# ENVIRONMENTAL ASSESSMENT FOR LEASED LAND IN WAHLEACH YARD, SEABIRD ISLAND

May 24, 2023

Prepared for:

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Nova Pacific Environmental

# EXECUTIVE SUMMARY

Nova Pacific Environmental Ltd. (NPE) was retained by Spruce Hollow Heavy Haul Ltd. (the "Proponent") to complete an Environmental Assessment (EA) for future use impacts on land being leased at the Wahleach Yard on Seabird Island Reserve Land in Agassiz, BC (the "Site"). The Site is located at Wahleach Crossing Road where it branches off of Highway 7 approximately 25 km south of Hope BC. The Site is underlain by the Agassiz Aquifer and is approximately 260 m west of a braided section of the Fraser River.

This EA report describes the current and historic condition of the property, the Valued Environmental Components (VECs) and Valued Social Components (VSCs) of the Site and surrounding area, an assessment of cumulative effects and provides recommendations for mitigating potential impacts of proposed land use activities on the environment. The VECs and VSCs considered in this EA include, but are not limited to:

- groundwater;
- fish and fish habitat, including surface water;
- vegetation and wildlife;
- social considerations, including water quality, air quality and noise; and,
- archaeology.

The proposed use of the leased land is temporary parking and storage of long-haul transport trailers carrying green energy equipment and personal vehicles of the drivers (the "Project").

Project activities include:

- installation of a 30 m by 90 m coverall shelter;
- installation of a fence, approximately 75% of the perimeter;
- parking/storage of transport trailers, a forklift, a backhoe, and personal vehicles of the drivers;
- temporary storage of fuel; and,
- levelling of the lot, if needed.

Potential impacts to VECs and VSCs include:

- Hydraulic leaks from forklift or backhoe may contaminate soils and/or groundwater;
- Potential release of deleterious substances to the natural receiving environment during on-Site activities or due to vandalism;
- Harm to wildlife resulting from wildlife-vehicle collisions;
- Sediment-laden water release during leveling of the lot; and,
- Potential proliferation of noxious weeds or other invasive plants with movement of dirty vehicles on and off the Site.
- Contamination of drinking water (groundwater);
- Air quality may be locally impacted by dust generated by vehicles or leveling of the lot;
- Excessive burning of fuels from idling vehicles can impact air quality; and,
- Excessive noise from vehicles may impact local residents.

Overall, the environmental impacts of the proposed land use are anticipated to be small and mostly incidental. Risks to VECs and VSCs described will be low if mitigation measures outlined in Section 5.8 are followed.

# Contents

# 1 INTRODUCTION

## 1.1 Background

Nova Pacific Environmental Ltd. (NPE) was retained by Spruce Hollow Heavy Haul Ltd. (the "Proponent") to complete an Environmental Assessment (EA) for future use impacts on land being leased at the Wahleach Yard on Seabird Island Reserve Land in Agassiz, BC (the "Site"). The Site is located along Wahleach Crossing Road where it branches off of Highway 7 approximately 25 km southeast of Hope BC. The general location of the subject Site is shown in Figures 1 and 2.

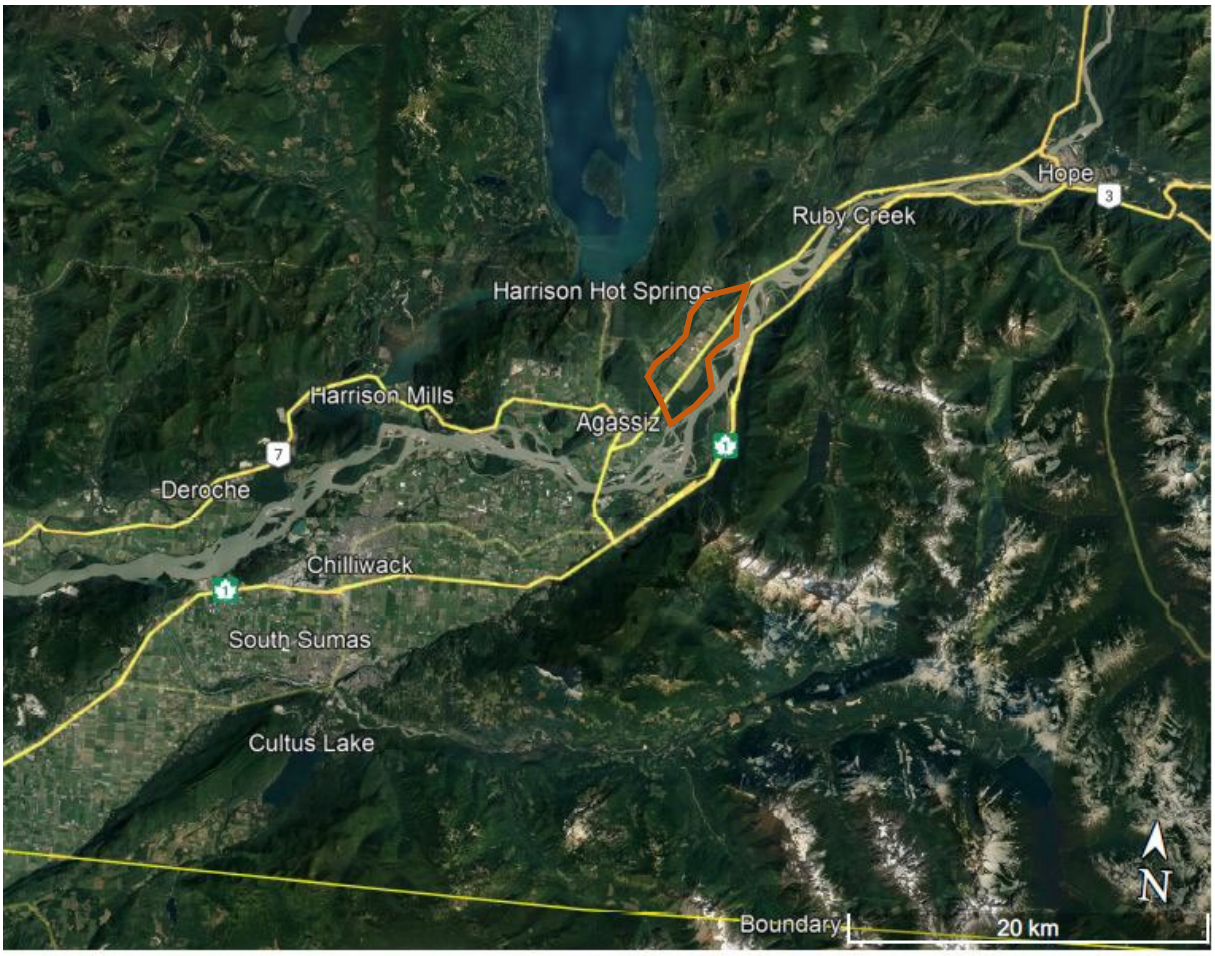


**Figure 1.** Seabird Island Reserve lands, Agassiz, BC. Imagery retrieved from Google Earth on May 21, 2023; imagery dated July 2022.


Figure 2. Aerial view of the subject Site (red box) located in Wahleach Yard (purple polygon) on the Seabird Island Reserve lands in Agassiz, BC. Imagery from Google Earth dated July 2022.

The Site is located on land owned by the Seabird Island Band (SIB). Pursuant to the Land Code, SIB requires that an appropriately qualified professional (AQP) prepare an Environmental Assessment for the planned use of land that is the subject of a lease agreement between SIB and the Proponent.

NPE understands that the purpose of this EA is to identify and describe the Valued Environmental Components (VECs) and Valued Social Components (VSCs) of the Site and surrounding area, identify any potential adverse impacts of the proposed future use activities on the environment within the Site or the surrounding area (i.e. watercourses, riparian habitat, wildlife and vegetation), assess cumulative effects, and provide mitigation measures to address any potential impacts. NPE has assessed the site on numerous occasions throughout the years. During the preparation of this EA, NPE considered the present conditions and historical site

activities at the Site and surrounding areas in its evaluation of environmental concerns and potential effects.

## 1.2 Contact Information

The proponent is Spruce Hollow Heavy Haul. The main proponent contact is:

Ron Mudill, Project Manager
Spruce Hollow Heavy Haul Ltd.
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The environmental consultant is:

Karen Frazer, MSc, BIT
Biologist
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97 N Renfrew Street, Vancouver BC, V5K 3N6
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## 1.3 Proposed Land Use (Project)

Spruce Hollow Heavy Haul Ltd., provides heavy hauling services in Canada and the United States. It specializes in over dimensional shipments and currently holds contracts to haul green energy equipment (e.g. windmills and electric car batteries) from areas of Washington to British Columbia. They have entered into a lease agreement with SIB to use a portion of Wahleach yard for parking and storage.

The proponent will mainly use the leased land to store large transport trailers. Trucks and personal vehicles of the drivers living in the Greater Vancouver area will also be parked on-site for days or several weeks at a time. All transport trailers are less than three years old, run on mineral oil, and meet the rigorous environmental standards of clients such as Tesla and Siemens. A backhoe will be kept on the Site to allow for snow removal and levelling of the lot, as needed. A forklift will be kept on Site for loading trailers, as needed. Fuel in double walled tanks may be temporarily stored on-Site for re-fueling vehicles.

A perimeter fence will be set up around approximately 75% of the leased land. A temporary coverall shelter with a footprint of approximately 30 m by 90 m will also be installed.

The Proponent plans to begin using the Site as early as May 25th, 2023.

Prior to the termination of the lease, the shelter coverall and fencing will be dismantled and removed from the Site.

# 2 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The scope of work completed for this EA includes:

- An assessment of the environmental and biophysical conditions of the Site and surrounding area;
- a review of previously completed Environmental Assessment reports and relevant technical reports;
- a review of the potential impacts of the proposed land use on VECs and VSCs;
- a review of the applicable federal and provincial regulations;
- a review of other relevant external and archived resources (including GeoBC topographic map 092H022 1:20,000); and,
- preparation of this Environmental Assessment report.

## 2.1 Review of information sources

A desktop review of the following databases and reports was completed to obtain information on the physical, biological, social, land use, and archaeological attributes of the surrounding area. The information collected forms the basis of this EA.

Databases consulted include:

- BC Species and Ecosystem Explorer (CDC 2023)
- Sensitive Habitat Inventory and Mapping (SHIM) Fraser River (Ecoscape 2006)
- Fraser Valley Regional District (FVRD) regional mapping (FVRD 2023)
- Water Resource Atlas (MoE 2023)
- BC Ministry of Environment Ecological Reports Catalogue (Ecocat) website (MoE 2023b)
- Habitat Wizard (MoE 2023b)
- HectaresBC (Data BC 2023a)
- iMapBC 2.0 (Data BC 2023b)
- Wildlife Tree Stewardship Atlas
- Fisheries Information Data Query (FIDQ 2023)
- National Climate Data and Information Archive (GC 2023a)
- Species at Risk Public Registry (GC 2023b)
- Water Well Information System (WWIS 2023)

- Google Earth Pro aerial imagery

Documents and reports listed below were also reviewed:

- Pojar, J. Klinka, K., and D.A. Demarchi. 1991. Chapter 6: Coastal Western Hemlock Zone. In: D.V. Meidinger and J. Pojar. Ecosystems of British Columbia, Resource Branch, BC Ministry of Forests.
- Geological Survey of Canada, OpenMaps: Surficial Geology (GSC 2023)
- Ministry of Water, Land and Air Protection, 2002. A Field Guide to Fuel Handling, Transportation & Storage. (MWLAP 2002)
- Seabird Island Band Environmnetal Contaminants program Capture Zone Analysis, Contaminant Inventory, and Assessment of Existing Ground Data – Seabird Island. July 16, 2003. (Golder 2003)
- Other publicly available technical reports (e.g. Fisheries & Oceans Canada, Pacific Salmon Commission, and other pertinent scientific literature)
- *Seabird Island related documents*:
    - Nova Pacific Environmental. 2019. Stage 1 & 2 Preliminary Site Investigation of Former Dicarbon Lease Site at Seabird Island Reserve Land, Agassiz, BC. Vancouver, BC. 32 pp.
    - Wahleach Site – Phase 1 Environmental Site Assessment (ESA) and Baseline Assessment (Draft). (Arcadis IBI Group. 2023)
    - Seabird Island Band Lands Office General Terms of Reference for Environmental Assessments (SIB 2010)
    - Environmental Management Agreement Process – Step One – Identification of Environmental Issues (Jones et al 2011)
    - Seabird Island Flood and Erosion Protection Plan (Tetra Tech EBA 2014)
    - Seabird Island Business Park Environmental Assessment Plan (SNC-Lavalin 2014)

Interviews:

- Ron Mudill (Project Manager) of Spruce Hollow Heavy Haul Ltd. (pers. comm. May 2023)

## 2.2 Consultations

No public consultation has taken place. No other correspondence or approvals from other government departments are needed.

The community is aware of the Land Lease and the proposed use of the leased land and no consultation is proposed.

# 3 REGULATORY CONTEXT

The Site is under federal jurisdiction; however, as the Site is located on the Seabird Island Indian Reserve lands, SIB has ultimate jurisdiction on the activities and regulations on the land. As part of this review, provincial and federal regulations will be considered. Therefore, the provincial regulations will primarily be reviewed.

The subject Site is located on SIB land and therefore, the following federal environmental legislation and guidelines may be applicable:

- Canadian Fisheries Act
  Canadian Migratory Birds Convention Act (MBCA)
- BC Wildlife Act
- Canadian Environmental Protection Act (CEPA)
- Species at Risk Act (SARA)
  Indian Reserve Waste Disposal Regulations
- Canadian Council of Ministers of the Environment (CCME) and Canadian Environmental Quality Guidelines (CEQG)
- CCME Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (PHC CWS)
- Health Canada (HC) Canada Drinking Water Guidelines
- FCSAP Federal Interim Groundwater Quality Guidelines
- Groundwater Protection Regulation, BC Reg 299/2004

Provincial legislation associated with the protection and management of environmental values may be applicable to the site, including:

- Water Sustainability Act
- Riparian Areas Protection Regulation

The requirements of federal and provincial legislation listed above is taken into consideration in the identification of VECs and prescription of mitigation measures.

# 4 ENVIRONMENTAL SETTING

## 4.1 General Site Description

The subject Site is located in the Fraser River floodplain within the boundaries of the Seabird Island Reserve land in Agassiz, British Columbia. The Reserve straddles Highway 7 (also known as Lougheed Highway) and Canadian Pacific (CP) Railway and is bordered by the Fraser River to the east and south and the Maria Slough to the west and north (Figures 1 & 2). The geographic coordinates for the approximate center of the Site is 49°17'32.60"N and

121°41'20.53"W. The Site is an approximately 0.8 hectare and consists entirely of a flat gravel lot within Seabird Island Wahleach Yard (Figure 2) between Highway 7 and the Fraser River. The Site is approximately 25 km south on Highway 7 from Hope, BC.

The legal description for the subject Site is a portion of Parcel A as shown on plan 60787 CLSR BC. The current land use is Industrial (IL).

Road access to the Site is via an existing road, Wahleach Crossing Road, which branches off Highway 7, crosses the CP Railway and enters the industrial area approximately 70 m east of the highway (Figure 3).


**Figure 3.** Aerial view of the subject Site (~0.8 hectares), outlined in red. The Site can be accessed via existing roads, Wahleach Crossing Road and Lougheed Highway/Highway 7. The former Diacarbon Site is identified in yellow. Imagery retrieved from Google Earth on May 21, 2023; imagery dated July 2022.

## 4.2 Physical Setting

### 4.2.1 Local Topography

The parcel that comprises the subject Site is located on the Fraser River floodplain. The area contains relatively flat land located on the valley floor to the west of the Fraser River (GeoBC topographic map 092H022 1:20,000). The elevation at this Site is approximately 20 m above sea level. The topography within the land parcel has been modified due to previous gravel operations and movement of soil/fill.

The general topography of the surrounding area contains flat, undulating land, which transitions into high mountainous terrain. Mount Ludwig is located on the east side of the Fraser River and is part of the Cascade Mountain Range with an elevation of 1,380 m. Bear Mountain is located approximately 2.5 km west of the Site and has an elevation of 1,000 m.

### 4.2.2 General Climate

The climatic conditions of the Seabird Island Reserve and surrounding areas are generally mild, warm and temperate. The Site is located approximately 8 km northeast of the Agassiz Canadian Department of Agriculture (CDA) Station (ID 1100120). According to Environmental Canada's Climate Normals Information collected at this station, this area receives a significant amount of precipitation annually (1,754.1 mm), with 1,689 mm falling as rain and 67.4 mm falling as snow. Precipitation is heavy during mild winters (averaging 285 mm in November) and light in the summer (averaging 58.2 mm in August). The mean annual temperature is 9.8°C and average monthly temperatures range from 18.7°C in August to 3.2°C in December. This indicates that the continentality type is oceanic, subtype semi-continental. The winter, spring, summer and fall average daytime highs are 4.7°C, 14.5°C, 23.2°C and 14.3°C respectively.

The bioclimatic classification is situated in or near the boreal rain forest biome.

A summary of the temperatures and precipitation measured at the Environment Canada climate station in Agassiz over 30 years (1981-2010) is presented in Figure 4.

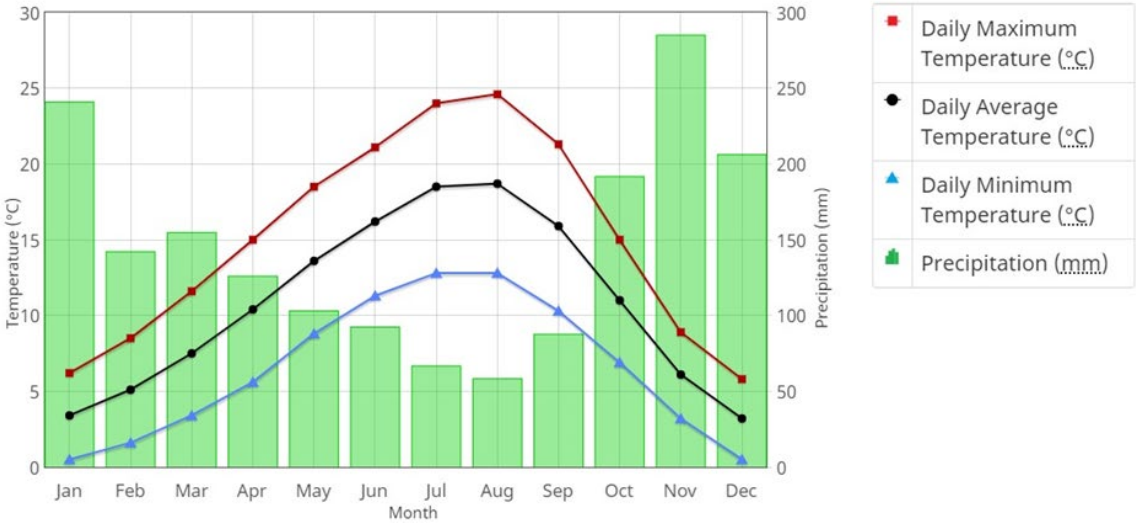


**Figure 4.** Temperature and precipitation statistics, 1981 to 2010, Canadian Climate Normals station data, Agassiz, BC (Agassiz CDA, 49°14'35.000''N, 121°45'37.000''W).

### 4.2.3 Geology

The surficial geology beneath the Site consists of the Fraser Floodplain Deposits. It is dominated by alluvial sediments, including silts, fine grained sands and gravels associated with the last glaciation and the erosion and deposition of the igneous bedrock of the surrounding area. These deposits appear consistent along the river channel and in the floodplains.

The bedrock beneath the Site and surrounding area consists of a complex series of acidic to intermediate igneous intrusions (Map 41-1989 Sheet 1 Geology Hope, British Columbia 1:250,000).

### 4.2.4 Hydrogeology

The aquifers in the region have been mapped and are included in the Water Well Information System (WWIS, 2023). The Site is located over the Agassiz Aquifer 0004, which extends from Harrison Lake to the Fraser River and consists of sands and gravels of the Fraser River sediments (Figure 5). It is unconfined and has high vulnerability, high productivity, and low demand. It was mapped in 1993 and covers an area of approximately 63.6 km$^2$. The uses for the aquifer include, but are not limited to, agriculture and domestic water use.

A search of the Well Water Information System (WWIS 2023) identified seven water wells within 1 km of the Site (Table 1). There are two wells located along Wahleach Crossing Road adjacent to the subject Site (well tag #125824 and 93747). Two wells are located approximately 580 m southwest of the Site along No 6 Road (well tag #128030 and 126005). Another three wells are located around the intersection of Wahleach Road and Ewalooth Road approximately 830 m north of the Site (well tags #46756, 49065, and 127421).

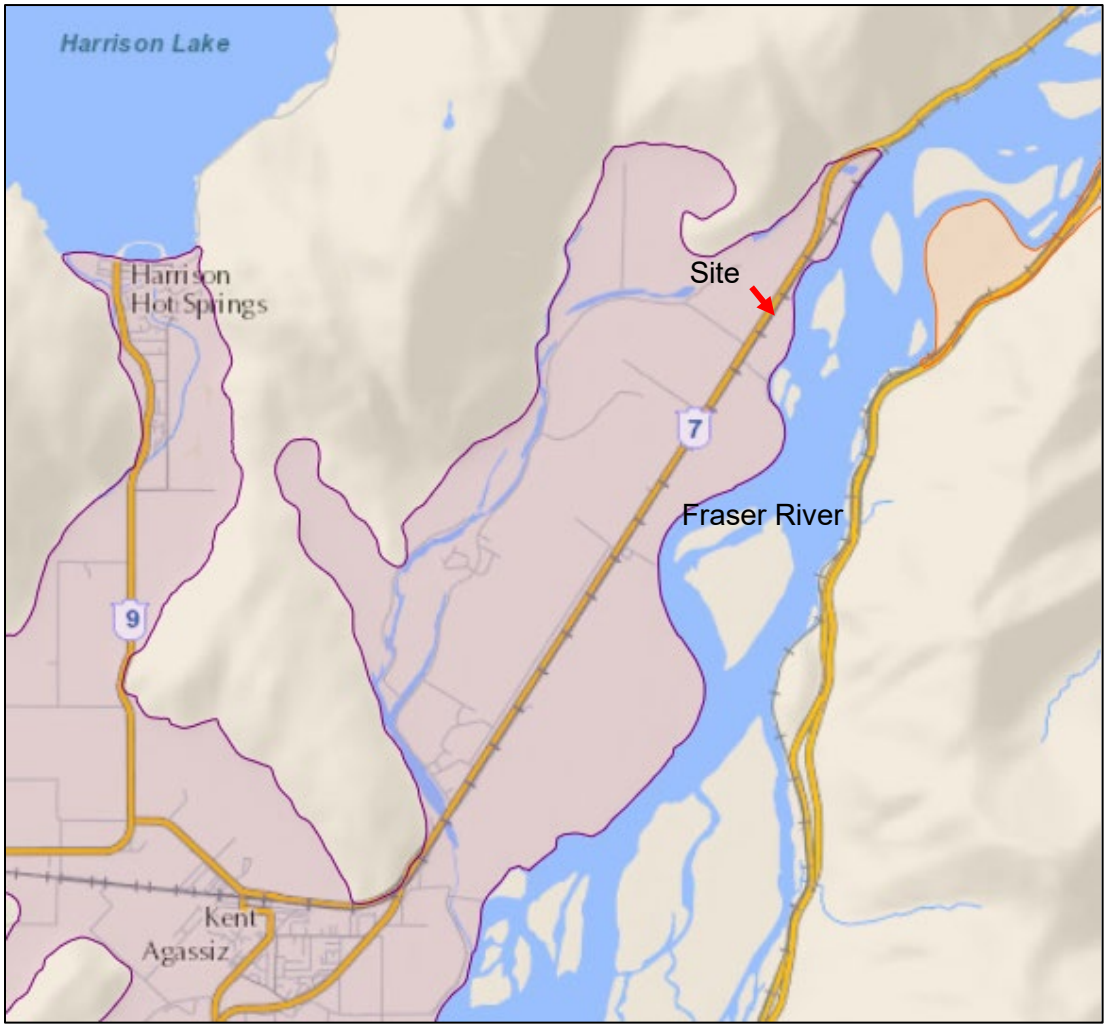


**Figure 5.** The Agassiz Aquifer (outlined in purple) underlies the subject Site. The aquifer extends from Harrison Lake to the Fraser River and is over 60 km$^2$.

**Table 1.** Summary of the seven groundwater wells located within 1 km of the subject Site.

| Well Tag Number | Purpose | Owner |
|---|---|---|
| 125824 | Irrigation | Corners Pride Farms |
| 93747 | Private Domestic | Jakes Construction |
| 128030 | Irrigation | Valley Select Food |
| 126005 | Private Domestic | Tyson Mcneil |
| 46756 | Unknown | Seabird Indian Reserve |
| 49065 | Unknown | Sto:lo Housing Society |
| 127421 | Private Domestic | Tasheenah Peters |

The water table depth at the subject Site is approximately 4 m below ground surface. Groundwater flows towards the southwest (SNC-Lavalin 2014).

The Site is located on a floodplain and therefore has a risk of flooding.

### 4.2.5 Surface Water

The Site is approximately 260 m east of a side channel of the Fraser River. The Fraser River is a ninth order stream which, with a length of 1,388 km and drainage basin of 220,000 $km^2$ (FIDQ, 2023). The section of the Fraser River adjacent to the Site flows east to west and contains some meandering braided river channels as well as the main flow channel. The mainstem is approximately 760 m wide in this area. There is no surface water connection between the Site and the Fraser River. There is also a dyke along the west bank between the Site and a 5 m wide riparian corridor along the Fraser River.

The Maria Slough is located approximately 2 km northwest of the Site. Maria Slough is a former side channel of the Fraser River which flows south and enters Fraser River east of Agassiz. It is a slow-moving water body with a length of approximately 13 km and drains a watershed of 7 $km^2$.

### 4.2.6 Historic and Current Land Use

The parcel remained undeveloped until the early to mid-2000's when the area was cleared, and structures were built near the railway crossing. The majority of the parcel was used for sorting aggregate and equipment/material laydown. Adjacent to the Site on the northeast side was the Diacarbon Energy Ltd. Pilot Biomass Refinery (Figure 3). The Diacarbon Lease Site was temporarily used as a pilot biomass refinery demonstration facility from Sept 1, 2011 to Mar 30, 2016. It was abandoned and equipment was vandalized. Currently, the soils at the Diacarbon Site are contaminated with petroleum hydrocarbons, volatile organic compounds (VOC's) and metals. The Site has undergone a Phase 1 Environmental Site Assessment (Arcadis IBI Group, 2023) and it is expected to be remediated in the near future. Groundwater testing indicated no significant impact on water quality.

Currently, the decommissioned Diacarbon site occurs to the northeast of the Site and vacant forest occurs beyond. To the east, an empty overgrown lot formerly used as an aggregate site by Jakes Construction Ltd. lays between the subject Site and the Fraser River. There is a dyke road that runs along the west side of the Fraser River. This road is a single lane gravel road along the Fraser River riparian corridor. The road is elevated, creating a 2 to 3 m high berm. Local residents commonly use this road to access the Fraser River for recreational fishing and boating. To the west, the CP Railway and Highway 7 run in a northeast-southwest direction. Further west is a strip of residential land and a large plot of agricultural land. To the south, is agricultural land.

# 5 ENVIRONMENTAL ASSESSMENT FOR FUTURE USE

## 5.1 Groundwater

Seabird Island and the subject Site are underlain by the Agassiz Aquifer (Figure 5). It is a productive aquifer with high vulnerability. The aquifer is quite large and shallow, i.e. between 2 to 5 m below surface depending on the proximity to the Fraser River. At the Site, it is estimated to be approximately 4 m below the ground surface. It is used for agriculture and domestic water use.

**Potential Effects on Groundwater:**

The proponent will be storing vehicles and fuel on-Site. The activities could potentially lead to contamination of groundwater with petroleum fuel, diesel fuel, or antifreeze if the following accidents or malfunctions were to occur:

- Leaking from storage containers,
- Spills during refueling; and,
- leaking from equipment during operation.

**Proposed Mitigation Measures:**

NPE recommends the following mitigation measures to prevent leaks and/or spills of fluids that could contaminate groundwater:

- Fuel storage tanks/containers will be clearly labeled, and their locations will be made known to all on-Site personnel;
- Fuel tanks will be situated within appropriate secondary containment (an impermeable containment facility capable of holding 125% of the storage tank contents). This may be achieved through the use of double-walled storage tanks or sit-in containers constructed out of impermeable material, such as aluminum or plastic;
- Refueling equipment and tanks will be clean and in good working order;
- Avoid refueling during a period of heavy rainfall OR under shelter;
- If possible, one area will be designated for fuel transfer;
- A spill barrel must be kept at the refueling site and contain at least:
    - 100 oil absorbent pads
    - 10 oil absorbent socks
    - 1 bag granular 25 lbs
    - 2 pairs gloves and goggles
    - 8 disposal bags and tie
    - Instruction sheet
- Drip trays should be left under stored vehicles to catch any leaked fluids in the event of vandalism;

- If >100 L of fuel is spilled on land, it must be reported to Emergency Management BC at 1-800-663-3456.
- If any amount of fuel enters the Fraser River, it must be reported immediately to Emergency Management BC at 1-800-663-3456.

NPE also recommends limiting access to the Site via the dyke road. The dyke road is frequently used to gain access to the Fraser River for recreational fishing and boating. Blocking access could potentially reduce vandalism.

## 5.2 Fisheries

Under the *Fisheries Act*, fish and fish habitat values are protected: "no personal shall carry on any work, undertaking or activity that results in serious harm, to fish that are part of a commercial, recreational or aboriginal (CRA) fishery, or to fish that support such a fishery, where serious harm is the death of fish ow any permanent alteration to, or destruction of, fish habitat" (DFO 2013). Both the Fraser River and Maria Slough are important, fish-bearing watercourses.

The Fraser River is approximately 260 m southeast of the subject Site. The reach of the river within the vicinity of Seabird Island is comprised of braided sections and is habitat to at least 29 species of fish (Table 2). It supports several important commercial, recreational, and aboriginal fisheries including, but not limited to, white sturgeon, sockeye, chum, coho, pink, chinook salmon and steelhead trout. Several spawning locations for pink and chum salmon have been identified in the reach near the subject Site. White sturgeon, a provincially and federally listed species, is also known to occur in the reach adjacent to this Site (CDC, 2023).

**Table 2. Fish species known to inhabit the Fraser River in the vicinity of the subject Site.**

| Latin Name | Common Name | Provincial/Federal Risk Ranking |
|---|---|---|
| *Acipenser transmontanus* | White sturgeon | S1S2-Red/Threatened |
| *Oncorhynchus gorusch*a | Pink salmon | Not ranked |
| *Oncorhynchus keta* | Chum Salmon | Not ranked |
| *Oncorhynchus kisutch* | Coho salmon | Not ranked |
| *Oncorhynchus nerka* | Sockeye Salmon | Not ranked/Not at Risk |
| *Oncorhynchus tshawytscha* | Chinook Salmon | Not ranked |
| *Oncorhynchus mykiss* | Rainbow/steelhead trout | S5-Yellow |
| *Savelinus malma* | Dolly varden | S4-Yellow |
| *Prosopium williamsoni* | Mountain Whitefish | S5-Yellow |
| *Salvelinus confluentus* | Bull trout | S3S4-Blue/Species of Concern |
| *Rhinichthys cataractae* | Longnose Dace | S5-Yellow |
| *Rhinichthys falcatus* | Leopard Dace | S5?-Yellow/Not at Risk |

| | | |
|---|---|---|
| *Rhinichthys osculus* | Speckled Dace | S3?-Blue |
| *Mylocheilus caurinus* | Peamouth Chub | S5-Yellow |
| *Richardsonius balteatus* | Redside Shiner | S5-Yellow |
| *Catostomus macrocheilus* | Largescale Sucker | S5-Yellow |
| *Oncorhynchus clarkii clarkii* | Coastal Cutthroat Trout | S3S4-Blue |
| *Cottus aleuticus* | Coastrange Sculpin | S5-Yellow |
| *Acrocheilus alutaceus* | Chiselmouth | S4-Yellow/Not at Risk |
| *Catostomus commersonii* | White sucker | S5-Yellow |
| *Cottus asper* | Prickly sculpin | S5-Yellow |
| *Ptychocheilus oregonensis* | Northern Pikeminnow | S5-Yellow |
| *Thaleichthys pacificus* | Eulachon | Not Ranked/Endangered |

Source: HabitatWizard (2023), SHIM Fraser River (2023), and SARA (2023)

The Maria Slough is located approximately 2 km northwest of the Site. Maria Slough is recognized as a very important spawning and rearing area for Pacific salmon species and, in particular, for a genetically distinct population of “red” chinook salmon. Large populations of sturgeon (*Acipenser spp.*) were also observed spawning and rearing within the lower reaches of the slough.

**Potential Effects on Fisheries:**

The Proponent will be storing deleterious substances (including but not limited to, diesel fuel, petroleum fuel, or antifreeze), re-fueling on-Site, and/or leveling the sediment in the yard (which may involve stockpiling of sediment). A spill or leakage could release deleterious substances into the environment. Sediment stockpiles can be eroded by rainfall and allow for the transference of sediment-laden water down-gradient. At the Site, the ground is relatively flat and there is a berm at the dyke road along the riparian corridor of the Fraser River. However, under heavy precipitation, it is possible that spilled substances or sediment-laden water could enter the Fraser River if it overtopped the berm. If this were to occur, it would have negative and possibly deleterious effects on fish and/or fish habitat. Therefore, under certain circumstances, it is possible that a spilled substance on-Site could enter the Fraser River.

Given the distance and infrastructure in between the Site and the Maria Slough, it is highly unlikely that the Project will have any impacts on the slough.

**Proposed Mitigation Measures:**

Project activities must be conducted in a way that avoids the potential for the introduction of a deleterious substance and/or sediment or sediment-laden waters into any watercourse, ditch, or drainage system. For this purpose, NPE recommends the following best practices for fuel management:

- Fuel storage tanks/containers will be clearly labeled, and their locations will be made known to all on-Site personnel;
- Refueling equipment and tanks will be clean and in good working order;

- Fuel tanks will be situated within appropriate secondary containment (an impermeable containment facility capable of holding 125% of the storage tank contents). This may be achieved through the use of double-walled storage tanks or sit-in containers constructed out of impermeable material, such as aluminum or plastic;
- All fuels, oils, lubricants, and other petrochemical products will not be stored within 30 m of the Fraser River;
- If possible, one area will be designated for fuel transfer;
- Avoid refueling during a period of heavy rainfall OR under shelter;
- Equipment will not be fueled within 30 m of the Fraser River;
- Refueling will occur on a flat surface to minimize potential off-site runoff;
- A spill barrel must be kept at the refueling site and contain at least:
    - 100 oil absorbent pads
    - 10 oil absorbent socks
    - 1 bag granular 25 lbs
    - 2 pairs gloves and goggles
    - 8 disposal bags and tie
    - Instruction sheet
- Drip trays should be left under stored vehicles to catch any leaked fluids in the event of vandalism;
- If >100 L of fuel is spilled on land, it must be reported to Emergency Management BC at 1-800-663-3456.
- If any amount of fuel enters the Fraser River, it must be reported immediately to Emergency Management BC at 1-800-663-3456.

If any digging/leveling will occur, NPE recommends the following erosion and sediment control (ESC) measures be implemented to prevent the deposition of any sediment and/or sediment-laden water into any watercourse:

- If any sediment will be stockpiled, sufficient quantities of ESC materials (i.e. silt fence, polyethylene sheeting) should be kept on-Site;
- Soil disturbance and movements should be scheduled to occur during dry conditions and halted during significant rainfall, i.e., >25 mm over a 24 hour rain event;
- Excavated soil should not be stored on site for extended periods OR it should have perimeter containment, e.g. silt fencing, or covered in weighted poly-sheeting;
- If significant rainfall is expected, any stockpiles must be covered with sheets of poly or equivalent, in advance;
- Temporary stockpile locations should be 15 m away from any roadside ditches and/or Site boundaries, where practical, and at minimum 3 m; and,
- If the movement of sediment results in exposed soils that can be easily mobilized, the soils must be adequately covered with gravel, planted with grass seed or another option to prevent erosion.

## 5.3 Terrestrial Resources

### 5.3.1 Vegetation

The subject Site occurs within the Coastal Western Hemlock dry maritime (CWHdm) biogeoclimatic subzone, which is typically characterized by warm, relatively dry summers and mild winters (MoFR 2023). Mature forests in the CWHdm are found generally below 650 m in elevation and are dominated by a coniferous mix of western hemlock, Douglas-fir and western red cedar (Green and Klinka, 1994). The shrub layer is often dense, consisting of salal, red huckleberry and dull Oregon grape. Swordfern and brackenfern typically dominate the herb layer. The moss layer is well-developed and dominated by *Kindbergia oregana*, *Hylocomium splendens*, *Rhytidiadelphus loreus*, and *Plagiothecium undulatum* (flat moss). Black cottonwood is also common in floodplain areas (Pojar et al 1991).

A large stand of intact forest occurs on the other side of the former Diacarbon Site, approximately 30 m northeast of the Site (Figure 3). In the riparian corridor along the Fraser River, the following plant species have been documented: western red cedar, big leaf maple, black cottonwood, and reed-canary grass. The rest of the surrounding area has mostly been converted for industrial or agricultural purposes or for linear infrastructure.

The subject Site is comprised of a gravel lot with some weeds. Under the Weed Control Act, species identified as noxious weeds must not be transported by the movement of machinery or vehicles. Invasive species documented by SNC-Lavalin (2014) in the Wahleach yard area include: Canada thistle (*Cirsium arvense*), Japanese knotweed (*Fallopia japonicus*), Oxeye daisy (*Leucanthemum vulgare*), and Himalayan blackberry (*Rubus armeniacus*).

Most invasive species propagate by seed and fragment dispersal. Japanese knotweed for example spreads with seeds, however it is also known for rapidly propagating into large thickets by stem and root fragmentation (MetroVancouver, 2019). Oxeye Daisy on the other hand propagates mainly through seed dispersal (OKIO, 2023).

Canada Thistle typically spreads into large colonies by cloning within the root system (Government of Saskatchewan, 2023). Himalayan Blackberry however is able to spread effectively by both seed dispersal and from root growth (MetroVancouver, 2021).

### 5.3.2 Wildlife

The provincial *Wildlife Act* prohibits the destruction of species defined as wildlife in Schedule 1 (i.e. most native, terrestrial vertebrates, including amphibians). It also confers protection for the nests of eagle, peregrine falcon, gyrfalcon, osprey, heron, or burrowing owl (when occupied) year-round and their eggs.

According to Pojar et al (1991) the most common large mammals in the Coastal Western Hemlock BGC are Black-tailed Deer (*Odocoileus hemionus*), and Black Bear (*Ursus americanus*). Other wildlife common in this BGC are marten, diurnal raptors (e.g. Great horned owl and barred owl), ruffed grouse, migratory and resident songbirds, woodpeckers, and many

amphibians. In a field survey conducted by SNC-Lavalin (2014) found evidence of bald eagle (*Haliaeetus leucocephalus*), Eastern cottontail (*Sylvilagus floridanus*) or snowshoe hare (*Lepus americanus*), and 17 species of songbird. A search of the Wildlife Tree Atlas shows no known raptor nests within 2 km of the Site.

### 5.3.3 Species at Risk

Species that are provincially or federally designated to be at-risk are protected by the following legislation:

- Canadian *Species at Risk Act* (SARA): The purposes of the SARA are to prevent Canadian wildlife species from disappearing, to provide for the recovery of extirpated, endangered or threatened species, and to manage species of special concern to prevent them from becoming at risk (Species at Risk Public Registry, 2019).
- BC *Wildlife Act*: The Wildlife Act defines wildlife as all native and some non-native amphibians, reptiles, birds, and mammals that live in British Columbia (see Schedule 1 of the Wildlife Act). BC has no stand-alone legislation for species and ecosystems at risk. The provincial Wildlife Act protects virtually all vertebrate animals from direct harm, except as allowed by regulation (e.g., hunting or trapping). Legal designation as Endangered or Threatened under the Act increases the penalties for harming a species, and also enables the protection of habitat in Critical Wildlife Management Areas (Province of BC, 2019).

The *BC Species and Ecosystems Explorer* (MOE, 2019) database contains the 424 species in British Columbia that are listed under SARA. In a search of species potential or known to occur within 2 km of the Site, a total of 21 species were identified.

**Table 3.** Summary of 21 species listed as extirpated, endangered or threatened under SARA potentially in the vicinity of the Site in Wahleach yard.

| Scientific Name | Common Name | Provincial Designation | BC List | SARA Designation |
|---|---|---|---|---|
| *Acipenser transmontanus* | White Sturgeon | S2 (2018) | n/a | 1-E |
| *Haliotis kamtschatkana* | Northern Abalone | S2 (2002) | Red | 1-E |
| *Pinus albicaulis* | whitebark pine | S2S3 (2019) | Blue | 1-E (2012) |
| *Actaea elata var. elata* | tall bugbane | S1S2 (2019) | Red | 1-E (2003) |
| *Athene cunicularia* | Burrowing Owl | S1B (2020) | Red | 1-E (2003) |
| *Fissidens pauperculus* | poor pocket moss | S1 (2015) | Red | 1-E (2003) |
| *Icteria virens* | Yellow-breasted Chat | S2B (2018) | Red | 1-E (2003) |
| *Oreoscoptes montanus* | Sage Thrasher | S1B (2022) | Red | 1-E (2003) |
| *Rana pretiosa* | Oregon Spotted Frog | S1 (2022) | Red | 1-E (2003) |
| *Rhinichthys cataractae - Chehalis lineage* | Nooksack Dace | S1 (2019) | Red | 1-E (2003) |
| *Sorex bendirii* | Pacific Water Shrew | S2? (2015) | Red | 1-E (2003) |

| | | | | |
|---|---|---|---|---|
| *Strix occidentalis* | Spotted Owl | S1 (2018) | Red | 1-E (2003) |
| *Allogona townsendiana* | Oregon Forestsnail | S2 (2015) | Red | 1-E (2005) |
| *Fabronia pusilla* | silver hair moss | SH (2015) | Red | 1-E (2005) |
| *Lupinus rivularis* | streambank lupine | S1 (2019) | Red | 1-E (2005) |
| *Scapanus townsendii* | Townsend's Mole | S1 (2015) | Red | 1-E (2005) |
| *Triteleia howellii* | Howell's triteleia | S1 (2005) | Red | 1-E (2005) |
| *Brotherella roellii* | Roell's brotherella | S1S2 (2011) | Red | 1-E (2018) |
| *Eremophila alpestris strigata* | Horned Lark, strigata subspecies | SXB (2019) | Red | 1-E (2005) |
| *Myotis lucifugus* | Little Brown Myotis | S3S4 (2022) | Blue | 1-E (2014) |
| *Cypseloides niger* | Black Swift | S2S4B (2022) | Blue | 1-E (2019) |

**Potential Effects on Terrestrial Resources:**

The proponent will be moving vehicles on and off the leased land, which could have the following impacts:

- Facilitate the dispersal of invasive species, particularly for species, e.g. Himalayan blackberry;
- Mortality or injury of terrestrial wildlife or birds resulting from wildlife-vehicle collision, ingestion of hazardous materials (e.g. solid waste, antifreeze, hydrocarbons);
- Harassment of a species at risk species (SARA) or designated as wildlife (Wildlife Act) by personnel; and,

**Proposed Mitigation Measures:**

NPE provides the following mitigation measures to avoid the introduction or spread of invasive plant species during proposed activities:

- Machinery should be clean and free of soils and plant materials prior to moving vehicles on or off Site to avoid the introduction or spread of invasive species;
- Noxious weeds identified or suspected by the Proponent should be reported to a QEP before disturbing the plants or area around the plants;
- Invasive plants should be removed mechanically or treated chemically, as appropriate, depending on the specific species and location within the Site;
- Avoid parking, turning around, or staging equipment in invasive plant infested areas; and,
- Inspect and clean vehicles before entering a weed-free area and before leaving an infested area.

NPE recommends the following measures to avoid mortality and/or injury of wildlife:

- For the operation of vehicles between Highway 7 and the subject Site and on-Site, low speed limits should be enforced;

- Waste must not be stored on-Site, except with a permit under the Indian Reserve Waste Disposal Regulations;
- Personnel should check for wildlife under and around the vehicle prior to operation;
- Personnel should have Bear Aware Training;
- All equipment should only be operated on the subject Site;
- Mortality of designated wildlife should be reported to

## 5.4 Social Considerations

### 5.4.1 Local Community

The local community of Seabird Island (Figure 1) is located approximately 5 km southwest of the Site location, with a population of approximately 800 people (StatCan, 2021). The Seabird Island Band is a member government of the Sto:lo Tribal Council. The community includes government, businesses, and services such as day care, dental clinic, community school and non-profit services.

Within 1 km of the Site there are approximately 15 residences. One residence is on the west side of Highway 7, directly across from the Wahleach Crossing Road and several more approximately 750 m south on Highway 7. Several residences are also spread out along Seabird Island Road.

### 5.4.2 Land Use & Natural Resources

The primary land use at the Site and within Seabird Island includes agriculture, gravel mining fisheries, and forestry. The Fraser River is accessed frequently by recreational boaters and for fishing along the river road.

### 5.4.3 Public Health

Activities within the Site have potential to affect groundwater, reduce air quality within the project area and surroundings, cause noise disturbances and light emission disturbances. These effects can have an impact on community health.

**Air Quality and Dust**

Activities on-Site could affect air quality within the Site boundaries and surrounding areas. Dust emissions from machinery movement, grading or stockpiling could impact adjacent roadways including Highway 7. Dust emissions can cause roadway dust pollution, and potentially impact residential properties located west of the Site. It is recommended that site watering be conducted during dry periods to minimize dust.

Excessive burning of fuels from running vehicles, machinery and equipment can also have adverse effects on air quality and contributes to greenhouse gas emissions.

In accordance with the Ministry of Transportation and Infrastructure (MOTI) it is recommended that idling of vehicles be minimized based on MOTI standards:

- Motor Vehicles and light diesel Trucks – 1 minute
- Heavy duty vehicles – 5 minutes
- Diesel Vehicles involved in construction site passenger transportation – 10 minutes; and
- Construction equipment – exempt when actually employed at the Site for work intended.

Idling for more than the above times is permitted only under the following circumstances:

- When the vehicle or equipment is forced to remain motionless because of other traffic conditions or mechanical difficulties over which the operator has no control;
- To bring the vehicle or equipment to the manufacturers recommended operating temperature; and,
- When the outdoor temperature is below 0°C or above +30°C and the operator or passengers are inside the vehicle, and there are no auxiliary power sources available to provide temperature control.

**Noise and Vibration**

Activities causing excessive noise and vibrations within the Site area can affect adjacent residential properties located west of the Site. It is recommended that the following best management practices be implemented to minimize potential effects resulting from noise and vibrations, including:

- All equipment will be properly maintained and fitted with functioning exhaust and muffler systems to limit noise emissions;
- Engines will be turned off when not in use or reduced to idle (or as appropriate to reduce air emissions), except when:
    - When it is necessary to operate auxiliary equipment that is located in or on the vehicle or equipment to accomplish the intended use of the vehicle or equipment
    - When the vehicle is detaching or exchanging a trailer;
    - When the vehicle or equipment is being repaired or engaged in repairing another vehicle, if idling is necessary for such repair;
    - When the vehicle or equipment is queued for inspection, if idling is necessary for such inspection,
    - When defrosting or defogging windows. Idling shall end when fog, frost, or ice conditions have been eliminated.

## 5.5 Cultural Resources & Archaeology

An Archaeological Overview Assessment completed by Kleanza Consulting Ltd (2014) identified a previously recorded archaeological site (DhRk-61), near the southern boundary of the subject Site in Wahleach yard. It is unclear from the documentation whether the archaeological site is

actually within Site or not. If the proponent chooses to do any kind of excavation on the subject Site, it might be necessary to have an archaeological monitor for the duration of these activities. NPE recommended that the Proponent contact Seabird Island Band and/or the Archaeology Branch for further guidance.

A Chance Find Procedure is included in Appendix 1. This procedure must be followed if a suspected archaeological artifact is found at any time.

## 5.6 Effects of the Environment on the Project

The subject Site is within the floodplain of the Fraser River, therefore this is a possibility of flooding, particularly during the spring freshet. If equipment and fuel is stored on-Site, water contamination could be a concern in the event of flooding. NPE recommends that the proponent have in place an evacuation plan for all equipment on-Site in case the Site is flooded.

## 5.7 Cumulative Effects

Temporary impacts to the natural environment associated with proposed activities described in Section 4.0 can be mitigated through implementation of Best Management Practices (BMPs) and industry standard guidelines. Based on NPE's understanding of the activities proposed for the leased land in Wahleach Yard, no permanent or residual environmental effects are predicted. Without any residual effects, detailed cumulative effects assessment is not necessary at this time.

## 5.8 Summary of Mitigation Measures

**Table 4.** Summary of Potential Land Use Impacts on the Environmental and Recommended Mitigation Measures.

| Potential Effect | Contributing Activity | Recommended Mitigation | Reference Section |
|---|---|---|---|
| ENVIRONMENTAL CONSIDERATIONS | | | |
| *Groundwater* | | | |
| Quality of Groundwater | Discharge of contaminants through spills (e.g. vandalism) | Fuel tanks/containers should be clearly labeled and in appropriate secondary containment (impermeable and capable of holding 125% of tank contents); | Section 5.1 |

| | | | |
|---|---|---|---|
| | | Refueling equipment and tanks will be clean and in good working order;<br>Fueling outdoors should be avoided during heavy rainfall;<br>Spill kits are to be kept at refueling site;<br>Drip trays are to be kept under inactive/stored vehicles | |
| *Fisheries* | | | |
| Fish mortality | Release of hazardous substances (e.g. hydrocarbons) through spills | All fuels, oils, lubricants and other petrochemical products will not be stored within 30 m of watercourse;<br>Refueling will occur on a flat surface to minimize potential off-site runoff;<br>If any digging/leveling will occur, Soil disturbance and movements should be scheduled to occur during dry conditions and halted during significant rainfall, i.e., >25 mm over a 24-hour rain event;<br>If any sediment will be stockpiled, sufficient quantities of ESC materials (i.e., silt fence, polyethylene sheeting) should be kept on-Site;<br>If significant rainfall is expected, any stockpiles must be covered with sheets of poly or equivalent, in advance;<br>Temporary stockpile locations should be 15 m away from any roadside ditches and/or Site boundaries, where practical, and at minimum 3 m;<br>If the movement of sediment results in exposed soils that can be easily mobilized, the soils must be adequately covered with gravel, planted with grass seed or another option to prevent erosion. | Section 5.2 |
| | Leaks during operation of construction vehicles | Fuel tanks/containers should be clearly labeled and in appropriate secondary containment (impermeable and capable of holding 125% of tank contents); | |

| | | | |
|---|---|---|---|
| | | Drip trays are to be kept under inactive/stored vehicles; | |
| *Terrestrial Resources* | | | |
| Disruption to wildlife/bird breeding behaviors and wildlife mortality | Vehicle and equipment operation | Personnel should check for wildlife under and around the vehicle prior to operation;<br>For the operation of vehicles between Highway 7 and the subject Site and on-Site, low speed limits should be enforced;<br>All equipment should only be operated on the subject Site;<br>Personnel should have Bear Aware Training;<br>Waste must not be stored on-Site, except with a permit under the Indian Reserve Waste Disposal Regulations. | Section 5.3 |
| SOCIAL CONSIDERATIONS | | | |
| *Public Health* | | | |
| Local air quality | Fugitive dust | Site watering should be conducted during dry periods to minimize dust; | Section 5.4.3 |
| Greenhouse gas emissions from vehicles | Emissions | Idling vehicle time should be minimized;<br>Engines will be turned off when not in use or reduced to idle (or as appropriate to reduce air emissions);<br>Excessive burning of fuels from running vehicles, machinery and equipment should not occur; | |
| Noise | Noise | All equipment will be properly maintained and fitted with functioning exhaust and muffler systems to limit noise emissions. | |

# 6 CONCLUSIONS

It is Nova Pacific's understanding that the Proponent proposes to use the leased land in Wahleach yard on SIB lands for storage of transport trailers that will be hauling green energy equipment, for which a shelter and fencing will be installed above-ground. Provided the BMPs and guidance provided are followed as laid out in this EIA, it is Nova Pacific's professional opinion that the proposed land use activities can be conducted without any permanent negative impacts to local environmental or social values.

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Sincerely,

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# APPENDIX 1 – CHANCE FIND PROCEDURE

# Archaeological Resources: Chance Find Procedures

Nova Pacific Environmental (NPE) recognizes the importance and significance of the culture of Indigenous Peoples and has in its corporate culture respect for both the people of this heritage with us today and their archeological resources. NPE is also cognizant of the regulations that protect these resources. This document provides guidance based on the province's heritage regulatory framework upon the discover of such resources in known or suspected heritage sites.

In the case that archaeological resources are encountered the guidelines herein will be enacted and followed. These procedures will help protect and preserve these resources during construction activities with the objective of minimizing disruption to the activity while promoting the preservation and proper management of heritage sites and resources.

## BC REGULATORY FRAMEWORK

Heritage sites in British Columbia are managed in accordance with the Heritage Conservation Act (RSBC 1996, c. 187). Section 12 of the Heritage Conservation Act (HCA) specifies that an individual (or corporation) must not damage, excavate, dig in or alter, or remove any heritage object from a heritage site, except in accordance with a permit issued by the Minister. The HCA confers automatic protection upon all heritage sites that predate AD 1846, regardless of whether they are recorded in the Provincial Heritage Register, and regardless of whether they are located on crown land or private property. Certain sites, including human burials and rock art sites with heritage value, are automatically protected, regardless of their antiquity.

It's important to note that all archaeological sites, regardless of their condition, are protected by the HCA and that it does not distinguish between "intact" (i.e., those sites which are in a pristine, or undisturbed state) and "disturbed" (i.e., those sites which have been subject to alteration, permitted or otherwise) sites. Post AD 1846 historical heritage sites can be protected by Provincial Ministerial Order or Designation by an Order-in-Council.

## GUIDELINES FOR CHANCE FIND MANAGEMENT

*Step 1:* If known or suspected archaeological materials or features are encountered, stop activity within 30m of the find and secure the area. Suspected archaeological material (including excavated materials) should not be moved, removed, or altered prior to inspection by a qualified archaeologist (unless necessary to address a site safety risk).

*Step 2:* Inform and seek further direction from the Archaeology Branch or Seabird Island Band (contacts on next page).

## MANAGEMENT OPTIONS

In the event that an archaeological site is confirmed, discussions will occur between the Archaeology Branch, the project team (landowner, contractor, engineer, and environmental monitor), local First Nations, and representatives from the Province, in order to select the appropriate management option*.

Options could include:

1) Avoidance through partial activity redesign or relocation. This results in reduced additional impact to the archaeological site and is the preferred option from a cultural resource management perspective and is the least expensive option. An archaeological impact assessment may be required to define site limits.

2) Application of temporary and/or permanent site protection measures as approved by the Archaeology Branch (e.g., fencing off the site, capping with soil). An archaeological impact assessment to identify site boundaries and archaeological monitoring to verify the effectiveness of protective measures may be required;

3) Archaeological mitigation consisting of either or both controlled excavations or archaeological construction monitoring; and,

4) Monitoring of construction activities near the site by a professional archaeologist.

**A permit under Section 12 of the HCA may be required prior to undertaking any of these options*

## CHANCE FIND – HUMAN REMAINS

1) If suspected human remains are encountered (either intact or disturbed), immediately stop construction activities and secure the area;

2) Do not undertake further work that could disturb the remains. This includes moving soil and/or spoil (unless necessary to address a safety risk);

3) Inform Seabird Island Band and the Archaeology Branch;

4) A designate shall contact all First Nations with traditional interests in the area;

5) An archaeologist should be retained and that person or a designate may visit the site with First Nations representatives;

6) If it is determined that the human remains are not archaeological in nature (i.e., forensic), the local policing authority and Office of the Coroner will be contacted by the Archaeology Branch;

7) Discussions between the Archaeology Branch, First Nations, and the project team will identify appropriate follow-up procedures including the appropriate treatment of the human remains and reburial procedures.

## CONTACTS

Archaeology Branch Reception - Tel: (250) 953-3334 (daytime)

Seabird Island Band – Tel: (604) 796-2177