2.0 PROJECT DESCRIPTION

This chapter describes the Project as it is currently conceived and includes information on the Project location, siting considerations, and specific Project components and infrastructure. The means by which construction, operation, and decommissioning and abandonment of the Project will be achieved, mitigation by design of the Project, the anticipated Project workforce and schedule, emissions and wastes, and potential accidents, malfunctions, and unplanned events are also described.

2.1 ENVIRONMENTAL PLANNING AND MANAGEMENT

NB Power is a responsible and established proponent with more than 95 years of experience in the planning, design, construction, operation, distribution and management of electrical power generation and transmission in New Brunswick. Currently, NB Power maintains and operates 6,849 km of transmissions lines that are supported by 15 interconnections, 48 industrial substations, and 49 terminals (NB Power 2017a).

NB Power, through the Transmission System Operator, owns and maintains the New Brunswick transmission grid as the hub of the Maritimes Area, and is one of only 16 Reliability Coordinators in North America with the authority and means to prevent or mitigate emergency situations in order to maintain system reliability (NERC 2016). The management of the Maritimes Area electrical grid incorporates 15 interconnections in New Brunswick with Québec, Nova Scotia, PEI, and New England, including northern Maine.

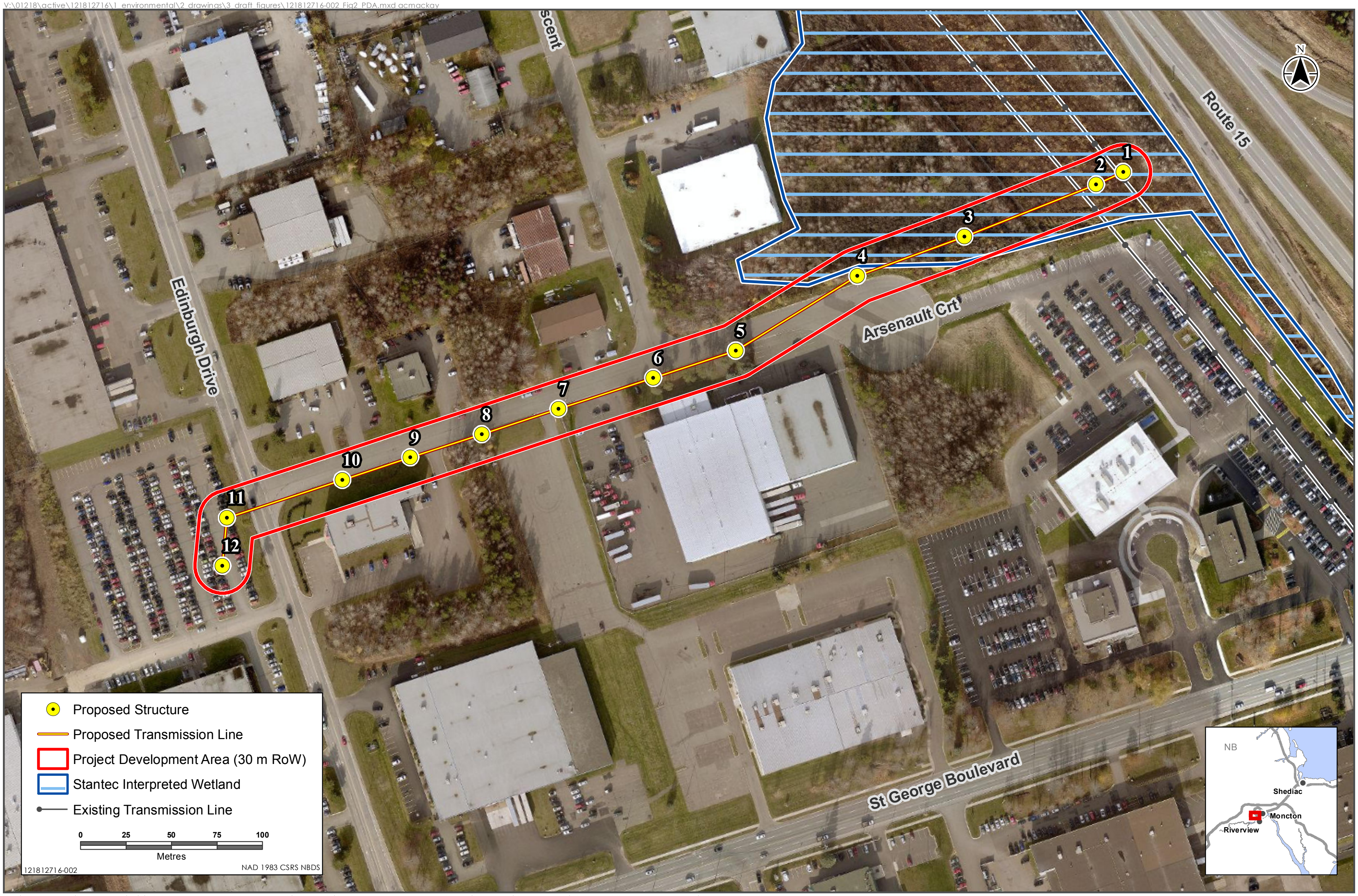
NB Power will carefully plan and manage all aspects of the Project from initial design to development to site reclamation. Examples of the methods and tools that NB Power will use to avoid, mitigate, or otherwise manage potentially adverse environmental effects include:

- A review of the major regulatory processes that may apply to the Project (Section 1.5)
- The identification of potential sources of emissions and wastes related to the Project (Section 2.7)
- The consideration of potential accidents, malfunctions, and unplanned events (Section 2.8)
- an assessment of potential interactions between the environment and the Project (Chapters 4.0 and 5.0)
- The development of a Project-Specific Environmental Management Plan (PSEMP) that provides the framework for the management and monitoring of environmental and socio-economic mitigation measures that satisfy corporate and regulatory requirements, best management practices, as well as input from stakeholders and First Nations. The PSEMP defines roles and responsibilities for employees and contractors and includes plans and procedures to address situations that may occur during construction and operation and maintenance.

2.2 PROJECT LOCATION

The Project will be located in southeastern New Brunswick, in Westmorland County, within the municipal boundaries of the City of Moncton. The Project Development Area (PDA) of new transmission Line 1246 will be approximately 557 m in length, with a 30 m wide RoW (Figure 2.1). The 30 m RoW, shown in Figure 2.1, will commence at a tap-off point 5A (depicted as Structure #1 in Figure 2.1) within the 70 m easement of the existing 138 kV transmission line 1124, and run west along Arsenault Court for approximately 557 m to supply a substation to be constructed and owned by OrganiGram Inc. located on Edinburgh Drive in the Moncton Industrial Park.

V:\01218\active\121812716\1_environmental\2_drawings\3_draft_figures\121812716-002_Fig2_PDA.mxd acmackay



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community , November 8th, 2016.

Project Development Area and Structure Locations

Stantec

121812716 - MONCTON INDUSTRIAL PARK, NB POWER

Figure 2.1

2.3 SITING CONSIDERATIONS: NEW TRANSMISSION LINE 1246 TO CONNECT WITH TRANSMISSION LINE 1124

NB Power adhered to several best management practices when selecting a route for the Project. The first was to minimize the overall length of the line by maintaining the straightest alignment possible, since route alignment ultimately influences the extent and magnitude of any effects on the environment, engineering design, socioeconomic factors, and cost.

Next was to minimize interactions with known environmental constraints. Aerial photographs, GIS-based mapping, and biological databases were referenced so as to reduce the potential for the crossing of wetlands, watercourses, known archaeological sites, and environmentally significant areas, among other constraints.

A further best practice incorporated industry-recognized engineering and design principles. Particular attention was paid to the type and number of structures in order to reduce the overall environmental footprint. Terrain constraints such as accessibility, slope, and crossing windows were also considered when selecting the route.

Finally, route selection was conducted in consideration of existing land use. Where possible, the route was located to minimize the proximity to buildings and residences, to follow roadways, property lines, and existing RoWs where possible, and to avoid bisecting properties to the extent possible.

NB Power determined that the most environmentally, socially, and economically feasible route for the Project was to traverse existing rights-of-way and developed lands within the Moncton Industrial Park, utilizing the locations of existing lighting standards as the footprint for the proposed line, allowing the lighting to be re-installed on new transmission poles. In this case, the location of existing structures on transmission Line 1124 determined the most feasible location for the tap off Structure 5A (depicted as Structure #1 in Figure 2.1), and the requirement for span structures with guys across an existing distribution line restricted the placement of structures within existing infrastructure. This proposed route minimized interactions with forested and residential properties. The proposed route would also allow for the shortest distance to supply electricity from a 138 kV transmission line (#1124) (Figure 2.1). The clear benefits of this route negated the need for a route alternatives analysis. The environmental attributes of the proposed route are included in Appendix B, and summarized in Table 2.1

Table 2.1 Summary of Environmental Attributes for Proposed Route

Constraints / Attributes	Quantity
Total length (m)	557
Required new corridor (m)	512
Number of properties crossed	11

Table 2.1 Summary of Environmental Attributes for Proposed Route

Constraints / Attributes	Quantity
Area of private land crossed (ha)	0.72
Area of agricultural land crossed (ha)	0
Area of forest crossed (ha)	0
Number of watercourse crossings	0
Number of waterbodies	0
GeoNB Wetland area affected (ha)	0
Number of roads crossed	3
Number of abandoned railway beds crossed	0
Number of historic sites within 500 m of centreline	0
Number of pits / mines / quarries / buildings / towers and industrial sites within 500m of centreline	0
Known historical occurrence of rare species (no. of individuals)	0
Total potential Appalachian Hardwood Forest (ha)	0
Length through elevated archaeological potential (km)	0

2.4 DESCRIPTION OF PROJECT COMPONENTS AND INFRASTRUCTURE

2.4.1.1 New 138 kV Transmission Line 1246

A high voltage transmission line consists of a series of structures which support conductors (wires) that carry electricity. Various structure types and configurations exist to support the conductors such as wood pole H-frame, deadends, and strain configuration structures. During the initial planning stages of a transmission line, an economic evaluation is carried out to determine the most appropriate structure type. In most instances, factors considered include material cost, cost of structure assembly and erection, structure heights and strength, hardware cost, and available RoW. Environmental and social factors, such as weather and property boundaries, are also considered.

2.4.1.1.1 Structure Type

Structures are used to support the high voltage conductors and to ensure minimum clearance to ground, to objects under the transmission line, and at road crossings. The distance between structures (span) and their height is determined by the topography of the area and the clearance requirements. For a typical 138 kV transmission line, the spans vary between 180 m to 210 m while the height of poles used in structure design range from 15 m to 20 m. Also, structures are designed to withstand known weather conditions and other related constraints.

A total of 11 structures, in addition to a tap off structure, will be used in this Project, and will include five different structure types (Table 2.2). The steel structures will be used to allow for increased span distances to reduce interactions with existing infrastructure (e.g., parking lot), and for the tap off location.

Table 2.2 Summary of Project Structures

Structure Type	Quantity
Steel Dual Circuit	1
Steel Deadend	1
Three Wood Pole Deadend	2
Single Wood Pole with Guy Wires	2
Single Wood Pole without Guy Wires	5

The wooden structure types will be approximately 15 m to 20 m in height and consist of chromated copper arsenate (CCA) wooden poles. The use of CCA pressure treated wood, currently authorized for use in Canada (Health Canada Pest Management Regulatory Agency 2011), not only protects the wood against fungi and insects, but also provides extra protection against moisture content changes (EC 1999). Untreated poles, such as hemlock, tamarack, and cedar were not considered for this Project as they are more susceptible to decay from wood rot or damage from wood boring insects which would lead to structural weakening and possibly pole failure. CCA-treated poles have greater wood stability and resistance to splitting, which substantially extends the service life of the wood (from less than 10 years to 40 years) and increases its durability. In addition, this type of treatment provides resistance to electrical currents and facilitates the climbing of poles by line maintenance staff (EC 1999). CCA-treated poles are widely available and have the lowest cost. They are a proven product, derived from a renewable resource, are readily available and locally produced. Alternate pole materials (*e.g.*, pre-cast concrete, corrosive-resistant steel and plastic lumber) have proven to be cost prohibitive and were not considered for this Project.

Three conductor wires will be strung to the insulators, with a vertical spacing of 3.0 m between them. Angle structures (e.g., deadend structures) will be anchored with six to seven guy wires where the line turns and terminates.

Final structure and pole locations will be determined based on geotechnical field surveys. This will reflect detailed engineering analysis with respect to span, length, local soil conditions, topographic and geologic features, and proximity to existing infrastructure.

Subject to detailed engineering analysis, structure and pole location to avoid known constraints or sensitive environmental conditions has been identified as a mitigation measure to reduce environmental effects, where possible.

2.4.1.1.2 Guy Wires and Anchors

Although specific information regarding anchor requirements for guy wires at angle structures has yet to be determined, cross plate anchors, Helix anchors, rock anchors and/or log anchors may be used depending on structure location. It is anticipated that 61 cm cross plate anchors will be used predominantly for the Project. Cross plate anchors are typically installed in augured holes, and incorporate a galvanized rod extension to which a guy wire can be anchored.

Helix (screw type) anchors are best suited for soil conditions having limited load bearing characteristics and/or in wet areas. This type of anchor is comprised of a steel shaft and helices that are screwed into the ground to a calculated depth. The helices transfer the stress of the load evenly across the soil. These anchors are easier to install, require little to no site preparation, do not result in excavated material, and can be withdrawn and reused.

Rock anchors will be required in areas where bedrock is present and screw type anchors are not feasible. Wedge style anchors and grouted rock anchors are typical rock anchor configurations. Grouted rock anchors are best suited for areas of fractured bedrock and will most likely be used. Bedrock is drilled to a specific depth and the grouted rock anchor is installed and backfilled with grout to the surface, preventing the anchor from pulling back through the bedrock while under tension.

Log anchors may be used as required. Log anchors will be installed in soft areas (e.g., wetlands) or at structure locations under high tension. Log anchors consist of a 1.2 to 1.8 m section of pole that is typically buried lengthwise 2.4 m under the ground surface. Tension cables are attached to anchor rods through logs and structures; the excavation is then backfilled and the soil compacted.

2.4.1.1.3 Conductors and Insulators

There are several types of conductors available for use, which depend on a number of factors that are typically considered during the preliminary design phase. A Dove 556 Aluminum Conductor Steel-Reinforced (ACSR) conductor will be used for the transmission line itself. This ACSR wire design, which has been an industry standard since the early 1900's, provides higher corrosion resistance than copper conductors, is lighter in weight, has a recognized longer service life, higher strength-to-weight ratio, and offers reduced power losses (Southwire 2017). The Dove 556 ACSR is composed of 26 strands of aluminum alloy wire surrounding a core of seven steel strands. The outside diameter of the wire is approximately 24 mm and is suspended from the cross arms by insulator strings.

Insulators will be synthetic line posts and suspension types, and will consist of either porcelain or toughened glass manufactured to the most recent CAN/CSA Standard C411.1 (CCOHS 2017).

2.4.1.1.4 Overhead Ground Wires and Counterpoise

Overhead ground wires (OHGW) are used with some transmission infrastructure to reduce the risk of electrical damage caused by lightning strikes on transmission poles. The design of the transmission lines in this Project does not require the use of OHGW.

Counterpoise will be installed on all non-guyed wooden structures in order to improve grounding capacities. The counterpoise consists of a steel galvanized wire that is attached to the bottom of the poles and covered with overburden to a depth of approximately 0.5 m and runs radially for a distance of approximately 1 m.

2.4.1.1.5 Easement and Width of Right-of-Way (RoW)

An easement is defined as a non-possessory, registered interest right acquired by one person on the land of another, permitting partial use of the other's land for a specific purpose, such as a RoW across it. For transmission line projects, an easement includes the right to build and erect certain towers and/or other supports, and/or trench for underground wires or cables. It also includes the stringing, placing, and maintaining from one tower or support to the other towers or supports, all necessary wires, cables, supporting cables, anchors and ground rods, and/or wires or cables in underground trenches, all works being for the purpose of conducting and transmitting electric power or signals to, on, or across related lands and premises. The easement allows for the construction and operation of a transmission line on part of a property while ownership of the entire parcel of land remains with the original owner. An easement may be required to construct the proposed transmission line.

The cleared width of the RoW is governed by a number of factors such as tree height, structure type, height of conductors, and sag of conductors, flashover distances, and safety factors for tree growth and conductor swing. To foster safe electrical clearances and prevent trees from falling onto the line or coming into contact with the conductors, the RoW is cleared of vegetation greater than 2 m in height. The planned RoW width for the 138 kV line will be 30 m in the treed region, and within the existing municipal easement along Arsenault Court.

2.5 PROJECT ACTIVITIES AND PHASES

2.5.1 Project Construction

The construction of a transmission line typically involves the following stages:

- Vegetation clearing
- Access and staging
- Excavation, pole placement, structure assembly, and installation
- Stringing conductors
- Connection of transmission line
- Inspection and energization
- Clean-up/revegetation

Both tracked and wheeled equipment and vehicles are used to perform these activities. The type of equipment and vehicles may include, but is not limited to, the following: muskeg, crane, excavator, auger, dump trucks, dozer, tractor trailer, and all-terrain vehicles. A brief description of the construction details is provided below.

2.5.1.1 Site Preparation

2.5.1.1.1 Access and Staging

Access is required to allow transportation of clearing and construction equipment, materials, and personnel to the RoW. The proposed transmission line will be located adjacent to, or intersect, existing linear corridors, which will provide access to or near the line. In all cases, maximum use will be made of existing access roads.

As part of the design stage of the Project, NB Power determined that there were no structures located next to watercourses or regulated wetland habitats, and their 30 m buffers. In the event that a watercourse is identified during site preparation, and cannot be avoided, mitigation measures will be developed in consultation with the appropriate authorities.

In the unlikely event that existing access roads require improvements to provide construction vehicle and equipment access to the transmission line RoW, improvements may include one or more of the following:

- Clearing brush overgrowth to widened sections of roads with the use of a mulching head
- Grading existing roadbeds and, where necessary, placing a few inches of gravel on the newly graded areas (e.g., crowning)
- Installing cross-drainage in certain areas to divert storm water runoff to the side of the roads
- Utilizing swamp mats to traverse wetted areas with equipment

Preliminary reconnaissance work and a review of aerial photographs suggests that all structure locations on the proposed RoW can be accessed using a combination of existing roads, trails, and the RoW of existing Line 1124. If new access roads are required they will be constructed in accordance with the PSEMP. Permission from landowners will be obtained to access existing roads and trails as required. Prior to a tender being issued for construction of the new line, staging/storage areas for equipment and material will be identified.

2.5.1.1.2 Vegetation Clearing and Grubbing

Clearing involves the removal of vegetation from the RoW which may prohibit the construction and safe operation of transmission lines. The extent of cutting will vary depending on the type of structure selected for the design and on vegetation heights. Existing RoWs may not require cutting. Vegetation will be largely removed by mechanical means, except within 30 m of a watercourse or wetland. In these areas, vegetation will be removed manually (e.g., chain saws and other hand-held equipment), while leaving the under growth and duff layer undisturbed to prevent erosion.

Trees will be felled, de-limbed, mulched, and/or piled at the edge of the RoW according to clearing contract requirements. As the Project is situated within a developed industrial park, and siting mitigated excessive tree clearing, it is anticipated that there will be minimal windrowing of any slash and debris.

Timing of clearing is scheduled for fall 2018, to avoid the normal bird breeding season, which is generally from April 1 to August 31. Should this schedule be advanced, NB Power will consult with regulators prior to beginning construction and apply appropriate mitigation.

2.5.1.2 New Transmission Line

2.5.1.2.1 Excavation and Structure Assembly and Installation

Assembly of structures involves the transportation of construction materials to the RoW, excavation (i.e., pole placement), and backfilling of excavated material. Excavation is commonly carried out by excavator or mechanical auger, and/or hydraulic rock hammer, depending on soil conditions. Blasting will not be conducted on this Project.

Wood poles of each structure will be embedded a depth of 2.5 to 3 m (10% of pole length plus 0.6 m). Holes are typically dug using mechanical excavators. However, where soil conditions make this method inefficient, hydraulic hammering may be required to remove the rock. Excavation footprints for each pole are typically 1 m x 3 m at ground surface and 1 m x 1 m at excavation bottom. This yields typical excavation volumes of 4.5 to 5.5 cubic metres per pole. Anchors for guy points are typically 1.5 m deep with a typical excavation footprint of 1 m x 2 m and excavation volumes of 2 to 3 cubic metres per anchor. Helical anchors may be used at some guy points where practical and this would reduce the excavation footprint to nil. The footprint of the steel structures will be determined following final design of the transmission line.

The assembly of structures will take place on-site at structure locations. The disturbance area around the structure site for the equipment, structure assembly, and erection activities is typically limited to 700 to 900 m^2 for H-frame angle structures. Depending on soil conditions, compacted native soil or material supplied from local established and appropriately licensed quarries will be used to fill the sides of the excavations.

Although specific information regarding anchor requirements for guy wires at angle structures yet to be finalized, several types may be used during construction depending on structure location.

It is anticipated that cross plate anchors will be used predominantly for the proposed Project. Cross plate anchors are best suited for soil conditions having good load bearing characteristics. They are installed by auguring or excavating a hole, placing the cross plate assembly at the base and backfilling the hole, and tamping the soil in layers to increase the holding capacity.

Helix (screw type) anchors will be used for soil conditions having limited load bearing characteristics and/or wet areas. This type of anchor is comprised of a steel shaft and helices that are screwed into the ground to a calculated depth. The helices transfer the stress of the load evenly across the soil. These anchors are easier to install, require little to no site preparation, do not result in excavation spoils, and can be withdrawn and reused.

Rock and log anchors may also be used as required. Rock anchors and grout will be used in areas where they are to be installed directly into solid rock while log anchors will be installed in soft areas or at structure locations under high tension. Log anchors are a 1.2 m to 1.8 m section of pole that are typically buried lengthwise 2.4 m underground. Tension (guy) wires are attached to the logs and structures before backfilling and compacting of the area.

2.5.1.2.2 Conductor Stringing

Large reels of wire will be delivered to selected areas along the RoW. The wire (conductor) will be subsequently strung using tension-stringing equipment and attached to the insulators by hand while pulling lines will be used to pull the wire between structures. In areas where the transmission line crosses a wetland, the pulling line (p-line) is walked across and then strung using a tension-pulling machine. A 3-5 m strip along the centreline of the transmission line will be cleared of vegetation in order to string the wires.

Once the conductors are in place, they will be correctly sagged and tensioned, then permanently clipped into the clamps at each structure. Miscellaneous hardware such as structure marking, vibration damping devices, or air flow spoilers may also be installed, as required.

In areas where the transmission line crosses a road, rider poles will be installed on either side of the roadway to support conductors to prevent conductor from sagging which could potentially affect traffic flow and pose safety concerns.

2.5.1.2.3 Connection of Transmission Line

The new transmission Line 1246 will be connected to the existing transmission Line 1124, and to the substation breakers on the customer's facility. This connection will occur within the footprint of the customer's substation and complete the connection to the grid for the transmission of electric power.

2.5.1.2.4 Inspection and Energization of the Project

Following construction, and the connection of the transmission line, ground and/or air acceptance patrols will be conducted by NB Power staff to verify that the line is ready for service. Deficiencies discovered during these patrols will be corrected prior to energizing the line.

2.5.1.2.5 Clean-up and Revegetation

Clean-up and revegetation of any disturbed areas is the final stage of the construction phase of the Project. In areas where soil disturbance due to construction may cause erosion, measures will be taken to stabilize the affected area. Such measures may include trimming and back blading, mulching, seeding, and fabric placement. Erosion control used during construction will be maintained until such time as the disturbed ground has been stabilized with vegetation.

2.5.2 Operation and Maintenance

During the operating life of the transmission line (estimated to be 50 years), certain routine activities will be performed in order to maintain reliability of the network. These activities are described in the following sections.

2.5.2.1.1 Operation and Maintenance of Hardware

Line inspections (i.e., ground and aerial) will be performed by maintenance staff on a regular basis to check for the deterioration of the transmission line components, including wood poles and metal structures, conductors, insulators, and hardware. These inspections will also assist in identifying weakened support structures and foundations, as well as changes in terrain which may affect structure stability. Typically, air inspections will be performed once a year, while ground patrols will be conducted every eight years using existing access. Additional inspections may be carried out in the event of an emergency or unplanned outage (e.g., ice storm). Inspection results will be provided to NB Power operational personnel who are responsible for planning and scheduling maintenance work.

2.5.2.1.2 Vegetation Management

NB Power is responsible for providing safe and reliable electricity to homes, businesses, and industries. Uncontrolled vegetation can create fire and safety hazards, hinder routine line maintenance, and cause interruptions in electric service when it grows into or falls on electric power lines. In order to avoid the constant interruptions in electric service caused by overgrown or fallen vegetation, NB Power restricts the growth of trees and brush along the lines through its integrated vegetation management program.

Integrated vegetation management involves a variety of methods, including hand cutting (e.g., using chainsaws, brush saws, and axes), and mechanical equipment (e.g., hydro-axes or excavator with mulching head). The frequency of the program varies depending on the vegetation growth rate, but it is typically carried out in 5 to 6 year cycles.

The objective of vegetation management is to manage tall growing tree species that have the potential to grow or fall into, or within, the arching distance of the transmission lines and or facilities and cause an outage. The use of the various methods depends upon a number of factors including site conditions and the sensitivity of surrounding areas.

2.5.3 Decommissioning and Abandonment

The new 138 kV transmission line will have a design life of 50 years. While decommissioning or abandonment of these components is not currently envisioned, the transmission line will at some point be decommissioned or rebuilt at the end of its useful service life, in accordance with the applicable standards and regulations current at that time. In the event the transmission line is no longer required NB Power will provide the necessary information to the appropriate regulatory agencies so that the regulatory requirements are met prior to commencement of decommissioning activities. As such, decommissioning and abandonment of the new 138 kV transmission Line 1246 are not discussed further in this document.

2.6 WORKFORCE AND PROJECT SCHEDULE

Construction will require NB Power staff, and a line clearing/construction contractor. The Project will result in a small, temporary increase in the workforce. The construction period, including RoW clearing, will last approximately two months.

Contractors that specialize in building transmission lines typically work 9 to 12 hour days, and Monday to Friday, or Monday to Thursday. Work is not typically conducted overnight or on weekends; however, schedule change may require extended work hours to meet contract completion dates.

A summary of key Project activities and timelines is provided in (Table 2.3) below.

Table 2.3 High Level Schedule of Key Project Activities

Project Activities	Proposed Timeline
Communication with stakeholders and First Nations	October 2017 to May 2018
EIA preparation and submission	October 2017 to November 2017
EIA review	December 2017 to February 2018
Permits/approvals acquisition	March 2018 to May 2018
Real estate and easement acquisition	November 2017 to May 2018
Materials procurement	January 2018 to September 2018
RoW clearing and construction of Line	October 2018 to November 2018
In-service date	On or before December 2018

2.7 EMISSIONS AND WASTE

2.7.1 Airborne Emissions

Emissions associated with fuel combustion in heavy equipment and vehicles, and dust associated with site preparation, are anticipated to occur during the construction and decommissioning of the Project. Water sprayers would be used to suppress and control dust levels, as required, during construction.

Project construction is not anticipated to result in substantial emissions of air contaminants or greenhouse gases (GHG) to the environment (Section 5.1). Airborne emissions are expected to be generally confined to the PDA and are not expected to result in measurable increases in the air quality conditions in Moncton, or to exceed provincial air quality standards.

2.7.2 Hazardous Materials

Potentially hazardous materials used during the construction phase would include, but is not limited to, propane, diesel, gasoline, hydraulic fluids, motor oil, and grease and lubricants for heavy equipment, and vehicle use. Cleaning and maintenance of vehicles and equipment, site inspections, and the monitoring and inventorying of materials would be essential for environmental protection. Construction is not anticipated to result in substantive releases of hazardous materials into the environment, and is addressed further in Section 2.8.1.

2.7.3 Sound Emissions

Sound emissions would occur during the construction phase of the Project, and would be limited to the use of heavy equipment, vehicles and chain saws. Mitigation will be used wherever feasible to reduce the potential environmental interactions resulting from sound emissions. Construction is not anticipated to result in substantive emissions of sound into the environment (see Section 5.1).

2.7.4 Solid Waste

Solid wastes generated during the construction phase would include packaging materials, plastics, cardboard, wood, metals, felled vegetation, and sediment runoff. Wherever possible, solid wastes will be re-used or recycled, and felled vegetation will be windrowed and/or mulched along the edge of the RoW to decompose naturally. Other materials will be properly disposed of at the waste management facility in Berry Mills, NB that is managed by Southeast Eco 360 (Moncton 2016a).

2.7.5 Runoff

Erosion and runoff associated with construction activities, is not anticipated to result in a significant deposition of sediments into watercourses (see Section 5.3) as there are no watercourses within 300 m of the Project. Sedimentation and erosion control measures will be used to provide slope stability and prevent undue siltation of construction-related sediments into watercourses.

2.7.6 Electromagnetic Fields and Corona

No noise from corona discharges will be generated as a result of the operation of the proposed 138 kV transmission line in the Moncton Industrial Park. The operation of higher voltage transmission lines can result in the production of electromagnetic fields (EMF). Extremely high voltage (EHV) lines (≥ 345 kV) can also result in corona discharges which, in turn, may result in audible and radio frequency noise. The highest voltage for the proposed transmission line and associated infrastructure is 138 kV.

2.8 ACCIDENTS, MALFUNCTIONS, AND UNPLANNED EVENTS

This section describes potential accidents, malfunctions, and unplanned events, which are upset conditions or other events that are not part of any planned activity or normal operation of the Project, but have at least a possibility of occurrence and have the potential to result in adverse environmental interactions. While accidents, malfunctions, and unplanned events could occur during any phase of the Project, many of them can be prevented and addressed by good planning and design, communication, worksite health, safety, and environmental training of personal, emergency response planning, vehicle and equipment maintenance, and mitigation.

Given the adherence of Project-related activities to the mitigation measures and response plans in the Project Specific Environmental Management Plan (PSEMP) that will be developed prior to construction, adverse environmental interactions related to accidents, malfunctions, and unplanned events are not likely to occur during any phase of the Project.

This section describes the potential accidents, malfunctions, and unplanned events that have a reasonable probability of occurrence. Mitigative planning and response procedures are also described below.

2.8.1 Hazardous Material Spills

The potential for the release of hazardous materials can occur from the operation of vehicles, with the most likely source of a release being the rupture of a hydraulic line or the loss of fuel. The mitigation and management of hazardous materials will include:

- Training of personnel in spill prevention and response, and Workplace Hazardous Materials Information System (WHMIS)
- Following proper procedures within the Project Specific Environmental Management Plan (PSEMP)
- Routine cleaning, preventative maintenance, and visual inspections of hydraulic equipment and vehicles
- On-site spill response equipment
- Reporting spill to the appropriate Project personnel and New Brunswick Power Transmission System Operator (PSO) (1-800-756-8411). During normal business hours (*i.e.*, Monday to Friday from 8:15 am to 4:30 pm), the PSO will notify the appropriate authorities (*i.e.*, NBDELG. Outside of normal business hours, on weekends and on holidays, the PSO will notify the Canadian Coast Guard/Spills Action Centre (1-800-565-1633) if a spill occurs near watercourses.

In the unlikely event that a hazardous material spill reaches a body of water or other nearby sensitive area, measures will be taken to stop the spill and isolate the affected area as soon as possible. An assessment of the affected area will be completed and remediation will be completed as required.

2.8.2 Project-Caused Fire

The potential for fire to occur during Project activities is limited to the use of vehicles. The mitigation and management of fire will include:

- Equipping all vehicles with fire extinguishers sized and rated as appropriate
- Training personnel in the location and use of fire extinguishers
- Safely storing wastes that may be soaked in flammable materials (i.e., oily rags)
- Avoiding the parking of vehicles in areas of long grass
- Immediately reporting a fire to local emergency response services

As the Project location is not remote, local emergency response services are available.

2.8.3 Vehicle Collisions

Vehicular activity will be most prevalent during the construction phase of the Project, and will be minimal during operation and maintenance. However, during all phases there is potential for vehicles associated with Project activities to collide with:

- Other vehicles
- Project infrastructure or other infrastructure
- Animals (wild and domestic)

The mitigation and management measures planned to minimize vehicle collisions will include:

- Implementation, as needed, of traffic control measures to reduce the potential for vehicle-to-vehicle collisions
- Project staff will be appropriately licensed to operate vehicles on-site, will obey traffic rules and regulations, and will exercise due care and attention while on-site
- Trucks will use only designated truck routes
- If a collision does occur, Project personnel will immediately contact emergency services

In the event of a vehicle accident there is the potential for loss of life (human or wildlife) and damage to infrastructure. There is also potential for fire and hazardous materials to be released into the environment. These are addressed in previous sections.

2.8.4 Wildlife Encounters

The potential for an unplanned encounter with wildlife is largely limited to disturbances to birds nesting on electrical infrastructure such as equipment and transmission poles during the operation and maintenance phase.

The mitigation and management of wildlife encounters will include:

- Documentation, mapping, and species identification of raptor nests on Project infrastructure
- Scheduling of maintenance activities outside of nesting periods, where possible
- Consultation with New Brunswick Department of Energy and Resource Development (NBDERD) biologists prior to unplanned/emergency maintenance during nesting periods

2.8.5 Infrastructure Malfunctions

The potential for infrastructure to malfunction is largely limited to the replacement of a transmission pole.

The mitigation and management of infrastructure malfunctions will include:

- Regular inspection and maintenance of infrastructure
- If a malfunction does occur, it will be responded to within 24 hours of detection/reporting

Given the implementation of the mitigation measures and response plans in the existing NB Power PSEMP, adverse environmental effects related to accidents, malfunctions, and unplanned events are not likely to occur during the construction or operation and maintenance of the Project.