

APPENDIX A - Environmental Report

Environmental Effects Evaluation (EEE) Report, B.I.O. Buoy Maintenance Yard, for Fisheries and Oceans Canada. Public Works and Government Services Canada - Environmental Services, Project No. R.059440.002, April 17, 2013.

Environmental Effects Evaluation (EEE) Report

Pursuant to Section 67 of the

Canadian Environmental Assessment Act, 2012

***B.I.O. Buoy Maintenance Yard
Fisheries and Oceans Canada
Dartmouth, Halifax County, Nova Scotia
Project No. R.059440.002***

**Prepared by
*Public Works and Government Services Canada –
Environmental Services
Halifax, Nova Scotia***

for

Fisheries and Oceans Canada

April 17, 2013

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PART A: PROJECT INFORMATION

Project Title:	B.I.O. Buoy Maintenance Yard
Project Location:	Bedford Institute of Oceanography, Dartmouth, NS
Lead Federal Authority:	Fisheries and Oceans Canada
Lead Authority contact:	Philip White (902) 496-5132
Other FA's:	
EEE Assessor contact:	Stephen Barbour (902) 877-3171
ES(D) contact information:	Donald Maynard (902) 566-7533
PWGSC Project Number:	R.059440.002
Client contact:	Philip White (902) 496-5132

PART B: SCOPE OF PROJECT

B.1 Project Description

The proponent intends to construct a buoy maintenance yard by expanding an existing storage area at the Bedford Institute of Oceanography in Dartmouth, Halifax County, Nova Scotia. Peripheral projects include upgrading the access into a road suitable for large buoy carrier trucks and making improvements to a parking lot located just uphill from the proposed yard. The new road construction will make it possible to drive a vehicle northward along Baffin Blvd from the BIO jetty to the peripheral fence at the north end of the property. The road will continue east and uphill to the north end of the proposed yard and then continue onward uphill to the fence at the eastern edge of the property, where it will turn south and run parallel to the parking area that is to be upgraded and join up to Hudson Way. The south end of the parking area connects to the north end of Hudson Way, thus making it possible to drive a vehicle completely around the periphery of the property. This will provide a more direct route between the Buoy Storage and Maintenance Area and off-site roadways via Baffin Boulevard and Hudson Way.

Activities associated with this proposal include:

Cut and fill to create the buoy maintenance yard, road and parking area.
Import some fill and all gravels and asphalt.
Install some new storm piping and some open ditches.
Grade to level the yard and lot and direct run-off to existing and new storm drainage.
Re-grade to create acceptable slopes on the peripheral road.
Re-grade existing gravel parking lot.
Construct new service road.
Pave the road and selected areas of the yard.
Surface of certain areas of the yard and lot with Sub-base and Base gravels.
Create containment area for buoy washing.

B.2 Scheduling

Construction is expected to occur during the summer/fall of 2013. The project is expected to have a duration of approximately five months.

B.3 Regulatory

The present document is an environmental assessment conducted pursuant to Section 67 of the Canadian Environmental Assessment Act 2012. No other regulatory permit is required.

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PART C: SCOPE OF EVALUATION

C.1 Environmental Setting

Environmental Setting

The Bedford Institute of Oceanography (BIO) is located on the eastern shore of the Bedford Basin in Dartmouth, Nova Scotia. The facility operates primarily as an oceanographic research institute owned by Fisheries and Oceans Canada (DFO). In addition to DFO, tenants at BIO include Natural Resources Canada (NRCAN), Environment Canada, the Department of National Defence (DND) and the Canadian Coast Guard (CCG). The BIO consists of nine major buildings located east and southeast of the project site. Seven of the buildings are interconnected. The seven interconnected buildings include the Vulcan, van Steenburg, Polaris, Holland, Murray, Strickland and Fish Lab buildings. These buildings contain a variety of wet and dry laboratories, offices, workshops and storage areas. In addition there is a new Canadian Coast Guard office building to the south of the project site, as well as several utility buildings between it and the main BIO complex.

The proposed project site is located in Dartmouth (44°41'09"N, 63°36'36"W), Halifax County, Nova Scotia on land owned by the Government of Canada (PID #00063719 & 40175804). The proposed maintenance yard will be created by expanding an existing Bedford Institute of Oceanography temporary storage area. The expanded area will be used as a storage yard for marine buoys being serviced by the Canadian Coast Guard.

The BIO property is bound to the north and east by the CN railway, vacant land owned by Energy Mines and Resources, low rise residential properties and recreation facilities belonging to the Department of National Defence, and the Health Canada Laboratories. It is bounded to the west and south by the Bedford Basin, and to the southeast by the McKay Bridge. A gypsum loading facility is located adjacent to the northwest corner of the property. The property area is approximately 41 hectares in size, of which only 5% is occupied by buildings. The remaining land is occupied by asphalt parking lots, driveways, landscaped lawns and minor undeveloped areas that are covered with scrub brush and grasses. The area concerning the proposed project is occupied by a gravel storage area, a gravel parking lot and heavy scrub vegetation.

C.2 Physical Environment

Dartmouth (44° 40' 00" N _ 63° 34' 00" W), Nova Scotia, is situated in the Eastern Shore Beaches unit, in the Beaches and Islands district, of the Atlantic Coast eco-region of Nova Scotia.

The project site is underlain by metamorphic bedrock of the Meguma Group Goldenville formation rocks consisting of greywacke, quartzite, slate, schist and gneiss. There are several large outcrops of bedrock near the existing BIO buildings. The maximum elevation of the property is approximately 20.0m. Most of the area is moderately sloped (max. slope of 20%) except in the vicinity of the existing BIO buildings. The bedrock is overlain by unconsolidated sandy silty glacial tills and imported fill materials, including cobbles and boulders. The soil is classified in the "Halifax" soil group and has a well-drained, stony consistency.

The Canadian Climate Normals (1971 to 2000) recorded from the climate station in Halifax (44°39'N, 63°35'W), Nova Scotia indicate an annual daily mean temperature of 7.2°C, with extremes ranging from -26°C to 34°C. Measurable precipitation averages 1508 mm annually. Extreme daily precipitation has been recorded at 118.1 mm.

C.3 Biological Environment

The BIO is located along the rocky shores of the Bedford Basin. The rock and mud floor of Bedford Basin provides suitable habitat to such fish species as lobster, crab, mackerel, cod and herring. There are no freshwater streams or open bodies of water located on the property near the development site.

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Vegetation in the area includes American Beech, Yellow Birch, Red Maple, and Sugar Maple along with some Balsam Fir, White Spruce and Jack Pine.

The scrubby nature of the forest provides good browsing habitat for deer and snowshoe hare. Small-mammal diversity is moderately high in the well-drained mixed and hardwood forest habitat as is found on the BIO property.

A search of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted within a 1 km radius of the proposed project location (ACCDC 2012). The search yielded one species of concern with documented sightings within the search area. This species, the Pale touch-me-not (*Impatiens pallida*) has an S2 designation, meaning that it is vulnerable to extirpation. The species is located at the far northeast of the BIO property and is not under threat from the current project. Also, the proposed project site is not likely to provide critical or limiting habitat for this species and does not contain any other environmental components that are considered to be important, sensitive, threatened or endangered that are likely to be affected by the project.

C.4 Socio-economic Environment

The BIO property was undeveloped until it became land used for institutional buildings. The land is mostly unused except in the developed areas which are used intensively during working hours. The woodlands surrounding the developed area are slightly used as picnic/recreational areas by employees. The undeveloped areas are also lightly used recreationally by children from nearby Wallace Heights.

C.5 Scoping

This environmental effects evaluation considers the full range of project / environment interactions and the environmental factors that could be affected by the project as defined above and the significance of related effects after mitigation. The environmental effects of a project to be considered include at a minimum, but are not limited to those described under subsection 5(1) and 5(2) of CEAA 2012. The environmental effects considered under this report include potential impacts on groundwater, marine waters, soils and air quality.

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Table 1: Potential Project / Environment Interactions Matrix: Buoy Maintenance Yard, Dartmouth, Nova Scotia

P = Potential Effect of Project on Environment; ' - ' = No Interaction

Project Phase / Physical Work/Activity	As per CEAA Section 5(1)			CEAA Section 5(1c) Aboriginal Interest				CEAA Section 5(2)			Due Diligence		
	Fish (Fisheries Act)	Aquatic Species (SARA)	Birds (MBCA)	Health and Socio economic	Physical and cultural heritage	Land use	*HAPA Significance	Health and Socio economic	Physical and cultural heritage	HAPA Significance	Water (ground, surface, drainage, etc.)	Birds / Wildlife	Soil
Construction													
Cut and fill, contouring of soil	P	-	-	-	-	-	-	P	-	-	P	-	P
Resurfacing with gravel	P	-	-	-	-	-	-	P	-	-	P	-	P
Paving	-	-	-	-	-	-	-	-	-	-	-	-	P
Operation / Maintenance													
Buoy washing	-	-	-	-	-	-	-	-	-	-	P	-	P
Decommissioning / Abandonment													

*HAPA = structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

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Table 2.1 – 2.4: Potential Project / Valued Ecosystem Interactions and Mitigation Measures (S.2(1))

Table 2.1 Valued Ecosystem Component - Fish (Fisheries Act)				
Potential Effect: Harmful effects to fish.				
Potential Interaction	Mitigation			
Project activities may result in debris/material entering a nearby marine environment.	<ul style="list-style-type: none">· All waste materials must be disposed of in a provincially approved manner.· If any construction debris/material, (e.g., plastic, food scraps, etc.) enter the aquatic environment they must be removed immediately and disposed in a provincially approved manner.· Work must be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the construction phase. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized.· The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refuelling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).			
Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Moderate	Irreversible	Local	Short-term	Intermittent
Residual Effects:	Insignificant			
Monitoring:	The project manager and site manager must check that all erosion control structures are in place and functional. Re-fuelling practices must also be monitored for best practices.			
Comments: Sedimentation, hydrocarbon spills and waste material generated during construction activities have the potential to negatively impact adjacent waters and fish/fish habitat for the long-term. Such effects can be avoided through the application of effective mitigation measures.				

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Table 2.2 Valued Ecosystem Component – Health and Socio Economic - Sections 5(1) and 5(2)					
Potential Effect: Disturbance to communities.					
Potential Interaction		Mitigation			
Persons present on or near project site may be exposed to hazards.		· Workers who may come in contact with hazards must be provided with and use appropriate personal protective equipment.			
Dust from soil engineering may blow into public areas and adjacent institutional work areas and building HVAC intakes.		· Site access must be restricted to authorized workers only.			
		· Dust suppression measures must be applied to prevent fugitive dust.			
Magnitude	Reversibility	Geographic Extent	Duration	Frequency	
Large	Irreversible	Local	Short-term	Intermittent	
Residual Effects:		Insignificant			
Monitoring:		None required			
Comments: While workers may be exposed to hazards, the exposure can be limited through the use of appropriate personal protective equipment and restricting site access to authorized workers only. In addition, workers must follow the Provincial Occupational Health and Safety Act and any other appropriate legislation, regulations, guidelines, or best-management practices. Appropriate mitigation can reduce impacts to insignificance.					

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Table 2.3 Valued Ecosystem Component – Water				
Potential Effect: Groundwater contamination.				
Potential Interaction		Mitigation		
Contamination of groundwater from temporarily stored material or hydrocarbon leaks.		· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).		
Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Large	Reversible	Local	Long-Term	Continuous
Residual Effects:		Insignificant		
Monitoring:		See Table 2.1.		
Comments: The adoption of best practices and appropriate storage of fuels, lubricants and solvents can safely mitigate potential environmental hazards.				

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Table 2.4 Valued Ecosystem Component – Soil (Surface and Subsurface) Quality				
Potential Effect: Erosion and contamination of soils.				
Potential Interaction		Mitigation		
Disturbance to soil from heavy equipment use.		<ul style="list-style-type: none">Any contaminated soil that is discovered must be stored on site for the shortest time possible, covered, and be disposed of at an approved facility.Work must be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the construction phase. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized.The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).All waste materials must be disposed of according to provincial Waste Management Regulations.		
Increased soil disturbance within the area of work for the duration of construction.				
Contamination of soil from temporarily stored material during construction activities.				
Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Moderate	Irreversible	Local	Long-Term	Intermittent
Residual Effects:		Insignificant		
Monitoring:		See Table 2.1.		
Comments: Construction activities could result in the mobilization of on site soils, especially during precipitation events. The implementation of effective mitigation measures can reduce any effects to insignificant levels.				

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PART D: COMMUNICATIONS

D.1 Consideration of Public Concerns

The potential for public concern is minimal due to the nature of the project – to turn a storage yard into a buoy maintenance yard within an already developed area. Public consultation was not deemed necessary as part of this screening. A record of public participation determination is found in **Appendix B**.

D.2 Aboriginal Interest

PWGSC evaluated this project to determine if any environmental effects will result in a significant adverse environmental effect upon aboriginal peoples. It was determined that there will be no adverse affects on aboriginal interests as the project is confined to a developed institutional site, there will be no removal of productive land, and there will be no plume of effects into neighbouring environments.

D.3 Government Co-ordination

There are no Federal or Provincial authorities likely to have an interest in the project. Therefore none were contacted by Public Works and Government Services Canada, Environmental Services, during the course of this environmental effects evaluation.

PART E: ENVIRONMENTAL EFFECTS EVALUATION CONCLUSION

Potential impacts of this project are associated with soil disturbance and the use of hydrocarbons. It is reasonable to conclude that with appropriate mitigation in place and good work practices, residual environmental effects will be negligible and the potential zone of influence will be confined to the project site.

PART F: ACCURACY AND COMPLIANCE MONITORING

Site monitoring (accuracy and compliance monitoring) is recommended for this project. It is important to ensure that erosion controls and best practices are appropriate, especially during periods of high precipitation.

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PART G: DETERMINATION

The federal authority is required to provide a determination of the significance of environmental effects as a result of this project. The decision outlined below is based on the interpretation of environmental effects and mitigation measures described in Part D of this report.

Project Name: Buoy Maintenance Yard
PWGSC Project #: R.059440.002
Location: Dartmouth, Halifax County, Nova Scotia


The Federal Authority has evaluated the project for significant adverse environmental effects as required under Section 67 of *Canadian Environmental Assessment Act (CEAA), 2012*. On the basis of this evaluation, the department has determined that the decision opposite the "X" applies to the proposed project.

- ☐ Project not likely to cause significant adverse environmental effects - proceed.
- ☒ Project not likely to cause significant adverse environmental effects with mitigation - proceed using mitigative measures as determined.
- ☐ Inadequate information available - further study and assessment is required.
- ☐ Project likely to cause significant adverse environmental effects that cannot be justified in the circumstances - project will not proceed.
- ☐ Project likely to cause significant adverse environmental effects that may be justified in the circumstances - refer to the Governor in Council for decision.

PART H: SIGNATURE

This document summarizes the results of an environmental effects evaluation related to the above project that has been performed and completed by the Federal Authority in accordance with the *Canadian Environmental Assessment Act 2012*.

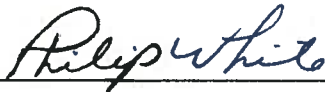
Environmental Specialist:
PWGSC



Date: April 17, 2013.

The above has completed this environmental effects evaluation (EEE) report to the best of their ability and knowledge, and ensures that it meets the requirement of the Canadian Environmental Assessment Act, 2012.

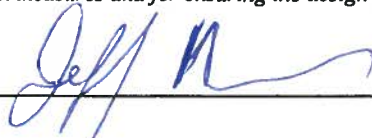
Project Manager:
PWGSC



Date: 17 APRIL 2013

The above has read and understood this environmental effects evaluation (EEE) report and acknowledges responsibility for ensuring the implementation of mitigation measures and for ensuring the design and implementation of 'accuracy and compliance monitoring', if any, identified in this report.

Project Manager:
DFO



Date: April 17, 2013

The above has read and understood this environmental effects evaluation (EEE) report and acknowledges responsibility for ensuring the implementation of mitigation measures and for ensuring the design and implementation of 'accuracy and compliance monitoring', if any, identified in this report.

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PART I: REFERENCES

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Environmental Effects Evaluation (EEE) Report

**APPENDIX A
FIGURES**

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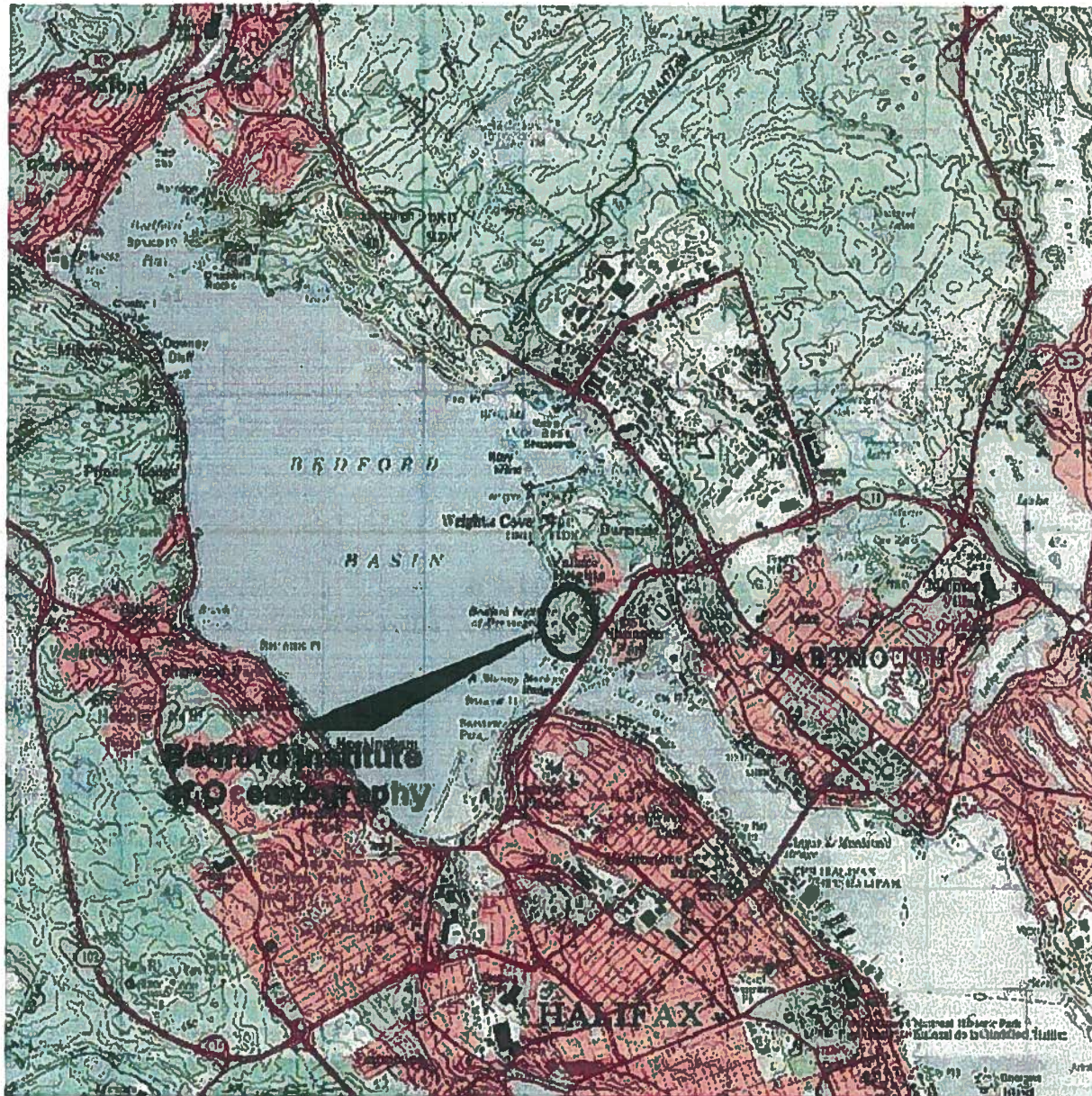


Figure 1. Topographic map 11D/12 of Dartmouth, Nova Scotia. Each square represents 1 km².

APPENDIX B
RECORD OF PUBLIC PARTICIPATION DETERMINATION

Record of Public Participation Determination

Stage of work plan: Early planning phase of screening (pre-scoping)

Is there an indication that...	Describe potential indication and issues	Consider public participation?	
<i>there is an existing or likely public interest in the type, location or potential effects of the project?</i>		<input type="checkbox"/> Yes	X No
<i>There are members of the public with a history of being involved in past proposed projects in the area?</i>		<input type="checkbox"/> Yes	X No
<i>the project has the potential to generate conflict between environmental and social or economic values of concern to the public?</i>		<input type="checkbox"/> Yes	X No
<i>the project may be <u>perceived</u> as having the potential for significant adverse environmental effects?¹</i>		<input type="checkbox"/> Yes	X No
<i>there is potential to learn from community ecological knowledge or Aboriginal traditional knowledge?</i>		<input type="checkbox"/> Yes	X No
<i>there is uncertainty about potential direct and indirect environmental effects or the significance of identified effects?</i>		<input type="checkbox"/> Yes	X No
<i>the project has been or will be subject to other public participation processes that would meet the objectives of the Ministerial Guideline http://www.ceaa.gc.ca/013/006/ministerial_guideline_e.htm</i>		<input type="checkbox"/> Yes	X No
<i>there is any other reason why public participation is or is not appropriate?</i>		<input type="checkbox"/> Yes	X No

As a result of the scan above, is public participation under CEAA appropriate in the circumstances?

☐ Yes

X No

Additional comments to support determination:

The potential for public concern is minimal due to the nature of the project – to turn a storage yard lot into a buoy maintenance yard within an already developed area.

¹ Environmental Effect as per the definition in CEAA (2012) is

- Changes to the environment to components of the environment that are within the legislative authority of Parliament (fish as defined by the Fisheries Act, aquatic species under the Species at Risk Act, and migratory birds as defined in the Migratory Birds Convention Act (1994)
- Changes to the environment that occur on federal lands, or inter-provincially or outside of Canada.
- The effect of any change on health and socio-economic condition, physical and cultural heritage, use of resources for traditional purposes and structures of historical significance are limited with respect to Aboriginal peoples.

APPENDIX C

DEFINITIONS AND METHODOLOGIES

DEFINITIONS AND METHODOLOGIES

Environment (defined in CEAA 2012 S.2(1)) – the components of the Earth, and includes land, water and air, including all layers of the atmosphere; and all organic and inorganic matter and living organisms (and the interacting natural systems of those).

Environmental Effects (defined in S.5(1)) – 5.(1) For the purposes of this Act, the environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project are

(a) a change that may be caused to the following components of the environment that are within the legislative authority of Parliament:

- (i) fish as defined in section 2 of the Fisheries Act and fish habitat as defined in subsection 34(1) of that Act,
- (ii) aquatic species as defined in subsection 2(1) of the Species at Risk Act,
- (iii) migratory birds as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994, and
- (iv) any other component of the environment that is set out in Schedule 2;

(b) a change that may be caused to the environment that would occur:

- (i) on federal lands,
- (ii) in a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out, or
- (iii) outside Canada; and

(c) with respect to aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on:

- (i) health and socio-economic conditions,
- (ii) physical and cultural heritage,
- (iii) the current use of lands and resources for traditional purposes, or
- (iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

(2) However, if the carrying out of the physical activity, the designated project or the project requires a federal authority to exercise a power or perform a duty or function conferred on it under any Act of Parliament other than this Act, the following environmental effects are also to be taken into account:

(a) a change, other than those referred to in paragraphs (1)(a) and (b), that may be caused to the environment and that is directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of the physical activity, the designated project or the project; and

(b) an effect, other than those referred to in paragraph (1)(c), of any change referred to in paragraph (a) on

- (i) health and socio-economic conditions,
- (ii) physical and cultural heritage, or
- (iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Schedule 2 (3) The Governor in Council may, by order, amend Schedule 2 to add or remove a component of the environment.

Federal Authority (defined in S.2(1)) – a Minister of the Crown in right of Canada; an agency of the Government of Canada or a parent Crown corporation, as defined in subsection 83(1) of the *Financial Administration Act (FAA)*; or any department or departmental corporation that is set out in Schedule I or II to the FAA.

Federal lands (defined in S.2(1)) – defined as follows:

- lands that belong to Her Majesty in right of Canada, or that Canada has power to dispose of, and all waters on and airspace above those lands, other than lands under the administration and control of the Commissioner of Yukon, the Northwest Territories or Nunavut;
- the internal waters of Canada, in any area of the sea not within a province;
- the territorial sea of Canada in any area of the sea not within a province;
- the exclusive economic zone of Canada, and the continental shelf of Canada; and
- reserves, surrendered lands and any other lands that are set apart for the use and benefit of a band and that are

subject to the *Indian Act*, and all waters on and airspace above those reserves or lands.

Mitigation measures (defined in S. 2(1)) – measures for the elimination, reduction or control of the adverse environmental effects of a designated project, and includes restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means.

Project (defined in S. 66) – a physical activity that is carried out in relation to a physical work and is not a designated project.

Valued Ecosystem Component (defined by CEAA Agency) – An environmental element of an ecosystem that is identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance.
(see - www.ceaa.gc.ca/default.asp?lang=En&n=B7CA71391&offset=3#v)

The value of an ecosystem component may be determined on the basis of cultural ideals or scientific concern. Valued ecosystem components that have the potential to interact with project components should be included in the assessment of environmental effects.

Methodology

The environmental effects evaluation methodology used in this report focuses the evaluation on those environmental components of greatest concern. The Valued Ecological Components (VECs) most likely to be affected by the project as described are indicated in Table 1. VECs were selected based on ecological importance to the existing environment (above), the relative sensitivity of environmental components to project influences and their relative social, cultural or economic importance. The potential impacts resulting from these interactions are described below.

Evaluation of Environmental Effects

The VECs selected in Table 1 in the EEE are addressed in Tables 2.1 through 2.5* in the EEE. The residual effects of the project on the environment are defined. Similarly, the physical works/activities and required mitigation measures are detailed and the significance of residual (post-mitigation) effects is estimated.

The ratings are based on:

- **information provided by the proponent;**
- **a review of project related activities;**
- **an appraisal of the environmental setting, and identification of resources at risk;**
- **the identification of potential impacts within the temporal and spatial bounds; and**
- **the personal knowledge and professional judgment of the assessor.**

The significance of project related impacts is determined in consideration of their frequency, the duration and geographical extent of the effects, magnitude relative to natural or background levels, and whether the effects are reversible or are positive or negative in nature. These criteria are indicated in Appendix Table A, which follows.

Appendix Table A: Assessment Criteria for the Determination of Significance.

Magnitude	Magnitude, in general terms, may vary among Issues, but is a factor that accounts for size, intensity, concentration, importance, volume and social or monetary value. It is rated as compared with background conditions, protective standards or normal variability.	
	Small	Relative to natural or background levels
	Moderate	Relative to natural or background levels
	Large	Relative to natural or background levels
Reversibility	Reversible	Effect can be reversed
	Irreversible	Effects are permanent
Geographic Extent	Immediate	Confined to project site
	Local	Effects beyond immediate project site but not regional in scale
	Regional	Effects on a wide scale
Duration	Short Term	Between 0 and 6 months in duration
	Medium Term	Between 6 months and 2 years
	Long Term	Beyond 2 years
Frequency	Once	Occurs only once
	Intermittent	Occurs occasionally at irregular intervals
	Continuous	Occurs on a regular basis and regular intervals

APPENDIX D

MITIGATION TABLE

Mitigation Table – to be forwarded to proponent

It is reasonable to conclude that with appropriate mitigation in place and good work practices, significant adverse environmental effects will be of short duration and the potential zone of influence will be confined to the immediate vicinity if the work.

Mitigation

Work must be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the construction phase. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized.

The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.

Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refuelling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).

Any contaminated soil that is discovered must be stored on site for the shortest time possible, covered, and be disposed of at an approved facility.

All waste materials must be disposed of according to provincial Waste Management Regulations.

If any construction debris/material, (e.g., plastic, food scraps, etc.) enter the aquatic environment they must be removed immediately and disposed in a provincially approved manner.

Workers who may come in contact with hazards must be provided with and use appropriate personal protective equipment.

Site access must be restricted to authorized workers only.

Dust suppression measures must be applied to prevent fugitive dust.

Any and all stipulations of federal, provincial, or municipal authorities and/or their officers must be strictly followed. As a best practice the most stringent standards must be used where applicable. Any discrepancies must be successfully resolved before the pertinent work may begin.

Site monitoring (accuracy and compliance monitoring) may be conducted to verify whether required mitigation measures were implemented. The proponent must provide site access to Responsible Authority officials and/or its agents upon request

