

## ADDENDUM NO. 3

Project No. 109-13 PHP: Rehabilitate three sections of R410, Fleur de Lys Road, between km 67 and km 90, for 11.75km to a RLU80 Standard. Pulverize and pave 9.8 km of R414, km 41.6 to km 51.4, LaScie Highway to a RLU70M Standard. Asphalt leveling on the TCH in Gull Bridge area and Burnt Berry Bridge area. Culvert replacement on the TCH in the Birchy Narrows area.

Closing Date: Noon, April 1, 2014

CONTRACTORS ARE ADVISED OF THE FOLLOWING CHANGES TO THE TENDER PACKAGE:

1. Revise Supplementary General Condition (SGC) 26 of the Tender to:

26. **ITEM 104 OF THE UNIT PRICE TABLE: Full-Time Contractor Safety Officer (CSO)**

Contractors are advised that a Full-Time Contractor Safety Officer (CSO) is required for this project. All requirements associated with the Full-Time CSO are outlined in Section 190 of the Departments Highway Specifications Book as well as the following amendments to section 190.3.3.

### **190.3.3 CONTRACTORS SAFETY OFFICER**

- .1 Each Contractor must have a Contractor Safety Officer (CSO). The CSO will be responsible for the implementation and monitoring of the Project Site Specific Safety Plan, and will have the authority to implement all health and safety changes including those deemed necessary by the Resident Engineer. If a Full-Time CSO is required it will be outlined in the SGC's of the tender document. Nevertheless, all requirements outlined within Section 190.3.3 apply to both a Part-Time and Full-Time CSO. If a Full-Time CSO is not specified then a Part-Time CSO is required.
- .2 A resume for the CSO, acceptable to the Department, is required to demonstrate how each of the requirements noted below are satisfied. The CSO must have successfully completed a safety program from a recognized post-secondary education institute with a CRSP certification being preferable, and shall have as a minimum:
  - .1 Completed training in hazard recognition evaluation, inspections, analysis and control.
  - .2 Completed training in accident incident investigations.
  - .3 Completed training in WHMIS.
  - .4 Completed training in occupational health/hygiene.
  - .5 Completed training in employee training and communication.
  - .6 Completed training in Emergency Preparedness.
  - .7 A working knowledge of site safety and housekeeping.
  - .8 Experience in the development and implementation of safe work practices and procedures.
  - .9 Knowledge, understanding and experience in the use of the Traffic Control Manual
  - .10 Flag persons training certified by the WHSCC.
  - .11 Knowledge and experience in trenching and excavation that includes an understanding of the Occupational Health and Safety Regulations 5/12.
  - .12 Power line hazards training certified by the WHSCC.
  - .13 Knowledge and understanding of equipment maintenance and inspections required for preventive safety.
  - .14 Training and experience in the use, care and maintenance of PPE to be used on site.

- .15 Completed training in Standard First Aid.
  - .16 Complete understanding, knowledge and familiarity with the Site Specific Safety Plan, applicable codes and standards as well as the Occupational Health and Safety Act and Regulations that include the newly released parts XXVII – XXXIII related to Mining.
  - .17 Supervisory training and/or experience.
  - .18 Completed training in investigations and reporting.
  - .19 Completed training in health and safety program content.
- .3 Where the work and/or contract require high risk activities, specific training of the CSO may be necessary and required by the Department before a person is acceptable as a CSO in specific areas of safety. The list below is in no way an all-encompassing list of required training, though it represents some of the areas of high risk encountered in past contracts and the training required to mitigate and control hazards related to the specified activities. The Contractor will be responsible through the risk assessment conducted during the development of the site specific safety plan to identify areas of high risk and ensure that the CSO is competent and has adequate knowledge to ensure adequate controls are in place to mitigate the risks to workers and abide by all applicable legislation, codes and standards.
- .1 Completed training in the use and maintenance of fall protection systems certified by the WHSCC.
  - .2 Completed training in the design, construction and inspection of scaffolding as referenced in the applicable CSA Standard.
  - .3 Completed training in confined space entry protocols, techniques and rescue plan as certified by the WHSCC.
  - .4 Completed training in hazardous materials management and response/protocols.
- .4 The CSO shall:
- Review the Site Specific Safety Plan (SSSP) prior to submission to the Department to ensure that it satisfies all the requirements detailed in Section 190 of the Department's Highway Specification Book.
  - Address all safety concerns brought to their attention in a timely fashion depending on the severity of the hazard. If the Resident Engineer specifies a response date then that time must be respected.
  - Be responsible for implementing, daily enforcement, monitoring and updating of the Site Specific Safety Plan.
  - Be competent and qualified with respect to the project tasks and elements.
  - Be responsible for the delivery of the site safety orientation and ensure that the personnel who have not been orientated are not permitted to enter the site. Copies of the orientations are to be forwarded to the Resident Engineer by no later than 21 days of project startup and after that within 21 days after they are conducted.
  - Report directly to the site superintendent or Contractor's Project Manager.
  - Have sole and absolute discretion regarding all safety related decisions and must not have any duties related to the completion of the project other than safety (i.e. supervisory or job specific duties with respect to the completion of certain phases of the contract).
  - Prior to mobilization on-site, hold an orientation meeting with the contractors, and subcontractors performing work at, on or related to the project site and with Owner's Representative to review project Occupational Health and Safety. The meeting will include but not be limited to a review of:
    - Site Specific Safety Plan.
    - Construction Safety Measures.
    - Supervision and Emergency Rescue Procedures.
    - Hazard Assessments
  - Maintain a daily log of inspections, meetings, infractions and mitigating measures. This log is to be filed daily by a Full Time CSO, and twice a week by a Part Time CSO and

copied to the site superintendent. These reports must be forwarded to the Resident Engineer on a weekly basis.

.5 Definitions and hours of work:

.1 Full-Time CSO:

The Contractor shall employ a site dedicated full time Contractor's Safety Officer (CSO) who must be on site during execution of all aspects of the Work. Periodic absences during the workday of short duration for project related activities are acceptable provided they have been pre-arranged with the Department's Resident Engineer. Absences of one full day or longer will require a replacement. The replacement will be required to have prior familiarization with the site, the Site Specific Safety Plan, and must have the credentials specified in Section 190.3.3.2. The CSO must be on site during all hours of work of the Contractor. For further clarity, if the Contractor works on the weekend, the CSO must also be on-site.

Please note that all requirements in Section 190 apply to such a person and the Contractor and to the conduct of his/her work.

.2 Part-Time CSO:

.1 The Contractor shall employ a site dedicated Part-Time Contractor's Safety Officer (CSO) who must be on site at least two days and 16 hours per week during execution of the Work. Prior to the CSO arriving on site he/she must make contact with the Resident Engineer to advise his/her intentions and schedule of being at the Project site for the week.

Where the Part-Time CSO can not make it to the site for the required time a replacement will be required and must have prior familiarization with the site, the Site Specific Safety Plan, and must have the credentials specified in Section 190.3.3.2. The CSO must be on site related to the performance of his/her work in accordance with and to the advised schedule referred to above during regular hours of work (8:00am – 4:00 pm).

Please note that all requirements in Section 190 apply to such a person and the Contractor and to the conduct of his/her work.

.6 BASIS OF PAYMENT

The Contractor is advised that payment at the lump sum price to the Contractor for either the Full-Time or Part-Time CSO shall be compensation for all labour, supplies, and equipment necessary for the CSO to complete their duties.

The bid price for this item in contracts shall not exceed the limits given in the following table for a "Full-Time CSO".

Total Estimated Tender (including Full-Time CSO Lump Sum but not including HST)	Full-Time CSO Tender Item Maximum Bid Permitted
First \$100,000	5% of this value – maximum of \$5,000
Between \$100,000 & \$1,000,000	\$5,000 + 2% of value within this range Maximum \$5,000+\$18,000=\$23,000
Greater than \$1,000,000	\$23,000 + 1% of the amount that the Total Estimated Tender exceeds \$1,000,000

The bid price for this item in contracts shall not exceed the limits given in the following table for a "Part-Time CSO".

Total Estimated Tender (including Part-Time CSO Lump Sum but not including HST)	Part-Time CSO Tender Item Maximum Bid Permitted
First \$100,000	5% of this value – maximum of \$5,000
Greater than \$100,000	\$5,000 + 1% of the amount that the Total Estimated Tender exceeds \$100,000

The Contractor will be paid this item based on a percentage of the tender value they completed during the pertinent progress payment period. A value of 10% of this Lump Sum cost is to be paid on the first progress estimate.

Should the bid amount exceed the specified limits outlined above, the tender may be considered unbalanced.

**.7 LIQUIDATED DAMAGES FOR NON-COMPLIANCE**

- .1 If there is an infraction the Contractor will be given one written warning for failure to comply with this specification. The next three infractions will result in Liquidated Damages of \$500/day for non-compliance. For each successive infraction the Liquidated Damages increases to \$1,000/day. The possibility of project shutdown or termination exists at any time where the Contractor fails to observe the provisions of Section 190 and the Department's Resident Engineer and the Department believe such action is warranted from a safety and/or contractual perspective.
- .2 The Department will document and provide the Contractor with notification, either verbal or written, when an infraction has been noted so as to allow the Contractor to develop corrective actions to preventive future infractions.
- .3 Infractions include, but are not limited to:
  - .1 CSO not present on site as required.
  - .2 Safety reports not provided within specified timelines.
  - .3 Violation of any portion of Section 190 or the Contractors' SSSP without disciplinary action or an investigation by the CSO. This includes not adhering to their SWP's, safety procedures, OH&S Act and Regulations, and policies.

**2. Revise Supplementary General Condition (SGC) 22 of the Tender to:**

**22. SOLVENT BASED EXTRACTION OF ASPHALT CEMENT TESTING**

For this project the Contractor shall provide a fume hood located inside the field laboratory for Department testing purposes, having adequate forced air circulation. This requirement is necessary to ensure the safety of personnel conducting the extraction of asphalt cement from the hot-mix asphalt using N-Propyl Bromide. Contractors shall also provide the required N-Propyl Bromide solvent to conduct the testing.

The fume hood must be located appropriately within the laboratory to allow proper functional access and so as to not interfere with other laboratory functions or testing.

Fume hoods complete with work surfaces, cabinets, sinks, exhaust blowers and chemical

extraction pumps must be approved by the Materials Engineering Division prior to purchase. Proposed fume hoods shall meet or exceed ASHRAE-110, NFPA-45, and UL 1805 standards as well SEFA recommended practices.

Materials and description criteria below shall be met:

**1. Fume Hood**

- Minimum dimensions of 72 inches wide x 32 inches deep x 48 inches high to permit placement of vacuum extractor, vacuum pump and hot plate
- Constructed of chemical resistant, flame retardant, non-metallic composite resin, both interior and exterior
- Interior fume chamber is moulded one piece seamless with all corners covered.
- Equipped with vertical slide safety tempered glass slash with chemical resistant sash frame – sash track – and sash lift
- Sash stops which can be manually adjusted by field personnel
- Vapour-proof light fixture mounted in hood with switch pre-wired to junction box
- 115v, 20amp, single phase 2-duplex receptacle installed on front column of fume hood for a vacuum pump and hot plate
- Switch installed for chemical extraction pump

(Hemco Uniflow LE Fume Hood Part No. 35611 or Equivalent)

(Hemco Safety Sash Lock Part No. 51651 or Equivalent)

(Hemco 2 Duplex Receptacle Part No. 50029-2 or Equivalent)

(Hemco Single Receptacle Part No. 50030-2 or Equivalent)

**2. Work Surface (Countertop)**

- Stainless steel work surface with dimensions to match internal fume hood chamber.
- Surface dished minimum 3/8" to contain spillage.
- Hole must be cut in surface to allow installation of oval cup sink.
- Polyolefin 3 inch by 9 inch oval cup sink for drainage

(Hemco Stainless Steel Work Surface Part No. 20616 or Equivalent)

(Hemco Oval Cup Sink Part No. 40121 or Equivalent)

**3. Acid Storage Base Cabinets**

- Storage base cabinets having dimensions to match fume hood chamber (minimum dimensions for one cabinet 72 inches wide or two cabinets 36 inches wide each.)
- Constructed of top grade furniture steel with a chemical resistant finish.
- Interior shall have a moulded one piece seamless liner constructed of chemical resistant composite resin.
- Adequate space for two 5 gallon containers. One container will hold clean solvent to pump into extractor whereas the second container will hold the asphalt cement / N-Propyl bromide extract solution from the vacuum extractor. (Rather than setting up the two containers, the Contractor may run lines for clean solvent and extract to barrels outside the trailer that are properly secured.)

- Adjustable Shelf and vented hinged doors.

(Two Hemco Acid Storage Base Cabinets Part No. 15030 (36 inches wide) or equivalent)

#### 4. Fume Hood Exhaust Blower

- Belt driven exhaust blower installed next to hood or externally on the trailer roof. Capacity of 500-1000 CFM
- ¼ HP, 115 V motor
- Pilot light switch for air blower.
- Ventilation duct hardware and vents shall be supplied and installed as per fume hood manufacturer's instructions

(Hemco Epoxy Coated Steel Blower Belt Drive Part No. 51705X or Equivalent)

(Hemco Blower Switch with Pilot Light Part No. 50027-1 or Equivalent)

#### 5. Chemical Extraction Pump

- 115v liquid-flow pump to be installed in base cabinet to extract N-Propyl Bromide from container
- Pump outfitted with chemical resistant Viton diaphragm
- Piping made of PVC plastic

The fume hood must also be inspected prior to use in accordance with all applicable regulations.

**Contractors are to provide the required N-Propyl Bromide solvent to conduct the testing.** For rough estimate purposes each extraction test requires approximately 5 litres solvent to complete while each subplot of asphalt mix production will require at least one full solvent extraction test.

Contractors must also dispose of used solvent by means of an approved chemical waste disposal company. Verification of proper disposal of the solvent shall be provided to the resident engineer upon completion of the work.

In addition to the requirement for the fume hood and solvent above the hot mix asphalt specifications are modified as follows:

**CHANGE to Section 330.06.13.02 Measurement for Payment for Asphalt Cement**

### **330.06.13.02 Measurement for Payment for Asphalt Cement**

The asphalt cement will be measured in tonnes, rounded to two decimal places. Payment for Asphalt Cement shall be as per the percentage (%) of asphalt cement required in the approved Job Mix Formula. However, where Asphalt Cement contents are found to be deficient to the point of being in the penalty zones subsequently described, Asphalt Cement will be paid on actual content only, as determined by ASTM D2172 Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures. Any moisture content in the hot mix asphalt will be determined and deducted. The method of determination of this moisture content will be in accordance with AASHTO 329 Standard Method of Test for Moisture Content of Hot Mix Asphalt by Oven Method.

Samples of hot mix asphalt shall be taken randomly, in accordance with 330.06.09.02 and tested to ensure conformance with the specifications stated herein. Sampling and testing shall be performed in accordance with ASTM D979 and ASTM D2172. Additional samples may also be taken and tested in accordance with ASTM D2172, for verification purposes.

If the test results representing the Lot mean of deviations for asphalt cement content falls into the above-stated "Penalty Zone", the payments for both Asphalt Cement and Hot Mix Asphalt shall be adjusted by deducting a percentage from the unit prices per Table 12 for the Lot mean of deviations as appropriate. These adjustments shall apply to the areas of pavement represented by these samples.

If the test results representing the Lot mean of deviations fall into the above-stated "Rejectable Zone", then no payment will be made for either the asphalt cement or hot mix asphalt represented by those samples.

In the event of any and all disputes over asphalt content, the asphalt contents as determined by the Engineer, in accordance with the above stated method, shall govern in all cases.

3. **Revise Supplementary General Condition (SGC) 25 of the Tender to:**

### **25.END PRODUCT SPECIFICATION PROJECT**

Contractors are advised for this project section 330.06 End Product Specification (EPS) for Asphalt Concrete Mix – Hot Placed will be applied in addition to the applicable sections of 330.01 through to 330.04. As part of the specifications for this project the Contractor will be solely responsible for all hot mix asphalt mix designs and quality control functions in accordance with the above noted specifications. As per the specifications the Contractor must also submit a quality control inspection testing plan.

For this project performance measures for unit price adjustments will be applied at a rate of 75% for Marshall Air Voids Table 13, Gradation Table 14 and Material Application Rate Table 17. Material which falls into the rejected area of the specifications for these performance criteria will be applied at the full rate and as per 330.06.14.03 Basis of Payment for Rejected Mix. All other performance measures will be applied at the full specified rates.

4. **Add Supplementary General Condition (SGC) 27 for the Tender to:**

### **27. CASH FLOW CONSTRAINTS**

The Contractor is advised that up to March 31st, 2015, cash flow for this project is limited to a total of \$2,250,000 for Part "I"-Transportation and Works Parts "A" & "B". Any work performed in excess of this amount under Part "I" shall be paid for after the commencement of the 2015/2016 fiscal year on April 1, 2015. If payment is not made by the owner within sixty (60) days of this date, then the owner shall be liable for interest costs as stipulated under section 21.3 of the General Conditions of this tender.

In light of the above, the Contractor is advised that, at a minimum, all work associated with Part "A" of this project must be completed during the 2014/2015 fiscal year. Additionally, work on Part "B" of this project shall be undertaken up to the maximum total contract value stipulated above however, the contractor may elect to exceed this amount subject to their acceptance of the payment constraints outlined above.

5. Add Supplementary General Condition (SGC) 28 for the tender to:

28. **Change in Validity Period**

Contractors are advised of the following changes to Item #4 of the Tender Form:

IF NOTIFIED IN WRITING BY THE OWNER OF THE ACCEPTANCE OF THIS TENDER WITHIN **60** DAYS OF THE TENDER CLOSING DATE SUBJECT TO SUCH OTHER PERIOD AS MAY BE SPECIFIED IN THE TENDERING DOCUMENTS, WE WILL:

- (a) execute the Standard Form of Construction Contract.
- (b) if specified, furnish the security for the proper completion of the work, the said security, if in the form of bonds, to be issued on an acceptable form.
- (c) complete substantially all the work included in the Contract within the time and under the conditions specified.

6. Add Supplementary General Condition (SGC) 29 to the Tender as follows:

29. **HOT MIX ASPHALTIC CONCRETE ANTI-STRIPING ADDITIVE**

Contractors are advised Section 330.02.01.05 of the Specifications have been modified for this project as follows:

**330.02.01.05 Anti-Stripping Additive**

For this project an approved anti-stripping additive shall be added to all Hot Mix Asphaltic Concrete. The anti-stripping additive may be either an approved liquid anti-stripping additive or hydrated lime (Ca(OH)<sub>2</sub>) with each meeting the requirements outlined as follows.

If an approved liquid anti-stripping additive is utilized it shall be added to all Hot Mix Asphaltic Concrete at a minimum application rate of 0.5% of additive by weight of asphalt cement or the recommended percentage as determined from Lottman test results. Approved liquid anti-stripping additives include the products AD-here LOF 6500 (ARR-MAZ Custom Chemicals) and Redicote C-3082 (Akzo Nobel Chemicals). All other products must be approved by the Department's Materials Engineering Division.

Suppliers of the asphalt cement and anti-stripping additives shall provide in writing all mixing requirements and proof of product compatibility. Treated asphalt PG binders must meet the relevant performance grade specifications.



Contractors must inform the Engineer and advise workers of the proper procedures, use of protective clothing and equipment when handling anti-stripping additives. Hot mix asphaltic concrete with liquid anti-strip additives is known to produce strong odours. Contractors must ensure the mix materials are used under proper environmental conditions to guarantee the safety and comfort of construction personnel and the public.

Modified Lottman tests in accordance with AASHTO T 283 Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage shall be completed within the mix design procedure to determine if the minimum application rate is sufficient. An additional rate of anti-strip and/or an alternate anti-stripping additive will be required if one of the following conditions occurs as determined by AASHTO T 283:

- The tensile strength ratio of the hot mix asphalt concrete is less than 0.80
- There is visual evidence of stripping. Acceptable specimens shall have a visual stripping rating of 1.0 or lower based on a scale from 0 to 10 (with 0 being no visual stripping and 10 being fully stripped).
- The results of the mix utilizing neat hot mix asphalt concrete (or with no anti-stripping additive) significantly exceed the performance of the mix with the anti-stripping additive.

In addition to AASHTO T 283 requirements, the asphalt hot mix containing the anti-stripping additive shall pass a boiling water test in accordance with ASTM D3625 Standard Practice for the Effect of Water on Bituminous-Coated Aggregate Using Boiling Water within the mix design procedure. The pass criterion for ASTM D 3625 is 95% or greater retained bitumen coating of aggregate.

An additional rate of anti-strip and/or an alternate anti-stripping additive will also be required if the aggregate is known to be prone to stripping from past performance and the minimum application rate was insufficient.

If additional or alternative anti-stripping additives are required, a further 10 working days will be required after the Contractor has advised the Department of its new anti-strip proposal and all materials have been received by the Materials Engineering Division. The Contractor and his supplier shall provide sample materials, any technical information and Manufacturer's recommended application rates.

Modified Lottman Tests (AASHTO T 283) and Boiling Water Tests (ASTM D3625) shall also be conducted on field produced samples of hot mix. All field produced samples shall also pass the requirements above.

Where hydrated lime is used as an anti-strip additive the dosage requirement shall be the greater of one half (1/2) percent by mass of total dry aggregate, or the recommended percentage as determined from the Lottman and Boiling Water test results.

Where hydrated lime is utilized the hydrated lime shall be added to all aggregates by either of the following methods:

- (a) Hydrated lime slurry shall be homogeneously mixed with the aggregate in a pug-mill or tumble mixer prior to entering the asphalt plant (the hydrated lime slurry shall be produced at the approximate rate of 1 part lime to 3-4 parts water).
- (b) Dry hydrated lime shall be homogeneously mixed with wetted aggregate in a pug-mill or tumble mixer prior to entering the asphalt plant. The wetted aggregate shall have a minimum moisture content of 2% by weight for coarse aggregate and 3% by weight for fine aggregate.

Hydrated lime shall be mixed with the aggregate at least 4 hours prior to entering the asphalt plant. Aggregate treated with hydrated lime shall be used within the same construction season. Treatment shall include both coarse and fine aggregate components of the asphalt aggregate.

Where hydrated lime is to be utilized, the Contractor shall provide the Department with complete information on how the hydrated lime is to be used in the treatment of aggregates. Hot mix produced containing hydrated lime, shall conform to all requirements of the contract before acceptance. The design amount of hydrated lime will be added as a percentage of the total dry aggregate weight.

The cost of all anti-stripping additives (including hydrated lime) will be borne by the Contractor no separate or additional payment will be made.

7. Add Supplementary General Condition (SGC) 30 to the Tender as follows:

**30. GENERAL REQUIREMENTS OF PAVEMENT MIXTURE**

Contractors should pay particular attention to the general requirements of the pavement mixture as the surface course gradation has been modified for this project.

Contractors are advised Section 330.02.02.01 of the Specifications have been modified for this project as follows:

**330.02.02.01 General Requirements for Pavement Mixture**

The mixture shall consist of suitably graded fine and coarse aggregate thoroughly mixed with asphalt cement as specified. Blending sand, filler and chemical additives shall be added when required.

Unless otherwise specified, the aggregates shall be combined in such proportions as to produce a mixture conforming to the grading of Table 3.

**TABLE 3  
Asphalt Aggregate Mixtures**

Sieve Size	Percent Passing by Dry Weight			
	Surface Course RCU 80 and above	Surface Course RLU 80 and below	Levelling Course Type I**	Base & Levelling Course Type II***
22.0 mm	100	100	100	100
19.0 mm	100	100	100	90-100
12.5 mm	93-100	93-100	75-100	75-90
9.5 mm	75-92	75-92	63-95	63-84
4.75 mm	50-65	55-70	35-78	35-55
2.00 mm	32-55	32-55	20-55	20-42
0.425 mm	16-25	16-25	10-25	10-25
0.150 mm	5-12	5-12	5-12	5-12
0.075 mm	2-5*	2-5*	2-5*	2-6*
Asphalt Cement (% By Weight of Total Mixture)	4.5 – 7.0	4.5 – 7.0	4.5 – 7.0	4.5 – 7.0

\* The dust/effective asphalt ratio of all mixtures shall be between 0.6 and 1.2. Dust is defined as material passing the 0.075 mm sieve.

\*\* Levelling Course Type I to be used where thickness of compacted lift is to be less than or equal to 30 mm.

\*\*\* Levelling Course Type II to be used where thickness of compacted lift is to be greater than 30 mm.

Once a mix design has been designated or approved by the Engineer, the Contractor shall be required to produce a pavement mixture conforming to the following mix control tolerances. The mix must still fall inside the gradation envelopes of Table 3.

Individual Sample Tolerance for Production of Combined HMA

Aggregate Passing 19.0 mm sieve	± 5%
Aggregate Passing 12.5 mm sieve	± 5%
Aggregate Passing 9.5 mm sieve	± 5%
Aggregate Passing 4.75 mm sieve	± 5%
Aggregate Passing 2.00 mm sieve	± 4%
Aggregate Passing 425 µm sieve	± 3%
Aggregate Passing 150 µm sieve	± 2%
Aggregate Passing 75 µm sieve	± 1%

8. Add Supplementary General Condition (SGC) 31 to the Tender as follows:

**31. PHYSICAL REQUIREMENTS OF ASPHALT AGGREGATE -COARSE AGGREGATE**

Contractors are advised Section 330.02.01.02.01 of the Specifications have been modified for this project as follows:

**330.02.01.02.01 Coarse Aggregate**

Coarse Aggregate shall consist of hard, durable crushed stone or crushed gravel particles, reasonably uniform in quality and free from soft or disintegrated pieces. The portion of material retained on the 4.75 mm sieve shall be known as coarse aggregate. The coarse aggregate stockpile shall contain no more than 10% passing the 4.75 mm screen.

Coarse Aggregates shall be washed if necessary to have clean surfaces free from coatings of foreign matter. Coarse Aggregates shall conform to the physical requirements shown in Table 1.

Irrespective of compliance with the physical requirements of Tables 1, any coarse aggregate may be accepted or rejected on the basis of past field performance at the discretion of the department.

**TABLE 1  
Physical Requirements For Coarse Aggregates**

TEST METHOD	TEST NO.	HIGHWAY CLASSIFICATION		
		RAU & RAD-100 RAU & RAD-90, RCU-80		RLU-80, RLU-70 RLU-80
		SURFACE	BASE	ALL COURSES
LOS ANGELES ABRASION - % MAXIMUM (A)	ASTM C131	35	35	35
ABSORPTION - % MAXIMUM	ASTM C127	1.75	2	2
MAGNESIUM SULPHATE - SOUNDNESS - 5 CYCLES - % MAXIMUM (B)	ASTM C88	12	12	12
PETROGRAPHIC NUMBER - MAXIMUM	CSA A23.2-15A	135	135	135
FREEZE-THAW TEST - 5 CYCLES - % MAXIMUM	CSA A23.2-24A	8	10	10
CRUSHED PARTICLES -% MINIMUM (C)	ASTM D5821	90	90	70
FLAT & ELONGATED PARTICLES - % MAXIMUM (D)	ASTM D 4791	20	20	20
LOSS BY WASHING - % MAXIMUM PASSING (E)	ASTM C117	1.75	1.75	1.75
MICRO DEVAL - % MAXIMUM	ASTM D 6928	17	20	20

**TABLE 1  
Physical Requirements For Coarse Aggregates**

TEST METHOD	TEST NO.	HIGHWAY CLASSIFICATION		
		RAU & RAD-100 RCU-80		RAU & RAD-90, RLU-80
		SURFACE	BASE	ALL COURSES
CLAY LUMPS -% MAXIMUM	CSA A23.2-3A	1	1	1
LOW DENSITY PARTICLES - % MAXIMUM	CSA A23.2-4A	1	1	1
FRIABLE OR SLATEY SILTSTONE - % MAXIMUM	CSA A23.2-15A	1	1	1

**Notes:**

- (A) The ratio of the loss after 100 revolutions to the loss after 500 revolutions shall not exceed 0.265.
- (B) Test to be conducted on basalt rich or highly absorptive (> 1.5%) aggregates.
- (C) Pieces having two or more freshly fractured faces only will be considered as crushed material. Pieces with only small chips removed will not be considered as crushed.
- (D) Flat and elongated pieces are those whose greatest dimension exceeds four times their least dimension.
- (E) When only quarried rock is used as a source of coarse aggregate, a maximum of 2 percent passing the 75 µm sieve shall be permitted.

The Contractor must meet all the requirements above, while the guidelines below are provided for information purposes. The Contractor is responsible for ensuring the combination of aggregate conforms to the grading requirements of Table 3.

**Guidelines for Coarse Aggregate Gradation**

Sieve Size	Percent Passing by Dry Weight	
	Surface Course & Levelling Course Type I	Base Course & Levelling Course Type II
22.0 mm	100	100
19.0 mm	100	85-100
12.5 mm	85-100	50-80
9.5 mm	45-75	25-60
4.75 mm	0-10	0-10

9. Add Supplementary General Condition (SGC) 32 to the Tender as follows:

**32. PHYSICAL REQUIREMENTS OF ASPHALT AGGREGATE - FINE AGGREGATE**

Contractors are advised Section 330.02.01.02.02 of the Specifications have been modified for this project as follows:

**330.02.01.02.02 Fine Aggregate**

Fine aggregate shall consist of clean, tough, rough-surfaced grains, free from clay, loam and other foreign matter. The fine aggregate stockpile shall contain no more than 20% retained on the 4.75 mm screen.

For RCU-80 and above highway classifications the maximum allowable percentage in total of all natural occurring fine aggregates plus blending sand in the total combined aggregate shall be 15% (by dry weight). For

RLU-80 and below highway classifications the maximum allowable percentage in total of all natural occurring fine aggregates plus blending sand in the total combined aggregate shall be 20% (by dry weight).

For all base and levelling type II course mixes the fine aggregates maximum percentage passing the 75 µm sieve is limited to 7% prior to mix production at the asphalt plant. All surface and levelling type I course mixes the fine aggregates maximum percentage passing the 75 µm sieve is limited to 6 % prior to mix production at the asphalt plant.

Irrespective of compliance with the physical requirements of Tables 2 any fine aggregate may be accepted or rejected on the basis of past field performance at the discretion of the department.

**TABLE 2  
Physical Requirements for Fine Aggregates**

TEST METHOD	TEST NO.	HIGHWAY CLASSIFICATION		
		RAU & RAD-100 RAU & RAD-90, RCU-80		RLU-60, RLU-70 RLU-80
		SURFACE	BASE	ALL COURSES
MICRO-DEVAL TEST FOR FINE AGGREGATE - % MAXIMUM	ASTM D 7428	17	20	20
PLASTICITY INDEX	ASTM D4318	0	0	0
SAND EQUIVALENT - % MINIMUM	ASTM D 2419	50	50	50
FINE AGGREGATE ANGULARITY - % MINIMUM (A)	ASTM C 1252	45	45	45

**Note:**

- (A) FAA tests shall be conducted on a representative sample of the total fine aggregate inclusive of all fine aggregate materials as indicated in the mix design including blending sand. The test will be conducted in accordance with Standard Graded Sample Method A

The Contractor must meet all the requirements above, while the guidelines below are provided for information purposes. The Contractor is responsible for ensuring the combination of aggregate conforms to the grading requirements of Table 3. Contractors should also be aware of material breakdown after crusher production testing for the material being utilized and their plants capabilities in producing the mixture in accordance with Table 3.

**Guidelines for Fine Aggregate Gradation**

Sieve Size	Percent Passing by Dry Weight	
	Surface Course & Levelling Course Type I	Base Course & Levelling Course Type II
9.5 mm	100	100
4.75 mm	90-100	85-100
2.00 mm	40-60	40-90
0.425 mm	10-30	20-55
0.150 mm	5-16	10-25
0.075 mm	2-6	2-7

10. Add Supplementary General Condition (SGC) 33 to the Tender as follows:

### **33.END PRODUCT SPECIFICATION LOT QUANTITY**

Contractors are advised Section 330.06.02.05 of the Specifications have been modified for this project as follows:

#### **330.06.02.05 Lot**

##### **Lot Quantities Greater than 4800 tonnes**

For each mixture type specified, a Lot is defined as the quantity of asphalt concrete plant production, to a total of 2400 tonnes, where approved changes to the Job Mix Formula have not occurred. For loose samples, each Lot shall be divided into 4 (four) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, each Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

If it is the last time the mix is produced and this criterion cannot be met (i.e. less than 2400 tonnes of mix remain), the following shall apply:

If the remaining plant production is 600 tonnes or less, the production will be added to the previous Lot. The adjusted Lot shall be divided into 5 (five) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, the adjusted Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

If the remaining plant production is between 600 and 1200 tonnes, the production will be added to the previous Lot. The adjusted Lot shall be divided into 6 (six) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, the adjusted Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

If the remaining plant production is greater than 1200 tonnes, but less than 2400 tonnes, the production will be designated as a separate Lot. The separate Lot shall be divided into 4 (four) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, the adjusted Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

In all cases above, the lot size shall be equally segmented and random samples selected from each segment.

A separate Lot will be established at the discretion of the Engineer if conditions of construction indicate that it is likely that a portion of the Lot production is significantly different from the remainder of the Lot production.

##### **Lot Quantities Greater than 1000 tonnes and Less than and Equal to 4800 tonnes**

For each mixture type specified, a Lot is defined as the quantity of asphalt concrete plant production, to a total of 1600 tonnes, where approved changes to the Job Mix Formula have not occurred. For loose samples, each Lot shall be divided into 4 (four) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, each Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

If it is the last time the mix is produced and this criterion cannot be met (i.e. less than 1600 tonnes of mix remain), the following shall apply:

If the remaining plant production is 400 tonnes or less, the production will be added to the previous Lot. The adjusted Lot shall be divided into 5 (five) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, the adjusted Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

If the remaining plant production is between 400 and 800 tonnes, the production will be added to the previous Lot. The adjusted Lot shall be divided into 6 (six) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, the adjusted Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

If the remaining (or original mixture type) plant production is greater than 800 tonnes, but less than 1600 tonnes, the production will be designated as a separate Lot. The separate Lot shall be divided into 4 (four) approximately equal segments and one loose sample is randomly selected from each segment. For core samples, the adjusted Lot shall be divided into 4 (four) approximately equal segments and three adjacent core samples are taken from each segment at a single random location.

In all cases above, the lot size shall be equally segmented and random samples selected from each segment.

A separate Lot will be established at the discretion of the Engineer if conditions of construction indicate that it is likely that a portion of the Lot production is significantly different from the remainder of the Lot production.

11. Add Supplementary General Condition (SGC) 34 to the Tender as follows:

#### **34.END PRODUCT SPECIFICATION JOB MIX FORMULA**

Contractors are advised Section 330.06.04.05 of the Specifications have been modified for this project as follows:

##### **330.06.04.05 Establishing a Job Mix Formula (JMF)**

The Contractor shall establish a JMF for each mix type by placing a specified quantity of trial mix (asphalt concrete) at a location designated by the Engineer. The maximum allotted quantity of asphalt concrete allowed for establishment of the JMF is as follows:

##### **For Quantities greater than and equal to 4800 tonnes**

- Base Course: 600 tonnes
- Surface Course: 600 tonnes
- Alternatively, the Contractor may elect to waive their trial mix option and submit their JMF (and supporting documentation) directly to the Engineer for approval.

##### **For Quantities greater than 1000 tonnes and less than 4800 tonnes**

- Base Course: 200 tonnes
- Surface Course: 200 tonnes
- Alternatively, the Contractor may elect to waive their trial mix option and submit their JMF (and supporting documentation) directly to the Engineer for approval.

The asphalt concrete placed in the trial sections will be tested with a minimum of 3 QC tests to determine if it meets the requirements of Section 330.02, however, unit price adjustments and repair/replace/reject criteria will be applied to the Thickness and Density properties. The asphalt concrete shall be assessed for surface defects in accordance with 330.06.07 Surface Defects

12. Add Supplementary General Condition (SGC) 35 to the Tender as follows:

### **35.END PRODUCT SPECIFICATION PLACEMENT REQUIREMENT**

Contractors are advised Section 330.06.05.04 AND Section 330.06.05.04.01 of the Specifications have been modified for this project as follows:

#### **330.06.05.04 Placement**

The Contractor shall not place asphalt concrete during rain, or when the surface is frozen, nor when the pavement surface shows signs of free-standing water or when the air temperature at surface is below 7<sup>o</sup>C.

Asphalt concrete shall be placed upon a prepared surface which is free of any loose or foreign material. The asphalt concrete shall be spread by a mechanical self-powered paver capable of achieving the specified grade, line and crown.

Placement of asphalt concrete shall only be conducted during daylight hours, unless specifically noted otherwise in the contract specifications.

Contact edges of existing mats, milled asphalt pavements, perimeters of asphalt patches and contact faces of curbs, gutters, manholes, sidewalks bridge structures, as well as any new mat joint having a temperature less than 60<sup>o</sup>C shall be coated with a thin film of hot liquid asphalt before placing the asphalt concrete all other joint edges shall be coated with asphalt tack coat.

Failed areas in existing surfaces (paved or gravel) shall be repaired, as directed by the Engineer. Areas requiring repair will be identified by the Engineer in consultation with the Contractor. Irregularities in the horizontal alignment and grade along the outside edge of the asphalt concrete shall be corrected by the addition or removal of mix before the edge is rolled. Paving of intersections, extra widths and other variations from standard lane alignment and as defined in the contract, whether by hand spreading or machine laying, shall be carried out concurrently with the machine laying operation of the regular mat, unless otherwise approved by the Engineer.

Fuel spills from the Contractor's equipment shall be immediately repaired by the Contractor to the satisfaction of the Engineer.

Paving of intersections, ramps and driveway tie-ins are integral with the work. No separate payment or compensation will be provided for this work.

#### **330.06.05.04.01 Material Transfer Device/Vehicle**

Unless otherwise noted within the tender documents for all highway classifications, a Material Transfer Device/Vehicle shall be used at no extra cost to transfer the project's top lift of asphalt mixture (base, leveling or surface material) from the transport vehicles to the asphalt spreader. The purpose of the Materials Transfer Device is to minimize segregation during placement of the asphalt pavement and to increase the smoothness of the pavement surface by reducing the number of stops and starts during the placement of the asphalt pavement. The Material Transfer Device shall be utilized in conjunction with a hopper insert in the asphalt spreader. The hopper insert on the asphalt paver shall be kept full at all times. Cycling the hopper wings of the asphalt paver shall be kept to a minimum.

When required to pave on granulars, a self-propelled transfer vehicle is required.

Prior to being utilized the Material Transfer Device/Vehicle shall be approved for use by the Engineer.

Locations where it is deemed by the Engineer that it is not practical to maneuver and/or safe to utilize a Material Transfer Device/Vehicle shall be identified within the tender documents. For such pre-identified locations no price adjustments to the various hot mix asphalt unit prices will be applied. However, if a Contractor still chooses to proceed with the use of their Material Transfer equipment in a safe manner no



additional or other compensation will be applied.

Locations as noted by the Contractor and subsequently agreed with by the Engineer as not practical to maneuver and/or safe to utilize a Material Transfer Device/Vehicle and which were not pre-identified within the tender documents shall have a 5% unit price reduction applied. The price reduction will apply to the various hot mix asphalt unit prices of the material quantities where the Material Transfer Device/Vehicle was not utilized.

The Contractor will be responsible for all surface defects or any other pavement defect irrespective of the utilization or not of a Material Transfer Device/Vehicle.

**13. Replace** Page 3-4 of the Unit Price Table with the page appended to this addendum to correct reference to SGC # 17 for Contract Item No. 121. Make the same adjustment in the Distribution of Quantities.

**14. Revise** header for Part "A" in the Distribution of Quantities to read: Part "A" - Rehabilitate 11.75km of R410, Fleur de Lys Road between km 66.7-68.15, km 77-78.2 & km 80.9-90 to a RLU80 Standard.

**15. Revise** the location map for Part "B" of the project with the revised map appended to this addendum.

Contractors are advised to acknowledge receipt of this Addendum on page 4, Item No. 10 of the Tender Form, when submitting a bid.

**Date March 24, 2014**

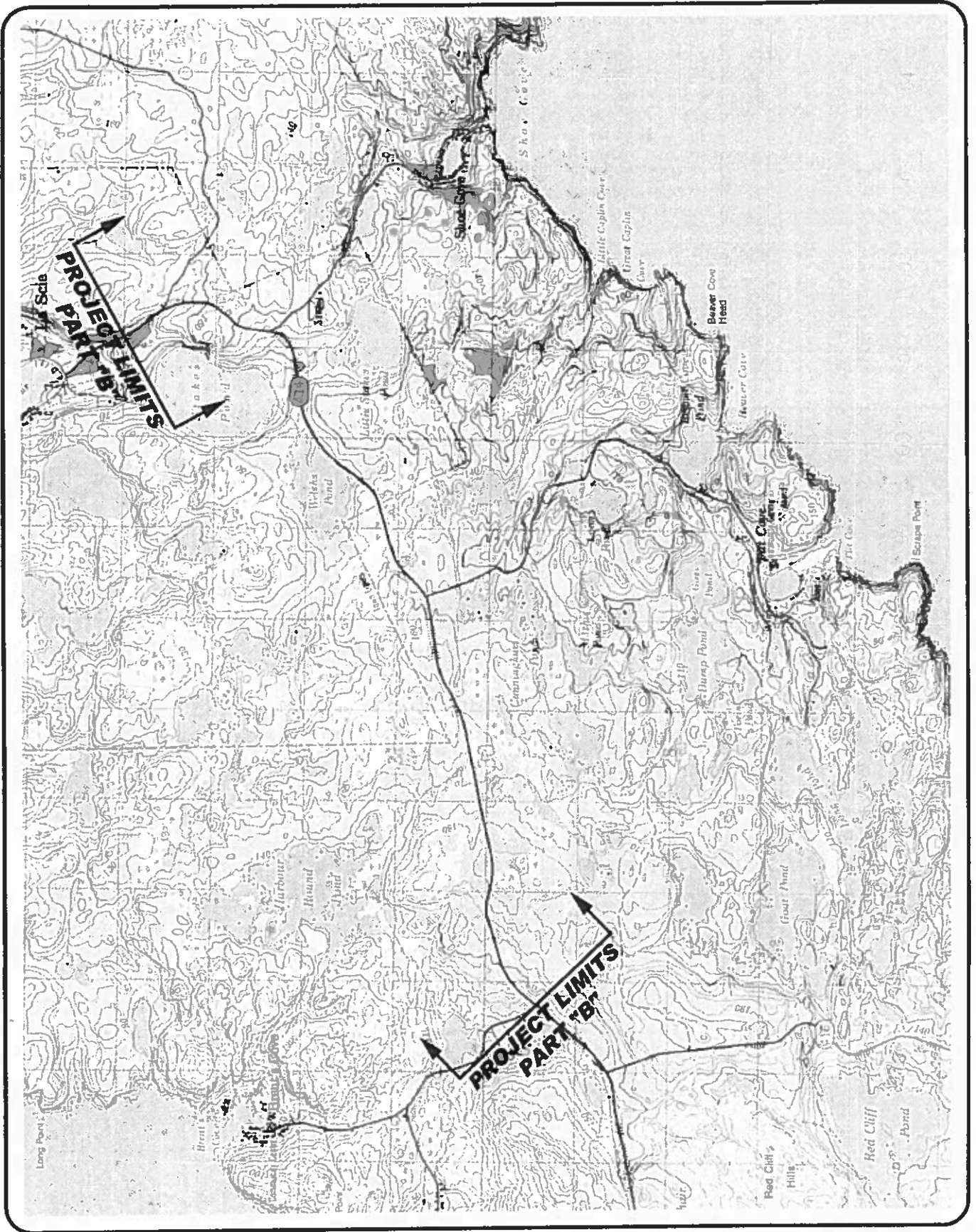
UNIT PRICE TABLE  
HIGHWAYS

NO.	TENDER ITEM	Unit	Estimated Quantity	Unit Price	Amount	
<b>CARRIED FORWARD \$</b>						
28	<b>Disposal of Pipes &amp; Culverts</b>					
28(a)	All Sizes	m	800			
34	<b>Pulverize Existing Asphalt</b>					
		m2	64680			
47	<b>Supply Fill in Place</b>					
47(d)	Supply Rock Fill in Place	m3	6999			
104	Full Time Contractor Safety Officer (See SGC # 26)	Lump Sum	Bid This Item			
121	<b>Remove &amp; Reinstall Signs and Signposts (See SGC# 17)</b>					
121(a)	Type "A"	EACH	6			
121(b)	Type "B"	EACH	1			
121(c)	Type "C"	EACH	1			

Total Estimated Tender

HST 13% of above

Total Estimated Tender Including  
HST Carried Forward to Page 1 of  
Tender Form

Newfoundland  
 Labrador  
**TRANSPORTATION AND WORKS**  
 HIGHWAY DESIGN DIVISION

PROJECT NO. 109-13 PHP  
 PROJECT LOCATION  
 PART 'B'

DRAWN BY: R. Langmead | DATE: Rev March 24, 2014 | NOT TO SCALE