

**THE CORPORATION OF THE
TOWNSHIP OF ADJALA-TOSORONTIO**

TENDER FOR:

**SUPPLY AND APPLY GRANULAR M GRAVEL
CONTRACT #2020-05**

**CLOSING DATE: Wednesday, March 25, 2020
1:00 PM**

***LOWEST OR ANY TENDER BID NOT NECESSARILY ACCEPTED**

Township of Adjala-Tosorontio
7855 Sideroad 30
Alliston, Ontario
L9R 1V1
tel: (705) 434-5055
fax: (705) 434-5051

TOWNSHIP OF ADJALA-TOSORONTIO

GENERAL CONDITIONS OF TENDER

1 SCOPE OF WORK

1:1 Each Tenderer is required, before submitting a Tender, to examine and be satisfied as to the general area of the Township, where the work is to be performed, and be satisfied as to all conditions that may be encountered during the performance of the work.

A map of the primary project locations is included with this document. However, the Township reserves the right to revise, increase or decrease project locations as may be required, due to project needs and or budget.

1:2 The signed Tender shall be taken as a statement that the Tenderer understands the Scope of Work and all Specifications and agrees to comply with same and all terms and conditions stated in the Tender document.

1:3 No claims will be allowed after submission of a Tender, or award of a contract on the basis that there was misunderstanding of the terms and conditions or specifications or for any other reason.

2 SUBJECT OF APPROVAL

2:1 The Contract is subject to the approval of the Council of the Corporation of the Township of Adjala-Tosorontio.

2:2 The Tenderer is advised the Tender Price shall remain in effect for ninety (90) days from Tender Closing, until award of a contract. Once a contract is awarded, the Tender Price shall remain in effect for the term of the contract.

3 DELIVERY AND CLOSING OF TENDERS

3:1 Tenders must be completed on the Tender Form supplied and MUST be submitted in the sealed envelope provided with the Tender or in a sealed, plain envelope clearly marked as to the Contract number.

3:2 Tenders will be received by the Township of Adjala-Tosorontio at the Municipal Office located at 7855 Sideroad 30, Alliston, Ontario, before the specified closing date and time. Time shall be recorded at the Township offices.

3:3 The Tender form must be fully legible, signed by each bidder, and witnessed in the spaces provided thereon. If a bidder is a corporation, the proper signing officers must sign the tender form, and the corporate seal must be affixed thereto.

4 TENDER DEPOSIT

- 4:1 When requested, the Tender must be accompanied by a Tender Deposit for a specified amount in the form of a certified cheque payable to the Township of Adjala-Tosorontio. The Tender Deposit of the two (2) bidders considered to be the principal contenders will be retained until final receipt of all duly executed documents from the successful contractor, at which time the Tender Deposit of the unsuccessful contractor will be returned. All other deposits will be returned within fifteen (15) days of the tender closing. Notwithstanding the foregoing, if the successful bidder defaults in entering into the contract, the tender deposit will be forfeited to the Township and the Township will be entitled to resort to another bidder.
- 4.2. The Tender Deposit of the successful bidder will be retained by the Township until the Township is satisfied that the work to be performed pursuant to the Tender has been satisfactorily completed. In the event of any default by the contractor which the contractor has failed to remedy, after being given reasonable notice as defined by the Township, or in the event of any monies that may be owed to the Township by the contractor, the Township will be entitled to utilize the Tender Deposit and apply it to such amount as is outstanding by the contractor to the Township. Upon the Township being satisfied that the tender work has been satisfactorily completed, the Tender Deposit, or the amount thereof remaining, if any, will be returned to the contractor.

5 DISQUALIFICATION OF TENDERS

- 5:1 Under no circumstances will a Tender be considered which is received after the specified time on the closing date specified herein.

6 WITHDRAWAL OR QUALIFYING OF TENDERS

- 6:1 A Tenderer who has already submitted a Tender may submit a further Tender at any time up to the official closing time. The last Tender received shall supersede all Tenders previously submitted by the Tenderer for this Contract.
- 6:2 A Tenderer may withdraw or qualify his tender at any time up to the official closing time, by submitting a letter bearing his signature and seal as his Tender to the point of Tender delivery where the time and date of receipt will be recorded and the letter placed with the other tenders. No telegrams, faxes, emails or telephone calls will be considered.

7 INFORMAL OR UNBALANCED TENDERS

- 7:1 The Tenders must be clearly legible and all blanks filled in. Tenders may be rejected as informal if there are any of the following:
- i) incomplete;
 - ii) conditional;

- iii) obscure;
- iv) containing conditions not called for;
- v) containing erasures;
- vi) containing alterations; and
- vii) containing irregularities

7:2 All information required must be provided.

7:3 Tenders that contain prices, which appear to be so unbalanced, as likely to adversely affect the interests of the Township, may be rejected.

8 DISCREPANCIES AND ADDENDA

8:1 Should a Tenderer find discrepancies or omissions in any of the drawings, specifications, or tender documents, or should tenderer doubt the meaning, or interpretation of any aspect of the works, the Tenderer should notify the Public Works Supervisor of Operations and Maintenance, who may send written instruction to all Tenderers in the form of an addenda or clarification.

8:2 Any and all addenda or clarification to the Form of Tender or the Specifications, which may be sent to bidders during the tendering period, shall be considered part of the Contract documents and shall be acknowledged as having been received on the Form of Tender in the space provided. All addenda and clarifications will be posted on the Townships website. It is the Tenderers responsibility to check the website from time to time to become aware of such addenda or clarifications.

8:3 The Township shall not be liable for any information, advice, or errors which may occur due to third parties.

9 ACCEPTANCE OR REJECTION

9:1 The Township reserves the right to reject any or all tenders, not necessarily accept the lowest tender, or to accept any tender or revised tender which it may consider to be in its best interest. While the lowest tender will be of prime consideration in determining which tender offers the best value to the Township, the Township's assessment of the bidders overall competence, past performance, and capability to perform the contract will be critical factors in the selection of a successful bidder.

10 PERMITS

10:1 The Tenderer shall obtain and pay for (at no expense to the Township) all licenses or permits required by law, statute or regulations made thereunder.

11 SURETY AND BOND

- 11:1 When requested, the Tenderer shall provide a performance bond or irrevocable letter of credit for the amount specified by the Township to ensure the complete execution and fulfillment of the contract.
- 11:2 The expense of preparing the bond or letter of credit and executing the same is to be borne by the Tenderer.
- 11:3 The Tenderer shall provide satisfactory assurance on each anniversary date of the Contract, that the bond has been renewed for the following year. Failure to do so may, at the option of the Township, result in forfeiture of the Contract.

12 INSURANCE

- 12:1 The successful bidder will be required to provide a certified copy of a comprehensive policy of public liability and property damage insurance as specified in the General Conditions of Contract GC6.03, Contractor's Insurance, of the Ontario Provincial Standards, OPSS.MUNI 100, dated November 2019.

During the term of the contract, the vendor shall obtain and maintain at its own expense, a policy or policies of commercial general liability insurance insuring against damage or injury to persons or property with limits of not less than \$5,000,000.00 per occurrence or such greater amount as the Township may from time to time request.

And that any and all insurance policies required to be provided under Section GC6.03 identified above shall include the Township of Adjala-Tosorontio as an additional insured.

If the delivery site is adjacent to a roadway under the jurisdiction of another authority such as the County or Province, the adjacent authority shall also be listed as additional insured

13 WORKER'S COMPENSATION

- 13:1 The Tenderer shall, at the time of entering into the Contract with the Township, make a Statutory Declaration that all assessments or compensations payable to the Workers' Compensation Board have been paid, and the Township may, at any time during the performance or upon completion of such Contract, require a statement from the Workers' Compensation Board that such assessments or compensations have been paid.
- 13:2 The Tenderer, shall at all times, pay or cause to be paid any assessment or compensation required to be paid pursuant to the Workers' Compensation Act, and upon failure to do so, the Township may pay such assessment or compensation to the Workers' Compensation Board, and shall deduct or collect such expenses under the provisions of Section 9 of the Act.

13:3 The Tenderer must provide Legal Business name, Registered business number and WSIB number.

14 OCCUPATIONAL HEALTH AND SAFETY ACT

14:1 The Tenderer covenants that all his employees are knowledgeable in, and follow the regulations, which pertain to their duties, which are included in the Occupational Health and Safety Act (R.S.O.) 1990, as amended.

14:2 The Tenderer covenants and agrees to observe strictly and faithfully the provisions of the Occupational Health and Safety Act (R.S.O.), 1990, as amended and all regulations and rules promulgated thereunder.

14:3 The Tenderer agrees to indemnify and save the Township, its servants or agents, harmless for damages or fines arising from and breaches of Occupational Health and Safety Act (R.S.O.), 1990, as amended.

14:4 The Tenderer further acknowledges and agrees that any breach or breaches of the Occupational Health and Safety Act (R.S.O.), 1990, as amended, whether by the Contractor or any of its Sub-Contractors may result in the immediate termination of this Contract and the forfeiture of all sums owing to the Contractor by the Township.

14:5 The Tenderer shall include health and safety provisions in their management systems to reach and maintain consistently high level of health and safety.

15 PROOF OF ABILITY

15:1 Bidders shall be competent and capable of performing the scope of work as specified.

15:2 The successful tenderer may be required to provide a copy of his current financial statement to assist in evaluating his tender.

15:3 It is the intent not to award this Contract to any bidder who cannot furnish satisfactory evidence of sufficient expertise and experience and does not have sufficient capital and plan to facilitate successful completion of the Contract.

16 FORMATION OF CONTRACT

16:1 Notice of award of Tender from the Township shall constitute formation of a contract, with all terms of the Tender document forming part of the Contract.

17 TERM OF CONTRACT

17:1 The term of the Contract shall be for the duration that the service is provided to fulfill the desired goal of the Tender. Failure to meet the conditions of the Tender shall

render the Contract null and void. The Township may request multi-year pricing, but at its sole discretion, may award a contract for a single year or multiple years.

18 CONTRACTOR'S LIABILITY

18:1 The Tenderer, his agents, and all workers and persons employed by the Tenderer, or under the control of the Tenderer, including sub-contractors, shall use due care to ensure that no person or property suffers injury or loss and no rights are infringed, as a result or by reason of the prosecution of the works or operations of the Tenderer under this agreement or the existence location or condition of any vehicles, machinery, plant or materials used therein or due to the failure, neglect or omission of the Tenderer or any of the persons set out above to do or perform any or all of the acts or things agreed to be done or performed under this agreement.

18:2 The Tenderer shall be solely responsible for all damages by whomsoever claimable in respect of any such loss, injury or infringement of rights.

18:3 The Tenderer shall assume the defense of, indemnify and save the Township, its agents, officers, and employees harmless from any and all claims, demands, loss, damages, actions, suits or other proceedings (and any costs, expenses thereby incurred by the Township) by whomsoever made, brought or prosecuted in any manner based upon, occasioned by, or attributed to any such loss, injury, or infringement.

19 ASSIGNMENT AND SUB-LETTING

19:1 The Tenderer shall not assign or sub-let the Contract or any part thereof or any benefit of interest therein, or thereunder, without the prior written consent of the Township. The Tenderer shall be held fully responsible to the Township for the acts and omissions of its sub-contractors and of persons directly or indirectly employed by it as for the acts and omissions of persons directly employed by it.

20 MONIES DUE TO THE TOWNSHIP

20:1 All monies payable to the Township by the Contractor under any stipulation herein, or to the Worker's Compensation Board, as provided thereunder, may be retained out of any monies then due or which may become due from the Township to the Contractor under the Contract or any other contract with the Township, or otherwise howsoever.

21 LIENS

21:1 The Tenderer, its executors, administrators, successors and assigns shall fully indemnify the Township and all officers, servants, and employees of the Township for any and all liability or expenses by way of legal costs or otherwise in respect of any claim which may be made for a lien or charge at law or in equity or to any claim or liability under the Construction Lien Act or to any attachment or debt, garnishee process or otherwise. The Township shall not in any case be liable to any greater extent than the amount

owing by it to the Tenderer, the Tenderer's executors, administrators, successors, and/or assigns.

22 PERSONNEL

22:1 The Tenderer shall employ only orderly and competent persons to do the work. Should the Public Works Supervisor of Operations and Maintenance inform them in writing that any person or persons on the work are, in the opinion of the Township, incompetent or disorderly such person or persons shall be discharged from the work and shall not again be employed on the work without the prior consent in writing from the Public Works Superintendent.

22:2 Tenderer's personnel shall be required to be neat, respectful, and courteous at all times and shall perform their duties in a manner, which shall present a high level of public relations for the Tenderer and the Township.

22:3 In the event that any person employed by the Tenderer in connection with work arising out of this Contract gives, in the opinion of the Public Works Supervisor of Operations and Maintenance just cause for complaint, the Tenderer upon notification by the Public Works Supervisor of Operations and Maintenance, in writing, shall not permit such person to continue in any future arising out of this contract.

23 OTHER RIGHTS

23:1 The Tenderer, the Tenderer's agents and all workers and persons employed by the Tenderer or under the Tenderer's control shall use due care that no person is injured, and that no property is damaged in the prosecution of the work and the Tenderer shall be solely responsible for all damages to person or property including theft, whether the property is owned by the Township or any of its employees.

23:2 The Public Works Supervisor of Operations and Maintenance may delegate any or all authority given him/her herein to any person and upon any such delegation to the person whom the delegation is made shall have the power and authority given herein in respect of the delegation.

24 NOTICE TO TENDERER

24:1 Any notice under this Agreement shall be sufficiently given by personal delivery or by registered letter, postage prepaid and mailed in a Canadian Post Office, addressed, in the case of notice to the Township, as follows:

The Corporation of the Township of Adjala-Tosorontio
7855 Sideroad 30
Alliston, ON L9R 1V1

24:2 Verbal or telephone notice shall be confirmed in writing.

25 COMPLIANCE

- 25:1 Federal, Provincial and Municipal laws and regulations now or hereafter enacted shall be complied with by the Tenderer in the performance of and fulfillment of its obligations under the Contract.
- 25:2 The Tenderer is assumed to be familiar with all such laws and regulations which in any manner affect those engaged or employed in the work, facilities or equipment used in the fulfillment of the Contract or which in any way affect the conduct of the work and no plea of misunderstanding will be considered on account of ignorance thereof.
- 25:3 Documented evidence may be requested, to be filed with the Township indicating that necessary permits and licenses are valid and current.
- 25:4 The successful Tenderer must arrange his operations so as to conform to any Anti-Noise by-law that may be enacted within the Township.
- 25:5 If the Tenderer shall discover any provision in the specifications or Contract which is contrary to or inconsistent with any laws or regulations, he shall forthwith report it to the Public Works Supervisor of Operations and Maintenance in writing, prior to the closing of the tender.

26 TENDER CONFIDENTIALITY

- 26:1 The Township of Adjala-Tosorontio will consider all tenders as confidential, subject to the provisions set out in the Municipal Freedom of Information and Protection of Privacy Act. The names of the Tenderers, unit prices and the total amount of the tenders will be made available to the public.

27 ACCESSIBILITY

- 27:1 The Township is committed to the accessibility principles of preventing and removing barriers in accessing goods and services for people with disabilities and is bound by the Standards under the Accessibility for Ontarians with Disabilities Act, 2005 as may be amended from time to time.
- 27:2 Regulations enacted under the Act apply to every designated public sector organization and other third parties that provide goods and services to the members of the public.
- 27:3 The consultant/contractor, and all sub-contractors hired by the consultant/contractor in the completion of its work, will meet or exceed compliance with all applicable regulations under the Accessibility for Ontarians with Disabilities Act, 2005 as may be amended from time to time.
- 27:4 It is the consultant/contractor's responsibility to ensure they are fully aware of, and meet all requirements under the Act.

27:5 Upon request, the Township will provide or arrange for the provision of accessible formats and communication supports for persons with a disability in a timely manner. Please contact the Clerk's Department if you wish and accessible format or communication support.

TOWNSHIP OF ADJALA-TOSORONTIO

GENERAL CONDITIONS OF TENDER

I/We, _____ the applying Tenderer, having carefully examined
Print name

the conditions of the attached Tender information including familiarizing myself with the Township area involved, and do hereby tender to supply all necessary labour, material and equipment to fulfill the Contract obligations.

Tenderer Signature

Date

Witness

Date

**** SUBMIT THIS PAGE **.**

**THE CORPORATION OF THE TOWNSHIP OF
ADJALA-TOSORONTIO**

**SUPPLY AND APPLY GRANULAR M GRAVEL
CONTRACT #2020-05**

GENERAL

For the Purpose of this contract, the provisions of the Ontario Provincial Standards and Specifications - General Conditions of Contract (November 2019) and Construction Specifications (OPSS.MUNI 314, November 2019) and Material Specifications (OPSS.MUNI 1010, November 2013) shall apply along with any referenced OPSS contained therein unless specifically noted otherwise.

SCOPE

The scope of OPSS.MUNI 314 and OPSS.MUNI 1010 are amended as follows:

This specification covers the Township's requirements for supplying, crushing as required, hauling, placing, spreading and shaping Granular M material at specified Township locations.

The scope is further amended by highlighting that Quality Assurance testing performed by or on behalf of the Township will form the basis for the acceptance of the material. Any material that fails the required testing shall either be removed and replaced at no expense to the Township or, under certain conditions, shall be subject to reduced payment as established by the Township.

In accordance with OPSS.MUNI.1010.01.02, test data forms 1010-D and 1010-E shall be invoked for this contract.

QUALITY ASSURANCE

1010.08.01

Quality Assurance shall be carried out by the Owner through their testing subconsultant. All samples will be tested at a laboratory certified by the Canadian Council of Independent Laboratories for the tests conducted.

Quality Assurance will be confirmed by the Owner testing the material at the Contractor source(s) of supply (Pit) and/or at any delivery location at the owner's discretion.

The Contractor shall allow the owner and/or their representative access to all sources, locations, or facilities where material will be produced or stockpiled for use in this contract.

SAMPLING

1010.08.03

Samples shall be randomly conducted by the Owners Quality Assurance testing consultant. The contractor may take their own Quality Control samples at their discretion.

A sample from a Lot may be obtained from the source (Pit) or from a load as delivered and placed or both.

A Lot shall be defined as follows:

For the purposes of Physical Properties testing a Lot shall be 10,000 tonnes and sampling will be completed before any material is delivered and subsequently after every 10,000 tonnes.

For the purposes of Production Properties testing a Lot shall be 2500 tonnes. Sampling and testing will be completed before any material is delivered and subsequently after every 2500 tonnes is delivered.

Sampling shall be in accordance with MTO standard LS-625 for stockpile, delivery or road sample as applicable.

Testing will be completed for physical properties (OPSS.1010 Table 1) and gradation requirements (OPSS.1010, Table 2)

ACCEPTANCE

1010.08.05

OPSS 1010.08.05 shall be deleted in its entirety and replaced with the following:

Where Quality Assurance testing of samples from the Contractors source or (Pit) do not meet specifications, no new material shall be imported from that source until the material is reworked, retested and meets the requirements. Any material placed from that source since the previous successful test shall be subjected to additional on-site testing, removal or payment reduction as may be applicable.

Any additional on-site testing of material already placed required due to failure of a source (Pit) test shall be borne by the contractor with the costs deducted from the payment certificate.

Where the contractor elects to remove non-conforming material under this paragraph, the Contractor may be back-charged for any supervision costs associated with the removal at the sole discretion of the Owner.

Where Quality Assurance testing determines that material already placed does not meet the specifications, the Contractor may request, and the Contract Administrator may allow for payment reduction in lieu of removal subject to the payment reduction criteria set out in this special provision.

OPSS 1010.08.05 shall be amended by the addition of the following:

1010.08.05.01 Acceptance of Physical Properties

The acceptability of a lot for physical properties may result in payment at full price, payment at a reduced price, or rejection.

A lot shall be deemed to be acceptable for physical properties if all the test results for the samples of aggregates representing that lot meet the requirements shown in OPSS.MUNI 1010 Table 1.

If a tested sample of aggregates representing a lot does not meet all of the requirements shown in Table 1, then a reduced price payment of 20% of the tender price shall be given for that lot for physical properties, as long as the lot is not rejectable and the applicable test results for that sample:

- a) Do not exceed the requirement for LS-618 by more than 10% of the specified value.
- b) do not identify plastic fines within the material, when determined according to LS-631 and acceptance test results for LS-602 are not subject to a payment adjustment on the 75 μ m sieve.
- c) meets all other physical property requirements of this specification.

Should the test results for any sample of aggregates representing a lot not meet the requirements listed above, then all of the aggregates within that lot shall be considered rejectable and any of those aggregates used in the Work shall be removed at no cost to the Owner.

The reduced-price payment for the lot given above shall be in addition to any payment reduction determined according to the Acceptance Based on LS-602 and LS-607 clause for production properties.

Irrespective of the negotiation of a reduced-price payment, the warranty provisions of the Contract Documents shall apply.

Acceptance based on percentage of Asphalt Coated Particles in accordance with OPSS.MUNI 1010 Table 1 shall be managed in accordance with Acceptance of Production Properties

OPSS 1010.08.05 shall be amended by the addition of the following:

1010.08.05.02 Production Properties

For each tender item, the Contract Administrator shall estimate the quantities of granular materials obtained from each different source or process. Then, for each of those individual

sources or processes, the Contract Administrator shall identify the number and size of each lot to be sampled as defined elsewhere.

In addition, if circumstances such as the closure of the construction season or changes in production or delivery result in a lot not being completed, then the Contractor shall notify the Contract Administrator.

All lots shall be deemed to be complete at the end of each calendar year.

1010.08.05.02.01 Testing of Production Properties

The QA laboratory shall conduct sieve analysis according to LS-602 and determine test results for each sieve designation shown in OPSS.MUNI 1010 Table 2.

The QA laboratory shall also carry out testing for percent crushed particles according to LS-607, particles with two or more crushed faces according to LS-617, and amount of asphalt coated particles according to LS-621, as applicable.

1010.08.05.02.02 Acceptance of Production Properties

Acceptance Based on LS-602, LS-607, and LS-621.

All lot test results carried out according to LS-602, LS-607, and LS-621 as applicable, shall be computed to one decimal place and reported on the appropriate MTO form by the Contract Administrator, as indicated below:

Granular M PH-D-1M (attached).

The acceptability of a lot based on LS-602, LS-607 and LS-621 may result in payment at full price, payment at a reduced price, or rejection.

A complete or incomplete lot shall be deemed to meet the applicable requirements for LS-602, LS-607, and LS-621 if the test results for that lot is within the limits shown in Table 2 and the range of the test results for that lot is within the limits shown in Table 4 and MTO form PH-D-1M.

Lots that are subject to a total payment adjustment factor of more than 25% are deemed to be rejected and shall be removed from the Work at no cost to the Owner.

When a complete or incomplete lot does not meet the requirements of LS-602, LS-607, and LS-621 is not subject to removal, but the Contractor chooses to use the lot or for some reason it cannot be totally excluded from the Work, then at the request of the Contractor, an adjusted payment calculated according to the following formula shall be allowed in lieu of removal:

$$\text{PAYMENT REDUCTION} = \text{lot quantity (tonnes)} \times \text{item price (\$/tonne)} \times \text{payment adjustment factor (\%)}$$

Where:

The lot quantity shall be expressed in tonnes and the item price shall be the contract price for the items having the tender quantity in tonnes.

The payment adjustment factor, in percent, shall be determined in accordance with PH-D-1M which calculates the sum of the adjustment points determined as follows:

- a) Adjustment points shall be applied for each 0.1% that the gradation falls outside the gradation specification limits for each sieve, according to Table 5.
- b) 0.1 adjustment points shall be applied for each 0.1% that the range exceeds the maximum acceptable range for each sieve.
- c) 0.2 adjustment points shall be applied for Granular M for each 0.1% that the lot falls below the applicable limits for percent crushed.

The reduced-price payment for the lot given above shall be in addition to any payment reduction determined according to the Acceptance of Physical Properties clause.

Table 4
Range Requirements for Gradation
(LS-602)

MTO Sieve	Maximum Acceptable Range						
	Granular						SSM
	A	B Type I	B Type II	B Type III	M	O	
150 mm	-	1	-	1	-	-	1
106 mm	-	-	1	-	-	-	-
37.5 mm	-	-	-	-	-	1	-
26.5 mm	1	-	30.0	-	-	5.0	-
19.0 mm	8.0	-	-	-	1	8.0	-
13.2 mm	20.0	-	-	-	16.0	17.0	-
9.5 mm	20.0	-	-	-	18.0	17.0	-
4.75 mm	18.0	-	22.0	-	18.0	18.0	-
1.18 mm	18.0	-	18.0	-	18.0	12.0	-
300 mm	12.0	50.0	12.0	25.0	12.0	-	-
75 mm	5.0	7.0	5.0	7.0	5.0	4.0	15.0

**Table 5
Adjustment Points**

MTO Sieve Designation	Adjustment Points Per 0.1% Deviation from Specified Limit				
	Granular A	Granular B	Granular M	Granular O	Select Subgrade Material
150 mm	-	0.1 (Note 1)	-	-	0.1
106.5 mm	-	0.1 (Note 2)	-	-	
37.5 mm	-	-	-	0.1	-
26.5 mm	0.1	0.1	-	0.1	0.1
19.0 mm	0.1	-	0.1	0.1	-
13.2 mm	0.1	-	0.1	0.1	-
9.5 mm	0.1	-	0.1	0.1	-
4.75 mm	Excess Passing 0.5 / Insufficient Passing 0.2				0.1
1.18 mm	0.1	0.1	0.1	0.1	0.1
300 mm	0.1	0.1	0.1	-	0.1
150 mm	-	-	-	-	0.1
75 mm	1.0	1.0	1.0	1.0	0.5
Notes:					
1. Granular B Type I and Type III only.					
2. Granular B Type II only.					

TERM

The contract made here under shall be for a term of 1 or 2 years, at the discretion of the Township. It shall come into effect on the date of award and prices shall remain valid until December 31, 2020 (for a one year contract) or December 31, 2021 (for a 2 year contract).

MEASUREMENT FOR PAYMENT

Measurement for payment of granular materials will include only those materials incorporated into the work and accepted by the Township.

- a) Tonne Measurement

BASIS OF PAYMENT

Payment at the unit price bid shall be deemed full compensation for all labour, equipment and material required to complete the work.

**THE CORPORATION OF THE TOWNSHIP OF
ADJALA-TOSORONTIO**

**SUPPLY AND APPLY GRANULAR M GRAVEL
CONTRACT #2020-05**

TENDERING REQUIREMENTS

TENDER DEPOSIT

A certified cheque made payable to the Township of Adjala-Tosorontio in the amount of 10% of the total tender must be submitted with the Tender. The cheque of the unsuccessful bidders will be returned within 15 days of the tender opening. The cheque of the successful bidder will be retained until the Township's acceptance of the work.

Tenders not accompanied by a certified cheque will not be considered.

FUEL SURCHARGES AND TAXES

The Tenderer shall pay all taxes under existing legislation on the fuels and materials used by him in the performance of the contract. The Tenderer undertakes not to make any claim for refund of taxes paid by him or a Subcontractor on any fuel and materials used for any purpose whatsoever in the performance of the contract unless such refund is specifically authorized under existing legislation.

COMPLETION

Time shall be of the essence of this agreement.

PAYMENTS

The Township will make payments based on material delivered to each project site or on a monthly basis at the Townships discretion.

WEIGHING

Weighing shall be carried out in accordance with the Ontario Provincial Standard Specifications. Load Tickets shall be provided to the Owner or the Owner's representative at the time and place of delivery. The Township may reject any materials delivered to site not accompanied by load ticket.

DELIVERY

The successful contractor shall deliver materials within 24 hours of notice. All deliveries shall be made to the specified location and placed as directed.

**THE CORPORATION OF THE TOWNSHIP OF
ADJALA-TOSORONTIO**

SUPPLY AND APPLY GRANULAR M GRAVEL

CONTRACT #2020-05

CLOSING DATE: 1:00 PM, March 25, 2020

The Bidder has carefully examined this Tender and all of its attachments, enclosures and addendum, and has carefully examined the site(s) and the location(s) of the work to be done under this Contract and the Bidder understands and accepts the said Tender and all of its attachments, enclosures and addendum, for the prices set forth in this Tender, and hereby offers to furnish all machinery, tools, apparatus and other means of construction, and furnish all materials except as otherwise specified in the Contract, and to complete the work in strict accordance with this Tender and all of its attachments, enclosures and addendum.

Attached to this Tender submission is a certified cheque in the amount specified in the Tendering Requirements made payable to the Township of Adjala-Tosorontio. The proceeds of this cheque shall, upon acceptance of this Tender, constitute a deposit which shall be forfeited to the Township if the Contractor fails to file with the Township an executed Form of Agreement for the performance of the work, prepared by the Township, in accordance with this Tender and all of its attachments enclosures and addendum, within 15 days from the date of the acceptance of this Tender.

It is agreed that the tender quantities are estimated only and may be increased or decreased by the Municipality without alterations of the contract price, as may be reasonable under the circumstances.

Notification of Acceptance may be given by prepaid post, addressed to the Tenderer at the address contained in this Tender.

**THE CORPORATION OF THE TOWNSHIP OF
ADJALA-TOSORONTIO**

**SUPPLY AND APPLY GRANULAR M GRAVEL
CONTRACT #2020-05**

MATERIALS TO BE APPLIED TO SPECIFIED ROADS AT THE DISCRETION OF THE
PUBLIC WORKS SUPERVISOR OF OPERATIONS AND MAINTENANCE

SUPPLY AND APPLY GRAVEL								
	ITEM	UNIT	ESTIMATED 2020 QTY	UNIT PRICE	2020 TOTAL	ESTIMATED 2021 QTY	UNIT PRICE	2021 TOTAL
1	GRANULAR "M"	tonne	14,000			14,000		
				Total			TOTAL	

- Unit price will include all surcharges and any additional surcharges which may apply
- Applicable taxes are extra

Early Payment discount: I/WE (The Tenderer) will offer a _____% discount for prompt payment of invoices within _____ days.

Optional Pricing: I/WE (The Tenderer) will offer a _____ % unit price discount for material delivery north of Highway 89.

Optional Pricing: I/We (The Tenderer) will offer a _____ % unit price discount for material delivery south of Highway 89.

I/WE (The Tenderer) promise to commence work on _____ and to diligently perform the work continuously without undue delay. Aggregate delivery dates to be determined at the discretion of the Public Works Supervisor of Operations and Maintenance, providing reasonable notice to the tenderer.

**** SUBMIT THIS PAGE ****

Legal Business Name ("The Tenderer")

ADDRESS _____

POSTAL CODE _____ PHONE NUMBER _____

REGISTERED BUSINESS NUMBER _____

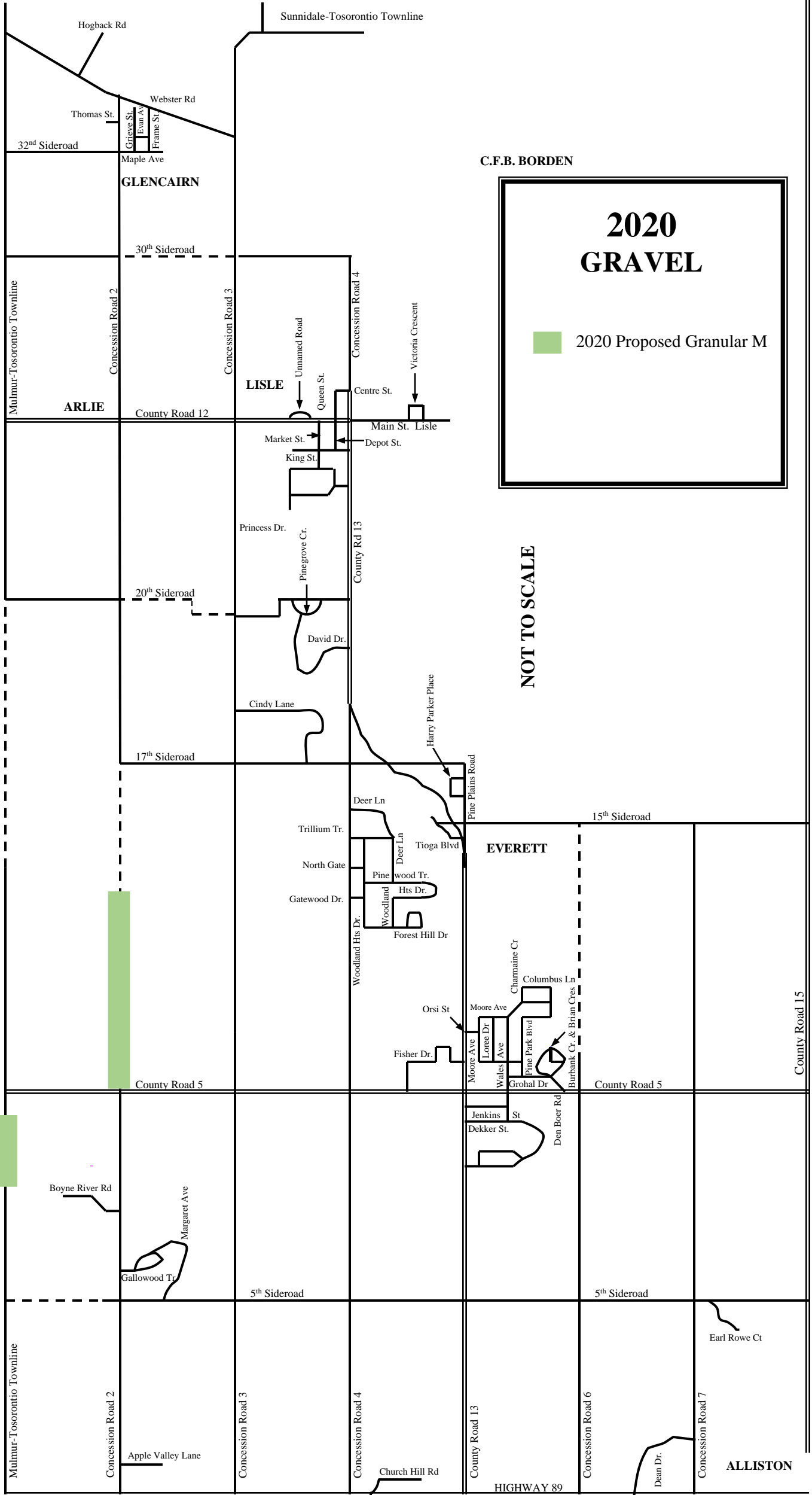
WSIB NUMBER _____

Authorized Person Signing for Firm (Print)

Signature

**NOTE: All amounts are to be shown in figures. In case of a discrepancy, the unit price shall govern.
Bid must be for ALL items identified on Tender**

**** SUBMIT THIS PAGE ****



C.F.B. BORDEN

**2020
GRAVEL**

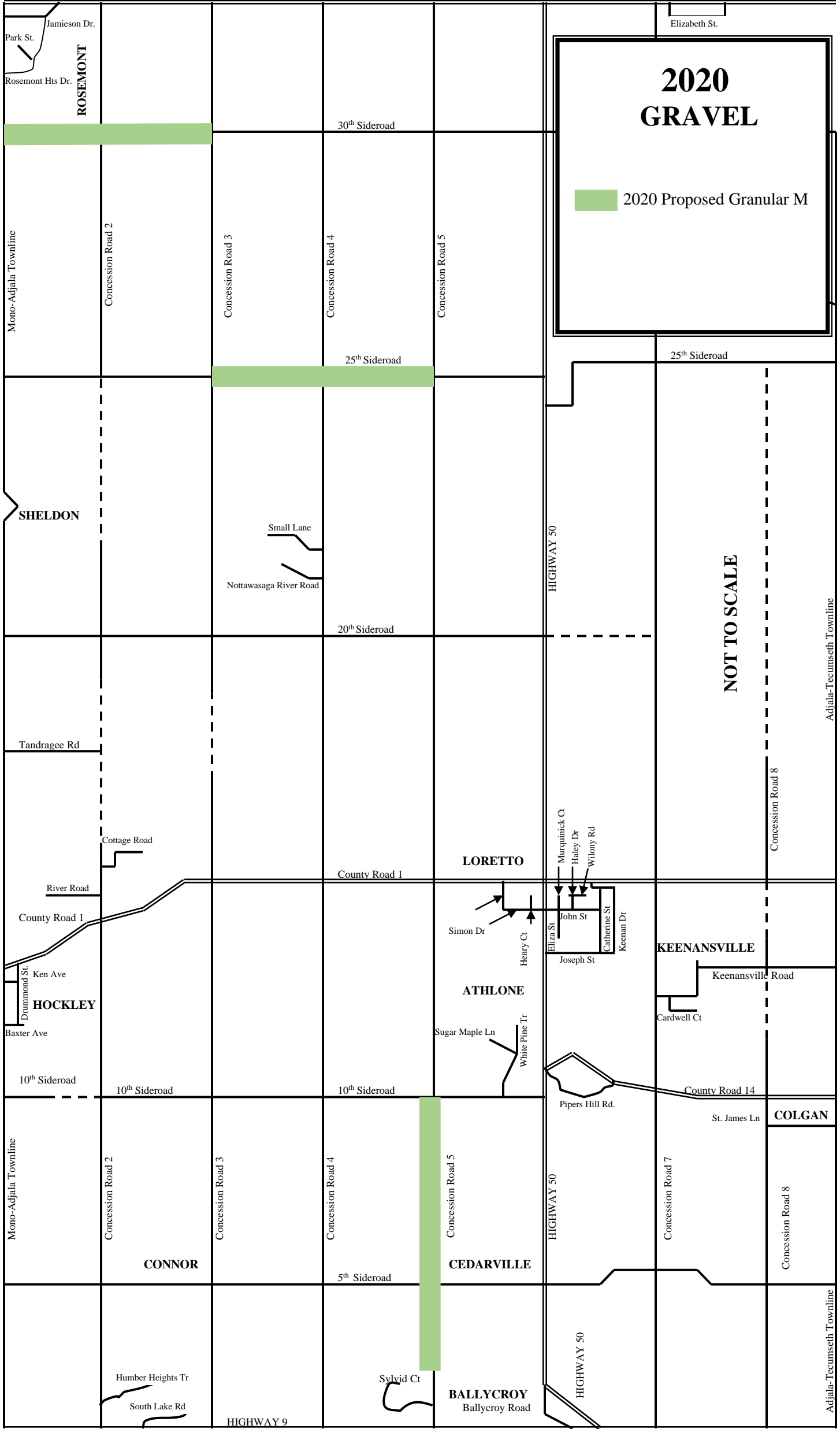
2020 Proposed Granular M

NOT TO SCALE

HIGHWAY 89

HIGHWAY 89

HIGHWAY 89





**CONSTRUCTION SPECIFICATION FOR
UNTREATED GRANULAR SUBBASE, BASE,
SURFACE, SHOULDER, AND STOCKPILING**

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314.01 SCOPE

This specification covers the requirements for the construction of untreated granular subbase, base, roadway surface and shoulder, edge ramping for bituminous pavements, and stockpiling at specified sites.

314.01.01 Specification Significance and Use

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be as specified in the Contract Documents.

314.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

314.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

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

Ontario Provincial Standard Specifications, Construction

OPSS 350 Concrete Pavement and Concrete Base
OPSS 501 Compacting

Ontario Provincial Standard Specifications, Material

OPSS 1001 Aggregates - General
OPSS 1010 Aggregates - Base, Subbase, Select Subgrade, and Backfill Material

314.03 DEFINITIONS

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

Construction Grading Report means a tabular report provided by the Contract Administrator that identifies stations, offsets, and elevations for granular surfaces consistent with the design cross-section.

314.05 MATERIALS

314.05.01 Aggregates

Granular material and select subgrade material shall be according to OPSS 1010.

314.07 CONSTRUCTION

314.07.01 Granular Subbase, Base, and Surface

Material shall be kept free from clay and other types of deleterious material. The Contractor's operations shall not disturb underlying work.

Material shall be placed without segregation in uniform layers such that the thickness of the compacted layer is not greater than 150 mm, except as provided under the Modified Layer Compaction Method clause.

Each layer shall be bladed to a smooth surface according to the required cross-section and maintained until placement of a subsequent layer, when applicable.

Prior to closing down operations for the completion of each day's work, the subbase material shall be bladed and compacted and, if necessary, covered with sufficient base material to carry traffic.

The granular base shall be maintained to the tolerances in grade and cross-section and to the specified density until the project is accepted or, if the Contract includes paving, until the surface is paved.

314.07.02 Winter Grading of Granular

All ice and snow shall be removed from all portions of the Work Area. Frozen material shall not be incorporated into the Work. Material shall not be placed over frozen ground, except, at the Contractor's option, a single lift may be placed over frozen ground; in which case, final grading and compaction shall be done after the underlying material has thawed.

314.07.03 Edge Ramping of Bituminous Pavement

A ramp of the specified granular material shall be built along the outside edges of each bituminous pavement construction course. Such ramps shall be at a height level with the pavement course and fall away from its edge at a slope not steeper than 4H:1V. Care shall be taken to prevent any ramping material from being spilled or pushed onto the pavement. Any material that is spilled shall be removed immediately without damage to the pavement and the surface thoroughly cleaned with the use of a power broom or other suitable means.

Prior to paving any section, only sufficient material to construct the ramps shall be placed on the shoulders. No other shoulder material shall be placed until the conditions, as detailed in the Shoulders subsection, have been attained.

Edge ramps shall be completed prior to opening adjacent pavement to traffic.

314.07.04 Shoulders

Granular shouldering material shall be placed and compacted at locations and to the line, grade, and cross-section specified in the Contract Documents.

Before commencing shoulder construction, all debris and deleterious material shall be removed from the shoulder area.

Shouldering operations shall commence as soon as, but not before, the following pavement conditions are met:

a) Bituminous Pavements

Placement of granular material for shouldering operations shall not commence along any section of pavement until 24 hours have elapsed from the time of completion of the final bituminous pavement course in that section. The shouldering operations shall be completed within 24 hours on sections of pavement that are open to traffic. When the pavement is not open to traffic, the shouldering shall be completed before traffic is permitted.

b) Concrete Pavement and Concrete Base

Shouldering operations shall commence according to OPSS 350. Shouldering shall be completed before opening the concrete base or concrete pavement to traffic.

All shoulder construction material shall be conveyed from the transport vehicle onto the shoulder area. End dumping of shoulder construction material directly on to the adjacent pavement surface or directly on to the shoulder shall not be permitted. The material shall be uniformly distributed within the specified shoulder limits without segregation. Grading and shaping operations shall confine all material to within the specified shoulder limits without overspill. Any shoulder construction material deposited, dragged, or inadvertently placed on the pavement surface shall be removed immediately and the pavement surface shall be thoroughly cleaned with the use of a power broom or other suitable means.

Operation of equipment shall not cause any damage to the pavement.

314.07.05 Compaction

314.07.05.01 General

Each layer of material shall be compacted as specified before the next layer is placed.

314.07.05.02 Compaction Requirements

The compaction requirements shall be according to OPSS 501.

For Granular B Type II, compaction results may not be attainable with the use of a nuclear moisture and density gauge for larger gradation aggregates. Compaction methods may need to be modified and the use of a modified compaction method detailed in Appendix B shall be considered.

314.07.05.03 Modified Layer Compaction Method

At the option of the Contractor, granular material may be placed in layers thicker than permitted under the Granular Subbase, Base, and Surface subsection, subject to the following provisions:

- a) All material shall be placed in uniform layers such that each layer shall have a depth of not more than 300 mm after compaction.

- b) Before placing each material in thicker layers, the Contractor shall prove, in a two lane trial area, the ability of the proposed compaction method to achieve the specified density. The location and extent of the trial area shall be approved by the Contract Administrator. At least 48 hours notice shall be given to the Contract Administrator before any work commences on the trial area. Full details of the proposed placing and compacting system or systems, including the rate of placing, depth of layer, number and type of compaction units, and number of passes shall be given to the Contract Administrator. The areas designated to evaluate each system shall be of sufficient length to be representative of the proposed method and shall normally be approximately 150 m in length.
- c) When the Contract Administrator, on the basis of test results, approves a system of placing and compacting, the system shall be used for the remainder of the work to which it is applicable, except that:
 - i. Should the Contractor find it necessary at any time to change the system or any part of it, including the source of material or the rate of placing the material, the Contractor shall first obtain approval from the Contract Administrator, who may require a further trial area.
 - ii. If at any time tests show that a previously approved system is no longer producing the specified compaction, the Contractor shall make whatever changes are necessary to satisfy the requirements of this specification.

314.07.06 Tolerances

314.07.06.01 General

The surface of the uppermost layer of granular material shall be bladed, shaped, and compacted to produce the specified grade and cross-section.

In the event of a conflict between meeting horizontal grading tolerances and meeting vertical grading tolerances, the vertical grading tolerance shall take precedence.

314.07.06.02 Granular Courses

The finished granular courses shall not deviate more than 30 mm from the specified grade and cross-section and the surface shall not deviate more than 15 mm at any place as measured in any direction with a 3 m straight edge.

314.07.06.03 Bituminous Courses, Sidewalk, Curb, and Gutter

The finished granular surface shall not deviate more than 30 mm from the specified grade and cross-section, except when the finished bituminous grade is controlled by fixed components such as existing pavements and curbs, in which case the finished granular surface shall not deviate more than 10 mm from the specified grade. Granular surfaces shall not deviate more than 10 mm at any place as measured in any direction with a 3 m straight edge.

314.07.06.04 Concrete Courses, Sidewalk, Curb, and Gutter

The finished granular surface shall not deviate more than 10 mm from the specified grade and cross-section and the surface shall not deviate more than 10 mm at any place as measured in any direction with a 3 m straight edge.

314.07.07 Stockpiling of Granular Material

Stockpiles of granular material shall be constructed according to OPSS 1001 at sites specified in the Contract Documents.

314.07.08 Quality Control

The Contractor shall carry out grade checks on the finished granular surfaces and carry out all QC grade checks required to ensure that the finished granular courses are built to within the specified tolerances for grade and cross-section. QC of granular grading shall be based on surface tolerances of the finished granular courses, as provided in the Tolerances subsection. The grade shall be certified at the stations and offsets shown in the Construction Grading Report.

314.07.09 Submission of Grade Checks

All grade checks relating to horizontal and vertical grading tolerances, including all non-compliances, shall be submitted to the Contract Administrator within 2 Business Days following completion of the grade. The Contractor shall sign and certify the construction grading report as correct.

When grading templates are available, the Contractor shall sign and certify the template as correct. If no template is available, the Contractor shall complete, sign, and submit form OPSF 314-1 to the Contract Administrator.

314.07.10 Management of Excess Material

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

314.08 QUALITY ASSURANCE

314.08.01 General

The Contract Administrator may conduct random QA grade checks to verify that the grade and cross-section are within the specified tolerances.

314.08.02 Finished Grades Outside Specification

When the finished granular grade or cross-section or both do not meet the acceptance criteria, the granular course shall be brought to grade or cross-section or both within the specified tolerances.

314.08.03 Acceptance

Provided that the Contract Administrator's grade checks are according to those determined by the Contractor, no action shall be taken. If discrepancies between QA and QC grade checks occur, additional QA grade checks may be conducted by the Contract Administrator. If the Contract Administrator chooses not to take QA grade checks, the work shall be accepted on the basis of QC grade checks.

If the finished grade or cross-section or both are not according to the specification, the Contractor shall be required to bring the granular surface to grade or cross-section or both within the specified tolerances and recertify the grade.

314.09 MEASUREMENT FOR PAYMENT

314.09.01 Actual Measurement

**314.09.01.01 Granular A, B Type I, B Type II, B Type III, M, O, and S
Granular A, B Type I, B Type II, B Type III, M, and O Stockpiled
Granular A, B Type I, B Type II, B Type III, M, and O from Stockpile
Select Subgrade Material**

314.09.01.01.01 Tonne

When payment is by the tonne:

- a) When the Contractor supplies Granular A and M composed of air-cooled iron blast-furnace slag or nickel slag, the payment quantities shall be determined by applying the following factors:
 - i. The total measured mass of air-cooled iron blast-furnace slag incorporated into the work shall be multiplied by a factor of 1.116.
 - ii. The total measured mass of nickel slag incorporated into the work shall be multiplied by a factor of 0.85.
- b) When Granular B is composed of slag, the payment quantities shall be determined by comparing the density of the material to the average density of granular material as set by the Owner for that specific area and applying the conversion factors so determined to the weighed tonnes.
- c) When granular material is composed of slag, it is necessary to determine the amount of overrun or underrun. Such overrun and underrun shall be the difference between the tender quantity and the payment quantity as determined by applying the foregoing factors to the weighed tonnes.

314.09.01.01.02 Cubic Metre

When payment is by cubic metre, one of the following methods shall be employed as determined by the Contract Administrator:

a) End Area Method

i. At Source

The volume of material shall be measured at the source in their original location and computed in cubic metres by the method of average end areas.

Cross-sections shall be taken after the source has been cleared, grubbed, and stripped of all unsuitable surface material.

The volume of boulders removed from borrow pits that cannot be accommodated in embankments shall be deducted.

ii. In Place

When the measurement for payment of material in their original location is not possible, the measurement for payment shall be made of material measured in place with no allowance for shrinkage and computed in cubic metres by the method of average end areas.

b) Truck Box Method

Material shall be measured in cubic metres, loose, by predetermined truck box capacities. The predetermined capacity of each truck shall be that computed from its box dimensions.

Each truck shall be uniquely and readily identifiable.

314.09.01.01.03 Square Metre

When payment is by square metre, the area shall be based on that shown in the Contract Documents.

314.09.02 Plan Quantity Measurement

When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clauses under Actual Measurement.

314.10 BASIS OF PAYMENT

- 314.10.01 Granular A - Item**
 - Granular A, Stockpiled - Item**
 - Granular A, from Stockpile - Item**

- Granular B Type I - Item**
 - Granular B Type I, Stockpiled - Item**
 - Granular B Type I, from Stockpile - Item**

- Granular B Type II - Item**
 - Granular B Type II, Stockpiled - Item**
 - Granular B Type II, from Stockpile - Item**

- Granular B Type III - Item**
 - Granular B Type III, Stockpiled - Item**
 - Granular B Type III, from Stockpile - Item**

- Granular M - Item**
 - Granular M, Stockpiled - Item**
 - Granular M, from Stockpile - Item**

- Granular O - Item**
 - Granular O, Stockpiled - Item**
 - Granular O, from Stockpile - Item**

- Granular S - Item**
 - Select Subgrade Material, Compacted - 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.

The cost of any additional QA grade checks on the recertified area shall be the responsibility of the Contractor. All grading carried out by the Contractor as a result of QA grade checks to ensure tolerances shall be carried out at no additional charge to the Owner.

Compensation for the cleanup of the stockpile site on completion of the operation, when required, shall be included as part of the granular item cost.

314.10.02 From Stockpile

Compensation for clearing, grubbing, stripping, cleanup of the stockpile site, and for supplying and placing a pad upon which the materials are to be stockpiled shall be included as part of the granular item cost.

CERTIFICATION OF GRADE ELEVATION / CROSSFALL

CONTRACT _____ LOCATION _____

COMPONENTS _____ LOCATION _____

In compliance with the Contract, I hereby certify that the following component of the work has been correctly constructed to the specified line and grade tolerances.

FROM STATION	TO STATION	TYPE OF GRADE	DATE	CERTIFIED BY	
				Print name	Signature

OPSF 314-1

**Appendix 314-A, Commentary for OPSS.MUNI 314, November 2019
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS**

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

The designer should specify the following in the Contract Documents:

- Location, line, grade, and cross-section for granular material. (314.07.04)
- Sites for stockpiles of granular material. (314.07.07)

On projects requiring grading, the designer should provide a Construction Grading Report.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

No information provided here.

Appendix 314-B, November 2019

FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS

Note: This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

Supplemental Requirements for Using the MTO Performance Graded Asphalt Cement (PGAC) Price Index in Municipal Contracts

OPSS 314, Untreated Granular Subbase, Base, Surface, Shoulder, and Stockpiling is amended as follows:

314.07.05.02 Compaction Requirements

Clause 314.07.05.02, Compaction Requirements, is amended by the addition of the following:

Material shall not be dumped into position, but shall be deposited on and pushed over the end of the lift being constructed by means of bulldozers or other approved equipment.

The placement of the first lift of material over wet or weak subgrade shall be monitored and the placement and compaction procedure modified as required, with the approval of the Contract Administrator, to minimize subgrade disturbance. Localized, unusually wet or weak subgrade areas shall be identified to the Contract Administrator for possible treatment

In restricted zones, as specified in OPSS 501, Granular B, Type II shall be compacted using hand-operated vibratory equipment with a minimum operating mass of 400 kg and a maximum power output between 5.0 and 9.9 kW. Where confined areas are less than the minimum width and where such equipment can be used safely, then smaller vibratory hand-operated tampers shall be used. One hundred percent compaction coverage with a minimum of four passes shall be provided in all cases.

In non-restricted zones, Granular B, Type II shall be compacted using single drum, vibratory, smooth steel drum rollers, with a minimum operating mass of 5,000 kilograms and minimum operating dynamic force of 75 kN. One hundred percent roller pass coverage with a minimum number of four passes shall be provided. Each roller pass shall overlap the coverage of the preceding pass by a minimum of 0.5 m.



**MATERIAL SPECIFICATION FOR
AGGREGATES - BASE, SUBBASE,
SELECT SUBGRADE, AND BACKFILL MATERIAL**

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1010-D	Fine Aggregate Test Data Form
1010-E	Coarse Aggregate Test Data Form
1010.01	SCOPE

This specification covers the material requirements for aggregates for use in base, subbase, select subgrade, granular surface, shouldering, and backfill material.

1010.01.01 Specification Significance and Use

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be according to the Contract Documents.

1010.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

1010.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

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

Ontario Provincial Standard Specification, Material

OPSS 1001 Aggregates - General

Ontario Ministry of Transportation Publications

MTO Laboratory Testing Manual:

LS-601	Material Finer than 75 µm Sieve in Mineral Aggregates by Washing
LS-602	Sieve Analysis of Aggregates
LS-607	Percent Crushed Particles in Processed Coarse Aggregate
LS-614	Freezing and Thawing of Coarse Aggregate
LS-616	Petrographic Analysis of Fine Aggregate
LS-617	Percent Particles with Two or More Crushed Faces and Uncrushed Particles in Processed Coarse Aggregate
LS-618	Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
LS-619	Resistance of Fine Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
LS-621	Determination of Amount of Asphalt-Coated Particles in Coarse Aggregate

LS-625	Guidelines for Sampling of Aggregate Materials
LS-630	Amount of Contamination of Coarse Aggregates
LS-702	Particle Size Analysis of Soils
LS-703/704	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
LS-709	Permeability of Granular Soils

1010.03 DEFINITIONS

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

Air-Cooled Blast-Furnace Slag means the material resulting from solidification of molten blast-furnace slag under atmospheric conditions. Subsequent cooling may be accelerated by application of water to the solidified surface.

CCIL means the Canadian Council of Independent Laboratories.

Ceramic means porcelain, china, and whiteware (e.g., sinks, toilets, and bidets made from clay and silica fired at a high temperature, excluding clay brick and tile) that is free of organic materials, metal, and plastic.

Deleterious Material means materials from the recycling stream other than glass, ceramic, reclaimed asphalt pavement, and reclaimed concrete material that includes but is not limited to the following: wood, clay brick, clay tile, plastic, gypsum, gypsum plaster, and wallboard.

Duplicate Samples means two samples taken at the same time and location-one to be used for quality assurance testing and the other for referee testing.

Fines means material passing the 75 µm sieve when tested according to LS-601 or LS-602.

Free of Clay means the amount of material with a particle diameter less than 2 µm shall not be greater than 1% of the total sample when tested according to LS-702.

Glass means processed glass obtained from the recycling stream that is free of organic materials, metal, and plastic.

Granular A means a set of requirements for dense graded aggregates intended for use as granular base within the pavement structure, granular shouldering, and backfill.

Granular B means a set of requirements for well-graded aggregates intended for use as granular subbase within the pavement structure and granular backfill. Granular B may be Type I, Type II, or Type III.

Granular M means a set of requirements for dense graded aggregates intended for use on unpaved road surfaces and for the maintenance of unpaved shoulders.

Granular O means a set of requirements for open graded aggregates intended only for use as a free draining granular base within the pavement structure.

Granular S means a set of requirements for dense graded aggregates intended only for use as surface dressing of low volume unpaved roads with an AADT less than 200.

Nickel Slag means the non-metallic product resulting from the production of nickel.

Physical Property means an inherent attribute or feature of an aggregate or soil material. Tests are carried out to determine a materials resistance to weathering or degradation or both.

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 specified in the Contract Documents.

Reclaimed Asphalt Pavement (RAP) means processed hot mix asphalt material that is recovered by partial or full depth removal.

Reclaimed Concrete Material (RCM) means removed or processed old hydraulic cement concrete.

Referee Testing means testing of a material property or attribute for the purpose of resolving acceptance.

Select Subgrade Material (SSM) means a set of requirements for well-graded non-plastic aggregates used to replace poor subgrade materials and as swamp backfill.

Steel Slag means the non-metallic product resulting from the production of steel in a basic oxygen furnace or electric arc furnace.

1010.05 MATERIALS

1010.05.01 General

Aggregates shall be according to OPSS 1001, unless otherwise specified in this specification.

Aggregates shall meet the physical property requirements shown in Table 1 and the gradation requirements shown in Table 2.

When aggregates are tested according to LS-630, the total amount of wood shall not exceed 0.1% by mass, and the total amount of deleterious material and other contaminants shall not exceed a combined total of 1.0% by mass.

Glass and ceramic material shall be processed to remove all deleterious organic materials. 100% of the processed glass and ceramic material shall pass the 13.2 mm sieve.

When RCM is permitted, RCM shall not contain loose reinforcing materials.

When air-cooled blast furnace slag, nickel slag, and RAP containing steel slag aggregates are used, site-specific notification shall be given by the Contractor to the Ontario Ministry of the Environment (MOE).

When reclaimed materials are permitted, they shall be homogeneously blended.

Steel slag shall not be used.

When a change in the character of the aggregate occurs or when the performance of the aggregate is found to be unsatisfactory, use of those aggregates shall be discontinued until the Contractor can prove to the satisfaction of the Contract Administrator that the source remains acceptable or can be made acceptable.

1010.05.02 Granular A, Granular M, and Granular S

Granular A, Granular M, and Granular S shall be produced by crushing one or more of the following:

- a) Quarried bedrock.
- b) Boulders, cobbles, gravel, sand, and fines from naturally formed deposits.

- c) RAP up to 30% by mass.
- d) RCM up to 100% by mass.
- e) Air-cooled blast-furnace slag or nickel slag.
- f) Glass or ceramic materials up to a combined total of 15% by mass.

Granular A and Granular M containing RAP with steel slag aggregates shall be acceptable for unpaved gravel shoulders only.

1010.05.03 Granular B

Granular B may be Type I, Type II, or Type III.

1010.05.03.01 Granular B Type I and Type III

Granular B Type I and Type III may be produced from naturally formed deposits of sand, gravel, and cobbles or by crushing one or more of the following:

- a) Quarried bedrock.
- b) Air-cooled blast-furnace slag or nickel slag.
- c) RCM up to 100% by mass.
- d) RAP up to 30% by mass.
- e) Glass or ceramic materials up to 15% by mass combined.

RAP containing steel slag aggregates shall not be allowed.

1010.05.03.02 Granular B Type II

Granular B Type II shall only be produced by crushing:

- a) Quarried bedrock.
- b) Air-cooled blast furnace slag or nickel slag.

Steel slag and reclaimed materials shall not be used in the production of Granular B Type II.

1010.05.04 Granular O

Granular O shall only be produced by crushing:

- a) Quarried bedrock.
- b) Cobbles or boulders retained on the 50 mm sieve.

Steel slag and reclaimed materials shall not be used in the production of Granular O.

1010.05.05 Select Subgrade Material

Select subgrade material shall only be produced from natural deposits of non-plastic silt, sand, and gravel material. Reclaimed materials of any type shall not be used.

1010.07 PRODUCTION

1010.07.01 Aggregate Processing, Handling, and Stockpiling

Aggregates that have become mixed with foreign matter of any description or aggregates that have become mixed with each other shall not be used and shall be immediately removed from the stockpile.

1010.08 QUALITY ASSURANCE

1010.08.01 General

QA testing may be carried out by the Owner for the purposes of ensuring that the aggregates used in the work are according to the requirements of this specification. Individual test results shall be forwarded to the Contractor, as they become available.

Test data for each aggregate type shall be managed independently. When more than one source is used for supplying materials, test data from each source and product shall be managed independently.

The Owner shall be responsible for all costs associated with testing for QA purposes, unless otherwise specified in the Contract Documents.

1010.08.02 Laboratory Requirements

The Contract Administrator shall designate the QA laboratories.

An acceptable laboratory conducting tests for physical properties shall be one that holds a current Type D certificate from CCIL for the applicable test methods and also participates in the annual MTO Proficiency Sample Testing Program for the specific tests, except LS-616 and LS-709.

An acceptable laboratory conducting tests for gradation according to LS-602 and percent crushed particles according to LS-607 shall be one that holds a current Type C certificate from CCIL.

Testing shall be conducted by qualified laboratory staff that holds a current certificate from CCIL in aggregate testing.

Equivalent alternate laboratory and technician certifications or laboratory proficiency testing programs may be used to demonstrate similar requirements, provided that they are acceptable to the Contract Administrator.

1010.08.03 Sampling

Sampling shall be according to LS-625.

Duplicate samples shall be taken and sealed by the Contractor in the presence of the Contract Administrator at the time and location determined by the Contract Administrator. When materials contain blended or reclaimed aggregates or both, QA sampling shall be performed on the final blended product.

The mass of each sample shall meet the requirements shown in Table 3. When more than 30 kg is required, the total samples shall be recombined by the QA laboratory prior to testing.

In the event that the Contractor is unavailable to take the sample, no further materials shall be placed in the work until the duplicate samples been taken.

The Contractor shall provide new or clean sample bags or containers that are constructed to prevent the loss of any part of the material or contamination or damage to the contents during shipment. Metal or cardboard containers are unacceptable.

QA samples shall be identified on both the inside and the outside of the sample container.

1010.08.04 Testing and Retention of Samples

When the Contract Administrator elects to carry out QA testing, one of the duplicate samples shall be randomly selected for testing by the QA laboratory and the remaining sealed sample shall be retained by the QA laboratory for possible referee testing.

1010.08.05 Acceptance

QA test results shall be used for acceptance purposes, except when referee testing has been carried out.

When QA test results show that the aggregates meet the requirements of this specification, the aggregates shall be accepted.

When QA test results show that the aggregates do not meet the requirements of this specification, the Contract Administrator shall notify the Contractor that aggregates represented by the test results shall not be accepted. This notification shall take place in writing within 3 Business Days of receipt of the non-conforming data. The Contractor has the option of either removing the aggregates from the work or invoking referee testing. The Contractor may request a reduced price in lieu of removal of aggregates that fail to meet the requirements of this specification. Irrespective of the negotiation of a reduced price payment, the warranty provisions of the Contract Documents shall apply.

At the discretion of the Contract Administrator, irrespective of non-compliance with the requirements of this specification, aggregates may be accepted on the basis of satisfactory field performance.

1010.08.06 Referee Testing

When QA test results do not meet the requirements of this specification, the Contractor has the option of invoking referee testing of the test result that fails to meet the requirements. The Contractor shall notify the Contract Administrator of the selected option in writing within 2 Business Days following written notification of unacceptable material.

The Contract Administrator shall select a referee laboratory acceptable to the Contractor within 3 Business Days following the Contractor's notification to invoke referee testing. Referee test samples shall be delivered to the referee testing laboratory from the QA laboratory by the Contract Administrator. The sealed sample shall be opened in the presence of the Contractor and the Contract Administrator. If referee materials are not available, the Contractor shall be responsible for obtaining and submitting new samples to the referee laboratory from a location to be decided by the Contract Administrator. The Contract Administrator shall be present to witness the sampling.

Referee testing shall be carried out in the presence of the Contract Administrator. When applicable, the referee laboratory shall also test a control aggregate sample for each test method required. The Contractor may observe the testing at no cost to the Owner.

The Contractor and Owner may send a maximum of two representatives each to observe the referee testing. The Contract Administrator shall notify the Owner and Contractor a minimum of 3 Business Days in advance of the date of referee testing. Provided that such notice was given, referee testing shall be carried out regardless of the absence of one or more observers.

Observers shall follow the referee laboratory protocols for access to the premises and testing equipment and shall not unnecessarily impede the progress of the testing. Observers shall be permitted to validate sample identification and view sample condition. Subject to safety requirements, test method and equipment limitations, they shall also be permitted to observe test procedures, take notes, view equipment readings and review completed work sheets while in attendance.

Comments on the non-conformity of the test methods shall be made and corrected at the time of testing.

Referee test results shall be binding on both the Owner and the Contractor.

When a referee test result shows that the aggregates do not meet the requirements of this specification, the aggregates represented by the test result, including aggregates in existing stockpiles or in the Work, shall not be accepted. The Contractor shall remove the aggregates from the Work at no cost to the Owner. The Contractor may request a reduced price in lieu of the removal of aggregates that fail to meet the requirements of this specification. Irrespective of the negotiation of a reduced price payment, the warranty provisions of the Contract Documents shall apply.

When a referee test result shows that the aggregates meet the requirements of this specification, the aggregates represented by the sample shall be accepted.

The Owner shall be responsible for the cost of referee testing provided that the referee test results show that the aggregates meet the applicable specifications. Otherwise, the Contractor shall be responsible for the cost.

TABLE 1
Physical Property Requirements

MTO Laboratory Test and Number	Granular O	Granular A	Granular S	Granular B Type I and Type III	Granular B Type II	Granular M	Select Subgrade Material
Percent crushed particles, % minimum, LS-607	100	60	50	--	--	60	--
Unconfined Freeze-Thaw, % maximum loss, LS-614	15	--	--	--	--	--	--
2 or more crushed faces, % minimum, LS-617	85 (Note 1)	--	--	--	--	--	--
Micro-Deval Abrasion Coarse Aggregate, % maximum loss, LS-618	21	25	25	30 (Note 2)	30	25	30 (Note 2)
Micro-Deval Abrasion, Fine Aggregate, % maximum loss, LS-619	25	30	30	35	35	30	N/A
Asphalt Coated Particles, % maximum, LS-621	0	30	30	30	0	30	0
Amount of Contamination, LS-630	(Note 3)						
Plasticity Index, maximum LS-703/704	0						
Determination of Permeability, k, LS-709	(Note 4)						
<p>Notes:</p> <ol style="list-style-type: none"> 1. When Granular O is produced from boulders, cobbles, or gravel retained on the 50 mm sieve. 2. The coarse aggregate Micro-Deval abrasion loss test requirements shall be waived if the material has more than 80% passing the 4.75 mm sieve. 3. Granular A, B Type I, B Type III, or M may contain crushed glass or ceramic materials up to a combined total of 15% by mass. Granular A, B Type I, B Type III, M, O, and S shall not contain more than 1% by mass of wood, clay brick and/or gypsum and/or gypsum wall board or plaster. Granular B Type II and SSM shall not contain more than 0.1% by mass of wood. 4. For materials north of the French and Mattawa Rivers only, the coefficient of permeability, k, shall be greater than 1.0×10^{-4} cm/s or alternatively, where past field experience has demonstrated satisfactory performance. Prior data demonstrating compliance with this requirement for k shall be acceptable, provided such testing has been done within the 5 years of the material being used and field performance has continually been shown to be satisfactory. 							

TABLE 2
Gradation Requirements - Percent Passing

MTO Test	Sieve	Granular							Select Subgrade Material
		A	B (Note 1)			M	O	S	
			Type I (Note 2)	Type II	Type III (Note 2)				
Sieve Analysis, % Passing, LS-602	150 mm	N/A	100	N/A	100	N/A	N/A	N/A	100
	106 mm	N/A	N/A	100	N/A	N/A	N/A	N/A	N/A
	37.5 mm	N/A	N/A	N/A	N/A	N/A	100	N/A	N/A
	26.5 mm	100	50-100	50-100	50-100	N/A	95-100	100	50-100
	19.0 mm	85-100 (87-100, Note 3)	N/A	N/A	N/A	100	80-95	90-100	N/A
	13.2 mm	65-90 (75-95, Note 3)	N/A	N/A	N/A	75-95	60-80	75-100	N/A
	9.5 mm	50-73 (60-83, Note 3)	N/A	N/A	32-100	55-80	50-70	60-85	N/A
	4.75 mm	35-55 (40-60, Note 3)	20-100	20-55	20-90	35-55	20-45	40-60	20-100
	1.18 mm	15-40	10-100	10-40	10-60	15-40	0-15	20-40	10-100
	300 µm	5-22	2-65	5-22	2-35	5-22	N/A	11-25	5-95
	150 µm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0-65.0
	75 µm	2.0-8.0 (2.0-10.0, Note 4)	0-8.0 (0-10.0, Note 4)	0-10.0	0-8.0 (0-10.0, Note 4)	2.0-8.0 (2.0-10.0, Note 4)	0-5.0	9.0-15.0 (9.0-17.0, Note 4)	0-25.0

Notes:

1. When Granular B is used for granular backfill for pipe subdrains, 100% of the material shall pass the 37.5 mm sieve.
2. When RAP is blended with Granular B Type I or Type III, 100% of the RAP shall pass the 75 mm sieve. Conditions in Note 1 supersede this requirement.
3. When the aggregate is obtained from an air-cooled blast furnace slag source.
4. When the aggregate is obtained from a quarry or an air-cooled blast furnace slag or nickel slag source.

TABLE 3
Sample Size

Material	Minimum Mass of Individual Field Samples kg
Granular A, S, M, and O	25
Granular B and SSM	50
Granular B and SSM (100% passing 26.5 mm sieve)	25
Note: A. Each sample container shall hold no more than 30 kg of aggregate. When more than 30 kg is required, additional sample containers shall be used.	

**Appendix 1010-A, November 2013
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS**

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

The designer should specify the following in the Contract Documents:

- Type of Granular B to be used. (1010.05.03)

The designer should determine if the following is required and, if so, specify it in the Contract Documents:

- If the quality assurance sampling and testing frequencies provided in Appendix 1010-B are to be used, Appendix 1010-B needs to be invoked by reference in the Contract Documents.
- If the payment reduction in lieu of aggregate removal provided in Appendix 1010-C is to be used, Appendix 1010-C needs to be invoked by reference in the Contract Documents.
- If the test data forms in Appendices 1010-D and 1010-E are to be used for submission purposes, Appendices 1010-D and 1010-E need to be invoked by reference in the Contract Documents.

The use of steel slag aggregate is prohibited.

The designer should be aware that aggregates that are wholly or partially comprised of industrial by-products and/or recycled materials such as, but not limited to, air-cooled iron blast furnace slag, nickel slag, and RAP containing steel slag aggregates, may have specific placement and approval requirements or constraints to mitigate adverse affects on the environment based on local conditions and/or municipal and MOE policy. Prior to tendering, when such Owner supplied or specified materials are to be used, the designer should provide site notification to MOE and ensure any applicable environmental placement and approval requirements and constraints are included in the Contract Documents.

RAP content is determined by LS-621, percent Asphalt Coated Particles. However, this test is limited to identifying RAP content in the coarse aggregate portion only. When RAP in fine aggregate is a concern a Petrographic Examination of the material passing the 4.75 mm sieve is recommended. (1010.05.02)

The designer should be aware that quality assurance (QA) testing for the purpose of ensuring material used in the work meet the requirements of OPSS 1010 is not mandatory unless specifically included in the Contract Documents. The designer should determine the need for QA testing based on the size and complexity of the work and specify the required frequencies of QA sampling and testing. Appendix 1010-B provides recommended QA sampling and testing frequencies.

The designer may specify a higher percent crushed requirement to improve performance in higher traffic areas.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Appendix 1010-A

Related Ontario Provincial Standard Drawings

No information provided here.

**Appendix 1010-B, November 2013
FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS**

Note: This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

Supplementary Requirements for Quality Assurance Sampling and Testing Frequency

OPSS.MUNI 1010, Aggregates-Base, Subbase, Select Subgrade, and Backfill Material, is amended as follows:

1010.08 QUALITY ASSURANCE

1010.08.01 General

The first paragraph of subsection 1010.08.01 is deleted in its entirety and replaced with the following:

QA sampling and testing shall be carried out by the Owner for the purposes of ensuring that the aggregates used in the work are according to the requirements of the Contract Documents. QA sampling and testing shall be carried out at the frequency specified in Table B-1. Individual test results may be forwarded to the Contractor as they become available.

Table B-1 is added.

**TABLE B-1
Sampling and Testing Frequency for Physical Property Requirements**

Quantity from Each Source or Process	Granular A; Granular B - Type I, II, and III; Granular M; Granular O; and Select Subgrade Material
≤ 5,000	One sample.
> 5,000 (Note 1)	One sample per 5,000 tonnes.
<p>Note:</p> <p>1. When the quantity of material is:</p> <ul style="list-style-type: none"> a) Less than one-half the quantity required for a sample, then that quantity shall be added to the quantity representing the previous sample. b) Greater than or equal to one-half the quantity required for a sample, then that quantity shall require its own sample. 	

Appendix 1010-B

Table B-2 is added.

**TABLE B-2
Sampling and Testing Frequency for Gradation Requirements**

Quantity from Each Source or Process t	Granular A, O, and M	Granular B - Type I, II, and III, and Select Subgrade Material
< 250	At the Contract Administrator's discretion.	
≥ 250 and ≤ 1,000	One sample.	
> 1,000 (Note 1)	One sample per 1,000 tonnes.	
<p>Note:</p> <ol style="list-style-type: none"> 1. When the quantity of granular material is: <ol style="list-style-type: none"> a) Less than one-half the quantity required for a sample, then that quantity shall be added to the quantity representing the previous sample. b) Greater than or equal to one-half the quantity required for a sample, then that quantity shall require its own sample. 		

Appendix 1010-C, November 2013

FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS

Note: This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

Supplementary Requirements for Reduced Price Payment In Lieu of Aggregate Removal

When a tested sample of aggregates shows that the aggregates do not meet the requirements of this specification, the aggregates represented by the test result, including material in existing stockpiles or in the Work, shall not be accepted. The Contractor may request a reduced price in lieu of removal provided the applicable test results:

- a) Do not exceed the requirement for LS-614 by more than 25% of the specified value.
- b) Do not exceed the requirement for LS-618 by more than 10% of the specified value.
- c) Do not identify a plasticity index within the material when determined according to LS-703/704 and the requirement for LS-602 on the 75 μ m is met.
- d) Meet all other requirements of this specification.

Irrespective of a reduced price payment, the warranty provisions of the Contract Documents shall apply.

Appendix 1010-D, November 2013

FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS

Note: This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

**OPSS 1010 - Aggregate Test Data - Granulars
Physical Properties**

Contract No.:		Contractor:		Contract Location:	
Name of Testing Laboratory:			Telephone No.:		Fax No.:
Sampled by (Print Name):			Date Sampled (YY/MM/DD):		Date Tested (YY/MM/DD):
Granular Type:			Quantity (tonnes) :		
Source Name/Location:			Aggregate Inventory Number (AIN) :		

Laboratory Test and Number	Requirements								Test Results		
	A	B Type I	B Type II	B Type III	M	O	S	SSM	Reference Material	Sample	Meets Requirements (Y/N)
Crushed Particles, % minimum, LS-607	60	--	100	--	60	100	50	--			
Unconfined Freeze-Thaw, % maximum loss, LS-614	--	--	--	--	--	15	--	--			
2 or more Crushed Faces, % minimum, LS-617	--	--	--	--	--	85 (Note 1)	--	--			
Micro-Deval Abrasion, Coarse Aggregate % maximum loss, LS-618	25	30 (Note 2)	30	30 (Note 2)	25	21	25	30 (Note 2)			
Micro-Deval Abrasion, Fine Aggregate % maximum loss, LS-619	30	35	35	35	30	25	30	--			
Asphalt Coated Particles, % maximum, LS-621	30	30	0	30	30	0	30	0			
Amount of Contamination, LS-630	(Note 3)										
Plasticity Index, maximum, LS-703/704	0										
Determination of Permeability, <i>k</i> , LS-709	(Note 4)										

Notes:
 1. When Granular O is produced from boulders, cobbles, or gravel retained on the 50 mm sieve.
 2. The coarse aggregate Micro-Deval abrasion loss test requirement shall be waived if the material has more than 80% passing the 4.75 mm sieve.
 3. Granular A, B Type I, B Type III, or M may contain up to 15 percent by mass crushed glass or ceramic materials. Granular A, B Type III, M, O, and S shall not contain more than 1.0 percent by mass of wood, clay brick and/or gypsum and/or gypsum wall board or plaster. Granular B Type II and SSM shall not contain more than 0.1 percent by mass of wood.
 4. For materials north of the French/Mattawa Rivers only, the coefficient of permeability, *k*, shall be greater than 1.0×10^{-4} cm/s or field experience has demonstrated satisfactory performance. Prior data demonstrating compliance with this requirement for *k*, shall be acceptable provided that such testing has been done within 5 years of the material being used and field performance has continually been shown to be satisfactory.

I hereby certify that testing has been carried out by a properly qualified/certified test technician:

Issued by: _____
 PRINT NAME TESTING LABORATORY REPRESENTATIVE SIGNATURE DATE

Received by: _____
 PRINT NAME CONTRACT ADMINISTRATOR REPRESENTATIVE SIGNATURE DATE

Copies to: Contract Administrator Contractor

Appendix 1010-E, November 2013

FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS

Note: This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

**OPSS 1010 - AGGREGATE TEST DATA - GRANULARS
GRADATION REQUIREMENTS, LS-602**

Contract No.:		Contractor:		Contract Location:	
Name of Testing Laboratory:				Telephone No.:	Fax No.:
Sampled by (Print Name):				Date Sampled (YY/MM/DD):	Date Tested (YY/MM/DD):
Granular Type:				Quantity (tonnes) :	
Source Name/Location:				Aggregate Inventory Number (AIN) :	

Sieve Size	Gradation Requirement, % Passing								Test Result	
	A	B (Note 1)			M	O	S	SSM	Sample	Meets Requirements (Y/N)
		Type I (Note 2)	Type II	Type III (Note 2)						
150 mm	--	100	--	100	--	--	--	100		
106 mm	--	--	100	--	--	--	--	--		
37.5 mm	--	--	--	--	--	100	--	--		
26.5 mm	100	50-100	50-100	50-100	--	95-100	100	50-100		
19.0 mm	85-100 (87-100, Note 3)	--	--	--	100	80-95	90-100	--		
13.2 mm	65-90 (75-95, Note 3)	--	--	--	75-95	60-80	75-100	--		
905 mm	50-73 (60-73, Note 3)	--	--	32-100	55-80	50-70	60-85	--		
4.75 mm	35-55 (40-60, Note 3)	20-100	20-55	20-90	35-55	20-45	40-60	20-100		
1.18 mm	15-40	10-100	10-40	10-60	15-40	0-15	20-40	10-100		
300 µm	2-55	2-65	5-22	2-35	5-22	--	11-25	5-95		
150 µm	--	--	--	--	--	--	--	2-65		
75 µm	2.0-8.0 (2.0-10.0, Note 4)	0-8.0 (0-10.0, Note 4)	0-10.0	0-8.0 (0-10.0, Note 4)	2.0-8.0 (2.0-10.0, Note 4)	0-5.0	9.0-15.0 (9.0-17.0, Note 4)	0-25.0		

Notes:
 1. When Granular B is used for granular backfill for pipe subdrains, 100% of the material shall pass the 37.5 mm sieve.
 2. When RAP is blended with Granular B Type I or Type III, 100 percent of the RAP shall pass the 75 mm sieve. Conditions in Note 1 supersede in this requirement.
 3. When the aggregate is obtained from an iron blast furnace slag source.
 4. When the aggregate is obtained from a quarry or blast furnace slag or nickel slag source.

I hereby certify that testing has been carried out by a properly qualified/certified test technician:

Issued by: _____
 PRINT NAME TESTING LABORATORY REPRESENTATIVE SIGNATURE DATE

Received by: _____
 PRINT NAME CONTRACT ADMINISTRATOR REPRESENTATIVE SIGNATURE DATE

Copies to: Contract Administrator Contractor

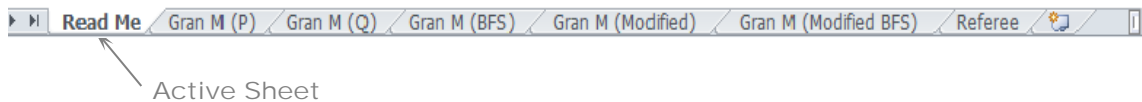
GRADATION COMPUTATION ACCEPTANCE & PAYMENT ADJUSTMENT SHEETS

Copy this spreadsheet and set it aside. Create a copy for each lot in the Cont

These worksheets are for calculating QA and Referee results for Gradation, Percent Crushed Particles and Asphalt-Coated Particles tests and calculating the associated payment adjustments . Please ensure that the correct worksheet has been selected.

The names of the sheets appear on tabs at the bottom of the workbook window according to the aggregate specification requirements and the source type, e.g., pit (P), quarry (Q) etc.

To select the appropriate sheet, click the sheet tabs as in the example shown here:



To enter data for calculations, select any highlighted cell:



Additional information may be added in the spaces provided. Once the information has been completed, the worksheet may be printed for signatures. Each worksheet is formatted for **printing** on **LEGAL** size paper, 356 x 216 mm (14 x 8.5 in), in **LANDSCAPE** mode.

If any referee testing should be done, the Referee worksheet should be used. Select the material type and the testing to be done from the drop-down menus and relevant information will be carried over from other worksheets in this spreadsheet. Fill test data and other information in the yellow highlighted cells. More details about the Referee worksheet are included there and in Cells X44 to AI57.

Please contact the the Soils & Aggregates Section, Materials Engineering and Research Office if you have any questions or comments about these forms.

Soils and Aggregates Section,
Materials Engineering and Research Office
Ministry of Transportation, Ontario
145 Sir William Hearst Ave., Rm 220
Downsview, ON
M3M 0B6

Ph: 416 235-3705
Fx: 416 235-4101

PH-D-1M Oct-19

tract.

GRANULAR M (PIT) GRADATION COMPUTATION ACCEPTANCE & PAYMENT ADJUSTMENTS AND ASPHALT COATED PARTICLES

[(Where the aggregate comes from a Sand and/or Gravel source or Crushed PC Concrete (may contain RAP)]

	LOT: 1	LOT SIZE: 1,000 tonnes		
LINE RS				
All masses for dried sample	SUBLOT 1	SUBLOT 2	SUBLOT 3	SUBLOT 4
A - mass of total sample (g)				
B - mass retained 4.75 mm (g)				
C - mass passing 4.75 mm (A-B) (g)	0.0	0.0	0.0	0.0
D - % coarse aggregate (B/A) x 100	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
E - % fine aggregate (C/A) x 100	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

CONTRACTOR: _____ CONTRACT: _____
 SOURCE: _____ HWY: _____
 AGGREGATE INV. CODE: _____ REGION: _____
 LOCATION: _____

SAMPLING LOCATION: _____ ROAD (include station and offset in Line RS) DATE: _____
 DELIVERY (include sample time in Line RS)
 STOCKPILE (include sample time in Line RS) TECHNICIAN: _____

COARSE AGGREGATE CUMULATIVE MASS	SIEVE	X	% Passing	X	% Passing	X	% Passing	X	% Passing
		MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100
	19.0 mm	0.0							
	13.2 mm								
	9.5 mm								
	4.75 mm	0.0		0.0		0.0		0.0	

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	100.0	#DIV/0!	1	#DIV/0!	0.0	1	0.0	0.0
#DIV/0!	75.0 - 95.0	#DIV/0!	1	#DIV/0!	0.0	16	0.0	0.0
#DIV/0!	55.0 - 80.0	#DIV/0!	1	#DIV/0!	0.0	18	0.0	0.0
#DIV/0!	35.0 - 55.0	#DIV/0!	2 or 5	#DIV/0!	0.0	18	0.0	0.0

F - original mass of fine aggregate (g)				
G - mass of fine agg. after wash (g)				

* Specification limits shown are for completed lots having four sublots. Lot sizes should be adjusted such that 4 equal sublots can be completed.

FINE AGGREGATE CUMULATIVE MASS	SIEVE	Y	% Passing	Y	% Passing	Y	% Passing	Y	% Passing
		MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E
	1.18 mm								
	300 um								
	75 um								

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	15.0 - 40.0	#DIV/0!	1	#DIV/0!	0.0	18	0.0	0.0
#DIV/0!	5.0 - 22.0	#DIV/0!	1	#DIV/0!	0.0	12	0.0	0.0
#DIV/0!	2.0 - 8.0	#DIV/0!	10	#DIV/0!	0.0	5	0.0	0.0

GRADATION ADJUSTMENT TOTALS

% CRUSHED PARTICLES-LS-607				
H - Mass of % Crushed Sample (g)				
I - Mass of Crushed Particles (g)				
J - % Crushed Particles (I/H)x100				

% CRUSHED LS-607		ADJUSTMENT		
Lot Mean	LIMITS*	P % Outside	Q Adj. Factor	R % Adjust.
0.0	60% minimum	60.0	2	0.0

% ASPHALT-COATED PARTICLES-LS-621					ACCEPTANCE LIMIT: 30.0
K - Mass of Asp't-Coat'd Particle Sample (g)	1000.0				
L - Mass of Asp't-Coated Particles (g)	50.0				
M - % Asphalt-Coated Particles (L/K)x100	5.0				
					LOT MEAN: 5.0

PAYMENT ADJUSTMENT (% of BID PRICE) - LS-602						
0.0	+	0.0	+	0.0	=	0.0 % Adjustment
% Passing (L)		Range (N)		% Crushed (R)		

THIS LOT IS ACCEPTABLE!

REMARKS: _____

THIS LOT <input type="checkbox"/> IS ACCEPTED AT THE CONTRACT PRICE	THIS LOT IS	<input type="checkbox"/> TO BE ACCEPTED AT THE CONTRACT PRICE LESS THE PAYMENT ADJUSTMENT SHOWN ABOVE (THIS OPTION NOT AVAILABLE IF T39/40 IS GREATER THAN 25%)
<input type="checkbox"/> DOES NOT MEET THE SPECIFICATION REQUIREMENTS		<input type="checkbox"/> TO BE RETESTED
		<input type="checkbox"/> NOT TO BE INCLUDED IN THE WORK (OPTION AUTHORIZED BY THE CONTRACTOR)
ACKNOWLEDGED BY: CONTRACT ADMINISTRATOR: _____	CONTRACTOR: _____	DATE: _____



GRANULAR M (CRUSHED) GRADATION COMPUTATION ACCEPTANCE & PAYMENT ADJUSTMENTS AND ASPHALT COATED PARTICLES

[Where the aggregate comes from Crushed Rock or Nickle Slag (may contain RAP)]

LOT:	1	LOT SIZE:	1,000	tonnes
LINE RS				
All masses for dried sample	SUBLOT 1	SUBLOT 2	SUBLOT 3	SUBLOT 4
A - mass of total sample (g)	25.0			
B - mass retained 4.75 mm (g)	10.0			
C - mass passing 4.75 mm (A-B) (g)	15.0	0.0	0.0	0.0
D - % coarse aggregate (B/A) x 100	40.0	#DIV/0!	#DIV/0!	#DIV/0!
E - % fine aggregate (C/A) x 100	60.0	#DIV/0!	#DIV/0!	#DIV/0!

CONTRACTOR: _____ CONTRACT: _____
 SOURCE: _____ HWY: _____
 AGGREGATE INV. CODE: _____ REGION: _____
 LOCATION: _____

SAMPLING LOCATION: _____ ROAD (include station and offset in Line RS) DATE: _____
 DELIVERY (include sample time in Line RS)
 STOCKPILE (include sample time in Line RS) TECHNICIAN: _____

COARSE AGGREGATE CUMULATIVE MASS	SIEVE	X	% Passing	X	% Passing	X	% Passing	X	% Passing
		MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100
	19.0 mm	5.0	80.0						
	13.2 mm	10.0	60.0						
	9.5 mm	10.0	60.0						
	4.75 mm	10.0	60.0	0.0		0.0		0.0	
F - original mass of fine aggregate (g)									
G - mass of fine agg. after wash (g)									

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
80.0	100.0	20.0	1	20.0	0.0	1	0.0	0.0
60.0	75.0 - 95.0	15.0	1	15.0	0.0	16	0.0	0.0
60.0	55.0 - 80.0	0.0	1	0.0	0.0	18	0.0	0.0
60.0	35.0 - 55.0	5.0	2 or 5	25.0	0.0	18	0.0	0.0

* Specification limits shown are for completed lots having four sublots. Lot sizes should be adjusted such that 4 equal sublots can be completed.

FINE AGGREGATE CUMULATIVE MASS	SIEVE	Y	% Passing	Y	% Passing	Y	% Passing	Y	% Passing
		MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E
	1.18 mm								
	300 um								
	75 um								

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	15.0 - 40.0	#DIV/0!	1	#DIV/0!	0.0	18	0.0	0.0
#DIV/0!	5.0 - 22.0	#DIV/0!	1	#DIV/0!	0.0	12	0.0	0.0
#DIV/0!	2.0 - 10.0	#DIV/0!	10	#DIV/0!	0.0	5	0.0	0.0

GRADATION ADJUSTMENT TOTALS

% PASSING: L #DIV/0!

RANGE: N 0.0

ASPHALT-COATED PARTICLES (%) - LS-621

ACCEPTANCE LIMIT: _____

H - Mass of Asp't-Coat'd Particle Sample (g)			
I - Mass of Asph't-Coated Particles (g)			
J - % Asphalt-Coated Particles (L/K)x100			
			0.0

PAYMENT ADJUSTMENT (% of BID PRICE) - LS-602

0.0 + 0.0 = 0.0 % Adjustment
 % Passing (L) + Range (N)

THIS LOT IS ACCEPTABLE!

REMARKS: _____

THIS LOT IS ACCEPTED AT THE CONTRACT PRICE
 DOES NOT MEET THE SPECIFICATION REQUIREMENTS

THIS LOT IS TO BE ACCEPTED AT THE CONTRACT PRICE LESS THE PAYMENT ADJUSTMENT SHOWN ABOVE (THIS OPTION NOT AVAILABLE IF S35/36 IS GREATER THAN 25%)
 TO BE RETESTED
 NOT TO BE INCLUDED IN THE WORK (OPTION AUTHORIZED BY THE CONTRACTOR)

ACKNOWLEDGED BY: _____ CONTRACTOR: _____ DATE: _____
 CONTRACT ADMINISTRATOR: _____

GRANULAR M (BFS) GRADATION COMPUTATION ACCEPTANCE & PAYMENT ADJUSTMENTS AND ASPHALT COATED PARTICLES

[Where the aggregate comes from Iron Blast Furnace Slag (may contain RAP)]

LINE RS	LOT:	LOT SIZE:			tonnes
	SUBLOT 1	SUBLOT 2	SUBLOT 3	SUBLOT 4	
All masses for dried sample					
A - mass of total sample (g)	25.0				
B - mass retained 4.75 mm (g)	10.0				
C - mass passing 4.75 mm (A-B) (g)	15.0	0.0	0.0	0.0	
D - % coarse aggregate (B/A) x 100	40.0	#DIV/0!	#DIV/0!	#DIV/0!	
E - % fine aggregate (C/A) x 100	60.0	#DIV/0!	#DIV/0!	#DIV/0!	

CONTRACTOR: _____ CONTRACT: _____
 SOURCE: _____ HWY: _____
 AGGREGATE INV. CODE: _____ REGION: _____
 LOCATION: _____

SAMPLING LOCATION: _____ ROAD (include station and offset in Line RS) DATE: _____
 _____ DELIVERY (include sample time in Line RS)
 _____ STOCKPILE (include sample time in Line RS) TECHNICIAN: _____

COARSE AGGREGATE CUMULATIVE MASS	SIEVE	X	% Passing	X	% Passing	X	% Passing	X	% Passing
		MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100
	19.0 mm	5.0	80.0						
	13.2 mm	10.0	60.0						
	9.5 mm	10.0	60.0						
	4.75 mm	10.0	60.0	0.0		0.0		0.0	

F - original mass of fine aggregate (g) _____
 G - mass of fine agg. after wash (g) _____

FINE AGGREGATE CUMULATIVE MASS	SIEVE	Y	% Passing	Y	% Passing	Y	% Passing	Y	% Passing
		MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E
	1.18 mm								
	300 um								
	75 um								

GRADATION ADJUSTMENT TOTALS

ASPHALT-COATED PARTICLES (%) - LS-621

ACCEPTANCE LIMIT: _____

H - Mass of Asp't-Coat'd Particle Sample (g)			
I - Mass of Asph't-Coated Particles (g)			
J - % Asphalt-Coated Particles (L/K)x100			
			0.0

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
80.0	100.0	20.0	1	20.0	0.0	1	0.0	0.0
60.0	75.0 - 95.0	15.0	1	15.0	0.0	16	0.0	0.0
60.0	55.0 - 80.0	0.0	1	0.0	0.0	18	0.0	0.0
60.0	35.0 - 55.0	5.0	2 or 5	25.0	0.0	18	0.0	0.0

* Specification limits shown are for completed lots having four sublots. Lot sizes should be adjusted such that 4 equal sublots can be completed.

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	15.0 - 40.0	#DIV/0!	1	#DIV/0!	0.0	18	0.0	0.0
#DIV/0!	5.0 - 22.0	#DIV/0!	1	#DIV/0!	0.0	12	0.0	0.0
#DIV/0!	2.0 - 10.0	#DIV/0!	10	#DIV/0!	0.0	5	0.0	0.0
		% PASSING: L		#DIV/0!		RANGE: N		0.0

PAYMENT ADJUSTMENT (% of BID PRICE) - LS-602

0.0 + 0.0 = 0.0 % Adjustment
 % Passing (L) + Range (N)

THIS LOT IS ACCEPTABLE!

REMARKS: _____

THIS LOT IS ACCEPTED AT THE CONTRACT PRICE
 DOES NOT MEET THE SPECIFICATION REQUIREMENTS → THIS LOT IS TO BE ACCEPTED AT THE CONTRACT PRICE LESS THE PAYMENT ADJUSTMENT SHOWN ABOVE (THIS OPTION NOT AVAILABLE IF T35/36 IS GREATER THAN 25%)
 TO BE RETESTED
 NOT TO BE INCLUDED IN THE WORK (OPTION AUTHORIZED BY THE CONTRACTOR)

ACKNOWLEDGED BY:
 CONTRACT ADMINISTRATOR: _____ CONTRACTOR: _____ DATE: _____

GRANULAR M (QUARRY) MODIFIED GRADATION COMPUTATION ACCEPTANCE & PAYMENT ADJUSTMENTS AND ASPHALT COATED PARTICLES



IS THE MATERIAL 100% Crushed (Y/N)? Y

[Where the aggregate comes from a Sand and/or Gravel Source, Crushed Rock, Crushed PC Concrete or Nickle Slag (may contain RAP)]

LINE RS	LOT: 1	LOT SIZE: 1,000 tonnes		
	SUBLOT 1	SUBLOT 2	SUBLOT 3	SUBLOT 4
All masses for dried sample				
A - mass of total sample (g)	25.0			
B - mass retained 4.75 mm (g)	10.0			
C - mass passing 4.75 mm (A-B) (g)	15.0	0.0	0.0	0.0
D - % coarse aggregate (B/A) x 100	40.0	#DIV/0!	#DIV/0!	#DIV/0!
E - % fine aggregate (C/A) x 100	60.0	#DIV/0!	#DIV/0!	#DIV/0!

CONTRACTOR: _____ CONTRACT: _____
 SOURCE: _____ HWY: _____
 AGGREGATE INV. CODE: _____ REGION: _____
 LOCATION: _____

SAMPLING LOCATION: _____ ROAD (include station and offset in Line RS) _____ DATE: _____
 DELIVERY (include sample time in Line RS) _____
 STOCKPILE (include sample time in Line RS) _____ TECHNICIAN: _____

COARSE AGGREGATE CUMULATIVE MASS	SIEVE	X MASS (g)	% Passing A-X/Ax100	X MASS (g)	% Passing A-X/Ax100	X MASS (g)	% Passing A-X/Ax100	X MASS (g)	% Passing A-X/Ax100
	26.5 mm	5.0	80.0						
19.0 mm	5.0	80.0							
13.2 mm	10.0	60.0							
9.5 mm	10.0	60.0							
4.75 mm	10.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
80.0	100.0	20.0	1	20.0	0.0	1	0.0	0.0
80.0	85.0 - 100.0	5.0	1	5.0	0.0	8	0.0	0.0
60.0	65.0 - 90.0	5.0	1	5.0	0.0	20	0.0	0.0
60.0	50.0 - 83.0	0.0	1	0.0	0.0	20	0.0	0.0
60.0	35.0 - 60.0	0.0	2 or 5	0.0	0.0	18	0.0	0.0

F - original mass of fine aggregate (g) _____
 G - mass of fine agg. after wash (g) _____

* Specification limits shown are for completed lots having four sublots. Lot sizes should be adjusted such that 4 equal sublots can be completed.

FINE AGGREGATE CUMULATIVE MASS	SIEVE	Y MASS (g)	% Passing F-Y/F x E	Y MASS (g)	% Passing F-Y/F x E	Y MASS (g)	% Passing F-Y/F x E	Y MASS (g)	% Passing F-Y/F x E
	1.18 mm								
300 um									
75 um									

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	15.0 - 40.0	#DIV/0!	1	#DIV/0!	0.0	18	0.0	0.0
#DIV/0!	5.0 - 25.0	#DIV/0!	1	#DIV/0!	0.0	12	0.0	0.0
#DIV/0!	2.0 - 12.0	#DIV/0!	10	#DIV/0!	0.0	5	0.0	0.0

GRADATION ADJUSTMENT TOTALS

% CRUSHED PARTICLES-LS-607				
H - Mass of % Crushed Sample (g)				
I - Mass of Crushed Particles (g)				
J - % Crushed Particles (I/H)x100				

% CRUSHED LS-607		ADJUSTMENT		
Lot Mean	LIMITS*	P % Outside	Q Adj. Factor	R % Adjust.
N/A	60% minimum	0.0	2	N/A

% ASPHALT-COATED PARTICLES-LS-621				
K - Mass of Asp't-Coat'd Particle Sample (g)				
L - Mass of Asp'h-Coated Particles (g)				
M - % Asphalt-Coated Particles (L/K)x100				

ACCEPTANCE LIMIT: _____

LOT MEAN: 0.0

PAYMENT ADJUSTMENT (% of BID PRICE) - LS-602						
0.0	+	0.0	+	N/A	=	0.0 % Adjustment
% Passing (L)		Range (N)		% Crushed (R)		

THIS LOT IS ACCEPTABLE!

REMARKS: _____

THIS LOT IS ACCEPTED AT THE CONTRACT PRICE DOES NOT MEET THE SPECIFICATION REQUIREMENTS

THIS LOT IS TO BE ACCEPTED AT THE CONTRACT PRICE LESS THE PAYMENT ADJUSTMENT SHOWN ABOVE (THIS OPTION NOT AVAILABLE IFT39/40 IS GREATER THAN 25%) TO BE RETESTED NOT TO BE INCLUDED IN THE WORK (OPTION AUTHORIZED BY THE CONTRACTOR)

ACKNOWLEDGED BY: _____ CONTRACT ADMINISTRATOR: _____ CONTRACTOR: _____ DATE: _____

GRANULAR M (BFS) MODIFIED GRADATION COMPUTATION ACCEPTANCE & PAYMENT ADJUSTMENTS AND ASPHALT COATED PARTICLES
[Where the aggregate comes from Iron Blast Furnace Slag (may contain RAP)]

LINE RS	LOT:	LOT SIZE:	tonnes	
All masses for dried sample	SUBLOT 1	SUBLOT 2	SUBLOT 3	SUBLOT 4
A - mass of total sample (g)				
B - mass retained 4.75 mm (g)				
C - mass passing 4.75 mm (A-B) (g)	0.0	0.0	0.0	0.0
D - % coarse aggregate (B/A) x 100	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
E - % fine aggregate (C/A) x 100	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

CONTRACTOR: _____ CONTRACT: _____
 SOURCE: _____ HWY: _____
 AGGREGATE INV. CODE: _____ REGION: _____
 LOCATION: _____

SAMPLING LOCATION: _____ ROAD (include station and offset in Line RS) DATE: _____
 _____ DELIVERY (include sample time in Line RS) _____
 _____ STOCKPILE (include sample time in Line RS) TECHNICIAN: _____

COARSE AGGREGATE CUMULATIVE MASS	SIEVE	X	% Passing	X	% Passing	X	% Passing	X	% Passing
		MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100	MASS (g)	A-X/Ax100
	26.5 mm								
	19.0 mm								
	13.2 mm								
	9.5 mm								
	4.75 mm	0.0		0.0		0.0		0.0	

% PASSING		ADJUSTMENT			RANGE	ADJUSTMENT		
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	100.0	#DIV/0!	1	#DIV/0!	0.0	1	0.0	0.0
#DIV/0!	87.0 - 100.0	#DIV/0!	1	#DIV/0!	0.0	8	0.0	0.0
#DIV/0!	75.0 - 95.0	#DIV/0!	1	#DIV/0!	0.0	20	0.0	0.0
#DIV/0!	50.0 - 83.0	#DIV/0!	1	#DIV/0!	0.0	20	0.0	0.0
#DIV/0!	35.0 - 60.0	#DIV/0!	2 or 5	#DIV/0!	0.0	18	0.0	0.0

F - original mass of fine aggregate (g) _____
 G - mass of fine agg. after wash (g) _____

* Specification limits shown are for completed lots having four sublots. Lot sizes should be adjusted such that 4 equal sublots can be completed.

FINE AGGREGATE CUMULATIVE MASS	SIEVE	Y	% Passing	Y	% Passing	Y	% Passing	Y	% Passing
		MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E	MASS (g)	F-Y/F x E
	1.18 mm								
	300 um								
	75 um								

% PASSING		ADJUSTMENT			RANGE	ADJUSTMENT		
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	15.0 - 40.0	#DIV/0!	1	#DIV/0!	0.0	18	0.0	0.0
#DIV/0!	5.0 - 25.0	#DIV/0!	1	#DIV/0!	0.0	12	0.0	0.0
#DIV/0!	2.0 - 12.0	#DIV/0!	10	#DIV/0!	0.0	5	0.0	0.0
		% PASSING: L	#DIV/0!		RANGE: N			0.0

% ASPHALT-COATED PARTICLES-LS-621 ACCEPTANCE LIMIT: _____

H - Mass of Asp't-Coat'd Particle Sample			
I - Mass of Aspht-Coated Particles (g)			
J - % Asphalt-Coated Particles			

LOT MEAN: 0.0

PAYMENT ADJUSTMENT (% of BID PRICE) - LS-602

0.0 + 0.0 = 0.0 % Adjustment

% Passing (L) + Range (N) =

REMARKS: _____

THIS LOT IS ACCEPTED AT THE CONTRACT PRICE

DOES NOT MEET THE SPECIFICATION REQUIREMENTS → THIS LOT IS

- TO BE ACCEPTED AT THE CONTRACT PRICE LESS THE PAYMENT ADJUSTMENT SHOWN ABOVE (THIS OPTION NOT AVAILABLE IF S35/36 IS GREATER THAN 25%)
- TO BE RETESTED
- NOT TO BE INCLUDED IN THE WORK (OPTION AUTHORIZED BY THE CONTRACTOR)

ACKNOWLEDGED BY: _____ CONTRACT ADMINISTRATOR: _____ CONTRACTOR: _____ DATE: _____

GRANULAR M(MODBFS) REFEREE GRADATION COMPUTATION ACCEPTANCE & PAYMENT ADJUSTMENTS AND ASPHALT COATED PARTICLES

SELECT THE REFEREE TESTING THAT'S BEING DONE TO THE RIGHT:
(Note that separate requests for referee testing of ASPHALT-COATED PARTICLES and the applicable Acceptance Limit must be input in Cells G38 and K38 at the bottom of this spreadsheet).

Gradation

CONTRACTOR: 0
SOURCE: 0
AGGREGATE INV. CODE: 0
LOCATION: 0
CONTRACT: 0
HWY: 0
REGION: 0

0 ROAD (include station and offset in Line RS)
0 DELIVERY (include sample time in Line RS)
0 STOCKPILE (include sample time in Line RS)
DATE:
TECHNICIAN:

LINE RS	LOT: 0	LOT SIZE: 0	tonnes	
	0	0	0	0
All masses for dried sample	SUBLOT 1	SUBLOT 2	SUBLOT 3	SUBLOT 4
A - mass of total sample (g)	0.0	0.0	0.0	0.0
B - mass retained 4.75 mm (g)	0.0	0.0	0.0	0.0
C - mass passing 4.75 mm (A-B) (g)	0.0	0.0	0.0	0.0
D - % coarse aggregate (B/A) x 100	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
E - % fine aggregate (C/A) x 100	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

COARSE AGGREGATE CUMULATIVE MASS	SIEVE	X MASS (g)	% Passing A-X/Ax100	X MASS (g)	% Passing A-X/Ax100	X MASS (g)	% Passing A-X/Ax100	X MASS (g)	% Passing A-X/Ax100
	26.5 mm	0.0		0.0		0.0		0.0	
19.0 mm	0.0		0.0		0.0		0.0		
13.2 mm	0.0		0.0		0.0		0.0		
9.5 mm	0.0		0.0		0.0		0.0		
4.75 mm	0.0		0.0		0.0		0.0		
F - original mass of fine aggregate (g)	0.0		0.0		0.0		0.0		
G - mass of fine agg. after wash (g)	0.0		0.0		0.0		0.0		

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	100.0	#DIV/0!	1	#DIV/0!	0.0	1	0.0	0.0
#DIV/0!	87.0 - 100.0	#DIV/0!	1	#DIV/0!	0.0	8	0.0	0.0
#DIV/0!	75.0 - 95.0	#DIV/0!	1	#DIV/0!	0.0	20	0.0	0.0
#DIV/0!	50.0 - 83.0	#DIV/0!	1	#DIV/0!	0.0	20	0.0	0.0
#DIV/0!	35.0 - 60.0	#DIV/0!	2 or 5	#DIV/0!	0.0	18	0.0	0.0

* Specification limits shown are for completed lots having four sublots. Lot sizes should be adjusted such that 4 equal sublots can be completed.

FINE AGGREGATE CUMULATIVE MASS	SIEVE	Y MASS (g)	% Passing F-Y/F x E	Y MASS (g)	% Passing F-Y/F x E	Y MASS (g)	% Passing F-Y/F x E	Y MASS (g)	% Passing F-Y/F x E
	1.18 mm	0.0		0.0		0.0		0.0	
300 um	0.0		0.0		0.0		0.0		
75 um	0.0		0.0		0.0		0.0		

% PASSING		ADJUSTMENT			RANGE		ADJUSTMENT	
LOT MEAN	SPECIFICATION LIMITS*	J % OUTSIDE	K ADJUST. FACTOR	% ADJUST. J x K	LOT RANGE	SPECIFICATION LIMITS*	M % OUTSIDE	% ADJUST. = M
#DIV/0!	15.0-40.0	#DIV/0!	1	#DIV/0!	0.0	18	0.0	0.0
#DIV/0!	5.0 - 25.0	#DIV/0!	1	#DIV/0!	0.0	12	0.0	0.0
#DIV/0!	2.0 - 12.0	#DIV/0!	10	#DIV/0!	0.0	5	0.0	0.0

GRADATION ADJUSTMENT TOTALS

% CRUSHED PARTICLES-LS-607				
H - Mass of % Crushed Sample (g)	0.0	0.0	0.0	0.0
I - Mass of Crushed Particles (g)	0.0	0.0	0.0	0.0
J - % Crushed Particles (I/H)x100	0.0	0.0	0.0	0.0

% CRUSHED LS-607		ADJUSTMENT		
Lot Mean	LIMITS*	P % Outside	Q Adj. Factor	R % Adjust.
0.0	60% minimum	60.0	2	0.0

% ASPHALT-COATED PARTICLES-LS-621				
SELECT IF ASPHALT-COATED PARTICLES ARE BEING REFEREED (Y/N):				N
ACCEPTANCE LIMIT:				0.0
K - Mass of Asphalt-Coated Particle Sample (g)	0.0	0.0	0.0	0.0
L - Mass of Asphalt-Coated Particles (g)	0.0	0.0	0.0	0.0
M - % Asphalt-Coated Particles (L/K)x100	0.0	0.0	0.0	0.0
LOT MEAN:				0.0

PAYMENT ADJUSTMENT (% of BID PRICE) - LS-602

0.0	+	0.0	+	0.0	=	0.0 % Adjustment
% Passing (L)		Range (N)		% Crushed (R)		

REMARKS:

THIS LOT IS ACCEPTED AT THE CONTRACT PRICE

DOES NOT MEET THE SPECIFICATION REQUIREMENTS → THIS LOT IS TO BE ACCEPTED AT THE CONTRACT PRICE LESS THE PAYMENT ADJUSTMENT SHOWN ABOVE (THIS OPTION NOT AVAILABLE IF T39/40 IS GREATER THAN 25%).

NOT TO BE INCLUDED IN THE WORK

ACKNOWLEDGED BY: _____ CONTRACTOR: _____ DATE: _____