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To: Liquid Waste Committee

From: Cheryl Nelms, General Manager, Project Delivery  
Nick Kassam, General Manager, Procurement & Real Estate Services  
Dean Rear, CFO & General Manager, Financial Services

Date: July 11, 2023 Meeting Date: July 19, 2023

Subject: **Phase 2 Design Build Consulting Services for the Lions Gate Secondary Wastewater Treatment Plant - Change Order to AECOM Contract PC14-0408**

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## RECOMMENDATION

That GVS&DD Board:

- a) approve Phase 2 Design Consulting Services for the Lions Gate Secondary Wastewater Treatment Plant of AECOM Contract PC-0408 through a change order in the amount of \$113,000,000, for a total contract value of \$153,000,000 (exclusive of taxes), subject to final review by the Commissioner; and
  - b) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the change order should proceed.
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## EXECUTIVE SUMMARY

This report is recommending that GVS&DD proceed with a change order to the AECOM contract to complete Phase 2 work as the Engineer of Record for the North Shore Wastewater Treatment Plant project (formerly known as the Lions Gate Secondary Wastewater Treatment Plant). As a result of extensive deficiencies in the prior contractor's design and construction works, Phase 2 will require extensive effort for AECOM.

Phase 2 activities for AECOM include completion of the detailed design, provision of support to GVS&DD for the procurement of owner-supplied equipment, providing design and comprehensive construction support over an extended construction duration, leading the wastewater commissioning process, condensing the design duration and implementing design optimization opportunities for the project.

On March 25, 2022, due to their extensive involvement in the project as the Owner's Engineer from initiation of the project, AECOM was authorized by the GVS&DD Board to proceed as Engineer of Record with Phase 1 work. At that time, contract approval for Phase 2 work was anticipated to be required at a later date.

## PURPOSE

Pursuant to the *GVS&DD Officers and Delegation Bylaw No. 284, 2014 (Bylaw)* and *Board Policy No. FN-006*, procurement contracts which exceed a value of \$5 million require the approval of the Board of Directors.

## BACKGROUND

Prior to termination, Acciona Wastewater Solutions LP (Project Co.) was responsible for the design, construction, commissioning, and process performance for the plant. AECOM was the owner's engineer, reviewing all design submissions by Project Co on behalf of Metro Vancouver. AECOM was successful proponent of public competition RFP No. 14-205 - Design Build Consulting Services for the Lions Gate Secondary Wastewater Treatment Plant. This project has since been renamed the North Shore Wastewater Treatment Plant Project.

Following termination of the Project Agreement with Project Co., Metro Vancouver wanted to expedite the delivery of the project while retaining the ability for competitive pricing of construction for the final delivery of the project. To do this, Metro Vancouver adjusted the project delivery model to retain a general contractor and a design consultant separately. AECOM was uniquely positioned to assume the role of design consultant for the completion of the design of the project given their participation in the project from initiation, which included the development of the indicative design and technical specifications through to fulfilling their current role as owner's engineer.

Metro Vancouver opted to deliver the remainder of the project in two phases:

- Phase 1: design delivery includes design due diligence review and advancement, while construction delivery includes pre-construction services and early works; within Phase 1, the design consultant (AECOM) and the construction manager (PCL) have been working collaboratively with Metro Vancouver to advance the design and to develop a detailed execution plan, schedule, and cost estimate to complete the project.
- Phase 2: design delivery includes design completion, provision of support to GVS&DD for the procurement of owner-supplied equipment, and comprehensive construction field services; construction delivery includes main construction and early commissioning.

The GVS&DD Board authorized a contract amendment to AECOM of \$15,000,000 to proceed with Phase 1 as the design consultant at the March 25, 2022 Board meeting, with focus on a due diligence review of the Project Co. design and support to PCL for development of a cost and schedule to complete the Project. Based on the understanding of the project and its expected level of completion, AECOM's estimated value for both phases at that time was \$60,000,000.

At the time of the termination of Project Co., it was anticipated by staff, based on Project Co.'s submittals, that the design effort was likely less than the approximately 80% complete Project Co. had reported. AECOM's investigations and comprehensive design reviews during Phase 1 found that the overall level of completeness reported by Project Co. was significantly misrepresented and that there were a greater number of non-compliances with the Project Agreement than previously documented. Extensive constructability reviews between AECOM, PCL, and Metro Vancouver have been required because design was not as advanced as reported by Project Co. As a result, AECOM's efforts in Phase 1 were significantly greater than initially anticipated.

In addition to the design deficiencies identified by AECOM, PCL and Metro Vancouver, there have also been deficiencies identified in the concrete placed by Project Co., and in some cases, more extensive concrete deficiencies than originally anticipated. This has resulted in significant design support effort and field reviews by AECOM during Phase 1. Due to the increased level of effort required, a change order of \$25,000,000 to AECOM's contract was authorized by the GVS&DD Board at the January 27, 2023 meeting to complete Phase 1 work.

## **PHASE 2 PROPOSAL**

AECOM has provided a proposal in the amount of \$113,000,000 to support and complete design in Phase 2, for a total contract value of \$153,000,000.

AECOM's Phase 2 services includes design completion, procurement support, field reviews, enhanced construction field services, and commissioning. Due to the increased level of effort and significant deficiencies discovered in Phase 1, the fees reflect the increased efforts required for both cost and schedule development. In addition, fees reflect the increased efforts to complete the following:

- The addition of enhanced field support services to monitor construction activities and provide project management support to Metro Vancouver. This is above and beyond the field reviews required for the Engineer of Record.
- Due to the significant deficiencies in both design and construction, the schedule has been extended, requiring AECOM to adjust their level of effort during construction for field services to match the overall anticipated construction schedule.
- Because the design was not complete at termination of the Project Agreement with Project Co., and due to the significant design deficiencies to be overcome, AECOM has created an accelerated design schedule that optimizes Issued for Construction drawings that align with the construction critical path. This accelerated design schedule has resulted in additional design effort not anticipated at termination.
- Project Co. had a number of equipment and materials contracts that were in various stages of finalization at the time of termination. Metro Vancouver and AECOM have been working together to understand the stipulations of the current contracts and are working to transfer the contracts from Project Co. to Metro Vancouver. AECOM is integral in the process, providing technical and procurement support. This process has been ongoing since termination and is anticipated to continue for several months through the design phase.
- Implementation of ongoing value engineering opportunities and design optimizations.

The project team reviewed the AECOM rates against other Metro Vancouver engineering assignments and found them to be comparable. A member of the NSWWTP Expert Advisory Panel and retired executive of a global engineering wastewater design firm reviewed and agreed with the team's recommendation to proceed with the amendment. Based on this review, as well as the size,

scale and inherent complexities of the project, the total design consulting services fee of \$153,000,000 is representative of what we would expect to obtain from a competitive process.

## **ALTERNATIVES**

- 1) That the GVS&DD Board:
  - a) approve Phase 2 Design Consulting Services for the Lions Gate Secondary Wastewater Treatment Plant of AECOM Contract PC-0408 through a change order in the amount of \$113,000,000, for a total contract value of \$153,000,000 (exclusive of taxes), subject to final review by the Commissioner; and
  - b) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the change order should proceed.
- 2) That the GVS&DD Board receive for information the report dated July 11, 2023, titled, “Phase 2 Design Build Consulting Services for the Lions Gate Secondary Wastewater Treatment Plant - Change Order to AECOM Contract PC14-0408” and direct staff to report back with options for an alternate course of action.

## **FINANCIAL IMPLICATIONS**

The current approved budget for the North Shore Wastewater Treatment Plant Program is \$1.058B. At this time, the approved project budget can accommodate the requested change order to the AECOM contract and the cash flows for the project will be comparable to that currently projected in the Financial Plan. However, staff are working to adjust the financial forecast in advance of the October Board Budget adoption.

If the GVS&DD Board approves Alternative 1, the contract with AECOM will be amended by Change Order in the amount of up to \$113,000,000 (exclusive of taxes) to provide the Phase 2 design delivery.

## **CONCLUSION**

It is recommended that the GVS&DD Board approve Phase 2 Design-Build Consulting Services for the Lions Gate Secondary Wastewater Treatment Plant of AECOM Contract PC-0408 through a change order in the amount of \$113,000,000, for a total contract value of \$153,000,000 (exclusive of taxes).