ADDENDUM NO. 1

Small Boat Basin Development

North Cove, Spaniard's Bay, NL

P/N: 722355

****

THE FOLLOWING AMENDMENT TO THE BID DOCUMENTS IS EFFECTIVE IMMEDIATELY. THE ADDENDUM SHALL FORM A PART OF THE CONTRACT DOCUMENTS.

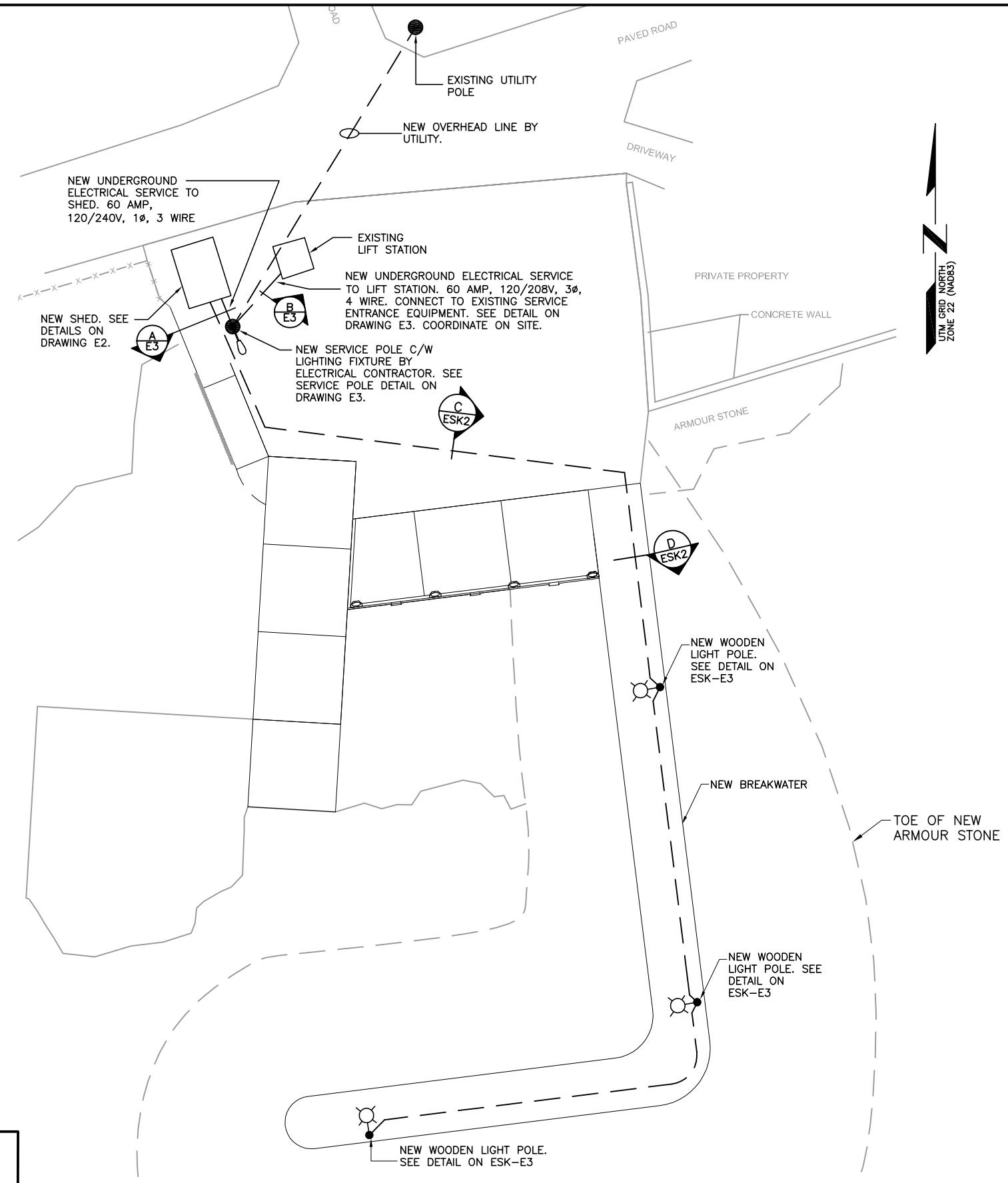
---

1. Specification Section 00 01 11 – List of Contents, **ADD**:
    - Appendix A: Regulatory Approvals
2. **ADD**, the attached Regulatory Approvals as "Appendix A" to the technical specifications.
3. Supply and install wiring and conduit to three (3) wooden light poles on breakwater as per attached sketches ESK-E1, ESK-E2 and ESK-E3.

By submission of its bid, the Bidder confirms that it has read and understands the requirements expressed in all addenda and has included all costs of these requirements in its Total Bid Amount.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

****



Mechanical & Electrical Consultant:

CROSBIE ENGINEERING LTD.
CONSULTING ENGINEERS
21 Mews Place, 2nd Floor
P.O. Box 13295, Station "A"
St. John's, NL A1B 4A5
Tel: (709) 754-1911
Fax: (709) 754-1960
admin@crosbieeng.com

Project:

SMALL BOAT BASIN DEVELOPMENT
NORTH COVE
SPANIARD'S BAY, NL

Drawing title:

SITE PLAN – REVISED ELECTRICAL LAYOUT

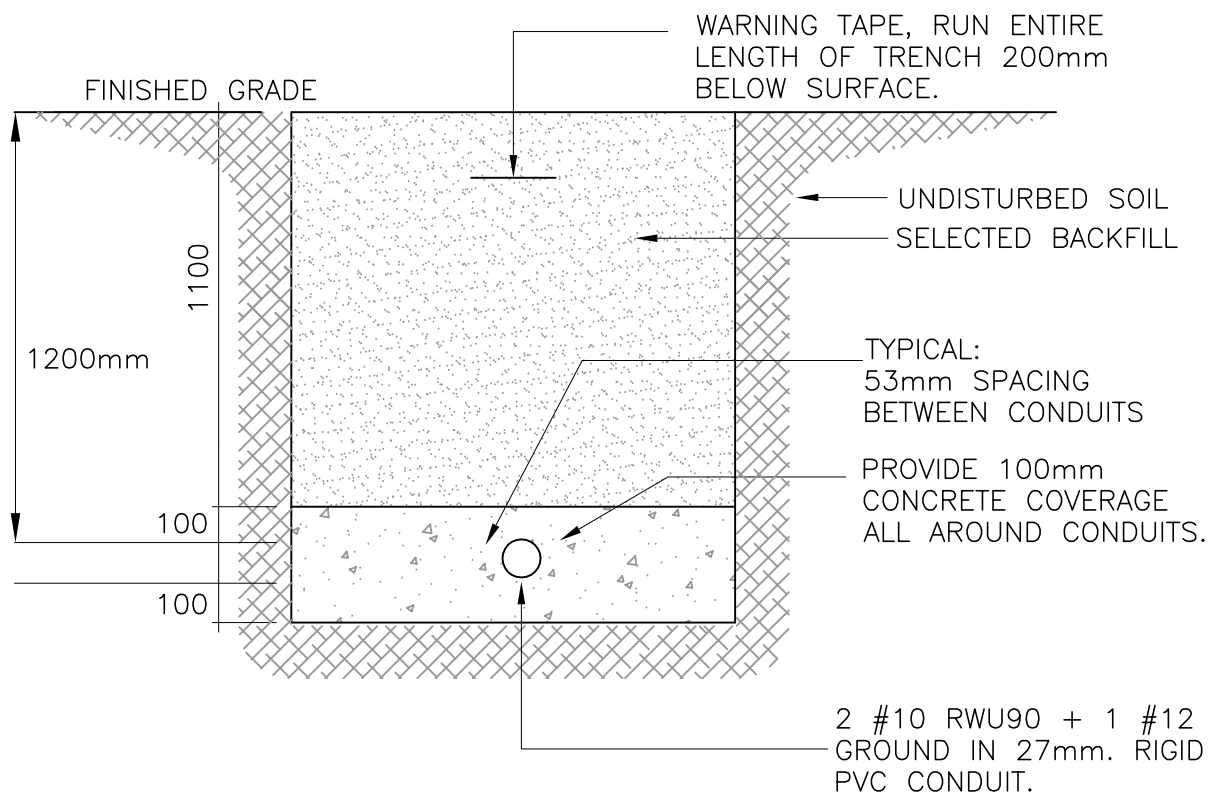
Date:

OCTOBER 1, 2018

NO.	REVISION DESCRIPTION	DATE
A	ISSUED WITH ADDENDUM NO. 1	OCT.1.18

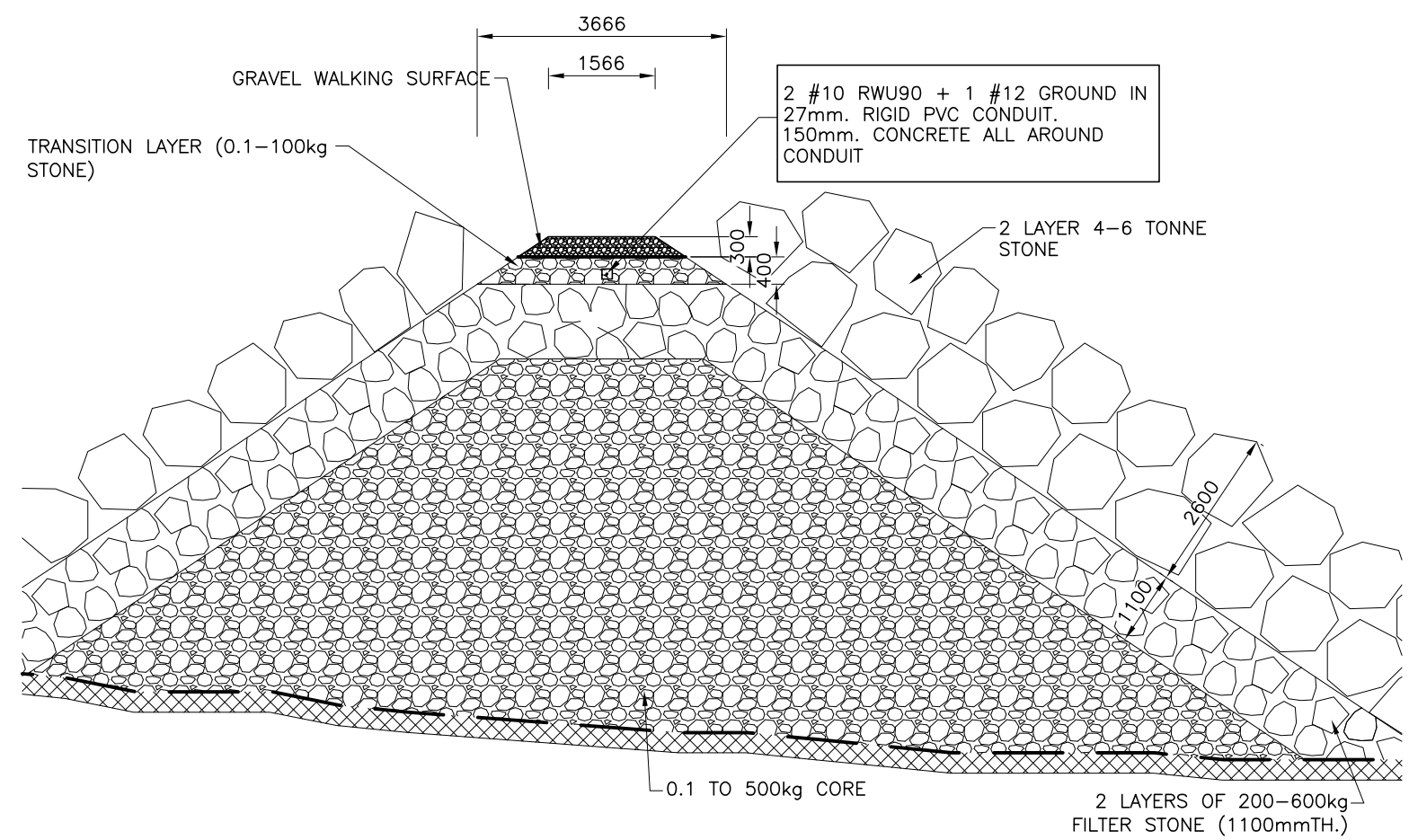
designed by: K.N.
drawn by: D.R
approved by: K.N.

Scale: 1:350
project no.: 722355
dwg no.: ESK-E1



TRENCH DETAIL C / ESK1

SCALE : N.T.S.



TRENCH DETAIL D / ESK1

SCALE : N.T.S.

Mechanical & Electrical Consultant:

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CONSULTING ENGINEERS

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Fax: (709) 754-1960
admin@crosbieeng.com

Project:

SMALL BOAT BASIN DEVELOPMENT
NORTH COVE
SPANIARD'S BAY, NL

Drawing title:

TRENCH DETAILS

Date:

OCTOBER 1, 2018

NO.	REVISION DESCRIPTION	DATE
A	ISSUED WITH ADDENDUM NO. 1	OCT.1.18

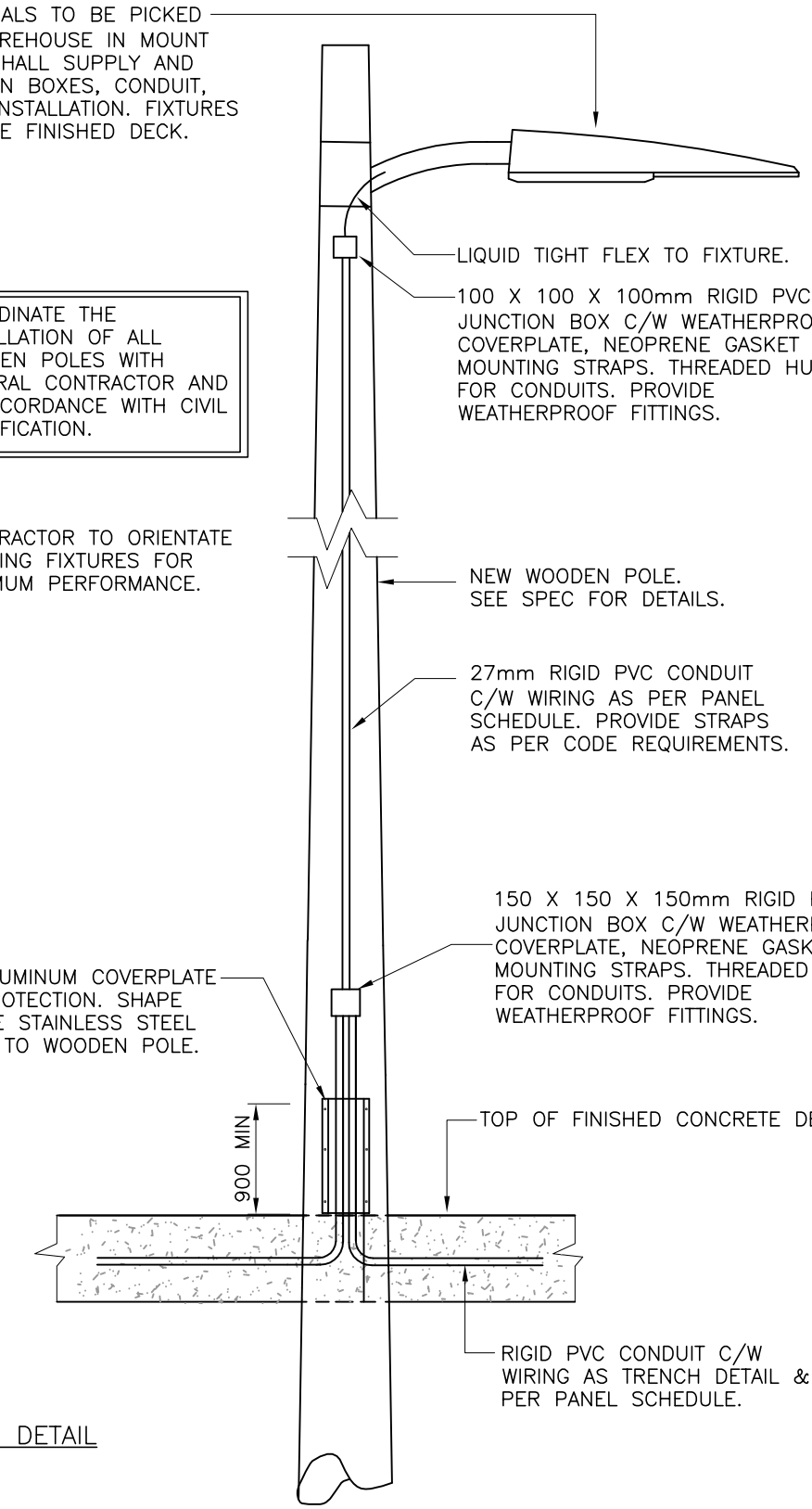
designed by: K.N.
drawn by: D.R
approved by: K.N.

Scale: NOT TO SCALE
project no.: 722355
dwg no.: ESK–E2

LIGHT FIXTURE, PHOTOCELL, UPSWING ARM AND LAMP TO BE SUPPLIED BY OWNER AND INSTALLED BY ELECTRICAL CONTRACTOR. OWNER SUPPLIED MATERIALS TO BE PICKED UP BY THE CONTRACTOR AT DFO'S WAREHOUSE IN MOUNT PEARL, NL. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL OTHER REQUIRED JUNCTION BOXES, CONDUIT, COVERPLATES, ETC FOR A COMPLETE INSTALLATION. FIXTURES SHALL BE MOUNTED 8.8 METERS ABOVE FINISHED DECK.

COORDINATE THE INSTALLATION OF ALL WOODEN POLES WITH GENERAL CONTRACTOR AND IN ACCORDANCE WITH CIVIL SPECIFICATION.

CONTRACTOR TO ORIENTATE LIGHTING FIXTURES FOR OPTIMUM PERFORMANCE.



WOODEN LIGHT POLE DETAIL
NOT TO SCALE

Mechanical & Electrical Consultant:
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CONSULTING ENGINEERS
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admin@crosbieeng.com

Project:
SMALL BOAT BASIN DEVELOPMENT
NORTH COVE
SPANIARD'S BAY, NL

Drawing title:
WOODEN LIGHT POLE DETAIL

Date:
OCTOBER 1, 2018

NO.	REVISION DESCRIPTION	DATE
A	ISSUED WITH ADDENDUM NO. 1	OCT.1.18

designed by: K.N.
drawn by: D.R
approved by: K.N.

Scale: NOT TO SCALE
project no.: 722355
dwg no.: ESK-E3

FISHERIES AND OCEANS
CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA) 2012
PROJECT EFFECTS DETERMINATION REPORT

GENERAL INFORMATION

1. Project Title: Wharf Reconstruction, Spaniard's Bay, NL	
2 Proponent: Fisheries and Oceans Canada, Small Craft Harbours (DFO SCH)	
3. Other Contacts (Other Proponent, Consultant or Contractor): Public Works and Government Services Canada	**4. Role:** OGD Consultant
5. Source of Project Information: Paul Curran, Chief Engineer, DFO – Small Craft Harbours	
6. Project Review Start Date: May 25, 2018	
7. PATH No.: NA	**8. PWGSC File No:**
9. TC File No.: NPP#2018-200084 / NEATS: 48087	

BACKGROUND

10. Background about Proposed Development (including a description of the proposed development):

The scope of work includes removal of two portions of existing marginal wharves, a finger pier, a slipway, a shed and pavement at the DFO-SCH facility in Spaniard's Bay, NL (see Appendix A). The wharves, finger pier and slipway are constructed of timber with concrete or wooden decking. A new marginal wharf, launchway, armour stone breakwater, and shed will be constructed in approximately the same location but with a larger footprint. Some dredging will be involved to install cribs to an elevation of 2.00 m below LNT.

PROJECT REVIEW

11. DFO's rationale for the project review:

Project is on federal land ☒ and;

☒ DFO is the proponent

☐ DFO to issue *Fisheries Act* Authorization or *Species at Risk Act* Permit

☐ DFO to provide financial assistance to another party to enable the project to proceed

☐ DFO to lease or sell federal land to enable the project to proceed

☐ Other

12. Fisheries Act Sections (if applicable): n/a	
13. Other Authorities • Transport Canada – Navigation Protection Program (NPP) and Environmental Affairs and Aboriginal Consultation Unit	**14. Other Authorities rationale for involvement:** • *Navigation Protection Act*
15. Other Jurisdiction: • Department of Municipal Affairs and Environment, Water Resources Division (NLDMAE WR) • Service NL • Department of Municipal Affairs and Environment, Pollution Prevention Division (NLDMAE PP)	

16. Other Expert Departments Providing Advice:	17. Areas of Interest of Expert Departments:
• Fisheries and Oceans Canada, Fisheries Protection Program (DFO-FPP)	• *Fisheries Act*

18. Other Contacts and Responses: n/a

19. Scope of Project (details of the project subject to review):

Project Description

The proposed project involves removal of two portions of existing marginal wharves with wooden decking (~15 m and ~10 m), a finger pier with concrete decking (~52 m), a wooden slipway (~9 m x 15 m), a shed, and pavement. These existing wharf sections will be removed in their entirety.

The wharf reconstruction will see the installation of 42 new cribs in total. The new marginal wharf section will be 17.603 meters long and consist of two 6.1 m X 6.1 m cribs and one irregular-shaped 6.1 m X 4.275/5.403 m crib. The new launchway will be 24.4 meters long and consist of four 6.1 m X 6.1 m cribs. The crest of the new armour stone breakwater will be 43.1 m long and continue another 30 m in an L-shape. Two retaining cribs (12.2 m x 2.4 m each) will be constructed on the west side, north of the new launchway. The new shed on the uplands portion will be 4.267 m x 3.048 m.

The project will involve the dredging of harbour material below the existing bottom (estimated to be 1.0 to 3.0 m deep) and the installation of cribs to an elevation of 2.00 m below LNT. The dredge material will be disposed of as appropriate dependent on the results of the sediment analysis, but likely at an approved landfill site or utilized on the uplands. Construction debris will be disposed of appropriately as per regulatory approvals.

Refer to the site plans in Appendix B.

Operation

The Environmental Management System with an integrated Environmental Management Plan for the Harbour Authority of Spaniard's Bay will cover operational aspects of environmental management at the harbour (fuelling, waste disposal, activities on the property and water).

Decommissioning

This facility is not presently planned to be decommissioned. At the time of decommissioning, 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.

Scheduling

Commencement of this project is subject to DFO SCH operational priorities and funding, as well as regulatory approval, but will likely proceed during the 2018-2019 fiscal year.

20. Location of Project:

Spaniard's Bay is a community located on the northwest side of Conception Bay off Route 70, approximately 50 km northeast of Whitbourne, NL. The general site is located on Bishops Cove Shore Road along the north shore in the community. The approximate coordinates of the project site are 47° 37' 22" N and 53° 16' 16" W.

21. Environment Description:

The project site is located within a commercially active harbour owned by the Small Craft Harbours Branch of Fisheries and Oceans Canada. An aerial photograph of the project site is included in Appendix A and shows the existing layout.

Spaniard's Bay is situated in the Maritime Barrens Ecoregion, which extends from the east coast of Newfoundland to the west coast through the south central portion of the island. This ecoregion has the coldest summers with frequent fog and strong winds. Winters are relatively mild with intermittent snow cover particularly near the coastline. Annual precipitation exceeds 1250 mm.

The landscape pattern consists of usually stunted, almost pure stands of Balsam Fir, broken by extensive open heathland. Good forest growth is localized on long slopes of a few protected valleys. The heaths are dominated by *Kalmia angustifolia* on protected slopes where snow accumulates and by cushions of *Empetrum nigrum* or *Empetrum easmesii* on windswept ridges and headlands.

There are no known aquaculture sites, lobster holding pounds, or scheduled salmon rivers, parks, protected water supplies, archaeological sites, or forest or wildlife reserves in the immediate project area. While marine mammals such as whales and seals frequent the general area, their presence in the immediate project area is unlikely. While there are a variety of large and small mammals found in the general Spaniard's Bay area, including moose, caribou, fox, snowshoe hare, beaver, shrews, mice, and rats, there are no known significant terrestrial wildlife habitats in the immediate project area. Sea gulls, crows, turrs, puffins, eagles, hawks, osprey, and several species of songbirds are common throughout the general project area.

Water depth at the proposed project site ranges between 0.3 - 5.4 metres.

Sediment samples were collected from the project site. Results of the analysis are as follows;

- All four samples met the CCME Industrial Soil Quality Guidelines for metals, (Soil Update 7.0: September 2007);
- All four samples tested within *CCME Human health guidelines based on carcinogenic effects of PAH's: Polycyclic Aromatic Hydrocarbons* (2010) Table 1; **SQG based on incremental lifetime cancer risk (ILCR) of 10^{-5}*;
- All four samples tested within *CCME Environmental health guidelines for an industrial site: Polycyclic Aromatic Hydrocarbons* (2010);
- Modified Total Petroleum Hydrocarbons (TPH) were detected in some samples but below the 1000mg/kg guideline;
- All samples tested below the CCME Industrial Soil Quality Guidelines for BTEX parameters identified for landfill disposal (Soil Update 7.0: September 2007);
- PCB's were not detected in any of the samples.

<u>Species at Risk (Aquatic and Terrestrial)</u>

A Species at Risk search was completed on July 6th, 2018. Spaniard's Bay is within the distributional range of the Blue Whale (endangered), North Atlantic Right Whale (endangered), Red Crossbill (endangered), Red Knot (endangered), Horned Grebe (endangered), Barrow's Goldeneye (special concern), Rusty Blackbird (special concern), Savannah Sparrow (special concern), Harlequin Duck (special concern), Peregrine Falcon (special concern), and Short-eared Owl (special concern), all placed on Schedule 1 of the *Species at Risk Act* (SARA) by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is unlikely that the proposed development contains any critical, limiting, or sensitive habitat for any of the listed Species at Risk.

22. Scope of Effects Considered (sections 5(1) and 5(2)):

Table 1: Potential Project / Environment Interactions Matrix

	As per Section 5(1)			*Section 5(1c)*				*Section 5(2)*			*Due Diligence*			
				Aboriginal Interest										
Project Phase / Physical Work/Activity	*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)*	*Terrestrial / Aquatic Species*	*Soil/Marine Sediments*	*Air Quality*
Harbour development														
Demolition, removal and reconstruction of marginal and finger pier wharves	P	-	P	-	-	-	-	P	-	-	P	P	P	P
Dredging	P	-	P	-	-	-	-	P	-	-	P	P	P	P
Dredge spoil disposal	P	-	P	-	-	-	-	P	-	-	P	P	P	P
Operation / Maintenance	P	-	-	-	-	-	-	-	-	-	P	-	-	-
Decommissioning / Abandonment	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**structure, site or thing that is of historical, archaeological, paleontological or architectural significance.*
Legend: P = Potential Effect of Project on Environment; ' - ' = No Interaction

23. Environmental Effects of Project:

In the table above, potential environmental effects were identified. Scoped project activities such as dredging, disposal, wharf construction and infilling have the potential to effect the environment. Each of the potential effects are addressed here:

Fish / Fish Habitat

- Dredging activities could result in the loss of fish habitat.
- Sedimentation as a result of placement of infilling material may negatively impact fish and quality of potential fish habitat.
- Infilling and construction of new finger pier wharves may result in destruction of potential fish habitat.

Birds/Bird Habitat

- Any type of hydrocarbon spill could result in bird or bird habitat loss.
- Noise / fumes may result in birds avoiding the site and surrounding area.

Health and Socio economic

- Potential for safety hazards to workers during demolition and construction activities.

Water

- Improper disposal of dredge material could result in contamination of groundwater by placement in areas that may be susceptible to groundwater.
- Improper disposal of dredge material could result in contamination of freshwater (e.g. dredge material placed in or near a waterbody).
- Dredging activities resulting in a sedimentation event within the water column.
- Construction activities taking place near the shoreline may result in run off / erosion.
- Construction of finger pier wharf will result in a loss of flora, fauna, and habitat.
- Sedimentation as a result of infilling may decrease marine water quality at immediate project site.
- Any type of hydrocarbon spill could result in adverse effects on water quality.

Aquatic species

- Sedimentation as a result of removal/reinstatement of cribs and infilling may negatively impact aquatic species near project site.
- Accidental discharge of heavy machinery fuel/fluids may negatively impact aquatic species near project site.

Soil (Surface and Subsurface)/Marine Sediments

- Project activities could potentially result in soil contamination due to improper disposal of dredge material or to some type of mechanical malfunction resulting in a hydrocarbon spill.
- Construction activities at site or natural events (e.g. rainfalls) could result in erosion / sedimentation events.
- Improper disposal of waste material and dredge material could result in contamination of soil.

Air Quality / Noise

- May cause a temporary disturbance to residents and wildlife/marine life.

Navigation

- Environmental effects of the project on navigation are taken into consideration as part of the Project Effects Determination (PED) only when the effects are indirect, i.e. resulting from a change in the environment affecting navigation. Direct effects on navigation are not considered in the PED, but any measures necessary to mitigate direct effects will be included as terms and conditions associated with the work approved or permitted pursuant to the *Navigation Protection Act*.

24. Mitigation Measures for Project (including Habitat Compensation):

Work should 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 sediment and/or sediment laden water during the construction phase.

As part of this project's pre-planning process, marine sediment samples were collected from the proposed dredge areas and submitted for chemical analysis. The sediment materials will be disposed of at an approved landfill.

The in-water use of heavy equipment is not permitted. The operation of such equipment should be from dry/stable shoreline areas.

Work should be properly timed to avoid potential interference with commercial and/or recreational fisheries.

Appropriate sedimentation control measures (e.g. silt curtains, booms, etc), should be deployed where required.

All wastes should be recycled where possible or otherwise disposed of appropriately. All treated timber should be disposed of in an approved landfill site as per the Service NL letter.

All crib backfill material should be clean and obtained from an approved quarry.

All drainage and wash water from concrete production should be properly contained and should not drain into the marine environment.

There should be no sedimentation events as a result of proposed activities. If required, mitigation measures must be implemented such as installation of a turbidity barrier, construction of sediment ponds, etc.

Machinery should be well muffled and local municipality construction by-laws must be adhered to.

Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refuelling must be done at least 100m from any water body. Basic petroleum spill clean-up equipment should be on-site. All spills or leaks should be promptly contained, cleaned up and reported to the 24-hour environmental emergencies report system (1-800-563-9089). The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.

Weather conditions should be assessed on a daily basis to determine the potential risk on project activities.

Several environmental approvals / permits have been obtained on behalf of SCH. These include:

1. NLDMAE provided Water Resources Permit to Alter a Water Body Minor Dredging Permit.
2. NLDMAE Pollution Prevention approval to dispose creosote timber.

3. Service NL provided approval to dispose of dredge sediment material to an approved landfill.
4. Transport Canada provided Navigation Protection Permit.
5. Fisheries and Oceans provided Letter of Advice for the project outlining mitigation measures for the protection of fish and fish habitat.

These approvals are attached in Appendix C and all conditions/mitigation measures must be reviewed and implemented by the contractor.

The project is covered under NL DMAE Terms & Conditions, and the conditions associated with Transport Canada's, *Navigation Protection Act* authorization. Fisheries and Oceans Canada, Fisheries Protection Program determined that the project would likely not result in Serious Harm to fish or fish habitat and prescribed several mitigation measures to help mitigate potential environmental impacts (included above).

The proponent should ensure that copies of all regulatory approvals are available on-site during project activities.

Workers in contact with hazardous materials (e.g. wastes) must be provided with and use appropriate personal protective equipment;

Proper safety procedures must be followed during the duration of the project as per applicable municipal, provincial, and federal regulations;

Employees will be trained in health and safety protocols (e.g. safe work practices, emergency response).

25. Significance of Adverse Environmental Effects of project:

Significant adverse environmental effects are unlikely, taking into account mitigation measures.

26, Other Considerations (Public Consultation, Aboriginal Consultation, Follow-up)

Public Consultation

The proposed project will provide more adequate and secure access for vessels utilizing this facility. No negative public concern was received as a result of this project. SCH consulted the local harbor users and Harbour Authority on all aspects of the project to ensure all requirements at the site were considered during design.

Aboriginal Consultation

Aboriginal fishers are not known to utilize the Spaniard's Bay SCH facility, nor are there any known aboriginal groups in the surrounding area. As such, aboriginal consultation was not deemed necessary as part of this determination.

Government Consultation

Federal and provincial authorities likely to have an interest in the project were consulted by Public Works & Government Services Canada, Environmental Services, during the course of this assessment. A project description was distributed to the following authorities:

- Fisheries and Oceans Canada – Fisheries Protection Program
- NL Department of Municipal Affairs and Environment, Water Resources Division
- Service NL
- Transport Canada – Navigation Protection Program and Environmental Affairs and Aboriginal Consultation Unit
- NL Department of Municipal Affairs and Environment Pollution Prevention Division

Accuracy and Compliance Monitoring

A follow-up program (as defined in S. 2(1) and as applicable to non-designated projects on federal lands) is a program for determining the effectiveness of any mitigation measures. 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.
27. Other Monitoring and Compliance Requirements (e.g. *Fisheries Act* or *Species at Risk Act* requirements) n/a

CONCLUSION

28. Conclusion on Significance of Adverse Environmental Effects:

The Federal Authorities have evaluated the project in accordance with Section 67 of *Canadian Environmental Assessment Act (CEAA), 2012*. On the basis of this evaluation, the departments have determined that the project is not likely to cause significant adverse environmental effects with mitigation and therefore can proceed as outlined.

29. Prepared by: Cathy Martin **30. Date:** August 28, 2018

31. Name: Cathy Martin

32. Title: Environmental Specialist, PWGSC-ES

DECISION

33. Decision Taken

☒ DFO may exercise its power, duty or function, i.e. may issue the authorization - where the project is not likely to cause significant adverse environmental effects. Confirm below the specific power, duty or function that may be exercised.

- ☐ DFO to issue *Fisheries Act* Authorization or *Species at Risk Act* Permit
- ☒ DFO to proceed with project (as proponent)
- ☒ DFO to provide financial assistance for project to proceed
- ☐ DFO to provide federal land for project to proceed

☐ DFO has decided not to exercise its power, duty or function because the project is likely to cause significant adverse environmental effects.

☐ DFO to ask the Governor in Council to determine if the significant adverse environmental effects are justified in the circumstances

34. Approved by: _____ **35. Date:** _____

36. Name: Paul Curran

37. Title: Regional Engineer, DFO-SCH, NL

38. References: n/a

39. TRANSPORT CANADA RECOMMENDATION

Project Title:	Wharf Reconstruction, Spaniard's Bay, NL	
TC File No.:	NEATS: 48087	
NPP File No.:	NPP# 2018-200084	
Environmental Review Decision:	Taking into account the implementation of any mitigation measures that Transport Canada considers appropriate, the project **is not likely** to cause significant adverse environmental effects and, as such, Transport Canada may exercise any power or perform any duty or function that would permit the project to be carried out in whole or in part.	
Prepared by:	**Melissa Ginn** Environmental Officer Environmental Affairs and Aboriginal Consultation Unit	
Signature:		**Date:**
Mailing Address:	10 Barter's Hill, St. John's, NL	
Tel:	709-772-3088	
Fax:	709-772-3072	
Email:	melissa.ginn@tc.gc.ca	
Recommended by:	**J. Jason Flanagan** Senior Environmental Assessment Officer Environmental Affairs and Aboriginal Consultation Unit	
Signature:		**Date:**
Approved by:	**Kevin LeBlanc** Regional Manager Environmental Affairs and Aboriginal Consultation Unit	
Signature:		**Date:**

Appendix A FIGURES

-Topo Map
- Aerial Photographs

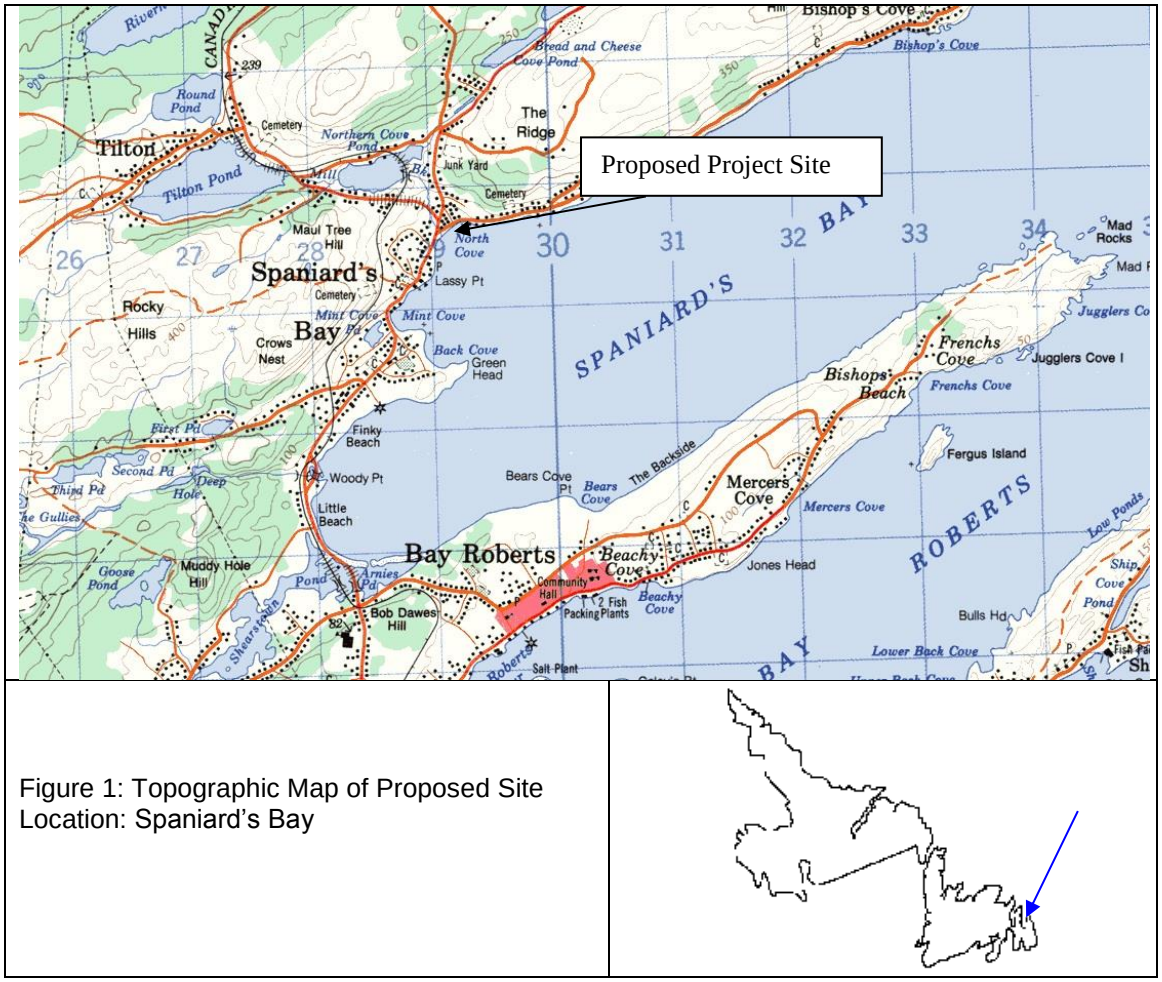

Figure 1: Topographic Map of Proposed Site Location: Spaniard's Bay

Figure 1: Topographic Map indicating project site.

Figure 2: Location of proposed project (DFO Aerial Photograph 2015).

Figure 3: Location of proposed project (DFO Aerial Photograph 2015).

Appendix B SITE PLANS

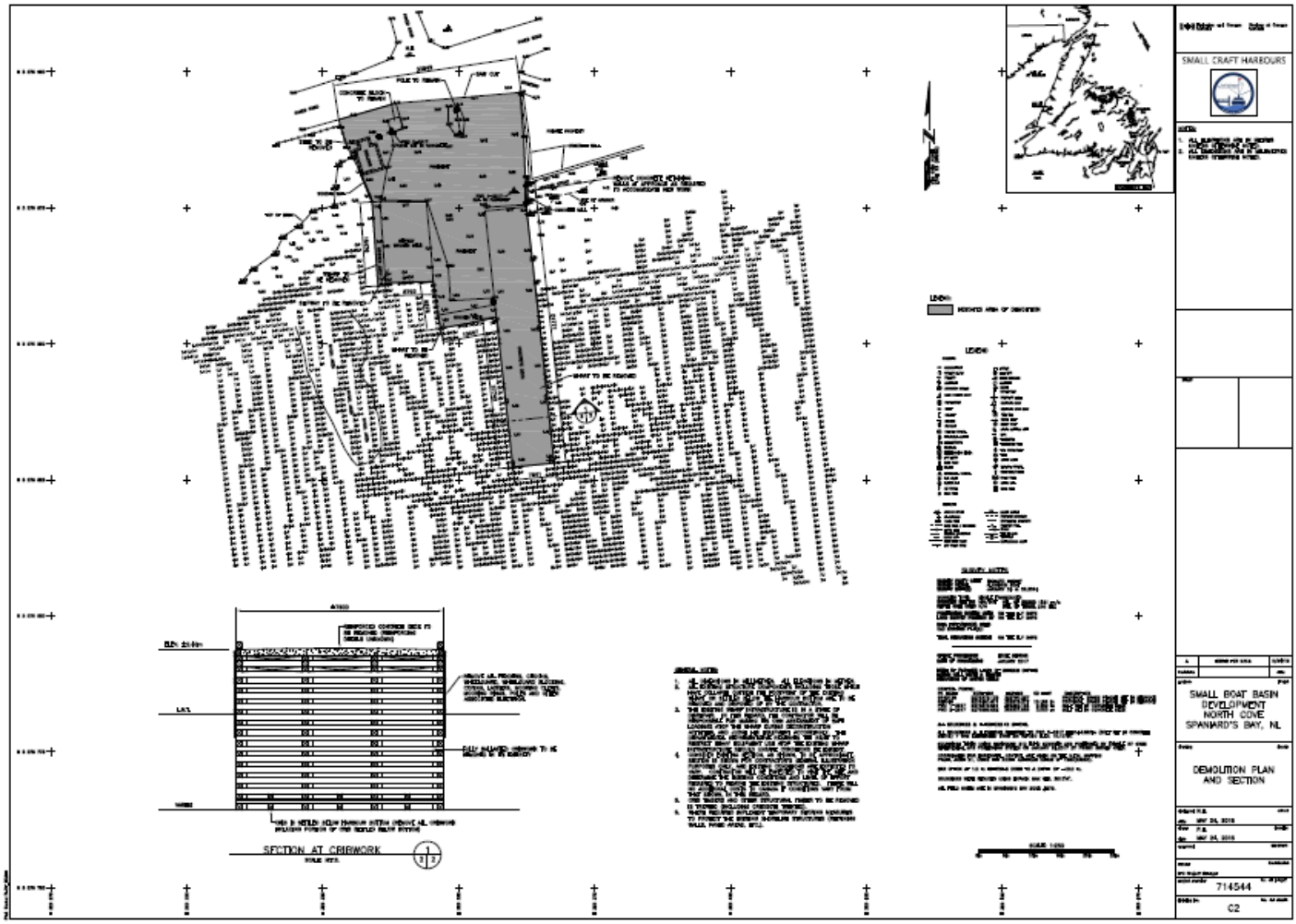

Figure 4: Existing structures and demolition site plan.

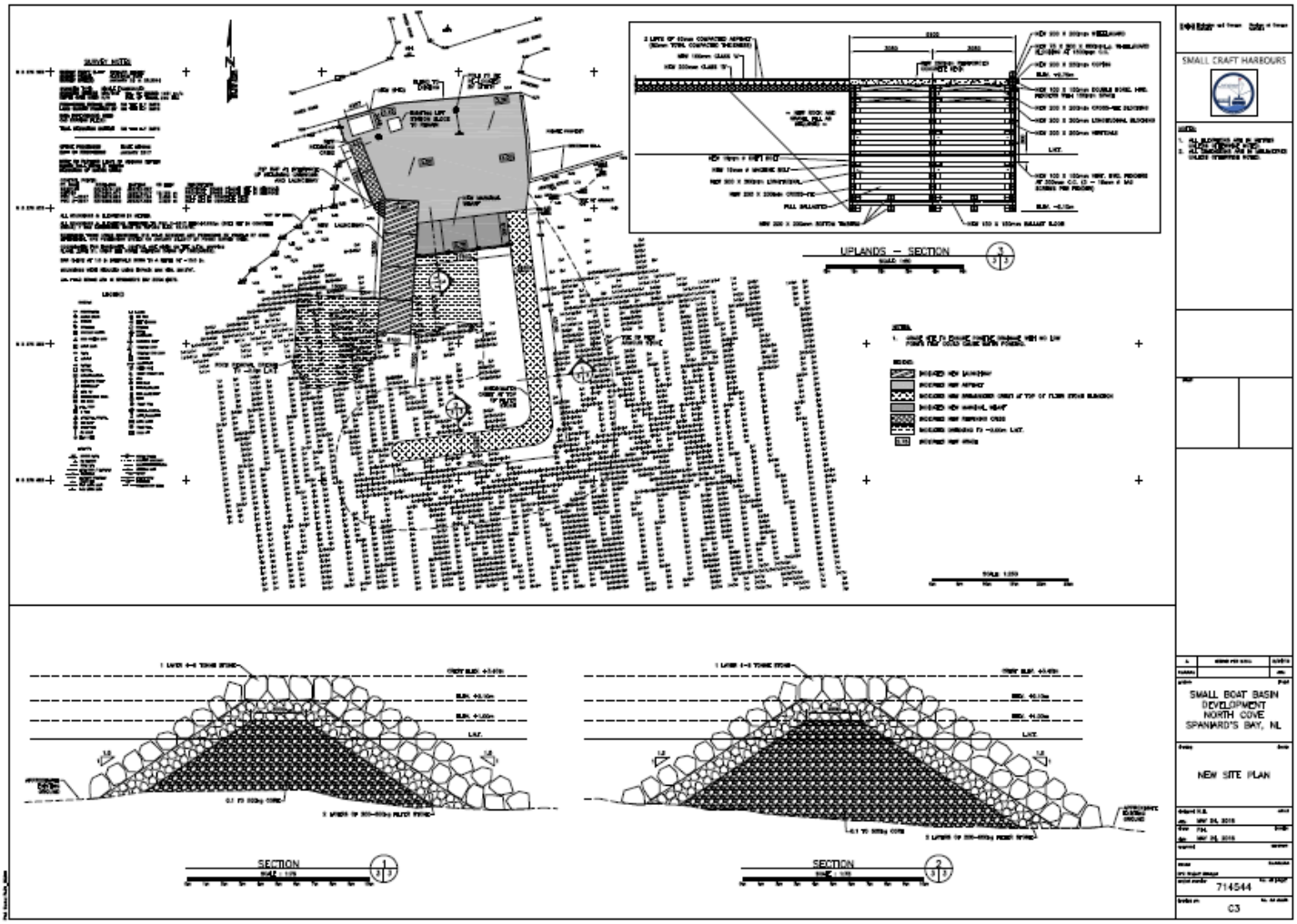

Figure 5: Site Plan of Proposed Construction Project.

Appendix C REGULATORY APPROVALS

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

PERMIT TO ALTER A BODY OF WATER

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 48

Date: **MARCH 03, 2017**

File No: **532-02**
Permit No: **ALT8600-2017**

Permit Holder: **Department of Fisheries and Oceans Canada**
Small Craft Harbour Branch
John Cabot Building, 10 Barter's Hill
St. John's NL A1C 5X1

Attention: **Mr. Paul Curran**

Re: **Minor DFO Dredging and Works Projects**

Permission is hereby given for : **routine dredging or beach grading of 2000 cubic metres or less of primarily sand, gravel, cobble, and boulder material and other associated works in or near bodies of water in order to provide safe navigation at for the Department of Fisheries and Oceans' small craft harbours at various locations and facilities across the Province, in reference to the application received on April 19, 2016 and further information provided on or before March 1, 2017.**

- This Permit does not release the Permit Holder from the obligation to obtain appropriate approvals from other concerned municipal, provincial and federal agencies.
- The Permit Holder must obtain the approval of the Crown Lands Administration Division if the project is being carried out on Crown Land.
- This Permit is subject to the terms and conditions indicated in Appendices A and B (attached).
- It should be noted that prior to any significant changes in the design or installation of the proposed works, or in event of changes in ownership or management of the project, an amendment to this Permit must be obtained from the Department of Municipal Affairs and Environment under Section 49 of the *Water Resources Act*.
- Failure to comply with the terms and conditions will render this Permit null and void, place the Permit Holder and their agent (s) in violation of the *Water Resources Act* and make the Permit Holder responsible for taking any remedial measures as may be prescribed by this Department.

MINISTER

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: 532-02
Permit No: ALT8600-2017

APPENDIX A

Terms and Conditions for Permit

Dredging

1. Dredging activity must only be carried out during periods when wind, wave and tide conditions minimize the dispersion of silt and sediment from the work site.

2. Dredged material must be disposed of in accordance with the regional Service NL Centre of the Department of Service NL. The Department of Service NL may require samples to be submitted for testing and analysis.

3. Dredged material must be disposed of in accordance with the regional Service NL Centre of the Department of Service NL. The Department of Service NL may require samples to be submitted for testing and analysis. Only suitable, rocky material dredged may be used for breakwater construction as it will not be susceptible to erosion.

General Alterations

4. Any work that must be performed below the high water mark must be carried out during a period of low water levels.

5. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.

6. Water pumped from excavations or work areas, or any runoff or effluent directed out of work sites, must have silt and turbidity removed by settling ponds, filtration, or other suitable treatment before discharging to a body of water. Effluent discharged into receiving waters must comply with the *Environmental Control Water and Sewage Regulations, 2003*.

7. All operations must be carried out in a manner that prevents damage to land, vegetation, and watercourses, and which prevents pollution of bodies of water.

8. The use of heavy equipment in streams or bodies of water is not permitted. The operation of heavy equipment must be confined to dry stable areas.

9. All vehicles and equipment must be clean and in good repair, free of mud and oil leaks, or other harmful substances that could impair water quality.

10. During the construction of concrete components, formwork must be properly constructed to prevent any fresh concrete from entering a body of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited.

11. Wood preservatives such as penta, CCA or other such chemicals must not be applied to timber near a body of water. All treated wood or timber must be thoroughly dry before being brought to any work site and installed.

12. Any areas adversely affected by any minor dredging or associated work carried under this Permit must be restored to a state that resembles local natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if considered necessary in the opinion of this Department.

13. The bed, banks and floodplains of watercourses, or other vulnerable areas affected by any minor dredging or associated work carried under this Permit, must be adequately protected from erosion by seeding, sodding or placing of rip-rap.

14. All waste materials resulting from any minor dredging or associated work carried under this Permit, must be disposed of at a site approved by the Department of Service NL.

15. Periodic maintenance such as painting, resurfacing, clearing of debris, or minor repairs, must be carried out without causing any physical disruption of any body of water. Care must be taken to prevent spillage of pollutants into any body of water.

16. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.

17. Sediment and erosion control measures must be installed before starting work. All control measures must be inspected

regularly and any necessary repairs made if damage is discovered.

18. Fill material must be obtained from an approved quarry and must be of good quality, free of fines or other substances including metals, organics, or chemicals that may be harmful to the receiving waters. It must not be taken from beaches or streams, and must not be dredged from any body of water.

19. The Permit Holder must annually submit a written report to the Department including all completed minor dredging and other associated works along with photos showing the sites prior to and after all minor dredging and other associated works.

20. This Permit is effective January 1, 2016 and shall expire on December 31, 2018 or earlier if modified, suspended or cancelled by the Minister. Also, this Permit may be renewed by the Minister for such renewal term as the Minister deems appropriate, on such terms and conditions as the Minister considers appropriate and in the public interest, provided the Permit Holder applies for the renewal at least ninety (90) days before the expiry of this Permit.

21. All work must be carried out within the Permit Holder's legal property boundaries or with the approval of the upland owner. In case of Crown Lands, all work must comply with all other terms and conditions of the Crown Lands grant, lease or license for occupancy.

22. The Permit Holder acknowledges and agrees that this Permit does not grant any interest in land or any exclusive right in or to use or occupy lands.

Special Conditions

23. The Permit Holder must apply for and obtain a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 39 http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm for any minor dredging or associated works that may take place within any designated Protected Public Water Supply Area servicing any community as indicated in Water Resources Portal available at https://maps.gov.nl.ca/water/mapbrowser/Default.aspx.

24. The Permit Holder may be required to apply for and obtain a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 48 http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm for any minor dredging or associated works that may take place within any designated flood risk area as indicated at http://www.env.gov.nl.ca/env/waterres/flooding/frm.html.

25. Any alteration in or near a freshwater body (including wetlands) requires a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 48 http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm. The Permit Holder must avoid work activities in wetlands wherever possible.

26. A water quality monitoring program is not required at this time. However, the Department reserves the right to require that the Permit Holder sample, analyze, and submit results of water quality tests, for the purpose of ensuring that the water quality is maintained within acceptable guidelines. All analyses must be undertaken by a CALA accredited laboratory.

27. Select heavy rocks must be placed along the shoreline to provide slope stability and erosion protection. Dredged materials unsuitable for erosion protection must not be placed along the shoreline.

28. The slopes along the perimeter of infilled areas must be no steeper than two horizontal to one vertical (2H:1V).

29. Infilling must not disrupt the established surface drainage pattern of the area.

30. Suitable booms must be deployed around work sites to contain any floating debris that might otherwise be carried away. All booms must be properly maintained and remain in place until all work is completed.

31. Creosote treated wood must not be used in the construction of any structures in or within 15 metre of any body of water.

32. Periodic maintenance such as painting, resurfacing, clearing of debris, or minor repairs, must be carried out without causing any physical disruption of any body of water. Care must be taken to prevent spillage of pollutants into any body of water.

33. If a minor dredging or associated work carried out under this Permit does prohibit, restrict or impede public access along the shoreline reservation then the Permit Holder shall restore the shoreline reservation to the satisfaction of the Minister within sixty (60) days of a written notice.

34. For each minor dredging or associated work carried out under this Permit, the Permit Holder must notify this Department via email to waterinvestigations@gov.nl.ca or facsimile at (709)729-0320 in accordance with a reporting protocol as deemed necessary and appropriate in the opinion of the Minister. Also, each minor dredging or associated work carried out under this Permit shall be subject to the payment of applicable fee by the Permit Holder as stated in the application fee schedules approved by the Minister.

35. The acknowledgment of the receipt of this Permit by the Permit Holder constitutes the acceptance of this Permit and its terms and conditions and requirements stated in Appendices A, B and C.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: 532-02
Permit No: ALT8600-2017

APPENDIX B

Special Terms and Conditions for Permit

1. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall keep all systems and works in good condition and repair and in accordance with all laws, by-laws, directions, rules and regulations of any governmental authority. The Permit Holder or its agent(s), subcontractor(s), or consultant(s) shall immediately notify the Minister if any problem arises which may threaten the structural stability of the systems and works, endanger public safety and/or the environment or adversely affect others and/or any body of water either in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for all damages suffered by the Minister and Government resulting from any defect in the systems and works, operational deficiencies/inadequacies, or structural failure.

2. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall operate the said Project and its systems and works in a manner which does not cause any water related and/or environmental problems, including but not limited to problems of erosion, deposition, flooding, and deterioration of water quality and groundwater depletion, in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for any and all damages associated with these problems caused as a result of changes, deficiencies, and inadequacies in the operational procedures by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).

3. If the Permit Holder or its agent(s), subcontractor(s), or consultant(s) fails to perform, fulfil, or observe any of the terms and conditions, or provisions of this Permit and/or Ministerial orders and guidelines, as determined by this Department, the Minister may, after providing ten (10) day notice to the Permit Holder, amend, modify, suspend or cancel this Permit in accordance with the *Water Resources Act*.

4. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) indemnify and hold the Minister and Government harmless against any and all liabilities, losses, claims, demands, damages or expenses including legal expenses of any nature whatsoever whether arising in tort, contract, statute, trust or otherwise resulting directly or indirectly from granting this Permit, systems and works in or outside the said Project areas, or any act or omission of the Permit Holder or its agent(s), subcontractor (s), or consultant(s) in or outside the said Project areas, or arising out of a breach or non-performance of any of the terms and conditions, or provisions of this Permit by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).

5. This Permit is subject to all provisions of the *Water Resources Act* and any regulations in effect either at the date of this Permit or hereafter made pursuant thereto or any other relevant legislation enacted by the Province of Newfoundland and Labrador in the future.

6. This Permit shall be construed and interpreted in accordance with the laws of the Province of Newfoundland and Labrador.

cc: Dr. Abdel-Zaher Kamal Abdel-Razek, Ph. D., P.Eng.
Manager, Water Rights and Investigations Section
Water Resources Management Division
Department of Municipal Affairs and Environment
P.O. Box 8700
4th Floor, West Block, Confederation Building
St. John's, NL A1B 4J6
aabdelrazek@gov.nl.ca

cc: Mr. Carl Hann (Western)
GSC - Corner Brook, Service NL
Sir Richard Squires Building
Mount Bernard Avenue, P.O. Box 2006
Corner Brook, NL A2H 6J8
chann@gov.nl.ca

cc: Mr. Guy Perry
Director
GSC - Clarenville, Service NL
8 Myers Avenue, Suite 201
Clarenville, NL A5A 1T5
gperry@gov.nl.ca

cc: Mr. Ken Russell (Labrador)
Manager of Operations, GSC - Happy Valley-Goose Bay, Service NL
Government Service Centre
2 Tenth Street, P.O. Box 3014, Stn. B
Happy Valley-Goose Bay, NL A0P 1E0
krussell@gov.nl.ca

cc: Mr. Robert Groves, Regional Manager
GSC - Clarenville, Service NL
8 Myers Avenue, Suite 201
Clarenville, NL A5A 1T5
rgroves@gov.nl.ca

cc: Mr. Robert Locke
Manager of Operations and Environmental Protection, GSC - Mount Pearl, Service NL
P.O. Box 8700
St. John's, NL A1B 4J6
rlocke@gov.nl.ca

cc: Mr. Wayne Lynch
Regional Director (Central)
Service NL
P.O. Box 2222
Gander, NL A1V 2N9
waynelynch@gov.nl.ca

cc: Ms. Sharon Williams, Regional Manager
Environmental Health, GSC - Mount Pearl, Service NL
P.O. Box 8700
St. John's, NL A1B 4J6
williams@gov.nl.ca

cc: Fisheries Protection Division
Ecosystem Management Branch
Fisheries and Oceans Canada
P.O. Box 5667
St. John's, NL A1C 5X1
FPP-NL@dfo-mpo.gc.ca

cc: Marine Safety
Transport Canada, Atlantic Regional Headquarters
Airports, Harbours and Ports, and Environmental Services
95 Foundry St.
P.O. Box 42
Moncton, NB E1C 8K6
NPPATL-PPNATL@tc.gc.ca

cc: Mr. Mark McNeil
Environmental Services
Department of Public Works and Government Services Canada
Suite 204, 1 Regent Square
Corner Brook, NL A2H 7K6
mark.mcneil@pwgsc-tpsgc.gc.ca

cc: Mr. Shawn Kean
Environmental Services
Public Works & Government Services Canada
John Cabot Building, 10 Barter's Hill
P.O. Box 4600
St. John's, NL A1C 5T2
shawn.kean@pwgsc.gc.ca

cc: Ms. Cathy Martin
Public Works and Government Services Canada, ES
10 Barter's Hill
P.O. Box 4600
St. John's, NL A1C 5T2
cathy.martin@pwgsc-tpsgc.gc.ca

Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 48

Date: **MARCH 03, 2017**

File No: **532-02**
Permit No: **ALT8600-2017**

Permit Holder: **Department of Fisheries and Oceans Canada**
Small Craft Harbour Branch
John Cabot Building, 10 Barter's Hill
St. John's NL A1C 5X1

Attention: **Mr. Paul Curran**

Re: **Minor DFO Dredging and Works Projects**

Permission was given for : **routine dredging or beach grading of 2000 cubic metres or less of primarily sand, gravel, cobble, and boulder material and other associated works in or near bodies of water in order to provide safe navigation at for the Department of Fisheries and Oceans' small craft harbours at various locations and facilities across the Province, in reference to the application received on April 19, 2016 and further information provided on or before March 1, 2017.**

I (the Permit Holder named above or agent authorized to represent the Permit Holder) do hereby certify that the project described above was completed in accordance with the plans and specifications submitted to the Department of Municipal Affairs and Environment and that the work was carried out in strict compliance with the terms and conditions of the Permit issued for this project.

Date: _____ Signature: _____

This completion report must be completed and forwarded to the following address upon completion of the approved work.

Department of Municipal Affairs and Environment
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

FW: Request for creosote timber disposal - Wharf Reconstruction, Spaniards Bay - Message (HTML)

FILE MESSAGE

Thu 19/07/2018 11:33 AM

Hann, Joan <joanhann@gov.nl.ca>

FW: Request for creosote timber disposal - Wharf Reconstruction, Spaniards Bay

To Cathy Martin

Cc Locke, Robert C

Message | Hann Timber disposal ltr Spaniards Bay.pdf | B8G5890V1-R2018-07-17_14-57-00_R006.pdf

Hello Cathy
As per your report above the TWW is acceptable for disposal to RHB- WDS. Please ensure final disposal documents are provided to me.
Regards

Joan Hann
Environmental Scientist
Pollution Prevention Division
Department of Municipal Affairs and Environment
4th Floor, Confederation Building, West Block
P.O. Box 8700
St. John's, NL, Canada A1B 4J6
Email: Joanhann@gov.nl.ca
Phone: 709-729-1771

From: Cathy Martin [mailto:Cathy.Martin@pwgsc-tpsgc.gc.ca]
Sent: Wednesday, July 18, 2018 10:05 PM
To: Hann, Joan

EN 9:19 AM 28/08/2018

Fisheries and Oceans Canada
Pêches et Océans Canada

P.O. Box 5667
St. John's, NL A1C 5X1

Your file *Votre référence*

AUG 20 2018

Our file *Notre référence*
18-HNFL-00365

Paul Curran, P. Eng.
Regional Engineer, Small Craft Harbours
John Cabot Building, 10 Barters Hill
St. John's, NL A1C 5X1

Subject: Small Boat Basin Development, Spaniard's Bay, NL – Implementation of Measures to Avoid and Mitigate Serious Harm to Fish and Prohibited Effects on Listed Aquatic Species at Risk

Dear Mr. Curran:

The Fisheries Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on June 8, 2018. We understand that you propose to:

- Demolish existing infrastructure (e.g., marginal wharves, finger pier, slipway);
- Excavate for a new marginal wharf and boat launch;
- Construct a new marginal wharf and retaining cribs within the existing footprint;
- Build a new boat launch (6.1 m x ~10.3 m below the high water mark) resulting in a new footprint of ~56 m^2;
- Build an L-shaped breakwater (~83 m in length, ~30 m maximum width) resulting in a new footprint of ~1413 m^2; and
- Dredge on either side of new boat launch (~15 m x ~17 m; ~13 m x ~15 m) resulting in a new footprint of ~280 m^2.

Our review considered the following information:

- Request for Review received on June 8, 2018;
- Email correspondence and telephone conversations with Cathy Martin on June 13, June 14, June 15, June 22, June 28 and July 30, 2018;
- Full-scale engineer drawings received on June 25, 2018; and
- Divers Report received on July 30, 2018.

Your proposal has been reviewed to determine whether it is likely to result in serious harm to fish which is prohibited under subsection 35(1) of the *Fisheries Act* unless authorized. Your proposal has also been reviewed to determine whether it is likely to affect listed aquatic species at risk, any part of their critical habitat or the residences of

Canada

their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act,* unless authorized.

To avoid and mitigate the potential for serious harm to fish, we recommend implementing the measures listed below:

- The project should be carried out in a manner that minimizes the release of sediment and/or other project related material into the water of Spaniard's Bay or any other adjacent water body

- Duration of in-water works should be minimized and limited to only activity related to the above noted project elements

- To the extent possible, project related activity should be carried out during low tide and low wind/wave condition

- Project related activity should be suspended, and/or additional mitigation measures taken (i.e. deployment of a floating sediment boom/curtain) if wind or tide conditions cause sediment/turbid water to be visible outside the immediate project area.

- Machinery should be operated from dry stable locations

- Dredged or excavated material should be disposed of at an approved site above the high water mark of any waterbody. If necessary, adequate sedimentation and erosion control measures should be deployed around stored dredge material.

- Shoreline disturbance should be restricted to the immediate work area. Any shoreline areas disturbed by project activities should be stabilized as soon as possible to prevent erosion.

- Rock material for crib ballast and breakwater construction should be clean rock free of fine erodible material collected above the high water mark

- Rock material should not be end dumped; rather, it should be placed on station using an excavator or similar equipment

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal will not result in serious harm to fish or prohibited effects on listed aquatic species at risk. As such, an authorization under the *Fisheries Act* or a permit under the *Species at Risk Act* is not required.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html) or consult with a qualified environmental consultant

to determine if further review may be necessary. It remains your responsibility to avoid causing serious harm to fish and avoid prohibited effects on listed aquatic species at risk, any part of their critical habitat or the residences of their individuals.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery. Such notifications should be directed to http://www.dfo-mpo.gc.ca/pnw-ppe/violation-infraction/index-eng.html.

Please notify this office at least 10 days before starting your project. A copy of this letter should be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact Kimberley Keats at our St. John's office at ((709) 772-2583), by fax at ((709) 772-5562), or by email at (Kimberley.Keats@dfo-mpo.gc.ca). Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

Kimberley Keats

Kimberley Keats
A/ Senior Biologist, Coastal, Marine, Oil & Gas Development
Fisheries Protection Program – Regulatory Reviews
Ecosystems Management Branch, NL Region

Cc. Cathy Martin – Public Works and Government Services Canada, St. John's

Appendix D SEDIMENT RESULTS

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 700413651
Your Project #: R.049540.052
Site Location: Spaniards Bay, NL
Your C.O.C. #: 033464

Attention: Cathy Martin

Public Works & Government Services Canada
PO Box 4600
10 Barter's Hill
St. John's, NL
CANADA A1C 5T2

Report Date: 2018/07/17
Report #: R5299279
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B805890
Received: 2018/07/04, 09:26

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Semivolatile Organic Compounds (TCLP) (1)	2	2018/07/13	2018/07/14	CAM SOP-00301	EPA 8270D m
Benzo(b/j)fluoranthene Sum (L1 soil)	3	N/A	2018/07/09	N/A	Auto Calc.
Benzo(b/j)fluoranthene Sum (L1 soil)	1	N/A	2018/07/11	N/A	Auto Calc.
Boron Solid MS - Hot Water Soluble	4	2018/07/09	2018/07/10	ATL SOP 00058	EPA 6020A R1 m
Hexavalent Chromium in Soil by IC (1, 3)	4	2018/07/09	2018/07/11	CAM SOP-00436	EPA 3060/7199 m
TEH in Soil (PIRI) (3)	4	2018/07/06	2018/07/06	ATL SOP 00111	Atl. RBCA v3.1 m
Metals Solids Acid Extr. ICPMS	4	2018/07/06	2018/07/07	ATL SOP 00058	EPA 6020A R1 m
Weak Acid Dissociable Cyanides (2)	4	2018/07/09	2018/07/10	STL SOP-00035	MA300-CN 1.2 R3 m
Total Cyanide (2)	4	2018/07/09	2018/07/11	STL SOP-00035	MA300-CN 1.2 R3 m
Water Content (Subcontracted) (2, 4)	4	N/A	2018/07/10	STL SOP-00021	MA.100-S.T. 1.1 R4 m
Moisture	4	N/A	2018/07/06	ATL SOP 00001	OMOE Handbook 1983 m
PAH in sediment by GC/MS (Low Level) (3)	3	2018/07/06	2018/07/07	ATL SOP 00102	EPA 8270D 2014 m
PAH in sediment by GC/MS (Low Level) (3)	1	2018/07/06	2018/07/11	ATL SOP 00102	EPA 8270D 2014 m
Low Level PCB in Soil by GC-ECD	4	2018/07/06	2018/07/10	ATL SOP 00106	EPA 8082A m
PCB Aroclor sum (low level soil)	4	N/A	2018/07/10	N/A	Auto Calc.
TCLP - % Solids (1)	2	2018/07/12	2018/07/13	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid (1)	2	N/A	2018/07/13	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH (1)	2	N/A	2018/07/13	CAM SOP-00401	EPA 1311 Update I m
ModTPH (T1) Calc. for Soil	4	N/A	2018/07/09	N/A	Atl. RBCA v3.1 m
VPH in Soil (PIRI) - Field Preserved (5)	4	N/A	2018/07/06	ATL SOP 00119	Atl. RBCA v3.1 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 700413651
Your Project #: R.049540.052
Site Location: Spaniards Bay, NL
Your C.O.C. #: 033464

Attention: Cathy Martin

Public Works & Government Services Canada
PO Box 4600
10 Barter's Hill
St. John's, NL
CANADA A1C 5T2

Report Date: 2018/07/17
Report #: R5299279
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B805890
Received: 2018/07/04, 09:26

or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Analytics Mississauga
(2) This test was performed by Bedford To Montreal Offsite
(3) Soils are reported on a dry weight basis unless otherwise specified.
(4) Offsite analysis requires that subcontracted moisture be reported.
(5) No lab extraction date is given for C6-C10/BTEX and VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

Encryption Key

Maxxam
17 Jul 2018 14:58:54

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Maryann Comeau, Project Manager
Email: MComeau@maxxam.ca
Phone# (902) 420-0203

This report has been generated and distributed using a secure automated process.
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-0513 www.maxxamanalytics.com

Maxxam Job #: B8G5890
Report Date: 2018/07/17

Public Works & Government Services Canada
Client Project #: R.049540.052
Site Location: Spaniards Bay, NL
Your P.O. #: 700413651
Sampler Initials: MDI

RESULTS OF ANALYSES OF SOIL

Maxxam ID		HDD181	HDD182	HDD183	HDD184			HDD185		
Sampling Date		2018/06/29 10:00	2018/06/29 09:45	2018/06/29 11:30	2018/06/29 09:15			2018/06/29 13:00		
COC Number		D33464	D33464	D33464	D33464			D33464		
	UNITS	SS1	SS2	SS3	SS4	RDL	QC Batch	TIMBER SAMPLE 1	RDL	QC Batch
Inorganics										
Final pH	pH							4.94		5626232
Initial pH	pH							7.27		5626232
Moisture	%	23	19	38	57	1.0	5613298			
TCLP - % Solids	%							100	0.2	5626225
TCLP Extraction Fluid	N/A							FLUID 1		5626231
Total Cyanide (CN)	mg/kg	ND	ND	ND	ND	0.50	5624348			
WAD Cyanide (Free)	mg/kg	ND	ND	ND	ND	0.50	5624347			
Physical Testing										
Moisture-Subcontracted	%w/w	32	40	40	72	0.50	5626113			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

Maxxam ID		HDD186		
Sampling Date		2018/06/29 14:00		
COC Number		D33464		
	UNITS	TIMBER SAMPLE 2	RDL	QC Batch
Inorganics				
Final pH	pH	4.95		5626232
Initial pH	pH	7.37		5626232
TCLP - % Solids	%	100	0.2	5626225
TCLP Extraction Fluid	N/A	FLUID 1		5626231

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B8G5890
Report Date: 2018/07/17

Public Works & Government Services Canada
Client Project #: R.049540.052
Site Location: Spaniards Bay, NL
Your P.O. #: 700413651
Sampler Initials: MDI

ELEMENTS BY ICP/MS (SOIL)

Maxxam ID		HDD181	HDD181	HDD182	HDD183	HDD184		
Sampling Date		2018/06/29 10:00	2018/06/29 10:00	2018/06/29 09:45	2018/06/29 11:30	2018/06/29 09:15		
COC Number		D33464	D33464	D33464	D33464	D33464		
	UNITS	SS1	SS1 Lab-Dup	SS2	SS3	SS4	RDL	QC Batch
Metals								
Soluble (Hot Water) Boron (B)	mg/kg	9.0	8.0	15	20	26	3.0	5618772

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B8G5890
Report Date: 2018/07/17

Public Works & Government Services Canada
Client Project #: R.049540.052
Site Location: Spaniards Bay, NL
Your P.O. #: 700413651
Sampler Initials: MDI

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HDD181	HDD182	HDD183	HDD184		
Sampling Date		2018/06/29 10:00	2018/06/29 09:45	2018/06/29 11:30	2018/06/29 09:15		
COC Number		D33464	D33464	D33464	D33464		
	UNITS	SS1	SS2	SS3	SS4	RDL	QC Batch
Inorganics							
Chromium (VI)	ug/g	ND	ND	ND	ND	0.2	5618862
Metals							
Acid Extractable Aluminum (Al)	mg/kg	12000	10000	12000	11000	10	5615755
Acid Extractable Antimony (Sb)	mg/kg	ND	ND	ND	ND	2.0	5615755
Acid Extractable Arsenic (As)	mg/kg	6.1	5.9	4.7	8.4	2.0	5615755
Acid Extractable Barium (Ba)	mg/kg	8.5	7.2	13	18	5.0	5615755
Acid Extractable Beryllium (Be)	mg/kg	ND	ND	ND	ND	2.0	5615755
Acid Extractable Bismuth (Bi)	mg/kg	ND	ND	ND	ND	2.0	5615755
Acid Extractable Boron (B)	mg/kg	ND	ND	ND	ND	50	5615755
Acid Extractable Cadmium (Cd)	mg/kg	ND	ND	0.32	0.38	0.30	5615755
Acid Extractable Chromium (Cr)	mg/kg	14	15	15	19	2.0	5615755
Acid Extractable Cobalt (Co)	mg/kg	6.7	5.7	6.5	6.1	1.0	5615755
Acid Extractable Copper (Cu)	mg/kg	22	21	46	51	2.0	5615755
Acid Extractable Iron (Fe)	mg/kg	27000	23000	26000	24000	50	5615755
Acid Extractable Lead (Pb)	mg/kg	18	20	24	32	0.50	5615755
Acid Extractable Lithium (Li)	mg/kg	40	33	41	35	2.0	5615755
Acid Extractable Manganese (Mn)	mg/kg	690	550	680	560	2.0	5615755
Acid Extractable Mercury (Hg)	mg/kg	ND	ND	ND	ND	0.10	5615755
Acid Extractable Molybdenum (Mo)	mg/kg	2.5	2.1	5.6	5.1	2.0	5615755
Acid Extractable Nickel (Ni)	mg/kg	14	13	14	14	2.0	5615755
Acid Extractable Rubidium (Rb)	mg/kg	2.1	ND	2.3	3.3	2.0	5615755
Acid Extractable Selenium (Se)	mg/kg	ND	ND	ND	ND	1.0	5615755
Acid Extractable Silver (Ag)	mg/kg	ND	ND	ND	ND	0.50	5615755
Acid Extractable Strontium (Sr)	mg/kg	24	26	34	49	5.0	5615755
Acid Extractable Thallium (Tl)	mg/kg	ND	ND	ND	ND	0.10	5615755
Acid Extractable Tin (Sn)	mg/kg	ND	ND	2.3	3.6	2.0	5615755
Acid Extractable Uranium (U)	mg/kg	1.1	0.77	1.5	2.0	0.10	5615755
Acid Extractable Vanadium (V)	mg/kg	19	17	20	24	2.0	5615755
Acid Extractable Zinc (Zn)	mg/kg	86	74	98	100	5.0	5615755

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

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Public Works & Government Services Canada
Client Project #: R.049540.052
Site Location: Spaniards Bay, NL
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Sampler Initials: MDI

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HDD181	HDD182	HDD183		HDD184		
Sampling Date		2018/06/29 10:00	2018/06/29 09:45	2018/06/29 11:30		2018/06/29 09:15		
COC Number		D33464	D33464	D33464		D33464		
	UNITS	SS1	SS2	SS3	RDL	SS4	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	mg/kg	ND	ND	ND	0.0050	0.029	0.0050	5615710
2-Methylnaphthalene	mg/kg	ND	ND	0.0086	0.0050	0.038	0.0050	5615710
Acenaphthene	mg/kg	ND	ND	0.012	0.0050	0.084	0.0050	5615710
Acenaphthylene	mg/kg	0.032	0.026	0.088	0.0050	0.39	0.0050	5615710
Anthracene	mg/kg	0.11	0.065	0.32	0.0050	1.9	0.0050	5615710
Benzo(a)anthracene	mg/kg	0.38	0.18	2.1	0.0050	11	0.0050	5615710
Benzo(a)pyrene	mg/kg	0.26	0.13	1.2	0.0050	5.8	0.0050	5615710
Benzo(b)fluoranthene	mg/kg	0.44	0.22	1.8	0.0050	8.1	0.0050	5615710
Benzo(b/j)fluoranthene	mg/kg	0.62	0.32	2.5	0.010	12	0.010	5613637
Benzo(g,h,i)perylene	mg/kg	0.13	0.069	0.49	0.0050	2.1	0.0050	5615710
Benzo(j)fluoranthene	mg/kg	0.18	0.094	0.76	0.0050	3.5	0.0050	5615710
Benzo(k)fluoranthene	mg/kg	0.19	0.097	0.85	0.0050	4.1	0.0050	5615710
Chrysene	mg/kg	0.51	0.35	1.9	0.0050	11	0.0050	5615710
Dibenz(a,h)anthracene	mg/kg	0.028	0.014	0.12	0.0050	0.54	0.0050	5615710
Fluoranthene	mg/kg	0.63	0.35	3.0	0.0050	15 (1)	0.030	5615710
Fluorene	mg/kg	0.016	0.013	0.059	0.0050	0.36	0.0050	5615710
Indeno(1,2,3-cd)pyrene	mg/kg	0.11	0.058	0.45	0.0050	2.0	0.0050	5615710
Naphthalene	mg/kg	ND	ND	ND	0.0050	0.063	0.0050	5615710
Perylene	mg/kg	0.077	0.037	0.36	0.0050	1.7	0.0050	5615710
Phenanthrene	mg/kg	0.088	0.060	0.42	0.0050	2.3	0.0050	5615710
Pyrene	mg/kg	0.38	0.20	1.9	0.0050	10	0.0050	5615710
Surrogate Recovery (%)								
D10-Anthracene	%	95	96	95		99		5615710
D14-Terphenyl	%	93	92	88		93		5615710
D8-Acenaphthylene	%	99	101	91		99		5615710

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected
(1) Elevated PAH RDL(s) due to sample dilution.

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Maxxam Job #: B8G5890
Report Date: 2018/07/17

Public Works & Government Services Canada
Client Project #: R.049540.052
Site Location: Spaniards Bay, NL
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SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HDD185	HDD186		
Sampling Date		2018/06/29 13:00	2018/06/29 14:00		
COC Number		D33464	D33464		
	UNITS	TIMBER SAMPLE 1	TIMBER SAMPLE 2	RDL	QC Batch
Semivolatile Organics					
Leachable Benzo(a)pyrene	ug/L	1.5	0.84	0.80	5628404
Leachable m/p-Cresol	ug/L	38	110	20	5628404
Leachable o-Cresol	ug/L	ND	40	20	5628404
Leachable Cresol Total	ug/L	38	150	20	5628404
Leachable Pentachlorophenol	ug/L	ND	ND	20	5628404
Surrogate Recovery (%)					
Leachable 2,4,6-Tribromophenol	%	61	77		5628404
Leachable 2-Fluorobiphenyl	%	38	55		5628404
Leachable 2-Fluorophenol	%	20	45		5628404
Leachable D14-Terphenyl (FS)	%	74	89		5628404
Leachable D5-Nitrobenzene	%	43	69		5628404
Leachable D5-Phenol	%	17	19		5628404

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

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Maxxam Job #: B8G5890
Report Date: 2018/07/17

Public Works & Government Services Canada
Client Project #: R.049540.052
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Sampler Initials: MDI

ATLANTIC RBCA HYDROCARBONS (SOIL)

Maxxam ID		HDD181	HDD182	HDD183	HDD184		
Sampling Date		2018/06/29 10:00	2018/06/29 09:45	2018/06/29 11:30	2018/06/29 09:15		
COC Number		D33464	D33464	D33464	D33464		
	UNITS	SS1	SS2	SS3	SS4	RDL	QC Batch
Petroleum Hydrocarbons							
Benzene	mg/kg	ND	ND	ND	ND	0.025	5615773
Toluene	mg/kg	ND	ND	ND	ND	0.025	5615773
Ethylbenzene	mg/kg	ND	ND	ND	ND	0.025	5615773
Total Xylenes	mg/kg	ND	ND	ND	ND	0.050	5615773
C6 - C10 (less BTEX)	mg/kg	ND	ND	ND	ND	2.5	5615773
>C10-C16 Hydrocarbons	mg/kg	ND	ND	ND	ND	10	5615602
>C16-C21 Hydrocarbons	mg/kg	31	13	69	180	10	5615602
>C21-<C32 Hydrocarbons	mg/kg	81	42	190	560	15	5615602
Modified TPH (Tier1)	mg/kg	110	56	260	740	15	5613624
Reached Baseline at C32	mg/kg	Yes	Yes	No	No	N/A	5615602
Hydrocarbon Resemblance	mg/kg	COMMENT (1)	COMMENT (2)	COMMENT (1)	COMMENT (1)	N/A	5615602
Surrogate Recovery (%)							
Isobutylbenzene - Extractable	%	103	96	102	97		5615602
n-Dotriacontane - Extractable	%	92	122 (3)	93	96		5615602
Isobutylbenzene - Volatile	%	101 (4)	112 (4)	111 (4)	93		5615773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected
N/A = Not Applicable
(1) Unidentified compound(s) in fuel / lube range. Possible lube oil fraction.
(2) Unidentified compound(s) in fuel / lube range.
(3) TEH samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.
(4) VPH samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.

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ATLANTIC RBCA HYDROCARBONS (SOIL)

Maxxam ID		HDD184		
Sampling Date		2018/06/29 09:15		
COC Number		D33464		
	UNITS	554 Lab-Dup	RDL	QC Batch
Petroleum Hydrocarbons				
Benzene	mg/kg	ND	0.025	5615773
Toluene	mg/kg	ND	0.025	5615773
Ethylbenzene	mg/kg	ND	0.025	5615773
Total Xylenes	mg/kg	ND	0.050	5615773
C6 - C10 (less BTEX)	mg/kg	ND	2.5	5615773
Surrogate Recovery (%)				
Isobutylbenzene - Volatile	%	92		5615773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not detected

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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HDD181	HDD182	HDD183	HDD184		
Sampling Date		2018/06/29 10:00	2018/06/29 09:45	2018/06/29 11:30	2018/06/29 09:15		
COC Number		D33464	D33464	D33464	D33464		
	UNITS	SS1	SS2	SS3	SS4	RDL	QC Batch
PCBs							
Aroclor 1016	mg/kg	ND	ND	ND	ND	0.010	5615727
Aroclor 1221	mg/kg	ND	ND	ND	ND	0.010	5615727
Aroclor 1232	mg/kg	ND	ND	ND	ND	0.010	5615727
Aroclor 1248	mg/kg	ND	ND	ND	ND	0.010	5615727
Aroclor 1242	mg/kg	ND	ND	ND	ND	0.010	5615727
Aroclor 1254	mg/kg	ND	ND	ND	ND	0.010	5615727
Aroclor 1260	mg/kg	ND	ND	ND	ND	0.010	5615727
Calculated Total PCB	mg/kg	ND	ND	ND	ND	0.010	5613639
Surrogate Recovery (%)							
Decachlorobiphenyl	%	85	89	81	77		5615727

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected