Tuesday, December 16th, 2014
5:30 p.m.
Lanark Highlands Municipal Office - 75 George Street, Lanark, Ontario
Council Chambers

Chair, Deputy Mayor John Hall

1. CALL TO ORDER

2. DISCLOSURE OF PECUNIARY INTEREST & GENERAL NATURE THEREOF

3. APPROVAL OF AGENDA

*Suggested Motion:*
"THAT the agenda be adopted as presented."

4. COMMUNICATIONS

   i) French Line Bridge Project, Deputy Mayor Hall

   *Suggested Motion:*
   "THAT the communications dated December 16th be received as information."

5. BUSINESS

   i) French Line Bridge Contract Update
      David Ennis, Superintendent of Public Works

   *Suggested Motion:*
   "THAT the French Line Bridge Contract update be received as information."
ii) **Sheridan Rapids Bridge Update**  
David Ennis, Superintendent of Public Works

*This information will be distributed separately

**Suggested Motion:**  
“THAT the Sheridan Rapids Bridge update be received as information.”

6. **ADJOURNMENT**
To: Members of Council  
From: John Hall  
Re: French Line Bridge Project  
Date: Dec 11th, 2014

The following is the reference the French Line project in the agendas and minutes of the Committee of the Whole and Council meetings.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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| November 27th, 2012, COW Meeting | Ross Trimble, Interim CAO, advised that there was an opportunity for an Infrastructure grant for replacement of the French Line Bridge.  
The potential is for up to 90% funding and the project is in the $1.2 million range |
| Dec 20th, 2012 Council meeting | Council approved resolution 2012-348  
**“THAT, the Council of the Corporation of the Township of Lanark Highlands submit the completed Expression of Interest, along with the declaration, to the Ontario Ministry of Agriculture, Food and Rural Affairs for the replacement of the French Line Bridge;**  
**AND FURTHERMORE THAT** Council is committees (sic) to completing their Asset Management Plan by the end of 2013.” |
| May 21, 2013, COW meeting | Mayor Peter McLaren announced that the Township had been selected for funding under the Municipal Infrastructure Investment Initiative – Capital program with the Province of Ontario will provide up to $1,099,008.00 towards the French Line Bridge Replacement. |
| August 19th, 2013 | Staff issued a Request for Proposals for the engineering services. The main timelines for the project in the RFP were as follows:  
Sep 10th, 2013 - RFP submission due  
Nov 25th, 2013 - Select consultant and award contract (may be delayed for up to three weeks if interviews are required)  
May, 2014 - Bridge Construction Tender Call  
July 2014 – Construction commencement |
| Oct 1, 2013, COW meeting | Staff submitted a report indicating that Proposals for the engineering services for the French Line Bridge were received ranging from $46,330 to $182,419. The committee approved a recommendation from staff:
  
  “That, GD Jewell be awarded the design tender for the French Line Bridge”  
  
  *(GD Jewell’s proposal was the second lowest at $82,495)* |
Oct 22, 2013, Council meeting

Hp Engineering who submitted the lowest proposal for $46,330 made a presentation to council. As a result of the presentation, the recommendation to award the contract to GD Jewell was deferred and:

“Staff was directed to provide a revised report to the November 19th Committee of the Whole meeting in light of the information provided as part of the delegation by HP Engineering on October 22nd, 2013”

Nov 19, 2013, COW meeting

Staff submitted a new report with a recommendation:

“THAT, GD Jewell is the preferred proponent to be awarded the design tender for the French Line Bridge as their bid represents the best value.”

The recommendation was approved by a 4-3 recorded vote.

Dec 3, 2013, Council meeting

The resolution from the November 19th COW meeting was approved by a 5-2 recorded vote.

March 6th, 2014

A Public Consultation Meeting was held at the North Lavant Community Centre.

GD Jewell’s report dated March 10, 2014 indicated the main concern of the residents at the public meeting was the road closure during construction.

March 18, 2014 COW meeting

GD Jewell presented a report outlining 4 options that are being considered for the replacement of the bridge.

The four options were:
1) Pre-Engineered Steel Truss with Steel Deck - $1,150,000
2) Concrete deck on Steel Girders - $1,300,000
3) Concrete Deck on Precast Concrete Girders - $1,200,000
4) Alternate Bridge Design - to be Determined

The estimated additional cost for a box style rail was $30,000

GD Jewell report stated that considering bridge types alone, they would recommend option 3. However since option 1 is less expensive and can be constructed in less time they recommended option 1. Jewell also recommended that option #4 be included in the request for tenders.

The staff report contained a recommendation:

“That, Council selects bridge option number three: a concrete girder style bridge”

(Note: No decision was reached at this meeting – see the council meeting Mar 25th below)
March 18, 2014 Council meeting

In order to meet a milestone for the funding, council passed resolution #C-2014-026 as follows:

**THAT** the Council of the Corporation of the Township of Lanark Highlands accepts the eight (8) Expressions of Interest for the French Line Bridge Replacement at the budgeted amount of $1,150,000.00 conditional upon final design approval and receipt of the required permits from the Department of Oceans and Fisheries;

**AND THAT** Council confirms it shall proceed in preparing and awarding the construction tender as soon as the final design is confirmed;

**AND THAT** Council confirms it shall proceed with construction of the French Line Bridge Replacement as soon as the tender has been awarded and the required permits are obtained.”

March 25, 2014 Council meeting

Council adopted the following resolution:

**THAT** Council tenders bridge options number three and four; a concrete girder style bridge with a box rail.”

May 21, 2014

Tenders for the construction were received and opened at the Township office

June 3, 2014, COW meeting

GD Jewell presented two reports:

The first report dated May, 28th, 2014 indicated the tenders for the concrete girder style bridge with road closure during the construction ranged from $2,210,768 to $2,385,799. Tenders allowing the road to stay open ranged from $2,663,480 to $3,622,999.

The second report dated May 29th outlined 7 options for council to consider:

1) Accept Low Bid Submission
2) Redesign Replacement Bridge
3) Salvage Existing Bridge Foundations
4) Request Additional Funding from MIII Capital Program
5) Apply for Additional Funding Under Another Program
6) Retender Project for 2015 Construction
7) Apply Funding to an Alternate Project

The committee directed staff to:

STAFF ACTION – Public Works Staff to provide at the next Committee of the Whole meeting:
1) Draft RFP for Galbraith Road option
2) Options for further investigations for soils under the abutments of the French Line Bridge
3) Breakdown from Matt MacDonald for proposals received and an explanation of differences
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Details</th>
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<tbody>
<tr>
<td>June 17, 2014, COW meeting</td>
<td>GD Jewell submitted a report stating:</td>
<td>“Further to our letter dated May 29, 2014, if the Township would like to consider the re-use of the existing bridge abutments and footings, we recommend that further geotechnical investigation is conducted in an effort to confirm the properties of the soils directly under the existing bridge footings. If the bearing capacity of the existing soils under the existing footings is found to be within an acceptable range, salvaging the existing abutments could result in significant cost savings compared to the construction of a completely new structure”. The cost of the investigation was $13,000.</td>
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<td>June 24, 2014, Council meeting</td>
<td>Council approved a motion :</td>
<td>“THAT Council approves the completion of drilling through the bridge footings to determine underlying soil strength as recommended by the Townships Engineering consultant.”</td>
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<td>Nov 26, 2014</td>
<td>Tenders for the construction of the bridge using a ‘design build’ process were received and opened at the Township office. According to the tender document the tender amount were valid for 30 days.</td>
<td>(The ‘design build’ process means the contractor takes over responsibility for engaging an engineering firm to design the bridge) Mayor McLaren called a special council meeting for 10:00am, Nov 28.</td>
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<td>Nov 28, 2014, Council Meeting</td>
<td>GD Jewell advised council that 7 tenders were received ranging from $1,144,800 to $1,945,662 (including net HST). GD Jewell recommended that the lowest tender from Guardian Bridge Rapid Construction be rejected as it did not comply with the tender requirements. Council approved a recommendation from staff and GD Jewell:</td>
<td>“THAT Council award the French Line Bridge Contract to Louis Bray Construction”. The Tender amount from Louis W. Bray Construction Ltd for a truss style bridge was $1,188,369 including net HST. The tender amount included $36,000 for the cost of the engineering services to design the bridge.</td>
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Milestones

The milestones to be met in order to receive the funding in the original agreement with the Ministry of Rural Affairs for the project were as follows:

<table>
<thead>
<tr>
<th>Completion Date</th>
<th>End of Financial Assistance Deadline</th>
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<tbody>
<tr>
<td>1) Agreement Execution</td>
<td>October 22, 2013</td>
</tr>
<tr>
<td>2) Award of Construction Tender</td>
<td>February 24, 2014</td>
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<tr>
<td>3) End of Construction Date</td>
<td>September 24, 2014</td>
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</tbody>
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The revised milestones after the project was deferred until 2015 are as follow:

4) End of Construction Date | December 31, 2015 | March 15, 2016

Financial

1) Engineering
   The contract with GD Jewell was for $82,495 as follows:
   - Phase 1 – Preliminary design and geotechnical $27,328
   - Phase 2 – Detail Design and drawing preparation $22,263
   - Phase 3 – Tender preparation $ 9,195
   - Sub –Total $58,786
   - Phase 4 – Contract administration and inspection $23,710
   - Total $82,495

   To date, $63,486 has been paid to GD Jewell for Phase 1, 2 and 3 - $4,700 more than the contract provided. In addition, $13,000 was paid for the examination of the abutments. If the original amount of $23,710 is paid for phase 4, this part of the project will be overspent by $17,700.

2) Construction

   The project was approved for $1,200,000 and the contract award was for $1,188,369 leaving a balance of $11,361 in this part. The contract includes a contingency allowance of $25,000.
“THAT, Committee accept the French Line Bridge Update as information.

BACKGROUND

The French Line Bridge was placed at its current location in 1960. Before it serviced the road it was a section of the bridge that crossed the Mississippi river at County Rd 15 - it is stamped with the year 1947.

Bridge inspection and condition surveys, which are mandatorily completed every two years noted in 2007 that an in depth condition survey needed to be completed. In 2009 it was noted that the bracing and deck needed replacement and the load limit was to be immediately reduced to 15 tonnes. Most of the components of the bridge at that point were given one to five years for replacement.

In December 2012, the Township applied for funding from the Municipal Infrastructure Improvement Initiative (MIII). On May 21, 2013, it was announced that our application was successful. The grant is for 90% funding of 1.2 million dollars.

A request for proposal (RFP) for engineering services was issued on August 19th 2013. A report was taken to council on October 1st 2013 recommending GD Jewell be awarded the RFP. Council asked for additional information so a second report was issued in November 2013.

On December 3rd 2013 GD Jewell was chosen as the Townships engineering consultant. They prepared a public consultation (PIC) at the North Lavant Community Centre and found the major concerns of the public were the road closure and the straightening of the road. The information from the PIC was taken to council who selected a bridge type based on recommendations from GD Jewell and staff. Council also requested that side bids be placed for a bailey bridge and proponents be allowed to place bids for alternate bridge types.

Tenders were opened on May 21st 2014. The lowest bid was 1 million dollars over budget. Work needed to be completed during July and August 2013 to satisfy direction from the conservation authority regarding in water work in a fish spawning area. As there was no reason to believe the Township would have received a lower bid in time to complete the project the Township arranged with MIII for work to be completed in 2015.
At the direction of Council, GD Jewell completed drilling for an additional $13,000.00 in an attempt to bring the project within the budgeted amount. The Township also secured HP Engineering to begin work on the Galbraith Bridge as an alternate project for the funding before the project deadline was reached.

The French Line Bridge project was retendered on October 31st 2014 with the inclusion of the additional drilling information. The tenders were opened November 26th at 1 pm. Mayor McLaren had given 48 hours’ notice earlier that morning to award the tender on November the 28th 2014.

The Township received two bids that were within the budgeted amount. Unfortunately, the low bidder did not fill out the application as directed and his bid was rejected as informal. The second lowest bidder was Louis W Bray Construction at $1,188,369.05 including HST. Council accepted the bid from Louis W Bray on November the 28th 2014.

The bid from Louis W Bray was for a Truss style bridge. The amount of time the road is to be closed has dropped from an original 14 weeks to 8 weeks. While the Township could not straighten the alignment of the bridge the traveling surface has increased from 5.6 meters to 7.3 meters.

The bid from Louis W Bray is $11,630.95 under the budgeted amount. Their bid included $25,000.00 contingency so ideally the project will be $23,630.95 under the original budget amount when the additional $13,000.00 drilling cost is considered. GD Jewell indicated during the November 28th council meeting they project staying under their upset amount. In order to meet the final funding milestone the project needs to be completed by December 31st 2015.

**ENGINEERING COSTS – JD Jewell Engineering**

**Budget**

Phase 1 – Preliminary Design / EA / Disbursements $20,528

Geotechnical Reporting $6,800

Total $27,328

Phase 2 – Detail Design & Drawing Preparation / Disbursements $22,263

Phase 3 – Tender Preparation & Administration / Disbursements $9,185

Phase 4 – Contract Administration & Inspection / Disbursements $23,719

**Total Budget** $82,495

Costs to date (Phase 1,2,&3) (Note) $63,886
Note: includes 2 tender submissions – budget is for one
does not include additional $13,000 paid for additional
drilling as requested by Council

To date, $63,486 has been paid to GD Jewell for Phase 1, 2 and 3 - $4,700 more than the
budget submitted. In addition, $13,000 was paid for the examination of the abutments as
requested by Council. This amount was not part $82,495 budget. The awarded tender
includes $13,200 for inspections during the construction phase. JG Jewell has indicated,
this will probably result in savings in their Phase 4 budgeted costs re inspections.

Prepared and Submitted By:       Approved for Submission By:

Dave Ennis,
Superintendent of Public Works

Robert Bunker,
Acting CAO / Treasurer
“THAT, Council gives staff the direction to contract HP Engineering to certify the load limit on the South Sheridan Rapids bridge and develop a holding strategy until replacement is possible.”

BACKGROUND

The Sheridan Rapid’s South Bridge was built in 1930. The bi-annual bridge inspection completed in 2013 indicated that both the North and South bridges had a 1 to 5 year life span before replacement is required.

On December 3rd 2014 the South Sheridan Rapid’s bridge was struck by a five ton truck. There was extensive damage to the guard rails and some structural damage to the bridge. MacIntosh Perry was immediately contacted to perform a preliminary evaluation of the damage (report attached).

DISCUSSION

Staff contacted three engineering firms to obtain quotes to come up with rehab/holding options. All firms indicated that it was essential to verify the adequacy of the load posting by performing a structural analysis.

MacIntosh Perry’s suggestion was that rehabilitation was not a viable option for the structure based on their emergency evaluation. That structural analysis would be required for the bridge and that it would be costly. They recommend that the bridge be inspected every four months until a full replacement can take place.

GD Jewell’s proposal also required a complete structural evaluation and was otherwise similar to MacIntosh Perry’s evaluation. They also provided a price for preliminary rehabilitation options and cost estimates.

The lowest estimate came from HP engineering who proposed a two phase option. The first phase is the assessment of current load posting. The second phase is the development of a holding strategy.
FINANCIAL

<table>
<thead>
<tr>
<th>Company</th>
<th>Amount</th>
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<tbody>
<tr>
<td>MacIntosh Perry</td>
<td>$24,000.00 (approx.)</td>
</tr>
<tr>
<td>GD Jewell</td>
<td>$10,997.00 - $23,795.00</td>
</tr>
<tr>
<td>HP Engineering</td>
<td>$3,000.00</td>
</tr>
</tbody>
</table>

- Excludes HST

RECOMMENDATION

HP Engineering feels confident that they can complete the work as proposed at the stated cost. This price does not include design of any sort or further monitoring or work other than that which is detailed in the attached e-mail.

ATTACHMENTS

- Draft report from MacIntosh Perry
- Proposal from HP Engineering

Prepared and Submitted By:  
Dave Ennis,  
Superintendent of Public Works

Approved for Submission By:  
Robert Bunker,  
Acting CAO / Treasurer
McIntosh Perry Consulting Engineers (MPCE) was requested by the Township of Lanark Highlands to perform an emergency visual inspection of the Sheridan’s Rapids – South Structure Bridge. The structure is a steel pony truss and is located on Sheridan’s Rapids Road, approximately 2.70 km north of County Road 12.

The Township reported that the structure was struck by a vehicle and damage was incurred. The purpose of the inspection was to visually inspect and assess the condition of the structure at the point of impact. The inspection was completed on December 3rd, 2014 and its findings are summarized herein.

Two types of barriers are present at the structure location: one pedestrian barrier over the structure and approach barrier at all four corners of the structure. The pedestrian barrier is on either side of the roadway and is an open-type barrier affixed to the truss verticals and diagonals over the length of the structure. The pedestrian barrier is affixed at its ends to the gusset plates at the bearing locations via two angles. Approach barrier is affixed directly to the wingwalls and consists of steel posts and two steel circular HSS railings. The approach barrier is not connected or transitioned to the structure. Both barrier types fail to comply with current design standards and are not crash-tested configurations.

On December 3rd, 2014, the approach barrier and pedestrian barrier over the structure were struck by a vehicle at the southeast corner, see Picture 1. The impact damages were identified at the approach barrier, pedestrian
barrier, truss top chord, gusset plate and load posting sign. The damages at the southeast corner of the structure are summarized as follows:

- The approach barrier and its components have been damaged beyond repair, see Picture 1.
  - Two posts are severely bent away from the roadway, one of which is sheared off from the top of the wingwall; and
  - The two railings are bent about the middle post towards the embankment.
- The pedestrian barrier is ruptured and deformed beyond repair with missing components.
  - The plate at the end of the top railing, connected to the end vertical members has been twisted away from the roadway, see Picture 3;
  - The vertical posts affixing the end of the railing to the underlying gusset plate at the bearing seat have been twisted and contorted, see Picture 5. One post was sheared from the gusset plate and another was found in the waterway; and
  - The angle connected to the top railing to the truss top chord may have been twisted.
- The truss top chord was mildly scraped along the roadside edge of the top plate. No significant section loss was noted from the vehicular collision, see Pictures 13.
- The vehicle impact caused the exterior gusset plate to bend away from the structure along the line of the top flange of the truss top chord, extending to the bottom corner of the bearing plate, see Pictures 4 and 7. The exterior gusset plate was out of plumb by approximately 60 mm.
- The load posting sign had collapsed and was leaning on the southeast embankment.
- The truss members do not appear to have been deformed from the vehicle impact.

In lieu of performing a complete visual inspection of the structure, as per the Ontario Structure Inspection Manual (OSIM), some additional deterioration, not incurred from the collision, was noted at the time of inspection. Expanding on the findings of the previous OSIM inspection performed by MPCE in 2013, the previously documented corrosion and section losses of structural steel members was observed to have worsened in the following locations:

- Flanges of beams and stringers, see Pictures 10 and 14;
- Braces, see Picture 15; and
- Interior gusset plates and bearing locations, see Pictures 8, 9, 15 and 16.

4.0 RECOMMENDATIONS

On the basis of the new findings and the previous recommendations for the replacement of the structure within 1 to 5 years from 2013, MPCE recommends that replacement of the structure be considered within the next 1 to 2 years and the southeast and southwest gusset plates continue to be monitored. The state of deterioration of the structural components has worsened and, in light of the recent vehicular collision to the structure, there is potential for the current load posting of 15 tonnes to be insufficient. Therefore, it is recommended that the load posting be re-evaluated in the interim. The existing load posting sign should also be reinstated immediately.
Provided the state of the southeast approach barrier and pedestrian barrier, replacement and reinstatement with the same configuration is an option to the Township. It is noted, however, that the existing configuration does not comply with current design standards and, therefore, reinstatement would pose a hazard to vehicular traffic. Should the Township be willing to accept this risk and the implied liability, a similar system could be installed in the interim. The pedestrian barrier system should be replaced up to the splice location, approximately 4.70 m from the end of the pedestrian approach barrier, and a modified connection to the structure at the end will be required as the existing damaged gusset plate cannot be reused.

5.0 CLOSURE

Should you have any questions or require further information, please do not hesitate to contact the undersigned.

Report Prepared By:

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Structural Engineer
McIntosh Perry Consulting Engineers Ltd.
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APPENDIX A
SITE PHOTOGRAPHS
5 03/12/2014 Southeast Bearing - Deformation of Pedestrian Barrier Posts and Exterior Gusset Plate

6 03/12/2014 Southeast Bearing - From Embankment
Sheridan's Rapids – South Structure
EMERGENCY SITE INSPECTION REPORT
Prepared for the Township of Lanark Highlands

7 03/12/2014 Southeast Bearing - Exterior Gusset Plate

8 03/12/2014 Southeast Bearing - interior Gusset Plate
9 03/12/2014 Southeast Bearing

10 03/12/2014 Southeast Bearing and Floor Beam
11 03/12/2014 Southeast Connection of Pedestrian Barrier to Truss Top Chord

12 03/12/2014 Southeast Corner of Structure
13 03/12/2014 Southeast Truss Top Chord - Minor Scrapes and Gouges

14 03/12/2014 South Floor Beam - Severe Corrosion of Bottom Flange
15 03/12/2014 Southwest Bearing - Severe Section Loss of Brace

16 03/12/2014 Southwest Bearing
To: Thomas McCarthy

Subject: Sheridan's Rapids Bridge (South Structure)

Tom,

As requested, the following is a proposal for Engineering Services related to the Sheridan's Rapids Bridge (South Structure). It is our understanding that the Township is requesting proposals for the review of the existing structure, provision of an updated load posting and the provision of recommendations / cost estimates (as required) for a 'holding strategy' for the structure (i.e. to maintain an acceptable load posting / level of service) for the short term until a full rehabilitation / replacement of the structure can be implemented. The following provides the anticipated scope of work and our fees.

Phase 1: Assessment of Current Load Posting

This phase would include the following:

- Site review inspection to verify the current condition of the structure and individual components, take detailed measurements (for a structural evaluation), take photographs and obtain any other pertinent information required to complete the evaluation.
- Structural analysis of the bridge structure to verify the adequacy of the current load posting (15 tonnes) and to provide an updated load posting based on the current condition of the structure. The analysis would be carried out following Section 14 on the Canadian Highway Bridge Design Code, 2006 (CHBDC, CSA S6-06).

Phase 2: Development of a 'Holding Strategy'

This phase would include the following:

- Estimate of the remaining useful service life of the structure based on its current condition.
- Determination of the repairs required in order to prolong the useful service life of the structure governed by maintaining a minimum load posting (i.e. as determined by the Township based on the anticipated traffic over the bridge) and to ensure safety for the general public. Repairs could include gusset plate reinforcement / replacement, strengthening of individual members, etc.
- Preparation of budget cost estimates for the recommended repairs.
- This phase does not include any detailed design for the recommended repairs as we do not know exactly what work (if any) would be required in order to maintain the required level of service. A separate proposal can be provided for the detailed design as required.
- Recommendations regarding requirements for further monitoring of the structure (i.e. semi-annual inspections, etc.) as deemed necessary until the full rehabilitation / replacement is carried out.

The above work (Phase 1 & 2) would be summarized and presented in a written report. For project completion, we would be able to provide an updated load posting based on the structures' current condition (i.e. to allow the Township to immediately reduce the load posting / make alternative arrangements until repairs are effected as necessary) within 5 business days following notice of award. The submission of the full report (including recommendations for repairs / cost estimates and the recommended 'holding strategy') would be submitted within 15 business days following notice of award.
Our fee to carry out the above work (Phases 1 & 2) would be $3,000.00. Fee includes all disbursements but excludes HST.

We trust the above satisfies your requirements. Should you have any questions, comments or require further information, please do not hesitate to contact the undersigned.

Regards,

Tashi Dwivedi, P.Eng.
Principal

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Ottawa, Ontario K2H 8R2

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