ENVIRONMENTAL PROTECTION PLAN (EPP)

Forteau Quarry, Wharf and Laydown Area

Submitted to:

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1.0 INTRODUCTION

Bay Bulls Properties Ltd. proposes to develop a quarry, wharf and laydown area in Forteau, Newfoundland and Labrador. The project is referred to as the 'Forteau Quarry, Wharf and Laydown Area'.

The undertaking was registered with the Department of Environment and Conservation in September 2012 and a decision rendered by the Minister on July 24, 2013 releasing the project from the Environmental Assessment process, pending successful completion of an Environmental Protection Plan. This document is submitted in response to this requirement.

1.1 Purpose of the Environmental Protection Plan

This Environmental Protection Plan (EPP) is a field-ready document describing applicable environmental protection measures associated with activities at the Forteau Quarry, Wharf and Laydown Area. It is intended to be a reference document for project personnel for the planning and execution of project-specific activities, as well as a guidance document for contingency planning. The specific purposes of the EPP are to:

- Document environmental concerns and appropriate protection measures;
- Provide concise and clear instructions to project personnel regarding procedures for protecting the environment;
- Provide a reference document for personnel when planning and/or conducting specific activities and working in specific areas;
- Communicate changes in the program through the revision process; and
- Provide a reference to applicable legislative requirements and guidelines.

This EPP describes the procedures, responsibilities, and control actions to be taken by Bay Bulls Properties Ltd. personnel in achieving the safe and environmentally sound completion of the work described. The EPP is to be available to all relevant staff and subcontractors to ensure that each is aware of their responsibilities and of the procedures to be used in the management of this work. This will result in open communication at all levels and serve as a means to achieve continuous improvement.

The environmental protection procedures outlined in the following subsections shall be followed, together with those detailed in the conditions of all permits and approvals. In the case of a conflict between these, the order of priority shall be: 1) permit/approval conditions; followed by 2) conditions outlined in the current version of the EPP. In other words: where a provision, statement or any correspondence made under this EPP is inconsistent or conflicts with a provision, term or condition of NL or federal legislation, policy or guidelines, the provision, term

or condition of NL or federal legislation, policy or guidelines shall have precedence over the provision, statement or any correspondence made under this EPP.

An EPP is a living document and may not address all of the environmental situations that arise on an individual project. Revisions may be made during the course of a project to reflect unforeseen circumstances or improvements as the result of a process review.

1.2 Objectives

The main objectives of this EPP are to 1) identify proposed activities associated with the project that could adversely affect the environment, and 2) outline measures Bay Bulls Properties intends to implement to prevent and/or minimize environmental impacts. In addition, this EPP will:

- Ensure environmental considerations are part of the project decision making process; and
- Ensure compliance with applicable regulatory requirements and guidelines.

2.0 ENVIRONMENTAL POLICY

It is the primary and continuing objective of Bay Bulls Properties Ltd. that, in the conduct of its activities, it will endeavor to limit adverse effects on the physical environment through the respectful use of our natural resources.

As part of its commitment, we will meet and exceed applicable laws, regulations, and other requirements; we will incorporate environmental considerations into project planning and operating practices and will promote sustainable development through pollution prevention, waste minimization, and recycling, wherever possible. We believe that through heightened environmental awareness and action, these objectives can be accomplished. We also believe that excellence and continuous improvement in environmental practices are in the best interests of all stakeholders.

This Environmental Policy reflects the commitment of Bay Bulls Properties Ltd. to ensuring that environmental objectives, targets, and policies are communicated and adhered to by all employees, suppliers, and sub-contractors.

3.0 ENVIRONMENTAL MANAGEMENT TEAM

The successful implementation of an EPP is the responsibility of each employee, as well as all partners, sub-contractors and suppliers. Bay Bulls Properties Ltd. has adopted this approach as a corporate commitment to achieving environmental protection and will provide appropriate resources in the form of personnel, equipment, and materials.

To facilitate implementation of the EPP, Bay Bulls Properties Ltd has established an Environmental Management Team (EMT) within its overall project organizational structure. The EMT is mandated to provide direction and guidance to ensure that the project is planned, designed and constructed in a manner that is consistent with the environmental policy.

The team will be led by Pennecon Limited's Corporate HSEQ Manager, with input from Pennecon Limited's Environment Manager. The HSEQ Manager will function as part of the Project Management Team and coordinate directly with Project Management on all matters pertaining to the implementation of all HSEQ-related plans, including the EPP.

In addition to the HSEQ Manager and Environment Manager, the EMT will include a HSE Advisor. The HSE Advisor will be responsible for ensuring that environmental protection and mitigation measures are properly implemented and maintained.

4.0 DESCRIPTION OF THE UNDERTAKING

4.1 Project Overview

Bay Bulls Properties Ltd. is developing a wharf, quarry and laydown area in Forteau, Newfoundland and Labrador to supply rock for the purposes of marine protection.

The project will be carried out over 3 years:

Year 1, 2014. Year 1 will focus on the mobilization of gear to site and crushing a portion of the required rock. This will involve the excavation and removal of overburden material to enable the development of an area suitable for setup of the crusher and associated equipment and the drilling and blasting of the rock source, followed by crushing and stockpiling of rock. This phase will also involve the construction of the access road to the wharf and the commencement of marine terminal construction.

Year 2, 2015. Year 2 will focus on completing the required amount of crushing and marine terminal construction. Equipment associated with crushing/quarrying will be demobilized upon completion of crushing operations. Quarry rehabilitation, as per requirements of the Department of Natural Resources and outlined in the Minerals Act, shall be completed upon finalization of crushing operations and demobilization of equipment.

Year 3, 2016. Year 3 will see the development of the Intermediate Laydown Area initially, but will focus on the transporting of rock from the quarry and the loading of the vessel for shipment. Final decommissioning and rehabilitation will also occur in Year 3 and will involve demobilizing all unsuitable structures at the wharf site and the creation of an area acceptable to the community and the environment.

5.0 ENVIRONMENTAL PROTECTION PROCEDURES

An environmental impact is a change to the environment, positive or negative. For the purposes of this EPP, negative impacts resulting from project activities are the primary concern. Site staff and crew shall possess an understanding of the sensitive site components that could be impacted as a result of the project's activities, including, but not limited to:

- Wildlife and wildlife habitat, including migratory and breeding birds,
- Historic resources;
- Vegetation; and
- Fish and fish habitat.

5.1 Noise Generation

Project activities have the potential to generate noise from the use of heavy equipment and the handling of various construction materials. Noise generation has the potential to disturb nearby residents, as well as cause negative effects on wildlife in the area. It is important to note, however, that the prevailing south-westerly wind will direct noise away from the community and that the closest community is English Point, which is about 2.0 km northwest from the quarry site.

Mitigation Measures:

- Bay Bulls Properties Ltd. will adhere to all permits and approvals, and comply with the relevant legislation with respect to noise;
- All equipment will be fitted with standard and well-maintained noise suppression devices;
- All vehicles and generators will have exhaust systems and noise abatement equipment regularly inspected and operating properly;
- All materials handling will be carried out in such a way as to avoid unnecessary generation of noise; and
- Idling of construction vehicles will be kept to a minimum.

5.2 Dust Generation

Dust generation related to construction activities may result in human health effects, as well as negative impacts on freshwater ecosystems and vegetation. It is important to note, however, that the prevailing south-westerly wind will also take dust away from the community and that the closest community is English Point, which is about 2.0 km northwest from the quarry site.

Mitigation Measures:

- Equipment will have the required dust and emission control filters;

- Material stockpiles will be sheltered from the wind or otherwise maintained (e.g. sprayed with water) to prevent generation of air-borne particulates and placed in locations that consider the prevailing wind directions and locations of sensitive receptors;
- Dust control will be provided for unsealed roads, construction activities and open soil areas using water or other suitable method. Particular care will be taken to maintain dust suppression near sensitive areas; and
- A Water Use License under the *Water Resources Act* will be obtained if a source of water is required for dust suppression.

5.3 Fuel and Hazardous Material Storage and Transfer

A variety of potentially hazardous materials will be used during project activities, e.g. fuel, hydraulics, etc. The primary concern regarding the use and storage of fuel or other hazardous materials is the uncontrolled or accidental release into the environment. Bay Bulls Properties Ltd. recognizes the potential for negative impacts as a result of accidental releases to the environment, including adverse effects on terrestrial and aquatic habitat and species, soil, surface and groundwater quality, and human health and safety.

Mitigation Measures: The transportation, use and storage of fuel and other hazardous materials is regulated by The Storage and Handling of Gasoline and Associated Products (GAP) Regulations and Amendments, Transportation of Dangerous Goods Act (1992) and Dangerous Goods Transportation Act (2006).

In addition to those conditions set forth by the above regulations, Bay Bulls Properties Ltd. will ensure the following:

- Any soil contaminated by small leaks of fuel, oil or grease from equipment will be cleaned up and disposed of in accordance with the applicable regulations, under the provincial Environmental Protection Act (2006) and Used Oil Control Regulation (82/02). The Used Oil Control Regulation (82/02) will be used as a guideline to the DOEC requirements for such disposal;
- Smoking will be permitted in designated areas only and not within 10 m of fuel or hazardous material storage areas;
- A complete inventory of the hazardous materials on the job site will be maintained according to the Workplace Hazardous Materials Information System (WHMIS) Regulations and will be made available to regulatory agencies upon request or in case of any emergency;
- All sub-contractors will be required to observe strict compliance with the requirements of WHMIS regarding employee training, use, handling, storage, and disposal of hazardous materials and regarding labeling and provision of Material Safety Data Sheets, as required by WHMIS legislation;

- All persons handling dangerous goods will show proof of certification of training in the transportation of dangerous goods as required under the Transportation of Dangerous Goods Act (1992) and Dangerous Goods Transportation Act (2006). Contractor staff will be trained in the requirements of the Acts;
- Tanks will be located in areas where spills, should they occur, are not likely to flow directly to watercourses, water bodies, ditches or the ocean;
- Oils, grease, gasoline, diesel or other fuels or any material deemed to be hazardous will be stored at least 100 m from any watercourse or the ocean;
- Temporary fuelling or servicing of mobile equipment will not be allowed within 30 m of watercourses, water bodies, drainage systems or ecologically sensitive areas. For equipment of limited mobility where the 30 m buffer zone cannot be practically achieved, adequate drip and spill containment will be provided during the refueling operation;
- Fuel and other hazardous materials storage areas and non-portable transfer lines will be clearly marked or barricaded to protect against damage by moving vehicles. The markers will be visible under all weather conditions. Barriers will be constructed in compliance with the provincial Storage and Handling of Gasoline and Associated Product Regulations (58/03);
- Storage areas will be equipped with appropriate firefighting equipment;
- Waste oils, lubricants and other used oil shall be retained in a tank or closed container and will be disposed of regularly under contract with a licensed used oil collector in accordance with the Used Oil Control Regulations (82/02);
- Greasy or oily rags or other materials at risk of spontaneous combustion will be deposited and stored in an appropriate receptacle. This material will be removed from the work site on a regular basis and shall be disposed of in an approved existing waste disposal facility. Removal of these materials from the job site is regulated under the Transportation of Dangerous Goods Act;
- All hazardous materials will be handled according to the provincial Environmental Protection Act (2006) and disposed of in accordance with government laws and regulations at an approved off-site hazardous waste disposal facility;
- Regular inspections of hydraulic and fuel systems on machinery will be done, and leaks shall be repaired immediately upon detection. Worn or damaged hoses, seals and fittings will be promptly repaired or replaced.
- Fuelling, routine maintenance activities, and lubrication of vehicles and mobile equipment will occur in designated and approved locations. Fuelling and lubrication of equipment will occur in such a manner as to minimize the possibility of contamination to soil or water;
- When fuelling equipment, operators will:
    - Be in attendance for the duration of the operation;
    - Use leak-free containers and reinforced rip and puncture-proof hoses and nozzles;

  - Use hoses that have a design pressure rating of at least 150% of the maximum head of the system;
  - Lock out all tank nozzle valves except the valve currently in use;
  - Seal all storage container outlets except the outlet currently in use;
  - Ensure drip pans, and other precautionary measures as required, are in place prior to the start of refueling activities;
- Fuel unloading facilities will be equipped with drip pans to collect hose drainage and drips. Hoses or pipes used for fuel transfer will be equipped with properly functioning and approved check valves, spaced to prevent backflow of fuel in the case of failures;
- Any soil contaminated by small leaks of fuel, oil or grease from equipment will be cleaned up and disposed of in accordance with the applicable regulations, under the provincial Environmental Protection Act (2006) and Used Oil Control Regulation (82/02). The Used Oil Control Regulation (82/02) will be used as a guideline to the DOEC requirements for such disposal;
- All necessary precautions will be implemented to prevent the spillage, misplacement, and loss of fuels and other hazardous materials used during the construction phase;
- A fuel and other hazardous materials spill contingency plan, and appropriate emergency spill equipment, will be in place on site (Section 6.1);
- All spills of fuel and hazardous materials will be reported immediately to the HSE Advisor. Any spill to the marine environment or spills of 70 L or more on land will be reported immediately in accordance with provincial regulation;
- Any spill on land regardless of size that may enter a waterbody frequented by fish will be reported immediately to Canadian Coast Guard Environmental Emergencies: (709) 772-2083 or 1-800-563-9089, as required by the Fisheries Act and Section 201 of Canadian Environmental Protection Act (CEPA). All such spills will also be reported immediately to the HSE Advisor;
- Small quantities of hazardous material (drums, cans and other containers under 20 L) will be stored in a secure location protected from weather and freezing, as well as vehicle traffic. Where hazardous materials are to be stored outdoors, a designated area will be established and fitted with appropriate secondary containment. If required, a hazardous waste storage area will be constructed in compliance with all applicable federal and provincial legislation;
- Concrete additives and form release agents will be stored in approved containers and transferred and used in a manner that avoids loss of material to the environment;
- Before installing fuel storage tanks, the necessary approvals and permits under The Storage and Handling of Gasoline and Associated Products Regulations (58/03) will be obtained;
- All bulk storage of fuel products and other hazardous materials on site will be stored in aboveground, self-dyked tanks in compliance with The Storage and Handling of Gasoline and Associated Products Regulations (58/03);

- Tanks for fuels and other hazardous materials will be self-dyked or will be positioned over an impervious mat, surrounded by an impervious dyke of sufficient height to contain:
    - Where a dyked area contains only one storage tank, the dyked area will retain not less than 110% of the capacity of the tank; and
    - Where a dyked area contains more than one storage tank, the dyked area will retain not less than 110% of the capacity of the largest tank or 100% of the capacity of the largest tank plus 10% of the aggregate capacity of all the other tanks, whichever is greater.
- All storage facilities will be located away from construction activity, with secondary containment, and inspected on a regular basis in compliance with government laws and regulations; and
- While there is no expectation that hazardous substances used throughout the duration of this project will be in quantities or volumes that will trigger action under the Environmental Emergency Regulations under Section 200 of CEPA, it is important to note that certain substances (eg. propane, gasoline, etc) are listed in Schedule 1 of these Regulations and, therefore, should be consulted prior to bringing these substances to site.

5.4 Disposal of Solid Waste and Sewage

Potential Impact: solid waste (e.g. domestic waste), as well as sewage must be properly disposed of, or risk becoming a hazard to human health and safety. Improperly disposed of waste may also attract wildlife and result in human-wildlife conflicts.

Mitigation Measures:

- All activities associated with the current contract are subject to the Waste Management Regulations, under the Environmental Protection Act;
- Waste accumulated on site prior to disposal will be confined so that it does not pose an environmental or health hazard. Waste receptacles will be installed at all active work areas for use by workers. Waste receptacles will be bear-proof and secured to prevent movement under severe weather conditions;
- Work areas will be kept clear of debris, waste and litter to reduce the potential for attracting wildlife and reducing potential interactions with wildlife;
- Construction and demolition debris are to be covered to prevent blowing dust and debris;
- No waste material will be deposited in or within 100 m of a watercourse;
- Burning of waste will not be permitted;
- Any vehicles carrying waste offsite will be secured to prevent windblow or other loss of load during transportation;
- Regular inspections of the work site will be undertaken to confirm it is left rubbish free at all times;

- Sewage will be handled by temporary portable toilets or washcars located around the construction site and will comply with all health and safety regulations, the Department of Health guidelines, the Environmental Protection Act (2006), and Environmental Control Water and Sewage Regulations, 2003 (65/03); and
- Sewage waste will be trucked off-site by a licensed waste management firm for treatment and disposal.

5.5 Equipment Use and Maintenance

Potential Impact: environmental concerns associated with the operation and use of construction equipment, including atmospheric emissions, noise, accidental spills and chronic leaks, etc. Emissions, spills and direct physical disturbances as a result of equipment can adversely affect surrounding resources.

Mitigation Measures:

- Equipment delivered to the worksite will be in good operating condition and kept in proper operating condition;
- Equipment will be routinely inspected for leaks and mechanical conditions that have the potential to result in spills of fuel, lubricating oils, or hazardous materials;
- Fuelling and routine maintenance operations will be conducted in accordance with appropriate standards and guidelines;
- Equipment maintenance and fuelling activities will be performed by a qualified person at a designated site located away from any water body or wetland;
- Equipment use will be limited to approved locations;
- Fuel will not be stored near generators or located adjacent to water bodies and drip pans will be placed under equipment located near water bodies;
- Spill kits will be maintained on site. Each piece of equipment will have a portable spill kit on board. In addition, drum spill kits will be strategically located near working areas;
- Equipment working in or very near the marine environment (eg. long-reach excavator for wharf construction) shall be equipped with environmentally-friendly hydraulics as appropriate; and
- Maintenance and inspections will be documented and records stored on site.

5.6 Pumps and Generators

Potential Impact: accidental spills of fuel or lubricating oil, as well as chronic leaks, may contaminate water bodies or surface soils.

Mitigation Measures:

- Fuel will not be stored near generators or adjacent to water bodies;
- Drip pans will be placed under all generators, light plants, etc;
- Hoses and connections on all equipment will be inspected daily for leaks and drips; and
- All leaks and spills will be reported immediately to the HSE Advisor.

5.7 Erosion Prevention

Potential Impact: Construction activity near shorelines, as well as equipment/vehicle traffic, have the potential to cause surface soil erosion and result in the deposition of fines into the marine/aquatic environment, leading to negative effects on fish and fish habitats.

Mitigation Measures:

- All work areas will be monitored for erosion and appropriate repair action taken as necessary;
- All work will be performed in such a manner that deleterious substances including, but not limited to, sediment, fuel, and oil do not enter water bodies adjacent to the development site;
- Siltation control structures (i.e., silt curtains, cofferdams, and/or sediment fences) will be constructed prior to beginning any activities involving work along the shoreline or near areas of high runoff potential. The necessary and appropriate measures will be determined on site. Accumulated sediment will be removed from control structures to maintain the effectiveness of the systems;
- Inspections and maintenance of erosion and sediment controls will be undertaken on a regular basis and following significant rain events; and
- Construction activities will be coordinated to avoid periods of extreme precipitation and not coincide with sensitive periods for fish as identified by DFO.

5.8 Buffer Zones

Potential Impact: erosion as a result of construction activities resulting in damage to water quality, fish, and fish habitat.

Mitigation Measures:

- As of July 1, 2013, Water Resources Management Division will no longer be issuing permits to Alter a Body of Water under Section 48 of the *Water Resources Act* for work within 15 m where the undertaking does not alter a body of freshwater (including wetlands). However, a minimum 15 m wide undisturbed buffer along the high water mark of all bodies of water in the area will be maintained where possible;

- Temporary fuelling or servicing of mobile equipment will not be allowed within 100 m of watercourses, water bodies, drainage systems or ecologically sensitive areas;
- Stockpile laydown areas adjacent to the marine environment shall be greater than 15 m from the high water mark; and
- For equipment of limited mobility where the 100 m buffer zone cannot be practically achieved, adequate drip and spill containment will be provided during the refueling operation.

5.9 Vehicle Traffic

Potential Impact: proposed construction activities will be supported by vehicles ranging in size from light trucks to heavy equipment, all of which can result in direct physical disturbances that can impact air quality and terrestrial and aquatic environments.

Mitigation Measures:

- Appropriate speed limits and road signage will be established and enforced to minimize environmental disturbance and accidents;
- Equipment and vehicles will yield the right of way to wildlife;
- All project vehicles will be properly inspected and maintained in good working order, including all exhaust systems, mufflers and any other pollution control devices;
- Travel in areas outside designated work areas will not be permitted;
- Dust control will be undertaken in accordance with Section 5.2; and
- Site roads will be maintained as appropriate and monitored for signs of erosion; appropriate action will be taken to repair roads as necessary.

5.10 Working In and Around the Marine Environment

Potential Impact: The main concerns arising from construction activities occurring in or near the marine environment include noise (eg. seabird avoidance, human nuisance) and the potential for disturbances to fish and fish habitat, (eg. fuel spill).

Mitigation Measures:

- Noise mitigation measures are covered in Section 5.1 Noise Generation;
- All land-based equipment will be serviced and fuelled on land at least 100 m from the marine environment or in designated areas designed for spill containment;
- Regular mechanical inspections of equipment working in or near the marine environment will be made and repairs undertaken immediately;
- As appropriate, heavy equipment in proximity to the marine environment (eg. long reach excavator) shall be equipped with environmentally friendly hydraulics. If alternate

equipment if used (eg. crane equipped with clam), the suitability of environmentally friendly products shall be reviewed and used wherever possible;

- Emergency spill equipment will be available onsite, including portable spill kits on all equipment and drum spill kits strategically located around site;
- Any disturbed areas along the shoreline will be immediately stabilized to prevent erosion. Shoreline protection will be provided as required;
- Stockpile laydown areas adjacent to the marine environment shall be greater than 15 m from the high water mark;
- Boats, barges or other vessels used to support in-water works will be inspected for sea worthiness prior to use. A daily log of inspections for sea worthiness and mechanical soundness will be maintained for each vessel; and
- Any effluent discharged into receiving waters must comply with the Environmental Control Water and Sewage Regulations; and
- On-water operations will be suspended when weather conditions exceed vessel/equipment capabilities.

Note: For clarity and according to the *Water Resources Act* http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm states "body of water" means a surface or subterranean source of fresh or salt water within the jurisdiction of the province, whether that source usually contains liquid or frozen water or not, and includes water above the bed of the sea that is within the jurisdiction of the province, a river, stream, brook, creek, watercourse, lake, pond, spring, lagoon, ravine, gully, canal, wetland and other flowing or standing water and the land occupied by that body of water.

5.11 Clearing of Vegetation

Potential Impact: Vegetation clearing (eg. trees and shrubs) will be required for quarry site development, access road construction, site preparation activities for work areas and lay down areas. Potential environmental concerns include the loss of habitat, the sedimentation of watercourses, uncontrolled burning of slash, stockpiling vegetation in or near watercourses, and disturbance or destruction of historic resources.

Mitigation Measures:

- Clearing or removal of trees will be restricted to only those areas required;
- Clearing activities will comply with the requirements of all applicable permits, including the Permit to Burn;
- Clearing will consist of cutting as close to the ground as possible, with stump heights not exceeding 15cm, and disposing of all standing trees, as well as removing all shrubs, debris and other perishable materials from the area;

- An excavator equipped with a mulcher, chain saws or other hand-held equipment will be used in clearing vegetation except where alternative methods or equipment are approved. The use of mechanical clearing methods, such as bulldozers, will not occur except where it can be demonstrated that there is no merchantable timber, and where the resulting terrain disturbance and erosion will not result in the loss of topsoil or the sedimentation of nearby waterbodies. All chainsaw operators will be equipped with an adequate fire extinguisher during the fire season, as well as shovels and axes;
- Merchantable or usable timber will be removed by a local contractor;
- Disposal of cleared unmerchantable timber, slashings and cuttings by burning shall be in compliance with the Forest Fire Regulations, Environmental Code of Practice for Open Burning, and the Permit to Burn. At no time will fires be left unattended;
- Slash and any other construction material or debris will not be permitted to enter any watercourse, and will be piled above spring flood levels for later disposal;
- Cleared vegetation will be used to restore habitat where practical;
- Where possible, timber will be felled inward toward the work area to avoid damaging any standing trees; and
- Employees will not destroy or disturb any features indicative of a cultural or archaeological site. Such features will be avoided until a report has been made to the Provincial Archaeology Office and clearance to proceed has been received.

5.12 Grubbing and Disposal of Related Debris

Potential Impact: The principal concerns associated with grubbing and disposal of related debris are the potential adverse effects on historic resources, as well as terrestrial ecosystems and water quality, including destruction of terrestrial habitat and potential for siltation, erosion and run-off.

Mitigation Measures:

- Grubbing of the organic vegetation mat and/or the upper soil horizons will be restricted to the minimum area required;
- The organic vegetation mat and upper soil horizon material that has been grubbed will be spread in a manner so as to cover inactive exposed areas;
- Any surplus of such material will be stored or stockpiled for site rehabilitation and revegetation purposes. The location of the stockpiles will be recorded and accessible for future rehabilitation purposes. Grubbed material will be buried with two feet of soil cover to prevent erosion and loss of nutrients;
- Measures will be implemented to reduce and control runoff of sediment-laden water during grubbing, and the re-spreading and stockpiling of grubbed materials. Where grubbed materials are re-spread or stockpiled, as many stumps and roots as possible will be left on the ground surface to maintain soil cohesion, dissipate the energy of runoff

and promote natural revegetation. Erosion control measures will be implemented in areas prone to soil loss;
- Grubbing activities will adhere to buffer zone requirements;
- During grubbing, care will be taken to ensure that grubbed material will not be pushed into areas that are to be left undisturbed; and
- Discovery of historic resources will be handled according to the procedures outlined in contingency plans, Section 6.4.

5.13 Quarrying and Aggregate Removal

Potential Impact: The principle concerns for quarry development and associated aggregate removal include the potential for impacts on aquatic systems, loss of terrestrial habitat and historic resources, potential quarry development/reclamation plans.

Mitigation Measures:

- Quarry activity shall be undertaken in compliance with quarry permits and shall comply with all other relevant regulations;
- The quarry area shall be developed in a controlled manner so as to minimize potential environmental effects. The following protection procedures shall be implemented to minimize disturbance and facilitate rehabilitation:
    - A buffer zone of undisturbed vegetation shall be maintained between the quarry and watercourses, waterbodies, and ecologically or historically sensitive areas;
    - The quarry area, stockpile area, and limits of clearing shall be staked and/or flagged to prevent over-extension of the development;
    - The area to be excavated shall be clear cut of all vegetation prior to grubbing, excavation, or removal of any material. Only the area necessary for production shall be cleared;
    - All stumps, organic matter and topsoil shall be stripped from the area to be excavated and stockpiled away from uncleared areas; stockpiles shall be kept away from the area of excavation; separate overburden piles shall be developed where this material is present; topsoil and the underlying overburden shall not be mixed;
    - Upon completion of excavation of the quarry, no cliff faces or benches shall be left at a height of greater than 10 m. Available material left over from quarrying and stockpiled overburden shall be used to slope to 30 degrees along the perimeter (as per the Quarry Materials Act) and to rehabilitate the area; and
    - Following sloping, the topsoil and any organic materials shall be re-spread over the disturbed area to promote natural re-vegetation by adjacent seed sources.
- In order to prevent sedimentation of waterbodies, watercourses, and ecologically sensitive areas, sediment control measures (hay bales, silt fence, etc) shall be

established, if required, and cleaned on a regular basis to ensure that the retention capacity is maintained at all times. If these measures are deemed inadequate, additional measures, including but not limited to, a sedimentation pond, collection ditches, swales, check dams, sumps and pumps, will be installed as needed;

- The TSS content of construction-altered water that is released into a natural waterbody shall not exceed 30 milligrams per litre;
- Dust from aggregate processing, storage, and handling shall be controlled with water as required during times when temperatures are above freezing; and
- A Water Use License under the *Water Resources Act* will be required for the use of water from any source for any purpose; therefore, approval from the DOEC, Water Resources Management Division, shall be obtained prior to any water use.

5.14 Waste Rock and Overburden

Potential Impact: the principal concern associated with the placement of waste rock and overburden is siltation of the aquatic environment, pertaining to water quality and substrate, loss of habitat and displacement of wildlife. As well, disturbance and/or excavation of sulfide bearing rock can release contaminants (acidic drainage and dissolved metals – ARD) into the aquatic environment. It is important to note that rock samples previously collected and assayed did not contain sulfides and did not have acid generating potential.

Mitigation Measures:

- Waste rock and overburden storage areas will be strategically located to avoid siltation of the marine environment;
- If required, collection ditches and settling ponds will be used to manage surface runoff and any groundwater flows;
- Waste rock and overburden piles will be sloped to prevent pooling of surface water;
- Waste rock and overburden storage areas will be secured as appropriate; and
- The stored overburden and waste rock will be used for future rehabilitation of the quarry site.

5.15 Linear Developments

For the purposes of this project, linear developments shall include all activities associated with access road construction, including ditching.

Potential Impact: environmental concerns associated with linear developments include potential sedimentation/erosion, the loss of vegetation and fish/wildlife habitat and potential impacts to historic resources.

Mitigation Measures:

- Sedimentation control measures shall be installed as required. Accumulated sediments shall be removed on a regular basis to ensure such systems remain effective;
- Work shall not be undertaken on easily erodible materials during or immediately following heavy rainfalls without protection measures in place;
- Buffer zones shall be flagged prior to any disturbance activities;
- Natural vegetation shall be left in place where possible. Rights-of-way, particularly in areas of dense vegetation, shall be as narrow as practicable; loss of ground vegetation shall be kept to a minimum;
- Roads shall be adequately ditched so as to allow for good drainage. Where possible, ditches shall be kept at the same gradient as the road;
- Drainage from areas of exposed fill shall be controlled by grade or ditching and directed to vegetated areas away from all watercourses and at least 30 m from a waterbody. Surface water shall be directed away from work areas by ditching. Runoff from these areas shall have sediment removed by filtration or other suitable methods;
- In areas where natural vegetation must be removed, the topsoil layer shall be separately stored from grubbed material for rehabilitation;
- Temporary erosion control shall be applied on exposed slopes in sensitive areas immediately following exposure of a slope;
- The cutting and filling phase of road construction, and the development of other work areas, shall be conducted as outlined in the following procedures:
    - Cutting and filling shall be done only upon completion of grubbing. Where engineering requirements do not require grubbing (e.g., within the buffer zone of a waterbody), filling shall occur without any disturbance of the vegetation mat or the upper soil horizons;
    - Road fill shall be dry and ice free. On areas of sensitive terrain, the fill shall be end-dumped from the established roadbed.
- Road construction activities shall avoid known archaeological, historical and/or spiritual sites and required buffers shall be respected. If any archaeological or historical sites are encountered (known or otherwise), all work shall cease in that area until approval has been granted by the Provincial Archaeological Officer (PAO); and
- The stone fox trap that was discovered in 2012 is to be fully recorded, systematically dismantled and removed for safe keeping, prior to any development associated with the access road.

5.16 Blasting

Potential Impact: destruction of vegetation, noise disturbances to wildlife, and the potential effects on fish, aquatic animals, and historic resources.

Mitigation Measures:

- All blasting work will be conducted in compliance with the appropriate permits and/or approvals and authorizations;
- The handling, transportation, storage and use of explosives will be conducted in compliance with all applicable laws, regulations, orders of the Newfoundland and Labrador Department of Government Services (NLDGS) and Newfoundland and Labrador Department of Natural Resources (NLDNR), and the Dangerous Goods Transportation Act (2006);
- All personnel will comply with site-approved safe blasting procedures;
- Blasting activities will be coordinated and scheduled to minimize the number of blasts required. In order to minimize the seismic effect, blasting patterns and procedures will be used to reduce the shock wave and noise;
- Blasting will not occur in the vicinity of fuel storage facilities;
- Use of explosives will be restricted to authorized personnel who have been trained in their use;
- Explosives and auxiliary materials will be stored as stipulated in relevant legislation, in compliance with all permits. Licensed blasters will undertake blasting;
- Explosives will be used in a manner that will minimize damage or defacement of landscape features, trees and other surrounding objects by controlling, through the best methods possible (including time-delay blast cycles), the scatter of blasted material beyond the limits of activity;
- Historic resources and features will not be disturbed during blasting. Any historic resource discoveries will be reported to the Department of Tourism, Culture and Recreation, Provincial Archaeology Office (PAO). Areas that may be potentially disturbed will be identified prior to blasting and, where necessary, charge size and location will be adjusted; and
- A pre-blast check of all artesian wells and basements of houses in English Point on the east side of the bay will be completed prior to any blasting activity; and
- Where blasting activities will take place near a water body, all blasting activities shall follow the “Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters” (Wright and Hopky, 1999).

6.0 CONTINGENCY PLANS

Contingency plans have been developed to address accidents and unplanned incidents. These contingency plans will be modified as required throughout the life of the project.

The following contingency plans have been developed for this project:

- Fuel and Hazardous Materials Spills
- Forest Fires
- Wildlife Encounters
- Discovery of Historic Resources
- Discovery of a Species At Risk

Bay Bulls Properties Ltd. supports preventative measures as the first line of defence against the possibility of accidents.

6.1 Fuel and Hazardous Material Spills

Spills or leaks of fuel and other hazardous materials have the potential to be damaging to vegetation, soil, surface water, groundwater, wildlife, marine organisms, historic resources and human health and safety.

Bay Bulls Properties Ltd. shall take all necessary precautions to prevent the spill of fuel or other hazardous materials at the site including, but not limited to, the following:

- Implementing the WHMIS program throughout the site in accordance with the Newfoundland Occupational Health and Safety Act and regulations governed by the Workplace Health, Safety and Compensation Commission of Newfoundland;
- Ensuring all employees involved with hazardous materials are appropriately trained; and
- Ensuring fuel storage at the site is undertaken in compliance with applicable provincial and federal regulations, codes and guidelines.

Bay Bulls Properties Ltd. will lead and coordinate any field response to environmental incidents related to their activities. It is anticipated that spilled material will be primarily fuel, lube, and hydraulic fluid originating from equipment wear and tear and/or malfunction. Therefore, in the event of a spill, procedures for responding to hydrocarbon spills outlined herein, shall apply:

1. Assess the situation (**Safety First**). Personnel shall not approach the spill area without appropriate Personal Protective Equipment;
2. Identify priorities while considering the threat to people, property, and the environment;
3. Initiate the appropriate response actions:

- The individual who discovers the leak or spill shall make a reasonable attempt to immediately stop the leakage and contain the flow, where safe to do so;
- Contact emergency personnel and request additional support if necessary;
- Reporting: spill location, type of product, estimated volume and terrain condition at the spill site will be determined and reported immediately to Bay Bulls Properties Ltd.'s HSE Advisor for further reporting to authorities, as appropriate;
- Initiate the containment and recovery of any free product and/or contaminated material;

4. Dispose of all waste material in the appropriate manner;
5. Restore the site to the satisfaction of the Project representative or governing regulatory body;
6. Document and investigate as required.

Reportable spills include:

- A spill or leak greater than 70 litres on land;
- A spill or leak on land, regardless of quantity, that has the potential to contaminate nearby property or enter a water body or sewer; or
- A spill or leak in the water, regardless of quantity.

Spills meeting the above criteria shall be reported immediately to regulatory authorities via the **Environmental Emergency Report Line at (709) 772-2083 or 1-800-563-9089**.

In reaching decisions on containment and clean-up procedures, the following criteria will be applied:

- Minimize danger to persons;
- Minimize pollution of watercourses;
- Minimize area affected by spill;
- Minimize the degree of disturbance to the area and watercourses during cleanup.

Bay Bulls Properties Ltd will take all necessary precautions to prevent a reoccurrence of the incident and the HSE Advisor shall prepare a written report as required.

All fuel-powered equipment shall contain appropriately-sized spill kits (23 L). In addition, 45 gallon drum spill kits shall be strategically placed throughout the site and moved as required to reflect progress along the access road. In addition, a sea-can clearly marked as "Spill Response Equipment" shall be located in the lay down area. The contents of spill kits shall be routinely inspected and supplies replenished as necessary.

6.2 Forest Fires

Construction activities may increase the risk of fire in the natural environment. Fires may spread to the surrounding area and forest. The primary concern is human health and safety, however minimizing damage to vegetation, wildlife, and air and water quality are also priorities.

Bay Bulls Properties Ltd. shall take all necessary precautions to prevent fire hazards when working at the site including, but not limited to, the following:

- Adhering to appropriate permits, including operating permits;
- Storing, handling and disposing of flammable materials and waste appropriately;;
- Smoking in designated areas only;
- Providing fire-fighting equipment that is in proper operating condition, in compliance with manufacturer standards, and in sufficient quantities; and
- Training project personnel, as required, in the use of appropriate fire-fighting equipment.

If a fire is encountered, the following protocol shall be followed:

- The individual who discovers the fire shall sound the alarm;
- Personnel trained in fire-fighting and the use of appropriate equipment shall take immediate steps to contain or extinguish the fire;
- Fires shall be reported immediately to the HSE Advisor for further reporting to the local authorities. The following information shall be provided:
    - name and telephone number
    - time of detection
    - size of fire
    - location of fire
    - weather conditions (rain, sun, wind direction and speed, etc.).

6.3 Wildlife Encounters

Wildlife encounters pose a potential risk for stress or injury to both the wildlife and site personnel. To reduce the risk to both wildlife and humans, the following measures will be implemented:

- Hunting, trapping or fishing by Project personnel is not permitted on site;
- Site and working areas will be kept clean of food scraps and garbage;
- Wildlife protected disposal containers will be used and will be regularly emptied and transferred to the local landfill;
- No personal pets, domestic or wild, will be allowed on the site;

In addition to the above protection measures, the following protocol will be followed in the event of a wildlife encounter:

- Workers shall not attempt to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot within the project site;
- Equipment and vehicles shall yield the right-of-way to wildlife;
- Wildlife sightings or encounters shall be reported to the HSE Advisor. All actions in response to nuisance animals, including the use of firearms by bear monitors in the project area, shall be the responsibility of Bay Bulls Properties Ltd;
- If the nest of any bird is encountered during construction activities, work around the nest will be immediately stopped and the HSE Advisor notified; and
- Any incidents that result in the displacement or killing of wildlife shall be reported to HSE Advisor, complete with details on the incident and the names (and contact information) of the persons involved, for reporting as required.

6.4 Discovery of Historic Resources

Historic resource material that is disturbed, destroyed, or improperly removed from a site represents a cultural loss of information and history that could otherwise be handled and interpreted in an efficient and appropriate manner.

Procedure:

- Stop all work in the immediate area of the discovery until authorized personnel (HSE Advisor), having consulted with the Provincial Archaeologist, permit resumption of the work;
- Report the find immediately to the HSE Advisor;
- Mark the site's visible boundaries. Personnel will not move or remove any artifacts or associated material unless advised to do so by the Provincial Archaeology Office;
- Bay Bulls Properties Ltd will report the find with the following information to the Provincial Archaeology Office, Culture and Heritage Division, Department of Tourism, Culture, and Recreation, St. John's, and comply with the instruction provided:
    - nature of the find;
    - precise descriptive and map location and the time of the find;
    - nature of the activity resulting in the find;
    - identity of the person(s) making the find;
    - present location of the material and any protective measures initiated for the material and the site; and,
    - extenuating circumstances.

6.5 Discovery of a Species at Risk

The following species at risk (as listed on Schedule 1 of the *Species at Risk Act*) may occur within the study area: Olive-sided Flycatcher (Threatened), Common Nighthawk (Threatened) and Red Crossbill (*Rufa* subspecies; Endangered). Though unlikely to be found within the project footprint, these species may occur within the study area.

The construction and operation of the Project may affect Species at Risk and their habitat. Since these species are extremely sensitive to habitat degradation the following measures will be put into place to ensure that the Project does not pose a threat to their population's survival.

Procedure:

- The Proponent and all contractors working on-site will adhere to all stipulations set out in the Species at Risk Act (SARA), and will be informed that it is illegal to kill, harass, capture or harm any species listed under it; and
- If a Species at Risk, as listed above or otherwise, is discovered, all work in proximity to the location will cease and it will be reported to the HSE Advisor who will then contact Environment Canada- Canadian Wildlife Service for further action.

6.6 Migratory Birds

Migratory birds, their eggs, nests, and young are protected under the *Migratory Birds Convention Act* (MBCA). Migratory birds protected by the MBCA generally include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles).

Under Section 6 of the *Migratory Birds Regulations* (MBR), it is forbidden to disturb, destroy or take a nest or egg of a migratory bird or to be in possession of a live migratory bird, or its carcass, skin, nest or egg, except under authority of a permit. It is important to note that under the current MBR, no permits can be issued for the incidental take of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the MBCA describes prohibitions related to deposit of substances harmful to migratory birds:

5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a

substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area — that is harmful to migratory birds."

The construction and operation of the project may affect Migratory Birds and their habitat. The following measures will be put into place to ensure that the Project does not pose a threat to migratory birds:

- No one shall approach concentrations of seabirds, sea ducks or shorebirds;
- All vessels shall use the main navigation channels to get to and from the site and shall have well muffled vessels and machinery;
- Additional care shall be taken to ensure that food scraps and other garbage is properly disposed of along coastal areas to avoid attraction of potential predators;
- No one shall disturb, move, or destroy migratory bird nests. If a nest or young birds are encountered, work will cease in the immediate area of the nest. Work will not continue in the area until the nest is no longer occupied, otherwise the work plan will be modified to avoid nest sites;
- Personal pets shall not be brought to the construction site;
- Buffers will be established around known nests (species-specific, as per last paragraph), however staff and crew shall be made aware of the possibility of undiscovered nests. When one or more of the indicators below are noted, notifications shall be made as appropriate. An active nest can be identified by:
    - the presence of birds or eggs in a nest;
    - adult birds carrying food or nesting materials to a specific location; or
    - adult birds defending territory, through singing, screeching or diving.
- Stockpiles shall be covered where possible, or other deterrents applied, to discourage the nesting of migratory birds in stockpiles left unattended. If migratory birds take up occupancy in stockpiles, industrial activities may cause disturbance to these migratory birds and inadvertently cause the destruction of nests and eggs. Alternate measures will then need to be taken to reduce potential for erosion, and to ensure that nests are protected until chicks have fledged and left the area. CWS will be contacted for advice on appropriate measures;
- All precautions shall be taken to prevent fuel leaks from equipment, as described in Section 5.3. Staff and crew are aware that under the MBR, "no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds";
- Biodegradable fluids shall be considered for use in place of petroleum products whenever possible;
- Fuelling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas, including shorelines and wetlands;

- It is anticipated at this time that nighttime activities will be limited to crushing. Therefore, to minimize risk of incidental take of migratory birds due to human-induced light, the following measures shall be implemented:
    - The use of solid-burning or slow pulsing warning lights at night shall be avoided;
    - Lighting for the safety of the employees shall be shielded to shine down and only to where it is needed, without compromising safety; and
    - The minimum number of lights possible will be used, while still ensuring the safety of crews working at night.
- If there is any noticeable change in seabird numbers or distribution at the location during operations, EC-CWS shall be notified.

In addition to the above-mention measures, Bay Bulls Properties has contracted AMEC Environment and Infrastructure to conduct an avian-diversity ground survey of the entire project area prior to the commencement of any construction activity. The presence of birds will be determined based on visual and auditory cues. Birds will be considered resident breeders if, 1) nests are found, 2) fledgling birds are present, or 3) adults are observed delivering food to a suspected nest site. Confirmed nest sites will be marked in the field so that a species-specific buffer can be established (e.g. 1 – 5 m for song birds). Active nests will not be identified by flagging tape at the exact location of the nest, as this will increase predation risk (some predators learn to associate flagging tape with eggs). Markers for nests will be placed using a consistent method that does not directly pin-point the location of the nest, e.g. flagging consistently placed 5 m to the north of a nest. This flagging method, along with all survey methods, will be determined by the biologist conducting the surveys and outlined in a separate report supplied to Bay Bulls Properties upon completion of the survey.

7.0 EMERGENCY CONTACTS

Table 1.2 Emergency Contacts

TITLE	NAME	CONTACT INFORMATION
Project Manager	Dave Elliot	Office: 709 334 3635 Cell: 709 682 0190 DElliot@pennecon.com
Senior Project Engineer	Dhiraj KC	Office: 709 334 3556 Cell: 709 697 3463 Dhiraj.KC@pennecon.com
Crushing Manager	Gerry Adams	Office: 709 782 3403 Cell: 709 424 4220 gadams@pennecon.com
Environmental Manager	Deidre Puddister	Office: 709 782 5012 Cell: 709 689 8086 deidre.puddister@pennecon.com
HSEQ Manager	Mike O'Reilly	Office: 709 782 5191 Cell: 709 631 0314 mike.oreilly@pennecon.com
Regulators		
NL Department of Environment and Conservation	-	709 729 4211 1 800 563 6181
24 hr Environmental Emergency Line	-	709 772 2083 1 800 563 9089
24 hr Forest Fire Emergency Line	Department of Forest Resources and Agrifoods Fire Patrol	1 800 898 4528
Discovery of Contaminated or Hazardous Material	Service NL	709 729 2550
Department of Tourism, Culture and Recreation	Provincial Archaeology Office	709 729 2462
Environment Canada	Environmental Protection Operations	709 772 2126
Environment Canada	Canadian Wildlife Service	709 772 2154
Transport Canada Emergency Centre (dangerous goods emergencies)		
CANUTEC		1-613-9967-6666 *666 (from celluar)
Hazardous Waste Service Providers		
Crosbie Industrial Services		709 722 8212
Pardy's Waste Management		709 368 4350
Newalta		709 834 7350