

September 27, 2016

Contract No.: 038CS92665

Daiva Seavey  
Advisian - WorleyParsons Canada Ltd.  
Suite 600, 4321 Still Creek Drive  
Burnaby, BC V5C 6S7

Services 

Dear Daiva,

**Re: Work Assignment Letter #8 for Contract #038CS92665**

This work assignment letter (WAL) is your authority to provide the services under the above referenced contract. Kindly proceed with the services outlined below:

**Balfour Ferry Terminal: Kootenay Lake – West Arm Dredging Study**

Undertake a study and prepare a report to analyse the navigational challenges posed by the narrow channel and increasingly shallow lakebed in the West Arm for the ferry service across Kootenay Lake and to recommend solutions. The focus of the study will be on the following items: dredging, geotechnical, environmental, hydraulic and navigational aspects and will involve,

- **Studies**, including the review of bathymetric and geological data to evaluate historical evolution of the lake bed and inference on potential future states; a navigational study to compare the present width of the navigation channel with the theoretical required width; a dredging options study including review of sediment samples, disposal options, and evaluation of the dredge options available; a risk assessment review to identify, quantify and list potential risks and possible mitigations; high-level 2D hydraulic modelling to verify water levels and impact of widening the channel to water flow towards the lake overflow, (OPTIONAL) 3D hydrodynamic modelling and analysis; and (OPTIONAL) sedimentation and plume modelling study to determine sediment plume impacts during dredging operations and/or how sediments build up in the West Arm over time. Note: OPTIONAL items shall not be undertaken without prior written approval of the Ministry.
- **Field Investigations**, including preparation of field program in coordination with Masse Environmental to determine type, number and location of field samples; discussion and review of field program with regulators; and combined geotechnical and environmental field investigations with sediment sampling (piston/gravity core and/or grab sampler) in potential dredge areas, and potential in-lake disposal locations, laboratory testing and analysis of sediment samples, and input to the overall study report; and a towed video survey to determine the substrate composition in the dredge areas to support fish habitat mapping and potential in-lake disposal sites.
- **Reporting**, preparation of a draft and final study report presenting the various findings, recommendations for dredging, and order-of-magnitude costs.

- **Management and Coordination**, of the various activities outlined herein including management of scope, schedule and costs, and bi-weekly client update meetings via teleconference.

**Schedule**

- Kick-off meeting - week of 26-Sept-2016.
- Desktop reviews, field program developed, regulator early discussion - end of Oct 2016.
- Field program complete - Nov 15, 2016.
- Draft report issued for review - Dec 5, 2016.
- Final report issued – end of Dec 2016.

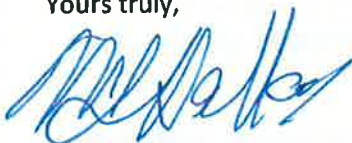
**Total Price and Payments**

The total price for this **WAL #8** is \$200,000 excluding taxes, based on the hourly rates and reimbursable expenses in Contract #038CS92665. The total price is not to be exceeded unless approved in writing by the Ministry.

Payment for these services will be made monthly in arrears upon satisfactory completion of the services. Please provide supporting receipts with your invoice and reference the **WAL #8** and **Contract #038CS92665** on your invoices.

Receipt of this Work Assignment Letter must be acknowledged below. Please return to undersigned via email ([Mike.Hallas@gov.bc.ca](mailto:Mike.Hallas@gov.bc.ca)), and original to follow by mail.

Yours truly,



Mike Hallas  
Manager, Project Management  
Support Services



Receipt is hereby acknowledged  
WorleyParsons Canada Ltd.

Services

Cc: Layle Lintern, Marine Manager, Marine Branch, MOTI  
Maryse Langevin, marine manger, Marine Branch, MOTI  
Heather Weir, Financial Officer, MOTI