

Port Glasgow Yacht Club

P.O. Box 315, Rodney, ON N0L 2C0

April 28th, 2017

WEST ELGIN MAYOR and COUNCIL

**Municipality of West Elgin
22413 Hoskins Line PO Box 490
Rodney, Ontario
N0L 2C0**

ATTENTION: Mr. Scott Gawley CAO

**RE: Port Glasgow Marina Pier Rehabilitation
Meeting - Riggs Marine Engineering**

Dear Mr. Gawley:

In furtherance to discussions of the Port Glasgow Marina Board of Management members, a meeting and site inspection was arranged with Brian Riggs, Riggs Marine Engineering London Ontario April 6th, 2017. The purpose was to examine the feasibility of other options relating to the marina piers.

As a starting point, Riggs reviewed the Shore Plan proposals for both the west and east piers as well as the proposal for the west pier alone. Dollar cost estimates identified by Shore Plan in 2007 for this work was 3 million for both and 1.5 million for the west pier alone. At the outset Riggs advised that in his opinion the Shore Plan proposals were viable and would achieve the desired goal of insuring the marina was safe and completely usable by all boaters in the community. Riggs during his site inspection indicated that based on current and anticipated annual revenues without significant expansion of the current marina to increase revenues it was his opinion that either proposal was likely not financially viable.

Riggs Engineering has been engaged in a number of projects on Lake Erie and as a result they have an understanding of the unique issues that the lake presents to small craft operators. As well, Riggs is a recreational boater, boating out of Port Stanley. He has visited Port Glasgow via water and has firsthand experience with issues that face small craft in the 16 to 22 foot range that make up the majority of our boating/fishing clientele.

Riggs walked the meeting attendees through a number of options from fixed pier extensions to breakwaters that would have the desired effect of calming the channel. He provided information on both the availability and significant costs associated for the use of large stone required in pier extensions in terms of distance to source and trucking costs.

Riggs provided his opinion that breakwaters installed at both the west and east piers in lieu of heavy stone and fixed wall pier extensions would achieve the same result; calming lake wave action to provide a safe usable channel and increase the efficiency of all three launch ramps at a significantly reduced cost. He indicated this system has been successfully employed for many years at Port Elgin on Lake Huron. Riggs identifies this breakwater system as an "arrowhead" configuration.

Riggs indicates the arrowhead breakwaters are constructed out of heavy steel baskets (enclosures) that a contractor would fabricate onsite. The fabricated baskets are then placed 20-30 feet in front (south) of the west and east piers in the arrowhead configuration. The baskets are set in the clay lakebed and would extend approximately 5 to 8 feet above the surface of the lake. Once placed the baskets are filled with stone of a much smaller size than the stone required for a fixed pier extension. This stone, of an approximate diameter of 2 feet, is available from quarries in the Ingersoll area greatly reducing trucking costs and allows for the use of standard stone hauling dump trucks and dump trailers etc.

This method differs from fixed pier construction in that wave action is displaced by the fixed pier much as it is now. In severe sea state conditions the blocked wave energy will then wash over the piers causing erosion of top surface. The breakwater system he suggests provides both a degree of wave action displacement while also allowing some of the wave action hydraulic energy to be mitigated directing it through the irregular shaped stone in the baskets.

Placing the baskets 20 to 30 feet from the existing piers has a threefold advantage. (1) Provides an area sheltered from heavy wave action for shoreline fishing. It is believed that fixed pier extensions utilizing heavy stone coupled with the required base width would all but preclude shoreline fishing. (2) Provides a natural habitat for bait fish owing to the irregular shaped stone used again enhancing shoreline fishing activity. (3) Reduces the ability of persons to access the breakwaters and therefor mitigates liability to some extent.

Riggs indicates that a cost estimate for this type of project would be in the area of five hundred thousand. He indicates the cost estimate for engineering this project would be twenty thousand dollars.

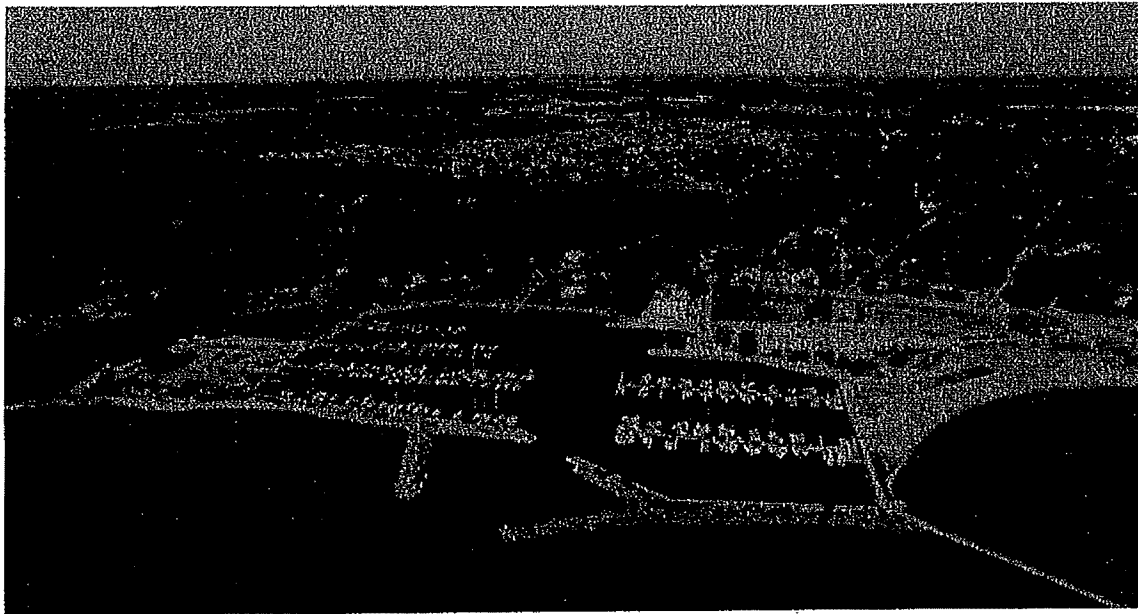
Riggs indicates that engineering for this type of project includes an examination of the various marine and atmospheric variables, required drawings in support of the project all of which are required to obtain necessary permits from various levels of government and or agencies. He offers an opinion that; regulatory agencies may be more inclined to issue permits as the project is less intrusive to the marine environment. Regardless, he indicated that such a project would take in excess of a year from the application for approvals through to construction completion.

Riggs indicated that engineering work he has done in past some clients have been successful in having that aspect funded through the Trillium Foundation. It may be of interest to review the following links to Google Earth. They are of Port Glasgow and Port Elgin harbours. The lake surface wave action as opposed to channel/basin surface should be noted. The arrowhead breakwaters are quite clear in the Port Elgin link.

Port Glasgow: <https://www.google.ca/maps/place/Port+Glasgow,+ON/@42.506645,-81.612921,244m/data=!3m1!1e3!4m5!3m4!1s0x882fc97b0d65fb8d:0x777b446cde60160d!8m2!3d42.509712!4d-81.610466?hl=en&authuser=0>

Port Elgin: <https://www.google.ca/maps/place/Port+Elgin,+Saugeen+Shores,+ON/@44.4468493,-81.4059846,761m/data=!3m1!1e3!4m5!3m4!1s0x8829c9238c9eb579:0xa3195af79b722aad!8m2!3d44.4340516!4d-81.3929413?hl=en&authuser=0>

ARIEL PHOTOGRAPH PORT ELGIN MARINA DETAILING ARROWHEAD BREAKWATERS



We are of the opinion that; the original proposals by Shore Plan are beyond the financial capabilities of PGYC and the Municipality and that it would be in the best interests of both parties to enter into the first stages of engineering working towards breakwater construction. To this end, I would ask that this new information be brought before Council at its convenience for discussion. Myself or other members of the PGYC Executive can be available should that be the wish of Council.

regards,

Original signed

Rob Mote, President
Port Glasgow Yacht Club