

The Corporation of The Town of Cobourg SPECIAL COUNCIL MEETING AGENDA

Thursday, December 3, 2020, 5:00 p.m. Electronic Participation

- 1. CALL TO ORDER
- 2. DISCLOSURE OF PECUNIARY INTEREST
- 3. PRESENTATIONS
- 4. DELEGATIONS
- 5. REPORTS Parks and Recreation Services
 - 5.1. Memo from the Deputy Director of Community Services, regarding the Waterfront Update Waterfront Condition Assessment on the Cobourg Pier.

Action Recommended

THAT Council receive this report for information purposes; and

FURTHER THAT Council direct Staff to request quotations from Shoreplan Engineering and Riggs Engineering for the design and tendering of the necessary harbour infrastructure repairs noted in the Shoreplan Engineering report dated July, 2020.

6. ADJOURNMENT

Pages

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O ☆O	THE CORPORATION OF THE	TOWN OF COBOURG
	STAFF REF	PORT
COBOURG		
TO:	Mayor John Henderson and Memb	pers of Council
FROM:	Teresa Behan	
TITLE:	Deputy Director, Community Servi	ces
DATE OF MEETING:	December 3, 2020	
TITLE / SUBJECT:	Waterfront Update, Town of Cobou	urg
REPORT DATE:	November 19, 2020	File #:

1.0 STRATEGIC PLAN

The Town of Cobourg Strategic Plan Components (2019 – 2022) includes the following Strategic Actions:

- Invest in programs, services and infrastructure to make Cobourg more accessible
- Repair and rejuvenate the East Pier

2.0 PUBLIC ENGAGEMENT

N/A

3.0 <u>RECOMMENDATION</u>

THAT Council receive this report for information purposes,

AND FURTHER THAT

Council direct Staff to request quotations from Shoreplan Engineering and Riggs Engineering for the design and tendering of the necessary harbour infrastructure repairs noted in the Shoreplan Engineering report dated July, 2020.

AND FURTHER THAT

Council direct Staff to have a Condition Assessment Report completed for the Fuel Dock and the Coast Guard Warf

AND FURTHER THAT

All works previously approved maybe reduced and / or cancelled to support this project.

4.0 <u>ORIGIN</u>

Following the condition assessment of the east pier, a secondary condition assessment was completed for the remaining harbour infrastructure in order to fulfil the requirements of the asset management legislation and understand the full costs associated with any repair works that may be necessary and how they may be incorporated with the priorities of the Waterfront Plan. The results of the latest condition assessment indicated that there are significant repairs required for all components of the harbour with many requiring immediate action.

5.0 <u>BACKGROUND</u>

On October 26, 2004 the entire harbour area was transferred to the Town of Cobourg from Her Majesty the Queen as represented by The Minister of Fisheries and Oceans. This agreement was passed by by-law 19-2002 and is attached as Appendix A.

On June 25, 2018, Town of Cobourg engaged Shoreplan Engineering (Coastal Engineers) to conduct an extensive condition assessment of the East Pier. In December 2018, Shoreplan provided the Town with its final report of the East Pier Condition Assessment. Subsequently, Shoreplan was further engaged to conduct a condition assessment of the remaining harbour infrastructure which was completed in in July 2020 and it is attached as Appendix B.

In addition to Shoreplan's condition report, the sub-consultant for MBTW (Riggs Engineering) who is preparing the design for the East Pier rehabilitation, has also identified additional necessary repair work that was not included in their original scope of work.

Given the condition of all of the harbour infrastructure including the east pier, it is recommended that repair work be reprioritized and a decision made as to when the design and construction of the repairs is to be conducted and how the Town anticipates paying for the necessary repairs.

6.0 ANALYSIS

The recommended approach for the east pier is to complete the engineering and design work to a tender ready state as per the current contract with MBTW. The consultant will be attending the Committee of the Whole meeting on January 25, 2021 to present the current status of their proposed design of the pier and to receive further comments and direction.

The recommended approach for the remainder of the harbour infrastructure is to engage an engineering firm, who is familiar with the condition of the harbour infrastructure and is knowledgeable of the constraints and challenges, to complete the design for all required repair work. This approach will ensure that construction will be staged appropriately into manageable contracts whereby the best value can be obtained for constructability and timing.

It is understood that the next steps for design purposes include further surveying of the infrastructure, some of which cannot proceed until spring. It is anticipated that all of the design and permitting required for the in-water works will likely take up to twelve (12) months. Construction phasing may also be dependent upon fishery windows which will be determined through the permitting process with the Department of Fisheries and Oceans. Constructability and fisheries will likely be the largest constraints for the repair works whereby not all structures can be repaired at the same time and some may have to be constructed prior to others so as not to cause damage to newly finished work ie. the east breakwater to be completed before the east pier, followed by the east/north basin walls, etc.

It is not anticipated that construction will commence until at least 2022 and will take several years to complete construction once started. Harbour operations will be maintained to some extent during construction. Timelines and harbour usage will be further investigated throughout the design process.

7.0 FINANCIAL IMPLICATIONS/BUDGET IMPACT

The Shoreplan Engineering report, dated July 2020 details the following repairs, priorities, and estimated construction costs:

Location	Work required	Cost	Remaining structure Life
East	Remove concrete cap,	\$ 1,750,000	Less than 5 years
Breakwater	fill voids, place armour		
	stone		
West	Place additional armour	\$ 975,000	Less than 5 years
Breakwater	stones, and bring entire	(temporary)	
	west breakwater to a	and/or	
	higher level of stability		

		\$3,250,000 (permanent)	
Centre Pier	Failed concrete section for 6 meters	\$ 75,000	End of life at section noted and 10 years for rest of pier
Basin north wall	Repair timber crib walls and install sheet piling for 210 meters	\$ 1,950,000	End of life with restrictions put in place for pedestrians only
Basin East wall	Replacing sheet piles, filing voids and placing a concrete cap for 115 meters	\$ 1,170,000	End of life with suggested monthly inspections to occur

Please note that the above costs do not include design engineering, tendering, or contract administration/inspection of the construction. Typically, an additional 10-15% of the construction estimate is required for these activities. The above noted costs include restoration of the existing surface works ie. no landscaping enhancements have been included.

In addition, the original cost estimate for the rehabilitation of the east pier was \$792,000 for repairs and approximately \$1,340,000 for enhancements. Upon further review and inspection, the current engineering consultant has advised that an additional ~\$150,000 will be required to complete the desired rehabilitation of the east pier.

Location	Work required	Cost	Rating
Pier, wharf	Remove top layer, make	\$ 933,890.00	Priority, unable to
and splash	stable and install light		have vehicles on it
pad	duty asphalt for light		
-	vehicles, prep for		
	landscaping		

The 2020 budget estimates for the repairs to all aspects of the waterfront area may be upwards of \$12M including all fees. This does not include any 'enhanced features' and landscaping that will be proposed for the final design of the east pier project.

Staff will be pursuing all areas of available funding and grants which at this point in time, none are known to be available.

It is expected that the debenture payments would not begin until 2022 at the earliest and would be expected to cost approximately \$600,000 annually for 20 years. These amounts will be confirmed once construction tendering takes place.

Should Council approve the recommended motion, Staff can obtain a competitive quote for the design works in time for final budget deliberations.

8.0 <u>CONCLUSION</u>

THAT Council receive this report for information purposes, AND FURTHER THAT Council direct Staff to request quotations from Shoreplan Engineering and Riggs Engineering for the design and tendering of the necessary harbour infrastructure repairs noted in the Shoreplan Engineering report dated July, 2020.

9.0 POLICIES AFFECTING THE PROPOSAL

N/A

10.0 COMMUNICATION RESULTS

N/A

11.0 ATTACHMENTS

Appendix A – Bylaw 19-2002

Appendix B -Shoreplan Report, Breakwaters and Basin Walls Condition Assessment July 2020

Title	Signing Official:	Signature:	Date:
Deputy Director of Community Services	T. Behan	Electronic	November 26, 2020
Chief Administrative Officer	T. Vaughan	J. Vaugan	

HARBOUR AREA REFERENCE MAP



FINAL REPORT

Cobourg Harbour

Breakwaters and Basin Walls Condition Assessment



prepared by

Shoreplan Engineering Limited

November 2020

SHOREPLAN

Cobourg Harbour Breakwaters and Basin Walls Condition Assessment 2019

Prepared for

Town of Cobourg

by

SHOREPLAN

SHOREPLAN ENGINEERING LIMITED

VERSION	DATE	STATUS	COMMENTS	
01	2020-05-18	draft	for review	
02	2020-07-13	Final draft	for review	
03	2020-11-26	Final		

This report was prepared by Shoreplan Engineering Limited for use by the Town of Cobourg. The material within reflects the judgment of Shoreplan based on the information available to them at the time of preparation. Any use of this report by Third Parties, including relying on decisions made because of this report, are the responsibility of the Third Parties. Shoreplan Engineering Limited is not responsible for any damages suffered by any Third Party as a result of decisions made, or actions based, on this report.

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1 EXECUTIVE SUMMARY

The inspection and assessment of the Cobourg Harbour structures, completed in the fall of 2019, included the east and west breakwaters, the centre pier and the north and east basin walls. This inspection reviewed above and below water conditions and rated them in four categories. A summary of the rating, suggested repair option for each section of the harbour and associated cost are summarized in Table 1.1. All the structures are showing some signs of failure and require repair. This table attempts to set priority with the highest total score being the most urgent. It also briefly describes the suggested repair and provides an estimate of the construction cost. The construction cost estimates do not include contingencies or taxes.

AREA	RATING / 20	SUGGESTED REPAIR	REPAIR COST
East Breakwater	16	Remove the concrete cap and place an armour stone cover over the existing crib, filling any voids to bring it up to an appropriate elevation over 130m.	\$ 1,750,000.00
West Breakwater	16	Short Term - Place armour stone on the approximately 100m of failed sections of the structure.	\$ 975,000.00
		Long Term – Removed concrete cap and place armour stone cover over the existing crib, filling any voids to bring it up to an appropriate elevation over 180m.	\$3,250,000.00
Centre Pier	11	Repair the failed concrete blocks for 6m - place flat steel sheets along the damaged section in front of the existing timber crib and concrete cap, fill area behind the plate with clear stone and grout any voids.	\$ 75,000.00
North Wall SSP	14	Install a steel sheet pile wall in front of the existing timber crib and concrete cap wall, fill the space between with clear stone, grouting any voids and install a concrete cap along the wall's length.	\$ 1,950,000.00
East Wall SSP	17	Replace the steel sheet pile wall with a new sheet pile wall, fill the small area behind with clear stone, grout any voids and install a concrete cap along the wall's length.	\$ 1,170,000.00
			TOTAL
			\$9,170,000.00

Table 1.1 - Summary of Rating, Suggested Repair and Associated Cost

2 INTRODUCTION

Shoreplan Engineering Limited (Shoreplan) was retained by the Town of Cobourg to complete the inspections of 5 structures within Cobourg Harbour. The work described in this report was undertaken to assess the condition of the structures and to provide recommendations for their repairs or maintenance, where warranted. To complete the inspection a dive team from Dundee Marine used real time video recording to convey underwater conditions to a Shoreplan engineer supervising the team above water. The dive inspections were completed over 3 days, August 19th, September 5th and October 18th 2019. The water levels on those days were 75.5m, 75.3m and 75.0m respectively. Underwater photos presented in this report are screen shots taken from the video recorded on these dates.

2.1 SITE LOCATION

The five areas inspected within the harbour were:

- The East Breakwater
- The West Breakwater
- The Centre Pier
- The Basin North Wall
- The Basin East Wall

The locations of the five areas are identified on the location plan on Figure 2.1. Both sides of the breakwaters and pier were inspected.

2.2 REPORT STRUCTURE

Chapter 2 describes the purpose of the study and identifies site locations. Chapter 3 presents a description of the inspection findings and assesses the condition of each structure. Chapter 4 presents suggested repairs, priority sites and cost estimates. Chapter 5 provides a summary of the finding and recommendations.

Figures are provided at the end of each chapter. A series of photos for each structure is provided in Appendix A. Notes taken during the inspection are found in Appendix B.



3 STRUCTURE INSPECTION FINDINGS

This chapter provides a brief description of the structure at each location. An assessment of each structure is provided following the descriptions. The assessment is based on the rating system presented in Table 3.1. The system provides a rubric to evaluate various aspects of the shoreline protection. An assessment score between 1 and 4 is given for each category. The lowest score, 1, indicates the best conditions within the category. The highest score, 4, indicates the worst conditions within the category. The word descriptions associated with the ratings have been modified to a single word; best, good, fair or worst. The overall assessment is based on the sum of the scores in categories 1 to 4. Therefore, the site with the highest score is the highest priority site with respect to the need for improvements. Table 3.1 provides the assessment score parameters for each category.

A remaining functional life of the structure is estimated for each shoreline structure. This estimate is based on the known or estimated age of the structure and the observed condition of the structure. Typically shoreline structures are designed for a 25 to 50 year design life. The remaining life is typically estimated by subtracting the age of the structure from the design life. In this study, the remaining functional life of the structure is estimated based primarily on the conditions observed during our site visits. It is our experience that some structures can be beyond their design life but still be functioning as intended. If this is the observed condition, it is noted in the text. The Public Works and Transport Canada guidelines (PWC 1985) provide recommendations for type and frequency of inspection based on the type and age of a structure. We recommend following these guidelines for inspections.

Based on the assessments presented in this section, priority sites are identified and recommendations for shoreline protection improvements are provided in Section 3.

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Table 3.1 - Rating System Table

	Description	1 – BEST	2 – GOOD	3 – FAIR	4 – WORST
1 – Risk of Damage due to Failure	The risk of potential impact to adjacent areas with respect to the danger of the structure failing and the resultant loss.	Unimproved land or passive use, no buildings near the structure, natural park areas.	Non-habitable structures near the structure; active recreational park areas, walkways, garages, sheds, decks, pools.	Industrial or commercial buildings or areas within 30 metres of shoreline. Some outlets may be in this category depending on their importance to the infrastructure, location and ease of ability to repair.	Habitable, occupied and/or public use structures/ buildings, infrastructure; residential, institutional within 30 metres of shoreline.
2 – Personal Safety	The risk of personal safety by injury to pedestrians as a result of exposure to unsafe conditions or materials (e.g. exposed rough steel or rebar), structure configuration, (e.g. walking, tripping hazards), likelihood of access.	Pedestrian access to areas that have flat easy, safe and un- restricted access. Areas of no possible access by pedestrians, regardless of restrictions.	Well maintained sheet pile or concrete walls with walkways in very good condition and physical separation from water where required. Restricted access to areas where pedestrian access could be hazardous.	Seawalls with uneven backshore due to damage or deterioration. Structures that are not designed for public access and don't have signage restricting access but are in good condition.	Structures with loose or damaged concrete with exposed steel, re-bar or areas with exposed and unsafe steel or other materials. Structures severely deteriorated with large gaps, undermining, slope failures, etc. are also included in this category. These areas may or may not have signage restricting access but access is still possible and notably hazardous.
3 – Material Condition	The general condition of the structure material, ranging from good condition (e.g. as new condition retaining walls, well placed armour stone structures) to poor quality materials (eroded or completely degraded materials, retaining walls with severe damage or deterioration)	Excellent quality materials, new or have not shown any signs of deterioration or degradation.	Stable structures with good sound, quality materials. May be showing minor signs of deterioration.	Materials are missing or poor quality due to either degradation or deterioration. Structures that have been poorly constructed or have damage that may cause function/stability concerns.	Material conditions which are non- functional, severely degraded or highly unstable.
4 – Structure Effectiveness & Performance	The general ability of structure and the materials to perform and function effectively. As a result of the effectiveness and performance of the structure it may or may not require monitoring/maintenance/ repairs/replacement.	Structure and materials are functioning and performing very well and are effective from a design perspective for today's standards.	Structure and materials are functioning with minor signs of substandard effectiveness; monitoring, and/or repairs/maintenance may be required but are not essential to performance.	Showing signs of poor performance or minimally functional, requires regular, ongoing monitoring, or minor repairs/maintenance are required. Structures with poor design or outdated design parameters that require monitoring or minor upgrades to maintain functionality.	Eroding, unstable and not effective or functional structures. Severely under designed for either intended or actual use. New construction, replacement of either entire structure or significant sections of existing structure required to provide performance required at this time.

3.1 EAST BREAKWATER

The east breakwater extends from the end of the pier on the east side of Cobourg Harbour protecting the harbour from waves from the open lake. Inspection of this structure started on the north east side on September 5th 2019 and concluded at the south end on that day. The inspection of the inner portion of the breakwater was conducted on October 18th 2019 starting from the south end and progressing north along the harbour side face.

3.1.1 Description of Shore Protection

The north end of this structure includes an approximately 75m long section of the pier that is formed from steel sheet pile walls with a concrete deck. From this section the breakwater extends south and consists of timber cribs with a sloped concrete cap. At the south end of breakwater and on the west face of the timber crib section stone material has been piled up against the cribs. These sections will be discussed separately.

Steel Sheet Pile Wall

The north end section which forms part of the pier is composed of two different pile shapes. There is z-pile for approximately the first 45m on the north end before it switches to u-pile. There is no cap on these sheet piles however there is a concrete deck between the east and west sheet pile wall. On the east side, from 45m to 75m, there is a tie every 3rd in-pan near the top of the wall. Wailer bolt locations are visible between ties, but many are missing. The sheet pile section ends at approximately 75m where it is not closed off. Looking north on the east side behind the sheet pile you can see timber cribs and a concrete cap.

Timber Cribs (East Face)

Starting at chainage 0+75 and progressing south, the breakwater consists of a 1.0 to 1.5m thick sloping concrete cap with a vertical wall approximately 74cm tall. A joint in the concrete cap is located approximately every 6m. The concrete cap sits on timber cribs. Fill material inside the cribs was observed to be a mix of smaller 100 to 150mm and larger 200-300mm stone material. The top of crib elevation is approximately 73.8m IGLD. Although many timbers were missing, it appears that the original crib had on average 3 or 4 horizontal timbers exposed above current lakebed elevations. Timbers measure approximately 17cmx17cm. Cross timbers running eastwest were seen at regular intervals of approximately 1.0m and between crib sections, and the cap sits on these members where the north-south top timbers are missing. Three 12mm steel plates extending from lakebed or just above lakebed up to the concrete cap were observed near the south end of the east face of the crib. They varied in length from 1.4m to 3.4m long and were secured to the timber north-south members, although no pins could be seen.

Revetment (South End and West Face)

A lighthouse is located at the south end of the breakwater. Starting near the lighthouse and continuing south on the east face, 2 to 3 tonne stone material has been piled up tightly against the timber cribs. Around the south end the stones are larger and estimated to be in the 5 to 8 tonne range. The revetment continues on the west face between chainage 0+200 and 0+120.

After this point and continuing south up to the steel sheet pile wall there is no protection in front of the timber cribs with a concrete cap.

3.1.2 Structure Assessment

Risk of Damage due to Structure Failure

The marina would be vulnerable to wave action from easterly storms if damage or failure of the breakwater protection were to occur. The rating system considers the risk of damage due to structure failure 2 – Good because the risk to critical infrastructure is minimal.

Personal Safety

The breakwater has pedestrian access restricted by signage. Access is still possible though as physical restrictions are limited. Personal safety is rated 4 – Worst as the surface of the structure is uneven and sloped, making walking difficult. There are also large sections of deteriorated concrete and gaps in the concrete surface.

Material Condition

This breakwater consists of sections of steel sheet pile wall, timber cribs with a concrete cap and a section of armour stone revetment at the opening to the harbour and inner face. The steel sheet pile wall is in good condition with only minor signs of deterioration. The timber cribs are showing severe deterioration. Timber sections are missing 1/2 to 3/4 of the vertical face on the outside east facing crib wall. Fill material inside the cribs no longer touches the underside of the cap with visible gaps of 20cm 80cm between the cap and the top of fill. The cap is supported by timber cross members, many of which are showing signs of disintegration. On the surface of the breakwater, large sections of the cap have spawled away. Sections of concrete are also missing from the cap at the waterline. This may be due to damage caused by ice. A large section of concrete over 2m wide previously forming part of the cap appears to have rolled into the lake near the lighthouse.

The revetment on the west side is showing signs of damage. Between chainage 0+200 and 0+130 numerous gaps were found at or above the waterline and stones were found rolled out past the toe 5 or more metres. The northern 10m of the breakwater between chainage 0+130 and 0+120 appeared to be in good condition. The section of exposed timbers cribs on the west side had gaps in the wall near the base with strong flow in and out. This would indicate that there are voids within the core of the structure. The gaps in the wall were noted at approximately chainage 0+90, 0+80 and 0+70.

With the exception of the steel sheet pile wall, this structure is at its end of its functional life and should be repaired or replaced. The material condition is rated as 4 – Worst.

Structure Effectiveness and Performance

Although it provides protection against oncoming waves in its current state, signs of significant damage and deterioration do not allow it to be considered stable or functional in the long term.

During our site visit we observed flow through the breakwater, indicating notable voids in the core. It is our opinion that the structure should be rated 4 – Worst as it requires significant repairs to maintain its effectiveness and long term performance.

Remaining Structure Life

The remaining structure life is estimated to be less than 5 years. Major damage to the structure has occurred which will require repair or replacement. Further damage or complete failure of sections of the breakwater is expected if no action is taken.

3.2 WEST BREAKWATER

The west breakwater extends from the shoreline on the west side of Cobourg Harbour protecting the harbour from waves approaching from the south quadrant. Inspection of this structure started on west end of the north side on September 5th 2019 progressing towards the east around the end and back towards the west concluding at the south west side on that day.

3.2.1 Description of Shore Protection

The west breakwater runs from the shoreline on the west side of the harbour in south east direction for over 175m before turning north east towards the mouth of the harbour for 63m. The breakwater consists of a section of timber cribs with a concrete cap from chainage 0+00 to 0+110 and from chainage 0+143 to 0+175. The lake side of the cribs is further reinforced with armour stone along its length. The harbour side of the cribs only has armour stone between chainage 0+143 and 0+175. All other sections of the west breakwater do not have any visible cribs and appear to consist of only an armour stone berm; this includes chainage 0+110 to 0+143 and chainage 0+175 to 0+238.

3.2.2 Structure Assessment

Risk of Damage Due to Structure Failure

The marina would be vulnerable to wave action from storms if damage or failure of the breakwater protection were to occur. The rating system considers the risk of damage due to structure failure 2 – Good because the risk to critical infrastructure is minimal.

Personal Safety

The west breakwater does not restrict pedestrian access. Personal safety is rated 4 – Worst, as the surface of the structure is uneven and sloped making walking difficult. There are also large sections of deterioration and gaps in the concrete surface.

Material Condition

The timber crib sections of the breakwater are showing significant signs of deterioration. This includes large gaps in the timbers that allowed full penetration of a metre stick. There is evidence of water flow through the cribs at gaps in the toe. This flow was observed during the inspection and areas of scour indicate that it is not a new condition. The condition is occurring in

areas where timbers that run north-south across the breakwater are missing a significant amount of cross section or have large gaps where they were meant to butt up against longitudinal members. There is one section of the breakwater at approximately chainage 0+85 where there is a gap almost 1m wide between the cribs. Above the waterline much of the concrete cap on the north side has spawled away. There were also many cracks and spawled sections of the cap that extended below water.

Sections of the stone revetment are showing signs of damage. We observed large gaps between stones and missing stones that have likely rolled off the top or the slope of the protection. There is a gap in the crest of the stone material for 20-25m starting at approximately chainage 0+185. We found armour stones located 10 to 15m offshore from the toe of the breakwater. These stone were likely placed on the structure and removed by wave action. This has left gaps in the stone material above as well as below water. Placement of stone in areas with no obvious voids and gaps appears to be random with smaller gaps between stones.

With so many signs of damage and deterioration the western breakwater is at the end of its functional life and should be repaired or replaced. As this is the case, the material condition is 4 – Worst.

Structure Effectiveness and Performance

Although it may provide protection against oncoming waves in its current state, signs of significant damage and deterioration do not allow it to be considered functional in the long term. During our site visit we observed flow through the protection works and areas of significant damage. It is our opinion that the structure should be rated 4 – Worst in terms of effectiveness and long term performance.

Remaining Structure Life

Major damage has occurred to the structure. The remaining functional life of the structure is estimated to be less than 5 years. Further damage or failure of additional sections is expected if no action is taken.

3.3 CENTRE PIER

The Centre Pier is located on the west side of the active marina basin. Although it is orientated in a south-east to north-west direction, for the purpose of this report it will be described as running in a north, south direction with east and west faces. Chainage for the pier has been laid out from the south end (0+00) to the north end (0+187). The pier provides access to docks that extend from the east face. Inspection of the pier was completed on October 18th, 2019. It started on the north end of the west face progressed south around the end and continued north along the east face.

3.3.1 Description of Shore Protection

The pier consists of a timber crib sub-structure with a row of concrete blocks and a poured concrete cap above it. On the day of the inspection the top of the timber cribs sat approximately

15cm below the waterline with the concrete above it. The pier is approximately 187m long with 110m extending from land with water on both the east and west sides. This section of the pier is 6 to 8m wide. Another 77m of the pier on the north end is adjacent to land with water on the east side only. In this section, from approximately chainage 0+100 to 0+187, there is 100mm rip rap material piled up against the wall and sloping into the water at an approximate slope of 4h:1v. Approximately 4 to 5m from the face of the wall the slope drops off significantly, varying from 2h:1v to 1h:1v, to the lakebed of the harbour.

3.3.2 Structure Assessment

Risk of Damage Due to Structure Failure

Damage or failure of the pier would cut off access to the docks that extend from the east face. Failure of the north section, adjacent to the marina offices, could result in impacts on the building. The rating system considers the risk of damage due to structure failure to be 2 – Good. We note that the only building located within 30 m of the shoreline protection is the marina office which is approximately 14m from the water's edge.

Personal Safety

The pier and north end wall provide public access to the waterfront with no railing separation from the water's edge. The walkway paver stones provide an even walking surface. Personal safety is evaluated as 2 – Good.

Material Condition

A large void below the concrete cap was observed on the west face at chainage 0+102. It extends horizontally for approximately 4m and is approximately 1.7m high. The concrete blocks in this area appear to have fallen into the cribs and have broken the top timbers. In this area the reinforcing steel in the cast in place concrete cap is exposed. The corresponding location on the east face of the pier does not have exposed timbers as the lakebed is higher and covers the crib.

Beyond this area the timbers and the concrete blocks and cap are in good condition with only minor signs of wear. This includes minor spawling of concrete blocks at the waterline. When probed with a knife, penetration into the timber is minimal. Pins observed along the face of the timber cribs are corroded.

Overall the material condition is evaluated as 2 – Good because of the section where the concrete blocks have failed and fallen into the cribs.

Structure Effectiveness and Performance

The structure appears to be functioning well, however the damage near chainage 0+100 requires repair to maintain functionality and prevent further damage. The structure should be monitored and regularly inspected to determine any negative effects of the flow through the toe.

The structures effectiveness is 2 – Good with the exception of the stability concerns around chainage 0+100.

Remaining Structure Life

The failure of the structure near chainage 0+100 results in this section having no remaining life as it requires repairs to avoid failure. For the rest of the structure, the remaining life of the timber cribs and concrete cap is estimated to be 10 years. This estimate is provided as a precaution as the timber crib structure is old and at the end of its intended design life but is only showing one area of failure. There is a possibility that the functional life could be much longer given the observed condition. The structure requires monitoring and regular maintenance to ensure deterioration is repaired as the structure ages beyond its design life.

3.4 BASIN NORTH WALL

Inspection of this structure was completed on August 19, 2019. This wall, located at the north end of the marina, consists of approximately 210m of timber cribs with a concrete cap. There is a small section, approximately 10m long, of steel sheet pile that sits in front of the timber cribs. The backshore provides pedestrian access along the waterfront. Further inland is park space and two parking lots.

3.4.1 Description of the Shore Protection

The shoreline structure consists of a timber crib with a concrete cap that consists of 1m high concrete blocks with a cast in place concrete layer on top. The top of the timber of the cribs is at an elevation of approximately 74.4m IGLD. Water depth in front of the cribs varied between 3.5m and 4.5m with the exception of the east and west ends of the wall. The water was much shallower at the ends and is generally less than 2.0m.

The backshore north of the wall's concrete cap consists of a paver stone pedestrian walkway with a lawn area to the north. A railing separates pedestrians from the water. Parking lots are located behind the lawn area on the west and east ends. A lawn extends further inland in the middle section between the parking lots. North of the parking areas is a roadway and further north is residential and commercial property. These properties sit more than 40m back from the face of the wall.

3.4.2 Structure Assessment

Risk of Damage Due to Structure Failure

Failure of the wall would impact the public use of the harbour wall which provides pedestrian access to the waterfront. The wall is also used for mooring of boats. It is possible that if a failure were to occur, the adjacent parking lot which starts approximately 10m from the wall, could also sustain minor damage. Damage to the residential and commercial buildings north of the wall are not expected. Due to the condition of the wall the risk of damage due to structure failure has been evaluated as 3 – Fair.

Personal Safety

The wall provides public access to the waterfront however the railing provides separation between the walkway and the water's edge. The walkway paver stones provide an even walking surface and regular maintenance has allowed this surface to remain in good condition. Personal safety has been evaluated as 2 – Good.

Material Condition

Above water the walkway is showing few signs of deterioration. The paver stones adjacent to the concrete cap are slightly depressed along the edge of the cap, however this depression is minor and located on the water side of the railing.

Below water, damage and deterioration to the timber cribs is significant in some areas. On the west end, at approximately chainage 0+06, a large void over 2m long and 0.7m high was observed. Sand and $\frac{3}{4}$ " stone was observed on the lakebed in front. This is the bedding material for the walkway. The depth of this void varied from 0.5m up to 1.2m. Further along the wall at approximate chainage 0+16, gaps between the timbers allowed probing up to 0.9m behind the wall. It was noted that the timbers were soft and, at a chainage of approximately 0+25, the timbers could be pulled away from the wall by hand. Another large void, 2.2m wide and 0.7m to 1.3m high, was observed at chainage 0+35. Disturbed sand and zebra mussels were observed inside the cribs. The back of the void could not be seen however it extended at least 3m north. Another void, 1.2m wide and 0.35m high, was observed extending at least 3m deep at chainage 0+41.

A steel sheet pile wall was observed in front of the cribs between chainage 0+51 and 0+61. The sheet piles were 11mm thick. Dents and one rip 0.42m long that started 0.34m below the waterline were noted in the piles. East of the sheet piles the timber wall continues with another void 0.25m high and 0.20m wide that extends in to the wall at least 1m. At this point the cap sits inside the timbers by 0.15m. A shallower 0.6m wide by .25m high void only 0.25m deep was observed at 0+66m.

At chainage 0+77 the cribs appear to be in good condition. Starting at 0+80 there were small piles of sandy material on the lakebed and small voids that could be probed up to 0.2m behind the crib wall. Further along, at chainage 0+86, a gap between the concrete blocks allowed for probing over 1m and there was a timber missing. At chainage 0+93 there was another void and timbers pulled away from the wall just below the cap. Material was again observed on the lakebed. Progressing east the wall was again in good condition with only penetration at the location of cross north/south members. Gaps between timbers at 0+130 and 0+135 allowed full penetration of the metre stick. This was again observed at 0+160, 0+166 and 0+175, but the voids associated with the penetration were narrow.

Cracks in the concrete and spawling were observed along the entire wall and was most severe at locations between chainage 0+15 and 0+25, at 0+41 and between 0+135 and 0+185.

At chainage 0+210 the wall turns south and transitions to steel sheet pile wall. The timber wall sits behind the concrete cap and the steel sheet piles butt up to the concrete cap, creating a gap between the timber and steel wall.

Structure Effectiveness and Performance

The underwater condition requires major repairs or replacement to continue functioning properly. The current condition of the structure requires regular maintenance in the backshore to maintain a functional safe walkway. This will be ongoing until the deteriorated timber cribs are repaired or replaced. This area is involved in lifting activities for the marina. Restrictions communicated previously should stay in place until the deficiencies in this wall are resolved. Structure effectiveness and performance has been rated as 3 – Fair.

Remaining Structure Life

The north wall is at the end of its design life. It will continue to provide the same level of performance as it is currently providing and deterioration is expected to continue. Backshore maintenance needs will increase as deterioration continues. Voids observed under the cap will continue to lead to sink holes in the backshore. Loading behind the wall in the area of chainage 0+00 to 0+100 should be restricted to pedestrians only.

Inspection of the structure above water is recommended to be carried out monthly, to monitor for failures in the backshore.

3.5 BASIN EAST WALL

The east side of the basin consists of a steel sheet pile wall along its entire length of approximately 115m. Inspection of the wall was completed from the north end to the south. This wall connects to the North Wall at the north end and at the south end runs into the Coast Guard pier that extends towards the west. The backshore consists of a walkway along the length of the wall with a parking lot east of the walkway on the north end and a paved driving surface on the south end. Underwater review of the wall was completed on August 19th 2019.

3.5.1 Description of the Shore Protection

The steel sheet pile connects to the concrete cap of the north wall. The sheets along the entire length of the wall are similar to an Algoma section A which has the connection between the sheets at the end of an open u-shape. Along the wall are multiple culverts and pipes that extend through the wall above and below water. These openings varied in diameter from approximately 0.20m at chainage 0+50 to between 0.55m and 0.70m at chainage 0+07, 0+11 and 0+19. Tie backs near the lakebed spaced every 4 in-pans were found in the first 60 meters of the wall. There was no evidence of a wailer on the outside of the wall. A custom steel section is located at approximately 75.5m IGLD elevation that extended along most of the wall, but was not continuous. The water depth along the wall varies from just under 3m at the north end to almost 5m mid wall and back to approximately 3m at the south end.

The backshore includes a concrete cap along the waters' edge with an adjacent paver stone walkway from chainage 0+00 to approximately 0+65. There is a railing barrier between the pavers and concrete surfaces. At chainage 0+35 there is a crane lift that sits on a concrete pad. South of the end of the concrete and paver stone path there is no cap to the sheet pile and the backshore is paved with asphalt up to the wall. There is a section of vegetation approximately 10m long between where the concrete ends and the pavement begins.

3.5.2 Structure Assessment

Risk of damage Due to Structure Failure

Failure of the wall would impact the public use of the harbour wall which provides pedestrian access to the waterfront and parking space. It is likely that if a failure were to occur, the adjacent parking lot which starts approximately 3m from the wall, would also sustain damage. Due to the shoreline nature of the wall the risk of damage due to structure failure has been evaluated as 3 – Fair.

Personal Safety

The wall provides public access to the waterfront however the railing provides separation between the walkway and the water's edge. The walkway paver stones provide an even walking surface when maintained. Personal safety has been evaluated as 2 – Good.

Material Condition

Many small holes were found in the SSP approximately 5cm in diameter. They appeared to be cut into the SSP wall and were present above and below waterline but mostly near the top of the wall. Some of the holes had eye-bolts in them or a rod like element, while others were free from obstruction with sand and sediment behind them. Over 100 were counted along the length of the wall. What appeared to be tie back rods with a plate and nut at their ends were pulled out of the wall and often bent down or to the side. These tie backs were located near the lakebed. Around the tie back rods, holes were observed that were approximately 10cm in diameter. Piles of soft sediment material were noted accumulating in front of the holes in the sheet pile wall. The toe of the wall was observed to be fully embedded during the inspection.

The culverts and pipes observed in the wall often have a gap around the joint between the wall and the pipe element. Penetration of a metre or more was possible in the gap at chainage 0+11. The pipe at chainage 0+07 has a gap with visible stone fill material approximately 100-200mm in size. Zebra mussels were found at chainage 0+19 between the pipe and the wall and there is fill material accumulated inside the pipe. The gap around the pipe at chainage 0+50 is approximately 3cm and allows the fill material to be removed by hand.

Signs of settlement in the backshore were observed where fill material has been lost. Paver stones have been removed for approximately 5m at the north end of the wall and around the corner heading west for 2m. They have also been removed around the mast crane just before chainage 0+35 and at chainage 0+11 in line with the 0.6m pipe that come through the wall underwater. Removing the paver stones has exposed large voids under the walkway. It was

evident during the inspection that sand material was leaking through the holes in the wall. Sections of the SSP wall nearing chainage 0+60 were leaning in at the top.

Structure Effectiveness and Performance

The structure requires major repairs or replacement to continue functioning properly. The current condition of the structure requires regular maintenance in the backshore to maintain a functional and safe walkway. This will be ongoing until the sheet pile wall is repaired or replaced. This area is involved in lifting activities for the marina. Restrictions communicated previously should stay in place until the deficiencies in this wall are resolved. Structure effectiveness and performance has been rated as 3 – Fair.

Remaining Structure Life

The east wall is at the end of its functional life due to number of holes, material loss around outlets and a section that is leaning. It will continue to provide the same level of performance as it is currently providing and deterioration is expected to continue. Backshore maintenance will increase as deterioration continues.

Inspection of the structure above water is recommended to be carried out monthly, to monitor for failures in the backshore.

4 SUGGESTED REPAIRS

This section presents our suggested repair options for the damage observed during inspection. Costs presented herein are preliminary and do not include contingency, tax or design fees.

4.1 East Breakwater

The suggested repair for the breakwater is to remove the concrete cap and place an armour stone cover over the existing crib, filling any voids in the core of the structure and bringing the crest up to an appropriate elevation. A typical section of the proposed repair is presented on Figure 4.1

The estimated cost associated with these works is \$1,750,000. This includes costs of completing the works from a floating plant.

The armour stone placed along segments of the toe of the east breakwater was found it to be in functional condition.

4.2 West Breakwater

The suggested near term repair for the breakwater is to place additional armour stone on the approximately 100m of failed sections of the structure. A typical section of the proposed repair is illustrated on Figure 4.2. The armour stone creates a stable outer surface that protects the existing core of the breakwater.

The estimated cost associated with these works is \$1,000,000. This includes an associated cost of completing the works from a floating plant.

Ultimately, we expect that the entire west breakwater structure will need to be brought to a higher standard of stability. These improvements are mostly associated with additional placement of armour stone on the section of the breakwater that extends 180m from the western shore. The improvements will ensure long term stability of the structure under design wave conditions. The work will include an increase in crest height of the breakwater and additional material along the harbour side. A typical section of the breakwater repair is shown on Figure 4.3. A preliminary construction cost estimate indicates that the works would be approximately \$3,250,000. This assumes re-use of existing armour stone material including armour stone placed during the suggested repair on the outside. It includes only the additional material required on the lakeside to attain the desired slope, the material on top of the crib to raise the elevation and material on the inside slope down to an elevation that would allow navigation if the basin was dredged. This price does not include the portion of the breakwater that forms the entrance to the marina. This area is assumed to be adequately addressed during the repair.

4.3 Centre Pier

At this time it is suggested that a repair for the failed concrete block section at the north end of the west side be completed. The small gaps at the lakebed on the south side should be monitored but do not need to be immediately addressed. Our suggested repair for the failed concrete blocks includes placing flat steel sheets along the damaged section in front of the existing timber crib and concrete cap, filling the area behind the plate with clear stone and grouting any voids along this section of the wall. A typical section of the proposed repair is illustrated on Figure 4.4.

An estimated construction cost of the steel sheet repair is \$75,000. This assumes that an approximately 6 m long section of the pier will require repair.

4.4 Basin North Wall

The suggested repair for the timber crib walls includes installing a steel sheet pile wall in front of the existing timber crib and concrete cap wall, filling the small area between with clear stone, grouting any voids and installing a concrete cap along the wall's length. A typical section of the proposed repair is illustrated on Figure 4.5.

An estimated construction cost of the sheet pile walls is \$1,950,000. This assumes a uniform wall height of approximately 4.5m along the 210m length.

4.5 Basin East Wall

The suggested repair for this structure includes replacing the steel sheet pile wall with a new sheet pile wall, filling the small area behind with clear stone, grouting any voids and installing a concrete cap along the wall's length. The existing outlets will need to be incorporated within the new wall and properly sealed and connected to the new wall. A typical section of the proposed repair is illustrated on Figure 4.6.

An estimated order of magnitude cost for materials and installation of the sheet pile walls is \$1,170,000. It assumes a uniform wall height of approximately 4.5m along the 115m length. This cost does not include contingency, taxes or design fees.

4.6 Priority

The Basin East Wall appears to be deteriorated to the greatest degree and likely should be the highest priority. The west and east end of the Basin North Wall are high priority however we recommend repairing the entire length as a patchwork approach may be difficult to complete and may increase the repair cost due to multiple mobilizations and increased complexity of the works. We also recommend completing the North and East walls at the same time for additional cost savings. Restoring the Basin North and East Wall sections would allow normal functions along the edge of the harbour basin to carry on, including public access and boat storage and loading.

The 6m of failure identified on the Centre Pier should be considered a high priority. Repairs will ensure continuous safe use of the pier and reduce the risk of additional failures.

The East Breakwater should be considered a high priority. The deterioration of the entire length south of the steel sheet pile wall has resulted in a recommendation for repair to this 100m of

length to ensure functionality. The deteriorated 100m sections of the West Breakwater should be also considered high priority since it is conceivable that severe storms at high lake levels could cause a substantial failure of a section of the breakwater and allow wave penetration into the harbour.

4.7 Cost Estimate Summary

Cost estimates prepared for each structure described above are summarized in Table 4.1. This table includes the cost of the suggested repairs of the length recommended. It does not include tax, contingency, or design fees.

AREA	LENGTH (m)*	REPAIR COST	
North Wall SSP	210	\$ 1,950,000.00	
East Wall SSP	115	\$ 1,170,000.00	
Centre Pier	6	\$ 75,000.00	
West Breakwater	100	\$ 975,000.00	
	180	\$ 3,250,000.00	
East Breakwater	130	\$ 1,750,000.00	
	TOTAL	\$ 9,170,000.00	

Table 4.1 - Cost of Recommended Repair

*Length of suggested repair not the total structure













5 CONCLUSIONS AND RECOMMENDATIONS

Five distinct areas of the Cobourg Marina infrastructure were reviewed. Structural makeup and condition is unique to each area. Following site inspections, an assessment of the structures was completed according to a rating system which established 4 areas of concern. A summary of the rating for each area is presented in Table 5.1. Priority is further summarized after this table and should not be automatically given to the areas with the highest overall score.

Table 5.1 - Summary Rating Table

	Risk of Damage due to Structure Failure	Personal Safety	Material Condition		Structure Effectiveness & Performance	Total out of 20
			Above Water	Below Water		
East Breakwater	1	4	4	4	3	16
West Breakwater	1	4	4	4	3	16
Centre Pier	3	2	1	2	3	11
North Wall	3	2	2	4	3	14
East Wall	3	3	4	4	3	17

Based on the assessment, the conclusion and recommendations are as follows:

- 1. Priority should be given to the Basin East Wall to allow for continued use. These repairs should be paired with the suggested repairs for the Basin North Wall if budgeting allows.
- 2. Repairs to the breakwaters are required to provide protection to the Marina. They are both at an advanced level of deterioration and should be monitored for additional damage after major storm events. The East Breakwater requires repairs along its entire length while the West Breakwater requires repair of approximately 100m to ensure functionality.
- 3. Repairs are required to the Centre Pier for a small area 6m long to protect against further deterioration and ensure stability.

Table 5.2 presents the findings for each site. The table summarizes the type of structure, estimated remaining life and recommended monitoring, recommendations for rehabilitation or repairs, and construction budget estimates for the recommended rehabilitation structure or maintenance if applicable.
Section	Structure Description	Estimated Remaining Life & Monitoring	Rehabilitation/ Maintenance	Rating/20	Construction Budget Estimate
East Breakwater	Breakwater 200m long	Structure at end of life. Many	Remove the concrete cap and place	16	\$ 1,377,000.00
DIEANWALEI	70m of Steel sheet pile	degraded structural elements.	existing crib, filling any voids to bring		
	wall.	The remaining structural life is less than 5 years The structure is	it up to an appropriate elevation.		
	130m Timber cribs with	in imminent risk of damage during			
	concrete cap and	severe storms			
	armour stone along	Visual incraction of breakwater			
	structure.	should be carried out annually			
		and after severe storm events			
		until repairs are implemented.			
West	Breakwater 238m long	Structure showing signs of	Short Term - Place armour stone on	16	\$ 975,000.00
Breakwater	; ; ;	deterioration with sections of	the approximately 100m of tailed		
	I imber cribs with	armour stone failure and severely	sections of the structure.		
	concrete cap and armour stone	degraded structural elements. The structure is in imminent risk			
	Sections that may be	of damage during severe storms	l ond Term – Build un armour stone		\$ 3 250 000 00
	only armour stone		to an appropriate elevation covering		00.000 (00.00 0
		Visual inspection of breakwater	existing cribs and filling any voids.		
		should be carried out annually	· •		
		and after severe storm events			
Centre Pier	Pier extending 110m	Remaining life estimate is 15	Repair for the failed concrete blocks	1	\$ 75,000.00
	from shore and seawall	years outside of 6m of failed	along 6m - place flat steel sheets		
	77m long.	concrete blocks and timbers at	along the damaged section in front		
		0+100.	of the existing timber crib and		
	Timber cribs with		concrete cap, fill area behind the		
	concrete cap.	Visual inspection of pier annually	plate with clear stone and grout any		
Nouth Woll		Structure of and of life with monit	Volds. Place a staal ahaat aila wall in frant	~ ~	# 1 OEO 000 00
	beawall zusifi lorig un	suucture at eriu of lite with many sections baving a remaining	Place a steel street plie wall it it off.	<u>+</u>	\$ 1,300,000.00
	hasin	scenaria naving a remaining structural life of less than 5 vears	concrete can wall fill the small area		
			between with clear stone. grouting		
	Timber cribs with	Visual inspection of shoreline	any voids and install a concrete cap		
	concrete cap.	annually to monitor erosion and	along the wall's length.		
			Maintenance of the walkwav is		
			required to ensure a trip free surface		
			and current boat storage and lifting restrictions should also remain in		
			place until repairs are completed.		

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Breakwaters Shoreplan Fil	and Basin Walls Condition e 19-3097	Assessment			Final Report Town of Cobourg
East Wall	Seawall 115m long on east side of marina basin. Steel sheet pile wall sections with concrete cap.	Structure at end of life with sections of the wall having zero years of remaining structural life. Visual inspection of shore protection annually and after severe storm events.	Replace the steel sheet pile wall with a new sheet pile wall, fill the small area behind with clear stone, grout any voids and install a concrete cap along the wall's length. Maintenance of the walkway is required to ensure a trip free surface and current boat storage and lifting restrictions should also remain in place until repairs are completed.	17	\$ 1,170,000.00
* All measure	ements are approximate, e	stimates are for construction costs a	and do not include tax, contingency or eng	gineering,	permitting fees.

Appendix A

Site Photographs

INSPECTION PHOTOS

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EAST BREAKWATER	2
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EAST BREAKWATER



Photo 1 - East Breakwater, East Face



Photo 2 - East Breakwater, East Face Small Hole



Photo 3 - East Breakwater, East Face Transition to Timber Cribs 0+075



Photo 4 - East Breakwater, East Face Transition to Timber Cribs 0+075



Photo 5 - East Breakwater, East Face Gap and Visible Fill Material



Photo 6 - East Breakwater Cap Looking South



Photo 7 - East Breakwater, East Face Missing Top Two Timbers



Photo 8 - East Breakwater, East Face Gap and Cross Members



Photo 9 - East Breakwater, East Face Cross Member Coming Through



Photo 10 - East Breakwater Bottom Cross Members



Photo 11 - East Breakwater East Face Top Two Timbers Missing 0+158



Photo 12 - East Breakwater East Face Top Two Timbers Missing 0+173



Photo 13 - East Breakwater East Face Gap Between Cribs No Fill



Photo 14- East Breakwater East Face Plate Secured to Timbers



Photo 15 - East Breakwater East Side of Lighthouse



Photo 16 - Concrete Sections On Lakebed Adjacent to Lighthouse



Photo 17 - East Breakwater West Face Revetment - South End



Photo 18- East Breakwater West Face Revetment – North End



Photo 19 - East Breakwater West Face Revetment - North End Connection with Cribs



Photo 20 - East Breakwater West Face Crib, Example of Cross Timber Stopping Short of Wall



Photo 21 - East Breakwater West Face - Spawling in Cap 0+97 South



Photo 22- East Breakwater West Face - Spawling in Cap 0+97 North



Photo 23 - East Breakwater West Face - Weeds Getting Pulled into Void in Wall



Photo 24 - East Breakwater West Face - Void between Cribs and SSP Flow E to W



Photo 25 - East Breakwater West Face - SSP Wall Looking North



Photo 26- East Breakwater West Face - SSP Wall 100% Coverage



Photo 27- East Breakwater West Face Change to Z-Pile



Photo 28 - East Breakwater West Face - North End of Breakwater Start of Pier

WEST BREAKWATER



Photo 29 - West Breakwater North Side, West End Revetment



Photo 30 - West Breakwater North Side, End of Revetment



Photo 31 - West Breakwater North Side, Damage to Concrete Cap 0+20



Photo 32 - West Breakwater North Side, Sand Pushed Away at Toe Void



Photo 33 - West Breakwater North Side, Example Gap at Toe



Photo 34 - West Breakwater North Side, Form Joints & Cracks in Cap



Photo 35- West Breakwater North Side, Large Section of Cap Damage 0+70



Photo 36 - West Breakwater North Side, Large Gap Between Cribs 0+84



Photo 37 - West Breakwater North Side, Space Inside Large Gap 0+84



Photo 38 - West Breakwater North Side, Start of Stone Material 0+110



Photo 39 - West Breakwater North Side, Lakebed Adjacent to Stone



Photo 40 - West Breakwater North Side, Gap between Stones in Revetment Toe



Photo 41 - West Breakwater North Side, Concrete Section with Stones in Front, Change of Direction



Photo 42 - West Breakwater North Side, Gap in Revetment



Photo 43 - West Breakwater South Side, Scattered Stone Offshore of 0+228



Photo 44 - West Breakwater South Side, Gap in Revetment



Photo 45 - West Breakwater South Side, 0+175 Looking West



Photo 46 - West Breakwater South Side, Missing Stone at Concrete East End



Photo 47 - West Breakwater South Side, Material Piled up Against Sloped Cap



Photo 48 - West Breakwater South Side, Small Gap Onshore 0+30



Photo 49 - West Breakwater South Side, West End looking East

NORTH WALL



Photo 50 – North Wall - Timber Pulled Out From Wall 0+06



Photo 51 - North Wall Looking East from West End



Photo 52 - North Wall Steel Belting Below Cap



Photo 53 - North Wall Build Up of Material at Toe



Photo 54 - North Wall Inside Large Void at 0+35



Photo 55 - North Wall Void at 0+41



Photo 56 - North Wall Example of Cracking in Concrete Blocks



Photo 57 - North Wall Spawling in Concrete Block 0+42



Photo 58 - North Wall Transition to Steel Sheet Pile 0+51


Photo 59 - North Wall Inside Culvert at 0+90



Photo 60 - North Wall Typical Gap Between Timbers 0+135



Photo 61 - North Wall View Above Water Line 0+190

EAST WALL



Photo 62 - East Wall Connection to North Wall



Photo 63 - East Wall Looking South from North End



Photo 64 - East Wall Typical Hole



Photo 65 - East Wall Tie and Bolt Pulled Away From Wall at Lakebed



Photo 66 - East Wall Example of Hole Above Tie Back



Photo 67 - East Wall Pipe Above Waterline at 0+50



Photo 68 - "Bumper" at Waterline



Photo 69 - Buildup of Material in Front of Wall



Photo 70 - East Wall Leaning at 0+65



Photo 71 - East Wall Example of Eye Bolt in Wall with Small Gap Around



Photo 72 - East Wall Leaning Piles Above Water

CENTRE PIER



Photo 73 - Centre Pier West Face North End



Photo 74 - Centre Pier Cap Condition



Photo 75 - Centre Pier West Face Gap at Toe With Flow 0+47



Photo 76 - Centre Pier West Face Scour from Flow Through Wall



Photo 77 - Centre Pier West Face Spawling 0+61



Photo 78 - Centre Pier West Face Typical Scour at Toe Due to Small Gaps



Photo 79 - Centre Pier West Face Typical Scour at Toe Due to Small Gaps



Photo 80 - Centre Pier West Face Sudden Stop of Zebra Mussel Growth 0+105



Photo 81 - Centre Pier Steel Belting Around Corners at East End



Photo 82 - Centre Pier Crack and Spawling in Cap



Photo 83 - Centre Pier East Face Looking South



Photo 84 - Centre Pier East Side to Sloped Embankment 0+100

Appendix B

Site Inspection Notes

*all measurements are approximate

Chainage		Water Denth (m)
Start	Notes and a starts as 7 mile	Water Depth (iii)
Start	Since the wan east side - starts as 2 pile	
0.00	Minor rust <1mm nitting 80% algae coverage starting below water line, bettem candy	2.2
0+00	Winor rust <1mm pitting, 80% algae coverage starting below water line, bottom sandy	2.3
0+27	Hole above waternine 4cm diam. SSCH from top of deck on out pan.	
0+34	Another hole same as above	
0+39		2.64
0+43	Hole ripped appearance, 60cm from top of deck, 5cm diam. Right on in-pan seam	
	Switches to U-pile shape, a tie every 3rd in-pan at top. Ties intact but wailer bolts near end missing - total	
0+45	12 missing. Thicker marine growth bottom 1m covered in zebra mussels	
0+65	Pin at top of wall pulled out, knuckles interlocked well	
0+75	End of sheet piles open at end and can see timber cribs behind	
	Start of concrete cap breakwater	
	1-1.5m out from waterline concrete cap turns vertical & sits on cribs, Concrete vertical 74cm -80cm	
	Water line to top of crib 1.48m, 1m height of exposed crib.	
	30 to 50 cm vertical gap 3.8m long at top of crib with no fill	
0+75	Fill - 14x16x8cm smaller material (measured), 30x20x15 larger material (estimated)	
	Additional timber missing - 2 at top instead of just one, Only one timber on bottom	
	Fill material missing 86cm from bottom of concrete cap to fill	
0+85	No material on bottom, just sandy lakebed	
0+86	Snawling 50cm high along waterline consistent, 35cm denth	
0+88	60cm between can and fill back to only missing ton timber	
0188		
	All timbers present for approx, 90cm then back to missing one of the top 2 timbers with 30cm fill missing	
0.00	Can existing an E/W timbers part on N/S timbers	
0+90	Cap resulting on L/W timbers not on tys timbers	
	Form joint in concrete (Joints every only	
	Cross members every 1m, can see 4 ends stacked, act as secondary wan east, west inset zoch bennu	
0.01	Edst Falle Wall	
0+91	Only by by the second at 1/X1/Cm	
0+93	Univ bottom 2 timbers running N/s present	
	Vertical timber every other E/W line which happens every 1m, only 2cm gap between cap and fill	
0+95	material	
0+97	Joint	
	Large Spawled section 63cmH 2.65m long, depth varies avg. 92cm measured at edge of vertical face. At	
0+99	joint between cribs. No fill visible	
	New cribbing 28cm gap between cribs, missing 2 timbers for 50cm then only top timber for 80cm, then 2	
0+103	timber missing again.	
	Cross (E/W) top timber 60% deteriorated, gap 26cm concrete to fill. Then 1m of all present/good N/S	
0+105	timbers	
0+106	missing top timber	
	gap between N/S sections of timber. can stick hand in, top timber inset, hole in timber smaller than fist	
0+108	size.	
0+109	Joint	
	small gaps in timbers running N/S 35cm sections 15cm high one below top timber inline with cross	
0+123	section	
0+125	2nd timber down, 35cm gap space between 94cm	
0+126	Another gap	
	Chunk of cap missing 2.59m long, 66cm high 78cm depth, Top timber present	
0+135	back to typical 75cm (instead of 50cm) section missing at waterline	
0+140	35cm gaps still present	
	Joint	
0+143	Chunk of cap missing at edge of joint 2.4m N/S, 61 cm High 69 cm deep	
	Missing ton N/S timber. One cross F/W timbers coming right to outer face sitting on ton of N/S timbers	
0+145	helow	
0140		1

0+147	Missing 3 timbers for 1m	
0+148	From here only missing top timber, Spawling start 2.42m long, 62cm high 78cm deep	
0+158	Missing top 3 timbers 1 m, then 2 top timbers missing, 58cm between cap and fill	
0+163	Spawling 87cm high, still missing top two timbers	
0+170	Missing only 1 timber N/S	
0+173	back to missing 2 top timbers , lakebed slopes back towards cribs	
0+174	Joint between cribs - no fill	
	Spawling in concrete cap 1.41m wide, 82cm high, 76cm deep, All 4 timbers running E/W & N/S gaps	
0+175	around E/W timbers	
	approx.1/2" Plate 1.15m tall by 2.38m 2cm off bottom up to concrete cap - very secure to wall	
0+178	Slight slope towards toe of lakebed	
	Approx. 11cm gap between plates, 2.35m long 2nd plate, timbers behind plate. Extends into lakebed and	
0+181	all the way to cap. Ends at 0+183	2m
0+183	Spawling 54cm at waterline - consistent along breakwater	
0+185	E/W all 4 timber present	
0+187	E/W top 2 timbers present, Missing second timber from top N/S	
0+189	All timber present - 4 high	
0+192	Second timber from top missing deteriorated 1.55m long 95% gone	
0+195	Plate 1.36 long 1/2" thick in front of timbers	
	At lighthouse north end - Pieces of concrete on lakebed (concrete cap?), lighthouse formed in to	
	concrete cap.	
	Void 2.9mm piece x 60cm x94cm deep, timber crib below.	
	2.6m long piece on Lakebed - could have fallen out of wall/cap	
0+197	38cm gap concrete cap to fill material	
	Another plate - wedged behind stone - 1.4m exposed then hidden behind stone	
0+200	Toe of stone 3-4m off waterline, completely hides any timbers that might be present	
	Stone average size in front of crib 1.65mx 1.25mx 50cm Forming revetment protection	
	toe approx. 5m from waterline around end random placement (loose placement) more stacked than	
END	sloped especially at toe. Some larger stone may have fallen down.	

Breakwaters and Basin Walls Cor	dition Assessment
19-3097	EAST BREAKWATER INNER
Town of Cobourg	

*all measurements a	re approximate	-	
Chainage Recorded	Corresponding East		
During Inspection	Chainage	Notes	Water Depth (m)
	-	Stone 2x2x0.75m, sandy bottom, toe 5m off waterline	
0+00	0+200	Stone missing - rolled out, space on shore at waterline 2x2m	
0+10	0+190	Toe 1.5m out from waterline, stones random placement	
0+14	0+186	stone rolled out 3 out from waterline 3x0 45x0 75m No obvious holes on shore	
0.11	01100	Void just below water line	
0.25	0,175	Stone 2m away 1 2Ex2v0 6m	
0+25	0+173	Stolle Zill dway 1.25X2X0.000	
0+27	0+1/3	another stone rolled out 3m, 3x1.1x0.65m - Void on shore	
		Another two stones, one 3m from waterline, second rolled out stone beyond - similar size to	
0+30	0+170	previously observed stones	
0+35	0+165	Toe 5m from waterline - 2 stones deep	
0+40	0+160	Stones 7m off waterline	
0+45	0+155	Stones 7m off waterline - 1.25x3x0.72	
0+50	0+150	Smaller stone material offshore 1.5x0.7x thickness un-determined - buried	
		Broken cap on surface, only one rock underwater at toe, remainder of revetment above	
0+52	0+148	waterline	
0+55	0+145	Missing stones at waterline found 6m out one 0 4thick and buried another offshore of that	
0.00		Change in revetment more stone going north slone 3 to 4m off waterline to toe. Slone is	+
0+60	0+140	uniform Fower missing stopes / gaps	
0+60	0+140	Table slover hash to 1 Fee	
0+65	0+135	I de ls closer back to 1.5m	
0+66	0+134	Voids where stones have rolled out away from revetment	
0+70	0+130	Good condition - 1.5m out to toe consistent	
0+75	0+125	Good condition - 1.5m out to toe consistent	
0+80	0+120	End of revetment - Cribs continue North	
		Concrete cap on cribs, cap overhangs timbers 14cm, 1.5m from deck to timbers (cap thickness) Cribs 1.1m exposed face, timbers 25x22cm,covered in mussels, solid only 6.5cm penetration, small amount of splitting Cross timber doesn't come all the way through at top, creates gap in wall, stone in crib, no	
		evidence of stone on bottom. Bottom to cross members come all the way through - style is	
0+90	0+110	continuous for this side. Silt and Mussels on lakebed only a few stones	
		Concrete on surface spawled, 20cm missing completely horizontal Continuous until the north	
0+91	0+109	end of the cap - start of SSP	
0+100	0+100	Timber on bottom, 49x20H missing 60cm from bottom	
0+103	0+97	Chain on face of crib	
0+109	0+91	Can reach in crib. No stone above 50-60cm from lakebed. No signs of stone on lakebed Undermined - Flow at toe through wall (45x25H void), Cap damaged on top but covering crib/	
0+110	0+90	can't see in, can't feel anything in void	
0+113	0+87	Drawing water in to crib through similar void	
0+115	0+85	Exposed pin - Void 39x20Hcm, 55cm off bottom can't feel anything when probed	1
0+120	0+80	Void pulling in material (weeds) 40cm off bottom high flow	1
0.120	0+70	Missing timber below can	+
0,122	0.77	Evnoced timber 40cm before can 01cm can to waterline	+
0+125	0+77	Chart of Choot all your before cap, Sich cap to waterline	
		U-Pile sheets, minor pitting, small rust blooms, mussels coverage 100% 1.5m off bottom, no	
		scour or undermining.	
0+130	0+70	lies at top every 4 in-pans, interlocks tight	1.43
0+140	0+60	Knuckle to knuckle width 42cm depth 15.5cm, Cap is steel between chainage 0+130 & 0+160	2.66
0+154	0+56	Missing wailer pin, Still rust blooms in "freeze-thaw" zone knuckles tight	
0+160	0+40	Transition to z-pile 42.5cm width, 18cm depth (out pan 37cm)	
0+165	0+35	Piles in good condition. Mussel coverage the same. Toe full penetration	2.7
0+171	0+29	"Corner" - Change in direction of wall	
		Sandy bottom - pushing metre stick in, resistance after 51cm. no scour or undermining. 1.5mm	
0+184	0+16	pitting closer to waterline	1 3
0+200	0+00	Changes to concrete can	2.5
	0.00	lenanges to concrete cup	2.30

	Water depth notes	
	ssp corner to cap section	11ft
	a south end	8ft
	Then	7ft
	until 1/2 way down revetment	9-10ft
	The back to	7-8ft
	At transition to crib up to (for 5m)	12ft
	back to	9ft
	Slopes up to ssp	6ft

Breakwaters and Basin Walls	Condition Assessment		Inspection Date
19-3097	WEST BREAKWATER		05-Sep-19
Town of Cobourg		Water Level (IGLD)	75.3 m

*all measurements are	approximate		1
Chainage Recorded	Corresponding East		
During Inspection	Chainage	Notes	Water Depth (m)
Stone breakwater		Bollom Sand, 3X2X1m Stone on Shore, Loe 3 to 4 m from and	1.1
		Top of dock 0.4m to water line 1.52m of concrete to timber cribs 50cm exposed face	
0+00	0+00	Timbers 16cm 13or14cm - Denth 23cm (rectangle shaped)	
0100	0100	Crack just above water line concrete above 27cm thick	
0+10	0+10	Cribs approx. 8cm of sand fill on top of small stone material -by feel	
0+20	0+20	Damage at surface - Void 57cm tall up from top of crib 4cm width, 38cm deep	1 64
0+22	0+22	Void - 52cm high 4cm wide 38cm probe in hits concrete or something hard	1.04
0.22		Void at toe 38cm width . 34cm high probe all the way in - Flow through wall - Material pushed away on	
0+24	0+24	lakebed - 4" gap between N/S and E/W timbers	
0+26	0+26	Void - N/S timber 27cm x 24cm high probe all the way in	
		Damage on surface might be a form joint - spawling 93cm W 8cmH 22cm probe in, 77cm from top of	
		deck	
0+30	0+30	Damage 1.97m E/W 6cm at worst, avg. 4cm probe 20cm avg. 47cm max 58cm from top of deck	1.16
0+30.5	0+30.5	Vertical Crack 7cm wide x 13high x 9-10 cm penetration starts 80cm from top of cap	
		Vertical crack - top of cap to 51cm - 5cm at widest, 4cm probe, horizontal crack 51cm down from	
		Another crack 51cm up from bottom probe 40cm.	
0+31	0+31	1.88 concrete depth - Top of deck to lakebed all concrete	1.06
0+33	0+33	36cm up from bottom 2cm wide, 5cm probe	
		Timber re-appear Vertical height on exposed timbers 50cm - water seen coming through at base - 50cm	
0+35	0+35	high pile of sand/ lakebed pushed inside breakwater	
0+36	0+36	N/S timber with water rushing though - shells pushed through on lakebed - timbers in good condition	
0+38	0+38	N/S timber with probe goes all the way in - don't see any fill material in gap - Cap intact, regular scaling	
		Probe 27cm between timbers running E/W 20-30cm above lakebed	
		Further east, timbers are tighter, and pushed up minimum 50cm inside	
0+39	0+39	N/S timbers every 1.3 m - water rushing through	
		Tighter N/S timbers stones along toe 15x10x3min, larger stone 52x20x13, previously bottom	
0+45	0+45	composition just sand	
0+48	0+48	Large spawled section - Damage on surface doesn't continue below water except as scaling	1.55
		Crack - vertical 70cm x4cmx 20-37cm probe, starts at timber going up	
		Lakebed sand and weeds	
0+50	0+50	N/S soft to probe but not water coming through	
		E/W timber visible behind void 60cm no flow.	
		Crack vertical bottom of cap up 74cm x 3cm wide 32cm deep average	
		Form joint in cap 3 to 4 m long	
0+55	0+55	Surface damage 0+48 -0+55 - missing top of cap	
		Cribbing almost disappears - full concrete except bottom crib	
		Sand bottom again probes in 25cm - just hard packed sand	
0+57	0+57	Can probe between timbers and concrete 56cm	
0+65	0+65	Concrete proud of timbers 9cm - bigger than previously, timbers exposed on bottom in good condition	
		Vertical crack 72cm H x 3-4cm wide 39cm probe	
		Top of deck to waterline 38cm	
		Top of deck to bottom of concrete 1.58m	
0+65.5	0+65.5	Top of deck to lakebed 2.15	1.77
		Spawling 35cm down from waterline 39cm w x 25cm H depth 11-12cm	
0+67	0+67	Timber N/S no flow, material around timber	
0+69	0+69	N/S Timber damage - lots of surface damage 2/3 deteriorated, lots of soft soil material visible inside gap	
		Surface Damage - 50cm below waterline, 2m widest	
		Width of deck 3.1m Damage 2.6m	
		Vertical form crack 42cm spawled	
		Probe in 25cm hard material	
0+70	0+70	Height of exposed timbers 50cm	
		Stones larger - 50 x70cm might be concrete broken off	
0+76	0+76	Probe 60cm into N/S timbers	
		End of surface damage - 2 cribs meet E/W timber broken off pieces	
		Void - 2m in face - 50cm wide E/W gets wider inside crib 90cm, 70cm height inside void at centre. Soft	
		sediment on bottom inside w/ a few Larger 30cm stones	
0+84	0+84	Damage in cap above void ends going east - waterline down 1.2m to top of timbers	
		NEW SIZE Timbers 30cm high -20cm deep	
0+86	0+86	Scaling on concrete below water not as severe.	
		Surface damage - extends 70cm below waterline, 59cm wide towards east, probe 49cm deep between	
		joint	
		Top of deck to waterline 0.29m	
		Top of deck to bottom of concrete 1.69m	
0+90	0+90	Exposed crib 0.59	1.99

		Crack 83cmH x 2cm w - 25cm probe to bottom of concrete on surface, 22cm high below waterline to	1
0+91	0+91	surface	
		Crack 80cm H, 2cm wide, probe in 38cm max	
0+93	0+93	Damage spawling depth 35cm over 1.5m, 60cm below waterline and above to surface	
		Crack 25cm H from bottom of concrete 4cm depth and spawling, Spawling below water 6x9x3cmdeep,	
0+95	0+95	Full surface damage, 1m below waterline before in good condition	
		Vertical 73cm high crack below damage 2cm width probe in 46cm	
0+97	0+97	Cribbing below in good condition, bottom still sand	
		End of surface damage	
		Vertical crack 70cm x 4cm W x 28cm deep	
		Spawling extending east 3.21m at waterline into cap 14cm then vertical spawling 90cm H x 5-6cm W,	
0+100	0+100	probe 38-54cm	
0+101	0+101	Timbers covered in sand	1.5
0+105	0+105	Form joint - 60cm x 2-3cm W, 35cm probe	
0+110	0+110	End of concrete visible on shore	
		Toe out from waterline 3m, 2x2x0.5m stone size, sandy bottom, hard packed	
Revetment Section		W/D taken at toe	1.4
		1.5-2m toe from waterline - void at toe - one stone width, stones not tight at toe	
0+05	0+115	Scour - lakebed drops adjacent to stone 35cm, 100% Marine Growth	
		Toe 1-2m from waterline Gap between stones looking west, stones not tight at toe Stone size	
0+20	0+130	1.7x1.8x0.75 avg	1.66
		Concrete section approx. 32m long- scaling on concrete 1-2 rows of stone in front of concrete, lower	
Concrete section	0+143	crest elevation (approx. 1m lower)	
		Smaller stone behind large armour stone (300-600mm), sitting in front of concrete wall. Wall straight	
	0+146	no/minor damage below waterline. Waterline to top of deck 45cm	
Midline of concrete	0+160	Softer sediment on lakebed 32cm cover of sand	
	0+165	Near step up in wall stone missing at toe 2x2m void, more sediment on lakebed 80cm deep	
Change in direction	0+175	Soft sediment but less depth - Larger stones toe 2-3m off waterline	3
Before gap 5m	0+195	Lakebed hard sand	1.7
berore gap on	0.130	One or two rocked piled, toe less than 1m off waterline, more of a vertical pile of rocks, on row below	1.7
Gap	0+200	water	12
	0.200	stones extend further out from wall 1-2m again	
around end	0+230	Stone on hottom 2x1x1m 2m off of revetment	
		Toe stone up to 3m off waterline around end	
		Stone 5-7m off shore in gap between breakwaters	
	0+238	Lakebed zebras and hard bottom	
	0.200	Large stones 1x1 5x3 4m to 5m	
		Toe 3-4m out, but large stones 5m out	
Outer side of revetment	0+230	Evidence they came from the revetment and have moved offshore.	
		Missing stones above water scattered at toe and beyond.	
10m west of end	0+228	Void at toe, stones extend 7-8m from water line. Steeper slope above waterline	
		15-20m from waterline stones are scattered offshore.	
Blowout section +20m	0+210	20-25m wide 0+210 to 0+185	
	0.210	Toe 6m-7m off waterline until 0+175. No missing stones but not tight together so some voids, even	
Good section to end	0+185	slone un from toe	20-25ft
	01105	Stope up nonicole.	20 251
At corner	0+175	corner	
At lower concrete	0.175	Stone extend 10m off wall (toe) very few stone above waterline stone 4-5m from toe	
section	0+165	Stone seem smaller than previous stones 1 5x1 2x1 5m some larger	
Section	0.105	larger stones return	
At end of concrete	0+1/13	Toe 5m from waterline	
	01145	Void to the East against concrete. Stone 9m off wall - stone could have come from wall. Very few stones	
		above water in from of concrete for a dictance of 2, to 25m along the wall. Slone consistent no longer	
Start of concrete and		above water in nom of concrete for a distance of 5° to 55m along the wait, slope consistent no longer	
	0+110	steep	
CIUS	0+110	Elat going out material from charoling piles underwater 10m offshore. Just hard packed sand lakehod	
	0.075	nat going out - material nom shoreline piles under water 10m onshore, Just hard packed sand lakebed	
	0+075	100 clay.	
	0+055	Section of nulled out stone flattened slope up to 10 off wall. Too 6.7m off waterline for another 20m to	
	0.020	section of pulled out stone nattened slope up to 10 on wail, foe 6-7m on waterine for another som to	
Devetment connection	0+030		
to land	0.000	"Eunny" divet in land (north) too E 7m off weterling no weide missing stores	12 15#
	0+000	runny unor in land (north), toe 5-7m on waternine, no voids/missing stones	12-1311
Outstate of a state in			
Outside of revetment			
Iower concrete & corner	0+140-0+180	water depth	ьm
everywnere else		water deptn	4.5m

Breakwaters and Basin Walls Co	ndition Assessment
19-3097	CENTRE PIER
Town of Cobourg	

Inspection Date 18-Oct-19 75.0 m Water Level (IGLD)

*all measurements are	approximate		
Chainage Recorded	Corresponding East		
During Inspection	Chainage	Notes	Water Depth (m)
WEST FACE		start at north end	
		Shallow water	
		Concrete cap on crib, stone extends along shore west	
0+00	0+110	Cap - poured concrete on blocks sitting 20cm off bottom.	0.25
0.00	0.110	Void below cap 4m x 1 67m high concrete broke and fell on to crib?	0125
0+08	0+102	Broken timbers, exposed re-bar	
0+14	0+96	Crib Face 1 26 (timbers 22x25)	
0114	0150	Laddar	
		Timbers tight - Start of new crib - negetration 0.5cm	
		nin with plate (10x10cm) 26cm from edge of crib 0.2cm off bottom another ano 25cm off bottom	
0.15	0.05	with red 8 holts year corrected can't make out size of red/holt	
0+15	0+95	with rod & boits, very corroded, can't make out size of rod/boit	
0+25	0+85	Pin 10x10 again very corroded 2 m off bottom, lower pin 40cm off bottom	2
0+27	0+83	exposed crib - 2.85m	3
0+30	0+80	ladder	
		Gap at lakebed, no flow, small amount of scour in front	
0+34	0+76	Another pin 2.54m above bottom, lower pin 36cm above bottom	
		Joint between cribs - vertical timber between - concrete in good condition - small amounts of	
0+36	0+74	spawling	
0+40	0+70	timber in good condition minimal penetration	
0+47	0+63	Void on bottom with flow - Deterioration 26wx15cmH	
0+54	0+56	Spawling 20x30cmH x 17cm deep, above waterline at block poured interface	
		Bottom scour can push stick in 55cm hitting stone	
0+60	0+50	Pins visible lengthwise between cribs 0.82 and 2m off bottom	
		3m of exposed cribbing	
		Spawling 40x20Hx44cm depth at waterline	
0+61	0+49	Scour on bottom 36cm penetration, consistent at joints	4.44
		Scour at lakebed with small pocket of zebras, due to timbers butting up against each other and	
		leaving a small gap	
		Gap between timbers up to 23cm wide x25H typical at lakebed, every couple metres gap, 1,3 and 5m	
0+79	0+31	apart	
		concrete spawling 44x,17H x5cmDeep at waterline, 2 pins still present on wall spaced approx. 1m	
0+84	0+26	apart	
0+88	0+22	exposed crib - 3.21m - Approx. 1m of concrete above waterline	4.43
0+91	0+19	Scour at lakebed - ioint	
0+95	0+15	Scour again at joint - 75cm penetration to hit stone material - surging flow	
0.55	0.13	at 0.5m off bottom 1.85m long section without mussels then they reappear and missing again near	
0+105	0+05	corpor	
01105	0105	Corner - 2.45m exposed crib - blocks start 1.4cm below waterline	
0,110	0.00	Again a costion with no muscols	4.0
0+110	0+00	Again a section with no mussels,	4.0
		Ding still procent in wall 27cm off bottom and 1.25m off bottom	
EASTFACE		Phils suit present in wait 37cm on bottom and 1.25m on bottom	
		4m exposed crip, waterline to start of timbers 72cm?.	
		block 1.2m starts 15cm below waterline	
0+00	0+00	Clear of mussels at bottom	5.5
		Crack above waterline 2-3mm wide, height of cap 1.2m, joint at lakebed evidence of past flow, Old	
0+05	0+05	anchor points visible	
		Spawling on block - 24wx6Hx8Dcm, 39wx10Hx8cmdeep	
		Larger gap 6cm between blocks, 30-38cm penetration,	
0+15	0+15	30x20cm deep spawling 90cm penetration between blocks	
		Joint at Lakebed,	
		Block crack on diagonal 79cm long	
0+20	0+20	32cm deep x 13hx26cm wide missing, space between blocks, probe 90cm	
0+24	0+24		
		Joint between crib - vertical timber at gap between timber sections set back 85cm, 35cm gap	
0+25	0+25	flow at lakebed joint sucking material in	
		Blocks not tight corner broken off 49cm h 18cm deep, another lakebed joint with flow, they are	
0+29	0+29	approx. 3-4 m apart but some are only 1m apart	
0+40	0+40	probe lakebed joint 36cm, 20cm soft, can push in up to 78cm but it is hard packed material	
0+45	0+45	corner chipped on block 70cmHx 5x5	
0+48	0+48	gap between cribs - 48cm, 15cm between vertical and crib	
		Hole in line with cross-member, 90cm off bottom - probe entire metre stick - no resistance	
0+55	0+55	Check & no obvious lean to wall	
0+56	0+56	edge of block chipped away 25h x 5wx 14cm deep	1
0+60	0+60	ioint at lakebed	
		provide a second s	

		Gap between timbers - probe 34cm	
0+63	0+63	missing concrete 8wide x 20high x 13cm deep	
0+65	0+65	ladder	
		cribs exposed face 4m, 1.32m top of crib to waterline , smaller corner chipped off block, more joints	
0+70	0+70	on bottom	5.32
0+75	0+75	35cm gap between sets of cribbing with vertical between	
0+80	0+80	ladder damaged below waterline, no evidence of flow at lakebed despite gaps	
		Crack in block 35cm tall	
0+82	0+82	Scrape 2.5cm deep in concrete horizontal just below waterline	
		Lakebed slopes up from here, Can probe 70-100cm around cross members - no noticeable damage	
0+87	0+87	don't lineup with each other	4.5
0+96	0+96	Timbers no longer exposed underwater	
		Corner water depth less than 1ft	
		After corner small material in front of wall 1:4 slope out 4m then drops off quickly 70 degree slope	
0+100	0+100	drop off	
		slope change to 45 degree offshore and more gradual going north 35degree, average 10cm diam	
0+110	0+110	stone on lakebed but ranges 3/4" to 30x70cm	
0+125	0+125	gradual slope -est. 25 degrees soft sediment and weeds	
0+130	0+130	toe of slope 5m out from waterline	
0+140	0+140	Toe slightly closer -4m out - A few larges stones up to 1m diam.	
0+150	0+150	Gangway to dock toe is out further doesn't come above waterline (4-5m from waterline)	
0+165	0+165	Very weedy at toe	
0+175	0+175	Starting to get very shallow	0.75
0+187	0+187	Fuel dock wall	
Fuel Dock		H-piles with timber lagging SE corner 0+00	
		Culvert 1 1m inside diam concrete bottom below lakehed 11 5 wall thickness flow out 3cm stone	

	Culvert 1.1m inside diam concrete bottom below lakebed, 11.5 wall thickness, flow out, 3cm stone	
0+05	and sediment and zebras inside. Lakebed slightly higher than bottom of culvert.	
	Concrete cap on timbers lagging - timbers in good condition	
0+11	Vertical timber behind rub boards	
0+15	height below rub rails 1.67m	
0+28	Corner - wall turns north	1.87
	Gap at base of wall can probe 24cm in and hit stone material	

1010131010 Soundings 1 Fuel dock 2'olsm depth. - 6.3mfranWall
2.5m depth - 5.3mfranWall
3 2.9m depth - 5.9m from Wall.
3.8m K-depth 2m.

*all measurements are approximate

Chainage	Notes	Water Depth (m)
	Concrete Cap 115cm below waterline on crib	
0+02	Repair in corner? using Channel for 10ft below cap, timbers below 27cm square	1.7
0+05	Joint in cribs, 23cm wide 14cm high cross timber, 90cm total height to cribbing	
	Sand spilling out 3/4" stone and zebra mussels visible	
	Horizontal crib timber pulled out from wall, creates 220cmx 70cmH void, depth varies 1m at	
	centreline, 55cm east 1.2m west	
	Channel visible below waterline just below concrete, concrete block part of cap that extends	
	over it, can probe in all the way with stick between blocks, approx. 1m High block goes behind	
0+06	channel at waterline	
0+12	Ladder, Steel belting continues 108cm below waterline completely rusted	
	Spawling on edge of block 20x15cm, Timber have 33cm gap between and can probe up to	
0+16	90cm if forced	4
	13x31cm corner chipped, cap sitting out further than wall and toe kicks out at bottom of wall	
0+25	Concrete damage 30cm below waterline could be ice damage - chipped	
	Timbers soft for 2.5m. 1/2 a top timber can be pulled out of crib wall other half solid. Tie backs	
	go through the channel which stops them from falling out - can wiggle bolt of tie. At toe can	
0+27	push through material between timbers 69cm - sandy	
	Dile of material in front of wall	
	Pile of material in front of wall	
	carge void under cap- Fined with zebra mussels and soft sand, 70cm to 1.5m fligh, 2.2m wide	
	Can't leef the end of the depth, minimum sin. Can see cross timbers on east side.	
	Top timbers below gap in good condition but timbers are pushed in to void, until /ocm at	
0.25	Continuing cost timber in good condition	2.5
0+35	New crib costion, vortical timber between	3.5
0+38	C channel pulled out and retated up well, helts new vertical	
0.40	C-channel pulled out and rotated up wall - boits now vertical	
0+40	Surface Cracks on concrete blocks	
0.41	volu - depth at least sin, sociri nigri by 1.2m wide, sight buildup of material at toe - zebras and	
0+41	Sealment	
0+42	Cracking 3 to Smith which leads to Spawled Section , timber Intact,	
0+46	Laudel and spawied section 46cm wide	
	Start of Sheet piles - spacer (n-pile) extended into cap, void 20x18 benind steel sheet, No	
	Evidence of spined material Shoots 11m thick, small dents in shoots (may have been hit) one rin 42cm long vertical nile	
	steets 11m thick, small dents in sheets (may have been hit) one hp 42cm long vertical, pile	
0.51	Starts 34cm below watering	4 5
0+31		4.5
	End of Shoot pilos, timbors to oppose. Void 25:22 are wide doubt at locat the batter or with and	
	can widens helping choose	
	Cap vitting inside timbers tog stepping out 15 m. Conduit shous waterling attached to con	
0.01	Cap sitting inside timbers top stepping out 15cm. Conduit above waterline attached to cap	4.2
0+01	Approx. 211 from sneets, steer channer starts again - slightly better condition- still rusted	4.3
	other rods drilled into san Appear to have fee hales	
	Still can between timbers but negative for a strate and the form	
0.66	Sun gap between universible penetration of rod only 15cm.	
00+00	Cribe in good condition, can in good condition initiation to the answer	2.2
0+77		3.2
0+80	Build up of material on lakebed - zebras and soft sediment, small voids, probe in 20cm	

0+82	Concrete blocks tight, no damage - timbers in good condition	
	Gap between blocks 3 cm - full metre stick penetration, Missing timber below cap, metre stick	
0+86	and arm length penetration without hitting material, 63cm X 23cmH	
	Culvert exiting across road - space 1.66h x 2.75mW - no concrete on bottom of culvert space,	
	bedding of fill approx. 100-200mm material and sand - Could dig up in to fill 9"+ no cap on	
0+90	floor of culvert	
	Cap material spawling on corner then in good condition going east. Timbers lean in , no	
	channel, ties still present, 1/2 timber pulled away just below cap	
0+93	Some material spilling out between crib joints	
0+96 Joint between crib sections - vertical timber,		
0+100	Timbers running N/S can probe in full metre stick, but not between timbers on face on wall	
0+104	Channel broken off - Dimensions 29cm T x 7cm web	
0+108	Ladder - broken off below waterline - damage to top timber	
0+115	timbers tight minimal penetration, small gap between concrete blocks <1cm	
	Channel in place but corroded completely, no material on bottom, zebras and soft sediment,	
0+120	damage on corners of concrete blocks 4	
0+125	Transition between cribs, no evidence of material loss	
0+130	Full metre stick penetration through sand material	
	gaps between timbers 2.5cm - 90cm penetration	
0+135	Blocks cracked 60cm long 7-9cm wide, Can wiggle channel	
	From waterline - bottom of concrete blocks approx 0.8m, 0.3m of cap on top below waterline	
	Can formed on ton and in front of block - total height below waterline 1 1m	
0+140	Timbers in good condition can't probe in between	
0+148	Lakebed comes up but appears to be because a log is trapping material	
0.110		
0+160	Transition between cribs, 35cm gap, tight between timbers to full metre stick penetration	
0+166	gap between timbers 2cm	
	Crack - 71cm long with maximum 6cm gap leading to spawled out section 22x9cm	
0+171	Crack continues another 71cm located 50cm down from waterline	
0+175	Stick penetration 1m (all the way in) into sandy material	4
	Cracks - 40cm horizontal on east block (multiple cracks joining up), Crack 46cm on west block -	
0+178	both 55cm below waterline	
	ladder - wall straight, corners of timbers rotted away but no gaps just make it appear not tight	
0+180	on face	
0+187	Crack 16cm long- spawling on corner 20x6cm wide	
	Joint between crib sections - material on bottom small stones present (fill material?) - no gaps	
0+190	between cribs	
	Shallower - channel present but corroded. Spawled section on bottom of block 20x 7cmH,	
0+193	9cm deep	2.43
0+200	Very Shallow - timbers tight	1.34
	Corner - gap 15wx66Hx77cm deep,	
	Timbers behind face of concrete - Sheet Piles running N/S up to cap but don't meet timbers of	
	wall	
0+210	Culvert in corner on east wall- water flowing in to culvert	

*all measurements are approximate

Chainage	Notes	Water Depth (m)
	Damage on surface at corner between north and east wall. Sink hole - bricks have been cleared	
	for repair. Angle welded on to sheet pile connects sheet pile to north wall concrete cap. Culvert	
	with bars in front visible above and blow water. Flow going in to culvert.	
	One in-pan from culvert -hole 4cm diam. Can probe in 59cm, 38cm below waterline	
0+00	Marine growth up to 100% at bottom with coverage 5cm thick, minimal at surface	
0+06	ladder	
	Pipe coming through wall - 70cm diam. 30cm off bottom	
0+07	Gap at joint with wall - 100-200mm stone visible behind wall	2.8
0+10	Bolt with nut on end pulled out from wall - 30cm above lakebed	2.8
	Outfall 60cm inside diam. with water flowing out and cutting trench in lakebed in front	
	Gap between pipe and wall - fish swam in - 8-9cm wide can fully penetrate 1m stick, In line with	
	sink hole on surface.	
	Cutting trench 30cm deep at outfall/wall	
	Past outfall, another bolt pulled out of wall near lakebed. What appears to be a wailer sitting	
0+11	on bottom but no clear indication if it was ever part of the wall.	
	Small hole 5cm diam. Water washing sand fill out, 45cm below waterline on in-pan	
	These holes become visible approx. ever 1/3 in-pan	
	Sheet details - 13cm deep, 29cm out pan , total width 77cm left edge of outpan to left edge of	
0+15	next outpan	
	Another Outfall 56cm diam no flow - fill material in pipe - in-pan sit in front of pipe	
	3cm gap on sides and zebra mussels behind- bottom is tight to sheet piles.	
	1.5m top of pipe to waterline	
0+19	Smaller pipe at waterline 11" diam.	
0+20	Another pulled out tie and bolt, No signs of undermining at toe	3.9
0+22	3 in-pans in a row with small holes - So far have seen 6 holes and they continue	
	Bolt pulling out of wall 1m above lakebed	
	Every 4 in pans there's a tieback bolt pulled out of wall.	
	Hole #13 -6cm diam. 1.28m above lakebed - 2 more holes above on same wall one with eye	
	bolt that could easily be pulled out	
0+26	Minor pitting in sheet piles at freeze thaw zone	4
	Crane (hoist) and sink hole on shore	
	Large hole 10cm diam. With bolt in it 17cm penetration, 2.8m below waterline	
	5.4m lakebed to Top of deck,	
0+35	2 smaller holes	3.2
	Far side of concrete pad for hoist. Tie back 8cm diam (extremely corroded) with 10cm hole	
0+38	above. Lakebed sandy silt and zebra mussels	
	Holes #28 to #30 one with eye-bolt and another tie back bolt with gap above. Still pulled out	
0+40	and still every 4 in-pans. Often bent down - this one is sideways	
0+41	Ladder -intact- with hole #31 Behind (two more holes beside ladder)	
0+43	Probe at lakebed - toe of pile intact and feel it 2ft down.	
	Tie back pulled out with stone visible in hole above - too big to pull out but sediment pouring	
	out of hole when probed	
	Hole #36 (6cm diam on out pan - first one on out pan)	
0+46	99cm centre line of hole to waterline	
	Channel running perpendicular to wall - but not attached anywhere at lakebed - touching wall	
0+49	and going in to lakebed.	

	Steel "Bumper" at waterline- 13cm depth (angled), 28cm "out-pan 40cm total height			
0+50	Pipe above waterline - 3cm gap around - material could easily be removed - small stones			
	Hole #42 - Build up of Material on Lakebed in front of wall large void above tie back at this			
0+53	location			
0+56	Wall appears to lean in at top to east very slightly - toe not kicked out			
0+59	Hole #47 45cm below waterline Tie back below - large gap stone could be pulled out			
0+60	Hole #50			
	Holes #52			
0+63	No more tie backs visible in wall			
	Wall leaning or toe kicked out - top leaning in towards the east -			
0+65	Small cut hole 13mm diam below one regular hole			
0+69	Holes #55 and angle piece attached between knuckles of sheet			
0+77	Holes #60-61 (+ one tiny and 2 small)			
	Hole #64 edge of floating dock			
0+78	ladder	4.9		
	2 patched holes welded plate - Solid but some corrosion			
	2 instances of 2 holes one above the other - 8 formation - Hole Count #69,			
0+80	Hole #72 , 2 more patched holes			
0+89	Holes #74 and 2 more patched holes - no sign of tie rods at lakebed			
0+91	Toe is in good condition no separation or signs of damage			
0+96	Holes #79 - 4.9m lakebed to top of pile	4		
0+102	Hole count #84			
	Sheet thickness 1/2" on out pan, 3/8" on angled wall			
	Hole #86 - 3 more holes			
0+108	Some more holes but a few are plugged and not counted	3.2		
	Corner			
0+115	Holes #97 total counted			
	End of sheet - no holes past corner			
0+118	Back to timber cribs - probe in 50-90cm			
	East of corner 1m concrete spawled 50cm tall, 60cm to 1m below waterline scrapes along			
	whole section			

BY-LAW NUMBER 19-2002

THE CORPORATION OF THE TOWN OF COBOURG

1.00

A BY-LAW TO AUTHORIZE THE EXECUTION OF AN AGREEMENT WITH THE MINISTER OF FISHERIES AND OCEANS (COBOURG HARBOUR).

WHEREAS pursuant to the Harbour Disposal Program The Minister of Fisheries and Oceans wishes to transfer ownership of the Cobourg Harbour to the Corporation of the Town of Cobourg;

NOW THEREFORE the Municipal Council of the Corporation of the Town of Cobourg enacts as follows:

THAT the Mayor and Municipal Clerk are hereby authorized and instructed to execute on behalf of the Corporation an agreement with The Minister of Fisheries and Oceans regarding transfer of ownership of the Cobourg Harbour to the Corporation of the Town of Cobourg.

READ a first, second and third time and finally passed in Open Council this 4th day of March, 2002.

Mayor. Municipal Clerk

Cobourg Hard

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GRANT AGREEMENT F2930-01-004

THIS AGREEMENT, made this _ 5th day of March, 200 Z.

BET WEEN:

HER MAJESTY THE QUEEN IN RIGHT OF CANADA (hereinafter called "Her Majesty"), as represented by the Minister of Fisheries and Oceans (the "Minister")

AND:

THE CORPORATION OF THE TOWN OF COBOURG (hereinafter called the "Recipient")

RECITALS:

WHEREAS pursuant to departmental objectives and the Harbour Disposal Program, the Minister wishes to transfer to the Recipient ownership of the Harbour at Cobourg, as more fully described in the attached Appendix "A".

WHEREAS the Recipient has declared its intention (in a municipal resolution, letter, etc.) to assume ownership of the Harbour described in Appendix "A."

WHEREAS the Recipient agrees to ensure safe public access to the Harbour for a minimum of five (5) years commencing from the date of the transfer of title of the Harbour to the Recipient.

WHEREAS the Minister does not wish to undertake repairs/improvements to the Harbour at Cobourg prior to transfer of ownership.

WHEREAS the Recipient agrees to undertake repairs/improvements to the Harbour at Cobourg and to accept full responsibility and all future liabilities related to the Harbow in "as is" condition in return for a payment by the Minister "in lieu" of Her Majesty performing repairs/improvements to the Harbour prior to or after the transfer of the Harbour.

AND WHEREAS the Minister and the Recipient wish to enter into this Agreement for a Grant to facilitate the transfer of the Harbour to the Recipient.

1

NOW THEREFORE, in consideration of the mutual covenants herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

SECTION 1: DEFINITIONS

2

- 1.1 "Agreement" means this Grant Agreement and Appendices "A", "B", "C", and "D". (NOTE: if there are additional appendices, these must be listed here).
- 1.2 "Audit" means an examination of a Recipient's accounts, records, or other evidence deemed, by the Minister, to be necessary.
- 1.3 "Business Day" means a day other than Saturday, Sunday or a statutory holiday in the Province of Ontario.
- 1.4 "Department" means the Department of Fisheries and Oceans Canada.
- 1.5 "Grant" means any payment by Her Majesty to the Recipient that is the subject of this Agreement.
- 1.6 "Grant Objective" means the transfer of the title of the Harbour to the Recipient in "as is" condition and the Recipient undertaking repairs/improvements to the Harbour at Cobourg to the east breakwater system and accepting full responsibility and all future liabilities related to the Harbour in "as is" condition in return for a payment by the Minister "in lieu" of Her Majesty performing repairs/improvements to the east breakwater system prior to or after the transfer of title of the Harbour to the Recipient.
- 1.7 "Harbour" means the property and facilities described in Appendix "A."
- 1.8 "In lieu" means in lieu of Her Majesty making repairs/improvements to the Harbour.
- 1.9 "Lawyer" refers to the legal counsel of the Recipient.
- 1.10 "Minister" means the Minister of Fisheries and Oceans Canada and his authorized representative.
- 1.11 "**Transfer Agreement**" means the Transfer/Deed of Land that transfers title of the Harbour to the Recipient with the applicable terms and conditions of the transfer of title contained in a schedule to the Transfer/Deed of Land.
- 1.12 "Year" means a period of 12 consecutive months commencing on April 1st, unless otherwise specified in this Agreement.

SECTION 2: INTERPRETATION

2.1 Number and Gender

Words importing the singular shall include the plural and vice versa and words importing a particular gender shall include all genders. The necessary grammatical changes required to make the provisions of this Agreement apply shall, in all instances, be assumed as though fully expressed in each case.

2.2 Headings

The division of this Agreement into sections and subsections and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement.

2.3 Accounting Terms and Principles

All accounting and financial terms used in this Agreement shall, except where otherwise provided either expressly or by necessary implication in this Agreement, be interpreted and applied in accordance with generally accepted accounting principles and generally accepted auditing standards in Canada, as determined by the Canadian Institute of Chartered Accountants or any successor.

2.4 Business Day

If the day on which any act or payment is required to be performed or made under this Agreement is a day that is not a Business Day, then such act or payment shall be duly performed or made on the next following Business Day.

2.5 Appendix

Any document attached hereto as an Appendix forms part of this Agreement.

2.6 Statutes, Regulations and Rules

Any reference in this Agreement to all or any part of any statute, regulation or rule shall, unless otherwise stated, be a reference to that statute, regulation or rule as amended, substituted, replaced or re-enacted from time to time.

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2.7 Governing Law

This Agreement shall be interpreted in accordance with the laws in force in the Province of Ontario, subject to any paramount or applicable federal laws. Nothing in this Agreement is intended to or shall be construed as limiting, waiving or derogating from any Federal Crown prerogative.

SECTION 3: TERM OF AGREEMENT

This Agreement shall come into effect on the date of its execution by the last of the parties and shall terminate on the date the Recipient receives payment of the Grant unless terminated earlier in accordance with the provisions of this Agreement.

SECTION 4: APPROPRIATIONS AND CHANGE IN FUNDING FROM PARLIAMENT

- 4.1 Payment of the Grant is subject to appropriations approved by Parliament. The Grant shall be cancelled or reduced in the event that funds are not available in the Year in which payment is to be made. Therefore, nothing herein contained obliges the Minister to make any payment under this Agreement unless and until the necessary funds have been voted by Parliament in that behalf.
- 4.2 Should the amount of the Grant be reduced as a result of this section, either party may terminate this Agreement by providing thirty ((30) days) written notice to the other setting out the reduction as the reason for the termination. In the event of termination under this section, each party shall be responsible for its own costs of any nature whatsoever associated with this Agreement and shall have no claim against the other for such costs.

SECTION 5: PAYMENT OF GRANT

5.1 In lieu of Her Majesty performing repairs/improvements to the Harbour prior to or after its transfer of title to the Recipient, and, subject to the provisions of this Agreement, the Minister agrees to pay to the Recipient, and the Recipient agrees to accept, a total Grant in the amount of \$400,000.00. The Grant is payable by the Minister to the Recipient's lawyer "in trust" upon completion of the following:

- (1) execution of this Agreement by the parties;
- (2) the Minister's receipt of a written irrevocable direction, attached hereto as Appendix "C" or in a form acceptable to the Minister, signed by the Recipient and directing the Minister to make the Grant payment payable to the Recipient's lawyer "in trust";
- (3) the Minister's receipt of a copy of an irrevocable written direction, attached hereto as Appendix "D" or in a form acceptable to the Minister, signed by the Recipient and received by his lawyer in which he directs the lawyer to forthwith return the Grant in full, including any accumulated interest, to the Minister upon the Minister's demand. It is acknowledged and agreed that the Minister will not make such a demand unless the Transfer Agreement is not registered or the Minister does not receive the original duplicate registered Transfer Agreement; and
- (4) the Minister's receipt of written confirmation from the Recipient's lawyerin which he agrees to:
 - a) hold the Grant "in trust";
 - b) not release the Grant, including any accumulated interest, to the Recipient without the express written authorization of the Minister, and
 - c) forthwith return the Grant in full, including any accumulated interst, to the Minister upon his demand.
- 5.2 Subject to the above, the Minister's direction to the Recipient's lawyer authorizing the release of the Grant, including any accumulated interest, to the Recipient will be provided upon his receipt of the original duplicate registered Transfer Agreement.

SECTION 6: STACKING OF FINANCIAL ASSISTANCE

6.1 The Recipient declares that at the time of executing this Agreement, the Grantis the only Financial Assistance it has applied for, received, or expects to receive from any level of government or from any other source for the Harbour.

AMOUNT	SOURCE
\$	
\$	Contraction of Theorem 2 and the state of th

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- 6.2 During the term of this Agreement, the Recipient shall immediately declare to the Minister, in writing, any Financial Assistance, excluding the amount of the Grant, that it has applied for, received, or expects to receive that was not declared under subsection 6.1, or that is applied for, received, or expected to be received for the Harbour subsequent to making the declaration under subsection 6.1.
- 6.3 The Minister may, at his option, be entitled to require the Recipient to repayall or part of the amount of any Financial Assistance declared under subsection 6.2 up to the total amount of the Grant. The Minister shall provide the Recipient with written notice of the requirement for repayment and the Recipient agrees to apay the amount requested as a debt due to Her Majesty.
- 6.4 For the purposes of this Section, Financial Assistance means any monetary finds, including government assistance such as loan guarantees, forgivable or low interest/interest free loans, and investment tax credits, that have, will, or could be provided to the Recipient for the repairs/improvements for which the Grant is provided.

SECTION 7: DEBTS OWING TO HER MAJESTY

- 7.1 The Recipient declares that the attached Appendix "B" is a true and accurate declaration of all overdue amounts owing to Her Majesty under any legislation or contribution/grant agreements as of the date of its execution of this Agreement. During the term of this Agreement, the Recipient shall immediately declare to the Minister, in writing, any other debts owing to Her Majesty other than those referred to in Appendix "B".
- 7.2 Any debts owing to Her Majesty pursuant to subsection 7.1. above, may, at the sole option of the Minister, be set off against payments due to the Recipient under this Grant Agreement.

SECTION 8: OVERPAYMENTS

Any overpayment, including but not limited to debts arising under Sections 6 or 10 of this Agreement, shall constitute a debt due from the Recipient to Her Majesty which shall be repaid immediately upon the Recipient's receipt of notification, from the Minister, of the debt. Interest on such debt shall accrue in accordance with the federal government's Interest and Administrative Charges Regulations.
SECTION 9: LONG TERM OBLIGATIONS

The Recipient shall have no claim of any nature whatsoever against Her Majesty related to any loan, capital lease or long term obligation it enters into in relation to this Agreement.

SECTION 10: AUDIT AND REPORTING

- 10.1 For the purposes of auditing the Stacking of Financial Assistance pursuant to Section 6 and/or for Debts Owing to Her Majesty pursuant to Section 7, the books, records and ledgers and any other documents of the Recipient with respect to the Harbour and anything directly related to this Agreement shall be open for Audit by the Minister during usual business hours for the duration of this Agreement and for a period of one (1) year following the expiration or termination of this Agreement. The Minister may be entitled to take copies and extracts from such books, records and ledgers and the Recipient shall provide the Minister with any information as may be requested to complete the Audit.
- 10.2 The Recipient shall retain all books, records and ledgers for the Harbour in accordance with generally accepted accounting principles and shall keep such books, records and ledgers separate from any other books, records and accounts during the term of this Agreement and for a period of one (1) year after expiration or termination of this Agreement.
- 10.3 The Minister shall be entitled to forward any relevant information arising from an audit and inspection conducted pursuant to this Section to the Canada Customs and Revenue Agency for income tax purposes.

SECTION 11: SPECIAL CONDITIONS

This Agreement is made pursuant to the Recipient's acceptance of the following conditions:

- 11.1 The Recipient agrees to purchase the Harbour, on an "as is" basis for the sumof ONE DOLLAR (\$1) and to sign the Transfer Agreement, where applicable, and any other documents required to transfer title of the Harbour to the Recipient. Her Majesty agrees to sell the Harbour to the Recipient for the sum of ONE DOLLAR (\$1) and to sign the Transfer Agreement and any other documents required to transfer title of the Harbour to the Recipient. The Transfer Agreement should be signed within thirty (30) days of the following conditions being accomplished to the satisfaction of the parties:
 - Examination of aboriginal rights including aboriginal titles, if applicable;
 - Examination of title;
 - Preparation of a technical description of the Harbour by a certified land surveyor;
 - Completion of an environmental assessment required under the *Canadian Environmental Assessment Act*, if applicable, and compliance with any environmental standards; and
 - Conclusion of any agreement with the province, if applicable, such as the granting of permission to occupy the waterlot.
 - 11.1.1 The costs of the above examinations, except for any waterlot agreements that must be negotiated directly between the province and the Recipient, will be borne by the Minister. The Recipient will pay all costs for any additional examinations, technical descriptions, assessments, agreements or requirements it may obtain in order to satisfy itself that the above conditions have been met unless otherwise agreed to in writing by the parties.
 - 11.1.2 If any of the above conditions have not been met to the reasonable satisfaction of a party, that party may terminate this Agreement on thity (30) days written notice to the other setting out the condition(s) that has/have not been met and the reasons why. In the event of termination under this subsection, each party shall be responsible for its own costs of any nature whatsoever associated with this Agreement and shall have mo claim against the other for such costs.
- 11.2 The Recipient agrees to safely operate the Harbour and to ensure safe public access to the Harbour for a minimum of five (5) years commencing from the date of the transfer of title of the Harbour to the Recipient.

SECTION 12: DEFAULT AND REMEDY

The Minister may, in addition to any other remedies available to him, terminate this Agreement or any obligation of the Minister under this Agreement upon ten (10) days notice to Recipient, if during the term of this Agreement:

- 12.1 The Recipient fails to comply with any of the terms and conditions of this Agreement.
- 12.2 The Recipient becomes bankrupt or insolvent, goes into receivership or takes the benefit of any statute from time to time relating to bankrupt or insolvent deblors, or is required to wind up or dissolve by any order or resolution, or is unable to meet its liabilities as they become due;
- 12.3 The Recipient is convicted of any offence against a law, order or regulation, the conditions of any licence, or of being an accessory to any such offence, if such offence is committed in connection with the Harbour;
- 12.4 In the opinion of the Minister the Recipient has ceased carrying on business;
- 12.5 The Recipient has submitted false or misleading information to the Minister;
- 12.6 In the opinion of the Minister, the Grant Objective is not being met; or
- 12.7 In the opinion of the Minister, a material adverse change in risk to Her Majesly has or will occur.

SECTION 13: LOBBYIST REGISTRATION

The Recipient shall ensure that any person lobbying on behalf of the Recipient is registered pursuant to the Lobbyist Registration Act.

SECTION 14: NO PARTNERSHIP, JOINT VENTURE OR AGENCY

14.1 Her Majesty and the Recipient expressly disclaim any intention to create a partnership, joint venture or agency. It is understood, acknowledged and agreed that nothing contained in this Agreement nor any acts of Her Majesty or of the Recipient shall constitute or be deemed to constitute Her Majesty and the Recipient as partners, joint venturers or principal and agent in any way or for any purpose. The Recipient shall not represent or hold itself out to be an agent of Her Majesty. No party hereto shall have any authority to act for or to assume any obligations or responsibility on behalf of the other party hereto.

14.2 The Recipient agrees to indemnify Her Majesty for any liability that Her Majesty incurs by virtue of being found to be liable with the Recipient as a partner of, joint venturer with, or principal of the Recipient. For greater certainty, the foregoing indemnity shall not apply to any claim or liability arising as a result of an act or omission of Her Majesty or Her Majesty's agent otherthan those specific acts or omissions that are the basis for the finding that Her Majesty or Her Majesty's agent is a partner of, joint venturer with, or principal of the Recipient.

SECTION 15: INDEMNIFICATION

The Recipient shall indemnify and save harmless Her Majesty and the Minister and Her Majesty's officers and employees from and against all claims, including third party claims, losses, damages, costs, expenses, suits, actions, demands or other proceeding, made, sustained, brought, prosecuted, threatened to be brought or prosecuted in any manner based upon, occasioned by or attributable to any injury or death of a person or damage to or loss of property arising from any wilful or negligent act, omission or delay on the part of the Recipient, its employees or agents in relation to or arising from this Agreement.

SECTION 16: ARBITRATION

- 16.1 Any claim or dispute arising out of or in connection with this Agreement, other than any claim or dispute pertaining to a question of Public Law, shall be submitted by the parties hereto to binding arbitration pursuant to the federal *Commercial Arbitration Act*. The party requesting arbitration shall do so within thirty (30) calendar days written notice to the other party. The arbitration shall take place in the City of Burlington, Province of Ontario before an arbitrator to be chosen by the parties. The costs of the arbitration, including the fees of the arbitrator shall be determined by the arbitrator. If the parties cannot agree upon the choice of arbitrator within thirty (30) calendar days of the written notice to submit to arbitration, then each party shall choose an arbitrator who in turn will then select a third arbitrator.
- 16.2 The arbitrator shall determine the procedure to be followed and shall issue a written decision within thirty (30) calendar days of completion of the hearing. The decision shall be in a form enabling it to be entered for judgment in any court having jurisdiction.

SECTION 17: GENERAL PROVISIONS

- 17.1 This Agreement sets forth the entire agreement between the parties hereto concerning the subject matter hereof and supersedes and revokes all negotiations, arrangements or communications of any nature whatsoever, whether they be verbal or in writing, between the parties or their authorized representatives or any other person purporting to represent the Minister or the Recipient. No expression or warranty expressed, implied or otherwise is made by Her Majesty to the Recipient or by the Recipient to Her Majesty except as expressly set out in this Agreement. The parties each agree that:
 - 17.1.1 It has not been induced to or coerced to enter into this Agreement nor has it relied upon any representations not set out in this Agreement; and
 - 17.1.2 It has conducted its own due diligence examinations in order to satisfy itself of the full, true and accurate disclosure of facts.
- 17.2 The Recipient consents to public announcements of its receipt of the Grant and related information, subject to the Access to Information Act and the Privacy Act, in a manner and at a time to be determined by the Minister in his sole discretion.
- 17.3 The Recipient shall comply with the requirements of all applicable federal and provincial government regulatory bodies and agencies.

SECTION 18: HOUSE OF COMMONS

No member of the House of Commons shall be admitted to any share or part of this Agreement or to any benefit that arises therefrom.

SECTION 19: TIME OF ESSENCE

Time shall, in all respects, be of the essence of this Agreement.

SECTION 20: NOTICE

Grant Agreement Ver 2.1 (Rev. Feb 27, 2002)

20.1 All notices or other communications necessary for the purposes of this Agreement shall be in writing and shall be delivered personally or shall be sent by registered mail, prepaid first class mail, facsimile, or e-mail to the following numbers and addresses:

20.1.1 In the case of Her Majesty, to:

Small Craft Harbours Branch – Central and Arctic Region Department of Fisheries and Oceans P.O. Box 85120, 3027 Harvester Road, Suite 506 Burlington, Ontario L7R 4K3 Attention: Mr. Duane Blanchard Telephone: (905) 639-4330 Facsimile: (905) 639-5975

or to such other address, facsimile number, e-mail address or person as the Minister may designate in writing to the Recipient; and

20.1.2 In the case of the Recipient, to:

The Corporation of the Town of Cobourg 55 King Street West Cobourg, Ontario K9A 2M2 Attention: Mr. Steven Robinson Telephone: (905) 372-4301 Facsimile: (905) 372-7421

or to such other address, facsimile number, e-mail address or person as the Recipient may designate, in writing to the Minister.

- 20.2 Any notice or other communication shall be deemed to be received:
 - 20.2.1 If delivered by facsimile or by e-mail, twenty-four (24) hours after the time of successful transmission to the other party;
 - 20.2.2 If delivered by pre-paid first class mail, on the earlier of the day it was received or the fifth (5th) day after it was post-marked; and
 - 20.2.3 If delivered personally or by registered mail, on the date of delivery.
- 20.3 If postal service is interrupted, threatened to be interrupted, or is substantially delayed, any notice shall be delivered personally, by facsimile transmission orby e-mail.

SECTION 21: AMENDMENT

This Agreement may be amended only by a written agreement signed by the Minister and the Recipient at any time during the term of this Agreement.

SECTION 22: WAIVER

The failure by any party hereto to insist upon the strict performance by the other party hereto or its obligations under this Agreement shall not constitute a waiver or relinquishment of any such obligations.

SECTION 23: SEVERABILITY

If any provision of this Agreement is rendered invalid, void, illegal or unenforceable for any reason whatsoever, that particular provision shall be deemed to be independent of and severed from the remainder of this Agreement and all other provisions of this Agreement shall continue in full force and effect.

SECTION 24: ASSIGNMENT, SUCCESSOR AND ASSIGNS

- 24.1 The Recipient shall not assign its rights or obligations hereunder to any person other than a mortgagee without the express written consent of Her Majesty.
- 24.2 If the Recipient assigns its rights or obligations pursuant to Subsection 24.1 above, the Recipient shall be and remain jointly and severally liable for all obligations to Her Majesty notwithstanding any assignment.
- 24.3 This Agreement shall be binding upon and shall enure to the benefit of Her Majesty and Her Majesty's successors, assigns, and of the Recipient and its successors and assigns.
- 24.4 No rights shall enure to the benefit of any transferee or assignees of the Recipient unless the transfer or assignment is consented to by Her Majesty.
- 24.5 Nothing expressed or implied in this Agreement is intended to or shall be construed as conferring on or to give any person, other than the parties hereto, and their respective successors and permitted assigns, any rights or remedies under or by reason of this Agreement or any other agreement.

SECTION 25: CONFLICT OF INTEREST AND POST EMPLOYMENT CODE

No individual for whom the post-employment provisions of the Conflict of Interest and Post-Employment Code for Public Office Holders or the Conflict of Interest and Post-Employment Code for the Public Service apply shall derive any direct benefit from this Agreement unless that individual is in compliance with the applicable post-employment provisions.

SECTION 26: OFFICIAL LANGUAGES ACT

In accordance with the Treasury Board Policy on Grants and Contributions - Official Languages and in relation to Part IV (Communications and Services) of the Official Languages Act, the Recipient agrees to:

- a) make any announcements to the public concerning the Grant in both official languages; and
- b) make available in both official languages any documents for the general public relating to the Grant.

IN WITNESS WHEREOF, Her Majesty the Queen in Right of Canada has executed this Agreement at the City of Burlington, in the Province of Ontario this 215^{tr} day of

Marchie, 200 Z and the Recipient has executed this Agreement at the Town of Cobourg, in the Province of Ontario this Marchield Gay of 200 Z.

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HER MAJESTY THE QUEEN IN **RIGHT OF CANADA**

per: Minister of Fisheries and Oceans

RECIPIENT

Witness

per: Authorized Signatur

PETER DELAN Print Name of Signing Authority

NOTE: If the Recipient is a corporation, the authorized signature must be in accordance with the Resolution of the Board of Directors.

APPENDIX "A"

DESCRIPTION OF PROPERTY

DESCRIPTION OF PROPERTY:

(to be completed in accordance with the requirements of the transfer of each property)

Plan 392776. Subject to ecsmite.

APPENDIX "C"

IRREVOCABLE DIRECTION

TO: Department of Fisheries and Oceans

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The Recipient, ______ (name of recipient) of this Grant Agreement between the Recipient and Her Majesty in Right of Canada as represented by the Minister of Fisheries and Oceans, dated ______, hereby irrevocably directs the Minister to remit, to the Recipient's lawyer ______ (name of lawyer) "in trust" the full amount of the Grant (\$ _____) payable to the Recipient under this Agreement.

The Recipient further directs the Minister to remit the Grant to the Recipient's lawyer at the following address or such other address as the Recipient may further direct in writing.

Signed, Sealed and Delivered on the

_____day of ____, 200__at the City of _____ Province of _____.

Affix Corporate Seal if Recipient is a Corporation

Name of Recipient or, I have authority to bind the Recipient (if Recipient is a joint venture, partnership or corporation)

Name of Recipient or,

I have authority to bind the Recipient (if Recipient is a joint venture, partnership or corporation)

APPENDIX "D"

IRREVOCABLE DIRECTION

TO: (name and address of Recipient's lawyer)

I/We, _____(name of Recipient) direct you to hold "in trust" the full amount of the Grant (\$_____) payable to _____(name of Recipient) by Her Majesty in Right of Canada, as represented by the Minister of Fisheries and Oceans, pursuant to the Grant Agreement between ______(name of Recipient) and the Minister dated the _____day of _____, 200__.

I/We direct that you shall not release, to ______ (name of recipient) the said Grant, and accumulated interest, held "in trust" without the express prior written authorization of the Minister.

I/We direct that the said Grant and any accumulated interest shall forthwith be remitted to the Minister and payable as directed by the Minister upon your receipt of a written demand from the Minister.

I/We further direct that you execute and remit to the Minister written confirmation of your agreement to do the following:

- a) to hold the Grant "in trust"
- b) to not release the Grant, including any accumulated interest, to ______(name of Recipient) without the express written authorization of the Minister; and
- c) to forthwith return the Grant in full, including any accumulated interest, to the Minister upon receipt of his written demand.

The written confirmation shall be forwarded to:

Signed on the _____ day of _____, 200___ at the City of ______, Province of

(name of Recipient)

TEMPLATE TRUST LETTER TO LAWYER FOR RECIPIENT

Date:

(name and address of recipient's lawyer)

Re: Holding and Release of Trust Funds Pursuant to a Grant Agreement Between (name of recipient) and Her Majesty the Queen in right of Canada, as represented by the Minister of Fisheries and Oceans, dated _____ (date of Grant Agreement)

Dear Sir/Madam:

Pursuant to the Irrevocable Direction executed by your client, ______ (name of recipient) a copy of which is attached and which forms part of the Grant Agreement dated _______ between the Minister of Fisheries and Oceans and ______ (name of recipient), enclosed please find a cheque from the Receiver General in the amount of _______ (write out the amount) (\$______) payable to _______ in trust (name of recipient's lawyer in trust - e.g. "ABC barristers & solicitors in trust". It is important that the words "in trust" be included with the name of the recipient's lawyer on the cheque).

The trust funds are remitted upon the following conditions:

- 1) the trust funds shall not be released to the ______ (name of recipient) without your receipt of the prior express written authorization of the Department of Fisheries and Oceans (DFO); and
- 2) the trust funds and accumulated interest shall be paid as directed by DFO within 72 hours of your receipt of a demand to do so from DFO.

Should you have any questions, please do not hesitate to contact me.

(DFO's Signatory)

APPENDIX "B"

DEBTS OWING TO HER MAJESTY

SOURCE OF DEBT

AMOUNT OF DEBT

(Put NIL if no debt is owing to Her Majesty) (Add additional spaces if necessary)

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NOTE: ADJOLNING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, MITH DESCRIPTION REPRESENTED FOR THIS PROPERTY. NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.



ः भ PARCEL REGISTER (ASBREVIATED) FOR PROPERTY IDENTIFIER

PAGE 2 OF 2 PREPARED FOR Cassal01 ON 2015/11/23 AT 10:55:46

OFFICE #19
OFFICE #19
CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT * SUBJECT TO RESERVATIONS IN CNOWN CRANT *

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	of service	CERT/ CHED
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Divestiture

http://www.dfo-mpo.gc.ca/sch-ppb/divestiture-dessaisissement-eng.asp

Canadä



Fisheries and Oceans Canada

Home > Small Craft Harbours > About Small Craft Harbours > Divestiture

Divestiture

Highlights

- Our Vision
 - Bulletin
- Forum
- Transition Package
 - Compendium

The Divestiture Program strives to transfer ownership of designated harbours to a third party. Divestiture of recreational harbours and low-activity or derelict harbours allows SCH to focus its efforts and investments on core harbours that are critical to the fishing industry. SCH will first provide the necessary harbour repairs and environmental clean-up. It does this by either undertaking this work prior to transfer or by providing a comparable grant to the recipient.

Harbours are offered in order of priority:

1. For a nominal fee to:

Other federal departments Municipalities • Provinces

Local non-profit associations or First Nations

2. Through a tendering process to the private sector.

most appropriate. When ownership of a harbour is transferred, the recipient must pay a nominal fee and maintain public access to the harbour and to its services for a minimum of 5 Municipalities have generally shown most interest in assuming responsibility for harbour facilities. They are often in the best position to make decisions about which services are years. Transfer or demolition only occurs after the communities concerned have been consulted and only when an agreement has been reached. Harbour structures are demolished only if there is no local interest in them. To date, 713 recreational harbours and 400 fishing harbours have been divested. An additional 131 recreational disposals are in progress. For more details on this aspect of the SCH Program, please consult the Divestiture Report. Date modified: 2008-09-02

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