# MARINE LOGISTICS PLAN
# for
# Construction of the
# Amherst Island Wind Project


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Revision 0 – March 27, 2017

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# 1 Introduction

The primary Project-related factor that has the potential to affect marine navigation in the North Channel between Amherst Island and the mainland is increased vessel traffic due to Project transport barges, associated tug boats and personnel vessels.

This Marine Logistics Plan (MLP) for the Amherst Island Wind Project (the "Project") has been written by Windlectric Inc. in cooperation with the Project's marine subcontractors. This MLP is provided to The Corporation of Loyalist Township (the "Municipality" or "Township") because stakeholders have requested assurances that the marine operations will be carried out in a professional and safe manner. This MLP provides assurance that the Project marine work will not affect the regular operation of the Amherst Island ferry or the enjoyment of the area's waters by pleasure boaters, and that environmental regulations are met and exceeded by careful planning and resource availability.

All marine logistics contractors involved with the Project will be required to comply with this Marine Logistics Plan.

# 2 Project Vessels and Marine Equipment

## 2.1 Barges and Tugs for Movement of Equipment

Tugs, barges and ancillary equipment for the movement of Project materials, equipment and personnel are owned and operated by McKeil Work Boats GP Inc. McKeil is a proud marine transportation service provider based in Hamilton, Ontario. Operating since 1956, The McKeil Group of Companies (McKeil Marine Limited and Nadro Marine Services Limited) is the tug and barge company of choice for marine construction projects on the Great Lakes, the St. Lawrence River, Eastern Canada and the near Arctic.

McKeil operates in the federally regulated field of marine transportation. The Company operates at the highest level of marine safety, as evidenced by the Company's quality and safety record. McKeil has been operating under and is certified compliant to the International Maritime Organization's International Safety Management Code (IMO – ISM) by Lloyds Register Canada. McKeil employs all policies and procedures required to operate tugs, barges and ships safely. The system includes provisions for crew selection, training and certification; equipment certification, maintenance and operation; safety and environmental procedures; and emergency response. The system is also certified to the ISO 9001:2008 Quality Standard.

With over 60 years in operation, McKeil Work Boats GP Inc. has the expertise, personnel and equipment required to complete the marine transportation requirements of the Windlectric Amherst Island Wind Turbine Project safely and efficiency with no material impact on the residents of Loyalist Township and the pristine marine environment of Amherst Island's North Channel.

The following vessels (listed in no particular order) may be used at some point during construction of the Project. All vessels are insured and certified annually for safety by Transport Canada or their recognized delegation society, Lloyds Register North America.

| | | | |
|---|---|---|---|
| Name: | Salvor | Name: | Lambert Spirit |
| Type: | Tug | Type: | Barge |
| Length: | 34.14 m | Length: | 122.0 m |
| Beam: | 9.6 m | Beam: | 22.6 m |
| Gross Tonnage: | 407 t | Gross Tonnage: | 5 662 t |
| Class: | Transport Canada | Class: | Transport Canada |
| Primary Function: | Barge Propulsion | Primary Function: | Aggregate Barge |

| | | | |
|---|---|---|---|
| Name: | Jarrett M | Name: | Vigilant I |
| Type: | Tug | Type: | Tug |
| Length: | 24.53 m | Length: | 25.0 m |
| Beam: | 6.13 m | Beam: | 6.10 m |
| Gross Tonnage: | 96 t | Gross Tonnage: | 112 t |
| Class: | Transport Canada | Class: | Transport Canada |
| Primary Function: | Barge Propulsion | Primary Function: | Barge Propulsion |

| Name: | Seahound | Name: | SVM 86 |
|---|---|---|---|
| Type: | Tug | Type: | Barge |
| Length: | 19.81 m | Length: | 51.2 m |
| Beam: | 5.48 m | Beam: | 12.19 m |
| Gross Tonnage: | 58 t | Gross Tonnage: | 487 t |
| Class: | Transport Canada | Class: | Transport Canada |
| Primary Function: | Escort & Tug Assist | Primary Function: | RO/RO Barge |

| Name: | Evans McKeil | Name: | HM 8 |
|---|---|---|---|
| Type: | Tug | Type: | Barge |
| Length: | 33.7 m | Length: | 99.36 m |
| Beam: | 7.8 m | Beam: | 12.19 m |
| Gross Tonnage: | 284 t | Gross Tonnage: | 939 t |
| Class: | Transport Canada | Class: | Transport Canada |
| Primary Function: | Reserve Tug | Primary Function: | RO/RO Barge |

| Name: | Aggregate Transfer Vessel | Name: | |
|---|---|---|---|
| Type: | Barge | Type: | |
| Length: | 152 m | Length: | |
| Beam: | 6.1 m | Beam: | |
| Gross Tonnage: | 350 t (est.) | Gross Tonnage: | |
| Class: | Transport Canada | Class: | |
| Primary Function: | Aggregate transfer | Primary Function: | |

## 2.2 Contacts for Marine Operations – Equipment Barges and Tugs

| Name | Contact Number | Notes |
|---|---|---|
| Nadro Hotline – 24 Hours | (519) 427-3356 | Monitored 24 / 7 |
| McKeil Hotline – 24 Hours | (905) 528-4780 | Monitored 24 / 7 by call center. |
| Bill Nadrofsky | (519) 427-3357 | Operations Superintendent |
| Matt Taylor | (905) 719-0682 | QHSE Manager |
| Chris MacDougall | (905) 719-1188 | Safety Specialist |

## 2.3 Barges and Tugs for Marine Cable Laying

A specific provider for marine cable laying (a very specialized operation requiring divers, special vessels and equipment) has not yet been selected. The following tables provide preliminary information on the required vessels and will be completed upon selection of a successful tenderer.

| | | | |
|---|---|---|---|
| Name: | TBD | Name: | TBD |
| Type: | Cable Install Barge | Type: | Tug |
| Length: | 65m | Length: | |
| Beam: | 20m | Beam: | |
| Gross Tonnage: | 400T (est.) | Gross Tonnage: | |
| Class: | Transport Canada | Class: | Transport Canada |
| Primary Function: | Cable barge | Primary Function: | Cable barge tug |

| | | | |
|---|---|---|---|
| Name: | TBD | Name: | TBD |
| Type: | Pulling Tug | Type: | Landing Craft |
| Length: | | Length: | 10.6m |
| Beam: | | Beam: | |
| Gross Tonnage: | | Gross Tonnage: | |
| Class: | Transport Canada | Class: | Transport Canada |
| Primary Function: | Cable pull tugboat | Primary Function: | ROV and Dive Support |

## 2.4 Contacts for Marine Operations – Cable Laying

| Name | Contact Number | Notes |
|---|---|---|
| TBD | | |
| | | |
| | | |
| | | |
| | | |

## 2.5 Project Docks

The Project will have its own dedicated Project Docks on the mainland (temporary, to be removed at end of Project) and on Amherst Island to ensure there will be minimal impact to the ferry and the existing MTO ferry docks.

These docks will be fully permitted by the responsible agencies and all safety-related items will be installed and maintained throughout the Project. The docks and mooring dolphins will be lighted as per Transport Canada guidelines and good practice.

# 3 Marine Navigation

## 3.1 Navigation Regulations

All Project vessels will navigate the area and be compliant with the rules included in Transport Canada's Collision Regulations (C.R.C., c. 1416) as enabled by the Canada Shipping Act, 2001. All marine equipment, whether anchored, at a dock, or under way, will comply with these regulations. During emergency situations (e.g. a 911 call) all Project marine traffic will yield to the public ferry or other emergency response vessel(s) and will assist authorities if requested.

## 3.2 Navigation in Restricted or Low Visibility Conditions

Article 23 of TP 1018 "Recommended Code of Nautical Procedures and Practices" (one of the several codes under which Project Tug Masters and Officers are certified) deals with the movement of vessels under low visibility conditions as follows:

"*When restricted visibility is encountered or expected, the first responsibility of the officer of the watch is to comply with the relevant rules of the applicable regulations for preventing collisions at sea, with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate maneuvers. In addition, he should:*

*(a) inform the master;*

*(b) post a proper look-out and helmsman and, in congested waters, revert to hand steering immediately;*

*(c) exhibit navigation lights;*

*(d) operate and use the radar.*

*It is important that the officer of the watch should know the handling characteristics of his ship, including its stopping distance, and should appreciate that other ships may have different handling characteristics*."

In addition, for the Project, at least two qualified persons (minimum one licensed navigation officer) shall be made available as lookouts under these conditions to assist the Tug Master with navigation. Location of lookouts on vessels is at the discretion of the Tug Master.

## 3.3 Navigation Authority for Project Vessels

The certified, professional Tug Masters will always have sole authority to delay departure from berth (or return to berth as appropriate) if conditions are deemed unsuitable for safe passage of vessels. Under no circumstances will the shipping schedule for the Project take precedence over the authority of Tug Masters with respect to any marine operations.

# 4 Amherst Island Public Ferry – Frontenac II

## 4.1 Project's Use of Ferry

The Project will not use the public ferry for construction purposes except for transport of personnel, equipment and materials required for the construction of the Project's island dock and the related road. The island dock construction contractor will make every attempt to ensure that the public ferry is able to offload and reload without schedule delay caused by the contractor.

## 4.2 Ferry Crossings

The contractor's barge operator shall be required to manage the Project's water-based activities in such a way to ensure that operations of the public ferry are not delayed. The risks involved with operating the Project's marine vessels in the North Channel are very low due to the training and certification of all Tug Masters and crews on the Project's vessels. Windlectric is contracting with professional marine suppliers with exemplary safety records and years of experience in crowded waterways for all marine logistic operations.

The Project estimates peak delivery requirements at up to six main barge round trips per day, six days per week, between the Project's mainland dock and the Project's island dock. A smaller barge, ferrying personnel and equipment, may also access the docks, alternating with the main barge.

Marine cable-laying vessels will cross the ferry path several times in order to explore and confirm the cable routing prior to actually laying the cable. Cable laying is expected to take less than 12 hours total. The Ministry of Transport's (MTO's) existing bubbler line[1] will be cut and repaired where the cable crosses near the middle of the North Channel, requiring divers and dive tender vessels in this area. For these reasons, the Ferry may need to make minor diversions from its ideal path however no net effect on Ferry schedule is required.

## 4.3 Ferry Operations and Rights-of-Way

The MTO's ferry will have the right of way throughout work on the project. Ferry schedules will be provided to the marine operators. Continual radio monitoring for ferry security departure calls and the schedule will provide Tug Masters with the operational details required.

## 4.4 Ferry Communications

Radio communication and coordination between the Tug Masters and the ferry captains will ensure that there is no impact to the ferry schedule.

[1] The MTO's bubbler line is currently non-functional and therefore the cutting and repair of the bubbler pipe will have no effect on the operation of the ferry.

There will be regular communications via VHF radio between the MTO ferry and all of the project vessels in accordance with prudent shipping industry practices and applicable law. Radios are to be monitored continuously as per the requirement of TP 1018 Recommended Code of Nautical Practices and Procedures.

## 4.5 Ice Conditions and the Ferry

Tug Masters will take into consideration ice conditions with regards to the operation of the MTO ferry prior to departing a berth. Every precaution will be taken to not impede the operation of the MTO Ferry. Precautions may include, but are not limited to, radio communications regarding ice conditions with vessels operating in the vicinity prior to departure. Tug Masters will take into consideration the recommendations of CCG Publication Ice Navigation in Canadian Waters. Copies will be provided on board project vessels.

McKeil's Tug Masters have significant experience with breaking and clearing ice in the Great Lakes. Two project tugs, the Seahound and Jarret M, are proven to handle over 12" thick ice and have been previously contracted to open iced-over shipping channels. Should a request be made by the MTO ferry captain or other authorities, the tugs can be disconnected from barges to assist with clearing ice even if the ice event is not Project related.

In the event that the Project's activities result in blocking the Ferry's path with non-navigable ice, clearing the ice from the path of the Ferry will immediately become the Tug Master's priority.

# 5 Navigating in the North Channel

## 5.1 Pleasure Craft Management

An escort vessel will be committed to the project that will work with the barge-tug combination(s). During transit of a barge-tug combination, the escort vessel will be present in the North Channel to provide monitoring for pleasure craft vessels in the vicinity of the operation, or any other potential hazards, in order to advise any vessels in the vicinity of the intended operation.

Prior to the departure of a barge-tug combination from either of the Project's docks a visual and radar observation shall be made by the Tug Master. If pleasure craft are present, either moored/anchored or underway with trajectories that may cross the intended path of the combination, the escort vessel will be dispatched to intersect with the pleasure craft. Pleasure craft will be contacted via radio or voice and advised of the intended operation.

A 'Notice to Mariners' will be broadcast regularly by the federal DFO over VHF radio, advising pleasure boaters and others in the area of the timing and movement of commercial marine traffic. The Master may make a 'Security Call' to other vessels in the vicinity as per the VHF Radiotelephone Practices and Procedures, as enabled by the Canada Shipping Act, 2001. This method of navigating through busy waterways is proven to mitigate the risks from large vessels operating in proximity to small private vessels.

In the event of numerous other vessels in the vicinity of the barge-tug combination, the Tug Master may post lookouts as appropriate to ensure safe passage of all craft.

## 5.2 Commercial Diving for Cable Laying

It will be necessary during the installation of the underwater cable to have divers and dive tender vessels working along the route of the cable, between the two Project docks. All diving activities will be conducted to the Association of Diving Contractors International (ADCI) standards and the project's own safety procedures.

Since the diving activities will have a short-term effect on the ferry routing, as well as Project marine traffic, the dive plans will be shared and discussed with ferry captains and tug masters prior to in-water work. During dive operations the locations of divers will be marked on the surface. Appropriate diving signals will be clearly displayed according to IMO COLREG to ensure adequate clearance is provided around the work area.

## 5.3 Aggregate Transfer Operations

In order to deliver aggregate (gravel) to the island in the most efficient manner possible, the project may use an Aggregate Transfer Vessel (ATV) to transfer aggregate from a bulk-carrying barge to the shore near the island dock for temporary stockpiling. The bulk barge and the ATV will approach and leave the island dock area from the west, therefore no effect on ferry operations are expected, although VHF communications will be maintained as required by applicable law.

# 6 Environmental

## 6.1 Planning and Precautions

Project marine contractors have developed Safe Work Procedures for use on board vessels. Safe work procedures include operating instructions and checklists for all machinery and equipment on board, including fueling procedures for main engines and ancillary equipment on board. Marine personnel are trained to identify, evaluate, control and communicate all hazards within the scope of marine work.

## 6.2 Refueling Procedures

Fueling of all Project vessels will follow established Safe Operating Procedures that have been developed for each individual asset. For vessels that leave the Project area as part of their work regime, fueling will take place while berthed at piers or quays with a developed refueling capacity. For vessels remaining in the Project area, all refueling will take place adjacent to the Project's mainland dock.

Following is a sample procedure for Fuel Transfer to Barge:

a. Communication between the Chief Engineer and Barge Master to clarify the amount of fuel required and regular communication during transfer to make sure all is going well.
b. Both Port and Starboard bunker stations to be checked to make sure the one not being used is shut and locked.
c. Absorbent pads, cleaning rags, boom and fire extinguishers must be placed near the bunker station.
d. One person to remain on stand-by at the bunker station to monitor and close the valves in case of urgency.
e. Once all of the above is in place, Chief Engineer is to start the pump and the Barge Master is to confirm the fuel is being transferred to the proper tank on the barge.
f. Barge tank(s) shall not be filled more than 80% of the maximum tank capacity.
g. Near completion, the Barge Master is to leave the room for purging the lines and should advise the Chief Engineer as such – usually at about 5% of capacity left in the required amount.
h. Once fuel transfer/purging is completed, the Chief Engineer is to drain the lines prior to removing the hose connection from the bunker station – this is to ensure nothing is left in the hose. NOTE: Pump emergency stop at the bunker station is for emergencies and should only be used in the case of an emergency. Chief Engineer should be the only one to stop the pump.
i. Once Operation is completed, all cleaning items to be placed back at their original locations.
j. Bunker transfer operation not to be carried during transiting or moving and shall be carried out once secured alongside.
k. In case of any questions, please contact the Chief Engineer

## 6.3 Environmental Emergency Preparedness and Response

In addition to the Ship-Board Oil Pollution Emergency equipment carried on board each tug, a portable sea container will be located adjacent to the mainland dock with supplies for use in the event of a marine pollution emergency.

The sea container will include, at a minimum:

- Over 1000’ of absorbent floating boom
- Numerous bales of absorbent pads
- Several bales and bags of granular oil absorbent material