

Environmental Assessment Approval

Approval Date: April 29, 2021

Realignment of Marine Drive (Highway 316)

Pieridae Energy (Canada) Ltd.

Goldboro, Guysborough County, Nova Scotia

Terms and Conditions for Environmental Assessment Approval

1 Definitions

1.1 Environment Act means Environment Act 1994-95, c.1, s.1, and includes, unless the context otherwise requires, the regulations made pursuant to the Act, as amended from time to time.

1.2 Department means the Department of Environment and Climate Change, and the contact for the Department for this Approval is:

Nova Scotia Environment and Climate Change
Eastern Region, Antigonish Office
155 Main Street, Suite 205, Antigonish, Nova Scotia B2G 2B6
Phone: (902) 863-7389 Fax: (902) 863-7411

1.3 Minister means the Minister of Environment and Climate Change.

1.4 Commencement means the same as to commence work, as defined in the Environmental Assessment Regulations.

1.5 EA means Environmental Assessment

2 Scope

2.1 This Approval (the "Approval") relates to the Approval Holder(s) and their Registration Document and all documentation submitted to the Department prior to the issuance of this approval for the Realignment of Marine Drive (Highway 316), situated at or near Goldboro, Guysborough County, Nova Scotia, hereafter referred to as the "Project".

- 2.2 The Approval Holder(s) shall ensure the Project is carried out in accordance with this Approval and reference documents, including the Registration Document and supporting documentation.

3 General

- 3.1 The Approval Holder shall conduct the Project in accordance with the Environment Act, as amended from time to time.
- 3.2 The Approval Holder shall, within two years of the date of issuance of this Approval, commence work on the Project unless granted a written extension by the Minister.
- 3.3 The Approval Holder shall provide written notification to the Department of the commencement date of the Project, at a minimum 30 days prior to the commencement.
- 3.4 The Approval Holder shall provide to the Department a concordance table detailing the status of the EA terms and conditions on January 31 of each year until released in writing by the Department.
- 3.5 Prior to any proposed expansion, modification or relocation of any aspect of the Project from that proposed in the Registration Information, the Approval Holder must submit the proposal to the EA Branch for review and may require an EA.
- 3.6 Nothing in this Approval relieves the Approval Holder of the responsibility for obtaining and paying for all other licenses, permits, approvals or authorizations necessary for carrying out the Project which may be required by municipal by-laws or provincial or federal legislation. The Minister does not warrant that such licenses, permits, approvals or authorizations will be issued.
- 3.7 No authority is granted by this Approval to enable the Approval Holder(s) to commence or continue the Project on lands which are not in the control or ownership of the Approval Holder(s). It is the responsibility of the Approval Holder(s) to ensure that such a contravention does not occur. The Approval Holder(s) shall provide, to the Department, proof of such control or ownership upon expiry of any relevant lease or agreement. Failure to retain said authorization may result in this Approval being cancelled or suspended.

- 3.8 The Approval Holder shall not transfer, sell, lease, assign or otherwise dispose of this Approval without the written consent of the Minister. The sale of a controlling interest of a business or a transfer of this Approval from a parent company to a subsidiary or an affiliate is deemed to be a transfer requiring consent.
- 3.9 If there is a discrepancy between the Registration Documentation and the terms and conditions of this Approval, the terms and conditions of this Approval shall apply.
- 3.10 Upon any changes to the Registry of Joint Stock Companies information related to the Approval Holder, the Approval Holder shall provide a copy to the Department within 5 days of the changes.
- 3.11 Where a timeline is associated with a condition(s) of the Approval, the Approval Holder shall fulfil the requirements of the condition(s) within the prescribed timeline, unless otherwise authorized in writing by the Department.
- 3.12 The Approval Holder shall notify the Department in writing within 48 hours of any incidents of non-compliance with this Approval.
- 3.13 The Approval Holder shall bear all expenses incurred in carrying out the environmental management and monitoring required under the terms and conditions of this Approval.
- 3.14 Unless specified otherwise in this Approval, all samples required to be collected by this Approval shall be collected, preserved and analyzed, by qualified personnel, in accordance with recognized industry standards and procedures that are deemed acceptable to the Department.
- 3.15 The Approval Holder shall ensure that this Approval, or a copy, is present at the Project site while personnel are on site and that personnel directly involved in the Project are made fully aware of the terms and conditions which pertain to this Approval.
- 3.16 The Approval Holder shall update and/or revise any of the plans, programs or other documents required in this Approval to reflect the progressive development of and/or changes to the Project at a schedule acceptable to, or upon the request of, the Department.
- 3.17 Based on the results of the monitoring plans required in this Approval, the

Approval Holder shall make necessary modifications to mitigation plans and/or changes to Project operations to prevent unacceptable environmental effects, as required by the Department.

- 3.18 Where a condition of this Approval requires the Approval Holder to consult a particular party or parties regarding the content of a document, the Approval Holder shall: provide a written notice to each such party inviting comments on the document within a reasonable timeframe, provide a written explanation to each party how the comments are addressed and considered, as well as maintain a record of consultation with each party and provide a copy of such consultation to the Department.

If there is a conflict between the Approval Holder and a party or parties that they are required to consult, the Department will determine if suitable consultation has been completed.

4 Project Footprint

- 4.1 Prior to commencement, detailed design plans shall be provided to and accepted by NS Transportation and Active Transit at key stages of development (50%, 90%, 100%). Design plans shall include, but not be limited to:
- a) Plan-Profile Drawings
 - b) Cross Sections
 - c) Drainage Design and Stormwater Management Plans
 - d) Standard Details (as required)
 - e) Design Checks Package (for intersection sight distances, truck turning templates, drainage calculations, etc)
 - f) Signage and Pavement Markings Plan
 - g) Traffic Management Plan
 - h) Any other plans required to construct the project in accordance with the design intent
- 4.2 Road design shall be based on a design speed of 80 km/hr and Major Collector (Type E) Functional Classification, WB-21 Design Vehicle and include widened paved shoulders for active transportation.

5 Sulphide Bearing Material

- 5.1 Prior to construction, the Approval Holder shall retain a Professional Engineer or Professional Geoscientist licensed to practice in the Province of Nova Scotia to prepare a Sulphide Bearing Rock Management Plan (SBRMP) for all areas of the Project with known or potential acid rock drainage concerns.

- 5.2 The plan, along with design drawings and specifications, shall be prepared by a professional experienced with managing sulphide bearing materials and be provided to the Department for review and acceptance prior to any disturbance of sulphide bearing materials.
- 5.3 Records of the removal, transfer, and final disposal of the sulphide bearing materials shall be maintained on the site and be available for inspection upon request by the Department. These records shall include details of the specific location from which the materials were removed, the date they were transferred to the disposal facility and the total volume disposed.

6 Surface Water Resources

- 6.1 Refueling shall not be conducted within 30 metres of any surface water resource.
- 6.2 Prior to commencement of the Project, including any clearing and/or grubbing, the Approval Holder shall submit to the Department, for review and acceptance, an erosion and sedimentation control plan for all phases of the project (clearing, grubbing, construction, operation), developed by a qualified Professional Engineer or Professional Geoscientist licensed to practice in the Province of Nova Scotia. The Approval Holder shall implement the plan once deemed acceptable by the Department.
- 6.3 Prior to commencement of the Project, the Approval Holder shall submit to the Department for review and acceptance, a surface water monitoring and management plan. This plan shall include but not be limited to:
 - a) Sampling locations, parameters, frequency, and methodologies.
 - b) Identification of methods used to determine water quality sample locations and sampling frequency.
 - c) Analytical requirements for Project identified contaminants of concern (e.g., sediment, acid rock drainage, metals, salt, herbicides, hydrocarbons).
 - d) Details on any/all specific mitigation measures to be implemented to address the contaminants of concerns.
 - e) Pre-construction, construction, and post-construction monitoring with respect to acid rock drainage and metal leaching is to be included as part of the plan.
 - f) Details on the changes and proposed mitigations plans to local

surface water runoff drainage patterns throughout all phases of the project, including pre-construction, construction, and post-construction.

- g) Final road drainage designs completed by a Professional Engineer licensed to practice in the Province of Nova Scotia. Designs shall consider potential impacts on local drainage patterns resulting from the proposed works, as well as considerations for climate change.

6.4 The Approval Holder shall implement the plan(s) once deemed acceptable by the Department.

6.5 The Approval Holder shall not conduct any Project activities, or removal of vegetation within 30 metres of a watercourse and/or a wetland unless otherwise authorized in writing by the Department.

6.6 Prior to undertaking any construction activity in the bed or banks of a watercourse, the Approval Holder shall obtain any watercourse alteration construction Approvals or Notification receipts which may be required pursuant to Part V of the Environment Act.

7 Wetlands

7.1 Prior to commencement of Project, the Approval Holder shall submit a Wetland Management and Monitoring Plan to the Department for all wetlands directly or indirectly impacted as a result of the development, including those wetlands predicted to experience changes in hydrologic/hydrogeologic inputs. The Approval Holder shall implement the plan once the plan is deemed acceptable by the Department. The plan shall include, but not be limited to:

- a) Details and designs for proposed on-site mitigation measures specific to the protection of remaining wetlands or portions of wetlands, including measures for sediment and erosion control, maintenance of groundwater hydrology, vegetation management, stormwater management, and water quality management.
- b) A detailed ecological and hydrological monitoring plan for:
 - i. The remaining portion of all partially altered wetlands.
 - ii. The wetlands immediately adjacent of the Project development, to monitor for indirect impacts.
- c) An Adaptive Management Plan with respect to wetlands and wetland mitigations.

- d) An outline of the measures to be implemented for rare species protection within remaining wetlands, consistent with any NS Lands & Forestry (Lands & Forestry) management plan requirements.
 - e) Inclusion of any monitoring considerations in terms of Surface Water Resources and Groundwater Resources.
- 7.2 Prior to any wetland alterations, the Approval Holder shall obtain a Part V Approval under the *Environment Act* for any wetlands altered by the Project.

8 Groundwater Resources

- 8.1 Prior to commencement of the Project, the Approval Holder shall provide to the Department a standardized Baseline Survey Report (BSR) of existing water supply wells within 500 meters of the centerline of the new highway alignment. This pre-construction water baseline well survey report shall include detailed water well construction information for the water well supply and survey results are to be mapped, tabulated, and compared to relevant regulations and guidelines. The report shall include, but not be limited to:
- a) A map showing the location of the surveyed water supply wells;
 - b) A table listing the water supply unique identification numbers, civic address location, monitoring parameters, relevant drinking water guidelines and identified exceedances for: minimum water quality sampling of total and fecal coliform bacteria, general chemistry and full standard ICP-MS metals for each water well monitoring site (refer to Tables 1 and 2 in the NSE Drop on Water Fact Sheet on Groundwater Chemistry and Metals for information on recommended parameters).
- 8.2 The BSR shall be prepared by a qualified Professional Hydrogeologist (Professional Engineer or Geoscientist licensed to practice in the Province of Nova Scotia) and shall be provided to the Department.
- 8.3 Additional water well surveys during the Project operations phase may be conducted by the Approval Holder at any time for mitigation activities, or at the request of the Department.
- 8.4 Prior to any blasting, the Approval Holder shall develop and implement an updated blasting plan. The plan shall include a completed pre-blast survey

for structures and water wells within 800 metres of the point of the blast, a detailed blast monitoring plan, and a full blast damage response policy. The plan shall be made available to the Department upon request.

- 8.5 Prior to commencement of the Project, the Approval Holder shall, in consultation with Nova Scotia Transportation and Active Transit, develop and submit a salt management plan. This plan shall include specific details on how the Project operations phase is designed to protect potentially affected water well supplies within 500 meters of the centerline of the new highway alignment. The Approval Holder shall implement the plan once the plan is accepted by the Department.
- 8.6 Prior to commencement of the Project, the Approval Holder shall provide to the Department for review and acceptance, a comprehensive pre-construction, construction, and post-construction plan for groundwater monitoring for a minimum 5 year period, unless otherwise approved by the Department. This plan shall include, but not be limited to:
 - a) A monitoring well network description, monitoring well construction records and a map showing the location of the permanent monitoring wells to be included in the groundwater monitoring well plan.
 - b) A table listing the unique identification number, location, monitoring frequency and monitoring parameters, relevant drinking water guidelines and identified exceedances for: minimum water quality sampling of total and fecal coliform bacteria, general chemistry and full standard ICP-MS metals for each monitoring well site (refer to Tables 1 and 2 in the NSE Drop on Water Fact Sheet on Groundwater Chemistry and Metals for information on recommended parameters).
 - c) A proposed approach to communicate groundwater monitoring results and discuss contingency/mitigation measures for protecting local water supplies to the local community during the construction phase of the Project.
- 8.7 The Approval Holder shall implement the groundwater monitoring plan once the plan is deemed acceptable by the Department.
- 8.8 The Approval Holder, at their expense, shall replace any water supply which has been lost or damaged as a result of Project construction and operations, as required by the Department.

9 Habitat, Flora Fauna

- 9.1 Prior to commencement of the Project, the Approval Holder shall provide the Department and Lands & Forestry, Wildlife Division with digital way points and shape files revealing precise locations for wetlands and species listed under the Species at Risk Act (SARA), Endangered Species Act (ESA), and/or all S1, S2 and S3 listed species under the Atlantic Canada Conservation Data Centre, identified during field work within the area of the Project. The data provided to Lands & Forestry shall include date, species, observer name and habitat description. Written confirmation from Lands and Forestry is required indicating all GIS data has been provided in an appropriate format.
- 9.2 The Approval Holder shall develop a Wildlife Management Plan in consultation with Lands & Forestry (Regional Services and Wildlife Division) and Environment and Climate Change Canada (Canadian Wildlife Service). The plan shall include surveys/survey methodology, mitigations and monitoring necessary to protect wildlife during all phases of the Project. The points to be addressed in the Plan shall include, but not be limited to:
- a) Measures to protect all identified species listed under the Species at Risk Act and/or Endangered Species Act as well as all S1, S2 and S3 listed species under the Atlantic Canada Conservation Data Centre.
 - b) Responses and procedures in the event that a species at risk or species of conservation concern is encountered within the Right-of-Way.
 - c) Specific procedures to protect and mitigate impacts on mainland moose, turtles and their nests, and SAR birds and their nests, if observed on site.
 - d) Measures to identify and protect rare (i.e. S1, S2, and S3 ranked) lichen species occurring in proximity (< 500m) of the ROW, and measures to monitor and track the health of these individuals for a minimum of 5 years into the post-construction phase, unless otherwise directed by the Department.
 - e) Measures to manage non-native (alien invasive) plant species during all Project phases.
 - f) Plan for human-wildlife conflict training to avoid bear and coyote interactions and measures to be taken should an encounter occur. The plan should include measures to mitigate attracting nuisance wildlife to the site.

- g) Communication protocols to address items such as, but not limited to, wildlife encounters, SAR protection measures, and reporting requirements.
- 9.3 Prior to commencement of the Project, the Approval Holder shall ensure the Wildlife Management Plan is deemed acceptable by the Department. The Approval Holder shall begin to implement the plan immediately following the acceptance of the Wildlife Management Plan by the Department. Any proposed changes to the plan shall be previously authorized in writing by the Department.
- 9.4 Prior to construction, all abandoned mines openings (AMOs) within the approved Right-of-Way shall be identified and assessed for use by bats. Should any prove to be suitable for use by bats, additional monitoring and mitigations may be required to ensure Myotic sp. are not killed, injured, or disturbed, nor the dwelling destroyed, disturbed, or interfered with.
- 9.5 Monitoring protocols established for Species at Risk (SAR) and Species of Conservation Concern (SOCC) birds, bats, and the mainland moose for the Goldboro LNG Project shall be expanded to include the footprint of the Marine Drive Highway 316 Realignment.
- 9.6 The Approval Holder shall clear vegetation outside of the breeding season for most bird species (April 15 to August 30), unless otherwise authorized in writing by the Department. Vegetation clearing shall be recorded in a daily log that shall be available for review by the Department indicating the date and time of the clearing operation and the contractor.
- 9.7 The Approval Holder shall report sightings of SAR as listed on Schedule 1 of the Species at Risk Act to the Canadian Wildlife Service. The Approval Holder shall report sightings of species listed under the Nova Scotia Endangered Species Act to Lands and Forestry. The Approval Holder shall provide written notification to the Department that sightings have been reported to the Canadian Wildlife Service and to Lands and Forestry.
- 9.8 The Approval Holder shall report all occurrences of raptor nests during road construction to the Lands & Forestry and implement any additional mitigations that may be required.

10 Air Quality and Noise

- 10.1 Prior to commencement of the Project, the Approval Holder shall develop and submit to the Department a plan to suppress dust associated with the Project during the construction phase. The Approval Holder shall implement the plan once the plan is deemed acceptable by the

Department.

- 10.2 Prior to construction, the Approval Holder shall develop and submit an air quality and/or dust monitoring plan. This plan shall include, but not limited to, sampling locations (may include point(s) beyond the property boundary of the Site), parameters, monitoring methods, protocols, and frequency. The number and location of the monitoring station(s) shall be established by a qualified person retained by the Approval Holder. The Approval Holder shall implement the plan once the plan is deemed acceptable by the Department.
- 10.3 At the request of the Department, the Approval Holder shall monitor noise levels. The number and location of the monitoring station(s) for noise measurement shall be established by a qualified person retained by the Approval Holder. The Approval Holder shall implement the plan once the plan is deemed acceptable by the Department.

11 Archaeological and Heritage Resources, and Palaeontology

- 11.1 Prior to commencement of the Project, the Approval Holder shall engage a qualified archaeologist, recognized by the Department of Community Culture and Heritage (CCH) to carry out the recommendations outlined in the preliminary archaeological resource impact assessment for this Project. The archaeologist shall submit a report which includes results immediately to CCH for review and acceptance, once the results become available.
- 11.2 The Approval Holder shall cease work and contact the Special Places Coordinator, Nova Scotia Department of Communities, Culture and Heritage (CCH) immediately upon discovery of an archaeological, or paleontological site, artifact or fossil specimen unearthed during any phase of the Project. If the find is of certain or possible Mi'kmaq origin, the Approval Holder shall also contact the appropriate Mi'kmaq representatives as advised by CCH.

12 Public Engagement

- 12.1 Prior to commencement of the Project, the Approval Holder shall establish a complaint resolution plan for receiving and responding to complaints related to the Project, including a reporting system which records and documents steps taken to determine the cause of complaint and the corrective measures taken to alleviate the cause and prevent its recurrence. The Approval Holder shall submit the plan and implement the plan once deemed acceptable by the Department. The Plan shall be revised or updated as required by the Department.


- 12.2 Prior to commencement of the Project, the Approval Holder shall appoint a contact person designated to deal with complaints and shall provide the contact information to the Department.
- 12.3 Prior to commencement of the Project, the Approval Holder shall develop and implement a plan for the formation and operation of a Community Liaison Committee (CLC) including terms of reference, which meets the Department's Guide for the Formation and Operation of a Community Liaison Committee. The plan shall be implemented once deemed acceptable by the Department and the Approval Holder shall operate the CLC for the duration of the Project or until released in writing by the Department.

13 Engagement with the Mi'kmaq of Nova Scotia

- 13.1 Prior to commencement, the Approval Holder shall consult with Communities, Culture and Heritage (CCH) to develop an archaeology and heritage resources monitoring and contingency plan. The Approval Holder shall implement the plan once the plan is deemed acceptable by the Department.
- 13.2 Prior to commencement, the Approval Holder shall develop and implement a Mi'kmaq Communication Plan for the Project. This plan shall consider a process for communicating Project details and seeking input from the Mi'kmaq. The Approval Holder shall implement the plan once the plan is deemed acceptable by the Department.

14 Contingency Plans

- 14.1 Prior to commencement of the Project, the Approval Holder shall develop a contingency plan which meets the Department's Contingency Planning Guidelines. The plan shall provide prevention measures and address accidental occurrences including but not limited to: spills of hydrocarbons or other hazardous materials, failure of erosion and sediment control measures, fires, and vehicular collisions. The plan shall be maintained and updated over the life of the project.
- 14.2 The contingency plan shall be kept on the Project site at all times when personnel are on site and made available to the Department upon request.



Keith Irving, MLA
Minister of Environment and Climate Change