

May 26, 2023

Mr. Brad Ryan
Municipality of Skagway
PO Box 415
700 Spring Street
Skagway, Alaska 99840

RE: CHANGE ORDER REQUEST #001, RAILROAD DOCK LANDSLIDE, SKAGWAY,
ALASKA

Dear Mr. Ryan:

The Railroad Dock Landslide project is being undertaken to reduce the rockfall and landslide hazards at the north end of the White Pass & Yukon Route Railway (WPYR) cruise ship dock.

PROJECT SUMMARY

Shannon & Wilson is under contract with the Municipality of Skagway (MOS) to provide a variety of services for this project including:

- **Task 1: Preliminary Site Visit** – This task is complete and consisted of a site visit in June 2022 to observe original conditions and provide initial consulting to advance the project.
- **Task 2: Stability Evaluation and Recommendations** – This task originally included a more conventional field effort with slope stability analysis and development of a slope assessment with a recommendations report for mitigation alternatives. The scope was adjusted after completion of Task 1 and in coordination with the MOS to address more eminent project needs. Field work and data review efforts were kept, but the analysis portion of the effort was adjusted to developing a 10-percent design and cost estimate for full excavation of the slide mass and a design approach for mitigating short term rockfall hazards on the active slide path (the North Slide). The change in scope did not require an adjustment to the authorized budget. Shannon & Wilson is leading this effort with assistance from subcontractors HDR, Inc. (HDR) and Lounsbury & Associates, Inc. (LA).

- **Task 3: Winter Rockfall Hazard Design and Construction** – This task included the design and construction of on-slope rockfall mitigation as well as installation of a new automated total station monitoring system to compliment the existing top of slope monitoring system. Shannon & Wilson is leading this effort with assistance from subcontractors HDR and LA. Rock Supremacy (RS) is responsible for construction services under this task.
- **Task 4: Instrumentation and Monitoring for Summer 2023 Season** – This task includes assistance in developing a monitoring and action plan to be followed allowing for dock operations during the 2023 season. It also included work to re-establish existing and new instrumentation at the top of slope as well as continual/daily monitoring support for instruments and coordination with rock slope spotters throughout the 2023 tourism season. Shannon & Wilson is leading this effort with assistance from subcontractor LA.

SCOPE OF CHANGE

This change order includes two changes associated with adjustments to Tasks 2 and 3:

1. **Item 1: Proposed Change Order 1**, Reduction in Shannon & Wilson services for Tasks 2 and 3
2. **Item 2: Proposed Change Order 1**, Additional Rockfall Construction services for Task 3

ITEM 1 AND 2: PROPOSED CHANGE ORDER 1

The bulk of this change order is associated with changes to the construction contract that were required to facilitate construction of the proposed rockfall protection system during the 2022/2023 winter construction season. The changes that were needed were communicated to Borough Manager Brad Ryan on a continual basis during construction. Changes largely included alterations to the proposed system to adjust to site conditions and provide a safe working environment for RS workers. The reduction in Shannon & Wilson's services were the result of changes in the project during Task 2 and lower than expected needs during Task 3.

Negotiation Record for Item 1:

The reduction in effort for this item is the result of changes in the scope of Task 2 that were made after the completion of Task 1. Changes are largely associated with a reduction in the engineering effort on the part of Shannon & Wilson needed to complete the 10 percent design documents and analysis/reporting efforts. Reductions in effort associated with Task 3 are largely associated with less field observation time needed by Shannon & Wilson personnel during the construction of the rockfall mitigation measures.

Task 2 Unused Labor	\$72,000
Task 3 Unused Labor	\$78,000

Negotiation Record for Item 2:

During first two weeks scaling work to begin construction of the mitigation, it became clear that additional hand scaling would need to occur at the top of the slope to provide a safe working environment for RS personnel during construction of the midslope attenuator. In addition, due to the size of some of the material that needed to be scaled, some minor drilling and blasting was required to break up the larger rock prior to scaling to reduce the risk of damage to the dock below. Our original estimate included three weeks of heavy scaling and a total of eight weeks were conducted.

In addition to the increased amount of scaling, additional draped mesh below the upper mesh that was originally planned was needed to provide further protection for RS workers. The original estimate included 16,000 square feet of draped mesh and a total of 25,851 square feet were installed.

Finally, the attenuators were field fit to be larger than anticipated due to site conditions during construction. The midslope attenuator was extended to be approximately 25 feet wider than planned. The extension was required based on the trajectory of rocks observed during scaling and to ensure that the south post of the attenuator was not in the fall path of rocks. This was needed to reduce the risk of damage to the attenuator post during future rockfall events. In addition, due to the geometry of the slide path, the attenuator tail needed to be extended beyond the planned 35 feet to meet the ground surface and ensure proper functioning during future rockfall events. The bottom attenuator was able to be erected in the same location as the prior attenuator, however for the same reason as the midslope

attenuator, the tail of the feature needed to be extended beyond the 10 feet assumed in our original estimate.

The table below shows the assumed RS budget items that were included in our original estimate compared to what has been actually been constructed. Please note that RS adjusted their unit rates to accommodate their actual costs. In the table below, actual costs highlighted yellow are below the original estimate and those highlighted green are above the original estimate.

Bid Item	Initial Estimate	Actual Cost
Mobilization	\$333,270	289,800
Demobilization	\$204,125	\$177,500
Clearing	\$78,000	\$19,500
Blasting Materials	Not Included	\$38,200
Heavy Scaling	\$146,250	\$321,748
Draped Mesh	\$187,392	\$248,170
Mid-slope Attenuator	\$810,934	\$1,205,400
Bottom Attenuator	\$917,172	\$904,050
Total:	\$2,677,143	\$3,204,368

COST IMPACT OF THE CHANGE

Item Number	Total Cost
1	-\$150,000
2	+\$527,225
Total:	+\$377,225

SCHEDULE IMPACT OF THE CHANGE

No impacts to the schedule were changed as a result of the additional construction work. The project was completed on time.

CONCLUSION

Having taken all information available to me into consideration, I believe our proposed change is fair and reasonable, and I recommend increasing the contract value by \$377,225.

Should you have questions or comments or wish to revise the scope of our services, please call the undersigned. We look forward to working with you on this project and appreciate the opportunity to be of service to you.

Sincerely,

SHANNON & WILSON



May 26, 2023

Kyle Brennan, PE
Vice President

APPROVAL OF THIS CHANGE

Brad Ryan, Manager
Municipality of Skagway

Date