DEPARTMENT OF FISHERIES AND OCEANS - SMALL CRAFT HARBOURS (DFO-SCH) MARITIMES REGION PWGSC WBSE NO.R.000642.001 ENVIRONMENTAL ASSESSMENT HARBOUR DEVELOPMENT BLACKS HARBOUR, CHARLOTTE COUNTY, NEW BRUNSWICK

Prepared for DFO-SCH by
Public Works and Government Services Canada (PWGSC)
Environmental Services
Saint John, New Brunswick
October, 2014

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PART A DESCRIPTION OF THE PROPOSED PROJECT

A-1 Project Identification

Date:	October, 2014
TC File No.:	
Harbour Code / Name:	Harbour Code No. 2514/ Blacks Harbour
Location:	Latitude : 45°03' 00 " N Longitude: 66° 47' 00" W
County/Province:	Charlotte County, New Brunswick
Region:	Maritimes
Assessment Title:	Harbour Development, Charlotte County, New Brunswick
Proposal Description:	The proposed scope of the Project at Blacks Harbour, Charlotte County, NB involves: • Construction of a breakwater and service area; • Float and gangway installation; • Capital Dredging; • Construction of a service area along the eastern approach of the wharf by infilling. The proposed schedule for the Harbour Development activities at the Blacks Harbour Small Craft Harbour (SCH) facility is for the work to commence in the fall of 2015 and is expected to be completed by 2018, pending funding and approvals. There are no accessory projects associated with this Project.
Primary Undertaking:	Yes Physical Activity: Yes
Primary Contact(s):	Mr. Jason Keys, Environmental Officer, PWGSC-ES, Saint John, NB. (506) 636-4210.
DFO Spokesperson:	Ms. Margaret Hawkins, A/Chief, Department of Fisheries and Oceans Canada – Small Craft Harbours Branch (DFO-SCH) – Maritime Region New Brunswick, St/ George, NB. (506) 755-5030.
Lead RA:	Department of Fisheries and Oceans • Small Craft Harbours Branch, Maritimes

A-2 Project Justification

Purpose of the Project

Issue A-1: **Outline the motivating factors and purpose of this proposal. Why is the undertaking of this project being considered (i.e., what purpose will it serve)?**

Response: Blacks Harbour is located in Charlotte County, New Brunswick (NB). Refer to **Figures 1 and 2** in **Appendix A** for a topographic map and aerial photo showing the proposed project location and surrounding area. The approximate coordinates of the project area are 45°03'00''N and 66°47'00''W.

Activities being assessed include the construction of a service area (Approx. 192m x 79m), installation of floats (approx. 5m x 15m each) and gangway access. Dredging of approximately 10,600m^2 (17,000 m^3 place measure) will also be required to obtain safe navigation depths within the proposed area. Some dredge material will be used as fill for the required service areas and a portion of material may be suitable for disposal at sea. These activities are hereinafter defined as the "Project".

The usage of Blacks Harbour has been increasing in the past several years. The harbour is considered by the Harbour Authority to be in 'fair' condition, and is used by 35+ vessels owned by traditional fishermen, a growing aquaculture industry, and transient users (i.e., seaweed harvesters, herring carriers, etc.). The proposed Project is required to increase the safety, berthage space, and efficiency of the harbour.

Alternative Sites and Options

Issue A-2: **Were alternate activities or sites considered or evaluated? If so, briefly indicate scope of review and reasons why they were not chosen over the current proposal.**

Response: The proposed Project is essential for the Harbour as a viable resource to the commercial fishery, and aquaculture industry. The purpose of the Project is to improve the overall operational and berthing capacity as well as safety of the harbour. There are no alternative sites or accessory projects associated with this undertaking. Alternative options to the proposed Project include: 1) abandon the Harbour completely; 2) abandon the Project, and 3) alternative disposal options.

Abandon the Harbour completely: This alternative would not be acceptable to the harbour users or the municipality. Wharf users would have to find alternate ports; however, there are no ports in the vicinity that are able to accommodate the displaced fishing fleet.

Abandon the Project: If the proposed project is abandoned, much of the local fishing fleet will be forced to discontinue operations at the Harbour due to overcrowding and disrepair at the wharf. There are no ports in the vicinity that could accommodate the displaced fishing fleet.

Disposal Options: Dredge material can be disposed of in three main ways: Land based containment (such as a land fill), Ocean Disposal and reused as fill material with the project footprint.

Land Based Disposal – This option can add a significant cost and logistics element to the project timelines and budget as it involves trucking a large amount of dredge material to a local landfill which is capable of accepting the material at a fee. It would also involve an undesired socio-economic aspect of increased truck traffic and potentially spilled dredge spoils and dust within the local community on route to the land fill.

Ocean Disposal – This option is desirable for excess material that cannot be used on site. Ocean disposal places marine sediment back into the marine environment provided the sediment meets or exceeds Environment Canada's Ocean Disposal Guidelines/criteria. Ocean disposal may involve a HADD and there is a disposal fee payable to EC by the cubic meter for ocean disposal which can also add to project costs.

Reuse of material – This option provides the most economical and logistical approach, utilizing excavated sediments as fill material for the required service areas associated with the new structures. This reduces material costs, disposal fees and transportation time. If material can be reused on site, this is the preferred option.

Based on the alternatives listed and the continued viability of the wharf for use in the commercial fishery, carrying out the proposed project using a combination of ocean disposal and reuse of material as fill is considered the best option.

A-3 Description of the Proposed Project

Location

Issue A3: **Where will the project be carried out? Attach appropriate maps, SCH site plans and/or aerial photos. Describe location(s), as precise as possible, for every component of the project (location of the facilities, storage sites, re-dredging and dumping sites, etc.).**

Response: The Harbour Development is located in Blacks Harbour, Charlotte County, NB. Blacks Harbour is a large embayment of the Bay of Fundy that has a northeast-southwest orientation. Refer to **Figure 1** in **Appendix A** for a map of Blacks Harbour in relation to the coastline and surrounding areas, **Figure 2** for an aerial photograph of the project site and for the site plan. The approximate coordinates of the proposed Project are 45°03'00" N and 66°47'00" W. Directly east of the site is a warehouse and one residential home.

The harbour is a Class B (300 to 900 vessel metres) wharf and is active in servicing the commercial fishery. At the proposed project site there are facilities to accommodate the commercial fishery, including an existing main wharf, floating wharf, buildings and service areas. The facilities are separated from the adjacent Connors Bros. fish plant by a security fence and gate. The wharf mainly provides berthing for commercial fishing vessels. The fishing industry comprises an important source of income for the community. The harbour is active during most times of the year to support the various fisheries of the Bay of Fundy, including lobster (*Homarus americanus*), herring (*Clupea harengus*), scallops (*Placopecten magellanicus*), and groundfish. The harbour facilities have been essentially developed to serve the fishing industry and in addition there is some recreational use by other boaters.

Activities being assessed include the construction of a service area (Approx. 192m x 79m), installation of floats (approx. 5m x 15m each) and gangway access. Dredging of approximately 10,600m^2 (approximately 17,000 m^3 place measure) will also be required to obtain safe navigation depths within the proposed area. Some dredge material will be used as fill for the required service areas and a portion of material may be suitable for disposal at sea. Refer to **Figure 2** in **Appendix A** showing the existing harbour and the proposed project.

Related Issues

Issue A4: Is this work proposal part of a larger development? Is there future potential for expansion or modification? If yes, describe related projects.

Response: This work proposal is not part of a larger development. Any projects carried out in the future at this site would require review under the *Canadian Environmental Assessment Act* (*CEAA 2012*). This project was considered in the context of past (i.e., dredging and construction activities), present, and future projects, and no potential negative cumulative environmental effects were predicted.

Components of the Project

Issue A5: Describe the main components of the work proposal and related activities. Attach plans and drawings as may be required to fully describe the intended work. Some of the factors that should be considered include:

Dredging/disposal:	**Volumes;** **Dredge characteristics;** **Dredging procedures;** **Disposal methods;** **Containment structures; and,** **Transportation of material.**

Response:

Construction Phase:

Activities being assessed include the construction of a service area (Approx. 192m x 79m), installation of floats (approx. 5m x 15m each) and gangway access. Dredging of approximately 10,600m^2 (17,000 m^3 place measure) will also be required to obtain safe navigation depths within the proposed area. Some dredge material will be used as fill for the required service areas and a portion of material may be suitable for disposal at sea. Dredging will likely be conducted by a combination of land based and/or barge mounted crane/excavator. It is also likely that a temporary access road may be constructed to access potions of the dredge area. Access road to be removed upon completion of dredging.

No wetlands will be impacted and all work will be conducted on federal property. Refer to **Figures Nos. 1 & 2** for a map and aerial photo. Refer to **Drawing No. 1** for a site plan of the proposed work.

The proposed undertaking would likely commence in 2015 with completion by 2018 depending on project funding and contractor availability.

The project activities / components will include:

- Construction of a service area;
- Float and gangway installation;
- Capital Dredging;

The Harbour Authority will be responsible for coordinating all vessels docking and wharf activities as well as the preservation of all harbour infrastructure.

Refer to **Drawing 1** included in **Appendix A** for a Site Plan of the proposed works.

Operation Phase:

The Environmental Management System (EMS) with an integrated Environmental Management Plan (EMP) for the Harbour Authority of Blacks Harbour covers operational aspects of environmental management and is the mitigation measure for the environmentally responsible aspects of harbour operation (fuelling, waste disposal, activities on the property and water).

Decommissioning/Abandonment:

This facility is not presently planned to be decommissioned. At the time of de-commissioning, Small Craft Harbours will develop a site-specific re-use or reclamation plan that is appropriate for the applicable environmental legislation and Fisheries and Oceans Canada policies.

Time frame

Issue A6: **When will the project be carried out? Include the work schedule. Are there possible conflicts with other activities, such as fishing seasons, recreational activities, etc., which impact on the proposed timing? It is important to note that times stated are those for which the final decision is rendered.**

Response:

The schedule for the proposed project activities at the Harbour is for the work to commence in 2015 and be completed by 2018, depending on the availability of funding.

Commercial fishing, harvesting and tourism are the main activities at the harbour. Blacks Harbour supports approximately 35+ fishing/harvesting vessels. Commercial fisheries that may occur at the harbour consist of herring, lobster, scallop, groundfish, seaweed, and sea urchin (*Strongylocentrotus droebachiensis*). According to the Harbour Authority, there are processing operations in the vicinity of the project area, Connors Bros. Ltd., which fish herring and Cooke Aquaculture Inc., which farm salmon. Neither facility has stock resources (i.e., herring weirs, salmon cages) within 3km of the proposed project. In season, whale watching tourism vessels may use the facility.

There are two First Nations lobster fishers (the Tobique and St.Marys Bands) operating from the Blacks Harbour wharf.

Fisheries at this harbour include:

- scallop (winter);
- herring (occasionally winter (Jan-Feb); May 1st through Christmas);
- sea urchins (year round);
- groundfish (summer to early fall);
- seaweed (summer to early fall); and
- lobster (spring and fall).

A-4 Description of the Surrounding Environment

Description of the Natural Area

Issue A7:

Describe the surrounding environment, outlining environmentally sensitive areas, such as special fish and wildlife habitats, as well as conservation areas or areas of special interest, etc. (attach maps or aerial photos if needed). Area Habitat

coordinators and Federal and Provincial environmental officials should be contacted on this issue. Some of the factors, which should be considered, include:

Physical environment:	**Soil characteristics;** **Groundwater; and** **Water quality.**
Biological environment:	**Terrestrial vegetation;** **Aquatic and riparian vegetation;** **Wildlife;** **Fish fauna;** **Marine mammals; and** **Wildlife refuges/conservation areas.**

Response:

Blacks Harbour is located in Southwestern NB, on the Bay of Fundy. Refer to **Figure 1** in **Appendix A** for a map of Blacks Harbour in relation to the coastline and surrounding areas, and **Figure 2** for an aerial photograph of the project site.

Blacks Harbour is a northeast-southwest trending marine basin, which has a total length of approximately 2.5 kilometres (km). At its mouth, the basin has a total width of approximately 350 m, which decreases slightly upstream. The total surface area of the basin is in the order of 1,000,000 square metres (m^2).

The overburden of the Project area consists of stony glacial till overlain by a discontinuous veneer of marine sediments. The overburden cover is typically thin and frequently bedrock is outcropping in hill areas (Rampton, et al., 1984). The bedrock in the Project area consists of coarse Devonian/Carboniferous red conglomerates of the Horton Group. Marine sediment in the project area is comprised of relatively equal distributions of sand, silt and clay and lesser amounts of gravel.

Canadian Climate Normals for the Blacks Harbour area (Pennfield - Latitude: 45° 06' N and Longitude: 66° 43' W) indicate a mean annual temperature of 5.2 degrees Celsius (ºC) with extremes ranging from –36.5º to 37.2ºC. Measurable precipitation per year is approximately 1434 millimetres (mm). Extreme daily precipitation of up to 111 mm of rain and 38 cm of snow has been recorded (Environment Canada, 2010).

Biological Environment:

In the Bay of Fundy, the area is frequented by migratory fish species such as mackerel (*Scomber scombrus*), herring, gaspereau (*Alosa pseudoharengus*), flounder (*Paralichthys dentatus*) and American eel (*Anguilla rostrata*), which have an associated fishing industry. Harbour porpoises (*Phocoena phocoena*) and seals (*Phoca vitualina concolor*) are occasional visitors to the area.

The proposed work site is located at the Blacks Harbour SCH, a commercial wharf located within the confines of Blacks Harbour, an embayment of the Bay of Fundy. The harbour is host to typical north temperate marine vertebrates, invertebrates and plants. None are present in commercial quantities in the immediate vicinity of the work area. The harbour area does not comprise critical habitat for any marine species. The same

holds true for terrestrial fauna and flora. No rare or endangered species have been noted on the site.

The rocky, intertidal shoreline is typical of that found in the southern Bay of Fundy. The littoral zone is dominated by the brown alga *Ascophyllum nodosum*, or rockweed. Other species of green, red, and brown seaweeds are present in smaller quantities. This zone also plays host to typical intertidal fauna such as crabs, periwinkles, mussels and small crustaceans. The terrestrial environment surrounding the project site has been heavily developed, both commercially and residentially. There are no lobster holding facilities present in the project area.

An underwater benthic habitat survey (UBHS) and invertebrate community survey (ICS) was conducted on February 15, 2009 within greater harbour area footprint. Four transects lines and four ICS samples were completed totaling 449m (refer to **Appendix B** for the UBHS report). The results indicate that the substrate was predominantly featureless mud (silt & clay), much of which was anoxic and supported a patchy to continuous surface mat of anaerobic bacteria (Beggiatoa). Little macroflora life was observed, chiefly drift rockweed (Ascophyllum and Fucus) and extensive white bacterial mats of Beggiatoa.

Macrofaunal life consited mostly of sediment and tube dwelling worms. Some hard surfaces such as rocks supported dense growth of sea anemones (e.g., Metridium sp.). Based on the benthic invertebrate community analysis, animal abundance and biomass was moderate, and diversity and taxon richness (taxa/samples) were low.

A search of the Atlantic Canada Conservation Data Centre (ACCDC) database (a 5 km buffer around the study area) yielded nineteen (21) species of fauna and two (2) species of vascular flora with S1N to S5B rankings. However, the proposed project site is not likely to provide critical or limiting habitat for these species and does not contain any environmental components that are considered to be important, sensitive, threatened or endangered that are likely to be affected by the project. Given the developed nature of the project site and its proximity to commercial and residential developments it is unlikely that these species would inhabit or visit this site. This ACCDC list was cross referenced against species listed under Schedule 1 of the *Species at Risk Act* (SARA). No species from the ACCDC search were identified on Schedule 1 of SARA (Environment Canada, 2014).

A search conducted of species listed under Schedule 1 of the *Species at Risk Act* (SARA) for the proposed project area indicate the potential occurrence of eight species which are as follows:

The Monarch butterfly (*Danaus plexippus*) is designated as a species of special concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and SARA under Schedule 1. Habitat for the Monarch includes abandoned farmland, along roadsides and other spaces where milkweed, wildflowers, goldenrod, asters and purple loosestrife exist. Barrow's Goldeneye (*Bucephala islandica*) is listed as a species of special concern under COSEWIC and SARA under Schedule 1. The species is known to breed and winter in Canada, primarily in western Canada and Quebec, however there is a smaller Atlantic population where there has been a reduction in suitable breeding habitat due to logging and fish introduction. According to the SARA registry Barrow's Goldeneye prefer alkaline freshwater lakes, river, estuarine or coastal waters. The

Peregrine Falcon (*Falco peregrinus anatum*) is listed as Threatened under SARA and Non-active under COSEWIC. This species nests on cliff ledges, usually near wetlands including artificial cliffs such as quarries and buildings. There preferred habitat includes wetlands, tundra, savanna, sea coasts and mountain meadows but will also hunt over open forests. The Least Bittern (*Ixobrychus exilis*) is listed as Threatened under COSEWIC and SARA under Schedule 1. They nest in freshwater marshes, swamps with tall vegetation and appear to be associated with cattails (*Typha spp.*). The Harlequin Duck (Eastern Population), (*Histrionicus histrionicus*) is listed as a species of special concern on both COSEWIC and SARA under Schedule 1. Its preferred habitat is coastal marine environments and they tend to breed along fast-flowing turbulent rivers. In the winter, the Harlequin Duck tends to move to offshore islands, headlands and rocky coastlines. The Atlantic Wolffish (*Anarhichas Iupus*) is listed as a species of special concern under COSEWIC and SARA under Schedule 1. This species primarily inhabits the cold, deep waters of the continental shelf. The North Atlantic Right Whale (Eubalaena glacialis) and Blue Whale Atlantic population (Balaenoptera musculus) are both listed as Endangered under COSEWIC and SARA under Schedule 1. They inhabit the coastal and open ocean waters of the Bay of Fundy, especially estuaries and coastal areas where Krill production is high. (Environment Canada, 2009).

According to the ACCDC database search, there are four Environmentally Significant Areas (ESAs) within 5 km of the Harbour (ACCDC, 2007):

Beaver Harbour Shoreline ESA: is located where the lower street (truck route) passes the breakwater. This site has an embayed rocky coastline with high, jagged rocky cliffs that reflect the northeasterly strike and steeply dipping strata of the erosion resistant Precambrian Coldbrook volcanics.

Blacks Harbour Redbeds ESA: is located by the ferry landing to Grand Manan approximately 1.5km from project site. This site has Late Devonian to Early Carboniferous redbeds. Cobbles and boulders of granite are visible in the conglomerate beds that dip steeply to the northwest.

Frye Island Group ESA: is a group of islands in Letang Estuary near Back Bay, of which Frye Island is the largest. These islands support at least a dozen pair of breeding Osprey.

Letang Estuary ESA: is located south of St. George. The site is a sheltered harbour with islands, pocket beaches and tombolos at the mouth of the Letang River. Due to limited freshwater inflow, the harbour's waters are similar to those of the Bay of Fundy, and have been historically significant for feeding and staging.

Description of the Human Environment

Issue A8: Describe human activities and facilities in and around the area under review. Some of the factors, which should be considered include:

Land uses and planning;
Heritage sites;
Noise;
Aesthetics;
Hunting/fishing grounds and activities;
Drinkable water;
Recreational activities;
Economic activities; and
Provincial/municipal zoning.

Response:

Blacks Harbour is located in Southwestern NB, on the Bay of Fundy. Blacks Harbour is an active harbour servicing the commercial fishery. The area immediately surrounding the wharf consists of a gravel parking lot, paved access road, storage sheds, and wharf facilities. Directly east of the site is a warehouse and one residential home.

Fishing and tourism are the main activities at the harbour. Blacks Harbour supports approximately 35+ fishing/harvesting vessels. Commercial fisheries that may occur at the harbour consist of herring, lobster, scallop, groundfish, seaweed, and sea urchin. According to the Harbour Authority, there are processing operations in the vicinity of the project area, Connors Bros. Ltd., which fish herring and Cooke Aquaculture Inc., which farm Atlantic salmon (*Salmo salar*). Neither facility has stock resources (i.e., herring weirs, salmon cages) within 3km of the proposed project. In season, whale watching tourism vessels may use the facility.

There are two First Nations lobster fishers (the Tobique and St.Marys Bands) operating from the Blacks Harbour wharf (personal communication with Mr. Gordon Dugas, Blacks Harbour, Harbour Authority).

Fisheries at this harbour include:

- scallop (winter);
- herring (occasionally winter (Jan-Feb); May 1st through Christmas);
- sea urchins (year round);
- groundfish (summer to early fall);
- seaweed (summer to early fall); and
- lobster (spring and fall).

There are no other known human activities at the work site and noise levels are typical to other wharves with commercial fisheries. According to the Harbour Authority there are no known heritage sites, hazard lands, municipal lands or zoning designations that will be affected by this proposed project, with the exception of riparian rights discussions between DFO-SCH and Connors Bros. Ltd. The land is currently in the process of being transferred from Connors Bros. Ltd to the Government of Canada.

The project site serves both recreational and commercial users. There are no other known human activities at the work site. Noise caused by this project is expected to be similar to noise levels when the wharf is operating at the peak of the commercial fishing season. Work is to be carried out during times acceptable to the local authorities to mitigate any disturbance to harbour users and nearby residents.

There are no known heritage sites or hazard lands that will be affected by this proposed project.

PART B ENVIRONMENTAL ASSESSMENT OF THE PROJECT

(POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION / COMPENSATION MEASURES)

Boundaries:

A boundary is a function of the extent and duration of potential interaction, physical and chemical, between the proposed undertaking and the Valued Environmental Component (VEC). Generally, these boundaries are defined by the temporal and spatial characteristics encompassing those periods and areas, during and within which, the VECs are likely to interact with, or be influenced by, the project.

Project Boundaries:

Project boundaries refer to the spatial and temporal extent of project activities, and are dictated primarily by project specific characteristics indicated in the information for each construction site. Temporal project boundaries include operation and decommissioning. Spatial project boundaries are defined as the specific site area that includes the areas of construction and the zones of influence around the construction site (biological and physical), specifically the construction area footprint and adjacent lands.

Ecological Boundaries:

Ecological boundaries refer to the temporal and spatial scales over which environmental components or populations function. Temporal ecological boundaries take into consideration the variety of relevant characteristics of environmental components or populations including: 1) Magnitude, frequency and trends in the natural variation of a population or ecological component. 2) Time required for a biological, physical and/or chemical response to an effect to become evident. 3) Time required for a population or ecological system to recover from an effect and return to its pre-impact state.

Temporal ecological boundaries for impact assessment need to consider biologically meaningful intervals with respect to the life cycle of the species being examined. The degree of a potential impact on a particular species or environmental component is also influenced by other temporal characteristics including: 1) the portion of the year that the species or component remains in the proposed project area. 2) The timing of sensitive life history periods (such as larval life phase or bird nesting periods) in relation to the schedule of proposed activities. 3) Whether the project activity cycle includes a period of dormancy.

The distribution, patterns of movement, and potential zones of interaction between a VEC and the project determine spatial ecological boundaries. Direct project-environment interactions are unlikely to occur beyond the spatial extent of the project boundary, however migratory species/stock ranges are considered in the assessment.

Socioeconomic Boundaries:

Socioeconomic boundaries refer to the temporal and spatial scales for economic systems and socioeconomic aspects of the environment, which include: 1) The time required for a response to a change in the socioeconomic environment to become evident. 2) The time necessary for a response to a project-related effect to become evident. 3) The time required for the socioeconomic environment to recover from an effect and return to its original state.

Only socioeconomic effects resulting from the direct impacts of a project on existing environmental conditions are considered. Spatial boundaries are established on the basis of the spatial characteristics of the socio-cultural and economic environment. These take into consideration resource harvesting activities, some of which are specific to particular places (e.g. fisheries resources) and times (e.g. fishing seasons).

Definition and Evaluation of Significance of Effects:

Significance is established based on the extent, duration and magnitude of the potential impact, as well as the environmental component's sensitivity to, and ability to recover from, the potential impact.

For **ecosystem** VECs that are population based, the definitions of significance are defined as follows:

Likely to have a significant effect - affects a population or portion thereof in such a way as to cause a decline or change in abundance or distribution of the population over one or more generations; natural recruitment may not re-establish the population to its original level; or

Not likely to have a significant effect - affects a population or a specific group of individuals in a localized area over a short period of time in a manner similar to natural variation and has no measurable effect on the integrity of the population as a whole.

For **socioeconomic** VECs, the definition of significance is as follows:

Likely to have a significant adverse effect - has an adverse effect on a community as a whole in a localized area and has a duration sufficient to adversely affect a change in the economic, physical or psychological well-being or in the long established activity patterns of the community in question; or

Not likely to have a significant adverse effect - has a negligible effect on communities, is of very short duration, is extremely localized and/or affects communities in a manner similar to small random changes due to natural socioeconomic fluctuations.

This environmental assessment considers the full range of project/environmental interactions and the environmental factors that could be affected by the project as defined above. Potential interactions between the project and the environment were reviewed and are outlined in Table 2. Potential Project/Environment Interactions Matrix.

Table 1: Potential Project / Environment Interactions Matrix
Harbour Development, Blacks Harbour, Charlotte County, New Brunswick

P = Potential Effect of Project on Environment; ? = Not enough Information; ' - ' = No Interaction

Project Phase / Physical Work/Activity	Soil (Surface and Subsurface)	Groundwater Quality	Rivers/Lakes/Streams (and associated drainage) Quality	Marine/Estuary/Saltmarsh Water Quality	Wetlands (Bens, Fogs, Swamps)	Fish / Fish Habitat	Birds / Bird Habitat	Rare / Endangered Species / Species at Risk Act (SARA)	Aboriginal Interests	Socio-economic Environment	Agriculture/Aquaculture	Land Use	Archaeology / Palaeontology / Heritage	Air Quality / Noise	Health / Safety
Harbour Dredging and Service Area Construction															
Transportation of Equipment	-	-	-	P	-	-	P	P	P	P	-	-	-	P	-
Floating Dock Installation	-	-	-	P	-	P	P	P	P	P	P	-	-	P	P
Service Area Construction	P	-	-	P	-	P	P	P	P	P	P	P	-	P	P
Dredging and placement	P	-	-	P	-	P	P	P	P	P	P	-	P	P	P
Operation/Maintenance/ Decommissioning															
Operation/Maintenance	P	P	-	P	-	-	P	P	-	P	-	-	-	-	-
Decommissioning	-	-	-	-	-	-	-	-	-	-	-	-	-	p	-
Accidents/Malfunctions, and Unplanned Events	P	P	-	P	-	P	P	P	-	P	-	-	-	-	-

The selected VECs are addressed in Tables 3 in its entirety below. The residual effects of the project on the environment are defined. Similarly, the physical works / activities and required mitigation are detailed, and the significance of residual (post mitigation) effects are estimated.

The following 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**
- **Own personal knowledge and professional judgement.**

The significance of project related impacts were determined in consideration of their frequency, the duration and geographical extent of the effects, and 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 Table 3.

Table 2: Assessment Criteria for 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

Table 3.1 – 3.13: Potential Project / Valued Ecosystem Interactions and Mitigation *(S.16(1))*

<table>
<tr><td colspan="5">Table 3.1 Valued Ecosystem Component – Soil (Surface and Subsurface)</td></tr>
<tr><td colspan="5">Potential Effect: Erosion and contamination of soils.</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="3">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">Disturbance to soil from heavy equipment use.

Increased soil disturbance within the area of work for the duration of the construction of the service area.

Contamination of the soil.</td><td colspan="3"></td></tr>
<tr><td colspan="3">Standard Mitigation Practices</td></tr>
<tr><td colspan="3">· 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).
· Fuel level must be inspected on a daily basis to ensure there is no leakage to the surrounding environment.
·All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil should be replanted or sodded to ensure soil stabilization.
· All waste materials will be disposed of according to Provincial Waste Management Regulations.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency
Significance</td></tr>
<tr><td>Small</td><td>Reversible</td><td>Immediate</td><td>Long-Term</td><td>Once</td></tr>
<tr><td>Residual Effects:</td><td colspan="4">Insignificant</td></tr>
<tr><td>Monitoring / Follow-up:</td><td colspan="4">None required.</td></tr>
<tr><td colspan="5">Comments: Similarly, construction activities could result in the mobilization of site soils, especially during precipitation events. Such runoff events are likely to be of short duration and confined to the project site. The implementation of effective mitigation measures can reduce such effects to insignificant levels.</td></tr>
</table>

<table>
<tr><td colspan="6">Table 3.2 Valued Ecosystem Component - Groundwater Quality</td></tr>
<tr><td colspan="6">Potential Effect: Surface water contamination.</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">Contamination of groundwater due to hazardous material spill.</td><td colspan="4"></td></tr>
<tr><td colspan="4">Standard Mitigation Practices</td></tr>
<tr><td colspan="4">· 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).
· Fuel level must be inspected on a daily basis to ensure there is no leakage to the surrounding environment.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td></tr>
<tr><td>Small</td><td>Reversible</td><td>Immediate</td><td>Short-term</td><td>Once</td></tr>
<tr><td>Residual Effects:</td><td colspan="5">Insignificant</td></tr>
<tr><td>Monitoring / Follow-up:</td><td colspan="5">None required.</td></tr>
<tr><td colspan="6">Comments: The potential exists for the contamination of local groundwater reserves from hydrocarbons due to upsets during refuelling of construction equipment. While unlikely, such effects can be avoided through the application of effective mitigation measures.</td></tr>
</table>

Table 3.3 Valued Ecosystem Component – Marine/Estuary Water Quality	
Potential Effect: Reduced Marine Water Quality	
Potential Interaction	**Mitigation**
Increased suspended solids/sediments and turbidity immediately adjacent to the project site. Re-suspension of sediments in the water column. Activities may result in debris and deleterious substances affecting marine water quality.	- The placement of dredged materials for the service area construction will be done so within a bermed area lined with filter fabric and reinforced by armour stone. **Standard Mitigation Practices** -Same as groundwater quality -Visual monitoring of turbidity will be required in the vicinity of the work. If turbidity outside the zone of influence (i.e. 100 m) changes excessively from the existing conditions of the surrounding water bodies (i.e. distinct change in water quality), the work will stop and the DFO-FPP Area Biologist will be contacted at 506-851-2824; additional mitigation measures may be required (e.g. changes in timing according to tide cycle). - The Contractor is to ensure that proper material management and construction measures are employed. Mitigation will include: - monitoring extended weather forecasts to schedule activities to avoid significant storm events; - stopping activities during significant storm events; and, - increasing monitoring and inspection immediately after a storm event. - Except for dredging related vessels, machinery will not be permitted in the aquatic environment; - Capping materials used must be clean, non orebearing, non-toxic (i.e., free of fuel, oil, grease and/or any other contaminants) from a non watercourse source that is free of fines. - If any construction debris/material or any miscellaneous unused materials enter the marine environments they will be removed immediately and disposed of in a provincially approved manner. Under no circumstances shall materials be deliberately thrown overboard. - Any equipment that has been in the marine environment will be cleaned of any sediments, plants or animals and washed with freshwater and/or sprayed with undiluted vinegar prior to being mobilized to the project site.

	- All construction waste material will be disposed of in a provincially approved manner. - All equipment must be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products. - With the exception of dredging and related equipment, refueling operations will take place at least 30 metres from any watercourse and harbour and the refueling will take place on a prepared impermeable surface with a collection system. - All equipment to be used in or over the marine environment is to be free from leaks or coating of hydrocarbon-based fluids and/or lubricants harmful to the environment. Hoses and tanks are to be inspected on a regular basis to prevent fractures and breaks. - Employ a properly trained dredge operator to ensure that dredging activities are conducted in a manner that minimizes the re-suspension of sediments in the water column including: - Ensuring that the dredge bucket descends to the bottom in a manner which reduces the potential re-suspension of sediments as the bucket contacts the bottom; - Minimizing the potential for washing of material from the bucket during ascent by having the operator try to achieve full bucket capacity; - Controlling the rate at which the bucket ascends to reduce the potential winnowing of sediment; - Emptying the bucket after material is unloaded, before continuing to dredge; - Not permitting the dragging of the bucket on the bottom for the purposes of leveling.

Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Moderate	**Reversible**	**Local**	**Medium Term**	**Intermittent**

Residual Effects:	**Insignificant**
Monitoring / Follow-up:	None required.

Comments: Construction activities could result in the mobilization of on site soils, especially during precipitation events as well as suspension of marine sediments during dredging, disposal and service area construction. Such events are likely to be of medium-term duration and confined to the project and ocean disposal site (if required). Such effects can be avoided through the application of effective best management and standard mitigation practices.

<table>
<tr><td colspan="5">Table 3.4 Valued Ecosystem Component - Fish / Fish Habitat</td></tr>
<tr><td colspan="5">Potential Effect: Harmful alteration, destruction or disruption of fish/fish habitat.</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="3">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">Potential for suspended sediments affecting fish/fish habitat.
Introduction of marine invasive species from project related equipment.
Project activities may result in debris/material entering the marine environment.
Toxic effect to fish in the vicinity of the dredging project.</td><td colspan="3">- If a marine mammal (specifically whales or porpoises) is identified within the vicinity of the project, work shall stop until the animal is gone.</td></tr>
<tr><td colspan="3">Standard Mitigation Practices</td></tr>
<tr><td colspan="3">- Refer to Standard Mitigation Practices for Marine/Estuary Water Quality
Note DFO-FPP has issued a letter of advice for the project with recommended mitigation which will be applied to the project. DFO-FPP has determined that no formal approval is required.
- Any equipment that has been in the marine environment will be cleaned of any sediments, plants or animals and washed with freshwater and/or sprayed with undiluted vinegar prior to being mobilized to the project site.
- Marine equipment may be inspected by PWGSC or DFO to assure invasive species are not introduced to the marine environment.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td></tr>
<tr><td>Moderate</td><td>Reversible</td><td>Local</td><td>Medium-Term</td><td>Intermittent</td></tr>
<tr><td colspan="2">Residual Effects:</td><td colspan="3">Insignificant</td></tr>
<tr><td colspan="2">Monitoring / Follow-up:</td><td colspan="3"></td></tr>
<tr><td colspan="5">Comments:</td></tr>
</table>

<table>
<tr><td colspan="6">Table 3.5 Valued Ecosystem Component – Birds / Bird Habitat</td></tr>
<tr><td colspan="6">Potential Effect: Disturbance to nesting or feeding migratory birds.</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">There will be an increase in noise levels and traffic that could cause disruption to birds during construction.

Accidental Spills</td><td colspan="4"></td></tr>
<tr><td colspan="4">Standard Mitigation Practices</td></tr>
<tr><td colspan="4">- All machinery must be well muffled. If necessary, trucks may be required to avoid the use of “hammer” braking along specific sections of the route.
- Adherence to the regulations set out by the Migratory Birds Convention Act.
- Contractors must ensure that food scraps and garbage are not left at the work site.
- Concentrations of seabirds, waterfowl, or shorebirds must not be approached when accessing the project site by water, or when ferrying supplies.
- All equipment must be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products.
- With the exception of dredging and related equipment, refueling operations will take place at least 30 metres from any watercourse and harbour and the refueling will take place on a prepared impermeable surface with a collection system.
- All equipment to be used in or over the marine environment is to be free from leaks or coating of hydrocarbon-based fluids and/or lubricants harmful to the environment. Hoses and tanks are to be inspected on a regular basis to prevent fractures and breaks.
- Construction activities will be carried out during times acceptable to local authorities.
- All construction waste material will be disposed of in a provincially approved manner.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td></tr>
<tr><td>Small</td><td>Reversible</td><td>Immediate</td><td>Medium-Term</td><td>Intermittent</td></tr>
<tr><td colspan="2">Residual Effects:</td><td colspan="4">Insignificant</td></tr>
<tr><td colspan="2">Monitoring / Follow-up:</td><td colspan="4">None required.</td></tr>
<tr><td colspan="6">Comments: Increased noise and activity levels will be temporary and potential effects can be minimized through implementation of the above mentioned Standard Mitigation Practices.</td></tr>
</table>

<table>
<tr><td colspan="6">Table 3.6 Valued Ecosystem Component – Rare / Endangered Species / Species at Risk Act (SARA)</td></tr>
<tr><td colspan="6">Potential Effect: Disturbance to rare/endangered species / Species at Risk Act (SARA)</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">There will be an increase in noise levels and traffic that could cause disruption to rare/endangered species during construction and dredging.

Potential for suspended sediment to affect rare/endangered species.</td><td colspan="4">- If a marine mammal (specifically whales or porpoises) is identified within the vicinity of the project, work shall stop until the animal is gone.</td></tr>
<tr><td colspan="4">Standard Mitigation Practices</td></tr>
<tr><td colspan="4">- Refer to Standard Mitigation Practices in Fish and Fish Habitat as well as Birds and Bird Habitat.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td><td></td></tr>
<tr><td>Small</td><td>Reversible</td><td>Local</td><td>Medium-Term</td><td>Intermittent</td><td></td></tr>
<tr><td>Residual Effects:</td><td colspan="5">Insignificant</td></tr>
<tr><td>Monitoring / Follow-up:</td><td colspan="5"></td></tr>
<tr><td colspan="6">Comments: Rare or endangered species of birds are not likely to be affected by the proposed works due to the location of the work . Vessel traffic is a common occurrence in the area. The contractor should familiarize themselves with the Migratory Birds Act before project construction begins.</td></tr>
</table>

<table>
<tr><td colspan="6">Table 3.7 Valued Ecosystem Component – Aboriginal Interests</td></tr>
<tr><td colspan="6">Potential Effect: Interference with Aboriginal Interests</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="2">Larger, safer area for traffic (fishers, recreational users, and commercial fish buyers) at the wharf.

Interference with boat movement in the vicinity of the harbour during dredging and construction.

Water quality may be disturbed within the harbour

Interference with recreational and commercial use of the harbour

Effects to vessels berthing, loading and unloading

Alteration of navigation and commercial fisheries activities.</td><td colspan="4"></td></tr>
<tr><td colspan="4">Standard Mitigation Practices

- The Harbour Authority will coordinate all construction/vessel activities within the harbour basin/channel for the duration of the project so as to avoid unnecessary interference with wharf users.
- The Contractor must supply adequate signage and safety measures during transportation of materials and equipment to the harbour.
- Construction will be carried out during hours acceptable to local authorities to avoid disturbance to residents.
- All project work must follow the Canada Shipping Act Regulations.
- There will be access to the wharf structure for berthing and gear loading/unloading.
- Visual monitoring as outlined in Marine/Estuary Water Quality.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td></tr>
<tr><td>n/a</td><td>n/a</td><td>n/a</td><td>n/a</td><td>n/a</td></tr>
<tr><td colspan="2">Residual Effects:</td><td colspan="4">Insignificant</td></tr>
<tr><td colspan="2">Monitoring / Follow-up:</td><td colspan="4">None required.</td></tr>
<tr><td colspan="6">Comments: According to the Blacks Harbour authority and the DFO-Aboriginal Programs Coordinator, there are two Aboriginal fishers groups operating out of Blacks Harbour (St. Mary's First Nation and Tobique First Nation). Information packages have been sent to these groups to inform them of the proposed works.</td></tr>
</table>

Table 3.8 Valued Ecosystem Component – Socio-economic Environment				
Potential Effect: Interference with Socio-economic aspects of the harbour				
Potential Interaction	**Mitigation**			
Larger, safer area for traffic (fishers, recreational users, and commercial fish buyers) at the wharf. Interference with boat movement in the vicinity of the harbour during dredging and construction. Water quality may be disturbed within the harbour Interference with recreational and commercial use of the harbour Increased congestion in the harbour. Effects to vessels berthing, loading and unloading Alteration of navigation and commercial fisheries activities.	**Standard Mitigation Practices** - The Harbour Authority will coordinate all construction/vessel activities within the harbour basin/channel for the duration of the project so as to avoid unnecessary interference with wharf users. - The Contractor must supply adequate signage and safety measures during transportation of materials and equipment to the harbour. - Construction will be carried out during hours acceptable to local authorities to avoid disturbance to residents. - All project work must follow the *Canada Shipping Act* Regulations. - There will be access to the wharf structure for berthing and gear loading/unloading. - The adjacent road between the Connors plant and the proposed construction area will remain accessible unless other provisions are made for access or an agreement has been reached with Connors and/or anyone dependant on that road for access and/or livelihood. - Visual monitoring as outlined in Marine/Estuary Water Quality.			
Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Small	**Reversible**	**Local**	**Medium-Term**	**Intermittent**
Residual Effects:	**Insignificant**			
Monitoring / Follow-up:	None required.			
Comments: Project activities may restrict wharf/berthing access temporarily during dredging and construction; however, through application of Standard Mitigation Practices and coordination with the Harbour Authority inconveniences should be minimized.				

<table>
<tr><td colspan="6">Table 3.9 Valued Ecosystem Component – Agriculture/Aquaculture</td></tr>
<tr><td colspan="6">Potential Effect: Interference with aquaculture</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">Same as Socio-economic Environment

Interference with vessel traffic and wharf access during harbour construction and dredging.

Water quality may be disturbed within the harbour and immediately surrounding the dredging and infill areas.</td><td colspan="4"></td></tr>
<tr><td colspan="4">Standard Mitigation Practices</td></tr>
<tr><td colspan="4">- Same Standard Mitigation Practices as Marine/Estuary Water Quality and Socio-economic Environment</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td colspan="2">Frequency</td></tr>
<tr><td>Small</td><td>Reversible</td><td>Local</td><td>Medium-Term</td><td colspan="2">Intermittent</td></tr>
<tr><td>Residual Effects:</td><td colspan="5">Insignificant</td></tr>
<tr><td>Monitoring / Follow-up:</td><td colspan="5">None required.</td></tr>
<tr><td colspan="6">Comments:</td></tr>
</table>

<table>
<tr><td colspan="6">Table 3.10 Valued Ecosystem Component - Land Use</td></tr>
<tr><td colspan="6">Potential Effect: Interference with Land Use</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">Construction activities may cause temporary disruption to regular upland harbour activities.

Improved safety at the harbour

Interference with recreational use of the harbour.</td><td colspan="4"></td></tr>
<tr><td colspan="4">Standard Mitigation Practices</td></tr>
<tr><td colspan="4">- Harbour authority will be made aware of upcoming activities near and on the wharf so that wharf users can be made aware of construction activities. All construction activities will be coordinated with the Harbour Authority.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td><td></td></tr>
<tr><td>Small</td><td>Reversible</td><td>Local</td><td>Medium-Term</td><td>Intermittent</td><td></td></tr>
<tr><td>Residual Effects:</td><td colspan="5">Insignificant</td></tr>
<tr><td>Monitoring / Follow-up:</td><td colspan="5">None required.</td></tr>
<tr><td colspan="6">Comments:</td></tr>
</table>

<table>
<tr><td colspan="6">Table 3.11 Valued Ecosystem Component – Archaeology / Palaeontology / Heritage</td></tr>
<tr><td colspan="6">Potential Effect: Encounter archaeological and/or historically significant items.</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">Construction activities may potentially disrupt a site of archaeological/paleontological/historical importance.</td><td colspan="4"></td></tr>
<tr><td colspan="4">Standard Mitigation Practices</td></tr>
<tr><td colspan="4">- If construction activities reveal suspected findings of archeological significance, the construction supervisor will immediately stop work in the vicinity and notify his immediate supervisor.

- If it is determined that the items are of archeological significance, contact the Archeological Services Unit at (506) 453-2756 who will aid in developing an appropriate mitigation strategy.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td></tr>
<tr><td>Small</td><td>Reversible</td><td>Local</td><td>Medium-Term</td><td>Intermittent</td></tr>
<tr><td colspan="2">Residual Effects:</td><td colspan="4">Insignificant</td></tr>
<tr><td colspan="2">Monitoring / Follow-up:</td><td colspan="4">None required.</td></tr>
<tr><td colspan="6">Comments:</td></tr>
</table>

Table 3.12 Valued Ecosystem Component – Air Quality / Noise				
Potential Effect: Increase in noise, emissions and dusting.				
Potential Interaction	**Mitigation**			
Short-Term Elevated noise levels may occur during construction due to heavy machinery. Impaired air quality due to emissions and dust from Project equipment.				
	Standard Mitigation Practices			
	- All machinery should be well muffled. - Work is to be carried out during hours acceptable to local authorities to avoid and mitigate any disturbance to harbour users and residents.			
Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Small	**Reversible**	**Local**	**Medium-Term**	**Intermittent**
Residual Effects:	**Insignificant**			
Monitoring / Follow-up:	None required.			
Comments: Increased noise and activity levels will be temporary and potential effects can most likely be minimized through implementation of the above mentioned Standard Mitigation practices. Noise levels will be consistent with normal operation of a commercial fishing harbour. Dredging/disposal activities will have a limited spatial footprint and temporal (short-term) duration.				

<table>
<tr><td colspan="6">Table 3.13 Valued Ecosystem Component – Health / Safety</td></tr>
<tr><td colspan="6">Potential Effect: Human exposure to hazardous materials.</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2" rowspan="3">Short-term exposure to potential hazardous materials and working conditions in the harbour area.

Workers injury if accidents occur during the Project.</td><td colspan="4"></td></tr>
<tr><td colspan="4">Standard Mitigation Practices</td></tr>
<tr><td colspan="4">- Employees will be trained in health and safety protocols (e.g. safe work practices, emergency response).
- Proper safety procedures must be followed during the duration of the Project as per applicable municipal, provincial and federal regulations.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td><td></td></tr>
<tr><td>Small</td><td>Reversible</td><td>Local</td><td>Medium-Term</td><td>Intermittent</td><td></td></tr>
<tr><td>Residual Effects:</td><td colspan="5">Insignificant</td></tr>
<tr><td>Monitoring / Follow-up:</td><td colspan="5">None required.</td></tr>
<tr><td colspan="6">Comments:</td></tr>
</table>

Table 4. Potential Effect of the Environment on the Project				
Potential Effect: The climate (i.e. wind, ice, flood, etc.) could damage or cause loss of equipment/materials, which could have an immediate negative impact on the project.				
Potential Interaction	**Mitigation**			
Permanent damage and/or loss of equipment. Damage to, or reduction of, intended use of infrastructure.	· Weather conditions should be assessed on a daily basis to determine the potential risk of climate on the project. (Wind, Waves, Tide, Lightening, Rain, Snow etc...). The Contractor is encouraged to consult Environment Canada's local forecast at http://www.weatheroffice.ec.gc.ca/ so that the construction work can be scheduled at an appropriate time. · The project manager should consider the effects of sea ice cover, sea level rise, wind, wave, ocean currents, coastal erosion and other changes that can occur within a dynamic climate and the potential impacts they may impose on the project. . Natural disasters such as floods, hurricanes, tornadoes, earthquakes, landslides and fires can have major impacts on infrastructure integrity and usage. The project manager should consider the likelihood of these events in the project area through historical and forecast data and accommodate through project design. . The project design phase should investigate all areas of climate change, extreme weather conditions and natural disasters over the lifespan of the infrastructure. Research and literature on many aspects of climate change can be found online through Environment Canada, Natural Resources Canada and Provincial/Municipal websites. Coastal flooding, erosion and sea ice maps, among other features can be utilized in project design and considered for the entire life cycle of the project infrastructure.			
Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Small	**Reversible**	**Immediate**	**Short-term**	**Intermittent**
Residual Effects:	**Insignificant**			
Monitoring / Follow-up:	None required.			
Comments:				

Table 5. Cumulative Effects		
Potential Effect: Past, present and likely future project activities resulting in cumulative effects.		
Other Projects / Activities	**Potential Cumulative Interaction**	**Mitigation**
Other past, present, and likely future projects and activities considered in cumulative effects assessment, such as: • Solid Waste Disposal; • Further remediation projects and site development. • Construction, operation and demolition of tourism and residential related activities. • Maintenance Dredging.	• Contamination of surface soil/water due to solid waste disposal. • Persons present on or surrounding project site could be exposed to hazardous materials. • Loss of fish habitat • Degradation of water quality from hazardous materials • Accidental events/spills (i.e. chemicals, fuel, hydraulic fluid and lubricants).	· Proper safety procedures must be followed for the duration of the project as per applicable municipal, provincial and federal regulations. · Mitigation for potential effects in **Tables 3** in its entirety constitutes sufficient mitigation to deal with any potential cumulative effects. · Any and all stipulations of federal, provincial, or municipal authorities or their officers must be strictly followed. Federal departments are not bound by provincial or municipal legislation, however, as a best practice the most stringent standards are used where applicable. Any discrepancies must be successfully resolved before the pertinent work may begin. · Refer to **Part D: Mitigation/Standard Mitigation Practices** for more information.
Monitoring / Follow-up:	None required.	
Significance of Cumulative Effects: Insignificant		
Comments: The construction project under assessment is not projected to have a cumulative effect considering the past and potential future projects. There are no other predicted effects that may result from the proposed construction activities. With appropriate planning and implementation of effective mitigation measures, such negative impacts can be avoided. It is expected that compliance with Federal legislation will be sufficient for future maintenance dredging.		

PART C PUBLIC CONCERNS

Public Opinion

Issue C1: Indicate any public concerns or local/regional opposition, which have been expressed on the environmental or human activity issues related to this project. Include measures, which will be implemented to mitigate these concerns.

Response: The harbour development at Blacks Harbour will provide a safe location for harbour users to conduct harbour activities, allowing the harbour to continue being a viable resource to the commercial fishery. The Project is being conducted to increase the overall capacity and safety of the harbour for fishers, aquaculture, recreational users, and tourists and to continue to be a viable resource to the commercial fishery. The proposed project will increase the sustainability of the commercial fisheries at this location. No negative public concern is expected as a result of this project. In addition, the Harbour Authority consultation indicated that no fishermen, individuals, or groups disapprove of the proposed project.

Public Information

Issue C2: Describe the public meetings, media announcements and coverage, and any other public communication, which may have been held in regards to the project.

Response: Ad's to be placed in the local paper describing the project and how the public can contact an official for more information or to express concerns. Clippings will be provided upon completion.

Local Planning

Issue C3: Describe how the project fits with local, municipal, district, and provincial development plans.

Response: The project fits with local, municipal, district and Provincial development plans, as it is a commercial facility that requires the expansion to promote and maintain the site as a viable commercial fishery in the future.

Mitigation and Compensation Measures

Issue C4: Describe the measures, which will be implemented to mitigate anticipated environmental impacts with respect to public concerns.

Response: These items were addressed in "Part B – Environmental Assessment of the Project" and specific mitigation measures for each Valued Environmental Component (VEC) are addressed in Tables 3 in its entirety.

Aboriginal Concerns

Issue C5: Describe any impacts to Aboriginals or Aboriginals fisheries.

Response: Discussions with the Southern New Brunswick Area Aboriginal Coordinator and the Harbour Authority of Blacks Harbour confirm that there are two aboriginal groups operating out of the harbour (St. Marys First Nation and Tobique First Nation); An information packages containing a project description, maps and project design drawings have been mailed to these two Aboriginal groups to inform them of the proposed works. As well, there are no known sites of historical significance such as heritage buildings, archaeological sites, traditional hunting and fishing grounds or any important natural heritage areas at the project site.

PART D SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES - FOLLOW-UP PROGRAM

Residual Impacts
Impacts of the project and mitigation measures/standard mitigation practices

Issue D1: Summarize the impacts of the project and the main public concerns previously expressed. Indicate the measures to be implemented to mitigate or compensate for the environmental impacts of the project.

The project is not predicted to have a negative environmental effect with the following mitigation/standard mitigation practices:

Scheduling and Coordination

Mitigation

n/a

Standard Mitigation Practices:

- The Contractor will be responsible for coordinating the activities at the wharf during the Project so as to avoid unnecessary interference with adjacent private wharf users.

- The adjacent road between the Connors plant and the proposed construction area will remain accessible unless other provisions are made for access or an agreement has been reached with Connors and/or anyone dependant on that road for access and/or livelihood.

Water Quality

Mitigation:

- The placement of dredged materials for the service area construction will be done so within a bermed area lined with filter fabric and reinforced by armour stone.

Standard Mitigation Practices:

-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).

· Fuel level must be inspected on a daily basis to ensure there is no leakage to the surrounding environment.

·All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil should be replanted or sodded to ensure soil stabilization.

· All waste materials will be disposed of according to Provincial Waste Management Regulations.

- Visual monitoring of turbidity will be required in the vicinity of the work. If turbidity outside the zone of influence (i.e. 100 m) changes excessively from the existing conditions of the surrounding water bodies (i.e. distinct change in water quality), the work will stop and the DFO-FPP Area Biologist will be contacted at 506-851-2824 ; additional mitigation measures may be required (e.g. changes in timing according to tide cycle).

-The Contractor is to ensure that proper material management and construction measures are employed. Mitigation will include:

- monitoring extended weather forecasts to schedule activities to avoid significant storm events;
- stopping activities during significant storm events; and,
- increasing monitoring and inspection immediately after a storm event.

- Machinery will not be permitted in the aquatic environment;

- Marine equipment may be inspected by PWGSC or DFO to assure invasive species are not introduced to the marine environment.

- Any equipment that has been in the marine environment will be cleaned of any sediments, plants or animals and washed with freshwater and/or sprayed with undiluted vinegar prior to being mobilized to the project site.

- Capping materials used must be clean, non orebearing, non-toxic (i.e., free of fuel, oil, grease and/or any other contaminants) from a non watercourse source that is free of fines.

- If any construction debris/material or any miscellaneous unused materials enter the marine environments they will be removed immediately and disposed of in a provincially approved manner. Under no circumstances shall materials be deliberately thrown overboard.

- All equipment must be maintained in proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products.

- All equipment to be used in or over the marine environment is to be free from leaks or coating of hydrocarbon-

based fluids and/or lubricants harmful to the environment. Hoses and tanks are to be inspected on a regular basis to prevent fractures and breaks.

- Employ a properly trained dredge operator to ensure that dredging activities are conducted in a manner that minimizes the re-suspension of sediments in the water column including:

  - Ensuring that the dredge bucket descends to the bottom in a manner which reduces the potential re-suspension of sediments as the bucket contacts the bottom;

  - Minimizing the potential for washing of material from the bucket during ascent by having the operator try to achieve full bucket capacity;

  - Controlling the rate at which the bucket ascends to reduce the potential winnowing of sediment;

  - Emptying the bucket after material is unloaded, before continuing to dredge;

  - Not permitting the dragging of the bucket on the bottom for the purposes of levelling.

Waste Management

Mitigation:

n/a

Standard Mitigation Practices:

- The contractor is to ensure that food scraps and garbage are not left at the site.

- Any material lost as a result of wave or storm action is to be immediately recovered by the operator when safe to do so.

- All solid waste material will be disposed of in a provincially approved manner.

Noise and Disturbance

Mitigation:

- If a marine mammal (specifically whales or porpoises) is identified within the vicinity of the project, work shall stop until the animal is gone.

Standard Mitigation Practices:

- All machinery must be well muffled. If necessary, trucks may be required to avoid the use of “hammer” braking along specific sections of the route.

- Adherence to the regulations set out by the *Migratory Birds Convention Act*.

- Contractors must ensure that food scraps and garbage are not left at the work site.

- Concentrations of seabirds, waterfowl, or shorebirds must not be approached when accessing the project site by water, or when ferrying supplies.

- Construction activities will be carried out during times acceptable to local authorities.

- All construction waste material will be disposed of in a provincially approved manner.

Other

Mitigation:

n/a

Standard Mitigation Practices:

- Any and all stipulations of federal, provincial or municipal authorities or their officers must be strictly followed. Any discrepancies must be successfully resolved before the pertinent work may begin.

Residual Impacts

Issue D2: **Summarize any residual environmental impacts of the project, i.e., impacts remaining after the implementation of the mitigation measures.**

Response: There are no projected residual environmental effects. This assessment considered the potential negative environmental effects resulting from the proposed project. The potential effects were considered in context of project, ecological and socio-economic boundaries and for ecosystem and socio-economic significance that are appropriate for this project.

Specific mitigation measures for each Valued Environmental Component (VEC) are addressed in Tables 3 in its entirety included in **Part B.**

Cumulative Impacts

Issue D3: **Indicate whether there are other activities in the surrounding area that could generate similar impacts to those described above (e.g. activities that may affect water quality, fish habitats, fishing activities, etc.). Describe potential cumulative impacts from all these sources.**

Response: No significant cumulative effects (i.e., past (re-dredging and construction activities), present, and likely future projects) are predicted to affect the water characteristics, fish habitat, and fishing activities in the long-term as a result of this project. There are no other predicted effects that may result from the proposed construction activities.

Specific mitigation measures for each Valued Environmental Component (VEC) are addressed in Tables 3 in its entirety included in **Part B.**

Monitoring Program

Issue D4: **Describe briefly any proposed monitoring program, if appropriate. If such a program is not required, explain why.**

Response: A site inspector will monitor this project during the project activities. DFO-SCH representatives may also carry out a site inspection after the project has been completed. The Harbour Authority will also monitor the project on behalf of DFO-SCH.

A Follow-up program is not likely required for this project. However, site monitoring may be conducted to verify whether required mitigation measures were implemented and effective. The proponent must provide site access to Responsible Authority officials and/or its agents upon request.

Specific mitigation measures for each Valued Environmental Component (VEC) are addressed in Tables 3 in its entirety, included in **Part B.**

PART E SIGNATURES, CONTACTS, AND RECOMMENDATIONS

Issue E1: References - persons contacted and reports referred to during the assessment process.

Response:

Persons Contacted:

Ms. Paulette Hall – DFO – Fisheries Protection Program - Manager Regulatory Reviews
Mr. Robert Capozi – Coastal Protection NBDENV
Ms. Anne Herrington – DFO Area Aboriginal Programs Coordinator
Mr. Regis Doucet – Project Manager, PWGSC
Ms. Margaret Hawkins, A/Chief, DFO-SCH - Maritime Region New Brunswick
Mr. Gordon Dugas - Harbour Authority, Blacks Harbour

ACCDC (Atlantic Canada Conservation Data Centre). 2014. ACCDC data response for Blacks Harbour, New Brunswick. L.D. Snow, Assistant Data Manager and S. Gerriets, Senior Data Manager.

Environment Canada. 2010. Canadian Climate Normals 1971-2000. Pennfield New Brunswick. Accessed July, 2014 at: http://www.climate.weatheroffice.ec.gc.ca/climate_normals/index_e.html.

Environment Canada 2006b, Canadian Wildlife Service. 2004. Species at Risk Web Mapping Application (http://www.sis.ec.gc.ca/ec_species/ec_species_e.phtml), accessed July , 2014.

Rampton, V.N. 1984. Surficial Geology, New Brunswick: Geological Survey of Canada, Map 1594A, scale 1:500 000

Draft CEA Screening document “Government Wharf Development” prepared by AMEC March 2008.

CEA Screening Document “Wharf Development” prepared by PWGSC September 2009.

This environmental assessment form:

Was completed by:
Print name: Jason Keys
Position/role: PWGSC Environmental Assessment Officer
Comments:
Date: October 14/2014