

HAP Application | Lower Causeway Improvements Project

Victoria Harbour | Lower Causeway Improvements Project



### Summary of the History of Repairs to the Causeway Promenade (2010 to present)

As referred to in GVHA's letter to the Mayor dated August 21, 2017 as part of the HAP application for the Lower Causeway, there have been continuous maintenance issues and safety hazards related to the Lower Deck pavement structure. Due to the condition and location of the existing rebar, the thin profile of the quartzite tiles (at a size of 300mm x 600mm) have continuously popped up, cracked in half, or deteriorated at the edges all causing tripping hazards that have required consistent repair. Below is a summary of the history of the repairs in the last seven years. The deterioration is getting exponentially worse as more of the rebar is exposed for repairs. Despite many efforts to redo sections of the seawall, even these newly installed sections are already failing.

ITEM	DATE	NOTE	EXPENDITURES
1.0	March 2010	Areas of quartz tile near to the entrance to the causeway crescent float (east side of causeway) and to both sides of the middle stairs from Government St. (down to causeway) were removed. Two different kinds of stamped concrete paving (screed) were installed.	
2.0	May 2010	Thirty blocks were re-fixed to Crescent Float wall after holding bolts to several of the blocks failed due to corrosion.	\$15,000 approx
3.0	August 2011	Initial study was undertaken at the east (lower) deck to review bonding failure of quartz slates. Some repairs were undertaken. Various health and safety issues with the public reported small trips, etc to GVHA.	
4.0	June 2012	Quartz slate continues to fail in more places. There are reports of degrading surfaces and mushroom light bases start to rust causing health and safety hazards. Minor repairs were undertaken by GVHA staff and noted as increasing in numbers.	
5.0	March 2013	The first of several meetings with the City of Victoria staff takes place to discuss unauthorised new screed repairs to the causeway in lieu of quartz tile. The knowledge of Heritage Status was first raised and the CoV staff explained that the repairs are not in keeping with Heritage status, and advised GVHA to put back Quartz tile. GVHA and the CoV agreed to share knowledge and work together to complete a appropriate repair.	
6.0	August 2013	The tile along the causeway edge was identified by CoV Heritage Consultant as Alta Quartzite with guillotined edges. The quarry source is Minira Skifer SA in Strandveien, Norway which was later confirmed by GVHA that is no longer produces this product. GVHA contacted multiple suppliers in BC and could not source this product or even produce a match, especially any products offering "guillotined edges".	
7.0	September 2013	A trial area of quartz tile refurbishment as agreed with CoV for a 50' length including refurbishment of the "mushroom lights" was	\$15,000.00



		undertaken using new bonding products . The existing quartz was carefully removed with about 25% waste, to be set aside and reinstalled. The deficiencies were made up from the last remaining set aside quartz tile held by GVHA. Refer to attached summary of refurbishment that took place.	
8.0	September 2013	A partial structural survey (underneath structure) was completed by Foreshore Technologies for \$2,300.00 which highlighted some corrosion of the deck structure.	\$2,300.00
9.0	February 2014	On-going various repairs to slate on the upper and lower levels of the east side of the causeway were undertaken by - Fivestar Contracting.	\$4,000.00
10.0	November 2014	A more intrusive study to confined spaces (not surveyed previously) under the causeway required a dive survey. The report highlighted corrosion and concrete degradation to piles and the underside of the deck structure	\$7,000.00
11.0	June 2015	Additional repairs to remove displaced quartz tiles (salvaged to GVHA's operations yard) and fill trip hazards with quickset compound day to day repairs carried out by GVHA staff.	\$2,000.00
12.0	May 2015	The GVHA seek match funding for the revitalisation and repairs to the Inner Harbour Causeway as part of Canada 150 funding initiative.	
13.0	June 2015	Stantec engaged to progress design for HAP, bid and manage the project for Canada 150 to include full quartz tile and mushroom light refurbishment.	\$30,000.00 in fees for first phase
14.0	July 2015	The GVHA gain match funding approval for \$250K sum towards the Canada 150 project.	
15.0	August 2016	Vertical facing blocks fell into ocean. Post to chain barrier requires new hardware due to corrosion of steel and were fixed due to Health and Safety concerns.	\$2,000.00
16.0	August 2016	Three chain post bases and corroded fixings were fixed.	\$500.00
17.0	May 2017	During construction of the concrete unit paver replacement in Phase A (south deck) a hole in the Causeway is discovered during construction, Engineer conducts survey.	\$3,500.00
18.0	May 2017	GVHA & Structural engineer meets with the City of Victoria Heritage Officer to show the problem with the structure prior to covering it with paving. The hole exposes severe corrosion of rebar due to poor detailing in the initial 1973 design.	
19.0	May 2017	Phase 1 (South Deck – in front of Welcome to Victoria flower bed) Lamp and Paving works completed by Contractor (Phase 1 of Canada 150).	\$160,000.00
20.0	May 2017	Phase 1 (South Deck – in front of Welcome to Victoria flower bed) Lamp and Paving works project closed by Consultant (Phase 1 of Canada 150).	\$35,000.00
21.0	June 2017	Three different mock-ups of the proposed cast in place options were presented as an alternative to the repair to the slate method. Refer to attached summary of options  Meeting with CoV and Structural Engineer rejected all solutions offered and including screed solution see Engineer summary to GVHA.	

22.0	June 2017	Repairs were made to the structure. Divers and a concrete contractor were required to complete the repair.	\$17,000.00
23.0	July 2017	GVHA meets with CoV staff and were advised to prepare a full HAP for the proposed material change needed for the repair from quartz tile to cast in place concrete solution.	
24.0	July 2017	A proposal for full structural and intrusive condition survey by Stantec and Goal Engineering is provided.	\$120,000.00
25.0	August 2017	HAP submission is in progress	\$7,000.00
26.0	August 2017	Tender drawings are under development and ready to post for tender	\$6,000.00
27.0	January 2018	Approximately \$250,000 remains from the Canada 150 match funding, however Construction has to be completed before March 2018 when the funding expires.	\$250,000.00