the full amount (100%) of the Fair Wage Rates in wages, exclusive of non-statutory benefits.

(4) In the event that an Employer is performing Work in an Urban Zone and it chooses to pay a portion of the Fair Wage Rates to its Employees in non-statutory benefits, the Contractor must inform the Owner, prior to commencing the Contract or the relevant sub-contract, as to the total cost of such non-statutory benefits to the Contractor, and/or its Sub-Contractor where a Sub-Contractor has elected to provide these non-statutory benefits. The cost of any non-statutory benefit paid to Employees shall be calculated in accordance with subsection (6).

(5) Upon informing the Owner as to its selection in accordance with subsection (2), the Contractor shall provide documentation to the Owner, prior to commencing the Contract or relevant sub-Contract, to sufficiently substantiate, in the Owner's opinion, the total cost of the all non-statutory benefits to the Contractor and/or respective Sub-Contractor.

(6) The cost to the Contractor, and/or a Sub-Contractor, of any non-statutory benefit shall be calculated on the basis of the total weekly cost to the Contractor/Sub-Contractor of each non-statutory benefit provided to Employees divided by forty-eight (48). The total cost of all non-statutory benefits equals the sum of the costs of each non-statutory benefit provided to Employees.

(7) Where the documentation is not provided to the Owner in accordance with subsections (5) and (6), the Contractor and/or relevant Sub-Contractor is responsible for paying its Employees the full amount (100%) of the Fair Wage Rates in wages, exclusive of non-statutory benefits.

(8) Notwithstanding subsection (7), where the Contractor fails to inform and/or provide such documentary proof to the Owner as required by subsections (4) (5) and (6) and the Contractor or any of its Sub-Contractors proceeds to pay a portion, up to a maximum of 15%, of the Fair Wage Rates in non-statutory benefits, the Owner may withhold payments under the Contract until such time as the Owner is satisfied that the Employees have received their Fair Wages.

(9) Once an Employer has made its selection pursuant to subsection (2), it shall continue to pay its Employees in accordance with its initial selection for the entire duration of the Contract and/or relevant sub-contract.

7. (1) Every person employed by the Contractor or a Sub-Contractor or other person to do any part of the work contemplated by this Contract shall be paid while employed on such work one and one-half times his or her regular rate for all hours of work that are overtime.

(2) Notwithstanding that a Contractor, Sub-Contractor, or other person pays wages in excess of the wage rates set out in the Roads and Structures Fair Wage Schedule, the Contractor, Sub-Contractor or other person shall not, in computing overtime wages payable to an Employee, set off against such overtime wages any part of the wages earned by the Employee in respect of their regular work period.

(3) Where a person is working on more than one Contract that is subject to these conditions, including any municipal Contract that contains similar labour conditions, the regular work week and the entitlement to overtime for that person shall be based upon the total hours worked on all such Contracts and if, on this basis, overtime is worked on this Contract the Contractor shall pay such person at the overtime rate and no waiver by that person of this entitlement to overtime wages and no interposition of a third party by way of an employment agency or as the nominal employer of that person shall relieve the Contractor of the obligation to pay that person the overtime wages.

8. Travelling time will not be subject to the Fair Wage Schedule. The hours and wages or moneys paid for travelling time are to be deleted from the wage record of an Employee in computing his or her wage entitlement.

9. The amount of room and board allowance will be negotiated between the employer and Employee, but in no case shall the amount of wages paid to an Employee net of the allowance be less than the amount the Employee would be entitled to receive if he or she was paid the minimum wage set out in the regulations under the Employment Standards Act less the amount of room and board allowance prescribed in those regulations.

CLASSIFICATION OF WAGE RATES

10. For the purpose of this Contract, the following interpretations apply:

(1) (a) Employees, other than students, learning to operate equipment are classified as "apprentice equipment operators" during their first three months operating equipment which does not require a licensed operator or during their first eighteen months operating equipment which requires a licensed operator.

(b) The wages for apprentice equipment operators are as follows:
(i) Windsor Zone - wage rate for Cement Improver;
(ii) Hamilton Zone - wage rate for Asphalt Raker;
(iii) Toronto Zone - wage rate for Asphalt Raker;
(iv) Ottawa Zone - wage rate for Skilled Labourer;
(v) Provincial Zone - wage rate for Skilled Labourer.

(2) Employees other than an operator are to be classified as "Pile Driver Operators" and shall be entitled to the wage rate for "Labourer - Structure Section".

(3) Employees engaged as Gravel and Chip Spreaders shall be paid the wage rate of Equipment and Maintenance Operator, Group "B".

(4) The attachment for a farm or industrial tractor must be power operated and be an integral part of the tractor.

(5) (a) Students employed as flagpersons or watchpersons shall be entitled to the wage rate for those classifications.

(b) Students performing work in positions that are classified in the Fair Wage Schedule, other than flagpersons or watchpersons, shall be entitled to receive the student rate, notwithstanding the rate set out in Schedule for the classification applicable to the work.

(c) Students employed for more than three months in a classified position shall then be entitled to the wage rate for that classification.

(d) Students performing work in positions that are not classified in the Fair Wage Schedule shall be entitled to receive the student rate, regardless of the location of the Contract.

DISCRETION OF THE MINISTER OF LABOUR

11. (1) The Ontario Minister of Labour may decide that special circumstances exist which make it expedient for him/her to decide:

(a) what the current or fair and reasonable wage rates for overtime are; and/or

(b) the proper classification of any Work for the purposes of wages and hours.

(2) The Contractor and Sub-Contractor(s), upon receipt of notice of any decision of the Ontario Minister of Labour, shall adjust accordingly the wage rates, hours, classification of Work so as to give effect to such decision.

CONTRACTOR'S OBLIGATIONS

12. The Contractor must comply with the requirements set out in these Labour Conditions.

13. (1) The Contractor shall post and keep posted these Labour Conditions, and the applicable Road and Structure Fair Wage Schedule, and any revisions thereto, in a conspicuous place on the Site.

(2) The Contractor shall ensure that the posted applicable Schedule includes a breakdown of the wages and non-statutory benefits paid to the Employees of the Contractor and each Sub-Contractor electing to pay the Fair Wage Rates in accordance with Section 6(2).

14. (1) The Contractor shall keep proper records showing the names, trades and addresses of all of the Contractor's Employees who perform any part of the work contemplated by this Contract and the wages paid to and time worked by them, as well as the Contractor's costs for all non-statutory benefits where the Contractor chooses to pay its Employees Fair Wages in accordance with Section 6(2).

(2) The records referred to in subsection (1) shall be kept separate from any records concerning Employees of the Contractor who do not perform any part of the work contemplated by this Contract.

(3) The records referred to in subsection (1) shall be kept in the Province of Ontario and made available for inspection by the Owner's Representative upon request, whether or not any Employee has complained that he or she is not being paid in accordance with section 6.

15. The Contractor shall deliver to the Owner's representative an affidavit or declaration attesting to the Contractor's compliance with these labour conditions accompanying the final invoice to be delivered under this Contract.

CONTRACTOR'S OBLIGATION WITH RESPECT TO SUB-CONTRACTORS

16. (1) The Contractor is responsible for ensuring that Sub-Contractors under the Contractor and any other persons doing or contracting to do the whole or any part of the work contemplated by this Contract under the Contractor comply with these Labour Conditions.

(2) The Contractor must provide all Sub-Contractors with a copy of these Labour Conditions and the applicable Schedule before any work is performed by the Sub-Contractor.

17. Without restricting the generality of Section 16(1), if any Sub-Contractor under the Contractor or any other person doing or Contracting to do the whole or any part of the work contemplated by this Contract under the Contractor fails to pay wages to an Employee of the Sub-Contractor or other person in accordance with section 6, the Contractor shall pay directly to the Employee, regardless of whether or not monies are still owed by the Contractor to the Sub-Contractor, the difference between the amount of wages that the Employee was paid by the Sub-Contractor or other person and the amount of wages that he or she would have been paid had the Sub-Contractor or other person paid wages in accordance with section 6.

18. The Contractor shall, in any Contract with a Sub-Contractor or other person doing or contracting to do the whole or any part of the work contemplated by this Contract who employs an Employee, require the sub-Contractor or other person,

    (a) to pay the Employee in accordance with section 6 of these labour conditions;

    (b) to keep proper records showing the names, trades and addresses of all Employees who perform any part of the work contemplated by this Contract and the wages paid to and time worked by them, as well as the Sub-Contractors's costs for all non-statutory benefits where the Sub-Contractor chooses to pay its Employees Fair Wages in accordance with Section 6(2);

    (c) to keep the records referred to in clause (b) separate from any records concerning Employees who do not perform any part of the work contemplated by this Contract;

    (d) to keep the records referred to in clause (b) in the Province of Ontario and to make them available for inspection by the Contractor and/or the Owner's representative upon request, whether or not any Employee has complained that he or she is not being paid in accordance with section 6; and

    (e) in any Contract with any other person doing or Contracting to do the whole or any part of the work contemplated by this Contract who employs an Employee, to require that other person to assume the same obligations in relation to his, her or its Employees as the Contractor is required by this section to require parties with whom the Contractor Contracts to assume in relation to their Employees.

CLAIM PROCEDURE

19. (1) Wage claims with respect to Contracts issued by the Owner should be made directly to the Owner's Representative.

    (2) An Employee employed by the Contractor shall file his/her completed form regarding a Fair Wage complaint with the Owner's Representative at the earliest time but no later than forty-five (45) days following total completion of the Contract, as defined in the Construction Lien Act.

    (3) An Employee employed by a Sub-Contractor shall file his/her completed form regarding a Fair Wage complaint with the Owner's Representative at the earliest time but no later than forty-five (45) days following total completion of the relevant sub-contract, as defined in the Construction Lien Act.

(4) Third parties may assert a Fair Wage complaint on the Owner's prescribed form on behalf of an Employee where it is based on specific information.

20. In addition to, or alternately to Section 19, an Employee may file a lien claim for wages, in respect of a failure to comply with any requirements under Section 6, under the Construction Lien Act. These lien claims must be filed directly with the Owner.

21. Claims made with respect to Contracts issued by municipalities should be made directly to them under the provisions of the Construction Lien Act.

OWNER'S RIGHT TO HOLD BACK

22. (1) If the Owner receives a complaint that an Employee is not being paid in accordance with section 6 or if Owner finds that an Employee is not being paid in accordance with section 6, the Ministry may withhold from any money that it owes to the Contractor an amount equal to the amount that the complainant alleges is owing or that the Owner has found to be owing to the Employee.

(2) Subsection (1) applies even though the Employee is not the Employee of the Contractor.

(3) The Owner is not required to disclose the identity of a complaining Employee unless the Owner finds that the Employee has not been paid by his or her employer in accordance with section 6 and that Employee is the only Employee of the employer who has not been so paid.

(4) An amount withheld under subsection (1) because the Owner received a complaint that an Employee was not being paid in accordance with section 6 will be paid to the Contractor if,

(i) the Owner finds that the Employee was in fact being paid in-accordance with section 6; or

(ii) the Owner finds that although the Employee was not being paid in accordance with section 6, the Employee has subsequently been paid the difference between the amount of wages that he or she had been paid and the amount of wages that he or she would have been paid had he or she been paid in accordance with section 6.

(5) If the Owner has found that an amount is owing to an Employee, and that amount has not been paid within 105 days of the completion of the work to be performed under this Contract, the amount withheld may be forfeited to the Crown at the discretion of the Owner in which case the entitlement of the Contractor under this Contract is reduced by the amount forfeited.

FAIR WAGE SCHEDULE
ROADS AND STRUCTURES CONSTRUCTION, ONTARIO
PROVINCIAL ZONE

ROAD BUILDING SECTION

CLASSIFICATION OF LABOUR	**Fair Wage Rate Per Hour not less than:**
	Effective Date: April 1, 1995
LICENSED OPERATORS	$13.83
LICENSED MECHANICS AND WELDERS, CLASS "A"	12.99
EQUIPMENT AND MAINTENANCE OPERATORS, GROUP "A"	12.85
EQUIPMENT AND MAINTENANCE OPERATORS, GROUP "B"	12.20
SKILLED LABOURERS	11.69
TRUCK DRIVERS - Tow Tractor Operators - Rollermen (Grade)	11.48
LABOURERS	11.19
FLAGPERSON	9.40
WATCHPERSON	9.40
STUDENTS (registered in day school)	9.04

STRUCTURE SECTION

CARPENTERS, FORM BUILDERS	13.83
RODMEN, CONCRETE FINISHERS, PAINTERS	12.69
STRUCTURE LABOUR OPERATIONS	11.34
STRUCTURAL TRAINEES	11.48

CLASSIFICATION DEFINITIONS:

Licensed Operators: Includes Shovel, Clam, Gradall, Backhoe, Dragline, Piledriver Operator.

Equipment and Maintenance Operators, Group A: Includes Mechanic and Welder, Class B, Rollerman - Asphalt, Burnerman, Powerman, Boiler Engineer (with papers). Float Driver (over 25 tons), Concrete Paver (over 1 cu. yd.), Bulldozer (75 Drawbar HP and over), Grader, Class A (Finished Grading), Front End Loader (1-1/2 yds. and over), Scraper, Crusher, Asphalt Spreader Operator.

Equipment and Maintenance Operators, Group B: Includes Boiler Fireman, Mixerman, Float Driver (25 tons and under), Front End Loader (under 1-1/2 yds.) Grader, Class B (Gravel and other Grading), Farm and Industrial Tractor with Power Attachments, Driller (Air Track), Bulldozer (under 75 Drawbar HP) Operator.

Skilled Labourers: Includes Air Tool Operator, Asphalt Raker, Form Setter, Pipe Layer, Screedman.

Structure Labour Operations: Includes Labourers on Structures.

Structural Trainee: Means an Employee who is enrolled in the Ontario Road Builders Association Pilot Training Programme.

SECTION C
LIQUIDATED DAMAGES

Working Days and Charges

1. Time

Time shall be of the essence for carrying out and completing the Work.

2. Progress of the Work and Time for Completion

The charging of Working Days shall commence on **13 May 2019** and the Contractor shall diligently carry out the Work on this Contract to completion on or before the expiration of **95** Working Days from the date of commencement.

If the time limit specified above is not sufficient to permit completion of the Work by the Contractor working a normal number of hours each Day or week on a single daylight/night shift basis, it is expected that additional and/or augmented daylight and night shifts will be required throughout the life of the Contract to the extent deemed necessary by the Contractor to ensure that the Work will be completed within the time limit specified. Any additional costs occasioned by compliance with these provisions will be considered to be included in the prices bid for the various items of work and no additional compensation will be allowed therefore.

Working Days shall be charged until the Contract is complete in its entirety.

3. Working Day

3.1 Definition

The definition of "Working Day" in subsection GC 1.07, Definitions, of the MTO General Conditions of Contract, November 2016, is amended by the addition of the following:

d) Except any day between **02 Dec 2019 to 17 May 2020** inclusive, even though the Contractor may elect to carry out any approved work as called for under this Contract during this period.

e) Except when hot mix paving is the Controlling Operation in the fall and it is expected to remain the Controlling Operation until seasonal shutdown, the Contractor may request permission to shut down the paving operation prior to **02 Dec 2019**. The Contract Administrator will consider the circumstances at the time the request is made, including but not limited to the need to provide a safe roadway for the winter or to cover a granular grade. If permission is granted, the Contract Administrator will cease charging Working Days on the date when the Contractor shuts down the paving operation for the winter.

3.2 Statement of Record of Working Days

The Contract Administrator will furnish to the Contractor for the Contractor's signature a weekly "Statement of Record of Working Days". The Contractor will be allowed two weeks in which to file a written protest setting forth in what respects the said weekly statement is incorrect, otherwise, the statement shall be deemed to have been accepted by the Contractor as correct.

4. Liquidated Damages

It is agreed by the parties to the Contract that in case all the Work called for under the Contract is not finished or completed within the number of Working Days as set forth in the Special Provisions or as extended according to subsection GC3.06, Extension of Contract Time or Interim Completion Dates, of MTO General Conditions of Contract, November 2016, a loss or damage will be sustained by the Owner. Since it is and will be impracticable and extremely difficult to ascertain and determine the actual loss or damage which the Owner will suffer in the event of and by reason of such delay, the parties hereto agree that the Contractor will pay to the Owner the sum of **$2,100.00** as liquidated damages for each and every Day's delay in completing the Work in excess of the number of Working Days prescribed. It is agreed that this amount is an estimate of the actual loss or damage to the Owner which will accrue during the period in excess of the prescribed number of Working Days.

The Contractor shall incur interest on Liquidated Damages and pay such interest in accordance with GC 7.19. For greater certainty, the Owner may also retain interest charges from monies owing to the Contractor under GC 8.02.04.11 (Owner’s Set-Off).

ASSISTANT DEPUTY MINISTER,
PROVINCIAL HIGHWAYS MANAGEMENT DIVISION
MINISTRY OF TRANSPORTATION, ONTARIO