DRAFT - Application Information Requirements

Wonowon Landfill Project

Proposed by:
SECURE Energy Services Inc.

April 2020
Pursuant to the Environmental Assessment Act, S.B.C. 2002, c.43
PREFACE TO THE AIR

The Application Information Requirements (AIR) specifies the information that SECURE Energy Services Inc. Wonowon Landfill Project (the Proponent) is required to provide in their Application for an Environmental Assessment Certificate (Application) under the section 16(2) of B.C. Environmental Assessment Act (Act).

The Proponent is proposing to develop the Wonowon Landfill Project (the proposed Project), as described in the Project Description and as shown in Figure 1. The proposed Project is to construct and operate a secure landfill, as defined by the British Columbia Hazardous Waste Regulation (B.C. Reg. 63/88) at a location approximately nine kilometres southeast of Wonowon, British Columbia (B.C.). The proposed Project is anticipated to handle approximately 200,000 tonnes of waste annually. Since the proposed Project is for the construction of a new facility for the storage, treatment or disposal of hazardous waste, which applies to an off-site long-term storage facility or secure landfill, it is subject to a provincial EA review under Part 6 of the Reviewable Projects Regulation (B.C. Reg 370/02) of the Act.

The B.C. Environmental Assessment Office (EAO) issued a Section 10 Order to the Proponent on January 18, 2019 confirming that the proposed Project requires an Environmental Assessment Certificate (EAC), pursuant to Section 10(1)(c) of the Act, before it may receive provincial permits to construct and operate the proposed Project.

Federal Environmental Assessment Process (Canadian Environmental Assessment Act 2012 (CEAA 2012))

SECURE submitted a draft project description to the Canadian Environmental Assessment Agency (CEA Agency) in December 2016 to determine if item 29 “the construction, operation, decommissioning and abandonment of a new facility used exclusively for the treatment, incineration, disposal or recycling of hazardous waste” constituted a physical activity under CEAA 2012. CEA Agency confirmed in October 2017 that the proposed project was not described in the Regulation Designating Physical Activities and therefore does not constitute a designated physical activity under the Act and is not subject to the requirements of the federal environmental assessment process. It should be noted that the decision made in October 2017 remains valid within the context of changing federal legislation related to environmental assessments (i.e. CEAA 2012 was replaced with the Impact Assessment Act in 2019).

List of Reviewing Agencies

The following government agencies, municipal and regional agencies, Indigenous nations and the public have had the opportunity to review and comment on the Valued Component Selection Document or the draft AIR:

Provincial Agencies:

- B.C. EAO
- B.C. Ministry of Environment and Climate Change Strategy
• B.C. Ministry of Forests, Lands, Natural Resource Operations, and Rural Development
• Ministry of Energy, Mines and Petroleum Resources

Municipal and Regional Agencies:

• Peace River Regional District

Indigenous nations identified in the Section 11 Order:

• Blueberry River First Nations
• Doig River First Nation
• Halfway River First Nation
• Prophet River First Nation
• West Moberly First Nations
• Dene Tha’ First Nation
• Horse Lake First Nation
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TABLE OF CONCORDANCE

A Table of Concordance will be included in the Application. The Table of Concordance will demonstrate where the requirements in the AIR are found in the Application, with volume, section, and page references and following the format of Table 1. A well-constructed Table of Concordance will assist in a timely application evaluation to determine whether the application contains the required information.

Table 1   Table of Concordance between AIR and Application

<table>
<thead>
<tr>
<th>AIR Section &amp; Page No.</th>
<th>AIR Title</th>
<th>AIR Section Language</th>
<th>Application Section Title</th>
<th>Application Volume, Sub-Section, Page Number</th>
<th>Relevant Appendix</th>
</tr>
</thead>
</table>
ABBREVIATIONS AND ACRONYMS

- AIR – Application Information Requirements
- ANSIs – Areas of Natural or Scientific Interest
- B.C. – British Columbia
- B.C.EAA – British Columbia *Environmental Assessment Act*
- CCAB – Canadian Council for Aboriginal Business
- CFAR – Circle for Aboriginal Relations
- CO – Carbon Monoxide
- COSEWIC – Committee on the Status of Endangered Wildlife in Canada
- CRA – Commercial, recreational or Aboriginal fish or fisheries
- EAC – Environmental Assessment Certificate
- EAO – [British Columbia] Environmental Assessment Office
- EMRP - Ministry of Energy, Mines and Petroleum Resources
- GHG – Greenhouse gas
- KIs – Key Indicators
- km – Kilometres
- LSA – Local Study Area
- m – Metres
- NOx – Oxides of Nitrogen
- OCP – Official Community Plan
- PM2.5 – Fine Particulate Matter
- PM10 – Coarse Particulate Matter
- PRD – Processing, Recovery and Disposal
- PRRD – Peace River Regional District
- RSA – Regional Study Area
- SARA – Species at Risk Act
- SECURE or Proponent – SECURE Energy Services Inc.
- SO2 – Sulphur Dioxide
- SSA – Site Study Area
- TSP – Total Suspended Particulate
- VCs – Valued Components
- VOCs – Volatile Organic Compounds
APPLICATION SUMMARY

The Application will include a summary, including the following:

- A summary of the proposed Project including the project scope, project benefits and applicable permits. If the proponent has already requested or intends to request concurrent permitting, this will also be stated;
- A brief overview of the assessment process including project reviewability, and the pre-application and application review stages of the EA;
- A brief overview of consultation approaches with Indigenous nations, the public and government agencies to date;
- A summary of the key issues raised by Indigenous nations, the public and government agencies;
- A summary of key effects, proposed mitigation measures and residual and cumulative effects on Valued Components;
- A summary of key adverse effects on Aboriginal Interests and mitigation measures; and
- Proponent’s conclusions regarding the potential for significant adverse effects on Valued Components.
DRAFT Application Information Requirements

Part A - Introduction
PART A - INTRODUCTION

1.0 OVERVIEW OF PROPOSED PROJECT PROPONENT DESCRIPTION

A description of the Proponent is included in the Project Description at https://projects.eao.gov.bc.ca/api/document/5c378009bf18790024bc73ad/fetch/Wonowon%20Landfill%20Project%20Description.pdf.

The Application will:

- Describe the Proponent, including history, type of company or organization, affiliations;
- Provide contact information for the Proponent; and
- Include a list of parties involved in the preparation of the Application, their qualifications, and the section(s) for which they were responsible.

1.1 Description of Proposed Project

SECURE proposes to construct and operate a new Secure Landfill on Crown land approximately 9 km southeast of the community of Wonowon in the Peace River Regional District in northeast British Columbia. The wastes SECURE proposes to accept for direct disposal at the proposed facility include contaminated soils (including those containing more than 3% hydrocarbon) from spill clean-ups and site remediation, drilling waste from oil and gas exploration and production, industrial waste and forestry waste. The characteristics of the proposed waste will be those of oil and gas as well as industrial refuse including select hazardous waste, but not including wastes prohibited by BC Regulations. Municipal solid wastes and liquids will not be accepted for disposal. A further description of the proposed Project is included in the Project Description at https://projects.eao.gov.bc.ca/api/document/5c378009bf18790024bc73ad/fetch/Wonowon%20Landfill%20Project%20Description.pdf.

The Application will:

- Describe the purpose of the proposed Project from the perspective of the Proponent, and identify whether the objectives of the proposed Project relate to any broader private or public sector policies, plans, or programs;
- Describe the location of the proposed Project and the latitude and longitude coordinates of the site and include maps showing both regional context (identifying nearby communities and geographic features) and the specific location of the proposed project;
- Describe the location of the proposed Project relative to Indigenous nations’ asserted traditional territories, and/or Treaty Nation territories;
• Describe all phases of the proposed Project, including their duration and proposed scheduling;
• Describe all on-site and off-site components associated with the proposed Project, with figures;
• Describe the activities associated with the components and phases of the proposed Project, with figures;
• Discuss the relevant history of the proposed Project, including exploratory or investigative history;
• Summarize existing and planned land use, including management zones and Indigenous communities' land use plans that overlaps or may be potentially impacted by the proposed Project components and activities, including:
  o Land ownership [e.g. private land, provincial Crown land, federal land (including Indian Reserves), Aboriginal title];
  o Local government zoning or plans;
  o Tenures (municipal, provincial, federal), licences, permits or other authorizations;
  o Non-tenured current land uses;
  o Provincial land use plans (e.g. Land and Resource Management Plans) and provincial land use designations (e.g. Agricultural Land Reserve, Old Growth Management Areas, Forests and Range Practices Act designations) and provincial and Indigenous community land use management objectives;
  o Any other development or activities, whether or not directly related to the proposed Project;
  o Maps showing location of other uses referenced above in relation to the proposed Project; and
  o References to the Application section that assesses land use and potential overlaps/impacts in more detail.
• Describe the project’s economic benefits.
  o Capital construction cost estimates, including:
    ▪ Breakdown of costs (e.g. land, buildings, equipment) associated with the proposed Project;
    ▪ Estimated operating costs over the life of the proposed Project, including breakdown of costs by category (e.g. labour, supplies and materials, administration); and
    ▪ Estimated costs for decommissioning/closure/abandonment/reclamation.
  o Employment estimates including:
    ▪ Direct employment to be created, by job category by project phase, in number of person year (PY) jobs for construction and decommissioning and full-time equivalent (FTE) jobs for operations. Direct employment estimates will be broken down into full-time, part-time and seasonal job categories;
    ▪ Average wages, by major job category, for the construction and operating periods;
• Breakdown of jobs that will be filled from local, provincial, national or international labour markets;
• Indirect and induced employment to be generated, by project phase; and
• Information about an employment strategy, if any.

• Contractor supply services estimates including:
  o List of the major types of businesses/contractors to be used, broken down at the local, provincial, and national level, by project phase;
  o Value of supply of service contracts expected, by project phase; and
  o Information about a local purchasing strategy, if any.

• Annual government revenues, by type (e.g. income tax, licence rent, property tax, mineral tax) and jurisdiction (e.g. local, provincial, federal), for all phases of the proposed Project;

• Any benefits the project may have to the five pillars of assessment (Environmental, Economic, Social, Health and Heritage);

• All Canadian dollar estimates will be provided in real dollars, with an explanation of how they are measured (e.g. discount rates); and

• State all assumptions and references for the above information.

1.2 Applicable Authorizations

A list of required authorizations, to the extent that was known at the time, is available in the Project Description at https://projects.eao.gov.bc.ca/api/document/5c378009bf18790024bc73ad/fetch/Wonowon%20Landfill%20Project%20Description.pdf.

The Application will:

• List in table format (see example in Table 2 below) all applicable licenses, permits and/or approvals that are already received or expected to be required for the phases of the proposed Project, and the associated responsible regulatory body; and

• State if the proponent has or intends to request concurrent permitting under the Act pursuant to the Concurrent Approval Regulation (B.C. Reg. 371/2002).

At this stage, it is anticipated that the Proponent will seek concurrent permitting under the Act pursuant to the Concurrent Approval Regulation (B.C. Reg. 371/2002).

Table 2 Authorization Table

<table>
<thead>
<tr>
<th>Name of Authorization</th>
<th>Statute and Authorizing Agency</th>
<th>Description Need for Authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>Environmental Assessment Act,</td>
<td>A certificate is required because the proposed Project is considered to be a</td>
</tr>
</tbody>
</table>
**Name of Authorization** | **Statute and Authorizing Agency** | **Description Need for Authorization**
--- | --- | ---
Waste Discharge Permit | Environmental Management Act | A Waste Discharge Permit is a site-specific authorization granting permission to discharge waste to the environment from a specific industry or activity. A permit sets the terms under which discharge may occur for a particular facility, activity or operation. A permit is required because the proposed Project will discharge waste to an engineered landfill, which is considered a discharge to the environment.
Development Permit/ Land Rezoning | Peace River Regional District | The land at the proposed Site location is currently classified under Peace River Regional District Zoning Bylaw 1000, 1996 as A-2 (Large Agricultural Holdings Zone) and as Agriculture – Rural Resource under the Rural Official Community Plan.
To accommodate the development of a secure landfill, the proposed land is expected to require rezoning from A-2 to Industrial and the Rural Official Community Plan may have to be amended to re-designate the proposed land for the landfill from Agriculture – Rural Resources to Heavy Industrial.
Crown Land Tenure | Ministry of Forests, Lands, Natural Resource Operations and Rural Development | Land that is owned by the provincial or federal government is known as Crown land, and Crown land tenure is an agreement between a company and the provincial or federal government which provides the company with an interest in the land.
Given that the proposed new secure landfill is located on Crown land, Crown land tenure is required.

### 1.3 Project Design and/or Alternative Means of Carrying out the Project

The Application will include:

- An assessment of the alternative means of carrying out the proposed Project that are technically and economically feasible including, but not limited to, the alternatives identified in the AIR;
- The rationale and criteria used to select the proposed means of undertaking the proposed project; and
- The methodology and criteria used in the assessment of alternatives.

### 1.4 Alternatives to the Proposed Project

The Application will include:

- An assessment of the alternatives to the proposed Project that were technically and economically feasible including, but not limited to, the alternatives identified in the AIR.

The assessment of alternatives will include an assessment of developing the landfill at an alternate location. The alternative will be assessed qualitatively using the criteria of effects to the existing environment, social, economic heritage and health conditions. In addition, cost will be considered in the assessment of the alternative location.
2.0 ENVIRONMENTAL ASSESSMENT PROCESS

2.1 Provincial EA Process

The Application will include:

- A statement that the proposed Project is subject to review under the Act, identifying the trigger(s) for the review under the Act;
- A statement that the Application has been developed pursuant to the AIR approved by EAO and complies with relevant instructions provided in the section 11 Order and any other direction provided by EAO;
- A table documenting applicable milestones, including, but not limited to, issuance of section 10 and 11 Orders, working group meetings, any public comment periods or open houses and the issuance of the AIR), including links to documents on EAO’s public website;
- A list of the government agencies and Indigenous nations that participated in the EA; a summary of their participation; and, a list of the key issues raised by each party and the status of issue resolution. (The Proponent will cross-reference, as appropriate, other sections of the Application that deal further with consultation and issues raised); and
- A summary of public participation in the EA, a list of the key issues raised, and the status of issue resolution (with cross-references, as appropriate, to other sections of the Application that deal further with consultation and issues raised).
DRAFT Application Information Requirements

Assessment of Environmental, Economic, Social, Heritage and Health Effects
PART B - ASSESSMENT OF ENVIRONMENTAL, ECONOMIC, SOCIAL, HERITAGE AND HEALTH EFFECTS

3.0 ASSESSMENT METHODOLOGY

This section of the Application must describe the methods used to assess the potential adverse effects of the Project. The assessment methodology must be based on the EAO’s Guideline for the Selection of Valued Components and Assessment of Potential Effects (September 2013).

3.1 Issues Scoping and Selection of Valued Components

The selected Valued Components (VCs) include the following:

- Terrain and Soils;
- Groundwater;
- Noise and Vibration;
- Air Quality;
- Vegetation;
- Fish and Fish Habitat;
- Water Quality and Quantity;
- Wetlands;
- Wildlife;
- Land and Resources;
- Community Services;
- Transportation;
- Cultural Heritage; and
- Human Health.

The Application will summarize the process and methodologies used to identify and select the VCs for assessment. The process used to select and define the VCs is provided in Table 3. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

Figure 1 Summary of Methodological Steps
### Table 3  Valued Components and Rationale

<table>
<thead>
<tr>
<th>VC</th>
<th>Subcomponent(s)</th>
<th>Key Indicator(s)</th>
<th>Rationale</th>
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<tbody>
<tr>
<td><strong>Environment</strong></td>
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</tr>
<tr>
<td>Terrain and Soils</td>
<td>• Topsoil</td>
<td>• Topsoil quality and distribution</td>
<td>Soil quality affects environmental health and water quality, as well as soil productivity and reclamation suitability, through leaching of materials from the waste collected.</td>
</tr>
<tr>
<td></td>
<td>• Terrain</td>
<td>• Erosion and deposition of dust</td>
<td>Potential impacts to soils include loss or mixing of topsoil and subsoil during construction and closure activities, loss of stockpiled soil through wind and/or water erosion, contamination during construction and operation and effects to nearby topsoil quality from air borne contamination (including dust) from the Site.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Topsoil quality and distribution</td>
<td>Accelerated erosion from precipitation and surface water runoff can reduce soil productivity impacting vegetation growth and hydrologic characteristics.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>• Groundwater quality</td>
<td>• Change to groundwater quality</td>
<td>Construction and operation may introduce groundwater contamination.</td>
</tr>
<tr>
<td></td>
<td>• Groundwater quantity</td>
<td>• Change to groundwater flow characteristics</td>
<td>Potential impacts to groundwater at the proposed Project site and the surrounding area are contamination from landfilled materials. Groundwater contamination has the potential to affect downgradient groundwater quality, downstream surface water quality, aquatic habitat, or drinking water through migration of leachate impacts through groundwater during operation and post-closure.</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>• Noise level</td>
<td>• Change in noise levels and vibration during construction and operation</td>
<td>The existing noise and vibration baseline is limited to background noise levels and vibration from the existing vehicular traffic on the local road network, as the area surrounding the Site is sparse and the land uses do not support significant noise or vibration generating sources. Background levels from the road network are expected to be similar to or greater than any operational noise generated on-Site. Sensitive receptors (communities, camp areas, etc.) will be confirmed and mapped and baseline levels confirmed.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>• Particulate matter (PM2.5, PM10, TSP)</td>
<td>• Change to existing (background) Ambient Air Quality (predicted off-Site point of impingement concentrations (ug/m³) of indicator compounds)</td>
<td>The Project has the potential to increase airborne levels of contaminants including particulate matter (dust) levels associated with transportation and earthworks activities. Existing (background) air quality will be characterized from publicly available sources. Project effects on ambient air quality will be predicted using an air dispersion model. Perception of odour from construction equipment and wind erosion can affect the ability to use the surrounding environment, such as for traditional purposes. Due to the nature of the waste material to be landfilled, landfill gas generation is expected to be minimal.</td>
</tr>
<tr>
<td></td>
<td>• Volatile Organic Compounds (VOCs)</td>
<td>• Detectable odour at the Site’s fence line and at sensitive receptors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Odour</td>
<td>• Number of sensitive receptors potentially affected</td>
<td></td>
</tr>
<tr>
<td>Vegetation</td>
<td>• Vegetation communities of concern and riparian vegetation</td>
<td>• Loss of vegetation communities of concern and riparian vegetation</td>
<td>The description of vegetated lands within the Study Areas is critical for all natural heritage disciplines in that it forms the basis for determining wetland areas and habitat suitability for terrestrial/aquatic wildlife and Species at Risk.</td>
</tr>
<tr>
<td>VC</td>
<td>Subcomponent(s)</td>
<td>Key Indicator(s)</td>
<td>Rationale</td>
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<td>• Plant species of concern, including plant species used for traditional purposes</td>
<td>• Loss of plant species of concern, including plant species used for traditional purposes</td>
<td>Introduction or spread of non-native plants or noxious weeds may occur during construction, operation, or closure activities. To minimize the spread of non-native plants and noxious weeds, equipment is inspected and washed prior to mobilization and demobilization. Suitable plant species for revegetation of capped landfill cells will be determined.</td>
</tr>
<tr>
<td></td>
<td>• Invasive plant species</td>
<td>• Introduction or spread of non-native plants or noxious weeks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Loss of plant species of concern, including plant species used for traditional purposes</td>
<td>• Change in plant health</td>
<td>Fish species of management interest and their habitat, including species of concern to Indigenous nations was identified as a subcomponent to include species of fish that contribute to commercial, recreational or Aboriginal (CRA) fisheries as defined in the Fisheries Act, as well as fish species of conservation concern that are listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), listed under the Species at Risk Act (SARA) as Endangered, Threatened or Special Concern, of particular interest to local Indigenous communities, or listed as Red or Blue-listed provincially.</td>
</tr>
<tr>
<td></td>
<td>• Change in habitat productivity (benthic invertebrate abundance, diversity and community composition)</td>
<td>• Change in water quality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Change in water quality</td>
<td>• Change in habitat area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Change in hydrology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wetlands are ecosystems of particular interest for both the provincial and federal governments. They are considered as important features of the natural landscape, performing many biological, hydrological, social / cultural, and economic production functions which are of value to society. Wetlands provide habitat for many flora and fauna species, many of which depend on these habitats for their survival. The hydrological functions of wetlands include groundwater recharge and discharge, erosion and flood control, and contaminant reduction. Additionally, wetlands support recreational activities, subsistence (e.g., flora and fauna harvesting) and commercial production (e.g., forestry, cranberry bogs).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Loss of wetlands (total area)</td>
<td>• Change in vegetation communities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Change in hydrology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wildlife species of ecological, economic or human importance including:</td>
<td>• Change in habitat</td>
<td>Known environmental sensitivities and high level constraints to route planning will be considered.</td>
</tr>
<tr>
<td></td>
<td>o Moose; o Other ungulates</td>
<td>• Wildlife mortality</td>
<td>Although the Site has been identified by the BC Ministry of Forests, Lands, and Natural Resource Operations and Rural Development (FLNRORD) to not overlap with any legally established Ungulate Winter Range, Wildlife Habitat Areas, or mapped rare wildlife values, Terrestrial habitats within the study area will be identified, delineated and categorized.</td>
</tr>
<tr>
<td></td>
<td>• Change in movement of wildlife species of ecological, economic or human importance</td>
<td>• Change in vegetation communities</td>
<td>Wildlife species of ecological, economic or human importance in the overall study area will be</td>
</tr>
</tbody>
</table>
### Subcomponent(s)

- (including deer);
  - Black Bear;
  - Furbearers;
  - Birds; and
  - Amphibians.
- Wildlife habitat

### Key Indicator(s)

- Proximity and change to fish management zones and species managed
- Proximity and change to registered trap lines / areas of licenced holders
- Proximity and change to wildlife management units
- Conformance with provincial and municipal land use plans
- Oil and gas infrastructure and pipeline tenures affected
- Disturbance to oil and gas infrastructure
- Disturbance to logging/forestry operations
- Disturbance to major tourism and recreational features
- Soil degradation resulting in a change in classification of soil
- Change in the level of visual quality

### Rationale

- Identified and will include resident, temporary (e.g. migratory) and rare species.
- Nearby lands that might constitute sensitive areas and habitat for wildlife will be described.
- Environmentally significant areas such as National and Provincial Parks, Migratory Bird Sanctuaries, National Wildlife Areas, or World Biosphere Reserves within the Study Areas will be identified and reviewed.
- Data from sources such as Bird Studies Canada, Environment Canada, previous studies conducted in the Study Areas, as well as traditional knowledge from First Nations communities will be reviewed.

### Social

#### Land and Resources

- Traditional Land and Resource Use
- Land Use
- Oil and gas exploration and production
- Logging/forestry
- Major tourism and recreational features
- Agricultural capability
- Aesthetic/Visual

- Proximity and change to fish management zones and species managed
- Proximity and change to registered trap lines / areas of licenced holders
- Proximity and change to wildlife management units
- Conformance with provincial and municipal land use plans
- Oil and gas infrastructure and pipeline tenures affected
- Disturbance to oil and gas infrastructure
- Disturbance to logging/forestry operations
- Disturbance to major tourism and recreational features
- Soil degradation resulting in a change in classification of soil
- Change in the level of visual quality

- The proposed location is within Treaty 8 Territory. Consultation with Treaty 8 First Nations is ongoing and SECURE is currently working with First Nations to determine potential impacts to Traditional Use at the Site.
- Hunting – type of animal species, what time of year, with whom (hunting party make-up), location of hunting areas, typical yearly harvest numbers, observations about animal cycles, movements, condition of the animals and activities in the Study Areas, and related information
- Trapping and Snaring – where are trap lines/snaring carried out, what animals are trapped/snared and if this has changed over time, who is involved (junior trapper, other family members), typical harvest numbers (if provided), observations about the animals (abundance, cycles, movements, condition of the animals, etc.)
- Fishing – type of fish species, what time of year, with whom, where do they fish (record names of lakes and streams), typical yearly harvest numbers, observations about fish abundance, movements/spawning areas, condition of the fish in the study area lakes and streams
- Plant Harvesting and Use – areas where plants (for food, medicine, building materials) are harvested, when they are harvested, species of plants and their importance/use
- The land at the proposed Site location is currently classified under Peace River Regional District (PRRD) Zoning Bylaw 1000, 1996 as A-2 (Large Agricultural Holdings Zone) and as Agriculture – Rural Resource under the Rural Official Community Plan). To accommodate the development of a secure landfill, the proposed land is expected to require rezoning from A-2 to Industrial and the Rural Official Community Plan may have to be amended to re-designate the proposed land for the landfill from Agriculture – Rural Resources to Heavy Industrial.
- Project activities may disrupt land use activities through potential physical disruption and potential access disruption during construction, operation, and closure.
- The Site itself and much of the land within the Study Areas is rated as having very severe (Class 5) limitation for agricultural production (Canada Land Inventory 1970).
- The clearing and construction of proposed secure landfill sites can cause potential aesthetic impacts on a viewshed depending on the existing visual quality of the Study Areas and the exposure of the visual impact to people.
- The existing visual conditions of the study area at a broad level will be documented and sensitive receptors will be reviewed as potential viewpoints. Given the proximity to residents/sensitive receptors and the natural buffers that currently exist, SECURE does not believe that this proposed undertaking will create an unacceptable visual impact. This will be confirmed through the detailed site design process and FLNRORD Crown Land Tenure process.
<table>
<thead>
<tr>
<th>VC</th>
<th>Subcomponent(s)</th>
<th>Key Indicator(s)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Services</td>
<td>• Community services • Health services • Utilities • Housing and accommodation</td>
<td>• Increased demand on Community services, health, police • Increased demand on Community utilities • Increased demand on accommodation</td>
<td>• SECURE will make an effort to preferentially engage local suppliers and vendors who have the required qualifications when contracts are being awarded for construction of the facility. It is anticipated that the net effect on the surrounding communities will be positive through job creation and direct spending on services and materials which could potentially include labour, subsistence camps (if required during construction), sanitary services, electrical and instrumentation, water and pressure trucks, piping and fittings, sand and gravel, utilities location, fencing, logging, soil stripping and fuel. SECURE anticipates that the potential for project service and materials requirements to create a strain on currently available local services is low due to currently depressed regional activity levels. The surrounding municipality is being consulted and any concerns will be addressed.</td>
</tr>
<tr>
<td>Transportation</td>
<td>• Traffic • Transportation infrastructure</td>
<td>• Traffic volumes • Disturbance to traffic operations</td>
<td>• A relative increase in local truck traffic is expected on the facility access road. Preliminary estimates are approximately 20 trucks per day coming from Highway 97; however, it is not expected to affect the movement and flow of traffic on main roads through Wonowon. This will be confirmed through a Traffic Impact Assessment, including whether or not potential highway intersection improvements are required. Overall, the Landfill is expected to reduce the overall trucking distance required for disposal of associated wastes by providing a local option for materials generated in the region.</td>
</tr>
<tr>
<td>HERITAGE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Heritage</td>
<td>• Cultural resources • Heritage resources</td>
<td>• Disturbance to historical resources • Disturbance to cultural resources</td>
<td>• Cultural Heritage resources could potentially be displaced by the construction of a secure landfill. The use and enjoyment of cultural resources may also be disturbed by the ongoing operation.</td>
</tr>
<tr>
<td>HEALTH</td>
<td>• Physical impacts to human health • Social Determinants of Health</td>
<td>• Comparison of air quality, noise and vibration, water, soil, exposure to NORM, and country foods (e.g., hunting, fishing, trapping) measurements and predictions to the applicable human health guidelines and standards • Screening Level Human Health Risk Assessment (SLHHRA) estimates for exposure pathways and contaminates and receptors of potential concern • Social Determinants of Health (SDH), including changes to services, social interactions livelihood and active living</td>
<td>• While the nearest sensitive receptor is approximately 3.2 km away from the Site, which suggests that the potential human health effects are limited, there are other receptors (including temporary and traditional land users) that may be in closer proximity to the site (i.e. fishing, hunting, trapping, etc.) . • A SLHHRA will be conducted to verify these assumptions and to determine the potential effects. • Social and cultural determinants of health will be considered to take into account the current context of social and cultural conditions.</td>
</tr>
</tbody>
</table>
3.2 Assessment Boundaries

3.2.1 Spatial, Temporal, Administrative and Technical Boundaries

The Application will describe the methods used in identifying spatial, temporal, administrative and technical boundaries. Information on spatial, temporal, administrative and technical boundaries for specific VCs will be included in the appropriate VC sections of this document and will encompass all relevant project phases, components and activities. The Application will include the rationale for any differences in boundaries from those presented in the final AIR.

The spatial boundaries are considered as follows:

- **Site Study Area (SSA) (or “Project Footprint”):** The land area directly disturbed by Project construction activities, including associated physical works and activities;

- **Local Study Area (LSA):** The LSA varies with the VC being considered. The LSA includes the Project Footprint and extends beyond it to incorporate the area within which the VC is most likely to be affected by the Project; and

- **Regional Study Area (RSA):** The RSA varies with the VC being considered and includes the Project Footprint and LSA, and the area extending beyond the LSA where there is potential for the Project to have regional effects on the VC. The RSA is also used to assess potential cumulative effects.

The Application will include a description of the methods used for identifying sensitive receptors for VCs during the confirmation of spatial boundaries.

There are two different types of temporal boundaries to consider. The first type are the boundaries that are associated with the temporal limits of a project. They include both large scale limits: different phases of a project (construction, operation, and closure and post-closure) and small scale limits: duration of specific project activities. Generally, the temporal boundary encompasses all project phases; however, the temporal boundary can vary depending on the VC being considered. The second are the temporal characteristics associated with each VC. Temporal characteristics include both the timing and duration of critical or sensitive life stages of biological VCs (e.g., nesting and spawning periods and over-wintering). Temporal characteristics also include timing and duration of human activities (e.g., heavy tourism and recreation seasons).

For the Wonowon Landfill Project the temporal boundary limits for all VCs encompass all project phases as follows:

- **Construction (C):** Initial Site preparation and construction (approximately 3 months);

- **Operations (O):** Waste acceptance at the Site, ongoing landfill clearing and landfill cell construction, progressive landfill cell closure, and monitoring (approximately 25 to 75 years, depending on demand for facility services);

- **Closure/Reclamation (C/R):** Capping of remaining landfill cell(s) following cessation of waste acceptance at the Site, removal of non-essential on-site infrastructure and closure of the facility.
(approximately 6 months); and

- **Post-Closure (P-C):** Monitoring of the Site to the satisfaction of Ministry of Environment and Climate Change Strategy (MOECCS) Permit and Closure Plan (minimum 25 years).

Relevant temporal characteristic boundaries will be documented for each VC, as appropriate.

Administrative boundaries consider political, economic, or social constraints on an assessment. An example of a potential administrative boundary would be if an available dataset does not have the same spatial boundaries as the selected VC. This could cause potential constraints to the assessment of effects.

At this stage no administrative boundaries have been identified for this Project.

Technical boundaries reflect the limitations in the ability to predict the effects of a project, which impose potential constraints on an assessment. An example of a technical boundary is the difficulty associated with sampling certain reclusive species, resulting in a data gap for a VC. Technical limitations are also associated with modeling and the possible margin of error in the generated data.

At this stage no technical boundaries have been identified for this Project.

Table 4 provides the assessment boundaries (spatial and temporal) for each VC over which Project-related effects may occur.

**Table 4  Assessment Boundaries**

<table>
<thead>
<tr>
<th>VC</th>
<th>Spatial Boundary</th>
<th>Temporal Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Site Study Area</td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrain and Soils</td>
<td>The area within the Site boundaries and the access road to Highway 97.</td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td>The area within the Site boundaries and the access road to Highway 97.</td>
<td></td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>The area within the Site boundaries and the access road to Highway 97.</td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td>The area within the Site boundaries and the access road to Highway 97.</td>
<td></td>
</tr>
<tr>
<td>Vegetation</td>
<td>The area within the Site boundaries and the access road to Highway 97.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Local Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrain and Soils</td>
<td>All lands within a 500 metre (m) radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>All lands within a 1,000 m radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>All lands within a 1,000 m radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>All lands within a 5,000 m radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>All lands within a 1,000 m radius of the SSA boundaries.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Regional Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrain and Soils</td>
<td>RSA: All lands within a 1,000 m radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>All lands within a 5,000 m radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>All lands within a 1,500 m radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>All lands within a 10,000 m radius of the SSA boundaries.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>RSA: All lands within a 5,000 m radius of the SSA boundaries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>Terrain and Soils</td>
<td>C/R</td>
</tr>
<tr>
<td>Groundwater</td>
<td>P-C</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td></td>
</tr>
<tr>
<td>Vegetation</td>
<td></td>
</tr>
<tr>
<td>VC</td>
<td>Spatial Boundary</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fish and Fish Habitat</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>Water Quality and Quantity</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>Wetlands</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>Social</td>
<td></td>
</tr>
<tr>
<td>Land and Resources</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>Community Services</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>Transportation</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>HERITAGE</td>
<td></td>
</tr>
<tr>
<td>Cultural Heritage</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
<tr>
<td>HEALTH</td>
<td></td>
</tr>
<tr>
<td>Human Health</td>
<td>• The area within the Site boundaries and the access road to Highway 97.</td>
</tr>
</tbody>
</table>

### 3.3 Existing Conditions

For each VC section, (Environmental, Economic, Social, Heritage and Health), the Application will include a description of the existing (or baseline) conditions within the study area in sufficient detail to enable potential project-VC interactions to be identified, understood, and assessed:
• A description of the quality and reliability of the existing (or baseline) data and its applicability for the purpose used, including any gaps, insufficiencies and uncertainties, particularly for the purpose of monitoring activities;

• Reference to natural and/or human-caused trends that may alter the environmental, economic, social, heritage and health setting, irrespective of the changes that may occur as a result of the proposed Project or other project and/or activities in the area;

• A description of the historical context including trajectories of change for key VCs and rights-based harvesting activities;

• An explanation of if and how other past and present projects and activities in the study area have affected or are affecting each VC;

• Documentation of the methods and data sources used to compile information on existing (or baseline) conditions, including any standards or guidelines followed;

• Where additional project and VC-specific field studies are conducted, the scope and methods to be used will follow published documents pertaining to data collection and analysis methods, where these are available. Where methods used for the assessment deviate from applicable published guidance, the rationale for the variance will be provided in the Application; and

• Description of what Traditional Ecological Knowledge (TEK), including Aboriginal Traditional Knowledge, was used in the VC assessment.

The Application will contain the existing (or baseline) technical reports in the Appendices and will summarize key findings contained in these technical reports directly in the Application, in a manner that allows the reader to understand each VC’s effects assessment. The baseline reports will include applicable standards and methods that were followed for the collection of baseline information.

### 3.4 Potential Effects

The Application will summarize the overall process and methodologies used to identify and assess the potential effects of the proposed Project on the identified VCs.

For each VC section, the Application will:

• Identify the potential interactions of the proposed Project and the considered and selected VCs;

• Identify and describe the potential adverse effects resulting from the proposed Project; and

• Demonstrate how feedback from Indigenous nations, the public, stakeholders and government agencies on VC selection and assessment was incorporated, as appropriate.

The Application will identify any project activity-VC interactions that were excluded from further assessment, including the methods and criteria used to justify the exclusion and input received from EAO, government agencies, Indigenous nations and the public regarding the exclusion.
3.5 Mitigation Measures

For each VC section, the Application will:

- Describe the approach to identify and analyze mitigation measures, including any management and compensation plans proposed by the Proponent, which will be implemented to address potential effects;
- Describe the mitigation measures incorporated into the project, including site and route selection, project scheduling, project design (e.g. equipment selection, placement, emissions abatement measures), and construction and operation procedures and practices;
- Describe any standard mitigation assumed or proposed to be implemented, including consideration of best management practices, environmental management plans, environmental protection plans, contingency plans, emergency response plans, and other general practices;
- Clearly indicate how the mitigation measures will mitigate the potential adverse effects on the VC;
- Provide the rationale for the proposed mitigation measures, including why further avoidance or reduction measures for adverse effects may not be considered feasible, and the need for and scope of any proposed compensation or offset;
- Evaluate the anticipated success of each mitigation measure and describe rationale and analysis for these evaluations. If there is little relevant/applicable experience with a proposed mitigation measure and there may be some question as to its effectiveness, describe the potential risks and uncertainties associated with use of the mitigation;
- Include the time required for mitigation to become effective, to enable understanding of the duration of residual effects and the temporal characteristics of reversibility;
- Summarize the mitigation measures for potential Project effects by project phase and identify any mitigation measures that are in management or compensation plans; and
- Include the commitment to develop and implement appropriate mitigation measures if an impact to the environment is detected during monitoring, in alignment with the principles of adaptive management that will be implemented during monitoring and follow-up for the Project.

3.6 Characterization of Residual Effects

The Application will describe, in a table format, the residual effects using the residual effects criteria context, magnitude, extent, duration, reversibility, and frequency, as defined in EAO's Guideline for the Selection of Valued Components and Assessment of Potential Effects. Where feasible, these criteria will be described quantitatively in the Application for each VC. When residual effects cannot be characterized quantitatively, the Application will characterize these effects qualitatively. Definitions will be provided when qualitative terms are used.

The use of any qualitative terms (e.g. high, moderate, low, etc.) will be accompanied by distinct definitions
for each of these rankings. An explanation will be included for the conclusion reached for each criterion used to characterize a residual effect.

When residual effects on a VC are determined and the VC is also considered a “pathway” for other potential effects on other VCs, the Application will identify the linkages between the VCs and the discipline-specific studies to which the information has been forwarded for further evaluation.

Potential residual adverse effects of the Project will be characterized, in tabular format, using the following standard criteria:

- **Context** – ecological and social context within which residual effects may occur and the sensitivity and resilience of the VC to change as a result of the Project;
- **Magnitude** – measurement of the expected size or severity of the residual effect or the degree of change caused by the Project relative to existing conditions or a guidance value. The magnitude of an environmental effect will be expressed in measureable or quantifiable terms whenever possible. The criteria used to classify magnitude as negligible, low, medium or high will be developed for each VC and included in the Application;
- **Geographic Extent** – the spatial area over which the residual physical, ecological or social effect is predicted to occur (SSA, LSA or RSA);
- **Duration** – the length of time the residual effect is expected to persist, which may be longer than the duration of the physical work or activity that gave rise to the residual effect (immediate, short term, medium term, long term or permanent);
- **Reversibility** – whether or not the residual effect on the VC can be reversed once the physical work or activity that caused the disturbance ceases (reversible, partially reversible or irreversible); and
- **Frequency** – how often the residual effect occurs (single/rare, infrequent, frequent/regular or continuous.

### 3.7 Likelihood

The Application will assess the likelihood for all residual adverse effects using appropriate quantitative or qualitative terms and sufficient description to understand how the conclusions were reached. Definitions of any qualitative terms, such as ‘low’, ‘moderate’, or ‘high’ probability will be provided in the Application.

### 3.8 Proponent’s Determination of Significance

The Application will present the process and methodology used to define and evaluate the significance of residual effects, including how the term “significance” has been used in relation to each VC using quantitative and qualitative thresholds.

A conclusion of significance of residual adverse effects will be provided for each VC.
3.9 Confidence and Risk

The Application will summarize the process and methodology used to evaluate the levels of confidence associated with residual effects predictions and in particular, how any identified uncertainty may affect either the likelihood or the significance of the predicted residual effect. The Application will also describe any measures to reduce uncertainty through monitoring, adaptive management or other follow-up programs.

The Application will summarize the process and methodology used to determine if additional risk analysis is required. If additional risk analysis is required, the Application will summarize the process and methodology used for this analysis and the conclusions, including the range of likely, plausible and possible outcomes with respect to likelihood and significance.

3.10 Cumulative Effects Assessment

3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities

Figure 2 Steps to Determine Residual Project & Cumulative Effects

- Potential project effects
- Mitigation for project effects
- Residual project effects
- Interaction with residual effects of other past, present or reasonably foreseeable projects & activities
- Potential cumulative effects
- Additional mitigation for cumulative effects
- Residual cumulative effects

The following development categories will be considered in the Application:

- Projects or activities that have already been built or conducted for which the environmental effects overlap with those of the proposed Project (i.e. certain); and
- Projects that are either proposed (public disclosure) or have been approved to be built, but are not yet built, for which the environmental effects overlap the proposed Project (i.e. reasonably
In terms of the initial review of existing land use planning documents and other secondary sources (i.e. Peace River long range plan, Peace River current development applications, Atlas of Cumulative Landscape Disturbance in the Traditional Territory of Blueberry River First Nations, B.C. Oil and Gas Titles, B.C. Mineral Titles, etc.), no projects are planned at this time that would interact from a temporal or spatial perspective. SECURE will continue to monitor the potential future projects that may interact with the proposed undertaking, but the search for future developments will be cut off three months prior to the submission of the Final AIR. Further, we will also engage and consult on potential future projects within close proximity to the proposed SECURE project to solicit additional input and feedback.

The Application will describe the methodology for identifying potential interactions between residual project effects and the effects of other developments, including a description of the following:

- The spatial boundaries for the cumulative effects assessment for each VC, including maps;
- The spatial and temporal boundaries of other developments; and
- The potential for interaction (spatial and temporal) and linkages (overlap) of VCs with other developments.

The Application will include:

- A table of all past, present and reasonably foreseeable developments that will be included in the cumulative effects assessment, should one be required for a particular VC;
- A general description of the information sources used to identify reasonably foreseeable developments and activities; and
- A map showing the location of the projects and activities.

### 3.10.2 Conducting a Cumulative Effects Assessment

The Application will summarize the process and methodology used to conduct the cumulative effects assessment, including the identification of potential cumulative effects, identification of additional mitigation measures, and evaluation of any (residual) cumulative effects using the same methodology described above in sections 3.6 to 3.9 of the AIR.

### 3.11 Follow-up Strategy

Where a residual adverse effect and/or cumulative effect has been identified for a specific VC, the Application will include a description of a follow-up strategy, where appropriate, that:

- Identifies the measures to evaluate the accuracy of the original effects prediction;
- Identifies the measures to evaluate the effectiveness of proposed mitigation measures; and
• Proposes an appropriate strategy to apply in the event that original predictions of effects and mitigation effectiveness are not as expected. This includes reference to further mitigation, involvement of key stakeholders, Indigenous nations, government agencies and any other measures deemed necessary to manage the issue.
4.0 ENVIRONMENTAL EFFECTS ASSESSMENT

The Application will include an assessment of Environmental Effects VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of the AIR, using the organizational structure demonstrated in this section.

4.1 Terrain and Soils

The Terrain and Soils VC includes the following subcomponents:

- Topsoil
- Terrain

The key indicators (KIs) that will be used to measure the potential adverse effects of the proposed Project on the Terrain and Soils VC include:

- Topsoil quality and distribution
- Erosion and deposition of dust

The VC that may interact with Terrain and Soils and affect the assessment is Groundwater.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.1.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Terrain and Soils are provided in Figure 3.
Figure 3  Terrain and Soils Study Areas
4.1.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Terrain and Topsoil VC:

- Field investigations and sampling completed during the site feasibility stage, including soil sampling and borehole data.
- A desktop review of existing material including:
  - Historical aerial photography
  - Surficial geology, soils, and silviculture mapping (OGS, NOEGTS, Canadian Soil Information Service, FLNRORD, and Forestry companies)
  - Technical reports and previous studies for development in the area, as well as previous reports of soil contamination and associated sites available through MOECCS files as appropriate to the route
  - Borehole logs

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

4.1.3 Potential Effects

The proposed Project is anticipated to interact with the Terrain and Topsoil VC during the following construction, operations, closure/reclamation, and post-closure activities:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td></td>
</tr>
<tr>
<td>Transportation/mobilization of equipment and workers to site</td>
<td></td>
</tr>
<tr>
<td>Clearing of vegetation</td>
<td>X</td>
</tr>
<tr>
<td>Operations</td>
<td></td>
</tr>
<tr>
<td>Transportation/mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
<td>X</td>
</tr>
<tr>
<td>Waste acceptance, placement, and compaction</td>
<td>X</td>
</tr>
<tr>
<td>Leachate management, storm water management, and ongoing monitoring</td>
<td>X</td>
</tr>
<tr>
<td>Progressive cell capping</td>
<td>X</td>
</tr>
<tr>
<td>Closure/Reclamation</td>
<td></td>
</tr>
<tr>
<td>Transport of equipment and workers to site</td>
<td></td>
</tr>
<tr>
<td>Cell capping and final cover placement</td>
<td>X</td>
</tr>
<tr>
<td>Post-Closure</td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.
4.1.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

4.1.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.1.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.1.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

4.2 Groundwater

The Groundwater VC includes the following sub-components:

- Groundwater quality
Groundwater quantity

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Groundwater VC include:

- Change to groundwater quality.
- Change to groundwater flow characteristics.

The VCs that may interact with Groundwater and affect the assessment are Terrain and Soils, and Water Quality and Quantity.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.2.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Groundwater are provided in Figure 4.
Figure 4  Groundwater Study Areas
4.2.2   **Existing Conditions**

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

The following methods of data collection will be used to inform the description of existing conditions for the Groundwater VC:

- A groundwater desktop study will be conducted for the SSA and LSA to identify, delineate and categorize the significance of geological and hydrogeological conditions and identify constraints.
- Specific background data sources that will be used will include water well record datasets, groundwater well monitoring results, regional hydrogeological reports, WSC gauge data, aquifer and groundwater resource mapping, bedrock and surficial geology maps.
- Description of the existing site-specific conditions will include, but may not be limited to, borehole stratigraphy, horizontal and vertical characterization of all relevant water-bearing strata (overburden and shallow bedrock), hydraulic test data (from packer, pumping and slug tests) to estimate hydraulic conductivity, including unsaturated vertical hydraulic conductivity, water levels, flow directions (horizontal and vertical), groundwater velocity and quality in the relevant strata, and hydraulic connection between the strata and neighbouring surface water bodies and other groundwater users (domestic water supply wells).

4.2.3   **Potential Effects**

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

The proposed Project is anticipated to interact with the Groundwater VC during the following construction, operations, closure/reclamation, and post-closure activities:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td></td>
</tr>
<tr>
<td>Clearing of vegetation</td>
<td></td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
<td>X</td>
</tr>
<tr>
<td>Waste acceptance, placement, and compaction</td>
<td>X</td>
</tr>
<tr>
<td>Leachate management, storm water management, and ongoing monitoring</td>
<td>X</td>
</tr>
<tr>
<td>Progressive cell capping</td>
<td>X</td>
</tr>
<tr>
<td><strong>Closure/Reclamation</strong></td>
<td></td>
</tr>
<tr>
<td>Transport of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Cell capping and final cover placement</td>
<td>X</td>
</tr>
<tr>
<td><strong>Post-Closure</strong></td>
<td></td>
</tr>
</tbody>
</table>
The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

4.2.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

4.2.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.2.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.2.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

Post-Closure maintenance and monitoring | X

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.
4.3 Noise and Vibration

The Noise and Vibration VC includes the following subcomponents:

- Noise level
- Vibration

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Noise and Vibration VC include:

- Change in noise levels and vibration during construction and operation

The VCs that may interact with Noise and Vibration and affect the assessment are Wildlife, Land and Resources, Community Services, and Transportation.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.3.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Noise and Vibration are provided in Figure 5.
Figure 5  Noise and Vibration Study Areas
4.3.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Noise and Vibration VC:

- Secondary sources will be reviewed in order to determine background noise sources and levels within the LSA and RSA;
- Sensitive noise receptors (communities, camp areas, etc.) will be mapped and identified;
- Documentation of the existing road traffic volumes on the local road network as provided by the local municipality; and
- Modelling of the predicted equivalent sound level (Leq) respective of the daytime, nighttime, and 24 hour periods.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

4.3.3 Potential Effects

The proposed Project is anticipated to interact with the Noise and Vibration VC during the following construction, operations, closure/reclamation, and post-closure activities:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Clearing of vegetation</td>
<td>X</td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
<td>X</td>
</tr>
<tr>
<td>Waste acceptance, placement, and compaction (operation of heavy equipment)</td>
<td>X</td>
</tr>
<tr>
<td>Leachate management, storm water management, and ongoing monitoring</td>
<td></td>
</tr>
<tr>
<td>Progressive cell capping</td>
<td>X</td>
</tr>
<tr>
<td><strong>Closure/Reclamation</strong></td>
<td></td>
</tr>
<tr>
<td>Transport of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Cell capping and final cover placement</td>
<td>X</td>
</tr>
<tr>
<td><strong>Post-Closure</strong></td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td></td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

4.3.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to
the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

4.3.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.3.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.3.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

4.4 Air Quality

The Air Quality VC includes the following subcomponents:

- Particulate matter (PM$_{2.5}$, PM$_{10}$, TSP)
- Volatile Organic Compounds (VOCs)
- Odour
The KIs that will be used to measure the potential adverse effects of the proposed Project on the Air Quality VC include:

- Change to existing (background) Ambient Air Quality (predicted off-Site point of impingement\(^1\) concentrations (\(\mu g/m^3\)) of indicator compounds)
- Detectable odour at the Site’s fence line and at sensitive receptors
- Number of sensitive receptors potentially affected

The VCs that may interact with Air Quality and affect the assessment are Land and Resources, Community Services, and Transportation.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.4.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Air Quality are provided in Figure 6.

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\(^1\) Typically referred to as the point at which a contaminant contacts the ground or a building.
Figure 6  Air Quality Study Areas
4.4.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Air Quality VC:

- Background Air Quality levels within the study area will be determined from publicly available sources.
- Sensitive receptors (communities, camp areas, etc.) will be mapped and identified.
- A review of the nature and number of equipment to be used, and review of the nature of landfill waste and likely construction equipment odours.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

4.4.3 Potential Effects

The proposed Project is anticipated to interact with the Air Quality VC during the following construction, operations, closure/reclamation, and post-closure activities:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Clearing of vegetation</td>
<td>X</td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
<td>X</td>
</tr>
<tr>
<td>Waste acceptance, placement, and compaction</td>
<td>X</td>
</tr>
<tr>
<td>Leachate management, storm water management, and ongoing monitoring</td>
<td>X</td>
</tr>
<tr>
<td>Progressive cell capping</td>
<td>X</td>
</tr>
<tr>
<td><strong>Closure/Reclamation</strong></td>
<td></td>
</tr>
<tr>
<td>Transport of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Cell capping and final cover placement</td>
<td>X</td>
</tr>
<tr>
<td><strong>Post-Closure</strong></td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

A greenhouse gas (GHG) assessment will be completed to determine the projected methane emissions from the landfill.

4.4.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to
the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

If the GHG assessment predicts that any year in the first 25 years of operations, has methane emissions above 1,000 tonnes, mitigation measures to reduce methane emissions will be provided in the Application.

4.4.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.4.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.4.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

4.5 Vegetation

The Vegetation VC includes the following subcomponents:

- Vegetation communities of concern and riparian vegetation
• Plant species of concern, including plant species used for traditional purposes
• Invasive plant species

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Vegetation VC include:

• Loss of vegetation communities of concern and riparian vegetation
• Loss of plant species of concern, including plant species used for traditional purposes
• Introduction or spread of non-native plants or noxious weeds

The VCs that may interact with Vegetation and affect the assessment are Water Quality and Quantity, and Wildlife.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.5.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Vegetation are provided in Figure 7.
Figure 7  Vegetation Study Areas
4.5.2  **Existing Conditions**

The following methods of data collection will be used to inform the description of existing conditions for the Vegetation VC:

- Desktop review of provincial and regional data sources.
- Field surveys to delineate vegetation communities within the SSA, LSA, and RSA and identify vegetation and plant species of concern, invasive, and noxious species (August 2017 and June 2018).
- Community classifications will follow the methods outlined in *A Field Guide to Ecosystem Identification for the Boreal White and Black Spruce Zone of British Columbia* (DeLong et al., 2011) and *Field Manual for Describing Terrestrial Ecosystems*, 2nd Edition (British Columbia, 2010).

The Application will summarize existing conditions in a manner consistent with section **3.3 Existing Conditions** of the AIR.

4.5.3  **Potential Effects**

The proposed Project is anticipated to interact with the Vegetation VC during the following construction, operations, closure/reclamation, and post-closure activities:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Clearing of vegetation</td>
<td>X</td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
<td>X</td>
</tr>
<tr>
<td>Waste acceptance, placement, and compaction</td>
<td>X</td>
</tr>
<tr>
<td>Leachate management, storm water management, and ongoing monitoring</td>
<td>X</td>
</tr>
<tr>
<td>Progressive cell capping</td>
<td>X</td>
</tr>
<tr>
<td><strong>Closure/Reclamation</strong></td>
<td></td>
</tr>
<tr>
<td>Transport of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Cell capping and final cover placement</td>
<td>X</td>
</tr>
<tr>
<td><strong>Post-Closure</strong></td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section **3.4 Potential Effects** of the AIR.

4.5.4  **Mitigation Measures**

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section **3.5 Mitigation Measures** of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.
4.5.5  **Residual Effects and their Significance**

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.5.6  **Cumulative Effects and their Significance**

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.5.7  **Follow-up Strategy**

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

4.6  **Fish and Fish Habitat**

The Fish and Fish Habitat VC includes the following subcomponents:

Fish species of management interest and their habitat, including species of concern to Indigenous nations. The KIs that will be used to measure the potential adverse effects of the proposed Project on the Fish and Fish Habitat VC include:

- Change in fish health
- Change in habitat productivity (benthic invertebrate abundance, diversity and community
The VCs that may interact with Fish and Fish Habitat and affect the assessment are Groundwater, Water Quality and Quantity, Wetlands, and Wildlife.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.6.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Fish and Fish Habitat are provided in Figure 8.
Figure 8  Fish and Fish Habitat Study Areas
4.6.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Fish and Fish Habitat VC:

- Identification of fish habitat and its form and function through secondary source information and field verification.
- Existing mapping and aerial photography will be used to identify the number of watercourses and water bodies within the study area.
- These watershed characteristics (such as size, drainage area, number of watercourses) will be used to determine potential ranges of flows, as this has the largest influence on fish habitat.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

4.6.3 Potential Effects

The proposed Project is anticipated to interact with the Fish and Fish Habitat VC during the following construction, operations, closure/reclamation, and post-closure activities:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
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<td><strong>Post-Closure</strong></td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

4.6.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.
4.6.5  Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.6.6  Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.6.7  Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

4.7  Water Quality and Quantity

The Water Quality and Quantity VC includes the following subcomponents:

- Surface water quality
- Surface water quantity

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Water Quality and Quantity VC include:

- Change in surface water quality
• Change in drainage patterns

The VCs that may interact with Water Quality and Quantity and affect the assessment are Groundwater, Fish and Fish Habitat, and Wetlands.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.7.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Water Quality and Quantity are provided in Figure 9.
Figure 9  Water Quality and Quantity Study Areas
4.7.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Water Quality and Quantity VC:

- A desktop analysis will identify and delineate any water bodies within the study area. The analysis will consist of a review of available:
  - Aerial photography;
  - Mapping information from agencies; and
  - Reports (from agencies and other available EAs).
  - Consultation with Aboriginal communities using the study area
- In the event that water quality or quantity information is not available, or is insufficient, field investigations and monitoring will be conducted to establish baseline water quantity and quality conditions at the Site and in the receiving water bodies and compared to B.C. Water Quality Guidelines.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

4.7.3 Potential Effects

The proposed Project is anticipated to interact with the Water Quality and Quantity VC during the following construction, operations, closure/reclamation, and post-closure:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
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<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
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<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.
4.7.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

4.7.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.7.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.7.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

4.8 Wetlands

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Wetlands VC include:
• Loss of wetlands (total area)
• Change in vegetation communities
• Change in hydrology

The VCs that may interact with Wetlands and affect the assessment are Groundwater, Fish and Fish Habitat, Water Quality and Quantity and Wildlife.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.8.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Wetlands are provided in Figure 10.
Figure 10 Wetlands Study Areas
4.8.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Wetlands VC:

- Desktop review of provincial and regional data sources.
- Field-level mapping of wetland boundaries, classification and function within the SSA and LSA will be completed to ground-truth the results of the background data sources (delineated in 2017 and refined in June 2018).

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

4.8.3 Potential Effects

The proposed Project is anticipated to interact with the Wetlands VC during the following construction, operations, closure/reclamation, and post-closure:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
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<tr>
<td>Post-Closure maintenance and monitoring</td>
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</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

4.8.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.
4.8.5  
**Residual Effects and their Significance**

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.8.6  
**Cumulative Effects and their Significance**

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.8.7  
**Follow-up Strategy**

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

4.9  
**Wildlife**

The Wildlife VC includes the following:

- Wildlife species of ecological, economic or human importance, including:
  - Moose;
  - Other ungulates (including deer);
  - Black Bear;
  - Furbearers;
  - Birds; and
  - Amphibians.

- Wildlife habitat
The importance of wildlife and wildlife habitat was raised by multiple Indigenous communities, with specific reference to:

- Potential for impacts to wildlife associated with truck traffic on Highway 97 and local roadways.
- Potential for impacts to vegetation associated with site development and eventual revegetation.
- Importance of wildlife and fencing of facility site.
- Value of wildlife/trail cameras and community input into number of cameras deployed and locations.
- Opportunity to leave portions of the investigative footprint that have not previously been logged undisturbed.

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Wildlife VC include:

- Change in habitat
- Wildlife mortality
- Change in movement of wildlife species of ecological, economic or human importance

The VCs that may interact with Wildlife and affect the assessment are Fish and Fish Habitat, Water Quality and Quantity, Vegetation, and Wetlands.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

4.9.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Wildlife are provided in Figure 11.
Figure 11 Wildlife Study Areas

[Image of a map showing different study areas]
4.9.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Wildlife VC:

- Species of interest will be identified through review of provincial and regional data sources;
- A description of any nearby lands that might constitute sensitive areas and habitat for wildlife will also be compiled through:
  - Incorporating remotely-sensed data and natural heritage feature mapping from available sources;
  - Reviewing secondary sources (e.g., Bird Studies Canada, Environment Canada databases etc.) for up-to-date ecological information, including consultation with the responsible agencies to ensure that the data presented in these sources are current and accurate;
  - Reviewing available aerial imagery and mapping for significant natural features and communities known to provide habitat to wildlife and bird species of interest;
  - Conducting a critical review of previous (specifically large mammal and avian) investigations and reports to identify data gaps and assess the sufficiency of data and robustness of scientific protocols used to generate them;
  - Completing site wildlife surveys to target the data gaps. These may include seasonally-appropriate surveys for amphibians, birds and mammals (small and large)(amphibians May 2018; breeding bird surveys – July 2017, May and June 2018; SSA large mammal tracking February and March 2019);
  - Conducting bat acoustic monitoring to identify bat species using the SSA and any considerations for federally protected bats (deployed June 2018);
  - Deploying wildlife cameras to collect a longer time-series of wildlife use of SSA and adjacent areas (deployed May – June 2018 and starting again in February 2019); and
  - Identifying and defining critical issues associated with development of the site; and
- A description and quantification of the habitat available in the study area will be undertaken as it relates to wildlife species identified through previous activities described above.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

4.9.3 Potential Effects

The proposed Project is anticipated to interact with the Wildlife VC during the following construction, operations, closure/reclamation, and post-closure:
The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

4.9.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

4.9.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.9.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
• Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;

• Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and

• Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

4.9.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.
5.0 SOCIAL EFFECTS ASSESSMENT

The Application will include an assessment of social VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of the AIR and reported using the organizational structure demonstrated in the section 4.0 Environmental Effects Assessment.

5.1 Land and Resources

The Land and Resources VC includes the following subcomponents:

- Traditional Land and Resource Use
- Land Use
- Oil and gas exploration and production
- Logging/forestry
- Major tourism and recreational features
- Aesthetic/Visual appearance

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Land and Resources VC include:

- Change in access to the site
- Proximity and change to fish management zones and species managed
- Proximity and change to registered trap lines / areas of licenced holders
- Proximity and change to wildlife management units
- Conformance with provincial and municipal land use plans
- Oil and gas infrastructure and pipeline tenures affected
- Disturbance to oil and gas infrastructure
- Disturbance to logging/forestry operations
- Disturbance to major tourism and recreational features
- Soil degradation resulting in a change in classification of soil
- Change in viewshed

The VCs that may interact with Land and Resources and affect the assessment are Noise and Vibration, Air Quality, Vegetation, Fish and Fish Habitat, Water Quality and Quantity, Wetlands, and Human Health.

The Application will identify the VCs selected for assessment according to the methodology specified in
section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

5.1.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Land and Resources are provided in Figure 12.
Figure 12 Land and Resources Study Areas

![Map of study areas with legend]

Legend:
- **Site Study Area**
- **Local Study Area**
- **Regional Study Area**


SECURE ENERGY SERVICES
PROPOSED WONOWON LANDFILL

GHD
LAND AND RESOURCES STUDY AREAS

FIGURE 12
5.1.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Land and Resources VC:

- The following secondary source information will be collected and mapped:
  - Municipal land use plans, policies and designations
  - Provincial Land use plans, policies, designations
  - Oil and gas activity
  - Logging/forestry
  - Fishing (Fish Management Zones and species managed)
  - Trapping (registered trap lines/areas and license holders)
  - Hunting (Wildlife Management units and designations, hunting licenses/validation tags and game seals per WMU)
  - Major Tourism and Recreational Features
  - Agricultural capability (soil classification)

- Discussions with local land users, including First Nations will also be included in the data collections.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

5.1.3 Potential Effects

The proposed Project is anticipated to interact with the Land and Resources VC during the following construction, operations, closure/reclamation, and post-closure:

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</tr>
<tr>
<td>Post-Closure</td>
<td></td>
</tr>
</tbody>
</table>
The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

5.1.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

5.1.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

5.1.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

5.1.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.
5.2 **Community Services**

The Community Services VC includes the following subcomponents:

- Community services
- Health services
- Utilities
- Housing and accommodation

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Community Services VC include:

- Increased demand on Community services, health, police
- Increased demand on Community utilities
- Increased demand on accommodation

The VCs that may interact with Community Services and affect the assessment are Noise and Vibration, Air Quality, and Transportation.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

5.2.1 **Context and Boundaries**

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Community Services are provided in Figure 13.
Figure 13 Community Services Study Areas
5.2.2  **Existing Conditions**

The following methods of data collection will be used to inform the description of existing conditions for the Community Services VC:

- A desktop review of provincial, regional and municipal information sources will identify Community Services within the Regional Study Area.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

5.2.3  **Potential Effects**

The proposed Project is anticipated to interact with the Community Services VC during the following construction, operations, closure/reclamation, and post-closure:

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</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

5.2.4  **Mitigation Measures**

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

5.2.5  **Residual Effects and their Significance**

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.
Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

5.2.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

• Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
• Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
• Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
• Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

5.2.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.

5.3 Transportation

The Transportation VC includes the following subcomponents:

• Traffic
• Transportation infrastructure

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Transportation VC include:

• Traffic volumes
• Disturbance to traffic operations

The VCs that may interact with Transportation and affect the assessment are Noise and Vibration, and Air Quality.
The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

5.3.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Transportation are provided in Figure 14.
Figure 14 Transportation Study Areas
5.3.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Transportation VC:

- Information will be gathered from a combination of secondary source research (e.g., historical Annual Average Daily Traffic (AADT) data for Highway 97), field investigations (e.g., updated AADT counts conducted at the location of the existing gravel road from the highway to the site entrance) and discussions with the applicable reviewing agencies.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

5.3.3 Potential Effects

The proposed Project is anticipated to interact with the Transportation VC during the following construction, operations, closure/reclamation, and post-closure:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Clearing of vegetation</td>
<td>X</td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
<td>X</td>
</tr>
<tr>
<td>Waste acceptance, placement, and compaction</td>
<td>X</td>
</tr>
<tr>
<td>Leachate management, storm water management, and ongoing monitoring</td>
<td>X</td>
</tr>
<tr>
<td>Progressive cell capping</td>
<td></td>
</tr>
<tr>
<td><strong>Closure/Reclamation</strong></td>
<td></td>
</tr>
<tr>
<td>Transport of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Cell capping and final cover placement</td>
<td></td>
</tr>
<tr>
<td><strong>Post-Closure</strong></td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

5.3.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

5.3.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on
the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

5.3.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

5.3.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.
6.0 HERITAGE EFFECTS ASSESSMENT

The Application will include an assessment of heritage VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of the AIR and reported using the organizational structure demonstrated in section 4.0 Environmental Effects Assessment.

6.1 Cultural Heritage

The Cultural Heritage VC includes the following subcomponents:

- Cultural resources
- Heritage resources

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Cultural Heritage VC include:

- Disturbance to heritage resources
- Disturbance to cultural resources

The VC that may interact with Cultural Heritage and affect the assessment is Terrain and Soils.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

6.1.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Cultural Heritage are provided in Figure 15.
Figure 15 Cultural Heritage Study Areas
6.1.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Cultural Heritage VC:

- Review of the Archaeological Overview Assessment (non-permitted) and Archaeological Impact Assessment (Heritage Conservation Act Permit 2017-0309) results; and
- Indigenous Traditional Knowledge.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR.

6.1.3 Potential Effects

The proposed Project is anticipated to interact with the Cultural Heritage VC during the following construction, operations, closure/reclamation, and post-closure:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
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</thead>
<tbody>
<tr>
<td>Construction</td>
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<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
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<tr>
<td>Clearing of vegetation</td>
<td>X</td>
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<tr>
<td>Operations</td>
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<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td></td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
<td>X</td>
</tr>
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<td>Waste acceptance, placement, and compaction</td>
<td></td>
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<tr>
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<tr>
<td>Progressive cell capping</td>
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<tr>
<td>Closure/Reclamation</td>
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<tr>
<td>Transport of equipment and workers to site</td>
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<tr>
<td>Cell capping and final cover placement</td>
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</tr>
<tr>
<td>Post-Closure</td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td></td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR.

6.1.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

6.1.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6.
Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

6.1.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

6.1.7 Follow-up Strategy

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of the AIR.
7.0 HEALTH EFFECTS ASSESSMENT

The Application will include an assessment of health VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of the AIR and reported using the organizational structure demonstrated in section 4.0 Environmental Effects Assessment.

7.1 Human Health

The KIs that will be used to measure the potential adverse effects of the proposed Project on the Human Health VC include:

- Comparison of air quality, noise and vibration, water, soil, exposure to NORM, and country foods (e.g. hunting, fishing, trapping) measurements/predictions to the applicable human health guidelines and standards
- Screening Level Human Health Risk Assessment (SLHHRA) estimates for exposure pathways and contaminants and receptors of potential concern
- Social Determinants of Health (SDH), including changes to services, social interactions livelihood and active living

The VCs that may interact with Human Health and affect the assessment are Air Quality and Vibration, and Water Quality and Quantity.

The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.

7.1.1 Context and Boundaries

The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.

Spatial boundaries for Human Health are provided in Figure 16.
Figure 16 Human Health Study Areas
7.1.2 Existing Conditions

The following methods of data collection will be used to inform the description of existing conditions for the Human Health VC:

- The data collected for other disciplines (namely Groundwater, Air Quality, and Land and Resources, Community Services and Transportation) will establish the baseline for Human Health.
- A review of the results of Project-related effects on the following VCs: Land and Resources, Community Services and Transportation.
- A review of ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups.

Sampling protocols for environmental data intended to feed into the HHRA will adhere to health-based guidance for sampling programs (e.g. Health Canada Federal Contaminated Site Risk Assessment in Canada guidance for HHRAs), which may differ from sampling methodologies for assessing environmental VCs.

The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of the AIR. The summary of the existing conditions in the Application will include relevant legislation related to human health, and will list applicable provincial and regional best management practices and guidance documents to be implemented.

7.1.3 Potential Effects

The proposed Project is anticipated to interact with the Human Health VC during the following construction, operations, closure/reclamation, and post-closure:

<table>
<thead>
<tr>
<th>Project Phase and Activities</th>
<th>Potential Project Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Clearing of vegetation</td>
<td>X</td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td></td>
</tr>
<tr>
<td>Transportation/ mobilization of equipment and workers to site</td>
<td>X</td>
</tr>
<tr>
<td>Excavation, construction of cells, and construction of associated infrastructure</td>
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</tr>
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<td>Waste acceptance, placement, and compaction</td>
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</tr>
<tr>
<td>Leachate management, storm water management, and ongoing monitoring</td>
<td>X</td>
</tr>
<tr>
<td>Progressive cell capping</td>
<td>X</td>
</tr>
<tr>
<td><strong>Closure/Reclamation</strong></td>
<td></td>
</tr>
<tr>
<td>Transport of equipment and workers to site</td>
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</tr>
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<td>Cell capping and final cover placement</td>
<td>X</td>
</tr>
<tr>
<td><strong>Post-Closure</strong></td>
<td></td>
</tr>
<tr>
<td>Post-Closure maintenance and monitoring</td>
<td>X</td>
</tr>
</tbody>
</table>

The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of the AIR. A SLHHRA will be conducted to determine potential adverse effects to Human
Health. The SLHHRA will include:

- A professional statement indicating the risk assessor’s qualifications
- The incorporation of local knowledge as appropriate to inform receptor locations, exposure durations, and consumption patterns.

If operable exposure pathways are identified in the SLHHRA a detailed quantitative HHRA may be conducted.

### 7.1.4 Mitigation Measures

The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of the AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.

### 7.1.5 Residual Effects and their Significance

Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of the AIR.

Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.

### 7.1.6 Cumulative Effects and their Significance

If a residual effect is identified, unless stated otherwise by EAO, the Application will:

- Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of the AIR;
- Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of the AIR;
- Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of the AIR; and
- Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent’s significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent’s Determination of Significance and 3.9 Confidence and Risk of the AIR.
7.1.7  \textit{Follow-up Strategy}

Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 \textit{Follow-up Strategy} of the AIR.
8.0 ACCIDENTS AND MALFUNCTIONS

The Application will include the following:

- Identification of potential accidents and malfunctions;
  - Release or spill of contaminants, including hydrocarbons, contaminated materials or leachate;
  - Natural disasters, including, earthquakes, storms and inclement weather/ power failure;
  - Traffic-related incidents;
  - Fire incidents; and
  - Accidents and injuries.

- The overall methodology for assessing the potential risk of an event (likelihood and consequence);

- Definitions of each category of likelihood;

- Definitions for each category of consequence;

- An assessment of the likelihood of the event occurring, based on historical trends and predictive models;

- Identification of proposed measures to reduce the likelihood of the event;

- Assessment of consequence of the event, in a manner consistent with the direct effects assessment,

- Identification of measures to mitigate the consequences to valued components; and

- Conclusions on the potential risk (likelihood multiplied by consequence) of the accident or malfunction.
9.0 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

The Application will include:

- The environmental factors deemed to have possible consequences on the proposed project, including, but not necessarily limited to, consideration of natural hazards such as:
  - Climate change, including temperature rise and precipitation;
  - Extreme weather and weather-related events (for example, heavy precipitation, extreme temperatures and wind);
  - Seismic events; and
  - Wildfire;

- A description of any changes or effects on the proposed Project that may be caused by the above-mentioned environmental factors;

- The likelihood and consequence of the changes or effects to relevant VCs;

- Practical mitigation measures, including design strategies and environmental contingency plans, to avoid or minimize the likelihood and consequence of the effects of the environment on the proposed Project; and

- A conclusion about the potential risk of an effect of the environment on the proposed Project and to relevant VCs.
DRAFT Application Information Requirements

Part C – Aboriginal Consultation
PART C – INDIGENOUS CONSULTATION

12.0 INDIGENOUS CONSULTATION

12.1 Aboriginal Interests

The Indigenous nations discussed in this section will include:

- Blueberry River First Nations
- Doig River First Nation
- Halfway River First Nation
- Prophet River First Nation
- West Moberly First Nations
- Dene Tha’ First Nation
- Horse Lake First Nation

For each Indigenous nation, the Application will include:

- A summary of past and planned consultation activities;
- A summary of proposed changes to the Indigenous Consultation Plan resulting from the Indigenous nations’ feedback, or experience from consultation to date, including any such changes which have been implemented;
- A summary of the key issues and concerns raised by Indigenous nations relevant to the environmental assessment, the Proponent’s responses to those issues and concerns, and the status of resolution;
- A map that identifies Indian Reserves and Indigenous communities, for the Indigenous nations and the project location;
- Traditional Ecological Knowledge and Traditional Land Use information, as available, with a description of how Traditional Ecological Knowledge (TEK) and Traditional Land Use Studies (TLUS) information was gathered and incorporated into the assessment of impacts of the proposed Project on Aboriginal Interests;
- A description of the Aboriginal Interests of each group identified through secondary research techniques or provided directly through consultation activities. The description will include background information on ethnography, language, governance, economy and reserves;
- A description of potential adverse effects of the proposed Project on Aboriginal Interests;
- A description or summary of mitigation measures to avoid or reduce potential adverse effects on...
Aboriginal Interests consistent with section 3.5 Mitigation Measures of the AIR;

- A characterization of the residual adverse effects on Aboriginal Interests after mitigation using the methodology described in sections 3.6 Characterization of Residual Effects, 3.7 Likelihood, and 3.9 Confidence and Risk of the AIR and incorporating the findings of the VC chapters in the Application that are relevant to Aboriginal Interests;
- A summary of any outstanding Aboriginal Interests issues identified by Indigenous nations; and
- A summary of publically available arrangements or agreements reached between the proponent and Indigenous nations.

12.2 Other Matters of Concern to Indigenous Nations

The Application will include:

- A list of other matters of concern raised by Indigenous nations with respect to potential environmental, economic, social, heritage and health effects of the proposed Project, which have not already been considered in the discussion about Aboriginal Interests;
- A description (or summary if described elsewhere in the Application) of the mitigation measures to address potential effects on other matters of concern to Indigenous nations;
- A characterization of the residual adverse effects after mitigation, in a manner consistent with assessment methodology in the AIR; and
- A description of how these matters of concern have been addressed from the perspective of the Indigenous nations and the Proponent.

12.3 Issue Summary Table

The Application will include:

- A Summary Table (see example below) that identifies Aboriginal Interests or other matters of concern to Indigenous nations that may be impacted by the proposed Project, and the measures to avoid, mitigate or otherwise manage the effects; and
- An Appendix, the Indigenous Consultation Report, which contains comments received from Indigenous nations regarding this section of the Application.
Table 5  Summary Table of the Results of Indigenous Consultation related to Aboriginal Interests/Other Matters of Concern to Indigenous Nations

<table>
<thead>
<tr>
<th>Indigenous Group</th>
<th>Consultation Stage / Information Source</th>
<th>Issue – Aboriginal Interest</th>
<th>Issue – Other Matters of Concern</th>
<th>Analysis of Potential Effect</th>
<th>Proposed Measures to Avoid, Mitigate or Otherwise Manage Effects</th>
<th>Status of Issue (e.g. resolved, ongoing resolution, referred to agency, etc.)</th>
</tr>
</thead>
</table>
PART D – PUBLIC CONSULTATION

13.0 PUBLIC CONSULTATION

The Application will include a report on the results of implementation of the approved Public Consultation Plan including:

- **Background information:**
  - Identification of local governments, residents, property owners, and other rights holders who are potentially impacted by the proposed Project;
  - Maps of local government boundaries, private land, tenures/authorizations, or residences with respect to the proposed Project; and
  - Background information about each potentially affected municipality and/or stakeholder group.

- **Public Consultation:**
  - A summary of the past and planned consultation activities;
  - A summary of any proposed changes to the approved Public Consultation Plan as a result of feedback from local governments, stakeholders or individuals, or experience from consultation to date; and
  - A description of the key issues raised by the public that are relevant to the EA, the responses to those issues, and the status of their resolution.

- **Summary Table:**
  - Identification of concerns raised by the public and the measures to avoid, reduce or mitigate those impacts. This information will be provided in the form of a table.
DRAFT Application Information Requirements

Part E – Management Plans and Follow-Up Programs
PART E - MANAGEMENT PLANS AND FOLLOW-UP PROGRAMS

14.0 MANAGEMENT PLANS

The Application will include:

- A list of Management Plans for all phases of the proposed Project, including but not limited to:
  - Erosion and Sediment Control Management Plan
  - Soil Handling Plan
  - Emergency Preparedness and Response Plan
  - Invasive Species Management Plan
  - Wildlife Management Plan
  - Dust Control and Air Quality Management Plan
  - Odour Management Plan
  - Night Time Light Management Plan
  - NORM Management Plan
  - Spill Prevention Plan
  - Surface Water Management and Monitoring Plan
  - Groundwater Quality Monitoring Plan
  - Traffic Management Plan
  - Construction Waste Management Plan
  - Operational Environmental Management Plan

- A comprehensive description of the contents of each Management Plan, including the identification of any mitigation measures described in previous sections that will be included within the plans.
15.0 MONITORING & FOLLOW-UP PROGRAMS

The Application will include:

- A description of the monitoring and follow-up programs the Proponent will implement, including their activities, objectives and reporting; and
- Reporting structure as identified within the environmental management plans, monitoring plans and EA Certificate Conditions.
PART F - CONCLUSIONS

16.0 CONCLUSIONS

The Application will:

- Provide the Proponent’s conclusions regarding the potential for significant adverse effects on VCs from the Project;
- Request an EA Certificate for the proposed Project; and
- Acknowledge the need, if applicable, to successfully complete a federal EA and subsequent permitting/authorization processes prior to proceeding with Project construction, operation and decommissioning.

16.1 Summary of Residual Effects

The Application will summarize all potential residual effects, including cumulative residual effects, in a table format that depicts the potential effect, project phases, project activity or physical work linked to the effect, proposed mitigation and significance of effect on VCs.

16.2 Summary of Mitigation Measures

The Application will include a table that identifies the proposed measures to mitigate potential impacts to VCs as shown in Table 6. This information provides the foundation for the development of a Table of Conditions for the proposed Project, which would be appended to an EA Certificate, should one be issued.

Table 6 Summary of Proposed Mitigation Measures

<table>
<thead>
<tr>
<th>No.</th>
<th>VC and Effect</th>
<th>Proposed Mitigation Measure</th>
<th>Timing</th>
<th>Legal Requirement?</th>
<th>Responsible Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environmental</td>
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</tbody>
</table>
17.0 REFERENCE MATERIAL

The Proponent will provide a list of reference material used in developing the Application.


18.0 Appendices

This section will include the appendices referenced in the Application.

Information prepared by professionals and provided under their professional seal will be identified in the Application and the related sealed studies will be included in an Appendix.