#### Dock Area Parkette Shoreline Protection Presentation to Council July 26, 2021

### Background

In 2005 Baird reviewed the shoreline conditions at the Dock Area Parkette and prepared a conceptual designs for the shoreline protection including this figure from their report



Figure 4.1 Preliminary Preferred Concepts

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Later a variation of the preferred alternative including two smaller offshore armour stone breakwaters were constructed to protect the shoreline.

High water levels on the Lake in 2017 caused erosion of the existing shore and threatened the historical culvert.



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Detailed design was completed between 2017 and 2019.

In August 2020, construction of the breakwater was completed.

March 15, 2021 we were notified that the breakwater was damaged.



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March 23

A sounding survey was carried out to determine the river bottom elevation and compare to the contours from the original survey.

Significant scour was observed offshore of park.



3 to 7m below surface 1 to 3m below surface 0 to 1m below surface 0 to 2m above surface

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Average flow on the Niagara River is 5700m<sup>3</sup>/s. Maximum flow is 9800 m<sup>3</sup>/s.

In November 2020 and February 2021 record high flows were recorded at Fort Erie gauge.

No data is available from the end of February to April.

#### Real-Time Hydrometric Data Graph for NIAGARA RIVER AT FORT ERIE (02HA013) [ON]



COVID-19: We continue to ensure the delivery of critical services. Operating within Public Health Restrictions may result in impacts to the real-time or annual published record.

All times are specified in Local Standard Time (LST). Add 1 hour to adjust for Daylight Saving Time where and when it is observed.





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On November 15 to 16<sup>th</sup> 2020 a storm surge (+3.0m) event happens on Lake Erie which coincides with the record high flows recorded at Fort Erie gauge.





On March 12 to 13<sup>th</sup> 2021 a storm surge event happens over a long period a number of hours on Lake Erie which coincides with the missing data at the Fort Erie gauge.

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Recommended realignment of breakwater