CITY OF VICTORIA

Governance and Priorities Committee Report
For the Meeting of March 26, 2015

To:	Governance and Priorities Committee	**Date:**	March 19, 2015
From:	Dwayne Kalynchuk, P. Eng Director of Engineering and Public Works		
Subject:	Johnson Street Bridge Replacement Project Budget Adjustment		

Executive Summary

An additional $4.8 million is requested for the project due to the additional funds for the project contingency, increased costs due to schedule delay, and additional legal costs for external legal advice and participation in mediation. This will bring the total budget for the Johnson Street Bridge Project to $97.6 million. It is the project team's opinion that the majority of the additional costs are the responsibility of either the contractor and/or consultants, and the City will be seeking to recover these costs through the mediation process.

Any project requires a contingency fund, which is an allocation of money over and above a contract value and is needed to deal with unforeseen eventualities. Typically, for a project with this risk profile, a contingency is around 10% of the contract value. The initial contingency fund for the Johnson Street Bridge was recommended to be 10% but was reduced to 4%, or $2,515,000, as target value engineering savings of over $2 million were identified as potential opportunities to increase the contingency amount. The contingency amount was established in order to meet the construction ceiling level of $66 million which was approved by Council and for which grant funding was available. To date the only value engineering that has been realized is on the east abutment, which has increased the contingency by $300,000 bringing the total to $2,815,000.

Item	Amount
Initial Contingency	$2,515,000
Value Engineering Savings	$ 300,000
Current Contingency Commitments	-$1,344,573
Projected Contingency items	-$1,870,500
Contingency Shortfall	-$ **400,000**

Based on current commitments of $1,344,573 to the end of January from the contingency and known but not yet finalized items of $1,870,500, there is a budget shortfall of $400,000. While many of the risks related to design, scope and foundation construction are behind us, there are still two more years for the project. An additional $1.5 million is recommended for other unforeseen eventualities for a total of $1,900,000. This would increase the total contingency to 7.5%. City Council will continue to be updated on the status of the contingency during the quarterly updates.

The initial work schedule planned for the new bridge to be in operation September 30, 2015. With the fabrication of the steel re-commenced this month, the new bridge will open for use in January 2017. Total project completion will occur in June 2017. Since the funding agreement has a total project completion deadline of March 2017, the City has requested an extension for the Building Canada Fund Contribution Agreement. A similar extension will be applied for the Gas Tax Grant through UBCM.

The 15 month schedule delay will result in additional costs for a number of items including project insurance, city staff, auditors and additional professional services, and are estimated to be $2.5 million.

The project budget only included external legal assistance for the procurement phase. As the city is currently engaged in mediation involving external legal counsel, it is also recommended that $400,000 be identified for mediation and on-going external legal advice. The cost of the mediator, which is estimated to be $10,000 is being shared three ways with the contractor and the consultants. Should it be necessary to proceed to litigation, the allocation for legal services would be reviewed and reported back to Council.

With the majority of the foundation work being completed and fabrication of the bascule underway, there are limited opportunities for cost reductions or savings. However, the public art ($250,000) and the E&N Train Station ($204,000) are two possibilities for cancellation to reduce the project cost by $454,000.

Staff are recommending that $4.8 million be funded from the Building and Infrastructure Reserve to fund the additional contingency needs, legal costs, and cost due to the delay.This amount could be reduced by $454,000 for the cost reduction opportunities for public art, and the train station.

There are limited options for the city other than complete the project and seek resolution of additional costs through the mediation or litigation process. The consequences of halting the project would be substantial shutdown costs, site remediation costs, and additional maintenance costs to keep the existing bridge operational. Also, the federal grants received to date would need to be paid back.

Recommendations:
That City Council:

1. Approve an increase in the project budget of $4.8 million less any acceptable cost reduction opportunities with funding from the Building and Infrastructure Reserve.
2. Direct staff to transfer to the Building and Infrastructure Reserve any costs recovered from other parties.

Respectfully submitted,

Dwayne Kalynchuk,
P. Eng., Director of
Engineering and Public
Works

for Jonathan Huggett, P. Eng.
Project Director

Report accepted and recommended by the City Manager:

Date: March 20, 2015

Purpose
The purpose of this report is to outline additional funding needs for the project contingency, increased costs due to schedule delay and additional legal costs for external legal advice and participation in mediation. The City will seek recovery for the majority of these costs from other parties who are responsible for the delay. This report also identifies opportunities to reduce costs.

Background
At the February 26, 2015 GPC meeting, City Council approved the following motion:

"That Council direct staff to bring forward options for Council to increase the project contingency, and/or to reduce costs to the March 26, 2015 GPC meeting."

Issues and Analysis
Current Status of the Initial Project Contingency
Any project requires a contingency fund, which is an allocation of money over and above a contract value. The purpose of the contingency is to permit the Project Manager to deal with unforeseen eventualities on a project without having to return to Council for every small change in the Project requirements. Typically a contingency is around 10% of the contract value. The initial contingency fund for the Johnson Street Bridge was recommended to be 10%, but was reduced to 4%, or $2,515,000, as target value engineering savings of over $2 million were identified as potential opportunities to increase the contingency amount. To date the only value engineering that has been realized is on the east abutment which has contributed $300,000 to the contingency, bringing the total to $2,815,000. Appendix C from the PCL Contract – Schedule of Prices identified potential upset costs assigned for items based on a risk review and also detailed value engineering targets. Commitments to the end of January from the contingency total $1,344,573 and are detailed in the table below.

Item	Committed at January 2015
West side archaeological	$ 50,000
Unforeseen geotechnical conditions	$ 19,000
Contaminated material removal and disposal	$ 329,054
Hydro relocation and power supply	$ 357,426
City services (Telus pole relocation)	$ 7,533
Environmental permitting	$ 1,400
City Quality Assurance for steel fabrication	$ 120,000
Architectural services	$ 15,000
Resolution of steel fabrication	$ 123,204
Detailing workshops	$ 53,156
Supplementary consulting services	$ 264,600
Utility reference plan	$ 4,200
Total	**$1,344,573**

Going Forward Scenario
In moving forward with the Project there are a number of financial considerations:

- Staff have estimated additional known costs to be covered by the contingency.
- An unallocated contingency is recommended for the balance of the project which will last another two years.
- The schedule delay due to the stoppage of fabrication has caused additional costs.
- Additional funds are needed for mediation and legal advice.
- Various claims for additional costs have been made by PCL and MMM, and a mediation process has been established to determine the validity of those claims. This request for approval of an additional contingency fund does not include any additional funds required as a result of the mediation issues. Any additional required funds as a result of the mediation will be dealt with as a separate submission to Council when the mediation is complete.

A projection of remaining known items to be covered by the contingency totals $1,870,500. The following table identifies the projected items with details provided in Appendix F.

Item	Projected Cost
Fendering	$ 530,000
Additional landscaping costs	$ 450,000
Multi-use trail overpass	$ 100,000
East side archaeological monitoring	$ 50,000
Additional Owners Quality Assurance Program	$ 40,000
Requirement for additional seabed land	$ 50,000
Additional habitat compensation	$ 173,000
Changes to CCTV cameras and marine lights	$ 100,000
Environmental permitting	$ 5,000
Graffiti prevention	$ 15,000
Generator load bank relocation	$ 82,500
Unforeseen geotechnical and subsurface issues	$ 225,000
Imported fill	$ 50,000
Total	**$1,870,500**

With a total contingency of $2,815,000, reduced by commitments to the end of January of $1,344,573 and projection of further known items of $1,870,500, results in a $400,000 shortfall.

Therefore, the project team recommends additional funds of $400,000 for the shortfall and an additional $1.5 million for other unforeseen eventualities, as there are still more than two years until completion of the project, for a total of $1,900,000. This would place the total contingency at 7.5%. City Council will continue to be updated on the status of the contingency during the quarterly updates.

Schedule

The initial work schedule identified in the PCL contract identified the date of September 30, 2015 as the date to complete the new bridge and total completion of the project, which would include dismantling of the old bridge and completion of all landscaping was to be done no later than March 2016.

With the fabrication of steel delayed and only re-commencing in March (as noted in Appendix A), the Contractor, along with their fabricator, have re-calculated the project schedule for the balance of the project and are now identifying the new bridge for use, January 2017, and total project completion June 2017 (Appendix B).

This 15 month delay will not comply with the dates presently in our funding agreements with the federal government. The Building Canada Fund Contribution Agreement states that the Agreement will terminate on the earlier of eighteen months after the substantial completion date of the project or March 31, 2017.

Since our funding agreement has a total completion deadline of March 2017, the city has requested an extension for the Building Canada Fund Contribution Agreement from the Federal Minister of Infrastructure, Communities, and Intergovernmental Affairs (Appendix D). A similar extension will be applied for the Gas Tax Grant through UBCM.

Costs Due to Delay

This schedule delay will result in financial impacts to the city. The 15 month delay translates to additional costs for a number of items including project insurance, city staff and advisors costs, auditors, contribution costs, and additional professional services from the consulting team. A letter (Appendix E) has been provided by MMM Group outlining estimated costs to complete the project by April 2017. While this date is different than the Contractor's completion date of June 2017, the Contractor's schedule does include a shutdown period which will not require consulting services. The proposal includes an extension of on-site Project Manager, on-site Engineer, and extension of MMM office support, including document control, invoicing, and other project control functions. The sub-consultants for the bascule, Hardesty & Hanover ("H&H"), have included additional meetings and field reviews for steel and mechanical components of the bridge. The proposal is based on a Time and Expenses basis and will be closely managed by the Project Team. They are estimated to be $1,800,000 and are detailed in Appendix E. The delay also adds additional costs to the city including insurance ($280,000), project staff and advisors, auditors, and contribution

agreement costs ($420,000).

Legal Costs
The project budget only included external legal assistance for the procurement phase. As the city is currently engaged in mediation involving both PCL and MMM, and is utilizing external counsel to assist in that process, it is also recommended that $400,000 be identified for mediation and on-going external legal advice. The cost of the mediator, which is estimated to be $10,000 is being shared three ways with the contractor and the consultants. Should it be necessary to proceed to litigation, the allocation for legal services would be reviewed and reported back to Council.

Offsetting Cost Savings
The Project Team continues to look for opportunities to find cost savings for the Project. These are very limited given that:

- The majority of the foundation work is completed; and
- The steel fabrication in China is in progress.

There remain only a small number of items not in either contract that is under city control. These include public art ($250,000) and the E&N Train Station ($204,000). Certainly, either item could be deferred, reducing the total project additional funds required by $454,000.

Financial Impact

Based on current commitments of $1,344,573 to the end of January from the contingency and known but not yet finalized items of $1,870,500, there is a budget shortfall of $400,000. While many of the risks related to design, scope and foundation construction are behind us, there are still two more years for the project. An additional $1.5 million is recommended for other unforeseen eventualities for a total of $1,900,000. This would increase the total contingency to 7.5%. City Council will continue to be updated on the status of the contingency during the quarterly updates.

The total recommended amount of $4,800,000 could be reduced by $454,000 for the cost reduction opportunities for public art and the train station.

City will seek recovery for the majority of these costs from other parties who are responsible for the delay through the mediation process.

It should also be noted that those additional funds do not include an amount for either the Contractor's or the Consultant's claims which are subject to mediation.

There are limited options for the City other than complete the project and seek resolution of additional costs through the mediation or litigation process. The consequences of halting the project would be substantial shutdown costs, site remediation costs, and additional maintenance costs to keep the existing bridge operational. Also, the federal grants received to date would need to be paid back.

Budget adjustment Summary

Description of Costs	**Amount**
Insurance	$ 280,000
Additional city costs	$ 420,000
Professional consulting services	$1,800,000
Current contingency shortfall	$ 400,000
Legal costs for mediation	$ 400,000
Unallocated contingency to completion	$1,500,000
Total	**$4,800,000**

Options and Impacts

1. City Council approve the additional funding.

   Impact: The project team will continue to work with the consultant and contractor to complete the project in the amended schedule and the city will seek to recover these costs through the mediation process.

2. City Council not approve the additional funding.

   Impact: With no additional funds for consulting services for the delay extension, the consultant would halt work, which in turn would affect the construction to the point where the project would shut down. The consequences of halting the project would be substantial shutdown costs, site remediation costs, and additional maintenance costs to keep the existing bridge operational. Also, the federal grants received to date would need to be paid back.

Recommendations:

That City Council:

1. Approve an increase in the project budget of $4.8 million less any acceptable cost reduction opportunities with funding from the Building and Infrastructure Reserve.
2. Direct staff to transfer to the Building and Infrastructure Reserve any costs recovered from other parties.

Attachments

- Appendix A – Letter from PCL dated March 3, 2015 re: re-start of steel fabrication
- Appendix B – Project schedule
- Appendix C – Schedule of Prices PCL Contract
- Appendix D – Letter from Mayor Helps to the Minister of Infrastructure, Communities, and Intergovernmental Affairs re: funding extension request
- Appendix E – Letter dated February 27, 2015 from MMM re: estimated costs to complete the project by April 2017
- Appendix F – Projected contingency to completion
- Appendix G – Contingency Status January 2015

Appendix A

CONSTRUCTION LEADERS

SHARING YOUR VISION. BUILDING SUCCESS.

March 03, 2015

VIA EMAIL: phan@ztssbridge.com

Mr. Paul Han
ZTSS Bridge North America
1101 Macy Dr.
Roswell, GA, 30076

Dear Mr. Han

RE: ZTSS BRIDGE NORTH AMERICA
Re-start of Steel Fabrication
Our File No.: 04-051200

This letter is issued as a limited notice to proceed with the fabrication of structural steel, and the removal of stop-work directives issued previously.

For the past several months, ZTSS, PCL, Atema, and representatives of the City's project team, including MMM and H&H, have been working to resolve the issues encountered in July and November 2014. As part of this resolution, certain fabricated steel elements have been scrapped by ZTSS, and replacement steel has been procured. Quality management plans have been revised by PCL, Atema, and ZTSS, and an independent inspection agency contracted to ZTSS to perform additional inspections. The resulting overall Quality Management Plan (QMP) has been approved by the City of Victoria, and represents a substantially different program than that established in early 2014.

In parallel with these efforts, the finalization of design and shop drawing production has continued, through multiple submissions and collaborative workshops in Canada and the USA. As of today, drawings have been approved by Hardesty & Hanover (H&H) for the trusses, orthotropic steel deck (OSD), lower counterweight, and rings. There remain a number of key items to be resolved, including:

- Finalization of updates to the truss and ring fabrication plans
- Finalization of lifting and handling plans

Based on the items contained in these plans that remain to be approved, the following limits are being placed on production until such time as these are resolved and approved.

- Truss fabrication can proceed up until the point of backing bar installation, at which time the revisions in the truss fabrication plan will need to be approved with respect to the backing bar installation methods.
- Ring fabrication can proceed up until the point of middle web assembly and welding, at which time the bracing and welding sequences will need to be resolved and approved by H&H

PCL CONSTRUCTORS WESTCOAST INC.
310 – 13911 Wireless Way, Richmond, BC, V6V 3B9
Telephone: (604) 241-5200 ♦ Fax: (604) 241-5301 ♦ Website: www.pcl.com

  - Cutting of the plates around the 12 o'clock bulkhead cannot proceed until such time as the design is finalized and the shop drawings approved for the elements currently noted as 'ON HOLD' in the returned shop drawings.
- OSD fabrication cannot proceed until the successful completion of the 'mini' mockup, currently scheduled to be completed the week of March 23.
  - Subject to the mockup being approved, OSD fabrication can proceed up until the point of 'super panel' assembly, at which time the OSD fabrication and lifting and handling plans will need to be approved.

As noted above, the scheduled OSD mockup and initial fabrication review remains scheduled to commence March 25, and will be attended by PCL and H&H at a minimum.

The steel fabrication has faced many challenges, and PCL is confident that the team we have selected for the fabrication have the ability, systems, and personnel to successfully complete this very important part of the project.

Trusting this direction meets your present needs, please contact me at your convenience to discuss any questions or concerns you may have.

Regards,

PCL CONSTRUCTORS WESTCOAST INC.

Mark Donahue, P.Eng
Project Manager
DIRECT LINE: 250 410-0635

MD/rj

cc: Zhang Jian, ZTSS (*via email: jian.zhang@ztsschina.com)*
Jonathan Huggett, City of Victoria *(via email: jhuggett@jrhuggetco.com)*
Dwayne Kalynchuk, City of Victoria *(via email: dkalynchuk@victoria.ca)*
Didier Samouilhan, MMM *(via email: samouilhand@mmm.com)*
Brian Mileo, H&H *(via email: bmileo@hardesty-hanover.com)*
Keith Griesing, H&H *(via email: kgriesing@hardesty-hanover.com)*
Steve Lawton, Atema (*via email: s.lawton@atema.com)*
Terry Logan, Atema (*via email: telogan@atema.com)*
James Callahan, Atema *(via email: j.callahan@atema.com)*
Anna Petroski, Atema (*via email: a.petroski@dotqs.com)*
TB/AT/JP/KL/TV, PCL *(via email)*

Appendix B

Activity Description	Early Start	Early Finish	Duration (Weeks)	2015 02	2015 03	2015 04	2015 05	2015 06	2015 07	2015 08	2015 09	2015 10	2015 11	2015 12	2016 01	2016 02	2016 03	2016 04	2016 05	2016 06	2016 07	2016 08	2016 09	2016 10	2016 11	2016 12	2017 01	2017 02	2017 03	2017 04	2017 05	2017 06	2017 07
Steel Fabrication & Shipping	3/1/2015	06/05/2016	66																														
Bridge Machinery Fabrication	02/23/2015	11/23/2015	39																														
Pre-Cast Erection	06/19/2015	06/26/2015	1																														
Bridge Decks - East	06/26/2015	10/23/2015	17																														
Bridge Decks - West	06/26/2015	09/18/2015	12																														
Site Shut Down #1	10/23/2015	11/23/2015	4																														
Bridge Machinery Installation (Preliminary)	11/23/2015	02/01/2016	10																														
Finishes - East	01/26/2016	02/23/2016	4																														
Finishes - West	01/26/2016	02/09/2016	2																														
Site Shut Down #2	02/23/2016	06/05/2016	15																														
Steel Erection	06/05/2016	09/18/2016	15																														
Bascule Span, Miscellaneous (Final)	09/18/2016	11/27/2016	10																														
Deck Over Counterweight	09/18/2016	10/30/2016	6																														
Machinery (Final)	11/27/2016	01/15/2017	7																														
Roadway Work - Traffic Shift	12/04/2016	01/15/2017	6																														
Bridge Ready for Traffic	01/15/2017	-	N/A																														
Traffic Shift (New Bridge)	01/15/2017	-	N/A																														
Demolition	01/15/2017	04/16/2017	13																														
Roadworks / Plazas / Landscaping / Finishes (Final) - East	04/16/2017	06/04/2017	7																														
Roadworks / Plazas / Landscaping / Finishes (Final) - West	04/16/2017	06/04/2017	7																														
Demobilization / Punchlist	06/04/2017	06/25/2017	3																														
Substantial Completion	-	06/25/2017	N/A																														
Final Completion	-	06/25/2017	N/A																														

APPENDIX C – SCHEDULE OF PRICES

1.	**Contract Price** (Article 4.1 of the Agreement)	$63,235,000
	A. Cash Allowances – (included in Contract Price)	
	i. Environmental Permitting and Processing (Appendix G)	$110,000
	ii. Landscaping (Appendix G)	$880,000
2.	**Harbour Road Retaining Wall**	
	i. design and construction	$390,000
	ii. off-Site soil disposal	$255,000
	(To be added to the Contract Price upon written direction under Appendix B – Scope of Work, and managed as Cash Allowance – funding to come from other sources and not from Total Available Funding.)	
3.	**Project Completion Contingency:** (Article 4.2 of the Agreement):	
	A. Total Available Funding (Article 4.2 of the Agreement):	$66,000,000
	B. Contract Price (Article 4.1 of the Agreement)	($63,235,000)
	C. Funding for design consultant – optimizations	($250,000)
	D. Project Completion Contingency as of Effective Date	$2,515,000
4.	**Allocated Contingencies:**	
	A. Archaeological	$250,000
	B. Unforeseen Geotechnical and Subsurface Conditions	$600,000
	C. Hazardous Materials	$250,000
	D. Girder Span Depth	$30,000
	E. Structural Steel Overrun (see Article 4.4 of Agreement)	$600,000
	F. Imported Fill	$80,000
	G. Hydro Relocation and Power Supply	$150,000
	H. City Services	$200,000
	I. Environmental Permitting and Processing	$25,000
	J. Multi-Use Trail Overpass Bridge (if changed to steel)	$250,000
	K. Additional structural support for Fendering	$462,500
	L. City Quality Assurance for Structural Steel	$75,000
	M. Requirement for additional seabed land	$50,000
	N. Fabrication Shop Drawing – Third Party Detailer	$50,000
5.	**Target Value Engineering Amounts:** (Article 4.4 of the Agreement)	
	A. Replace Indicative Design with attached configuration including shortening of East end span (see Attachment 1 to this Appendix C)	$900,000
	B. Replace West Pier with extended pile configuration	$125,000
	C. Replace Indicative Design of West Abutment (see Attachment 2 to this Appendix C)	$350,000
	D. Reduction of piles under Bascule Pier	$185,000
	E. Lighting – optimizing lighting design	$500,000

Appendix D

THE CITY OF VICTORIA

OFFICE OF THE MAYOR

February 2, 2015

The Honourable Denis Lebel
Minister of Infrastructure, Communities, and Intergovernmental Affairs
66 Slater Street, 8th Floor
Ottawa, Ontario
K1A 1M8

To the Honourable Minister Denis Lebel:

Re: City of Victoria – Johnson Street Bridge Replacement Project

It is with great pleasure that I write to you today, to provide a brief update on the progress that the City of Victoria is making in replacing the Johnson Street Bridge. This project is an excellent example of cooperation between different levels of Canadian government working together to achieve a common goal.

The Johnson Street Bridge provides an important transportation connection into Victoria's central business, entertainment, and tourism districts. It connects the growing residential area of Victoria West and neighbouring municipalities of Esquimalt, View Royal, Saanich, Colwood, and Langford with Victoria's downtown core.

With approximately 30,000 crossings taking place each day, including vehicles, local transit, pedestrians and cyclists, the Johnson Street Bridge is one of the busiest and most important transportation routes in the area. On average, more than 4,000 pedestrians and 3,000 cyclists use the bridge to access Victoria's downtown each weekday.

In 2009, an assessment of the Johnson Street Bridge identified many issues common to other bridges built in the 1920's – extensive corrosion, obsolete mechanical and electrical systems. It was determined that a substantial investment in the bridge would be required to avoid further deterioration, increasing operational costs, and possible closure.

Victoria City Council considered many factors important to the community when determining the bridge's future. These included safety concerns of the current bridge, heritage values, traffic and business disruptions, and accessibility needs for pedestrians and cyclists. After extensive public consultation, City Council decided to build a new bridge.

No.1 Centennial Square Victoria British Columbia Canada V8W 1P6
Telephone (250) 361-0200 Fax (250) 361-0348 Email mayor@victoria.ca

THE CITY OF VICTORIA

OFFICE OF THE MAYOR

Since signing a contribution agreement for the project with the federal government under the Building Canada Fund in March 2011, the City of Victoria has made marked progress in advancing the construction of the new bridge. Much of the work on the bridge's support piers is complete, and this winter project contractors are planning the single largest concrete pour in the history of the City of Victoria, to advance construction of the main bridge pier.

As you are aware, there have been some unforeseen delays in steel fabrication in China. Project consultants overseeing the fabrication of the main bridge trusses noted that some of the processes being used did not adhere to the required design specification. Work was stopped so that a review could be undertaken to ensure the integrity and safety of the structure. The difficulties have been resolved and work is planned to recommence as of March 1, 2015. Unfortunately, these delays mean that construction will still be in progress on the completion date agreed to in the contribution agreement between the Federal Government and the City of Victoria for the Johnson Street Bridge.

The City of Victoria would like to formally request a one year extension to the agreement, so that cooperation on this project can continue, despite these unforeseen delays.

Once complete, the Johnson Street Bridge Replacement Project will provide long-term benefits for the residents of Victoria, our neighbors in surrounding regions that commute across it daily, and the thousands of Canadians that visit our city each year.

Thank you for your ongoing support for the project and I look forward to hearing from you regarding our request for a funding extension.

Sincerely,

Lisa Helps
Victoria Mayor

No.1 Centennial Square Victoria British Columbia Canada V8W 1P6
Telephone (250) 361-0200 Fax (250) 361-0348 Email mayor@victoria.ca

Appendix E

MMM GROUP

MMM Group Limited

Project: 5012802

February 27, 2015

Jonathan Huggett, P. Eng.
City of Victoria
623 Pandora Avenue,
Victoria BC, V6V 3B9

Ref- Johnson Street Bridge Replacement Project; Supplementary Services - Updated cost to completion

Without Prejudice

Dear Jonathan,

INTRODUCTION

In accordance with your request and further to our previous correspondence on this matter, MMM is pleased to provide this summary of our estimated additional fees and expenses through to Project completion. The level of effort required by MMM to complete this Project is directly dependent on the performance of the Contractor and is entirely beyond our control. As such, we propose that any supplementary engineering services be undertaken on a Time and Expense basis. The cost estimates provided herein for the supplementary services to an assumed contract completion date of April 30, 2017 have been prepared on that basis and they should not be considered lump sum costs. If the City prefers a fixed price from MMM for these supplemental services, we will need to adjust our fees to reflect the risk inherit in that approach. However, for further clarity, such a "fixed price", should the City request one, would not include services extending beyond April 30, 2017. Please note that many of these tasks are currently in progress.

ESTIMATED COST-TO-COMPLETE

1. MMM Site-Based Personnel

The Contractor has indicated that they anticipate being 13 months late in completing the Project including an anticipated a complete project shut down period. We anticipate the need to continue

our site presence through to the completion of the Project. In response to this delay, to continue providing site contract administration services, we will require additional fees for the following:

- Extension of on-site Project Manager from March 2016 to anticipated completion date of April 30, 2017
- Extension of on-site Engineer (for partial duration)
- Extension of MMM office support services for 13 months including document control, invoicing and other project control functions

The costs associated with the extended duration of the services for the PM and Site Engineer are estimated to be $ 948 000 but could vary. For clarity, as is the case for all supplemental services identified in this letter, we are proposing that fees associated with the extended duration of the Contract be carried out on a time and expense basis. Should there be extended periods of reduced activity on site, it may be possible to reduce the number of months that 2 site personnel are required. A time and expense approach allows for flexibility in this respect.

2. Additional Meetings for H&H

As directed by the City, H&H has attended additional detailing technical meetings to assist the Contractor in completing its shop drawings and other matters related with refabricating the structural steel elements. We anticipate the current trend to continue until June 2016. We estimate that H&H will be required to attend an additional 80 meetings. Travel costs for the meeting attendance, including airfare, accommodations, meals and other miscellaneous travel costs, are excluded as we anticipate all meetings can be carried out via teleconference.

The associated cost for the supplementary effort under this task, limited to June 2016, is estimated to be **$47 000.** This may vary depending on the Contractor's performance.

3. Additional Field Reviews for H&H

The City has requested that MMM and H&H provide an increased level of assistance and oversight to the Contractor. We anticipate the City's continued requirements in this respect but again stress that such efforts can be curtailed as desired by the City. In response to this request and in follow-up discussions with both the City and the Contractor, a detailed program of additional field reviews was developed; it is summarized in Table 1.1. The visits noted below are over and above those in H&H's original scope although some of the visits are the subject of previously executed agreements with the City. It is our understanding that these additional field reviews were requested by the City and the Contractor to facilitate the advancement of the Project and to provide the Contractor with additional support from H&H through the completion of the Project.

Key resources from H&H will perform these facility and field observations based on the needs and scope of each visit identified in Table 1.1 below. It is been assumed that the observation staff shall be given unhindered access to the areas of work by the Contractor to adequately observe the construction / fabrication activities. It is anticipated that the shop and field assembly and erection plans will be reviewed in advance of the visits to achieve the level of efficiency we have anticipated.

The site and facility visits included under this task are not considered meetings noted under Section 2 above. Travel costs under this task for the meeting attendance, including airfare, accommodations, meals and other miscellaneous travel costs are included as estimates but will be invoiced as actual costs to the City.

A number of the meetings shown on Table 1.1 have been included under previously executed agreements. These are shown shaded (in grey) in the Table. No additional labour costs are included in this change order request for these activities. However, the shaded items associated with Change Order #5, as captured under previous agreements, were web based conferences. The Contractor has since requested the meetings be held in person. As such, travel costs for these meetings have been included under this change order request.

The anticipated resource demand and duration utilized as the basis of this scope and cost estimate for each of the visits are indicated on Table 1.1 on the following pages.

TABLE 1.1:

Description of Visit	No. Visits	Resources	Travel Time
SHOP AND FABRICATION OBSERVATION ACTIVITIES			
Machinery Fabrication-Estimated Duration-6 Months			
Pre-Fabrication Planning Meeting (Kick-off) (Included in CO#5, Item g)	1	Project Engineer Sr. Mechanical Engineer	2 Days
In Progress Fabrication	3	Project Engineer (1 Visit) Sr. Mechanical Engineer	3 Days
Machinery System Shop Assembly	3	Project Engineer (1 Visit) Sr. Mechanical Engineer	3 Days
Vendor and Supplier Visits (Wheels, Forgings)	2	Sr. Mechanical Engineer	2 Days
Machinery Fabrication at Steel Facility-Estimated Duration-3 Months			
Span Support Segment Fabrication	1	Sr. Mechanical Engineer	7 Days

Electrical and Controls Fabrication			
No supplementary visits anticipated	0	N/A	N/a
Structural Steel Fabrication-Estimated Duration-10 Months			
Fabrication Restart and OSD Mock-up	1	Project Engineer Sr. Technical Specialist	7 Days
Truss Assembly Progress	1	Project Lead or Project Engineer	7 Days
Shop Assembly (In Progress/Near Final)	1	Project Lead or Project Engineer	7 Days
Shop Assembly (In Progress/Near Final) (Included in CO#2)	1	Project Lead or Project Engineer	7 Days
Shop Assembly of Span Support Segments and Best Fit Center (Included in CO#2)	1	Project Lead or Project Engineer	7 Days
Shop Assembly of Span Support Segments and Best Fit Center	1	Sr. Mechanical Engineer	7 Days
Miscellaneous Fabrication			
Counterweight Lead Fabrication	1	Project Lead	2 Days

Description of Visit	**No. visits**	**Resources**	**Travel Time**
FIELD AND SITE OBSERVATION ACTIVITIES			
Machinery Installation-Estimated Duration-4 Months			
Field Activity Planning Meeting	1	Sr. Mechanical Engineer	1 Day
Field Activity Planning Meeting (Included in CO#5, Item h)	1	Sr. Mechanical Engineer	1 Day
Span Drive Machinery Initial (Rough) Installation	1	Sr. Mechanical Engineer	3 Days
Span Support System Install and Alignment	1	Sr. Mechanical Engineer	3 Days
Span Drive Machinery Pre-Final Alignment	1	Sr. Mechanical Engineer	3 Days
Electrical and Controls Installation-Estimated Duration-2 Months			
Field Installation Observation	2	Sr. Electrical Engineer	3 Days
Movable Bridge Structure Installation-Estimated Duration-6 Months			
Bascule Pier Construction Progress	2	Project Engineer	3 Days
Ring and Lower Counterweight (Rear	2	Project Lead (1 Visit)	6 Days

Portion) Installation and Alignment		Project Engineer	
Forward Span Install & align	2	Project Lead & Eng (1 Visit)	5 Days

The associated estimated cost for the supplementary effort under this task, including travel expenses, is **$ 280 000**.

4. Additional Shop Drawing and Submittal Reviews

The scope of services of this task includes the additional efforts required to review the Contractor's shop drawings and other Contractor submittals, including the submittals of vendors and subcontractors, for conformance with the Contract documents. This includes additional effort required for the review of the technical merit of the submission as well as administration of the shop drawing process as previously communicated to the City. The administrative aspects include the documentation of the shop drawing submissions and status with respect to the time limitations for review. The administrative aspects require one (1) hour of effort per originally submitted item.

The scope under this heading includes the review of an additional 120 shop drawings for the bascule span structure. This quantity was developed based the estimate of the remaining drawings identified by the Contractor for submission. This estimate of effort is based on the history of the shop drawings reviewed to date.

The scope under this heading includes review and response to the aforementioned submittals at an average effort of 4 hours per shop drawing. The scope includes review of the total number of drawings as resubmittals (1st Resubmit) as well as 50% of the drawings as second resubmittals. Resubmittals are included at an average effort of 2 hours per shop drawing for 1st Resubmit and 1.5 hours per shop drawing for 2nd Resubmit.

The scope of the submittal task includes the review of the Contractors minor Submittals (estimated 40 Packages) and additional quality oversight weekly reports (estimated 32 Reports). Minor Submittal Packages are included with one cycle of review at an average effort of 5 hours per submittal. The Quality Oversight Weekly Reports are included at an average effort of 1.5 hours per report for one cycle. This estimate does not include reviews of the Contractor's independently engineered temporary works including its means and methods submittals. Should the City wish that MMM proceed with undertaking reviews of means and methods submittals, we will require meeting with the City prior to undertaking this task.

The cost for the supplementary effort under H&H additional shop drawing and submittals reviews is **$ 223 000**

5. Additional Responses to Requests for Information and Change (RFIs and RFCs)

The scope of this additional budget estimate includes development of information for the clarification of the Contractor's interpretation of the Contract documents. RFIs will focus on items requiring clarification or verification to the Contractor in order to execute his scope of work.

In order to establish a budget for this Supplementary Service, we have assumed review and response to seventy-five (75) RFI's at an average effort of 2.5 hours per RFI. We will notify the City if we believe that this number will be exceeded. Additionally, we have assumed that a total of thirty (30) RFCs will be reviewed and responded to at an average effort of 10 hours per RFC.

The associated estimated cost for this supplementary effort is **$87 000**.

6. Additional Contract Review Team

As requested by the City we have mobilized additional off-site technical, risk management and contract review resources to support the Project. These resources are being utilized on an as-and-when required basis. The level of effort expended addressing the Contractor requests for Change Order is well beyond what could have reasonably been anticipated particularly given the representations that the Contractor was qualified to carry out a project of this technical and contractual complexity. Based on the level of effort to date and the recent requests from the City relating to Contractor claim reviews we anticipate that a budget of **$150 000** should be established for these additional resources.

7. Redesign of Components Subsequent to Issuance of IFDs

The Contractor has repeatedly requested the redesign of previously completed designed elements. We have expended unanticipated resources in undertaking the redesigns. Redesigned elements include the deck over counterweight structure, the alternate mechanical support system, partial redesign of the flanged girders to accommodate the handrail and the lighting VE as endorsed by the City. For clarity, we have not included for Value Engineering associated with handrails and walkway lighting in the estimate below.

The actual cost of the redesign incurred to date is **$65 000**

8. Contingencies, Urgent and Unforeseen Items

In addition to the funds requested above, we suggest that the City provide allowances for currently unforeseen items (additional services that are not included) that may occur which are not specifically included in this correspondence.

We recommend an allowance of **$500 000** be established to deal with resolution of crises situations that need to be dealt with on an urgent basis.

SUMMARY REQUEST FOR CHANGE ORDER

In the opening paragraphs to this letter we proposed that the City undertake the supplementary services estimated herein on a Time and Expense basis. All of the fee estimates indicated in this letter have been prepared on this basis and do not include any risk for continued substandard or delayed performance of the works by the Contactor. The following summarizes the amounts requested above:

1)	MMM Site-Based Personnel	$ 948 000
2)	Additional Meetings for H&H	$ 47 000
3)	Additional Field Reviews for H&H	$ 280 000
4)	Additional Shop Drawing and Submittal Reviews	$ 223 000
5)	Additional Responses to RFIs and RFCs	$ 87 000
6)	Additional Contract Review Team	$ 150 000
7)	Redesign of Components after IFDs	$ 65 000
	Total – Estimated Supplementary Services to Completion	$ 1,800,000

It is also recommended the City carry an additional contingency for urgent and unforeseen items. If the City is not in favor with our proposed approach to undertake the supplementary services to completion on a Time and Expense basis and/or in full agreement with the fees requested, we suggest that we meet with the City, with our respective legal counsel, in efforts to bring this matter to a close immediately.

Yours truly,

MMM Group Limited

Angus English, P. Eng.
Vice President, Regional Manager - Vancouver

c.c. Dwayne Kalynchuk P.Eng. City of Victoria
Joost Meyboom Dr.sc.tech. P.Eng. MMM Group
Didier Samouilhan MMM Group

Appendix F Potential known and new charges to the project contingency

Fendering - $530,000
While the fendering system at the south end and thru the bridge is designed and under construction the protection at the north end still needs to be priced. Also the team is reviewing the harbor operating procedures for tugs passing through the bridge to determine the impact on the north end protection if the procedures are altered and communicating with the adjacent property owners with respect to placement of guide piles as this could affect the design and costing. While the final pricing is unknown at this time, the amount being carried is the price identified in the indicative design.

Landscaping - $450,000
In the Contract landscaping was identified as a cash allowance item, meaning that the risk of cost overrun remains with the City. The proposal received by PCL is substantially higher than the consultant's estimate. City staff are also reviewing the option of undertaking some of the work with City forces rather than contracted, which could possibly reduce the costs.

Multi-use trail overpass - $100,000
In Appendix C of the Contract an additional $250,000 was allocated for the multi-use trail overpass if the structure had to be changed from concrete to steel. Latest estimates place the extra cost at $100,000. The steel structure is required in order to maintain an appropriate slope to meet accessibility guidelines while providing the necessary clearance for the vehicles. This estimate is based on information for the consultant.

Archaeological monitoring - $50,000
Originally $250,000 was allocated for this. Only $50,000 was used for the excavation on the west side, so it is necessary to provide the same amount for the east side for consultants and First Nations monitoring of the excavators planned on the east approach side. There is less excavation on the east side than the west side so conservatively the same amount as what was expended for the west side is being carried.

Owners Quality Assurance & Quality Control Plan (QA/QC) - $40,000
With the re-commencement of the steel fabrication, the Owner Quality Control Plan is being increased to provide an additional check on the Contractor's Quality Control. This is based on a quotation for the consultant.

Requirement for additional seabed land - $50,000
Once the foundations for the new bridge are complete, the seabed land will be sold to the City for the new structure. This is based on an estimate provided by Transport Canada.

Additional habitat compensation - $173,000
While $127,000 was allotted in the project budget for habitat compensation, the final review completed by Federal Fisheries identified a larger amount of compensation over the original estimate. This is based on a quotation received by the contractor.

Changes to CCTV cameras and marine lights - $100,000
CCTV cameras are required to monitor the approaches while the bridge is being lifted or lowered and for bridge security. The change to the bascule pier and pit in the optimized design has increased the number of cameras. Also, now Transport Canada has increased the amount of marine lights on the bascule to advise marine traffic of the bridge operation. This is based on a quotation from the contractor for the CCTV cameras and an estimate from the consultant for the marine lights.

Environmental permitting and processing - $5000
Funds are revised for numerous provincial and federal permits through the construction of the project. Also, several permits require annual monitoring and reporting. This is based on costs to date.

Graffiti prevention - $15,000
While the construction site remains the responsibility of PCL, a number of the retaining walls and

foundations have fresh concrete that has the potential of being tagged. Project staff are exploring the possibility of cost sharing an anti-graffiti treatment that will have a long term benefit for the project. This is based on an estimate by the contractor.

Generator load bank relocation - $82,500
The generator load bank required relocation due to a site conflict with the BC Hydro vault. The move increased the feeder length and a heater was added. This is based on an estimate by the contractor.

Unforeseen geotechnical and subsurface issues - $225,000
In accordance with the Contract, the Contractor is entitled to claim for unforeseen geotechnical and subsurface issues, if the below-grade conditions were unanticipated by the Contractor at the time of entering into the Contract, and have a material impact on the Contractor's cost and time for the performance
of the work. To date, soft material under foundations and large outcrops of rock in the new roadway are a couple of examples where these funds are necessary. This is based on an estimate by the consultant.

Imported fill - $50,000
An allowance is provided should imported fill be required for a number of the retaining walls on the west approach. Clean fill is necessary to accommodate proper drainage adjacent to the retaining walls to reduce the potential of uneven shifting of the walls. This is based on an estimate by the consultant.

		Orginial Contract	Known to January 2015
Project Completion Contingency (as per Schedule C - Schedule of Prices)		**$ 2,515,000**	**$ 2,515,000**
Allocated Contingency	**Contract line**	**Budget**	**Committed**
A. Archaeological $250,000	A	$250,000	$ 50,000
B. Unforeseen Geotechnical and Subsurface Conditions $600,000	B	$600,000	$ 19,000
C. Hazardous Materials $250,000	C	$250,000	$ 329,054
D. Girder Span Depth $30,000	D	$30,000	$ -
E. Structural Steel Overrun (see Article 4.4 of Agreement) $600,000	E	$600,000	$ -
F. Imported Fill $80,000	F	$80,000	$ -
G. Hydro Relocation and Power Supply $150,000	G	$150,000	$ 357,426
H. City Services $200,000	H	$200,000	$ 7,533
I. Environmental Permitting and Processing $25,000	I	$25,000	$ 1,400
J. Multi-Use Trail Overpass Bridge (if changed to steel) $250,000	J	$250,000	$ -
K. Additional structural support for Fendering $462,500	K	$462,500	$ -
L. City Quality Assurance for Structural Steel $75,000	L	$75,000	$ 120,000
M. Requirement for additional seabed land $50,000	M	$50,000	$ -
N. Fabrication Shop Drawing . Third Party Detailer $50,000	N	$50,000	$ 15,000
Add: MMM CO#3 Resolution of China Fabrication QA/QC NCR's $50,000	O	$50,000	$ 123,204
Add: MMM CO #4 Workshop $53,156	P	$53,156	$ 53,156
Add: MMM CO #5 Supplementary Services $264,600	Q	$264,600	$ 264,600
Add: MMM CO #7 Utiltiy XRef $4,200	R	$4,200	$ 4,200
		$3,444,456	$ 1,344,573
		Budget	**Realized**
Value Engineering Savings			
A. Replace Indicative Design with attached configuration including shortening of East end span (see Attachment 1 to this Appendix C) $900,000		$900,000	$ 300,000
B. Replace West Pier with extended pile configuration $125,000		$125,000	
C. Replace Indicative Design of West Abutment (see Attachment 2 to this Appendix C) $350,000		$350,000	
D. Reduction of piles under Bascule Pier $185,000		$185,000	
E. Lighting – optimizing lighting design $500,000		$500,000	
		$1,160,000	$ 300,000
Remaining Contingency		**$230,544**	**$1,470,427**