Appendix BSA-4

Socio-Economic Environment and Land and Resource Use Baseline Study

PROJECT NUJIO'QONIK
Environmental Impact Statement

PROJECT NUJIO'QONIK
Socio-Economic Environment and Land and Resource Use Baseline Study

August 2023

Prepared for:

Prepared by:

Stantec Consulting Ltd.

File: 121417575

PROJECT NUJIO'QONIK
Socio-Economic Environment and Land and Resource Use Baseline Study

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Abbreviations

AAC	annual allowable cut
AAOI	Agricultural Area of Interest
AML	Atlantic Minerals Limited
ATV	all-terrain vehicle
BBMA	Black Bear Management Area
CAES	compressed air energy storage
CBPPL	Corner Brook Pulp and Paper Limited
CCP	Comprehensive Community Plan
CIRNAC	Indigenous and Northern Affairs Canada
CMA	Caribou Management Area
CNWA	*Canadian Navigable Waters Act*
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CRHSS	Conne River Health and Social Services
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EA Regulations	*Environmental Assessment Regulations*
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
FNFNES	First Nations Food, Nutrition and Environment Study
FNI	Federation of Newfoundland Indians
GDP	Gross Domestic Product
GIS	geographic information system
GW	gigawatt(s)
ha	hectare(s)
IAAC	Impact Assessment Agency of Canada
IAT	International Appalachian Trail
IBA	Important Bird Area

IK	Indigenous Knowledge
IR	Indigenous Reserve
km	kilometre(s)
km^2	square kilometre(s)
KMKNO	Kwilmu'kw Maw-klusuaqn Negotiation Office
LAA	Local Assessment Area
LRU	Land and Resource Use
LSD	local service district
m^3	cubic metre(s)
MAMKA	Mi'kmaq Alsumk Mowimsikik Koqoey Association
masl	metre(s) above sea level
MCF	Mi'kmaq Commercial Fisheries Incorporated
MFN	Miawpukek First Nation
MKMNO	Mi'kmaw Kwilmu'kw Maw-klusuaqn Negotiation Office
MMA	Moose Management Area
MW	megawatt(s)
NCC	Nature Conservancy of Canada
NL	Newfoundland and Labrador
NL EPA	NL *Environmental Protection Act*
NL ESA	NL *Endangered Species Act*
NLDECC	NL Department of Environment and Climate Change
NLDFFA	NL Department of Fisheries, Forestry and Agriculture
NLDGSL	Newfoundland and Labrador Department of Government Services and Lands
NLDGSL	Newfoundland and Labrador Department of Government Services and Lands
NLDIET	NL Department of Industry, Energy and Technology
NLMPA	NL Department of Municipal and Provincial Affairs
NLOA	Newfoundland and Labrador Outfitters Association
NLSF	Newfoundland and Labrador Snowmobile Federation
NTS	National Topographic System
Project, the	Project Nujio'qonik

Proponent, the	World Energy GH2 Inc.
PSPC	Public Services and Procurement Canada
PSSSP	Miawpukek First Nation's Post-Secondary Student Support Program
QDC	Qalipu Development Corporation
QFN	Qalipu First Nation
QMH	Qalipu Marine Holdings Ltd.
RAA	Regional Assessment Area
SAR	species at risk
SARA	*Species at Risk Act*
TEDD	Miawpukek First Nation's Training and Economic Development Department
TLRU	Traditional Land and Resource Use
URPA	NL *Urban and Rural Planning Act, 2000*
VEC	Valued Environmental Component
WEGH2	World Energy GH2 Inc.
WER Act	NL *Wilderness and Ecological Reserves Act*
WERAC	Wilderness and Ecological Reserves Advisory Council

1.0 Introduction

World Energy GH2 (WEGH2) is proposing Project Nujio'qonik (the Project). The Project involves the development, construction, operation and maintenance, and eventual decommissioning and rehabilitation of one of the first Canadian, commercial-scale, "green hydrogen"[1] and ammonia production plants powered by renewable wind energy. Located on the western coast of the island of Newfoundland, Newfoundland and Labrador (NL), the Project will have a maximum production of up to approximately 206,000 t of green hydrogen (equivalent to approximately 1.17 megatonnes (Mt) of ammonia) per year. The hydrogen produced by the Project will be converted into ammonia and exported to international markets by ship. The hydrogen / ammonia plant and associated storage and export facilities will be located at the Port of Stephenville (in the Town of Stephenville, NL) on a privately-owned brownfield site and at an adjacent existing marine terminal, both of which are zoned for industrial purposes.

Renewable energy from two approximately 1,000 megawatt (MW) / 1 gigawatt (GW) onshore wind farms on the western coast of Newfoundland will be used to power the hydrogen and ammonia production processes. These wind farms (referred to herein as the "Port au Port area wind farm" and the "Codroy area wind farm") will include up to 328 turbines and collectively produce approximately 2,000 MW / 2 GW of renewable electricity. The Port au Port wind farm layout under consideration consists of 171 turbine locations on the Port au Port Peninsula, NL and adjacently on the Newfoundland "mainland" (i.e., northeast of the isthmus at Port au Port, on Table Mountain). The final layout of the Port au Port wind farm will ultimately consist of up to 164 turbines when constructed. The Codroy wind farm layout under consideration consists of 143 turbine locations. The final layout of the Codroy wind farm will also consist of up to 164 wind turbines located on Crown land in the Anguille Mountains of the Codroy Valley, NL. The final total nameplate capacity for each wind farm is expected to be approximately 1,000 MW / 1 GW. The modelling and assessment work is based on preliminary layouts for both wind farm sites (i.e., 171 potential turbine locations at the Port au Port wind farm and 143 potential turbine locations at Codroy wind farm). Final wind farm layouts will be dependent on results of the wind campaign and more detailed field investigations. Once the layout and number of turbines are finalized, the results of models will be reviewed and updated as required. If additional turbine locations are added to the Codroy wind farm in the future, it will be done in consideration of the mitigation measures, compliance with regulations, and such that the conclusions of the effects assessment do not change.

The Project is subject to provincial environmental assessment (EA) requirements under the NL *Environmental Protection Act* and associated Environmental Assessment Regulations (EA Regulations). This document is the Socio-Economic Environment and Land and Resource Use Baseline Study, prepared in support of an Environmental Impact Statement (EIS) and required under section 4.3.2 of the EIS Guidelines.

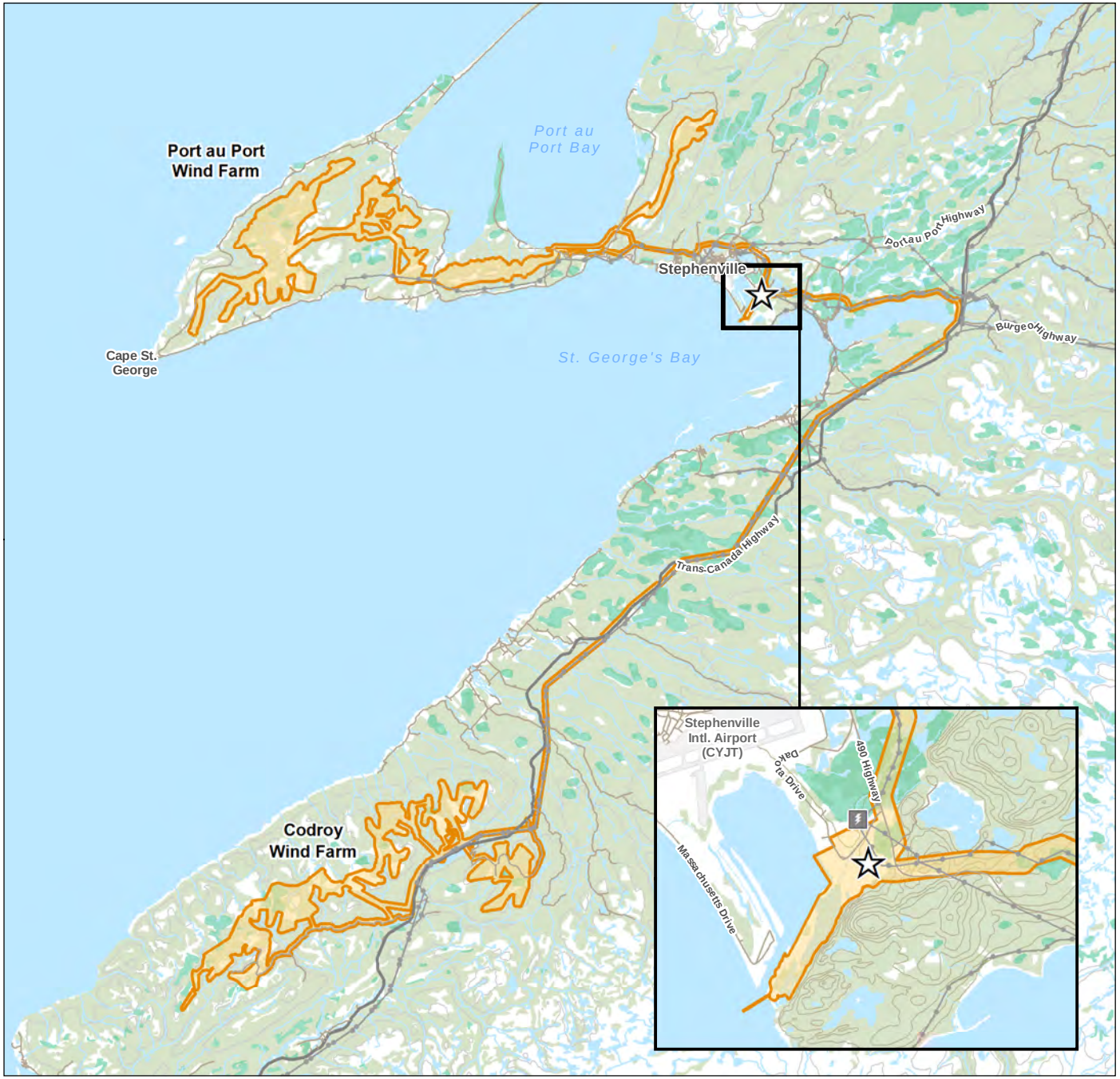
[1] "Green hydrogen" is produced via electrolysis using renewable electricity to split water into hydrogen and oxygen. This type of hydrogen, which is referred to by the European Commission (n.d.) as "renewable fuel of non-biological origin", is often called "green hydrogen" in industry.

1.1 Project Overview and Location

The Project includes the construction, operation and maintenance, and decommissioning of the Port au Port wind farm, Codroy wind farm, and a hydrogen / ammonia plant in Stephenville, as well as upgrades to the existing port at Stephenville (Figure 1.1).

The Project Area shown on Figure 1.1 is a conservative representation of the spatial extent of potential Project-related direct physical disturbance (i.e., the Project footprint). In addition to encompassing the immediate area in which Project components and activities will occur, the Project Area also includes up to a 175 m buffer (350 m right-of-way [RoW]) around key Project components. This buffer allows some flexibility for the micro-siting of certain Project components (e.g., wind turbines) during detailed design, based on technical considerations as well as the avoidance of environmentally sensitive areas, where practicable.

The proposed hydrogen / ammonia plant and export facilities at the Port of Stephenville are located approximately 5 kilometres (km) west of the Town of Stephenville, Newfoundland and Labrador (NL). The Port au Port wind farm (comprised of Port au Port West and Port au Port East) is located west and north of Stephenville and the Codroy wind farm is located 75 km south of Stephenville; both are connected to the hydrogen / ammonia plant by a collector system / transmission lines.



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Proposed Project Features

- Hydrogen / Ammonia Plant Location
- Project Area

Other Features

- Electrical Generation, Existing
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

0 10 Kilometres
(At original document size of 8.5x11)
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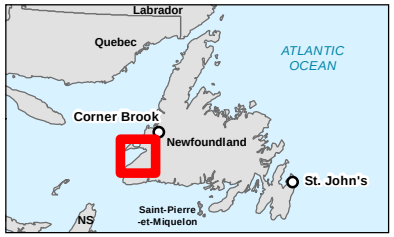
Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, NRCan CanVec, OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by MB on 2023-08-02
QR by AW on 2023-07-20

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
1.1

Project Area

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1.2 Scope of the Study

The Socio-Economic Environment and Land and Resource Use Baseline Study has been developed in consideration of section 4.3.4 of the final EIS Guidelines. The study is focused on the following valued environmental components (VECs):

- Economy, Employment and Business
- Communities
- Land and Resource Use
- Land and Resource Use by Indigenous Groups
- Heritage and Cultural Resources

As detailed below, the approach to the baseline studies incorporates use of both field data and publicly available information. Information on spatial boundaries, study scope, methods and the results are provided in the following sections.

2.0 Economy, Employment and Business

2.1 Scope And Objectives of the Economy, Employment and Business Study

Economy, employment and business support the livelihoods of residents and provide associated social benefits stemming from earned income. Economic effects (e.g., labour, labour income, contributions to Gross Domestic Product [GDP], and government revenues) are of interest to the public, stakeholders, regulators, Indigenous communities, and governments.

The objective of the economy, employment and business baseline study is to characterize the following:

- Economy of the region
- Value of existing industries, including: tourism, cultural and recreational; mining, mineral, and quarrying; commercial, recreational, and Indigenous fisheries, including marine aquaculture operations; and other major employers
- Employment in the region
- Availability of skilled and unskilled labour in the region and in the province
- Business capacity relative to goods and services
- Employment equity and diversity including under-represented groups
- Further discussion on commercial, recreation, and Indigenous fisheries, including marine aquaculture operations is provided in Section 4.0 Land and Resource Use.

2.2 Methods

2.2.1 Spatial Boundaries

Existing conditions for economy, employment and business have been described for the area representing the geographic extent over which Project activities, and their effects, are likely to occur (Figure 2.1). This area, referred to as the Local Assessment Area (LAA), includes the communities most likely to provide labour, goods, and services required for Project construction and operation. It is the spatial area within which potential direct and indirect effects of the Project can be predicted or measured with a reasonable degree of accuracy and confidence. The LAA includes the Project Area.

Existing conditions have also been described for the Province of Newfoundland and Labrador (NL). This area, referred to as the Regional Assessment Area (RAA), is the area for which regional and cumulative effects on economy, employment and business will be assessed. The Province was selected as the RAA given the potential of the economic impact of the project (i.e., Gross Domestic Product) has on the provincial economy.

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Local Service District
Municipality
Census Subdivision
Census Division

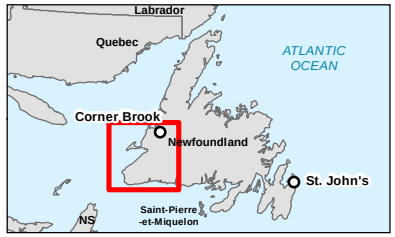
Proposed Project Features
Project Area
Local Assessment Area

Other Features
Transmission Line, Existing
Trans-Canada Highway
Road
Contour (100 m)
Watercourse
Waterbody
Forested Area

N

0 10 20 km
(At original document size of 8.5x11)
1:1,100,000

Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: Client, Statistics Canada, GovNL
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MB on 2023-07-25
QR by AW on 2023-07-20

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
2.1

Title
Spatial Boundaries for Economy, Employment and Business

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2.2.2 Methods

Secondary sources of information were used to describe existing conditions in the LAA and RAA. Secondary information included government sources (Statistics Canada, Government of NL, and Tourism NL), publicly available data and literature, as well as previously prepared information (e.g., reports, studies) submitted to WEGH2 by Indigenous groups and local communities.

Much of this chapter relies on government databases, including Census data from Statistics Canada. Statistics Canada regularly suppresses (i.e., selectively does not disclose) survey information to protect the identity of individuals and to address data quality issues. The 2021 Census of the Population (Census), which is used in this chapter is subject, in part, to such data suppression.

Results of engagement with stakeholders and Indigenous groups have also been integrated into the description of existing conditions, where applicable.

2.3 Results

2.3.1 Economy of the Region

As identified in Table 2.1, the economy of NL can be broken into two broad categories: the goods producing sector, which predominantly includes the extraction, production, and development of commodities; and the services producing sector, which includes service-oriented activities including education, health, hospital, retail, among other sectors. Further discussion on the economy is provided specific to the RAA and the LAA throughout this section.

Table 2.1 GDP and Employment by Sector / Industry – RAA

	GDP 2021e		Employment 2022	
	Millions ($)	**Total (%)**	**Person Years (000s)**	**Total (%)**
Agriculture, Forestry & Logging	197.5	0.6	1.5	0/6
Fishing, Hunting & Trapping	429.1	1.2	3.7	1.6
Mining	4,063.8	11.5	5.6	2.4
Oil Extraction	6,843.0	19.4	3.1	1.3
Support Activities for Oil and Mining	280.4	0.8	3.2	1.4
Manufacturing	1,246.2	3.5	10.1	4.3
Fish Products	283.2	0.8	3.4	1.5
Other	962.9	2.7	6.7	2.9
Construction	2,186.10	6.2	18.6	8.0
Utilities	697.0	2.0	2.0	0.9
Goods Producing Sector Subtotal	***15,943.0***	***45.3***	***47.8***	***20.6***
Wholesale Trade	683.0	1.9	5.4	2.3
Retail Trade	1,877.2	5.4	32.6	14.0

Table 2.1 GDP and Employment by Sector / Industry – RAA

	GDP 2021e		Employment 2022	
	Millions ($)	**Total (%)**	**Person Years (000s)**	**Total (%)**
Transportation and Warehousing	792.2	2.3	10.9	4.7
Finance, Insurance, Real Estate & Business Support Services	4,901.0	13.9	12.7	5.5
Professional, Scientific, and Technical Services	1,168.9	3.3	11.6	5.0
Educational Services	1,978.7	5.6	17.1	7.4
Health Care & Social Assistance	3,193.4	9.1	44.5	19.1
Information, Culture & Recreation	859.1	2.4	6.9	3.0
Accommodation & Food Services	528.0	1.5	14.2	6.1
Public Administration	2,728.2	7.8	20.8	8.9
Other Services	528.6	1.5	8.2	3.5
Services Producing Sector Subtotal	***17,909.3***	***61.5***	***184.7***	***79.4***
Total, All Industries	**35,202.0**	**100.0**	**232.5**	**100.0**

Note:
e = estimate
Source: Government of NL 2023

Regional Assessment Area

Oil extraction has been a predominant industry in NL since production began at the Hibernia offshore platform in 1997. Province-wide, oil extraction in 2021 accounted for 19.4% of total GDP, representing a $6.8 billion industry. Oil production for the province totaled 84.3 million barrels in 2022, a decrease of 10.4% compared to 2021. Despite lower production, the value of oil production increased by 33.6%, which can be attributed to the average price of Brent crude oil of US$100.93 per barrel in 2022, an increase of 42.4% per barrel from 2021.

Mining is one of the largest and oldest industries in NL. The sector is a key producer of critical minerals such as nickel, copper, cobalt, fluorspar and antimony (DNR 2022). As noted in Section 2.3.2, in 2021, mining accounted for $4.0 billion of total provincial GDP ($35.2 billion; Government of NL 2023). Metal ore mining accounted for 95.8% of 2022 mining and quarrying GDP in NL, with non-metallic mining accounting for the remining 4.2%. Iron ore mining accounted for the largest percentage of metal ore mining GDP (79.6%), followed by copper, nickel, lead and zinc ore mining (19.6%) and gold and silver ore mining (0.8%).

Given the potential of the Project to affect GDP and employment in the utilities industry (electricity providers, power lines, cable providers and, more recently the Muskrat Falls transmission line) it is useful to also present baseline data for the utility industry. In 2021, it is estimated it generated $697 million for the province, which is roughly 2.0% of the total provincial GDP. There is an estimated $4 billion in major

capital spending in the utilities industry planned in the province, second only to the $8.9 billion of spending in mining industry planned in terms major capital projects for NL. These utility projects include the Lower Churchill Project – Labrador-Island Link ($3.7 billion) with the remaining $300 million scheduled for general infrastructure maintenance and upgrades (Government of NL 2023).

What was once a traditional industry in NL, fisheries and now aquaculture are beginning to build more prominence by way of overall GDP and employment. The total volume of fish landings increased 13.8% to 208,600 t in 2022, and the landed value reached a record of $1.2 billion, up 19.2% over 2021 which was primarily driven by the snow crab fishery. In 2022, shellfish continued to account for the majority of both the volume of fish landings (67%) and the landed value (90%) in the wild fishery. Groundfish (19%) and pelagics (13%) make up the remainder of the of the total fish landings (Government of NL 2023).

Aquaculture production in NL is comprised of salmonids and shellfish. The volume of aquaculture production as nearly 12,500 t, down 36.4% from the previous year, largely due to the decrease in production of salmonids. The corresponding market value decreased by 34.2% to $124.6 million (Government of NL 2023).

The value of Newfoundland and Labrador's international seafood product exports declined by 13.5% to $1.2 billion in 2022, after hitting a record high in 2021. This decline was partially due to a drop in snow crab exports and prices as a result of lower market demand, particularly from the United States and Japan (Government of NL 2023).

Indigenous groups on the Island of Newfoundland are also active in the commercial fishery. Qalipu First Nation wholly owns the Mi'kmaq Commercial Fisheries Incorporation (MCF), which works to promote the Nation's long-term economic growth and overall sustainability (QFN 2016). In 2022, Qalipu First Nation gained $980,793 in revenue from the commercial fishery (QFN 2022). Miawpukek First Nation initiated Netukulimk Fisheries Ltd. in 1999, when they obtain their first crab license (Marathon Gold 2020). The organization operates for members to harvest for personal and ceremonial consumption and is not operationalized for commercial revenue. Further information on Indigenous groups and resource management are provided in section 6.3.

It is estimated that outfitters in NL spent a total of $4.2 million on hunting-related costs and $1.1 million on fishing-related costs in 2017 (Southwick Associates 2018). Costs included expenses for items such as payroll, transportation, food and meals, fuel and oil, marketing and advertising, equipment maintenance and repair, small equipment purchases, and business and guide licenses and permits (Southwick Associates 2018). In addition, in 2017, NL outfitters donated more than $700,000 to habitat and conservation organizations and an estimated $381,000 to other charitable organizations (Southwick Associates 2018).

In terms of service offering, 79% of NL outfitting revenues in 2017 came from hunting-related services (88% from big game hunts and 8% from upland bird hunts), 17% from fishing, and 4% from non-fishing and non-hunting activities (sample size of 30 outfitting companies) (Southwick Associates 2018). On average, clients spent $7,253 (CAD) per trip on NL hunting-related outfitting services and $6,350 per trip on fishing-related services. In total, domestic clients spent an estimated $4.4 million on outfitted hunting

(including $207,000 on licenses and permits for outfitted trips), while foreign clients spent $35.0 million (including more than $2.08 million on licenses and permits for outfitted trips) (Southwick Associates 2018). Domestic clients spent an estimated total of $4.7 million on outfitted fishing (including $129,000 on licenses and permits for outfitted trips), while foreign clients spent $8.2 million (including $448,000 on licenses and permits for outfitted trips) (Southwick Associates 2018).

It is likely that revenues from NL outfitting have fluctuated since 2017, particularly during the COVID-19 pandemic where public health restrictions limited activities of outfitting operators. Given the reduced uptake of outfitting activities from potential consumers, the provincial government permitted outfitting operators to carry over 25 percent of unused licenses from 2020 to the 2021 outfitting season (Government of NL 2020).

The forestry sector continues to grow across NL, with a market value of $470 million, up 10.3% in 2022 compared to 2020 (Government of NL 2023). Corner Brook Pulp and Paper Limited (CBPPL) is the only active paper mill in the province with sawmill operations located in and around the west coast of Newfoundland. Despite growth, in more recent years, the forestry sector has faced challenges, including reductions in Annual Allowable Cut (AAC) in areas of high forestry activity, and an expanding spruce budworm infestation, which is lowering the volume of product available to market (Government of NL 2023).

Local Assessment Area

Historically, the economy of western Newfoundland was built on natural resource-based industries, particularly fishing and mining. As of 2010, commercial fisheries were the most important economic base for most small communities within the LAA (Intervale Associates Inc. 2010). Several mine and quarry sites located in the LAA contributed to its development, including Atlantic Minerals Limited's mine site, processing facilities and marine terminals on the Port au Port Peninsula, and gypsum and salt operations in the Bay St. George area.

The economy in the LAA has struggled over the past decade, largely attributed to the decline in the forest product sector, but also in other industries. Between 2011 and 2021, employment in the manufacturing industry has declined 35%; in the administrative and support industry, employment has declined by 32%; in the finance and insurance industry, employment has declined by 29%; in the construction industry, employment has declined by 14%; and in educational services, employment has declined by 13% (JC 2023). The fastest-growing industry in the LAA since 2011 has been health care and social assistance, which has increased by 14%.

Stephenville is the second-largest municipality in the LAA. Given its role as a service hub for several smaller communities, economic change in Stephenville generally affects the region. In 2019, Stephenville developed a Strategic Community Economic Plan integrated with steps for regional collaboration. The collaborative strategies included a tourism plan with the Port au Port Peninsula (Conach Consulting 2019) though its implementation has been delayed due to COVID-19.

The Port of Stephenville services international and national ships, fishing, aggregate, container, and special freight. It operates year-round and is a sheltered, deep sea and ice-free port. The Port can

accommodate ships up to 385 m in length. Stephenville is 200 km from the Marine Atlantic Terminal at Port aux Basques, which is the terminal for passengers and motor vehicles en route from North Sydney, Nova Scotia and other mainland points. The Marine Atlantic ferry is the only shipping service operating from the harbour, with the Canadian Coast Guard, oil tankers, cruise ships, and other occasional shipping companies also using it.

In 2021, the NL tourism industry began to rebound from the COVID-19 pandemic with, for example, an average increase of 32% of air passengers across all seven of the province's major airports compared to 2020 (Government of NL 2023). As described in greater detail in Section 3.3.7, the Deer Lake Regional Airport Authority services air passengers in Western Newfoundland, with Gros Morne National Park being a popular destination for travelers. The Marine Atlantic Ferry Terminal in Channel-Port aux Basques provides regularly scheduled service to and from Nova Scotia, including for seasonal travelers. The Government of NL provides incentives for tourists who wish to come to the island via ferry.

Atlantic Minerals Limited (AML) is located on the west coast of Newfoundland in Lower Cove on the Port au Port Peninsula. AML is a producer of chemical-grade high-calcium limestone, dolomite and construction aggregates, and distributes their product across North America, South America, and Europe. The company has over one billion metric tonnes of resources, including proven reserves of over 50 million tonnes of high-calcium limestone and 70 million tonnes of dolomite. The operation generates approximately 90 person-years of employment annually (Government of NL 2023).

2.3.2 Population

In 2021, the total population of the LAA was 42,733 (51.3% female), a 5.0% decrease since 2016 (Table 2.2) (Statistics Canada 2017, 2022). Total population decreases in the LAA were greater than the NL average of 2.0%. Corner Brook, the largest community in the LAA, accounted for 45.2% (19,333 persons) of the total population. Approximately 30.6% or 13,095 persons (51.7% female) within the LAA identified as Indigenous, compared to the RAA average of 9.1%.

Table 2.2 Population Change – 2016 to 2021

Location	Total	Men+[1]	Women+[2]	% Change (Total)	% Change (Men+)	% Change (Women+)
Total Population						
Census Division No. 3, Subdivision H	562	280	280	-25.8%	-28.6%	-23.2%
Census Division No. 3, Subdivision J	38	X	X	-34.2%	X	X
Census Division No. 4	19,253	9,545	9,710	-5.9%	-4.4%	-7.4%
Census Division No. 4, Subdivision A	*1,530*	*780*	*750*	*-11.1%*	*-10.9%*	*-11.3%*
Census Division No. 4, Subdivision B	*1,140*	*580*	*555*	*-3.0%*	*-0.9%*	*-6.3%*
Census Division No. 4, Subdivision C	*591*	*310*	*275*	*-26.4%*	*-24.2%*	*-30.9%*

Table 2.2 Population Change – 2016 to 2021

Location	Total	Men+[1]	Women+[2]	% Change (Total)	% Change (Men+)	% Change (Women+)
Census Division No. 4, Subdivision D	*1,212*	*625*	*590*	*29.0%*	*28.8%*	*30.5%*
Stephenville	*6,540*	*3,150*	*3,390*	*-1.3%*	*1.4%*	*-3.8%*
Census Division No. 4, Subdivision E	*1,467*	*750*	*715*	*-33.4%*	*-33.3%*	*-33.6%*
Corner Brook	19,333	9,255	10,080	-2.5%	-1.8%	-2.9%
Channel-Port aux Basques	3,547	1,690	1,855	-14.7%	-12.1%	-17.0%
Total LAA	42,733	20,770	21,925	-5.4%	-4.2%	-6.3%
Newfoundland and Labrador (RAA)	510,550	250,075	260,475	-1.8%	-1.5%	-2.0%
Indigenous Population [3]						
Census Division No. 3, Subdivision H	50	25	25	0.0%	20.0%	-20.0%
Census Division No. 3, Subdivision J	X	X	X	X	X	X
Census Division No. 4	8,290	4,105	4,190	3.8%	4.3%	3.6%
Census Division No. 4, Subdivision A	75	30	45	-133.3%	-233.3%	-66.7%
Census Division No. 4, Subdivision B	360	200	155	23.6%	25.0%	19.4%
Census Division No. 4, Subdivision C	425	230	195	-17.7%	-15.2%	-23.1%
Census Division No. 4, Subdivision D	625	315	310	48.0%	46.0%	50.0%
Stephenville	2,435	1,105	1,330	11.5%	14.5%	9.0%
Census Division No. 4, Subdivision E	780	420	360	-26.3%	-20.2%	-33.3%
Corner Brook	4,620	2,125	2,495	-0.2%	-10.6%	8.6%
Channel-Port aux Basques	135	75	60	-18.5%	26.7%	-75.0%
Total Indigenous LAA	**13,095**	**6,330**	**6,770**	**2.1%**	**-0.4%**	**4.7%**
Newfoundland and Labrador (RAA)	**46,545**	**22,520**	**24,030**	**1.8%**	**1.8%**	**1.7%**

Notes:

1. This category includes men (and/or boys), as well as some non-binary persons.
2. This category includes women (and/or girls), as well as some non-binary persons.
3. Indigenous and non-Indigenous totals may not sum to equal total population counts as they are based on a 25% population sample size.

X no information available.

2021 'Total Population' and 'Indigenous Population' data from 2021 Census of the Population – Census Profile.

Values shown in "Total" columns are the sum of male and female Census Subdivision (CSD) subsets taken from Statistics Canada's 2021 Census Profile (Census of the Population). Due to Statistics Canada rounding (Statistics Canada 2022) totals may not exactly align with those shown on CSD Census Profiles and may not sum across tables.

Source: Statistics Canada 2022

2.3.3 Education Attainment

Educational attainment levels for residents of the LAA and RAA in 2021 are summarized in Table 2.3. Overall, within the LAA, 49.3% of the total population had completed post-secondary education compared to the RAA average of 51.8% (Statistics Canada 2022). Women+[2] within the LAA accounted for a greater proportion of the total population with a college or university certificate, diploma or degree at bachelor level or above, while men+[3] accounted for a greater proportion of the population with an apprenticeship or trades certificate or diploma.

Table 2.3 Education Attainment in LAA and RAA – 2021

	LAA				RAA			
	Total		Men+[1] (%)	Women+[2] (%)	Total		Men+ (%)	Women+ (%)
Educational Attainment	Total	Percent			Total	Percent		
No certificate, diploma, or degree	8,350	22.8%	49.8%	50.2%	88,710	20.4%	50.9%	49.1%
High school diploma or equivalency certificate	10,215	27.9%	46.3%	53.7%	119,855	27.6%	47.1%	52.9%
Apprenticeship or trades certificate or diploma	3,725	10.2%	73.8%	26.2%	42,715	9.8%	73.6%	26.4%
College, CEGEP or other non-university certificate or diploma	8,880	24.2%	41.3%	58.7%	101,680	23.4%	43.3%	56.7%
University certificate or diploma below bachelor level	680	1.9%	44.1%	53.7%	8,810	2.0%	41.9%	58.2%
Bachelor's degree or higher	4,775	13.0%	41.8%	58.1%	72,190	16.6%	42.0%	58.0%

Notes:
1. This category includes men (and/or boys), as well as some non-binary persons.
2. This category includes women (and/or girls), as well as some non-binary persons.
Source: Statistics Canada 2022

[2] This category includes women (and/or girls), as well as some non-binary persons.
[3] This category includes men (and/or boys), as well as some non-binary persons.

2.3.4 Labour Force

The LAA has experienced an ageing population, high unemployment, and low participation rates relative to other areas of the province. Due to a lack of education opportunities, a large majority of Port au Port Peninsula's young adults are leaving the area for post-secondary studies, and many are not returning. For those who do return, they often become part of the 'fly in-fly out' community, travelling back and forth between the Peninsula and other areas such as St. John's and Alberta for work (Port au Port East 2023).

Labour force indicators for the LAA and RAA are summarized in Table 2.4. In 2021, the total size of the LAA labour force was 36,625 (51.9% women+) and the RAA labour force was 433,960 (51.3% women+) (Statistics Canada 2022). In 2021, the LAA total labour force participation rate[4] (49.3%) was lower than the RAA average (56.1%), (Statistics Canada 2022). There were minor variations in labour force participation rates observed between men+ and women+ within the LAA and RAA and overall males had a higher participation rate.

Table 2.4 Labour Force Indicators – 2021

Topic	LAA			RAA		
	Total	Men+[1]	Women+[2]	Total	Men+	Women+
Population aged 15+	36,625	17,610	19,025	433,960	211,180	222,775
In the labour force	18,040	9,100	8,955	243,330	123,685	119,645
Participation rate (%)	49.3%	51.7%	47.1%	56.1%	58.6%	53.7%
Employed	14,860	7,105	7,770	206,285	101,475	104,810
Unemployed	3,180	1,995	1,175	37,045	22,210	14,835
Unemployment rate (%)	15.8	18.0	12.3	15.2	18	12.4

Notes:
1. This category includes men (and/or boys), as well as some non-binary persons.
2. This category includes women (and/or girls), as well as some non-binary persons.
Source: Statistics Canada 2022

[4] The participation rate is the total labour force (employed and unemployed, combined) relative to the working-age population.

2.3.5 Employment by Industry

Table 2.5 presents employment by industry in the LAA. Individuals working in industries that are most likely to provide employment to the Project include mining, quarrying, and oil and gas extraction; construction; manufacturing; transportation and warehousing; utilities and professional, scientific, and technical services. By comparison to the existing top employment sectors in the LAA, the sectors most likely to supply direct labour to the Project are dominated by men+.

Table 2.5 LAA Employment by Industry – 2021

Employment by Industry	Total	Men +1(%)	Women +2 (%)
Agriculture, forestry, fishing and hunting	690	77.5%	22.5%
Mining, quarrying, and oil and gas extraction	380	96.1%	3.9%
Utilities	125	88.0%	12.0%
Construction	1235	90.3%	9.7%
Manufacturing	635	80.3%	19.7%
Wholesale trade	340	79.4%	20.6%
Retail trade	2760	46.2%	53.8%
Transportation and warehousing	1125	72.9%	27.1%
Information and cultural industries	195	51.3%	48.7%
Finance and insurance	255	19.6%	80.4%
Real estate and rental and leasing	135	66.7%	33.3%
Professional, scientific and technical services	515	56.3%	43.7%
Management of companies and enterprises	30	0.0%	100.0%
Administrative and support, waste management and remediation services	475	51.6%	48.4%
Educational services	1515	36.3%	63.7%
Health care and social assistance	3665	19.9%	80.1%
Arts, entertainment and recreation	230	43.5%	56.5%
Accommodation and food services	1105	39.8%	60.2%
Other services (except public administration)	705	44.7%	55.3%
Public administration	1160	59.9%	40.1%

Notes:
1. This category includes men (and/or boys), as well as some non-binary persons.
2. This category includes women (and/or girls), as well as some non-binary persons.

Source: Statistics Canada 2022

2.3.6 Employment by Occupation

Table 2.6 provides a summary of LAA employment (by gender) by occupations. Generally, men+ make up a larger proportion of workers within the LAA. Sales and service occupations make up the highest number of total LAA labour force workers (4,815, 57.8% women+), followed by trades, transport and equipment operators (and related) (3,380, 8.4% women+) and occupations in education, law, social, community and government services (2,965, 69.8% women+).

Table 2.6 LAA Employment by Occupation – 2021

Employment by Occupation	Total	Men +[1](%)	Women +[2] (%)
Legislative and senior management occupations	95	57.9%	42.1%
Business, finance and administration occupations	1970	26.9%	73.1%
Natural and applied sciences and related occupations	715	82.5%	17.5%
Health occupations	1945	19.3%	80.7%
Occupations in education, law and social, community and government services	2965	30.2%	69.8%
Occupations in art, culture, recreation and sport	275	34.5%	65.5%
Sales and service occupations	4815	42.2%	57.8%
Trades, transport and equipment operators and related occupations	3380	91.6%	8.4%
Natural resources, agriculture and related production occupations	660	84.1%	15.9%
Occupations in manufacturing and utilities	525	82.9%	17.1%

Notes:
1. This category includes men (and/or boys), as well as some non-binary persons.
2. This category includes women (and/or girls), as well as some non-binary persons.

Source: Statistics Canada 2022

Approximately 95% of the RAA trade workforce is employed within Canada (JC 2023). While a breakdown of the percentages of workers located in the RAA and LAA is not available, current NL projects that are significant contributors to the RAA trade workforce include the White Rose project in Argentia, Voisey's Bay and IOC expansion in Labrador, Come by Chance refinery refurbishment, and the building of the Holyrood Marine Base. Equinor's decision to postpone Bay du Nord for up to three years will assist in labour capacity for the Project, because more workers will be available, and the conclusion of the West White Rose project, which is 2.12scheduled to end by late 2024, will provide an additional 1,200 construction workers in the RAA (JC 2023).

2.3.7 Average Wages for Select Sectors

Table 2.7 provides a summary of average gross hourly wages (2023) for NL workers in sectors likely to supply direct labour to the Project. Average annual wages were applied to three scenarios to estimate average annual employment (Table 2.7). As calculated, estimated annual wages under scenario one is based on full-time employment and 2,100 person-hours per year (no overtime); scenario two is based on 12-hour workdays and a two-week on / two-week off work schedule (overtime after 40 hours per week); and scenario 3 is based on 10-hour workdays and a three-week on / one-week off work schedule (overtime after 40 hours per week).

Table 2.7 Provincial Wages in Select Sectors, Average – 2022

Industry	Average Hourly Wage	Scenario 1 – Annual Wage (based on 2,100 hrs/year)	Scenario 2 – Annual Wage (based on 12-hour 2x2 work schedule)[1]	Scenario 3 – Annual Wage (based on 10-hour 3x1 work schedule)[1]
Forestry, fishing, mining, quarrying, oil and gas	$42.65	$89,565	$117,866	$152,893
Utilities	$47.87	$100,527	$132,292	$171,606
Construction	$30.71	$64,491	$84,869	$110,090
Manufacturing	$28.55	$59,955	$78,900	$102,347
Transportation and Warehousing	$27.82	$58,422	$76,883	$99,730
Professional, scientific and technical services	$28.52	$59,892	$78,817	$102,239

Note:
[1] Assumes overtime payments beyond 40 hours per week; rounded down to nearest thousand
Source: Statistics Canada 2023

2.3.8 Individual Income

This section presents information on 2021 total and employment incomes (annual, before-tax) for individuals within the LAA and RAA. Total income represents the sum of regular and recurring monetary receipts from part-time and full-time employment income, income from investment sources, income from employer and personal pension sources, other regular cash income (e.g., child support payments and spousal support payments), and income from government sources (e.g., income support) (Statistics Canada 2022). Employment income is the sum of wages, salaries, tips, commissions, and net income from self-employment (Statistics Canada 2022).

Total incomes (mean and median) and employment incomes (mean and median) of the LAA were lower than RAA (provincial) incomes (Table 2.8) in 2020. In each case (i.e., LAA and RAA [provincial] averages), total incomes and employment incomes (mean and median) were higher among men+ than women+.

Table 2.8 2021 Individual Income (Annual – Before Tax)

Topic	LAA			RAA		
	Total	Men+	Women+	Total	Men+	Women+
Weighted median total income ($) (2020)	33,300	36,800	30,200	36,800	42,000	32,400
Weighted median employment income ($) (2020)	27,700	29,800	25,700	31,600	37,600	27,400
Mean total income ($) (2020)	41,260	46,180	36,780	48,440	56,000	41,280
Mean employment income ($) (2020)	37,620	41,880	33,380	45,520	52,900	37,840
Source: Statistics Canada 2022						

2.4 Discussion

Considering the economy of the LAA, mining, forestry, tourism, and outfitting activities have historically been a driver for economic growth. The proportion of the GDP from the mining sector compared to the provincial total continues to rise year over year. The value of both the forestry and tourism industries continues to experience growth in light of reduced public health restrictions due to COVID-19. As is the case with many rural areas across NL, outfitting is an industry of importance for both locals and for tourists.

The Project is the first of its kind in NL, such that there is no existing baseline for how the hydrogen sector contributes to provincial GDP total. Goods-producing industries such as oil extraction, mining, construction, and manufacturing continue to be the largest contributors of economic growth for NL, whereas finance, health, and public administration services contribute the most in the service-producing sectors.

Both the RAA and the LAA experienced a population decline between 2016 and 2021. While the provincial population experienced an overall decline of approximately 1.8%, the population of the LAA is 5.4% lower than it was in 2016. Levels of educational attainment were similar in both the RAA and LAA.

Compared to the RAA, the LAA has a lower rate of labour force participation, which is consistent across men+ and women+. Occupations that account for the greatest proportion of employment in the LAA include sales and service; trades, transport and equipment operators and related occupations; education, law, social community, and government services; and health care and social assistance. Occupations directly and indirectly tied to the Project include occupations in utilities, mining, construction, manufacturing and transportation, all of which have a higher proportion of men+ compared to women+ in the workforce. Generally, employment income and total income levels in the LAA are lower compared to the RAA, which is consistent across both men+ and women+.

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3.0 Communities

3.1 Scope And Objectives of the Communities Study

The Communities VEC includes community services and infrastructure and community well-being. The objective of this Communities Baseline Study is to provide information on relevant topics to support the assessment of Project effects on community services and infrastructure and community well-being. This section focuses on non-Indigenous service centres in the LAA/RAA. Indigenous communities are discussed in Section 5.0.

Community services and infrastructure typically includes permanent housing and temporary accommodations, transportation, local services and infrastructure (water, sewer, power, solid waste), education, recreation, safety, and health care facilities and services. These services and infrastructure are used by residents and may be operated and maintained by municipal, provincial and/or federal government authorities. Community services and infrastructure may be affected by additional demands arising from Project activities and the Project labour force.

Community well-being encompasses a variety of factors, including residents' access to health services and infrastructure, ability to conduct daily activities, and participation in employment and business opportunities. Community well-being is integral to population stability; maintaining or improving population health can prevent the need for investments in more costly medical interventions. The presence of the Project workforce could adversely affect the well-being of residents in communities close to the Project by altering demographics and disrupting community life. However, the Project may also contribute to positive effects on community well-being through employment and business opportunities, as well as other economic benefits (e.g., government revenue used, in part, to support social programs).

Topics for the Communities Baseline Study, as outlined in the EIS Guidelines, are:

- Family life, recreation, and culture
- Education and training facilities and programs
- Housing, accommodations, and property values
- Fire and emergency services
- Health care services including mental health and addiction services, social programs, and other community services
- Data on health status, including physical, mental, and social well-being
- Active municipal, governmental or non-governmental working groups or committees

3.2 Methods

3.2.1 Spatial Boundaries

The study area for the assessment of Project effects on communities is defined in terms of a Local Assessment Area (LAA) and Regional Assessment Area (RAA). For the assessment of Project effects on communities, the LAA and RAA share the same geographic boundaries because the communities potentially affected by residual effects of the Project, cumulative effects (Chapter 23) and the effects of an accidental event or malfunction (Chapter 24) are the same. They are collectively referred to as the LAA/RAA in this baseline report.

The LAA/RAA includes those communities that are most likely to provide services to the Project and see increased demands from Project activities. These are also the communities that are most likely to be affected by the presence of construction and operation workforces (i.e., where Project workers will likely reside). Residents of these communities are also most likely to be affected by Project activities, including Project employment, which may affect their well-being. The LAA/RAA includes Stephenville, Port aux Basques, Corner Brook, Port au Port East, and Port au Port West – Aguathuna – Felix Cove (Figure 3.1).

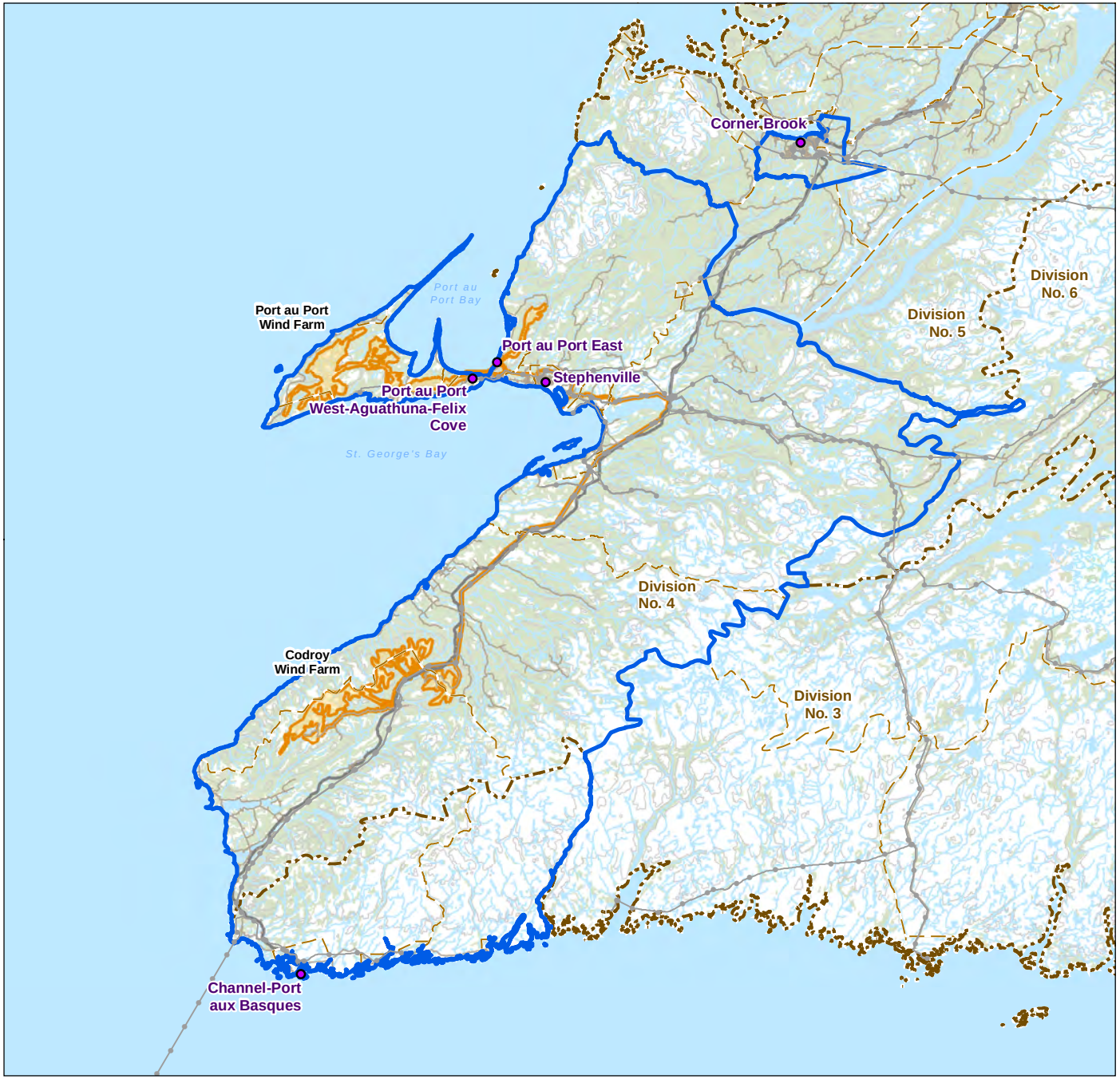
3.2.2 Methods

Secondary sources of information (i.e., second-hand information from other researchers) were used primarily to describe the existing conditions in the LAA/RAA. Secondary information included government sources (Statistics Canada, Government of NL, health and school boards, Western Health, NL Statistics Agency), publicly available data and literature, as well as previously prepared information (e.g., reports, studies) submitted to World Energy GH2 from Indigenous groups and local communities.

Much of this chapter relies on government databases including Census data from Statistics Canada. Statistics Canada regularly suppresses (i.e., selectively does not disclose) survey information to protect the identity of individuals and to address data quality issues. Both the 2016 National Household Survey and 2021 Census of the Population (Census), which are used in this chapter are subject, in part, to data suppression by Statistics Canada.

Results of engagement with stakeholders and Indigenous groups have also been integrated into the description of the existing environment where applicable.

The following sections describe the existing conditions of housing and temporary accommodations, utilities, health and emergency services, education, and transportation in the LAA/RAA.



Stantec

- Main Service Centre
- Census Subdivision
- Census Division

Proposed Project Features

- Project Area
- Local Assessment Area / Regional Assessment Area

Other Features

- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Forested Area

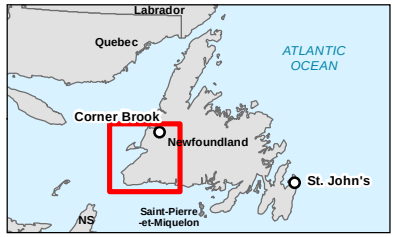
N

0 10 20 km

(At original document size of 8.5x11)
1:1,100,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: Client, Statistics Canada, GovNL
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MB on 2023-07-25
QR by AW on 2023-07-20

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_061

Figure No.
3.1

Title
Spatial Boundaries for Communities

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3.3 Results

3.3.1 Local Government

Corner Brook is the largest community and the only city located within the LAA/RAA. Between 2016 and 2021, the population of Corner Brook decreased 2.5%, from 19,806 to 19,333 (Statistics Canada 2017, 2022). Corner Brook started inhabiting settlers in 1767 but did not become a municipality until 1956. Corner Brook is home to the Corner Brook Pulp and Paper Mill, which is owned by Kruger Inc., and serves as a major employer for the region. It also has the largest hospital in the Western Health region and hosts several post-secondary institutions, including Memorial University's Grenfell Campus.

The Town Council of Corner Brook is comprised of a Mayor, a Deputy Mayor, and five Councillors. The Municipality has 80 employees in six departments: Capital Works and Engineering; Development and Planning; Finance and Administration; Public Works; Water; and Wastewater; Protective Services; and Recreation and Tourism.

Stephenville is the second largest community in the LAA/RAA. Its population decreased 1.3% between 2016 and 2021, falling from 6,623 to 6,540 (Statistics Canada 2017, 2022). Stephenville was established in 1844 as a traditional fishing and farming community. In the 1900s, Stephenville's development was aided by the establishment of an army base for the United States. This created more industrial employment opportunities and transformed the community. After the base was closed in the late 1990s, the Harmon Corporation, with federal funding, created new jobs and attracted industry to the community.

The population of Channel-Port aux Basques, the third largest community within the LAA, declined from 4,067 in 216 to 3,547 in 2021, a decrease of 14.7% (Statistics Canada 017, 2022). In 1945 Channel-Port aux Basques was formed by the amalgamation of two communities, Channel and Port aux Basques. The municipality's development is closely linked to the advancement of communication and railway transportation. Channel-Port aux Basques operates as a terminal for ferries, and a fishing and fish processing community. It is the hub of Southwestern Newfoundland and provides business, recreational, educational and shopping services to the area.

The Town Councils of Stephenville and Channel-Port aux Basques are both comprised of a Mayor, a Deputy Mayor, four Councillors, a Town Clerk, and a Town Manager. The five departments of the municipality of Channel-Port aux Basques are Administration, Public Works, Water Services, Recreation, and the Fire Department. Stephenville has two departments: Parks and Recreation; and the Fire Department.

Both Port au Port East and Port au Port West – Aguathuna – Felix Cove were amalgamated in 1970. The Port au Port Peninsula was historically dominated by a colony of France, and despite the Peninsula being predominantly English, it remains rich with French heritage and culture. It also has the highest proportion of French-speakers in the province, with approximately 15% of the population being bilingual. It is the only bilingual district on the island of Newfoundland since 1971.

The Town Councils of Port au Port East and Port au Port West – Aguathuna – Felix Cove are each comprised of a Mayor, a Deputy Mayor, three Councillors, and a Town Clerk. In addition to the Town Clerk, Port au Port West – Aguathuna – Felix Cove has two other full-time employees and a part-time public works employee. The two communities collaborated to form the Port au Port Regional Volunteer Fire Department which has a volunteer Fire Chief. The population of the Town of Port au Port East decreased 28.7% from 579 in 2016 to 413 in 2021. Similarly, between 2016 and 2021, the population of the Town of Port au Port West-Aguathuna-Felix Cove decreased 14.5% from 449 to 384 (Statistics Canada 2017, 2022).

3.3.2 Housing and Temporary Accommodations

According to the 2021 Census, there were 8,446 dwellings in Stephenville compared to 7,165 in 2016. The average monthly rent in 2021 was $749. Between 2012 and 2018, the number of housing starts in Stephenville decreased from 30 to eight. The average house price rose to $189,125 in 2016 from $163,062 in 2012 and dropped to $178,612 in 2018 (Janes, pers. comm.). In 2021, the average value of a home in Stephenville was $174,000 (Statistics Canada 2022). Stephenville has a surplus of housing that was left over from the airport's former role as a military air base (T. Rose, pers. comm.).

Stephenville has recently completed two new housing subdivisions which are almost full and there are 50-75 lots still available for future residential development. Due to Stephenville's older demographic, it is anticipated that more housing units may become available in the near future as current residents move into senior living facilities (C. Maddock, pers. comm.).

Stephenville has eight hotels, motels, and bed-and-breakfasts with 124 rooms. Roofed accommodation occupancy rates for the Western region of NL decreased from 46.3% in 2017 to 41.2% in 2018 (TCII 2019). By 2020, the rate had fallen to 24.5% but increased to 34.5% in 2021 (NLDTCAR 2021). There is one hotel on the Port-au-Port Peninsula, the Inn at the Cape with nine rooms available.

The Town of Port au Port East had a total of 220 private dwellings in 2021, compared to 286 in 2016. The average rent in 2021 was $760, and the average home price was $196,000 (Statistics Canada 2022). In 2021, Port au Port West-Aguathuna-Felix Cove had a total of 225 private dwellings, up slightly from 222 in 2016. The average rent of a unit in 2021 was $850, and the average home price was $176,000 (Statistics Canada 2022d).

The number of occupied dwellings in Channel-Port aux Basques decreased from 3,685 in 2016 to 3,331 in 2021 (Statistics Canada 2022). The average home price in 2021 was $151,800 and average rent was $704 (Statistics Canada 2022). Most of the new housing development in the area has been in Grand Bay West and Grand Bay East where a total of 76 residential building permits have been issued; these areas remain the growth areas of Channel-Port aux Basques. There are two hotels in Channel-Port aux Basques, with a total of 130 rooms (Channel-Port aux Basques 2022).

A survey of damage created by Hurricane Fiona in September 2023 indicated that approximately 100 homes were destroyed between Channel-Port aux Basques and Burgeo (The Canadian Press 2022).

The number of occupied dwellings in Corner Brook increased from 8,764 in 2016 to 8,868 in 2021. The average rent in 2021 was $850, and the average home price was $243,400 (Statistics Canada 2022e). A new development named Discovery Ridge is currently being built in the centre of Corner Brook, with access from Corporal Pinksen Drive and Wheeler's Road (Discovery Ridge 2022). There are 55 single dwelling residential lots planned, as well as a park, condo, and apartment land uses. While the overall vacancy rate for an apartment in Corner Brook decreased from 3.7% in October 2019 to 1.4% in October 2021, it increased to 1.7% in October 2022. Average rent increased from $733 per month in Corner Brook to $806 in 2022 (CMHC 2023).

Corner Brook has 22 hotels, inns, and vacation rentals with 959 rooms. There are also two campgrounds and recreational vehicle (RV) parks available with seven sites for rent (Trip Advisor n.d.).

3.3.3 Utilities

3.3.3.1 Water and Wastewater

The Town of Stephenville obtains its municipal water supplies from three provincially- and municipally-protected well fields within the Stephenville Municipal Planning Area. Provincial water quality data for the Stephenville RAA, including source water quality for the Stephenville well field, indicate that source water meets the Guidelines for Canadian Drinking water Quality (GCDWQ) except for frequent exceedances of manganese, which is safe to consume, except for children under the age of one year. The Town of Stephenville has confirmed that it has sufficient capacity to supply the anticipated water requirements of the Project accommodation camp and that the Town will install additional wells to meet peak demand (C. Maddock, pers. comm.).

Wastewater treatment in Stephenville occurs through an engineered wetland, which was commissioned in 2009-2010 and is on the Stephenville Regional Airport property. It consists of five acres of lined containment cells used for containment of the wastewater. Engineered wetlands rely on the use of plants to provide oxygen to the bacteria that break down the organic waste, instead of relying on aeration or rotating systems to provide oxygen. This allows the system to maintain adequate oxygen levels within the biologically active areas with no energy input. This passive aeration allows the system to operate with minimal operational costs, and to continue to operate during power outages and inclement weather. The engineered wetland was designed to accommodate a population of 7,800 and was based on an average daily flow of 4.4 m^3/day and (Enviro Green Septic Plumbing Ltd. 2016).

Channel-Port aux Basques has a municipal water supply system supplied from the Gulf and Wilcox Ponds Protected Water Supply Area. Channel-Port aux Basques is served by a municipal sanitary sewer system. With the permission of the provincial government, sewage is collected and pumped into the sea. In the older areas of the Town, many homes and business premises have private outfalls discharging directly into the sea. Over the past decade, the Town has undertaken preliminary engineering work for the development of a waste treatment facility.

The City of Corner Brook supplies water to the municipalities of Corner Brook, Massey Drive, and Mount Moriah (Upland 2021). The protected water source that supplies these areas is the Corner Brook Lake Watershed and Trout Pond Watershed. A water treatment plant was commissioned in 2015 with a flow rate of up to 30-million litres per day (Upland 2021). The water treatment plant has sufficient capacity for residential, commercial/industrial, and fire protection services; however, upgrades are required.

Corner Brook relies on lift stations to collect wastewater, which is transported via a system of pumps to outfall locations. Corner Brook does not currently have a wastewater treatment plant; however, the City has completed a wastewater treatment strategy and is moving ahead with efforts to provide secondary sewage treatment in accordance with requirements of the federal Wastewater Systems Effluent Regulations (Upland 2021).

There are several protected water supplies and wellheads on the Port au Port Peninsula and unprotected potable water supplies. Groundwater and surface water sources, along with the geology of the area are described in the Aquatics Baseline Study (BSA-2). Public source water on the Port au Port Peninsula is supplied by active public surface water supplies located in the Caribou Brook, Cointres Brook, Rouzes Brook, Victor's Brook, Unnamed Brook, and Jim Rowe's Brook watersheds. These public water supplies supply water to a population of approximately 2,500 people including the communities of Victors Brook, Port au Port West - Aguathuna - Felix Cove, Cape St. George, Mainland, Piccadilly Head, and Sheaves Cove (Stantec 2023). The quality of surface water supplies on the Port au Port Peninsula is generally considered good to excellent and is moderate to very hard, of moderate alkalinity (VOCM News 2023; Stantec 2023).

The primary drinking water source for Port au Port East is a protected reservoir that is backed up by a drilled artesian well. Each home in the community has piped drinking water connected to this supply. The water is treated by liquid chlorine, and most of the water system is relatively new. Water quality is generally good but there have been water shortages due to the demand exceeding the available supply. Periods of scarcity occur with the change in weather; during the winter and summer, there can be months with no rainfall. Typically, between December and March, Port au Port East has received low rainfall (amounts below 50mm in a given month). The community has an artesian well to help mitigate some of the reliance on surface water (Barrett and Lightfoot 2014). Many small communities in western Newfoundland, including most on the Port au Port Peninsula, are not serviced by municipal wastewater systems and rely on septic tanks and disposal fields.

3.3.4 Domestic Waste Management

Waste management in the LAA/RAA is the responsibility of Western Regional Waste Management which operates six waste disposal sites in Western NL. Garbage is transferred from most communities in the LAA/RAA to the Bay St. George and Southwest Coast Waste Disposal Sites (Western Region Waste Management 2016). Garbage is collected from the waste disposal site and trucked to the Wild Cove landfill in Corner Brook. The regional landfill was built in 2016 and has a lifespan of 50 years (T. Rose, pers. comm.).

A curbside residential recycling and garbage collection program launched in 2018 for all Western Newfoundland, including all communities within the LAA/RAA (Corner Brook 2018).

3.3.5 Education

The LAA/RAA communities are within the Western Newfoundland and Labrador English School District (NLESD), which accounts for 63 of the 257 provincial schools and 17.0% (10,816) of the 63,534 total provincial enrolments for 2021-22 (NL Department of Education 2022). One school in the LAA/RAA (École Sainte Anne on the Port au Port Peninsula) is administered by the Conseil Scolaire Francophone.

Student enrolment within the Western NLESD is in decline; enrolment among Full-time Equivalent Pupils fell 1.5% from 2019-20 to 2020-21 and decreased another 0.6% between 2020-21 and 2021-22 (NL Department of Education 2022). In 2021-22, there were 89.7 full-time equivalent teachers for every 1,000 students in the Western District and 81.3 full-time equivalent teachers for every 1,000 students in the province (NL Department of Education 2022).

There are 18 Kindergarten to Grade 12 schools in the LAA/RAA, which had a total of 4,996 students in 2021-22 (Table 3.1). This represents a decrease of 2.0 percent in total enrolment from the 2020-21 school year (NL Department of Education 2022). Most students (54.2%) in the LAA/RAA attend schools in the Corner Brook area.

The Bay St. George campus of the College of the North Atlantic (CNA) is in Stephenville. Full-time credit course registration is approximately 750 students per semester, with another 100 registered part-time. About 1,000 students participate in Continuing Education evening courses. The campus has a residence with a capacity of 75 students. A new Center of Excellence for Heavy Equipment and Industrial Trades was completed at CNA's Bay St. George campus in 2019. The $18.5 million facility includes a classroom and shop (Newfoundland and Labrador Department of Advanced Education, Skills and Labour, 2017; M. Campbell, pers. comm.).

The CNA campus in Channel-Port aux Basques offers full-time credit course registration with approximately 140 students per semester, with an additional 25 registered part-time. The campus also has about 200 students participating in the Continuing Education evening courses.

There are three post-secondary institutions in Corner Brook: the Grenfell Campus of Memorial University, CNA, and Academy Canada. Grenfell is the largest, with an enrolment of approximately 1,300 students. It offers degree programs in arts, business, fine arts, environment and sustainability, and science. CNA and Academy Canada serve approximately 800 and 600 students per year, respectively (Upland 2021).

Table 3.1 Schools within the LAA

School	Community	Enrolment 2021-22	Enrolment 2020-21	% Change
Stephenville				
Stephenville Elementary	Stephenville	185	174	6.3
Stephenville High	Stephenville	391	394	-0.8
Stephenville Middle School	Stephenville	267	299	-10.7
Stephenville Primary	Stephenville	304	336	-9.5
Pathfinder Learning Centre	Stephenville	18	18	0
St. Michael's Elementary	Stephenville Crossing	153	150	2.0
Channel-Port aux Basques				
St. James Elementary	Channel-Port aux Basques	288	311	-7.4
St. James Regional High School	Channel-Port aux Basques	277	282	-1.8
Port au Port Peninsula				
Lourdes Elementary	Lourdes	144	155	-7.1
Piccadilly Central High	Piccadilly	117	112	4.5
St. Thomas Aquinas	Port au Port East	86	82	4.9
École Sainte Anne	Mainland	59	60	-1.7
Corner Brook				
Corner Brook Intermediate	Corner Brook	626	635	-1.4
Corner Brook Regional High	Corner Brook	717	735	-2.4
Ecole C.C. Loughlin Elementary	Corner Brook	430	444	-3.2
Eastside Elementary	Corner Brook	470	467	0.6
J.J. Curling Elementary	Corner Brook	278	278	0
Sacred Heart Elementary	Corner Brook	186	166	12.0
Total LAA/RAA		**4,996**	**5,098**	**-2.0**

3.3.5.1 Childcare

Table 3.2 lists the regulated (operating with a provincial licence) childcare centres in the LAA/RAA. In total, there are 15 daycares, preschools and after school programs in the LA/RAA with capacity for 425 children under the age of 13 (NL Department of Education 2023).

Table 3.2 Child Care Centres, LAA/RAA, 2023

Community	Childcare Centre	Capacity
Stephenville	Jack and Jill Preschool	16
Stephenville	Busy Bees Preschool	16
Lourdes	Lourdes Preschool	16
Channel-Port aux Basques	Growing Our Futures Child Care Co-operative	34
Corner Brook	Head Start Preschool	39
Corner Brook	Immaculate Heart of Mary School Junior Kindergarten and After School Program	60
Corner Brook	YMCA After School Program - Kinsmen Centre	18
Corner Brook	YMCA After School Program - C. C. Loughlin	30
Corner Brook	YMCA After School Program - J. J. Curling	19
Corner Brook	YMCA After School Program - Sacred Heart	30
Corner Brook	YMCA Preschool Program - Kinsmen Centre	16
Corner Brook	Stepping Stones Day Care/Preschool 1	55
Corner Brook	Stepping Stones Day Care/Preschool 2	42
Corner Brook	Creative Beginnings Day Care Centre	32
Corner Brook	Fisher Children's Centre	32
Total		**425**
Source: NLDE 2023		

There are also unregulated childcare providers, usually providing care in a caregiver's home or the child's home, which do not require a licence from the government to operate and are not inspected or monitored, in the LAA/RAA. It is uncertain how many unregulated childcare providers there are in the LAA/RAA or how many spaces they have available, although it has been suggested that as much as 40% of the childcare in Corner Brook is unregulated (Bird 2020).

In 2023, registered daycares in NL received subsidies allowing them to offer childcare for $10 per day. However, demand for childcare remains an issue throughout the province as the capacity is not able to supply the demand and many childcare providers have long waitlists (Dean-Simmons 2023). The NL government is hoping to increase childcare capacity by increasing the pay for Early Childhood Educators and working with training institutions to train 700 additional childcare workers (Dean-Simmons 2023).

3.3.6 Indoor Recreation

Stephenville has a skating arena, the Stephenville Dome, which was built in 1999 for the Canada Winter Games. It includes an Olympic size ice surface, fully serviced cafeteria, walking track and multi-purpose rooms. The Town also has a regional Aquatic Centre which has a six-lane competitive leisure pool. Stephenville has a variety of sports fields that are used for softball, baseball, and soccer. The Harmon Seaside Golf Course is a par 72 course adjacent to Bay St. George (Town of Stephenville 2023).

The Corner Brook Civic Centre has two arenas, seven conference rooms, and a studio/soundstage. It hosts large events, including concerts, conventions, trade shows, craft fairs, sporting events, and weddings (City of Corner Brook 2023).

The Wellington Street Complex in Corner Brook was built to host the 2008 Newfoundland and Labrador Summer Games and includes a natural turf softball field, two beach volleyball courts, four tennis courts, and an artificial turf soccer field. The soccer field is also equipped with lights for night games. Corner Brook has a number of other sports and recreation facilities throughout the city, including the Ambrose O'Reilly Pitch, Jubilee Baseball Field, and Monarch's Complex (soccer and softball field (City of Corner Brook 2023).

The Stephenville Arts and Culture Centre, which opened in April 1975, has two theatres with a total of 577 seats, an art exhibition area, conference room and lounge. It offers a variety of programming from local, national, and international artists and hosts the longest running theatre company in Newfoundland, the Stephenville Theatre Festival, each summer (Town of Stephenville 2023).

There are two YMCAs of Western NL (Bay St. George and Humber Valley), which offer fitness programs, children and youth programs and clubs, as well as childcare for members (YMCA of Western NL 2016).

A regional sports arena complex for Channel Port-aux-Basques, the Bruce II Sports Centre, is located in Port aux Basques and contains an ice rink, curling rink, bowling alley, swimming pool, and fitness center.

Outdoor recreation is described in detail in Section 4 (Land and Resource Use).

3.3.7 Health Services and Well-Being Indicators

3.3.7.1 Health Care

Hospitals and Clinics

Health care in the LAA/RAA is managed by Western Health, which offers acute, long-term care, and community-based services throughout the Province's Western region. Western Health's regional office is in Corner Brook and its geographical boundaries are from Port aux Basques southeast to Francois, northwest to Bartlett's Harbour, and on the eastern boundary north to Jackson's Arm. Within this geographical region, Western Health serves a population of approximately 78,000 residents (Western Health 2016). Western Health provides community-based services from 24 office sites, community based medical services from 26 medical clinic sites (including traveling clinic sites), and eight health facilities.

Sir Thomas Roddick Hospital in Stephenville has 44 beds and provides the essential health care services for the area. There are also two medical clinics in Stephenville: the Bay St. George Medical Clinic and the Stephenville Community Medical Clinic. In 2021, the Bay St. George Medical Clinic implemented a new model of care in which a Nurse Practitioner (NP) and a Registered Nurse (RN) provide enhanced virtual care. An additional RN will begin work in the clinic in 2022-23. This model of care is intended to increase time available for physicians to provide more specialized care for patients.

There are three medical clinics on the Port au Port Peninsula, referred to as health homes, which provide primary care through physicians and/or NPs. These are in Lourdes, Piccadilly and Cape St. George (Western Health 2016).

The main hospital in the Port aux Basques Area is the Dr. Charles L. LeGrow Health Centre, which serves approximately 9,000 people. It has 44 beds, 26 of which are long-term care and 12 of which are acute care. The hospital also has two rehab beds, two respite care beds, 21 intensive care beds and one palliative care room. It operates three medical clinics at Doyles, Rose Blanche and La Poile. In 2021-22, upgrades were made to the pharmacy at the Dr. Charles L. LeGrow Health Centre (Western Health 2022).

The Western Memorial Regional Hospital, located in Corner Brook, serves the population of Western Newfoundland. It has recently undergone an expansion of three new protective care units, plus the addition of a new long-term care facility. In 2019, the Government of Newfoundland and Labrador began construction on a modernized healthcare complex, the Corner Brook Acute Care Hospital, to be based in Corner Brook. This new complex will replace the existing Western Memorial Regional Hospital and is expected to be complete in November 2023. The 600,000 square foot hospital will have seven floors and 164 beds and will provide the same services currently provided at Western Memorial Regional Hospital, as well as an expanded cancer care program, including radiation services. The Corner Brook Acute Care Hospital will be connected to the 145-bed long-term care facility, which opened in spring 2020. This new facility has 120 long-term care beds, 15 palliative care beds, and 10 rehabilitative care beds.

Between 2017 and 2021, the number of family medicine physicians in the Western Health Region decreased by 16.5%, from 115 to 96. The number of specialists in the Western Health Region, however, increased by nearly 12%, from 67 to 75. In 2021, Western Health had 126 family medicine physicians per 100,000 population and 99 specialists per 100,000 population. This is compared to 134 family medicine physicians and 131 specialists per 100,000 population in the province in 2021 (CIHI 2021).

While Western Health is experiencing a doctor shortage, including in the LAA/RAA communities, it is working to establish a new "collaborative care team" to help people in the area who do not have family doctors. Six medical clinics with the capacity to serve 19,000 people in the Stephenville-Bay St. George "health neighbourhood" will be included in the collaborative care team. The Bay St. George Medical Clinic in Stephenville will function as a hub site. Five other smaller clinics – in Jeffrey's, St. George's, Stephenville Crossing, Lourdes, and DeGrau – will get support from the clinic in Stephenville (Rhivu 2022).

Long-Term Care

The Bay St. George Long-Term Care Centre in Stephenville has 114 beds and provides nursing, dietitian, occupational therapy, and physiotherapy services to its residents. The Emile Benoit House, also located at this site, has 20 apartments in the congregate housing and 38 cottages for senior independent living.

A senior housing complex adjacent to the Dr. Charles L. LeGrow Health Centre has 21 cottages and a 21-unit apartment building (Channel-Port aux Basques 2023; Western Health 2016).

Corner Brook Long-Term Care Home is a 236-bed facility which opened in June 2010. The home features specialty program areas, including a protective care unit and a behavioral care unit, as well as a dedicated Veterans Affairs unit.

3.3.7.2 Self-Reported Health Characteristics

Table 3.3 compares a selection of available health characteristics taken from Statistics Canada's CCHS for the Western Heath Region, where LAA/RAA communities are located, and for NL. Indicators presented in Table 3.3 were chosen by considering:

- the ultimate goal of a healthy population, defined broadly as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (WHO 2008)
- potential effects of the Project on local communities, especially those related to the presence of temporary, non-local Project workers (e.g., sense of social connectivity, life stress, and life satisfaction)
- requirements outlined in the EIS Guidelines

Rates of Chronic Disease

The province of NL has some of the highest rates of chronic disease in Canada. In 2017, 63% of NL residents over the age of 12 had at least one chronic disease, such as diabetes, heart disease, or chronic obstructive pulmonary disease (NL Department of Health and Community Services 2019).

The Western Health Region showed higher rates of arthritis, diabetes, asthma, and high blood pressure than the province. Rates of pulmonary disease were higher in the Western Health Region at 5.8% of the population than in the province (5.3%). In the Western Health Region, females had higher rates of chronic disease than males in most instances (other than diabetes). The total rates of chronic disease are higher in the Western Health Region across all categories compared to the province (except for asthma) (Statistics Canada 2022b).

Table 3.3 Health Characteristics, Newfoundland and Labrador and Western Health Region, 2019/2020

Health Characteristic	Newfoundland and Labrador			Western Health Region		
	Total	Male	Female	Total	Male	Female
General Health Indicator (%)						
Perceived health (very good or excellent)	63.9	61.0	66.6	56.8	53.6	59.9
Has a regular healthcare provider	87.1	83.2	90.8	89.2	88.2	90.1
Mental Health Status (%)						
Perceived mental health (very good or excellent)	68.9	70.7	67.3	62.3	66.0	59.1
Sense of community belonging (very strong or somewhat strong)	80.1	78.8	81.3	81.2	76.4	85.4
Perceived life stress (Population aged 12 and over who reported perceiving that most days in their life were quite a bit or extremely stressful)	13.4	13.7	13.0	13.4	12.6	14.1
Life satisfaction (satisfied or very satisfied)	93.3	93.7	92.9	90.3	90.3	90.2
Rates of Chronic Disease (%)						
Arthritis (15 years and over)	29.0	25.8	32.0	30.2	29.8	30.7
Diabetes	11.0	11.3	10.8	12.1	12.2	12.0
Asthma	8.7	7.3	10.1	7.7	5.2	10.1
Chronic obstructive pulmonary disease (35 years and over)	5.3	5.4	5.1	5.8	5.3	6.2
High blood pressure	23.6	23.6	23.7	24.9	24.2	25.5
Rates of Substance Abuse and Healthy Living Indicators (%)						
Current smoker, daily or occasional	19.3	20.8	17.8	21.0	23.9	18.3
Heavy drinking	22.3	28.4	16.5	21.7	28.2	15.6
Source: Statistics Canada 2022						

Rates of Disability

The Canadian Survey on Disability (Statistics Canada 2019a) provides information about youth and adults in Canada whose everyday activities are limited due to long term conditions or health-related problems. According to the Canadian Survey on Disability, there were 101,580 people aged 15 years and over in NL in 2017 who reported having a disability. This represented 23.6% of the provincial population. Of the total persons with disabilities, 21.6% were male and 25.5% were female. The highest proportion of the population reporting to have a disability in 2017 were over the age of 65 (NL Statistics Agency 2019b).

Mental Health Status

In 2019-2020, 62.3% of Western Health residents perceived their mental health to be very good or excellent, which was lower than 68.9% of the NL population. In both the Western Health Region and the province, more males than females felt they had very good or excellent mental health. At 81.2%, the sense of community belonging was higher in the Western Health Region than in the province (80.1%) and perceived life stress was the same in both in the Western Health Region and the province (13.4%). Life satisfaction was higher in the province compared to the Western Health Region (90.3% in Western Health and 93.3% in NL) (Statistics Canada 2022b).

Rates of Substance Abuse and Healthy Living Indicators

While rates of smoking were higher in the Western Health Region (21.0%) compared to the province (19.3%), alcohol consumption was higher in the province (22.3%) than in the Western Health Region (21.7%) in 2019-2020. Just over 20% of the provincial population smoked daily or occasionally versus 16.6% of the Western Health Region. Heavy drinking was common among more than a quarter of NL's population (26.7%) and more than one fifth (22.6%) of Western Health's population. Alcohol consumption and smoking are more prevalent among males than females in both geographies.

3.3.7.3 Communicable Disease

The province's Department of Health and Community Services is responsible for health protection of the population of NL through the prevention and control of communicable disease. This involves surveillance and reporting of disease, disease control programs including immunization, infection prevention and control and disease control recommendations. Western Health's Infection Prevention and Control team aims to promote infection prevention and control practices, protect patients, residents, clients and staff from healthcare-associated infections, and provide education to employees to assist with preventing the spread of infections within Western Health (Western Health n.d.).

Current statistics on rates of most communicable diseases are not readily available for the Western Health Region; however, some data are available on rates of influenza. During the 2019/20 season there were 708 laboratory-confirmed cases of influenza in NL. Of these cases there were 92 hospitalizations, 17 intensive care unit admissions and 9 influenza-related deaths. Western Health had 97 confirmed cases of influenza (13.7% of the total cases in the province) or a rate of 1 per 100,000 population (NL Department of Health and Community Services 2021).

On March 11, 2020, the World Health Organization (WHO) characterized COVID-19 as a pandemic (WHO 2020). As of March 16, 2023, the Government of Newfoundland and Labrador no longer tracks active case counts but has documented 57 COVID-19 related deaths in the Western Health region since the start of the pandemic (Government of NL 2023).

At various points throughout the pandemic, the Government of NL has implemented several health orders and guidelines, including travel restrictions, physical distancing measures, and policies on mask wearing in public spaces (Government of NL 2023) which they suggest has lowered their influenza rate compared to previous years (NL Department of Health and Community Services 2021).

3.3.7.4 Community Well-Being Index

The Community Well-Being (CWB) Index, developed by Crown-Indigenous Relations and Indigenous and Northern Affairs Canada (CIRNAC), measures socio-economic well-being for individual communities across Canada and is the only published index that provides comparability across all Census subdivisions (CSDs, a spatial geography used in Statistics Canada's Census) for which data are available. The CWB Index is comprised of four equally weighted components, widely accepted as being important to wellbeing: education, labour force activity, income, and housing (CIRNAC 2019a, 2019b). The four component topics are combined to create a single well-being score that ranges from a low of 0 to a high of 100. In addition to comparability across the temporal scope of the Index (values are available for the Census reporting years 1981, 1991, 1996, 2001, 2006, 2011, and 2016; 2021 data are not available for the CWB Index), further utility is realized through the ability to identify changes in well-being (and component measures) over the 35-year temporal horizon of the CWB Index. Table 3.4 provides a summary of the methods used to calculate each component included in the CWB Index.

Table 3.4 Community Well-Being Index – Component Descriptions and Weighting

Indicator	Description	Weighting (%)
Education		
High school plus	Proportion of a community's population, 20 years and over, that has obtained at least a high school certificate	75
University	Proportion of a community's population, 25 years and over, that has obtained a university degree at the bachelor's level.	25
Labour Force Activity		
Participation rate	Proportion of a community's population, aged 20 to 64, that was involved in the labour force during the week preceding census day, that is census reference week	50
Employment	Percentage of a community's labour force participants, aged 20 to 64, that were employed during census reference week	50
Income		
Income score	Defined in terms of total income per capita, as follows: $$Income\ Score = \left(\frac{\log(income\ per\ capita) - \log(\$2{,}650)}{\log(\$75{,}000) - \log(\$2{,}650)}\right) X\ 100$$	100
Housing		
Quantity	Proportion of a community's population living in dwelling that are not crowded as measured by having no more than one person per room	50
Quality	Proportion of a community's population living in a dwelling that is not in need of major repairs	50
Source: CIRNAC 2019b		

The CWB Index focuses on education, labour force activity, income, and housing, and does not include consideration of physical or mental health conditions (Section 3.3.5.5). The CWB Index score should therefore be viewed as one of many possible measures used to describe levels of community well-being within a given area.

Within the LAA/RAA, CWB Index scores (four components combined) are shown for Channel-Port aux Basques, Stephenville, Corner Brook, Port au Port East, and Port au Port West-Aguathuna-Felix Cove (Table 3.5). CWB Index scores for LAA/RAA communities ranged from 69 to 79 in 2016, compared to the province's score of 72. CWB Index scores have generally increased for communities within the LAA/RAA from 1991 to 2016, with Corner Brook showing the highest score in 2016 at 79 and Port au Port West-Aguathuna-Felix Cove having the lowest score at 69 (CIRNAC 2019).

Table 3.5 CWB Scores for LAA/RAA Communities, 1991 to 2016

Year	Channel-Port aux Basques	Stephenville	Corner Brook	Port au Port East	Port au Port West-Aguathuna-Felix Cove
2016	74	75	79	75	69
2011	70	73	76	70	68
2006	67	71	75	67	72
2001	65	68	72	63	63
1996	63	66	70	71	63
1991	64	67	71	66	57
Source: CIRNAC 2019a					

Tables 3.6 to 3.9 present the income, labour, housing, and education subcomponent scores for Channel-Port aux Basques, Stephenville, Corner Brook, Port au Port East and Port au Port West-Aguathuna-Felix Cove. Education is the largest contributor to low CWB Index scores, particularly in 1991, when Channel-Port aux Basques had an education score of 32 and Port au Port West-Aguathuna-Felix Cove had an education score of 28. Housing scores are the highest among the subcomponents for all communities between 1991 and 2016.

Between 1991 and 2016, income scores increased for all communities in the LAA/RAA (Table 3.6). Scores ranged from a low of 51 in Port au Port West-Aguathuna-Felix Cove in 1991 to a high of 76 for Corner Brook in 2016. In 2016, the income score for the province was 75.

Table 3.6 Income Scores for LAA/RAA Communities, 1991 to 2016

Year	Channel-Port aux Basques	Stephenville	Corner Brook	Port au Port East	Port au Port West-Agathuna-Felix Cove
2016	74	72	76	72	73
2011	68	68	72	64	65
2006	64	64	70	69	64
2001	61	60	68	54	56
1996	58	58	64	60	55
1991	58	60	65	58	51
Source: CIRNAC 2019a					

The labour score for the province in 2016 was 74. For the LAA/RAA communities, labour scores ranged from 60 for Port au Port West-Aguathuna-Felix Cove in 1991 to 81 in Stephenville in 2011 and Corner Brook in 2011 and 2016 (Table 3.7). In 2016, the labour scores in Channel-Port aux Basques increased by one point, whereas it fell by six points in Stephenville.

Table 3.7 Labour Scores for LAA/RAA Communities, 1991 to 2016

Year	Channel-Port aux Basques	Stephenville	Corner Brook	Port au Port East	Port au Port West-Agathuna-Felix Cove
2016	76	75	81	74	67
2011	75	81	81	64	61
2006	72	73	79	62	77
2001	70	72	79	66	69
1996	68	71	78	79	67
1991	72	75	79	74	60
Source: CIRNAC 2019a					

Housing scores were high in communities within the LAA/RAA, ranging from 89 to 97 in all five communities over the past 25 years (Table 3.8). In 2016, LAA/RAA communities had housing scores of between 93 and 97, while the province's housing score was 95.

Table 3.8 Housing Scores for LAA/RAA Communities, 1991 to 2016

Year	Channel-Port aux Basques	Stephenville	Corner Brook	Port au Port East	Port au Port West-Agathuna-Felix Cove
2016	95	96	97	96	93
2011	97	94	94	94	99
2006	95	94	96	92	98
2001	94	95	95	92	90
1996	95	92	95	98	95
1991	94	94	95	93	89
Source: CIRNAC 2019a					

The education score for the province in 2016 was 49. Scores in the LAA/RAA communities, except for Port au Port West-Aguathuna-Felix Cove, were on par or better than the provincial average in 2016. In 2001 and earlier, scores in Stephenville and Corner Brook were below 50, whereas the score in Channel-Port aux Basques jumped ten points, from 39 to 49 between 2011 and 2016. Education scores ranged from 28 in Port au Port West-Aguathuna-Felix Cove in 1991 to a high of 61 in Corner Brook in 2016 (Table 3.9).

Table 3.9 Education Scores for LAA/RAA Communities, 1992 to 2016

Year	Channel-Port aux Basques	Stephenville	Corner Brook	Port au Port East	Port au Port West-Aguathuna-Felix Cove
2016	49	56	61	57	42
2011	39	54	58	59	46
2006	38	53	56	46	49
2001	33	45	47	41	37
1996	32	41	45	45	36
1991	32	41	44	41	28
Source: CIRNAC 2019a					

3.3.7.5 Mental Health and Addictions

Mental health encompasses a diverse range of qualities of life beyond the absence of mental illness. A person can have a mental illness but still experience mental well-being. In a related vein, a person can be free of a diagnosed mental illness, but still experience mental distress. Positive mental health is achieved when individuals realize their abilities, can cope with the normal stresses of life, can work productively, and can contribute to their communities (NL Department of Health and Communities Services 2023).

Within the Western Health Region, there is one mental health and addictions facility. Humberwood Treatment Centre offers services free of charge to individuals aged 19 and older who are experiencing substance abuse or gambling problems. It is a voluntary program open to individuals who are in the middle to late stages of addiction and require a more intensive, structured program that can be provided on an outpatient basis. The ten-bed treatment program is three to four weeks in length and provides personalized support to increase their potential for recovery success upon discharge (Western Health 2023).

Doorways is a mental health and addictions walk-in service offered through Western Health that has locations in Stephenville, Corner Brook, and Port aux Basques. Counsellors offer single-session therapy services and same day appointments. Some examples of what could be discussed with a counsellor are: depression, anxiety, bullying, coping, grief/loss, addictions, relationship issues and/or stress. If further counselling is required, staff will work with you to provide access to additional services and supports.

The NL Department of Health and Community Services also provides online mental health and addictions support province-wide through their Bridge the Gapp program. The program provides support in a variety of areas, range from substance abuse to anxiety, eating disorders, gambling, among others. There is also a toll-free number that is available any time should an individual be experiencing a crisis (NL Department of Health and Community Services 2023).

3.3.7.6 Social Connectivity

Healthy social support networks, in the form of support from families and friends, are linked to improved health status (PHAC 2013). Social support networks aid individuals in solving problems, dealing with adversity and in maintaining a sense of control over life circumstances. Collective networks of healthy social support networks positively influence social environments (PHAC 2013). Taken together, the relationships and resultant sense of satisfaction and wellbeing associated with social support networks seem to buffer individuals from select health problems.

A study on the social connections of Canadians by province indicated that large family networks were generally more often seen in the east with 67% of Newfoundlanders and Labradorians reporting close ties to at least five family members, measurably higher than the national average of 55%. The percentage of Newfoundlanders and Labradorians with at least 20 friends (57%) was also higher than other provinces and territories and much higher than the national average (47%). Residents of eastern Canada were also more likely than average to keep in regular contact with relatives living outside the home (Sinha 2014).

With respect to social connectivity in the LAA/RAA communities, studies suggest that residents in communities whose economies rely on a single resource band together to adapt to the industry's boom and bust cycles (Skeard 2014). In Corner Brook, for instance, social cohesion and community support have been instrumental in dealing with past and present challenges with the pulp and paper mill and the community's strong sense of social cohesion has contributed to its perseverance and resilience as a town (Connors 2021a). The social connectivity of the LAA/RAA communities is also evidenced by the high percentage (81.2%) of Western Health Region residents who feel a strong sense of community belonging (Table 4.1; Statistics Canada 2022b).

3.3.7.7 Food Security

Food security exists when all people at all times have physical and economic access to adequate amounts of nutritious, safe, and culturally appropriate food to maintain a healthy and active life. Information in the following section is only available province wide.

NL has experienced challenges obtaining food security. The island of Newfoundland is separated from mainland Canada by an ocean, and Labrador has a vast land of isolated towns. Paired with this, NL has the lowest number of farms of any Canadian Province, with a total of 344 in 2021 (Statistics Canada 2022a). If ferry shipments are disrupted by adverse weather conditions, maintenance, or another matter, the province has a two-to-three-day supply of produce (Statistics Canada 2022a). Overall, the province imports 71% of the food the population consumes, which includes fresh fruits, vegetables, beef, pork, and packaged foods (Agriculture and Agri-Food Canada, 2014). In addition to these challenges, 84% of communities in the province do not have a standard grocery store (Mah et al. 2018).

In NL, 17.9% of households were food insecure in 2021, which refers to insecure access to adequate food due to financial constraints (Tarasuk, Li, & St.-Germain 2022). Over 26,000 people, or over 5% of the population, rely of food banks for sustenance (Food Banks Canada 2022). Rates are exacerbated for single-parent families, where one in four experience household food insecurity, and one in nine individuals living alone experience household food insecurity (Food Banks Canada 2022). On average,

for a family of four, it costs a minimum of $1,143 per month to eat a healthy diet, which increases in northern and remote regions (NL Statistics Agency 2018).

3.3.8 Emergency Services

3.3.8.1 Police Services and Crime

Safe social environments in which community members feel connected foster positive health status (WHO 2008). Crime can adversely affect health due to violence and through use of illicit drugs, by increasing stress and anxiety as a response to real or perceived risk and by creating barriers for social interactions, thereby decreasing social cohesion within a community (Ruijsbroek et al. 2015).

Two RCMP detachments serve the study area communities. The Bay St. George detachment in Stephenville has approximately 29 officers and the Channel-Port aux Basques detachment has six officers (CBC News 2021). Policing services in Corner Brook are provided by the Royal Newfoundland Constabulary (RNC). In other areas in the LAA/RAA, policing services are provided by the Royal Canadian Mounted Police (RCMP).

The crime severity index (CSI) measures changes in the level of crime severity in Canada from year to year and includes all Criminal Code violations including traffic and drug violations and Federal Statutes (Statistics Canada, 2020). Between 2016 and 2019, the CSI for the Channel-Port Aux Basques RCMP detachment increased 18% from 32.91 to 44.67. The CSI for the Bay St. George detachment also increased from 83.72 in 2016 to 85.57 in 2019 (Statistics Canada 2022). Total violent criminal code violations[5] rate per 1,000 population was 18.7% for the Corner Brook RNC area in 2021. This was up 11.5% from 2020 (16.7% per 1,000). Total violent criminal code violations rate per 1,000 population was 20.2% for the Bay St. George RCMP detachment in 2021. This was up 23.7% from 2020 (16.3% per 1,000). In 2021, there were 50 persons charged with impaired driving in both Bay St. George District RCMP and the Corner Brook RNC detachments. This was the same in Bay St. George RCMP area in 2020 but increased slightly from 45 in the Corner Brook RNC area. In 2021, there were five persons charged with breaking and entering in both Bay St. George District RCMP and Corner Brook RNC areas. This was the same in Corner Brook RNC area in 2020 but was reduced from 10 in the Bay St. George RCMP area (NL Statistics Agency 2019a).

3.3.8.2 Family Violence

Family violence is any form of abuse or neglect that a child or adult experiences from a family member, or from someone with whom they have an intimate relationship. It is an abuse of power by one person to hurt and control someone who trusts and depends on them (Public Health Agency of Canada [PHAC] 2013). In NL in 2018, the number of police-reported child and youth family violence victims increased 3.0% from the previous year to 258 for a rate of 289 per 100,000 population. This compares to a rate of 264 per 100,000 in Canada. Female victims of intimate partner violence in NL in 2018 numbered 1,149

[5] Violent criminal code violations are counted in terms of the number of victims involved in the incident (number of incidents = number of victims). The only exception is the crime of robbery which although it is included as a violent crime, it is counted as one offence regardless of the number of victims.

for a rate of 505 per 100,000 population. This represented an increase of 2% from the previous year and compares to 507 per 100,000 for Canada (Statistics Canada 2019b).

In the Western Health region, there is one shelter and one transition house dedicated to women and children experiencing domestic violence. Willow House in Corner Brook is a 16-bed free safe house for women and children experiencing domestic violence where they are supported for up to six weeks. Services Willow House provides include counselling, transportation, childcare arrangements, and as well as financial and legal information (Willow House 2022).

Corner Brook Status of Women's Council provides a variety of services for women, including crisis intervention, self-help groups and job search support. It also operates Vesta Place which provides a bedroom to women in need, a communal kitchen, den, washroom, and utilities for $350 per month. Corner Brook's Status of Women's Council also runs the Sexual Assault Response and Advocacy service, which is a 24-hour telephone response line for sexual assault victims age16 and up (Corner Brook Status of Women's Council 2023).

3.3.8.3 Fire Protection Services

Stephenville has a fire department of eight full-time firefighters, a fire chief, and a deputy fire chief. The fire department also has an agreement with Kippens, which has a staff of about 20 firefighters (T. Rose, pers. comm.). Fire protection services are also provided by the Channel-Port aux Basques Volunteer Fire Department, which has 33 members and two stations serving the community.

The Town of Port au Port East and Port au Port West-Aguathuna-Felix Cove collaborate fire department services to form the Port au Port Regional Volunteer Fire Department (Port au Port East n.d.). There are 26 volunteer firefighters, as well as the Fire Chief, and Deputy Chief. The volunteer fire department also provides services to Campbell's Creek and Point au Mal-Fox Island River local service districts, which are located on the Port au Port Peninsula and by Port au Port Bay, respectively.

The Corner Brook Fire Department has a fire chief, deputy fire chief, two deputy chiefs, and four platoons with nine full-time firefighters. The Fire Hall is staffed for 24-hours a day by a minimum of seven full-time firefighters. The Corner Brook Fire Department includes emergency response to high angle rescue, water rescue, confined space, and hazardous materials emergencies (Corner Brook 2022).

3.3.8.4 Ambulance Services

Paramedicine and Medical Transport is a division of Western Health's Medical Services Branch and is responsible for operations of all regional ambulance services. The program is responsible for operational activities relating to emergency ambulance response and inter-facility transport. There are 16 road ambulance providers within Western Health and five of these operate within the LAA/RAA.

The Western Health air ambulance service includes the provincial medical flight program (specialized air ambulance services operated provincially) and private air ambulance charter (Fixed Wing and Helicopter) (Western Health 2016).

Within the Western Health Region, all inter-facility transports including routine patient transport requests originating in a community, town or city by road and air ambulance must be coordinated through Western Health's Medical Communication Centre. This also includes helicopter charter requests for rural medical clinic access.

3.3.9 Transportation

3.3.9.1 Ports and Airports

The Stephenville Airport Corporation owns and administers the Stephenville Regional Airport. Between 2017 and 2018, passenger traffic at the airport increased 13.2% to 7,657. This was the second highest level recorded since 2011 (TCII 2019). More recent passenger statistics for the Stephenville Airport are not available, however, airport activity (boarding and deplaning movements) for NL's seven major airports decreased 71% between 2019 and 2020 (TCAR 2021). This decline is likely a result of the COVID-19 pandemic, as global travel restrictions reduced demand for airline travel and airline capacity (TCAR 2021). In 2020 PAL Airlines, Sunwing and Porter Airlines ended their services to Stephenville (Turner and Antle 2022). As a result, there was no scheduled passenger service in the Stephenville Airport until Sunwing resumed weekly flights in Stephenville between June and September 2022 (Stephenville Dymond International Airport 2022).

In 2018, Stephenville Regional Airport received $1 million in upgrades to its instrument landing system, allowing it to remain an emergency or alternate landing site for transatlantic flights (Moore 2018). The Stephenville Regional Airport is in the process of being purchased by the Dymond Group.. Plans ahave been proposed to build a new terminal at the airport. Should it proceed, the airport redevelopment is expected to create jobs and income for the community (CBC News 2022).

The Port of Stephenville, also known as Port Harmon, is situated in St. George's Bay. It services international and national ships, fishing, aggregate, container and special freight. It operates year-round and is a sheltered, deep sea and ice-free port. The port was developed by the US Corps of Engineers in the early 1950s. It served as a military base during World War II and later as the shipping point for the former Abitibi-Consolidated paper mill in Stephenville which ceased operation in 2005. Today, the Port of Stephenville is a privatized, multi-purpose facility that serves a variety of industries, including fishing and aquaculture. Vessel traffic in the Port of Stephenville includes:

- Coast Guard Vessels
- Year-round use by fishing vessels, including offloading of catch such as crab, shrimp, and lobster
- 7 to 10 boats annually for Northern Harvest Smolt operations (once geared up on fish)
- Large Bulk Carrier with salt once per year
- 2 to 3 loads of scrap metal (every second year)
- As required, asphalt barges supporting local infrastructure contracts
- Vessels delivering cargo to support local construction
- Adhoc use for vessel layups and repair

The Port of Stephenville can accommodate ships up to 385 m in length. It has hectares of prepared laydown space, and numerous additional acreage of cleared land is available for any necessary expansion of the laydown yard. The existing quay will be inspected and load-rated to verify that it can accommodate the berthing and mooring loads from the maximum anticipated size ship for Project activities. Based on current understanding, the port is able to accommodate vessels to transport ammonia without the construction of additional berthage. This will be confirmed prior to construction through the completion of a desktop navigation assessment and a vessel navigation simulation, if necessary. WEGH2 purchased the Port of Stephenville in May 2023, and has planned to the Port will be undertaken as part of Project construction activities (CBC News 2023).

Stephenville is 200 km from the Marine Atlantic Terminal at Port aux Basques, which is the terminal for passengers and motor vehicles en route from North Sydney, Nova Scotia and other mainland points. The Marine Atlantic ferry is the only shipping service operating from the harbour, with the Canadian Coast Guard, oil tankers, cruise ships, and other occasional shipping companies also using it.

The harbour at Port aux Basques is equipped with 10 deep-water docks that vary in length and depth to accommodate ships of various specifications. The Marine Atlantic ferry is the only shipping service operating from the harbour, with the Canadian Coast Guard, oil tankers, cruise ships, and other occasional shipping companies also using it. The ferry service between Port aux Basques and North Sydney registered 277,904 passenger movements in 2018 (TCII 2019).

The Deer Lake Regional Airport services Western Newfoundland and Labrador with passenger services to national and international destinations. Between 2020 and 2021 the Deer Lake Airport serviced 152, 150 passengers and 11,537 aircraft movements (Deer Lake Airport 2021). The airport also increased the number of routes by 44%. The Deer Lake airport has fewer passengers in 2021 than pre-COVID-19 rates in 2019, and aircraft movements are only 75% of what they were previously in 2019. Deer Lake Regional Airport expects traffic levels to return to pre-pandemic conditions by 2025 (Deer Lake Airport 2021).

The Port of Corner Brook has a main berth of 362 m and can accommodate a vessel at a maximum length of 362 m (Port of Corner Brook n.d.). The Port operates year-round and has a maximum dockside depth of 10 m. The Port has anchorage north of the Corner Brook Pulp and Paper mill in 55 m to 73 m of stiff mud. There is another anchorage in Pettipas Cove, in 24 to 35 m of sand and mud. The Port services industrial cargo ships and cruise liners. The Port is also fully certified under the International Ship and Port Facilities Security Code regulations, and a Canada Border Service Agency is located nearby for customs clearing and authorizations for disembarking passengers and crew (Port of Corner Brook n.d.). The Port is located approximately 50 km from the Deer Lake Regional Airport, and 85 km from the Stephenville Dymond International Airport.

3.3.9.2 Roads

The Port au Port Peninsula is connected to Stephenville by Highway 460. Route 463 connects the communities on the northwest coast of the Port au Port Peninsula with Highway 460, including Three Rock Cove, Lourdes, West Bay, and Piccadilly. Route 462 connects to Port au Port East to the community of Fox Island River. Residents of the Port au Port Peninsula have reported that roads are in poor condition on the peninsula, particularly the bridge that crosses the Romaines River and links the Port au Port Peninsula to Stephenville and the rest of the Island (Connors 2021b). Plans are in place to replace the bridge and build a new one with construction expected to be complete in 2024 (Butler 2022).

Trans-Canada Highway Route 1 connects the communities between Stephenville and Channel Port aux Basques. Routes 460 and 490 lead from Stephenville to Route 1 east of Barachois Brook. Route 470 is the last provincial highway off Route 1 before approaching the Marine Atlantic Ferry to Nova Scotia, in Channel-Port aux Basques.

A Transportation Impact Study (TIS) was completed to assess and report on the potential effects of transporting oversized and overweight project materials and equipment over existing roadways, during construction, operation, maintenance, modification, decommissioning and rehabilitation phases of the Project. According to the TIS, the highways that will be used for transporting wind turbine components, construction materials and staff between the ports and the Project sites are listed in Table 3.10 (Stantec 2023).

Table 3.10 Highway Information

Road	Classification	Speed limit (km/hr)	Number of Lanes
Route 1	Provincial Highway	100	2 / 3 / 4
Route 460	Regional Road	60	2
Route 462	Regional Road	50	2
Route 463	Regional Road	60	2
Route 490	Regional Road	80	2
Aguathuna Road	Local Road	50	2
Harbour Drive	Local Road	50	2

As required, upgrades to the road system in the Project Area and creation of a wind farm access road network will be undertaken as part of Project construction activities to accommodate the delivery of large wind turbine components.

As described in the TIS, the maximum Average Annual Daily Traffic (AADT) in the Project road network is 8,169 on Route 460 west of the Romaine River Bridge. Considering the road classification and the rural character of the area, the estimated peak hour volume at each travelling direction is approximately 410 vehicles/hour/lane, which is below the default capacity of 800 vehicles/hour/lane for a rural highway (Stantec 2023).

3.4 Discussion

The population of the LAA/RAA has been in decline and decreased 5.4% between 2016 and 2021. Housing stock in most LAA/RAA communities increased between 2016 and 2021 and new subdivisions continue to be developed with lots for new homes. There are more than 30 temporary accommodations in the LAA/RAA. The vacancy rate of temporary accommodations in Western NL increased between 2016 and 2021 and has not yet recovered to pre-Covid levels.

Wastewater system upgrades are required in some LAA/RAA communities, particularly in those communities that do not have wastewater treatment systems, including Corner Brook. Water treatment and capacity is generally good in the LAA/RAA; however, water shortages have occurred on the Port au Port Peninsula when demand has exceeded supply. The landfill that serves the region was built in 2016 and has a lifespan of 50 years.

There are three main hospitals and several medical clinics in the LAA/RAA. The new Corner Brook Acute Care Hospital will replace the existing Western Memorial Regional Hospital and is expected to be complete in November 2023. The Western Health Region shows higher rates of some conditions, including arthritis, diabetes, asthma, and high blood pressure, than the province. The social connectivity of the LAA/RAA communities is evidenced by the high percentage (81.2%) of Western Health Region residents who feel a strong sense of community belonging.

Student enrolment within the western NLESD is declining and LAA/RAA schools have seen a decrease of 2.0% between 2020 and 2022. There are 425 childcare spaces in the LAA/RAA but there are reports that demand exceeds the supply throughout the province and in the LAA/RAA The province is experiencing a shortage of primary health care providers, and this is also a problem in the LAA/RAA.

Police services are provided by RCMP detachments in Stephenville and Port aux Basques and by the RNC in Corner Brook. CSI and total criminal code violations have increased in the LAA/RAA in recent years. There are four fire departments in the LAA/RAA.

The Stephenville Regional Airport is going through many changes because it is in the process of being purchased by the Dymond Group. It received upgrades to its instrument landing system, allowing it to remain an emergency or alternate landing site for transatlantic flights. Future upgrades, including a new airport terminal, have been proposed. The Deer Lake Airport serves Western Newfoundland with passenger services to national and international destinations. As of 2021, aircraft movements through local airports had not returned to pre-Covid levels.

There are three ports in the LAA/RAA which service international and national ships, fishing, aggregate, container and special freight. The Marine Atlantic Terminal at Port aux Basques is the terminal for passengers and motor vehicles en route from North Sydney, Nova Scotia and other mainland points.

Trans-Canada Highway Route 1 connects the communities between Stephenville and Channel Port aux Basques. Some of the roads in the LAA/RAA are reportedly in poor condition but traffic volumes are relatively low and upgrades to transportation infrastructure are planned.

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4.0 Land and Resource Use

4.1 Scope and Objectives of the Land and Resource Use Study

This Land and Resource Use Study describes existing (baseline) conditions for land and resource use (LRU) in the vicinity of the Project (i.e., within the spatial boundaries defined in Section 4.2.1), including consideration of past and present LRU activities that have influenced (and/or are influencing) existing LRU conditions.

As per the EIS Guidelines for the Project, "[t]he baseline study of land and resource use shall focus on, at a minimum, the following components: a) Traditional, Cultural and Recreational Land Use; and b) Industrial Land Use." The EIS Guidelines also require that the EIS describe "relevant land and resource use within the study area of the VECs, including, but not limited to, the following":

a) *Existing electrical infrastructure, including the newly constructed HVdc facilities of the Labrador-Island Link and Maritime Link;*

b) *Current and historic land use for mining, mineral exploration, and quarrying activities, including the presence of known mineral occurrences of potential economic significance;*

c) *Existing land-based aquaculture facilities (including hatcheries);*

d) *Domestic wood harvesting areas;*

e) *Tourism operators, outfitter operators, cabins, multi-use trails, and recreational activities (e.g. trails, scenic lookouts, hiking, hunting, fishing, swimming, berry picking, etc.);*

f) *Unique sites (e.g., scenic lookouts, geoparks, etc.);*

g) *Landscapes and viewscapes, including extent of developed and undeveloped land;*

h) *Land tenure, including but not limited the following:*

   i. *Crown lands;*

   ii. *Private land ownership;*

   iii. *Land tenure under the* Petroleum and Natural Gas Act*,* Mineral Act, *and* Quarry Materials Act*; and*

   iv. *Municipalities with municipal plan and development regulations.*

The scope of this LRU baseline study includes consideration of the following aspects of LRU:

- Designated land LRU, including municipal land use, protected roads, designated uses of provincial Crown lands, protected conservation areas, and wildlife management areas
- Commercial and industrial LRU, including mining, quarrying, mineral and petroleum exploration, forestry, agriculture, and electrical infrastructure
- Recreational and subsistence LRU, including tourism, hunting and outfitting, trapping, angling and fishing, wild berry and/or wild plant harvesting, and trails and unique sites
- Landscapes and viewscapes
- Potentially affected receptors

Existing conditions for traditional land and resource use (TLRU) by Indigenous peoples, including cultural aspects of TLRU, are described separately in Chapter 5 of this document.

Existing conditions pertaining to land- and marine-based aquaculture facilities; public and industrial water supplies; commercial, recreational, and Indigenous fisheries; and other ocean users (i.e., shipping and transportation, military use, scientific research and surveys, marine hunting, marine tourism, unexploded ordnances, and shipwrecks) are described separately in the Aquatic Baseline Study.

An understanding of existing LRU conditions is necessary to support the assessment of potential Project-related environmental effects on the LRU VEC in Chapter 20 of the EIS. Thus, the objective of this LRU baseline study is to describe existing conditions for relevant aspects of LRU (i.e., designated land and resource use, commercial and industrial land and resource use, and cultural and recreational land use), within VEC-specific local and regional assessment areas, for the purpose of supporting the assessment of potential Project-related environmental effects on LRU in the EIS.

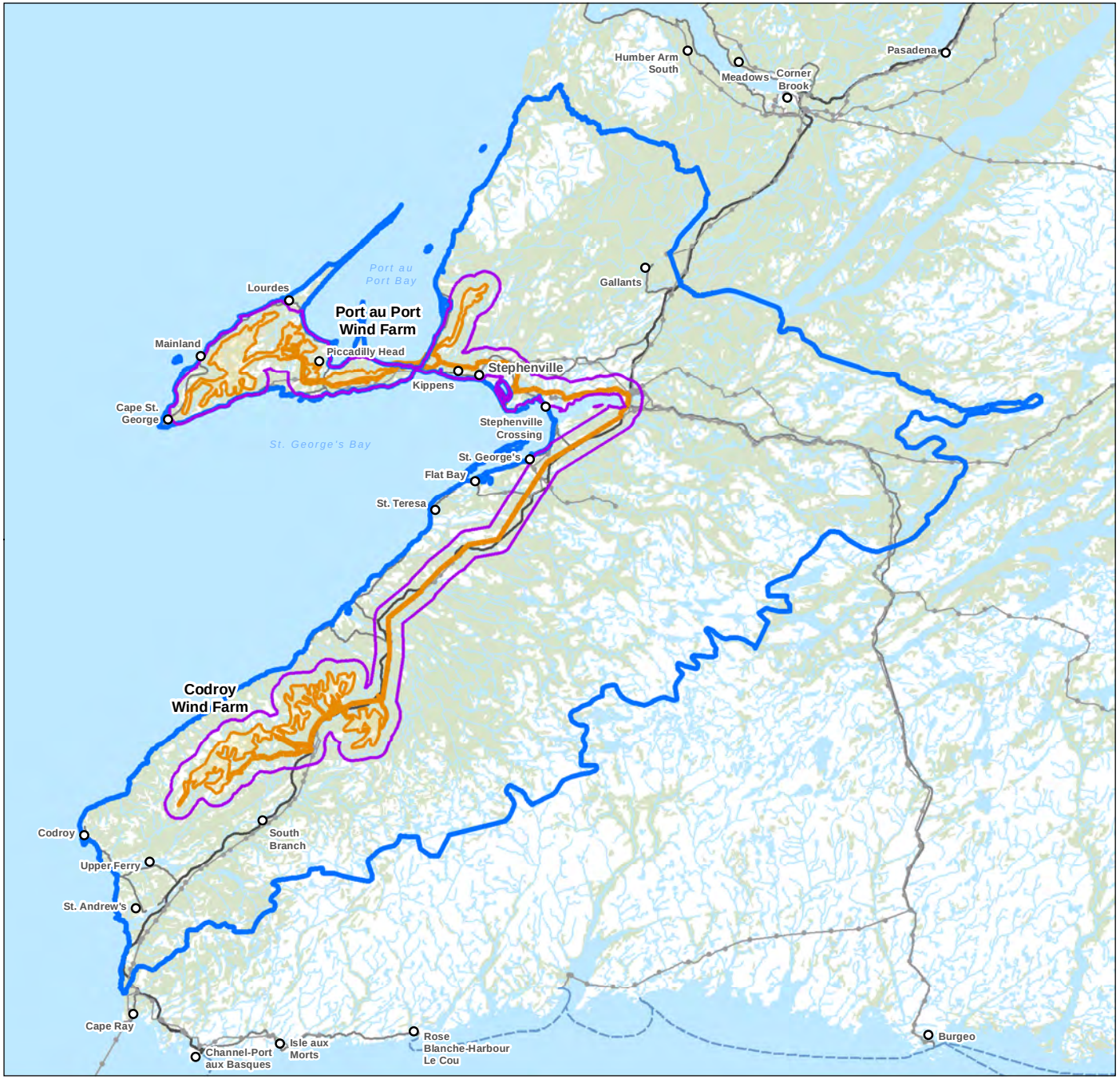
4.2 Methods

4.2.1 Spatial Boundaries

Existing conditions for LRU have been described with reference to the Project Area (defined in Section 1.1), the VEC-specific LAA, and the VEC-specific RAA.

The LAA (Figure 4.1) represents the geographic extent in which Project-related environmental effects on the VEC may occur. The LAA for the LRU VEC comprises the Project Area and a 2-km buffer surrounding the Project Area. These LAA boundaries have been selected to capture the area where effects on LRU are likely to be most prevalent (e.g., effects to harvested species and sensory disturbance effects to nearby land users).

The RAA (Figure 4.1) represents the geographic extent in which regional and cumulative effects on the VEC are likely to occur. The RAA for the LRU VEC aligns with the spatial boundaries for Statistics Canada Census Division No. 4. It is approximately 7,540 km^2 in size and encompasses the Project Area, LAA, and surrounding communities.



Stantec

Regional Assessment Area
Local Assessment Area
Project Area

Other Features

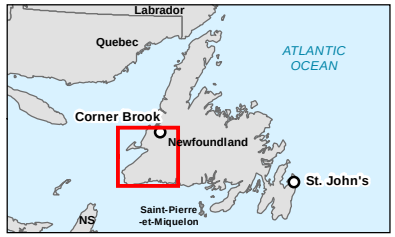
Transmission Line, Existing
Trans-Canada Highway
Other Highway
Ferry Route
Watercourse
Waterbody
Forested Area

N

0 10 20 km
(At original document size of 8.5x11)
1:950,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by AC on 2023-07-14
QR by AW on 2023-07-19
IR Review by BK on 2023-07-28

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
4.1

Title
Spatial Boundaries for Land and Resource Use

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4.2.2 Methods

Information on existing conditions for LRU was obtained through primary and secondary research. Primary data were collected through an LRU survey and an outfitter questionnaire to solicit feedback from the public and key stakeholders (i.e., membership of the NL Outfitters Association). Additional relevant data (e.g., domestic wood harvesting data) was requested from government agencies. Secondary research included a desktop review of publicly available data sources, studies, research findings, and other EAs conducted recently in the vicinity of the RAA. For example, relevant LRU information from the EIS for Marathon Gold Corporation's Valentine Gold Project (Marathon Gold 2020), which is located near the RAA (i.e., southwest of the Town of Millertown), has been incorporated into the LRU baseline study, where applicable.

LRU metrics generated through spatial analyses have also been used to describe the existing environment. Geospatial data were plotted using geographic information system (GIS) software to determine the spatial distribution and nature of overlapping land uses within the Project spatial boundaries shown on Figure 4.1 and to quantify information on LRU occurring in the vicinity of the Project.

An LRU survey was developed to engage the public, help WEGH2 learn about land and resource use activities that occur in the proposed Project locations, and to identify public perceptions around the potential risks and/or benefits of the Project. The LRU survey was hosted online on the SurveyMonkey platform and available in printed versions. The purpose of the LRU survey was stated in the introduction. The LRU survey link was posted to WEGH2's social media site (e.g., Facebook) and was also shared with stakeholder groups and other engaged parties via email. The online LRU survey was open to the public from April 3 to April 17, 2023, and from May 17 to May 31, 2023. It was composed of 98 questions, which included multiple choice, single choice, yes / no, and open-ended question formats. Printed versions of the survey were made available for pick up from the community office in Stephenville from May 3, 2023, to May 25, 2023 at the community office in Stephenville and were delivered to multiple locations within the Project area, including Gillis's Store (Codroy), Mountainside General Store (Doyles), Valley Pharmacy (Doyles), Small Town Grocery (Millville), Atlantic Edge Credit Union (Doyles), Port au Port East Gas Bar (Port au Port East), Port au Port West – Aguathuna – Felix Cove Town Office (Port au Port West – Aguathuna – Felix Cove), Benoit First Nation (DeGrau), Cape St. George Town Office (Cape St. George), Mainland Gas Bar (Mainland), Lourdes Town Office (Lourdes), and Parkview Variety Store (Piccadilly). Towns were also encouraged to share information about the survey on their Facebook pages. Participants had the option of dropping off their completed surveys at the community office or mailing them into the office. Surveys were also picked up from the community distribution locations by WEGH2 team members. The printed versions of the survey were composed of 36 questions specific to either the Port au Port or the Codroy areas. The questions were the same as those in the online survey. The results of the online and paper copies of the LRU survey were combined and analyzed as a single body of data. All versions of the LRU survey were anonymous, and no contact information was sought from the participants.

As part of the community and stakeholder engagement process, WEGH2 developed a questionnaire to solicit feedback from outfitters about the Project, as well as to identify issues, concerns, or inquiries related to the Project (Appendix 4D). The questionnaire included a Project Map identifying the wind farm locations and asked respondents a series of questions divided into four parts.

Part A of the questionnaire consisted of 20 questions asking respondents to provide general information about their outfitting operation. Part B of the questionnaire, consisting of three questions, asked respondents to identify the hunting activities that clients engage in through their outfitting operation. Part C of the questionnaire, consisting of six questions, asked respondents to identify what fishing activities their clients engage in through their outfitting operation. Part D of the questionnaire, with three questions, sought to ascertain the respondent's opinion on the potential effects, both positive and adverse, of resource development and industrial projects in general and the proposed Project specifically on their outfitting operation. The final part of the questionnaire recorded identifying information of the respondents and asked for any other comments the respondents wished to share.

The questionnaire was administered by NLOA via email. WEGH2 representatives expressed their desire to continue with dialogue and discussions with the affected outfitters to better understand areas of importance to individual outfitter and to address their concerns. Information sharing with the outfitters will continue in a process that is transparent.

A summary of input received from outfitters on key issues and concerns is provided in Appendix 4-D of the EIS.

4.3 Results

4.3.1 Land and Property Ownership

The Port au Port and Codroy wind farms will be located entirely on provincially owned Crown land. Section 4.3.2.3 provides an overview of the land bid process for wind development on Crown land in NL. The transmission lines for the Project will intersect Crown lands and private lands. The properties / lands (including the seabed) on which Project activities and components will occur at the Port of Stephenville are privately owned by WEGH2 and the Town of Stephenville.

In addition to provincial Crown lands and private lands, the RAA also encompasses several federal buildings and other federal properties. Federal buildings within the LAA include post offices administered by Canada Post, the Canadian Coast Guard Base in Stephenville, the Bay St. George District Office and Stephenville Detachment of the Royal Canadian Mounted Police, and various storage, equipment, and operations buildings associated with Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO), and Public Services and Procurement Canada (PSPC). Other federal properties within the LAA include several DFO small craft harbours, DFO medium frequency (MF) radio communications infrastructure in Felix Cove, an armoury in Stephenville associated with the Royal Newfoundland Regiment of the Canadian Army, communications infrastructure associated with the Stephenville Dymond International Airport, and ECCC weather radar infrastructure. The Project Area overlaps ECCC's Stephenville Upper Air Station (located at 600 Maryland Drive, Stephenville, NL) as well as a parcel of federally owned Crown land in Port au Port East (at Table Mountain) that is managed by

PSPC and is associated with the former Pinetree Line network of radar stations. Access to this piece of federal land will be determined during detailed design.

Federal contaminated sites are located on land that is owned or leased by the federal government, or on land where the federal government has accepted responsibility for the contamination (Government of Canada 2022). There are 142 federal contaminated sites within the RAA (Government of Canada 2022). Of these, 54 federal contaminated sites are located within the LAA and six sites are located within the Project Area (Government of Canada 2022). Within the Project Area, three of the federal contaminated sites are in Port Harmon at the DFO Stephenville Base, two are located at the Pinetree Radar Site, and one is located at the DFO Gravels site in Port au Port East (Government of Canada 2022).

4.3.2 Designated Land and Resource Use

Designated lands have defined uses as per federal, provincial, or municipal regulations or land trust agreements and may be subject to property rights or interests. Designated lands within the RAA include municipal planning areas (Section 4.3.2.1), protected roads (Section 4.3.2.2), and provincially owned Crown lands that are designated for various purposes, such as wind energy reserve lands (Section 4.3.2.3) as well as provincial parks and protected areas and wildlife management areas (Section 4.3.2.4). As the only land trust organization in NL (NCC 2023a), the Nature Conservancy of Canada (NCC) protects land within designated nature reserves on private property, including within the RAA. The NCC's nature reserves within the RAA are also described in Section 4.3.2.4, since the LRU associated with nature reserves is so similar to the LRU associated with provincial parks and protected areas.

Other designated Crown lands within the RAA include agricultural areas of interest and tenured Crown lands subject to other legal uses (e.g., domestic wood harvesting; commercial forestry; mining, quarrying, petroleum development, and associated exploration activities; and utility easements); the LRU associated with these designated lands is described in Section 4.3.3 and Section 4.3.4, in the context of commercial / industrial LRU and recreational / subsistence LRU, respectively.

4.3.2.1 Municipal Land Use

Municipal land use in NL is governed by the provincial *Urban and Rural Planning Act, 2000* (URPA), which is administered by the NL Department of Municipal and Provincial Affairs (NLMPA). The URPA establishes the province's land use planning system and details the requirements for preparing, approving, and implementing municipal planning documents and regulations for towns established under the *Municipalities Act, 1999*.

The RAA encompasses seven municipalities that are associated with the following towns (Figure 4.2): the Town of Cape St. George, the Town of Port au Port West-Aguathuna-Felix Cove, the Town of Port au Port East, the Town of Kippens, the Town of Stephenville, the Town of Stephenville Crossing, and the Town of St. George's. Each of these towns was continued or incorporated, by order, under the *Municipalities Act, 1999* and is the subject of a municipal plan registered under the URPA. The RAA also encompasses the Town of Gallants and the Town of Lourdes (Figure 4.2). Although these two towns were similarly established, by order, under the *Municipalities Act, 1999*, they do not have registered

municipal plans or regulations associated with them under the URPA. In addition to generic *Development Regulations*, which are broadly applicable to each planning area registered under the URPA, the respective Councils for each of these seven municipalities in the RAA have also approved municipality-specific Development Regulations. As summarized in Table 4.1, the Project Area intersects / partially overlaps several municipal boundaries that are subject to municipal development and zoning controls under the URPA. Brief profiles of these communities are provided below:

- The Town of Cape. St. George is situated at the most westerly point of the Port au Port Peninsula and marks the entrance of St. George's Bay (Benoit First Nation n.d.). This Town is also known as Kwesowaak, meaning the end of the land in the Mi'kmaq language. Before recorded colonial history, the area was inhabited by the Mi'kmaq. They were also descendants from the Mi'kmaq tribe of Cape Breton, who hunted and trapped seasonally in the area. The name Cape Saint George was coined by the Italian adventurer, Giovanni Caboto who explored this region of the Island in 1497, noting the presence of Mi'kmaq tribes. The first early settler of Cape St. George was thought to arrive in 1837 from Roche-Derrien, France. Early residents included Acadians, French, Irish, Scottish, and English settlers. The Town has a history of fishing for species such as cod, herring, flounder, capelin, salmon, and lobster. Over time, the isolation from the Island caused a loss of the Mi'kmaq language; however, nearly all the French language was retained until the introduction of television and better road infrastructure in the mid-1900s. Today, the municipality of Cape St. George includes Cape St. George, De Grau, Garden Hill, Loretto, Marche's Point, and Red Brook. In 1945, the population was 256. In the latest census (2021), the population was 809 (Statistics Canada 2022a).
- The Town of Port au Port West-Aguathuna-Felix Cove is located on the Port au Port Peninsula, which includes The Gravels (named after two narrow gravel beaches nearby) and The Isthmus (connects Port au Port Peninsula to the Island). The town was created by amalgamating the villages of Port au Port West, Aguathuna, and Felix Cove in 1970 (Hidden Newfoundland 2021). Early settlers were mostly English origin; however, some French fishermen did reside in the area. In 1884, the commercial lobster fishery opened, which became productive, especially in the Isthmus area but other fisheries were established (e.g., cod, herring, and halibut) (Benoit First Nation 2005a). The population in this area was also influenced by mining activities from the limestone quarry site near Aguathuna. The quarry was opened in 1911 by the Dominion Iron and Steel Company and was used to ship limestone to Nova Scotia (Hidden Newfoundland 2021). In 1981, the population was 938 for the Town of Port au Port West-Aguathuna-Felix Cove (Benoit First Nation 2005a). According to the latest census (2021), the population has dropped to 384 (Statistics Canada 2022b).
- The Town of Port au Port East is located at the base of the Port au Port Peninsula and was originally known as Berry Head after a local landmark. The Town was first established in the 1800s, when early residents included Acadians and Scots from Cape Breton (Town of Port au Port East n.d., Benoit First Nation 2005a). Fishing, wood harvesting, and farming were common practice in this area; however, Port au Port East was mostly known as a farming community and regarded root crops as important. According to the latest census (2021), the population has declined to 413 in 2021 from 579 in 2016 (Statistics Canada 2022c).

- The Town of Kippens is situated between the Town of Port au Port East and Stephenville and was granted municipality status in 1968 (Town of Kippens 1988). Early settlers included the Acadians from Nova Scotia and French leading to a French-speaking settlement. The French language later declined due to English Catholic influences and the construction of the Air Force Base in Stephenville in the 1940s. The early economy in Kippens was mostly based on fishing, agriculture, and forestry, however agriculture currently is limited due to poor soil conditions. Today, most residents work outside of the Town in nearby communities like Stephenville. In 1921, the population of Kippens was 30 and has experienced a steady increase since then (Town of Kippens 1988). According to the latest census (2021), the population is currently 1,842 (Statistics Canada 2022d).
- The Town of Stephenville is the second largest community on the west coast of Newfoundland. Early settlers first arrived around 1840; however, Micmac, Montagnais, and Beothuk had lived and fished in the area dating back to at least the early 1500s (Benoit First Nation 2005b). Around 1845, the Town became known as an Acadian fishing and farming community, stretching from the coast of Kippens to Seal Cove (Town of Stephenville 2019). Stephenville has been shaped by past military activity and American influences with the introduction of the air force base in 1941, underground ammunition deposits, large airstrips, aircraft hangers, and streets named after the American States. Since the first census in 1844, the population has risen from 103 residents to 6,540 in 2021 (Town of Stephenville 2019; Statistics Canada 2022e).
- The Town of Stephenville Crossing is nestled at the head of St. George's Bay, between St. George's and Stephenville (Poole and Cuff 1994). The first settlers established a farming community who most likely originated from Sandy Point. In the 1890s, the area became a hub for labourers working on railway construction and later became a regional headquarters for the railway following completion several years later. The Town of Stephenville Crossing's population sharply increased with the development of the U.S. air base in Stephenville, becoming an important transshipment point for supplies, mail, and travelers. Other industries that provided employment to residents in the area included forestry and fishing (i.e., herring and lobster). Stephenville Crossing's current population is 1,634 according to the latest 2021 census (Statistics Canada 2022f).
- The Town of St. George's is located south of Stephenville Crossing and was incorporated in 1965 (Town of St. George's 2023). It is the oldest town in the Bay St. George area and was originally called South Side or Little Bay. Like most communities in the area, this Town has early ties to the French fishery where it was permanently settled in the eighteenth century. The Town was known as a prominent fishing community until the railway in the late 1800s was established in the area. St. George's population rapidly grew as a result and became a major center for shipping goods to nearby communities for a period of time. Other early sources of employment included lumbering, fishing, and farming. More than half (55%) of the community's population belongs to the Mi'kmaq Nation and a full recap of history is available at the local K'Taqmkuk Mi'kmaw Cultural Historic Museum. According to the latest census (2021), the Town of St. George's population is 1,139 (Statistics Canada 2022g).

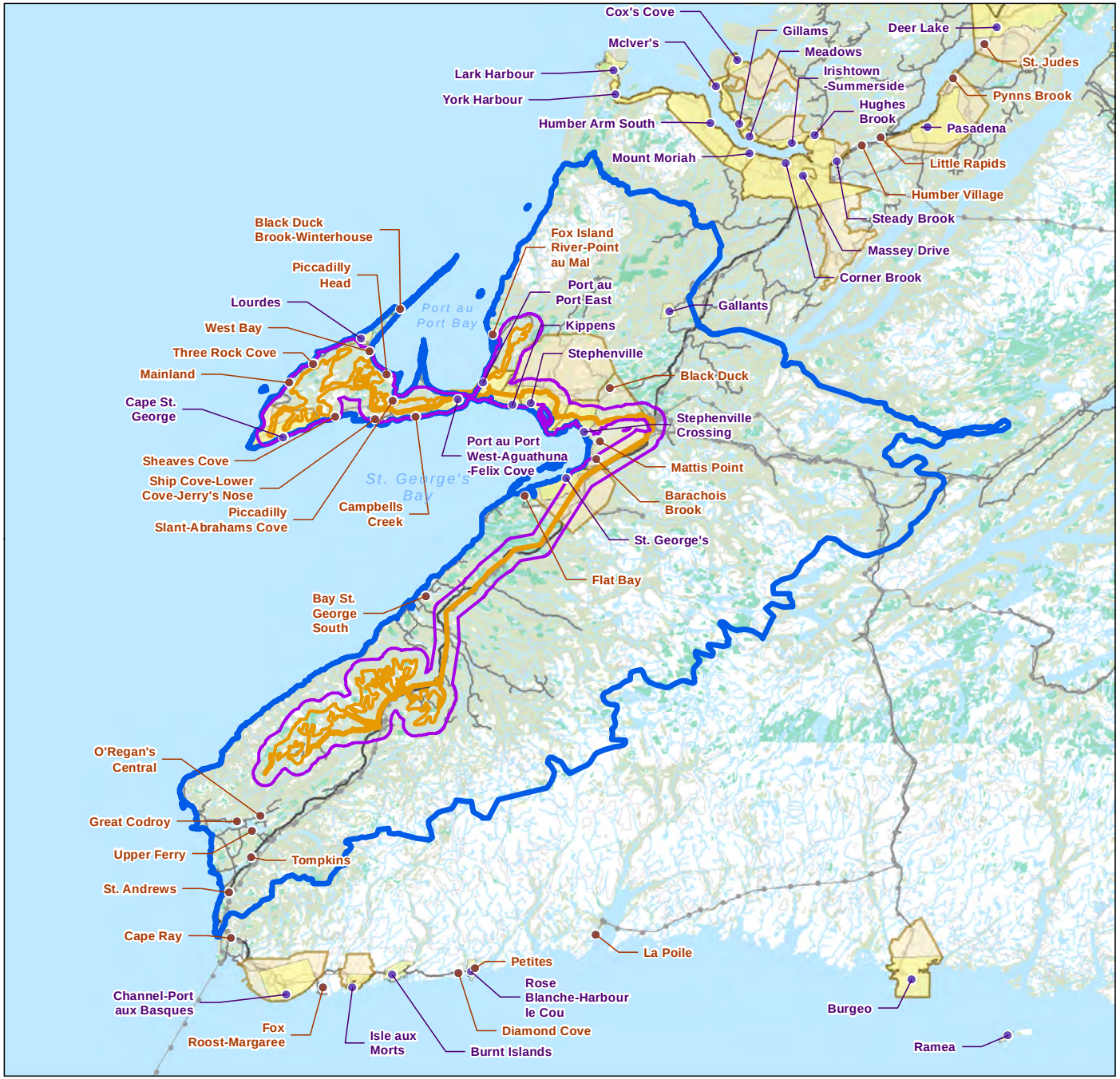
Table 4.1 Municipal Planning Areas in the RAA

Municipality Name	Approximate Size of Municipal Planning Area (MPA)	Approximate Spatial Overlap of MPA and LAA	Approximate Spatial Overlap of MPA and Project Area
Cape St. George	54 km^2	49 km^2 (90% of MPA)	12.5 km^2 (23% of MPA)
Port au Port West-Aguathuna-Felix Cove	16 km^2	15.8 km^2 (96.3% of MPA)	3 km^2 (18% of MPA)
Port au Port East	25 km^2	24.9 km^2 (99.6% of MPA)	4 km^2 (17% of MPA)
Kippens	17 km^2	16.6 km^2 (96.5% of MPA)	1 km^2 (8% of MPA)
Stephenville	212 km^2	55 km^2 (26% of MPA)	6 km^2 (3% of MPA)
Stephenville Crossing	152 km^2	97 km^2 (64% of MPA)	8 km^2 (5% of MPA)
St. George's	109 km^2	50 km^2 (46% of MPA)	4 km^2 (4% of MPA)

NL includes 174 unincorporated communities that are designated as local service districts (LSDs), under the *Municipalities Act, 1999*, for the purpose of providing water supply, sewer, fire, garbage collection / disposal, street lighting, animal control, and snow clearing / maintenance services to ratepayers within a defined area (NLMPA n.d.[a]). The following LSDs are located within the RAA (Figure 4.2): Mainland, Three Rock Cove, West Bay, Piccadilly Head, Black Duck Brook-Winterhouse, Sheaves Cove, Ship Cove-Lower Cove-Jerry's Nose, Picadilly Slant-Abrahams Cove, Campbells Creek, Fox Island River-Point au Mal, Black Duck, Mattis Point, Barachois Brook, Flat Bay, St. Teresa, Bay St. George South, O'Regans Central, Great Codroy, Upper Ferry, St. Andrews, and Tompkins.

Municipal water supplies, including protected water supply areas and other public water supplies, are described in Section 3.3.3.1.

Based on the responses of the 195 participants who completed the LRU survey, 15.9% (n=31) reside in Stephenville, 12.8% (n=25) reside in Mainland, 10.8% (n=21) reside in Cape St. George, 6.7% (n=13) reside in Kippens, and 5.64% (n=11) indicated that they resided in areas that were not listed as options in the survey. Other locations identified by survey participants as their areas of residence (numbering eight or less [4% to <4%] for each area) include Bay St. George South, Lourdes, Picadilly Hill, Port au Port West – Aguathuna-Felix Cove, Three Rock Cove, West Bay, Port au Port East, Campbell's Creek, Picadilly Slant-Abrahams Cove, Ship Cove-Lower Cove-Jerry's Nose, St. David's, St. George's, Sheaves Cove, Stephenville Crossing, Black Duck Brook-Winterhouse, Highlands, McKay's, Channel-Port aux Basques, Fox Island River-Point au Mal, Gillams, Heatherton, Jeffrey's, O'Regan's Central, St. Jude, and York Harbour.



Stantec

- Local Service District
- Municipality
- Municipal Boundary
- Municipal Planning Area
- Local Assessment Area
- Regional Assessment Area

Proposed Project Features

- Project Area

Other Features

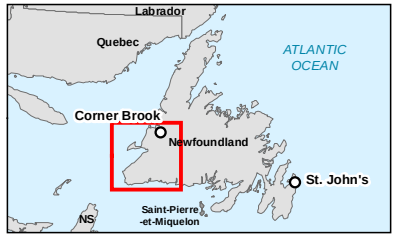
- Transmission Line, Existing
- Trans-Canada Highway
- Road / Highway
- Contour (100 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

0 10 20 km
(At original document size of 8.5x11)
1:1,100,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, NRCan, CanVec, OpenStreetMap
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MB/NW/AC on 2023-07-25
QR by AW on 2023-07-18
IR Review by BK on 2023-07-28

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
4.2

Title
Municipal Boundaries and Planning Areas in the RAA

4.3.2.2 Protected Roads

Protected roads are designated under the URPA, as a means of controlling development alongside the protected road and are subject to the *Protected Road Zoning Regulations* under the URPA. There are several designated protected roads within the RAA (NLMPA n.d.[b]): Route 1 (Trans-Canada Highway) connects Channel-Port aux Basque to Corner Brook; Route 460 (Port au Port Highway); Route 480 (Burgeo Highway); and Route 490 (St. George's Highway). There are no designated protected roads on the Port au Port Peninsula.

Protected Road Zoning Plans are currently in place for a portion of Route 1 (i.e., between Channel-Port aux Basques and Corner Brook) and for Route 480 (NLMPA n.d.[b]). Route 460 and Route 490 do not currently have Protected Road Zoning Plans in place; these roads are subject to Stephenville Crossing Development Regulations since they overlap with the municipal planning area for the Town of Stephenville Crossing.

The Project Area overlaps approximately 11 km of Route 1, approximately 1 km of Route 460, and approximately 4 km of Route 490.

Roads within the RAA are further discussed in Section 3.3.7.2 (Roads).

4.3.2.3 Provincial Crown Lands

In 2006, the NL government issued Order in Council OC2006-026, restricting the commercial development of wind energy in the province. The Order specifically restricted granting of Crown land requests and EA registration for development of commercial wind energy generation projects that propose to produce energy for sale. Aside from small test projects and isolated systems, there has been no large-scale wind energy projects developed in the province due to this Order. However, in April 2022, the provincial Minister of Industry, Energy, and Technology announced that the Order would be lifted, and that proponents could now proceed through the approvals processes for resource development projects.

On July 26, 2022, the NL Department of Industry, Energy and Technology (NLDIET) announced a Crown Lands Nomination and Bid Process for Wind Energy Projects and published associated guidelines (NLDIET 2022). Similar to the offshore land bid system, the process has two stages:

1. Companies had until October 1, 2022 to submit Nominations of Areas of Interest for wind projects on Crown land (with no limits on geographic size or number of submissions).
2. The Province then issued a competitive Call for Land Bids in mid-December 2022, with the goal of awarding Crown Land leases for wind development. This Call for Land Bids was accompanied by a defined evaluation process.

The Nominated Crown Lands for the Port au Port and Codroy wind farms are shown on Figures 4.3 to 4.5. While WEGH2 had previously submitted a Crown land application to the Government of NL, Crown land approval will now be subject to the updated process as outlined above.

The Province has received bids from 19 companies and is in the process of reviewing the bids against criteria such as the bidder's experience, the project, and their financial capacity to plan, construct, and operate the proposed project. On July 6, 2023, the Government of Newfoundland and Labrador advised WEGH2 that the company's bid had successfully completed the first phase of review. Companies that pass this review will proceed to the next phase, expected to be completed in late-August 2023, with successful bidders granted an exclusive right to pursue the development of their project through the Government of NL's Crown land application and approval process (these lands will be held in reserve until that process is completed). Those companies that proceed with a wind project over 1 MW will be required to submit an EA prior to final award of Crown land (Government of NL 2023a). Due to the large number of submissions in the Crown land bid process, the Province of NL released the first industry-specific EA guidance in April 2023: *Guidance for Registration of Onshore Wind Energy Generation and Green Hydrogen Production Projects* (Government of NL 2023b).

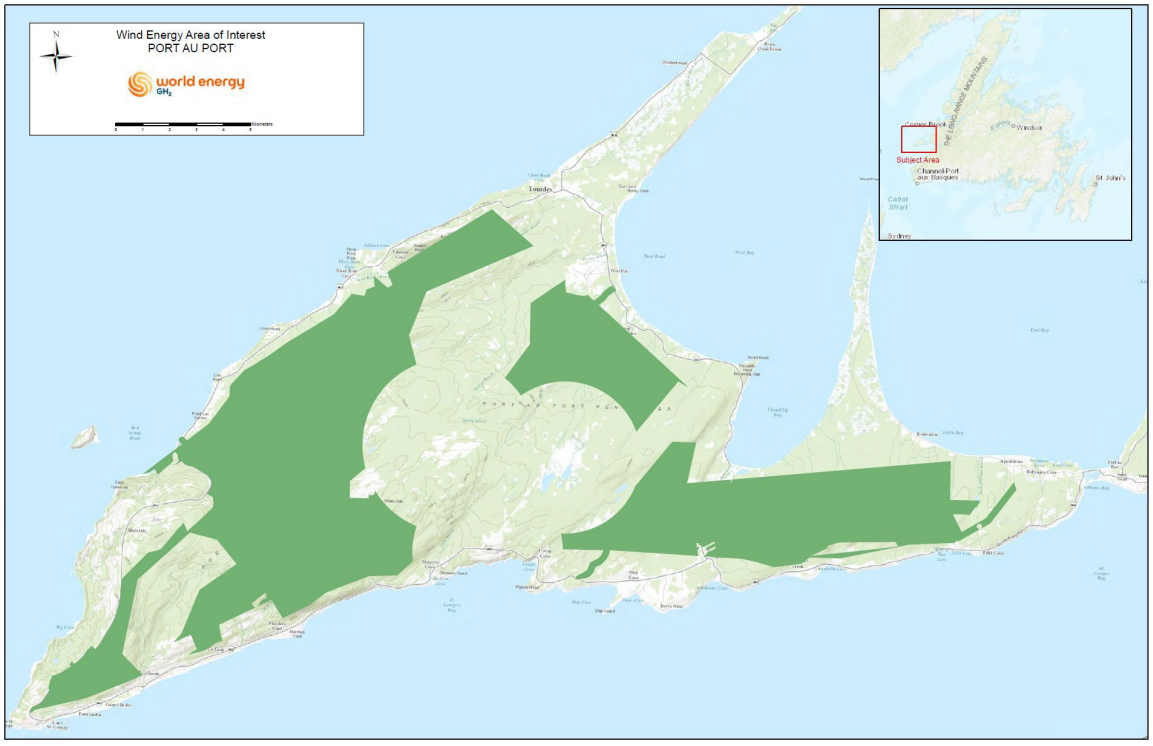


Figure 4.3 Nominated Crown Lands for the Peninsular Portion of the Port au Port Wind Farm

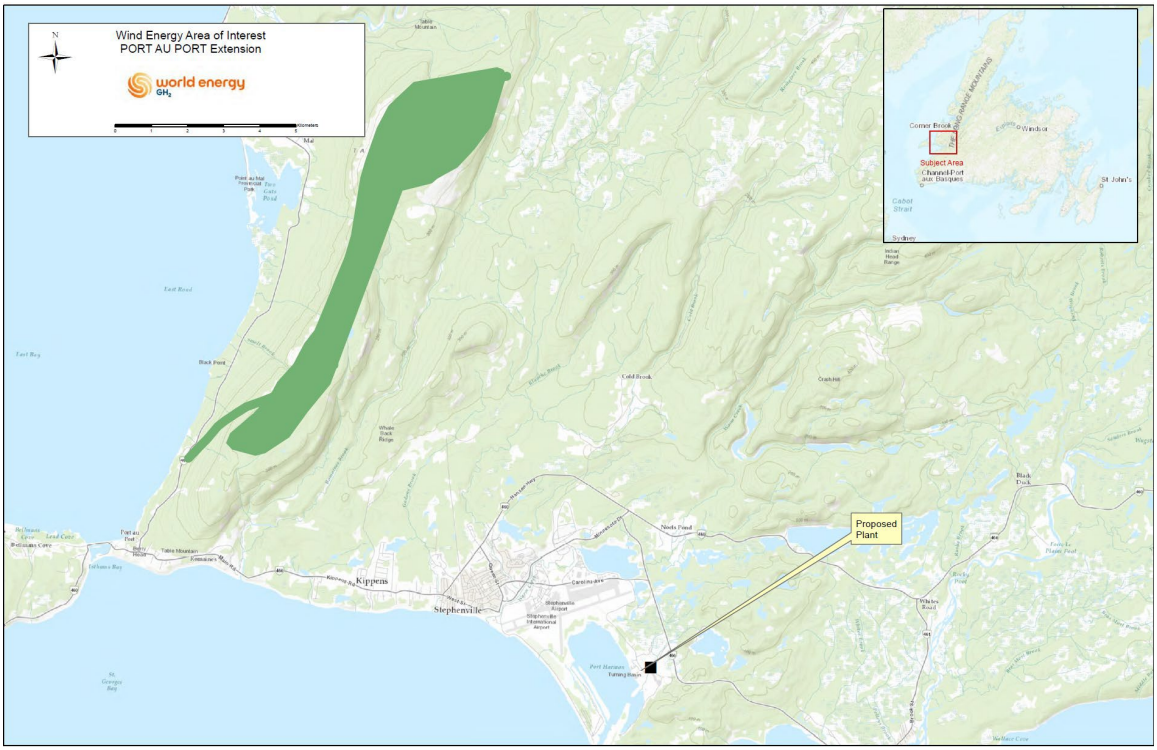


Figure 4.4 Nominated Crown Lands for the Mainland Portion of the Port au Port Wind Farm

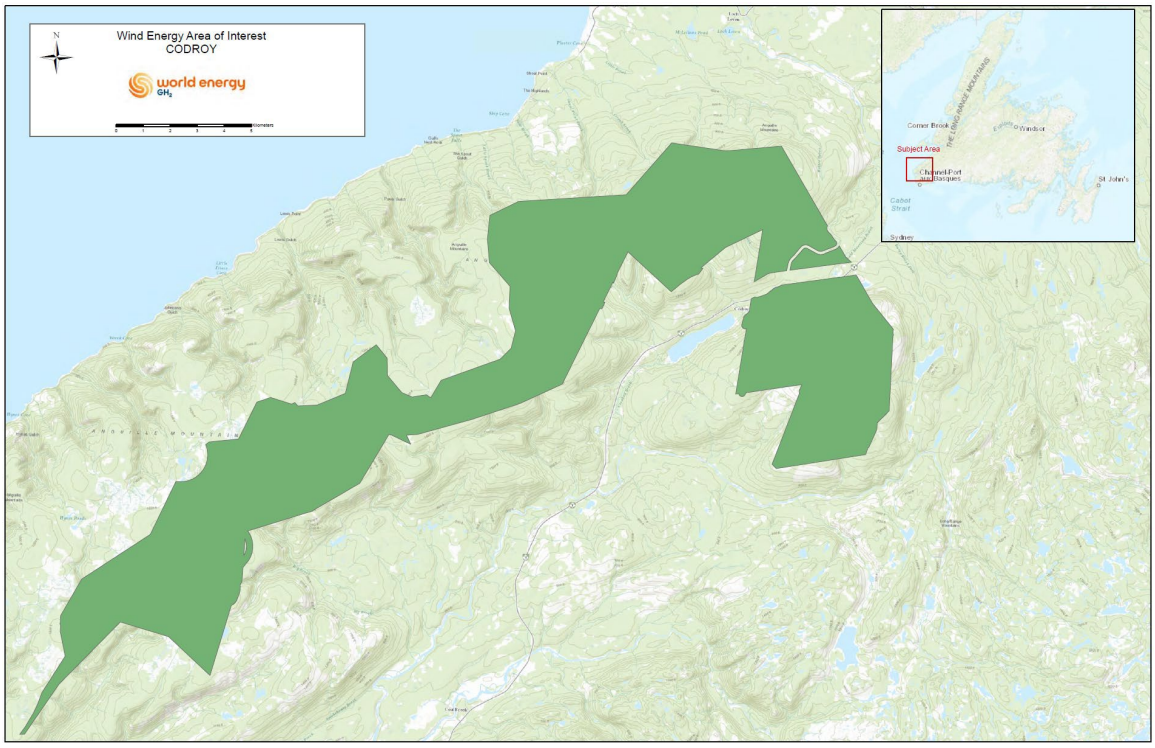


Figure 4.5 Nominated Crown Lands for the Codroy Wind Farm

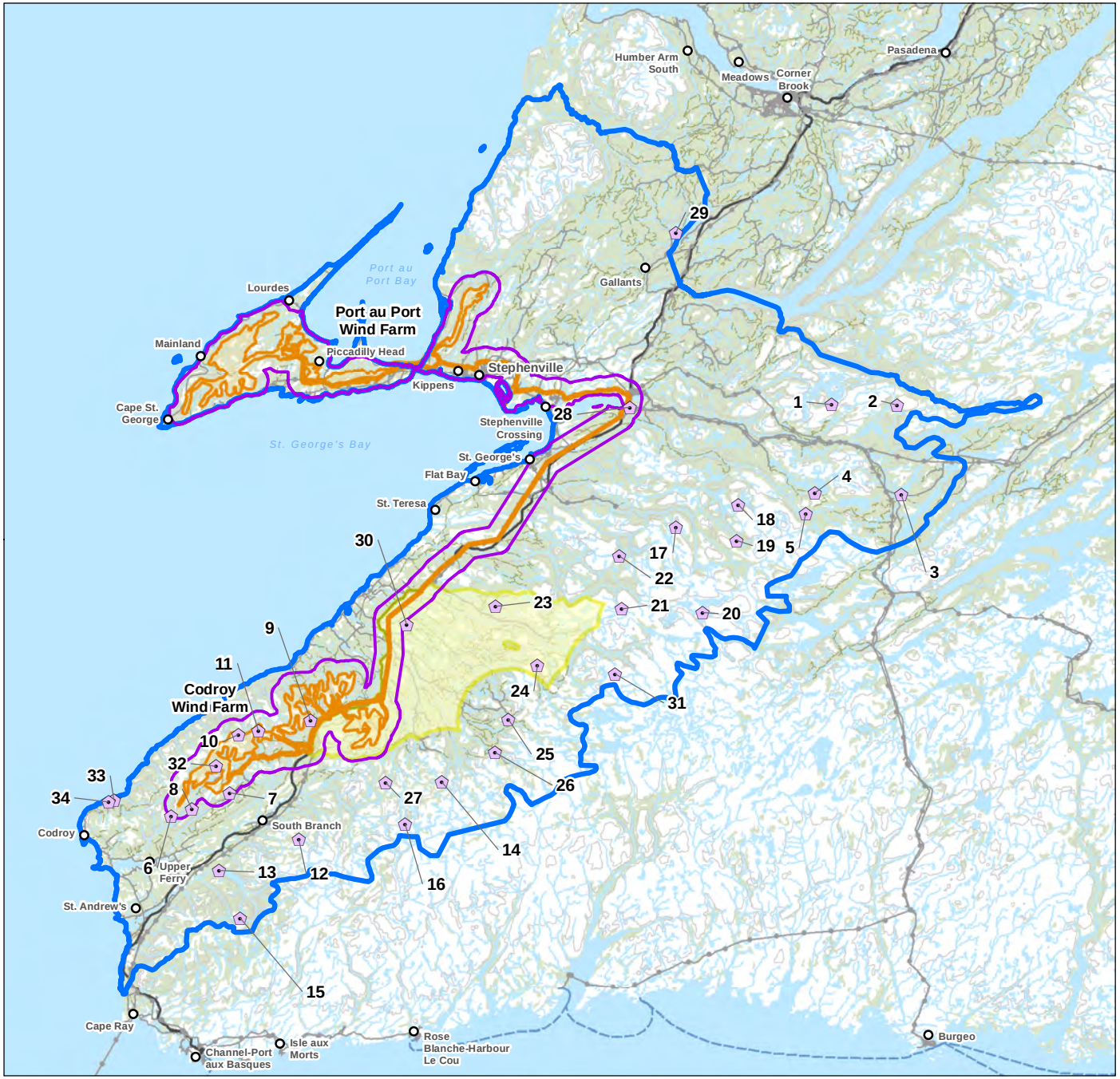
Outside of the Crown land bid process for wind development described above, the Crown Lands Division of the NL Department of Fisheries, Forestry and Agriculture (NLDFFA) is responsible for managing and allocating provincial Crown lands in NL for the continuous social and economic benefit of residents (NLDFFA n.d.[a]). The RAA, LAA, and Project Area are mainly comprised of provincially owned Crown land. Occupied Crown lands within the RAA include areas that are licensed or subject to licence to occupy applications for cabins, outfitting lodges, and outfitting satellite camps. Recreational cabin use is permitted on Crown land through the acquisition of a grant in rural areas that are accessible by a road and where no conflicting land uses exist, or in areas without road access that have been designated by the Crown Lands Division for recreational cabin development. Cabin use is also permitted through Remote Recreational Cottage Licenses to Occupy in remote areas that are not accessible by conventional motor vehicle and where there is no conflicting land use.

In 1998, the former NL Department of Government Services and Lands (NLDGSL)[6] registered the Crabbes River Cottage Development Plan for EA under the former provincial *Environmental Assessment Act*. A government news release issued on May 13, 1998 indicated NLDGSL's intention "to designate 100 new cottage lots in five designated cottage areas. The planning area encompasses 369 square km approximately 60 km from both Port aux Basques and Stephenville. Areas 1-4 of the new lot allocations are located in undeveloped areas and will be License to Occupy. Area 5, Mitchell's Pond, is already accessible by a number of logging roads, and allocations will be leasehold" (Government of NL 1998). The Crabbes River Cottage Development Plan was approved by the Lands Management Division of the former NLDGSL in 2002; the associated Cottage Planning Area overlaps the LAA and Project Area (Figure 4.6) and is subject to surface level restrictions that may prevent development (Government of NL n.d.[b]).

There are 22 outfitters operating on Crown lands within the RAA. One outfitter can have multiple lodges or other facilities. Five outfitter lodges / facilities are located within the LAA and two outfitter lodges / facilities are also located within the Project Area (Figure 4.6). Section 4.3.4.3 provides further information regarding outfitters operating within the RAA.

Other Crown lands within the RAA include the provincial parks and protected areas described in Section 4.3.2.4, as well as mineral tenure lands (Section 4.3.3.1); areas subject to other legal uses, such as domestic wood harvesting (Section 4.3.3.2), commercial forestry (Section 4.3.3.2), agriculture (Section 4.3.3.3), and utility easements (Section 4.3.3.4); and lands used for various recreational and subsistence LRU activities (Section 4.3.4).

[6] NLDGSL was restructured in February 2004 following the Government of NL's decision to realign its programs and services. Responsibility for Crown lands was transferred to the former Department of Environment and Conservation (now NLDECC) at that time (Government of NL n.d.[a]). The Crown Lands Division of NLDFFA ultimately took over responsibility for the allocation and management of Crown lands in NL after the NLDFFA was established in September 2020 (Government of NL 2020).



Stantec

- Outfitter Lodge
- Cottage Planning Area
- Local Assessment Area
- Regional Assessment Area

Proposed Project Features

- Project Area

Other Features

- Trans-Canada Highway
- Road
- Resource Road / Trail
- Ferry Route
- Contour (100 m)
- Watercourse
- Waterbody
- Forested Area

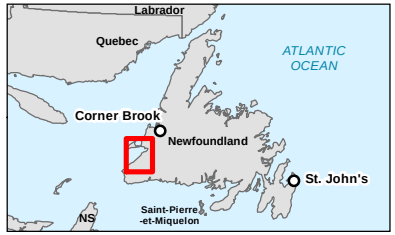
N

0 10 20 km

(At original document size of 8.5x11)
1:950,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: Outfitters Association of NL; GovNL Fisheries, Forestry and Agriculture Land Use Atlas; World Energy GH2; Stantec.
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MB on 2023-05-29
Rev. by NW on 2023-07-05
QR by AW on 2023-07-19

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_064

Figure No.
4.6

Title
Outfitter Lodges and Cottage Planning Area in the RAA

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4.3.2.4 Protected Areas and Wildlife Management Areas

Provincial Parks

The province of NL manages over 50 protected areas, including 32 provincial parks, 18 ecological reserves, two wilderness reserves, and four national parks (NLDECC n.d.[a]). Four provincially managed protected areas overlap the RAA: Barachois Pond Provincial Park, Grand Codroy Provincial Park, Codroy Valley Provincial Park, and the T'Railway Provincial Park; these protected areas are shown on Figure 4.7 and described in Table 4.2.

The Parks Division of the NL Department of Tourism, Culture, Arts and Recreation is responsible for the management, preservation, control, protection and development of provincial parks as defined in the *Provincial Parks Act*. The Division has two primary objectives (Parks NL n.d.[a]):

1. The provision of a diverse range of outdoor recreation opportunities that encourage residents and visitors to discover and appreciate nature, and
2. The conservation of biological diversity through the establishment and management of a system of provincial parks.

In addition to camping and outdoor recreation, the Division supports scientific research and monitoring, education and sustainable tourism activities in provincial parks. The benefits of provincial parks extend beyond conservation and outdoor recreation to include economic activity generated by government and visitor spending, rural employment, physical and mental health, green spaces, ecosystem services, and climate change adaptation and mitigation (Parks NL n.d.[a]).

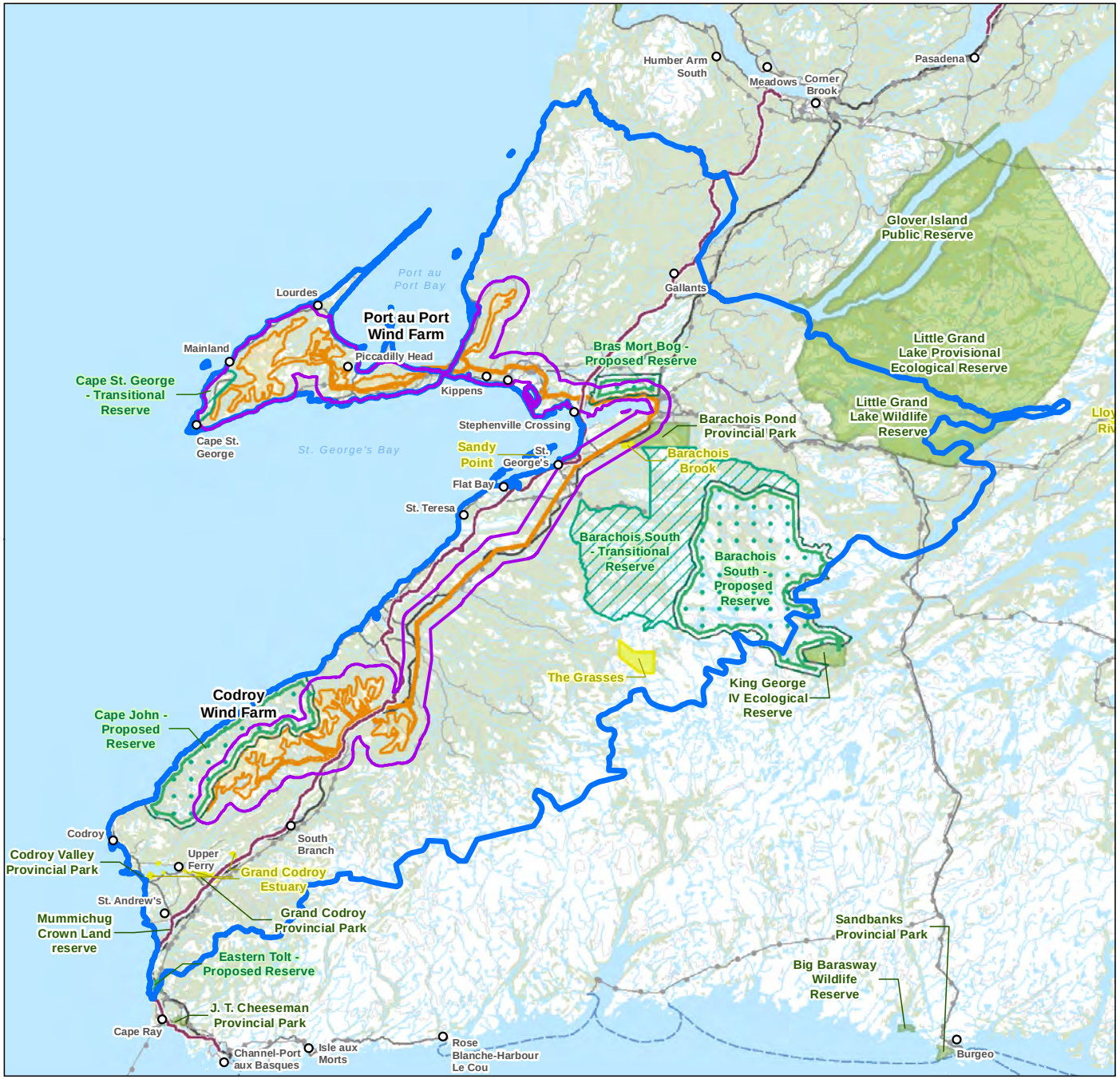
Table 4.2 Provincial Parks in the RAA

Provincial Park (Approximate Size)	Approximate Spatial Overlap of Provincial Park with RAA, LAA, and Project Area / Approximate Distance of Provincial Park from LAA and/or Project Area	Reason for Protection
Barachois Pond Provincial Park (30 km^2)	• Overlap with RAA: 30 km^2 (100% of park area) • Overlap with LAA: 7 km^2 (24% of park area) • No overlap with Project Area • Distance from Project Area: 0.05 km	Barachois Pond is one of the largest provincial parks in western Newfoundland. It protects 1.6% of the St. George's subregion and is dominated by forests mainly consisting of balsam fir. This park is home to many wildlife species; over 100 bird species, caribou, moose, and the Newfoundland population of American marten (*Martes americana atrata*; a species at risk [SAR] that is also referred to as Newfoundland marten and Newfoundland pine marten) can be found here. Outdoor activities are encouraged including hiking the Erin Mountain trail which offers a view of the natural and scenic landscape over Barachois Pond and Bay St. George.

Table 4.2 Provincial Parks in the RAA

Provincial Park (Approximate Size)	Approximate Spatial Overlap of Provincial Park with RAA, LAA, and Project Area / Approximate Distance of Provincial Park from LAA and/or Project Area	Reason for Protection
Grand Codroy Provincial Park (0.07 km^2)	• Overlap with RAA: 0.07 km^2 (100% of park area) • No overlap with LAA or Project Area • Distance from LAA: 8.5 km • Distance from Project Area: 10.5 km	Grand Codroy Provincial Park is considered a park reserve; it was designed to protect natural features but does not offer visitor services such as campgrounds. Grand Codroy Provincial Park protects a portion of a fluvial delta and estuarine waters which provides habitat for many species of birds. The Grand Codroy estuary is listed as a wetland of international importance under the *Convention on Wetlands of International Importance Especially as Waterfowl Habitat* (Ramsar Convention).Accordingly, Grand Codroy Provincial Park is also an internationally designated Ramsar Site (i.e., the Grand Codroy Estuary Ramsar Site). The river estuary is also part of the Eastern Habitat Joint Venture program of the North American Waterfowl Management Plan, which emphasizes the need to maintain nesting and staging grounds to support abundance and diversity of birds (BAE-Newplan Group Limited 2007). Grand Codroy Provincial Park is located in the Codroy subregion and offers scenic views of the Long Range Mountains.
Codroy Valley Provincial Park (0.3 km^2)	• Overlap with RAA: 0.3 km^2 (100% of park area) • No overlap with LAA or Project Area • Distance from LAA: 12 km • Distance from Project Area: 14 km	The Codroy Valley Provincial Park is known for its white sandy beach that separates the Atlantic Ocean from the Grand Codroy River. Located in the Codroy subregion, this area provides habitat for many bird species, including protected beach nesting grounds for piping plover (*Charadrius melodus*), which is a SAR. Codroy Valley Provincial Park is also spatially overlapped by the Grand Codroy Estuary Ramsar Site and is designated as an Important Bird Area (IBA) internationally.
T'Railway Provincial Park (883 km in length)	• Overlap with RAA: 185 km (21% of park area) • Overlap with LAA: 33 km (4% of park area) • Overlap with Project Area: 3 km (0.3% of park area)	The T'Railway Provincial Park stretches almost 900 km, varying in width, from St. John's to Port aux Basques along the main line of the old abandoned Canadian National railbed. This Island-long Park corridor provides access to many of the Island's representative natural and scenic landscapes and serves as the Island of Newfoundland's portion of the Trans-Canada Trail system. All-terrain vehicles (ATVs) and snowmobiles are allowed on the T'Railway for access and year-round enjoyment. Hiking, scenic touring and nature observation is encouraged and promoted, especially to residents and visitors to the province.

Source: Parks NL n.d.[b] and GIS metrics



Stantec

- T'Railway Provincial Park
- Nature Conservancy of Canada Nature Reserve
- Proposed Reserve
- Transitional Reserve
- Provincial Protected Areas
- Local Assessment Area
- Regional Assessment Area

Proposed Project Features

- Project Area

Other Features

- Transmission Line, Existing
- Trans Canada Highway
- Other Highway
- Arterial / Collector
- Ferry Route
- Contour (100 m)
- Watercourse
- Waterbody
- Forested Area

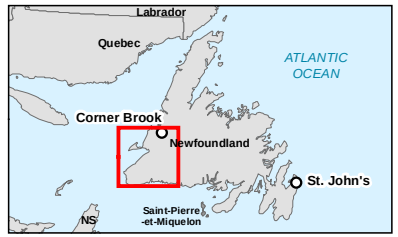
N

0 10 20 km

(At original document size of 8.5x11)
1:950,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MB/NW/AC on 2023-07-25
QR by AW on 2023-07-18
IR Review by BK on 2023-07-28

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_063

Figure No.
4.7

Title
Provincial Parks, Provincial Reserves and Private Nature Reserves in the RAA

Provincial Reserves

The NLDFFA is responsible for administering provincial legislation pertaining to natural areas and wildlife, including the *Endangered Species Act*, the *Wild Life Act*, the *Wilderness and Ecological Reserves Act* (WER Act), and associated regulations.

Under section 7 of the provincial *Wild Life Act*, the Minister, with the approval of the Lieutenant-Governor in Council, has the authority to establish, by regulation, wildlife reserves "in which wild life or a specified class of wild life may not be hunted, taken or killed or may be hunted, taken or killed, subject only to conditions and restrictions set out in the regulations, and within which camping or travelling may be prohibited or may be permitted subject to restrictions" (*Wild Life Act*, RSNL 1990, c W-8). There are three wildlife reserves in NL (NLDECC n.d.[b]), including the Little Grand Lake Wildlife Reserve within the RAA (Figure 4.7; Table 4.3).

The Government of NL designates wilderness and ecological reserves under the WER Act. Twenty wilderness and ecological reserves have been created in the province since the WER Act was passed in 1980 (NLDECC n.d.[c]). Wilderness and ecological reserves are administered by the Natural Areas Program, Policy, Planning and Natural Areas Division within the NL Department of Environment and Climate Change (NLDECC). In addition to the WER Act and associated regulations, the Natural Areas Program is guided by this vision: *To protect, in an unimpaired condition, large wilderness areas, representative areas of all provincial ecoregions, and areas that contain rare natural phenomena, in order to preserve the diversity and distinctiveness of the Province's rich natural heritage and to support an ecologically sustainable future for the benefit of present and future generations* (NLDECC n.d.[c]). The Wilderness and Ecological Reserves Advisory Council (WERAC), an independent group of government-appointed volunteers from across the province, was established under the WER Act. Its mandate is to advise the provincial government on the establishment of new reserves and the management of existing ones (NLDECC n.d.[c]). WERAC recently published a *Protected Areas Plan for the Island of Newfoundland* (2020) that proposes developing a system of protected areas in Newfoundland, including provincially protected wilderness reserves, ecological reserves, and provincial parks, as well as federally protected national parks.

Reserves are managed differently depending on the particular protection objectives for the reserve, such as unique species, habitat or landscapes. Although most wilderness and ecological reserves have little infrastructure or services, some reserves have outfitting and adventure touring operations and/or offer backcountry hiking trails, hunting, fishing, and/or snowmobiling (NLDECC n.d.[c]). Wilderness reserves are open to a range of low-impact recreational activities, but a Wilderness Reserve Entry Permit is required (NLDECC n.d.[c]). Entry permits are not required for ecological reserves. Other permits that may be required in a wilderness or ecological reserve are: a Commercial Operator Permit (for commercial operators, including outfitters and tour guides, whose activities take them inside a reserve's borders); Educational Tour Permit (for any group, including school, university, or conference group, conducting a tour within a reserve); or Scientific Research Permit (for anyone who wants to conduct scientific research in a reserve) (NLDECC n.d.[c]). The following activities are strictly prohibited in wilderness and ecological reserves (NLDECC n.d.[c]):

- Disturbing, destroying, or removing plants, animals, or fossils

- Introducing plants, animals, or anything else to the reserve landscape
- Forestry, mining (including exploration), hydro development, agriculture, new roads, tracks, or buildings
- Driving off-road vehicles, including ATVs

There is one existing ecological reserve within the RAA (i.e., Little Grand Lake Provisional Ecological Reserve) as well as several proposed protected areas that are currently in the process of becoming ecological and transitional reserves under the WER Act (i.e., Barachois South Proposed Ecological Reserve, Cape John Proposed Ecological Reserve, Bras Mort Bog Proposed Ecological Reserve, Eastern Tolt Proposed Ecological Reserve, Barachois South Transitional Reserve, and Cape St. George Transitional Reserve) (Figure 4.7; Table 4.3).

Proposed ecological reserves are lands that are intended for immediate protection, whereas proposed transitional reserves are lands that are intended for future protection as wilderness and ecological reserves. The staking of new mineral claims and the issuance of new petroleum licences on transitional reserve lands will be allowed to continue for four years from the time that the transitional reserve is established, and mineral or petroleum exploration may continue for 10 years from the time of establishment. If no significant mineral or petroleum discovery is made at a transitional reserve site within that timeframe, the site will transition into a protected wilderness or ecological reserve (WERAC 2020).

Proposed wilderness and ecological reserves in NL must undergo a legislated process led by WERAC. The first step in the process is for WERAC to gather information from the public about the proposed reserve and current uses of the area. Once an area is established as a provisional reserve, public consultation is formally undertaken, and the results of the public consultation process inform the development of a draft management plan and a proposed final boundary. Following completion of the public consultation phase, WERAC submits its recommendations on whether to establish a reserve and how it should be managed. The Government of NL reviews these recommendations and makes a final decision. If approved, the reserve is formally established (WERAC 2020).

Table 4.3 Existing and Proposed Provincial Reserves in the RAA

Reserve (Approximate Size)	Approximate Spatial Overlap of Reserve with RAA, LAA, and Project Area / Approximate Distance of Reserve from LAA and/or Project Area	Reason for Protection
Existing and Provisional Reserves		
Little Grand Lake Wildlife Reserve (572 km^2)	• Overlap with RAA: 136 km^2 (24% of reserve area) • No overlap with LAA or Project Area • Distance from LAA: 21 km • Distance from Project Area: 23 km	Little Grand Lake Wildlife Reserve was established in 2002 to protect the habitat of Newfoundland marten, which is a SAR. The reserve is in two parcels that abut Little Grand Lake Provisional Ecological Reserve (described below). The north and south parcels combined protect 564 km^2 of one of the few remaining core habitats for Newfoundland marten.

Table 4.3 Existing and Proposed Provincial Reserves in the RAA

Reserve (Approximate Size)	Approximate Spatial Overlap of Reserve with RAA, LAA, and Project Area / Approximate Distance of Reserve from LAA and/or Project Area	Reason for Protection
Little Grand Lake Provisional Ecological Reserve (735 km^2)	• Overlap with RAA: 161 km^2 (22% of reserve area) • No overlap with LAA or Project Area • Distance from LAA: 20 km • Distance from Project Area: 22 km	Little Grand Lake Provisional Ecological Reserve protects extensive bogs and barrens, as well as mature boreal forest that is prime habitat for Newfoundland marten, which is a SAR. It is one of three protected areas surrounding Little Grand Lake. The other two are the Little Grand Lake Wildlife Reserve (described above) and the Glover Island Public Reserve (outside of the RAA). These reserves extend the area of Newfoundland marten habitat under protection, and provide buffers against the effects of any human activity that would be harmful to the marten's recovery. The Little Grand Lake Provisional Ecological Reserve was legally established in 2002, after a long history of interest in and concern about the area and its wildlife. The Little Grand Lake Wildlife Reserve and Glover Island Public Reserve were also created in 2002. Public consultations on a draft management plan were held in February 2004. WERAC summarized the public comments and provided recommendations to the Government of NL in January 2005. These are currently under review.
Proposed and Transitional Reserves		
Barachois South Ecological and Transitional Reserves (910 km^2 [487 km^2 Ecological Reserve; 423 km^2 Transitional Reserve])	<u>Ecological Reserve</u> • Overlap with RAA: 430 km^2 (88% of reserve area) • No overlap with LAA or Project Area • Distance from LAA: 11 km • Distance from Project Area: 13 km <u>Transitional Reserve</u> • Overlap with RAA: 423 km^2 (100% of reserve area) • No overlap with LAA or Project Area • Distance from LAA: 0.7 km • Distance from Project Area: 2.7 km	The two Barachois South proposed reserves are intended to protect the natural landscapes that represent the Western Newfoundland Forest and the Long Range Barrens. Most of the landscape consists of barrens and wetlands with patches of tuckamore. The northern portion of the transitional reserve contains an intact forested valley that represents the forests on the west coast. White pine, yellow birch, balsam fir, and white and black spruce can be found here. The transitional reserve is intended to shift into an ecological reserve after the 10-year period.

Table 4.3 Existing and Proposed Provincial Reserves in the RAA

Reserve (Approximate Size)	Approximate Spatial Overlap of Reserve with RAA, LAA, and Project Area / Approximate Distance of Reserve from LAA and/or Project Area	Reason for Protection
Cape John Ecological Reserve (213 km^2)	• Overlap with RAA: 213 km^2 (100% of reserve area) • Overlap with LAA: 78 km^2 (37% of reserve area) • Overlap with Project Area: 8 km^2 (4% of reserve area)	This proposed ecological reserve is situated along a remote coastline encompassing the western portion of the Anguille Mountains. It is defined by rugged coastal valleys containing windswept forests dominated by balsam fir with ferns and mosses along the forest floor. Yellow birch and trembling aspen have also been noted to be present. Although, the use of ATVs has impacted the barrens in the upper regions of the watersheds, Cape John remains largely undeveloped and intact. This forested area serves as an accurate depiction of the Western Newfoundland Forest natural region. It is understood that this proposed reserve has been nominated as a representative forested habitat in western Newfoundland.
Bras Mort Bog Ecological Reserve (36 km^2)	• Overlap with RAA: 36 km^2 (100% of reserve area) • Overlap with LAA: 23 km^2 (62% of reserve area) • Overlap with Project Area: 0.9 km^2 (2.5% of reserve area)	The Bras Mort Bog proposed reserve is located east of Stephenville Crossing and is one of the largest undisturbed plateau bogs on the Island of Newfoundland. The bog features gently sloping topography that dips progressively from east to west with deep, rich soils. It is blanketed by mosses and stunted black spruce and is an important area for woodland caribou during fall and winter.
Eastern Tolt Ecological Reserve (0.8 km^2)	• Overlap with RAA: 0.8 km^2 (100% of reserve area) • No overlap with LAA or Project Area • Distance from LAA: 26 km • Distance from Project Area: 28 km	This small, proposed reserve resides in an extremely windy area of the province known as 'the Wreckhouse', which has helped shape the landscape into globally rare wave forests. The wave forests are made up of varying bands of dead and intact balsam fir trees that spread across the steep slope and become more stunted as elevation increases. It is one of the world's most visible and accessible wave forests.
Cape St. George Transitional Reserve (18 km^2)	• Overlap with RAA: 18 km^2 (100% of reserve area) • Overlap with LAA: 16 km^2 (87% of reserve area) • Overlap with Project Area: 1 km^2 (6% of reserve area)	Cape St. George proposed reserve is situated on the southwestern tip of the Port au Port Peninsula. Apart from being an important limestone barrens site, this area is also home to several provincially endangered plant species (Mackenzie's sweetvetch, rock dwelling sedge and wooly arnica) and several rare plant species. The proposed reserve also provides habitat for black-legged kittiwakes. Once the 10-year period is over, this area is intended to transition into an ecological reserve. Certain areas on the Port au Port au Port Peninsula, including the proposed reserve, are designated as sensitive plant areas (further discussed in the Terrestrial Baseline Study [Stantec 2023b]).
Sources: WERAC 2020; AC CDC 2022; NLDECC n.d.[b]; NLDECC n.d.[e]; GIS metrics		

Private Nature Reserves

In addition to the existing and proposed provincially managed protected areas within the RAA, the NCC currently protects and manages nature reserves in several areas across the Island of Newfoundland. The lands associated with these nature reserves are privately owned and open to the public where accessible. There are currently four NCC nature reserves that overlap the RAA (Table 4.4; Figure 4.7): Barachois Brook, Grand Codroy Estuary, Sandy Point, and The Grasses. NCC secured the lands for these nature reserves through purchase or donation; the titles to the lands have been transferred to NCC (NCC 2023b).

Table 4.4 Private Nature Reserves in the RAA

Nature Reserve (Approximate Size)	Approximate Spatial Overlap of Reserve with RAA, LAA, and Project Area / Approximate Distance of Reserve from LAA and/or Project Area	Reason for Protection
Barachois Brook (1 km^2)	• Overlap with RAA: 1 km^2 (100% of nature reserve area) • Overlap with LAA: 1 km^2 (100% of nature reserve) • No overlap with Project Area • Distance from Project Area: 0.7 km	The Barachois Brook Nature Reserve encompasses Barachois Brook, an Atlantic salmon river, and borders Barachois Pond Provincial Park. The area has boreal forest habitat, which is home to red fox, American beaver, and several bird species.
Grand Codroy Estuary (2 km^2)	• Overlap with RAA: 2 km^2 (100% of nature reserve area) • No overlap with LAA or Project Area • Distance from LAA: 5.7 km • Distance from Project Area: 7.7 km	The NCC manages 21 parcels of land that constitute the Grand Codroy Estuary Nature Reserve in the Codroy Valley area. This area is classified as a Ramsar Wetland of International Importance, due to a high number and diversity of waterfowl being present in spring and autumn. It also supports a variety of other bird species, small mammals, and rare plant species. The Nature Reserve offers a walking trail and a Wetland Interpretation Centre for visitors. It is also listed as an IBA.
Sandy Point (0.3 km^2)	• Overlap with RAA: 0.3 km^2 (100% of nature reserve area) • No overlap with LAA or Project Area • Distance from LAA: 2.6 km • Distance from Project Area: 4.6 km	Situated within St. George's Bay, the Sandy Point Nature Reserve consists of 16 parcels of land on the uninhabited island of Sandy Point. This area is known for its tidal flats, salt marshes and sandy beaches, which is uncommon habitat for NL coastlines.

Table 4.4 Private Nature Reserves in the RAA

Nature Reserve (Approximate Size)	Approximate Spatial Overlap of Reserve with RAA, LAA, and Project Area / Approximate Distance of Reserve from LAA and/or Project Area	Reason for Protection
The Grasses (16 km^2)	• Overlap with RAA: 16 km^2 (100% of nature reserve area) • No overlap with LAA or Project Area • Distance from LAA: 18.8 km • Distance from Project Area: 20.8 km	The Grasses Nature Reserve is an ecologically significant remote area that is named for its natural riverside grasses. The largest wetland of its type in the province is found here and provides habitat for the Newfoundland marten and woodland caribou, both of which are SAR. This reserve also overlaps with proposed critical habitat for the Newfoundland marten.
Source: Government of Canada 2023; NCC n.d.; GIS metrics		

Critical Habitat Areas

Forested areas in western Newfoundland offer habitat for the Newfoundland population of American marten (*Martes americana atrata*; a SAR that is also referred to as Newfoundland marten and Newfoundland pine marten), which is currently listed as Threatened under the federal *Species at Risk Act* (SARA) and the provincial *Endangered Species Act* (NL ESA). Newfoundland marten is a genetically distinct subspecies of American marten that is found only in NL and is one of only 13 species of land mammals that are native to the island of Newfoundland.

Based on marten occurrences and habitat suitability, the provincial *Recovery Plan* for Newfoundland marten identified areas of proposed "critical habitat" (i.e., habitat that is critical to the survival of the species) that occupy a total of approximately 6,200 km^2 (NL Marten Recovery Team 2010). A small portion (i.e., approximately 290.6 km^2 or 4.7%) of this proposed critical habitat overlaps spatially with the RAA, including approximately 46.2 km^2 of spatial overlap within the LAA and approximately 4 km^2 of spatial overlap with the Project Area (Figure 4.8). Proposed critical habitat for Newfoundland marten is currently protected in NL through implementation of a combination of the following land use restrictions in various areas (NL Marten Recovery Team 2010):

- Fully protected areas, in which commercial forestry harvest, land-based traps, land-based locking neck snares, and small game snares are legally prohibited, account for the protection of approximately 29% of the identified critical habitat for Newfoundland marten.
- Areas where land-based traps, land-based locking neck snares, and small game snares are legally prohibited account for the partial protection of approximately 20% of the identified critical habitat for Newfoundland marten.
- Areas where land-based traps are prohibited (but neck snares are allowed for fox, coyote, and lynx) account for the partial protection of approximately 26% of the identified critical habitat for Newfoundland marten.

- Areas where commercial forestry harvest is legally prohibited but snaring and trapping are allowed in accordance with guidelines developed to reduce the capture of non-target species account for the partial protection of approximately 2% of the identified critical habitat for Newfoundland marten.
- Areas where the only legally approved snare wire for small-game harvest (i.e., six-strand picture cord and 22-gauge brass wire) is effective in releasing most incidentally captured American marten account for the partial protection of approximately 23% of the identified critical habitat for Newfoundland marten.

Wildlife Management Areas

Hunting and trapping are regulated by NLDFFA's Wildlife Division (NLDFFA-Wildlife Division), which is responsible for managing and conserving NL's biodiversity and wildlife resources (NLDFFA n.d.[b]), in accordance with the provincial *Wild Life Act* and associated Wild Life Regulations.

As part of wildlife management, research is conducted on wildlife interactions, distributions, populations, and habitat use to assist in making recommendations to the NLDFFA-Wildlife Division and other provincial and federal government agencies, such as the EA Division of the NLDECC and DFO (NLDFFA n.d.[c]). The Research Section of the NLDFFA-Wildlife Division undertakes caribou collaring and monitoring, as well as research on other big game, small game, furbearers, and fish species. The Game and Fur Management Section monitors the status of wildlife populations by monitoring population, biological components and hunter trends, providing population estimates or relative abundance estimates, where possible (NLDFFA n.d.[c]). This information is used to help determine hunting and trapping licence quotas, which are established within management areas. Wildlife management areas within NL include Moose Management Areas (MMAs), Black Bear Management Areas (BBMAs), Caribou Management Areas (CMAs), small game management areas, and furbearing trap zones. Table 4.5 indicates the amount of spatial overlap between wildlife management areas and the RAA, LAA, and Project Area. The Project Area overlaps nine of the 19 traplines in Fur Zone 9 and 11 of the 27 traplines in Fur Zone 10 but does not overlap any traplines in Fur Zone 7.

Figure 4.8 depicts the boundaries for the wildlife management areas within the RAA. Hunting and trapping activity occurring in wildlife management areas within the RAA are discussed in Section 4.3.4.3.

Table 4.5 Wildlife Management Areas in the RAA

Management Area	Area Number / Name	Approximate Size (km^2)	Approximate Spatial Overlap With RAA	Approximate Spatial Overlap With LAA	Approximate Spatial Overlap with Project Area
Moose and Black Bear	6 / Corner Brook	2,230	1431.5 km^2 (64% of management area)	213 km^2 (10% of management area)	28 km^2 (1% of management area)
	7 / South Brook	1,742	10 km^2 (0.6% of management area)	0 km^2 (0% of management area)	0 km^2 (0% of management area)
	8 / St. Georges	1,813	1811.5 km^2 (99.9% of management area)	246 km^2 (14% of management area)	19.5 km^2 (1% of management area)
	9 / Anguille Mountains	795	795 km^2 (100% of management area)	351 km^2 (44% of management area)	107 km^2 (13.5% of management area)
	10 / Port Aux Basques	2,975	1196 km^2 (40% of management area)	121 km^2 (4% of management area)	25.5 km^2 (1% of management area)
	11 / Dashwoods	2,885	1788 km^2 (62% of management area)	0 km^2 (0% of management area)	0 km^2 (0% of management area)
	12 / Buchans	2,825	5 km^2 (0.2% of management area)	0 km^2 (0% of management area)	0 km^2 (0% of management area)
	43 / Port au Port	368	364 km^2 (99% of management area)	309 km^2 (84% of management area)	105 km^2 (28.5% of management area)
Caribou	61 / La Poile	9,404	3,236 km^2 (34% of management area)	226 km^2 (2% of management area)	30 km^2 (0.3% of management area)
	62 / Buchans Plateau	6,067	1,140 km^2 (19% of management area)	6 km^2 (0.1% of management area)	0 km^2 (0% of management area)
	75 / Blow Me Down Mountains	515	0.1 km^2 (0.02% of management area)	0 km^2 (0% of management area)	0 km^2 (0% of management area)
Small Game – Willow and Rock Ptarmigan	Remainder of Island[A]	94,400	7,451 km^2 (8% of management area)	1,260 km^2 (1.3% of management area)	287 km^2 (0.3% of management area)

Table 4.5 Wildlife Management Areas in the RAA

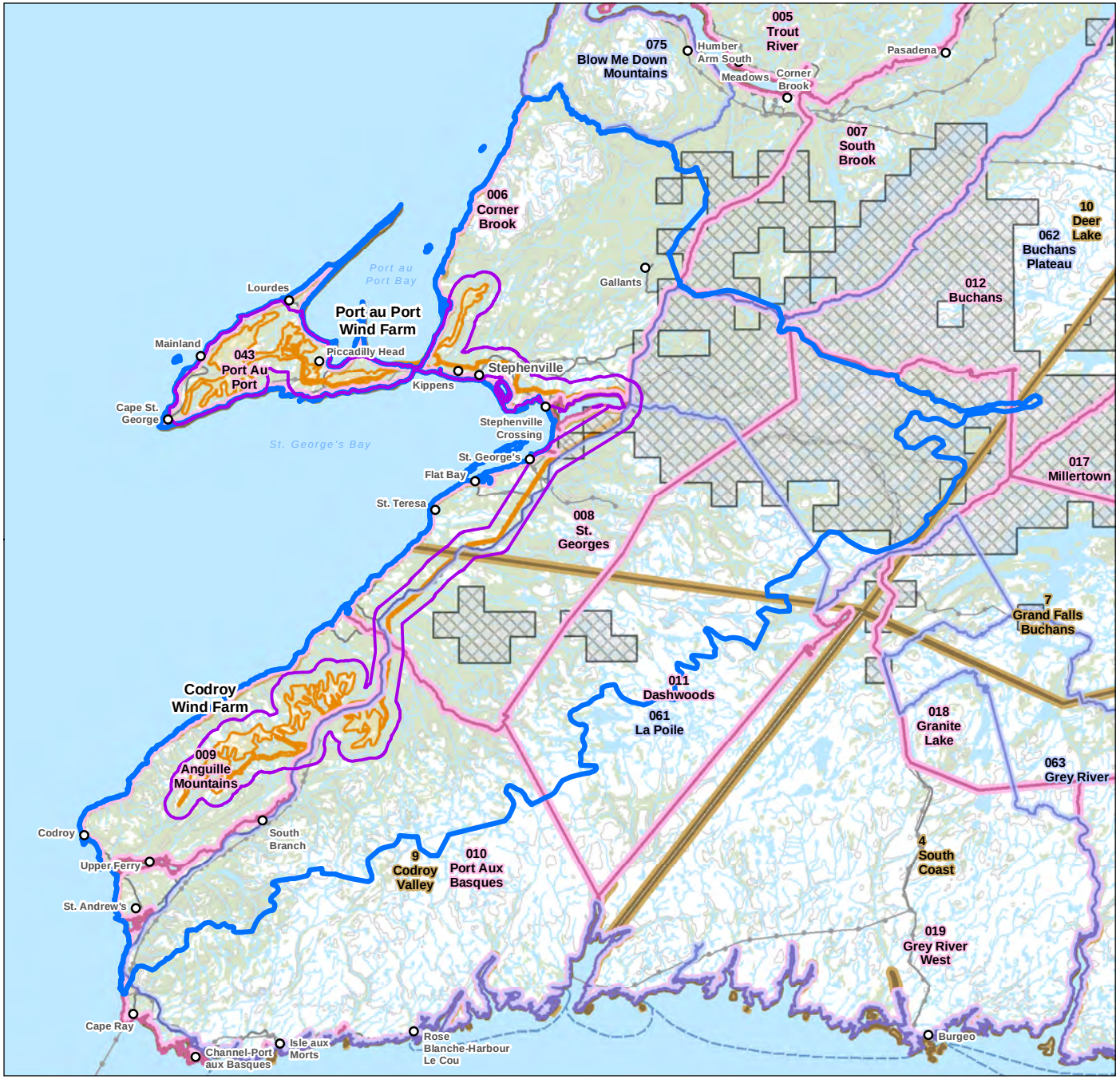
Management Area	Area Number / Name	Approximate Size (km^2)	Approximate Spatial Overlap With RAA	Approximate Spatial Overlap With LAA	Approximate Spatial Overlap with Project Area
Small Game – Ruffed and Spruce Grouse	Island of Newfoundland	109,747	7,451 km^2 (7% of management area)	1,260 km^2 (1% of management area)	287 km^2 (0.26% of management area)
Small Game – Snowshoe Hare	Remainder of Island[B]	94,400	7,451 km^2 (8% of management area)	1,260 km^2 (1.3% of management area)	287 km^2 (0.3% of management area)
Small Game – Red Squirrel	Remainder of Island[B]	94,400	7,451 km^2 (8% of management area)	1,260 km^2 (1.3% of management area)	287 km^2 (0.3% of management area)
Fur Zone	7 / Grand Falls-Windsor – Buchans	13,901	4 km^2 (0.0003% of management area)	0 km^2 (0% of management area)	0 km^2 (0% of management area)
	9 / Codroy Valley	6,016	3,243 km^2 (54% of management area)	553 km^2 (9% of management area)	139 km^2 (2% of management area)
	10 / Deer Lake	15,874	4,129 km^2 (26% of management area)	686 km^2 (4% of management area)	146 km^2 (0.1% of management area)

Notes:

[A] Remainder of the Island refers to those areas on the Island of Newfoundland that are not included within the Avalon / Swift Current, Burin, Topsail zones for these species

[B] Remainder of the Island refers to those areas on the Island of Newfoundland that are not included within the Great Island, Little Bay Islands, and Bell Island zones for these species

Sources: NLDFFA n.d.[d] and NLDFFA n.d.[e]



Stantec

Local Assessment Area

Regional Assessment Area

Wildlife Managment Areas

Caribou

Moose and Black Bear

Fur Zone

Proposed Project Features

Project Area

Other Features

Transmission Line, Existing

Trans-Canada Highway

Other Highway

Ferry Route

Contour (100 m)

Watercourse

Waterbody

Forested Area

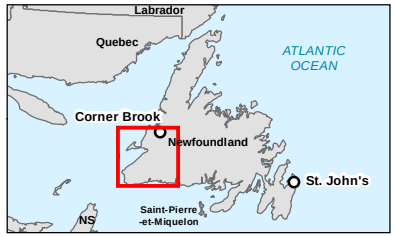
N

0 10 20 km

(At original document size of 8.5x11)
1:950,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by NW/AC on 2023-07-25
QR by AW on 2023-07-18
IR Review by BK on 2023-07-28

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_062

Figure No.
4.8

Title
Critical Habitat and Wildlife Management Areas in the RAA

V:\1214\active\121417233\03_data\gis_cad\gis_data\mapping\mxd\general\Land_Resource_Use\Baseline\121417233_062_Fig_4.8_LRU_wildlife_REVB.mxd Revised: 2023-08-02 By: mblackwood

4.3.3 Commercial and Industrial Land and Resource Use

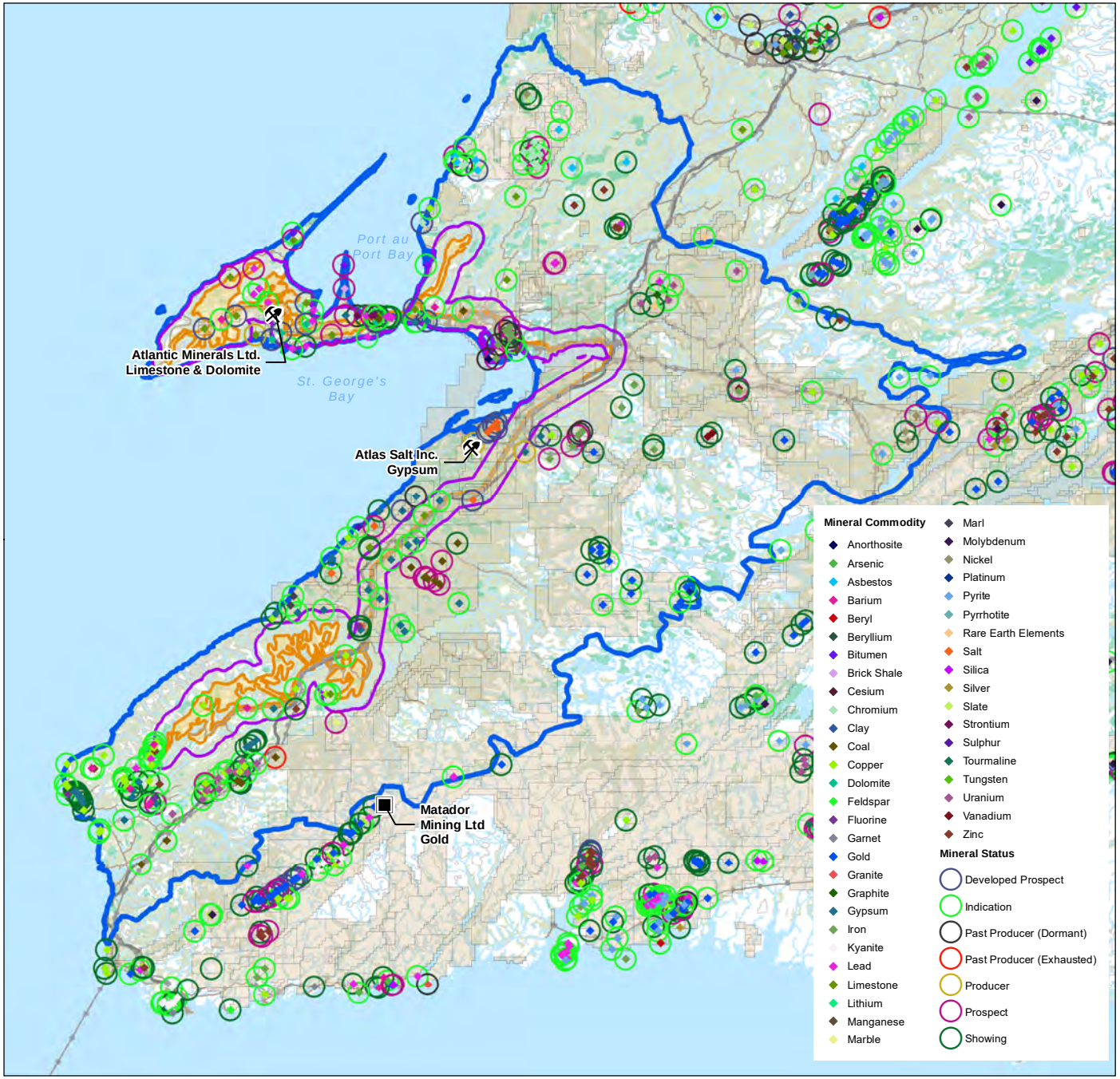
Current and historical commercial and industrial LRU within the RAA, LAA, and Project Area include mining, quarrying, and mineral and petroleum exploration; forestry; agriculture; and electrical infrastructure. These are further discussed in Sections 4.3.3.1 to 4.3.3.4 below.

Commercial tourism and outfitting are considered in Section 4.3.4.2 and Section 4.3.4.3, respectively, due to their substantial overlap with the recreational and subsistence aspects of LRU.

4.3.3.1 Mining, Quarrying, Mineral and Petroleum Exploration, and Associated Land Tenure

The province of NL has a documented history of mining, quarrying, and mineral and petroleum exploration in and around the RAA. In 2005, the Government of NL prepared a simplified representation of four main zones that are described across the island of Newfoundland (GSNL 2005) and highlight the multiple prospective environments corresponding to different mineral commodities. The RAA is located within the Humber Zone, which is characterized by plutonic and volcanic rock and carbonate and siliciclastic rock known to host gold, lead, magnetite, and nickel, copper, and cobalt, as well as industrial minerals like limestone, dolomite, gypsum, and salt. As shown on Figure 4.9, 46 mineral commodities are known to be present within the RAA. These commodities are identified on Figure 4.9 as either "developed prospects", "indications", "past producer (dormant)", "past producer (exhausted)", "producers", "prospects", or "showing", which are defined as follows (NLDIET n.d.):

- Developed prospect – *a mineral deposit upon which, in the opinion of the file builder, enough development work has been done to provide data for the making of a reasonable estimate of the amounts of one or more commodities present, even though the data themselves may not be available.*
- Indication – *a mineral deposit upon which no known development work has been done, and for which, in the opinion of the file builder, there exists only an "indication" of its existence (i.e., a "point" on a map, assay, etc.).*
- Past producer – *a mineral deposit from which production is no longer obtained. Does not include those mineral deposits on which work was stopped after extracting a bulk sample for milling and other tests, even though the sample may have been large.*
  - Dormant – additional reserves or demonstrated resources left unmined.
  - Exhausted –no reserves or demonstrated resources remain.
- Producer – *a mineral deposit from which ore is being extracted for commercial gain or benefit. Does not include deposits from which the only material extracted has been for test purposes.*
- Prospect – *a mineral deposit upon which, in the opinion of the file builder, enough development work has been done to provide data for the making of a reasonable estimate of the spatial extent of the deposit, but not enough to estimate the amount of any commodity present.*
- Showing – *a mineral deposit upon which some development work may have been done, but the extent of such work was not adequate, in the opinion of the file builder, to provide enough data to estimate its spatial dimensions.*



Stantec

- Developing Property
- Producing Mine
- Mineral Claim (2023-04-18)
- Local Assessment Area
- Regional Assessment Area

Proposed Project Features

- Project Area

Other Features

- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Forested Area

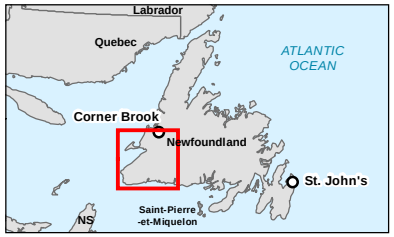
N

0 10 20 km

(At original document size of 8.5x11)
1:950,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2; Government of NL Dept. of Fisheries, Forestry and Agriculture; Departent of Industry, Energy and Technology; NRCan CanVec; OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by MB on 2023-04-20
Revised by AC on 2023-07-31
QR Review by AW on 2023-XX-XX

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_054a

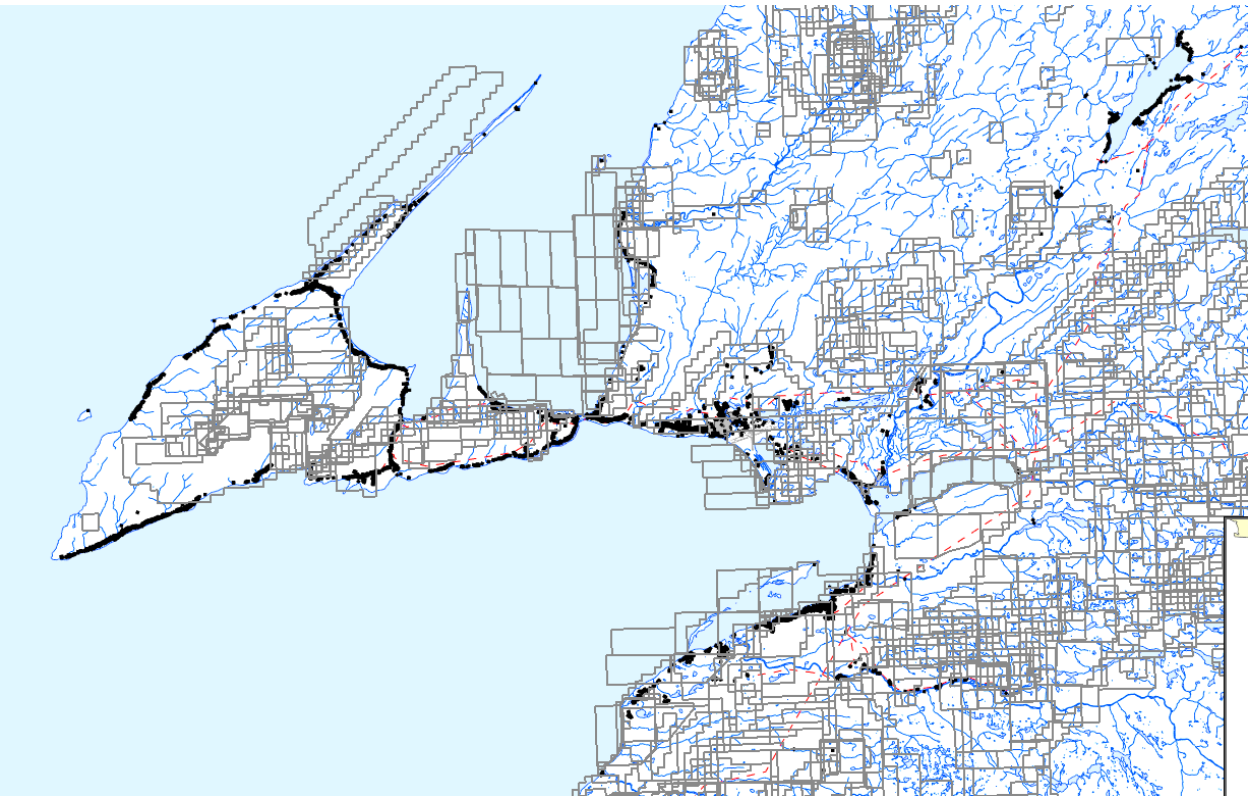
Figure No.
4.9

Title
Areas of Known Mineral Commodity Occurrence in the RAA

V:\1214\active\121417233\03_data\gis_cad\gis_data\mapping\mxd\general\Land_Resource_Use\Baseline\121417233_054a_Fig_4.9_Mineral_Occurences_RAA.mxd Revised: 2023-08-02 By: mblackwood

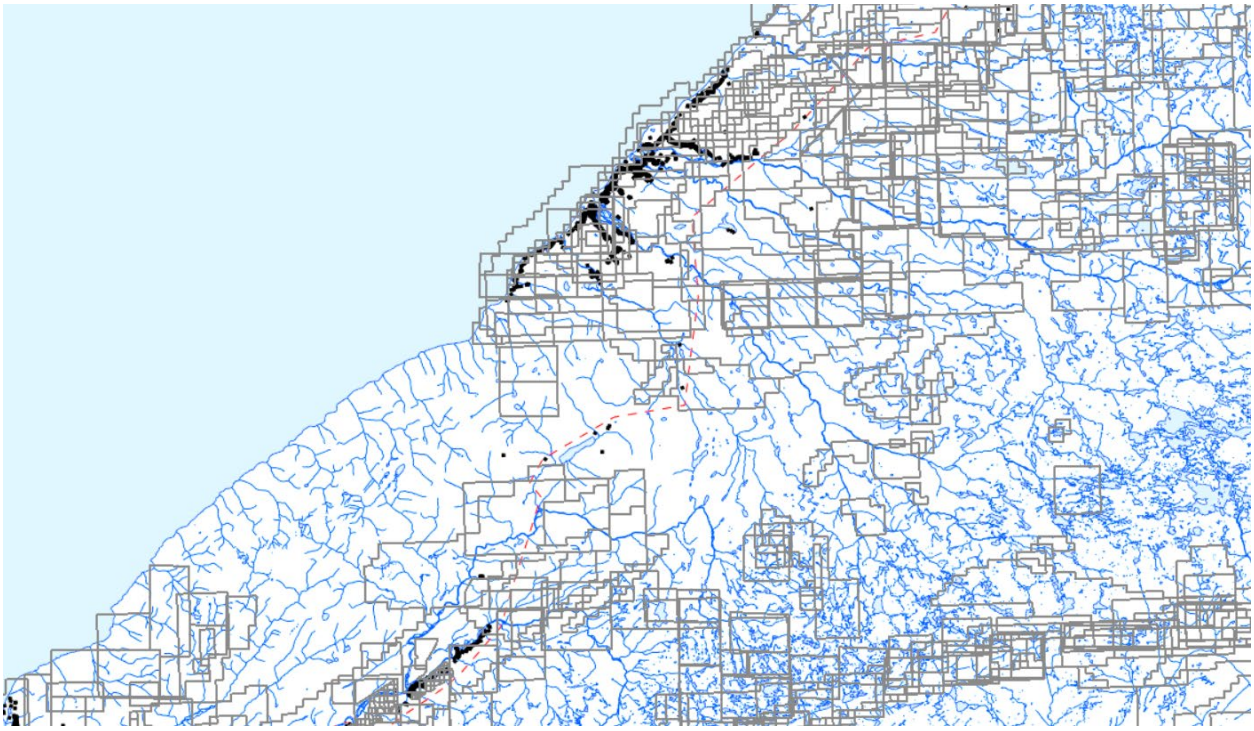
There are also two producing mines within the RAA: a limestone and dolomite mine operated by Atlantic Minerals Limited (AML) on the Port au Port Peninsula and a gypsum mine operated by Atlas Salt Inc. (formerly Red Moon Resources Inc.) in Flat Bay (Figure 4.9). The Project Area does not overlap the active mining areas for either of these producing mines, but does partially overlap AML's mineral claim (i.e., staked claim for exploration) and mineral lease area.

The extent of historical claims for previous mineral exploration activities in the RAA are illustrated on Figures 4.10 and 4.11 below.



Source: NLDIET 2023a.

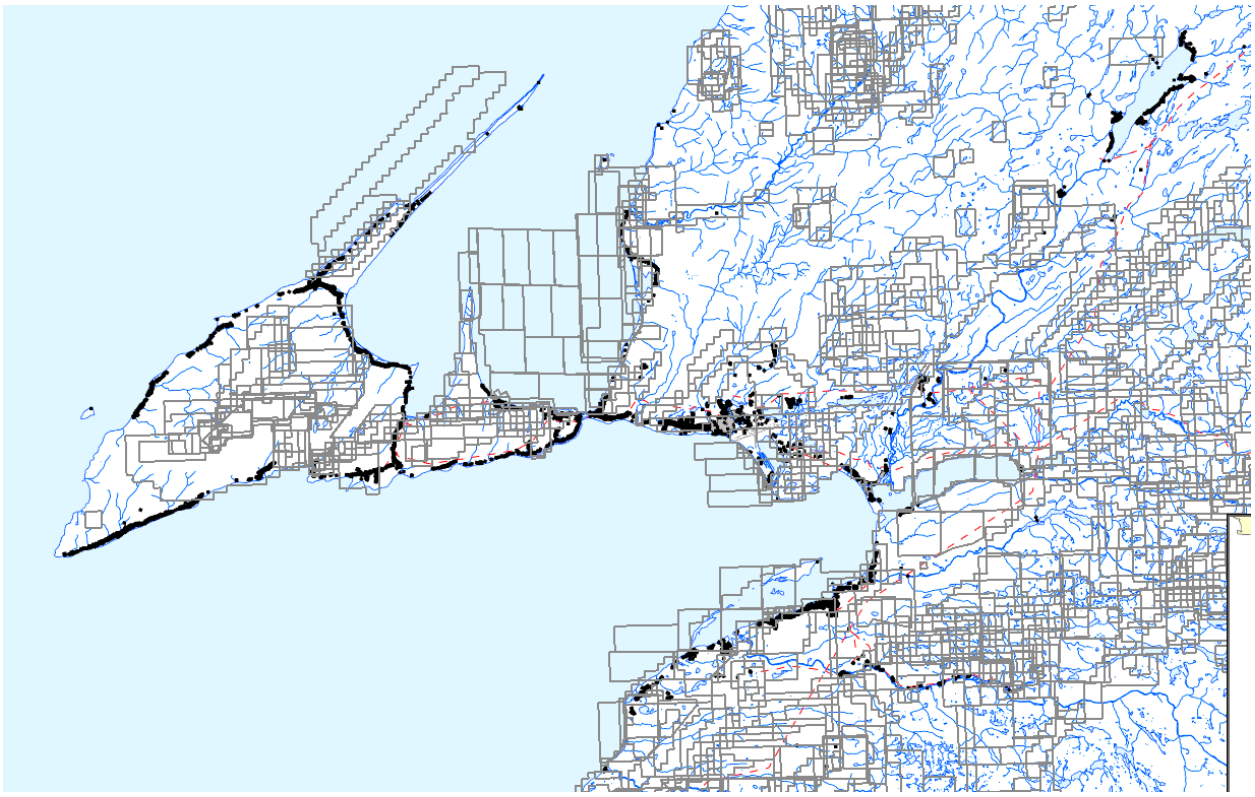
Figure 4.10 Historical Claims for Previous Mineral Exploration Activities Around the Stephenville and Port au Port Areas of Western Newfoundland



Source: NLDIET 2023a.

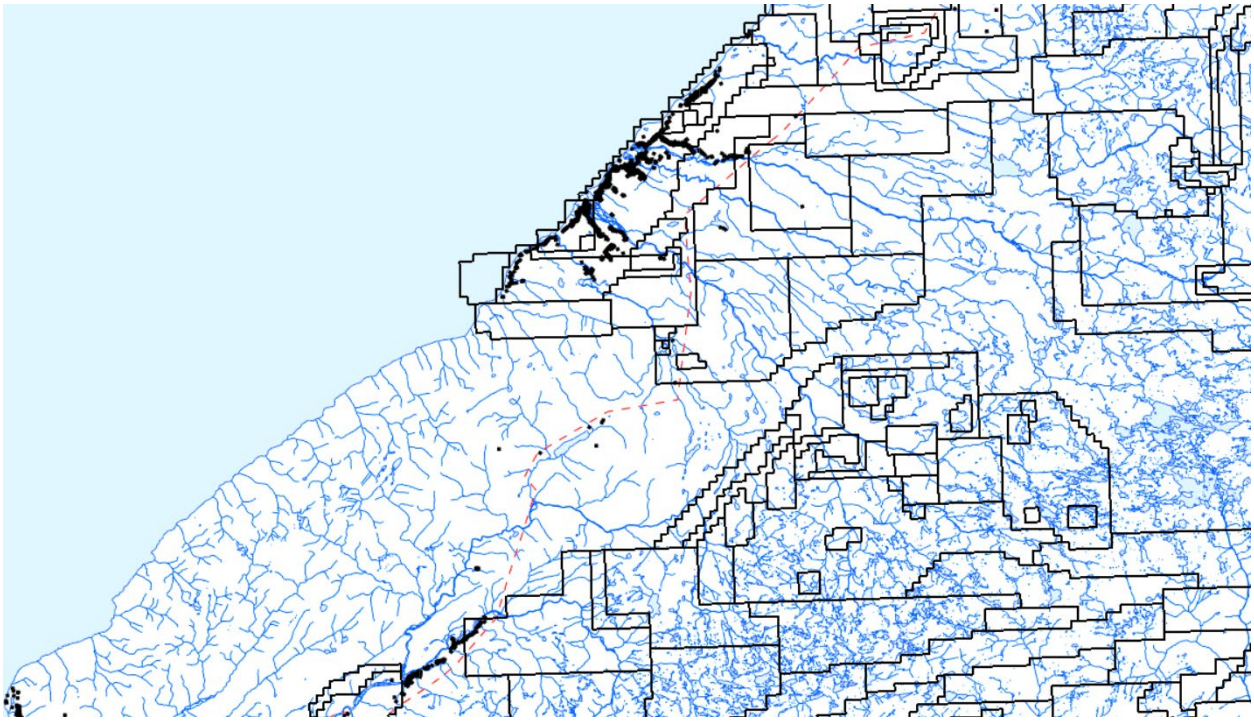
Figure 4.11 Historical Claims for Previous Mineral Exploration Activities Around the Bay St. George and Codroy Areas of Western Newfoundland

As of March 2023, there is still active mineral exploration activity ongoing within the RAA, as illustrated by the active staked claims shown on Figures 4.12 and 4.13.



Source: NLDIET 2023a.

Figure 4.12 Existing Claims for Mineral Exploration Around the Stephenville and Port au Port Areas of Western Newfoundland

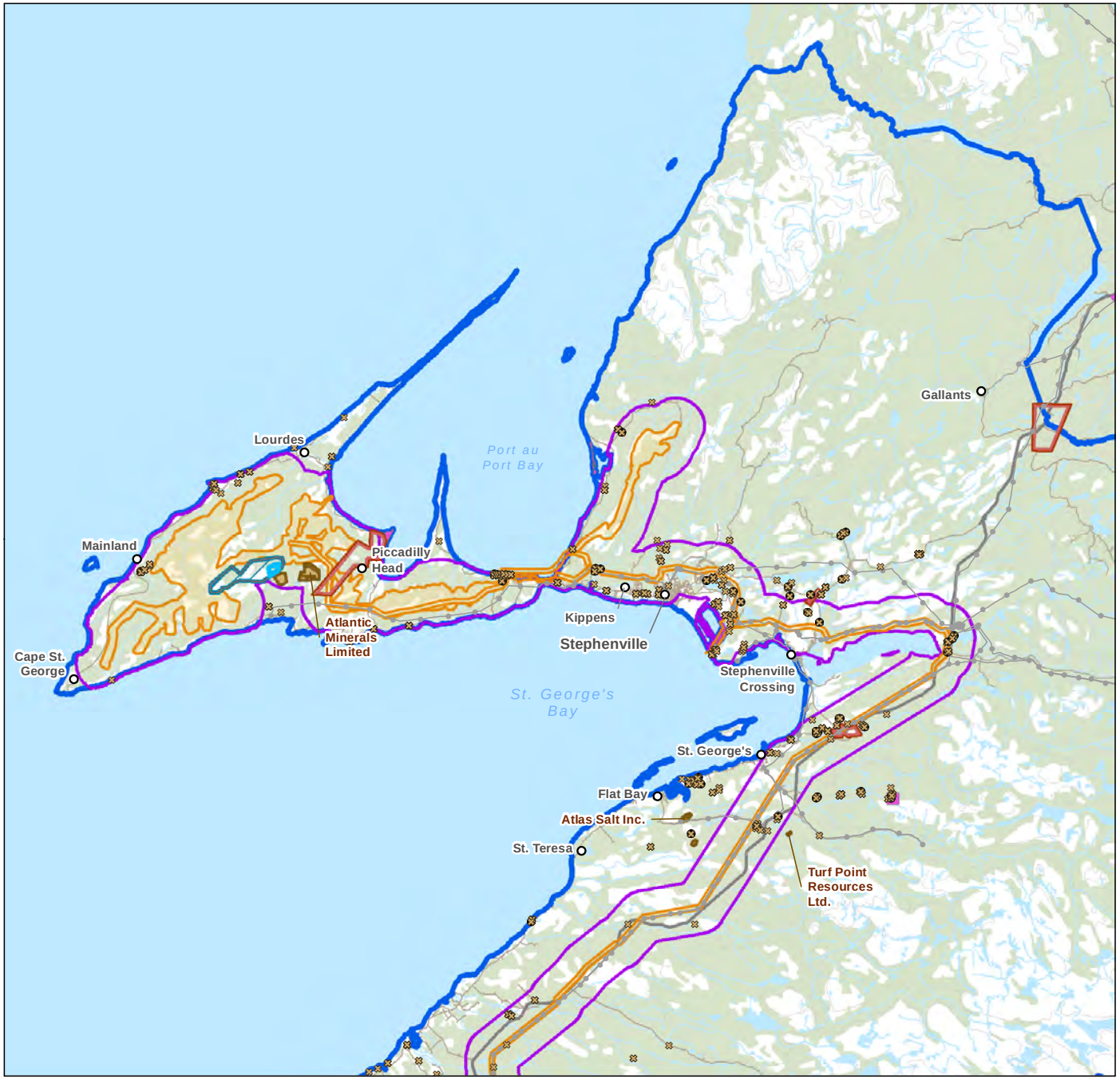


Source: NLDIET 2023a.

Figure 4.13 Existing Claims for Mineral Exploration Around the Bay St. George and Codroy Areas of Western Newfoundland

There are also a small number of existing mining leases in and around the RAA. Figure 4.14 shows mining leases on the Port au Port Peninsula associated with AML, mineral tenure impost land on the Port au Port Peninsula associated with Dallard Management Inc., and three parcels of mineral tenure impost land in and around (i.e., to the northeast and southeast of) Stephenville associated with Westside Asphalt & Concrete Inc. Also shown on Figure 4.14 (and Figure 4.15) are small polygons representing mining leases that were issued to Red Moon Resources Inc. for a producing gypsum mine in Flat Bay that is currently operated by Atlas Salt Inc.[7], as well as a small polygon representing a mining lease associated with Turf Point Resources Inc. and its proposed aggregate quarry in Flat Bay, which was released from the provincial EA process in January 2023 (NLDECC 2023); both of these mining leases are located within the LAA but outside of the Project Area. The larger polygon on Figure 4.15 represents mineral tenure impost land associated with Westside Asphalt & Concrete Inc.

[7] Red Moon Resources Inc. formally changed its name to Atlas Salt Inc. on September 1, 2021 (Atlas Salt Inc. 2021).



Stantec

- Quarry - Archive
- Quarry - Lease or Permit
- Mining Lease
- Impost Land
- Exempt Mineral Land

Atlantic Minerals Limited

- Mineral Lease Area
- Expansion Area
- Local Assessment Area
- Regional Assessment Area

Proposed Project Features

- Project Area

Other Features

- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Forested Area

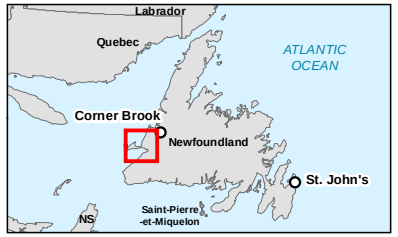
N

0 7.5 15 km

(At original document size of 8.5x11)
1:500,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2; Government of NL Dept. of Fisheries, Forestry and Agriculture; NRCan CanVec; OpenStreetMap
3. Background: NRCan; CanVec



Project Location
Stephenville
NL

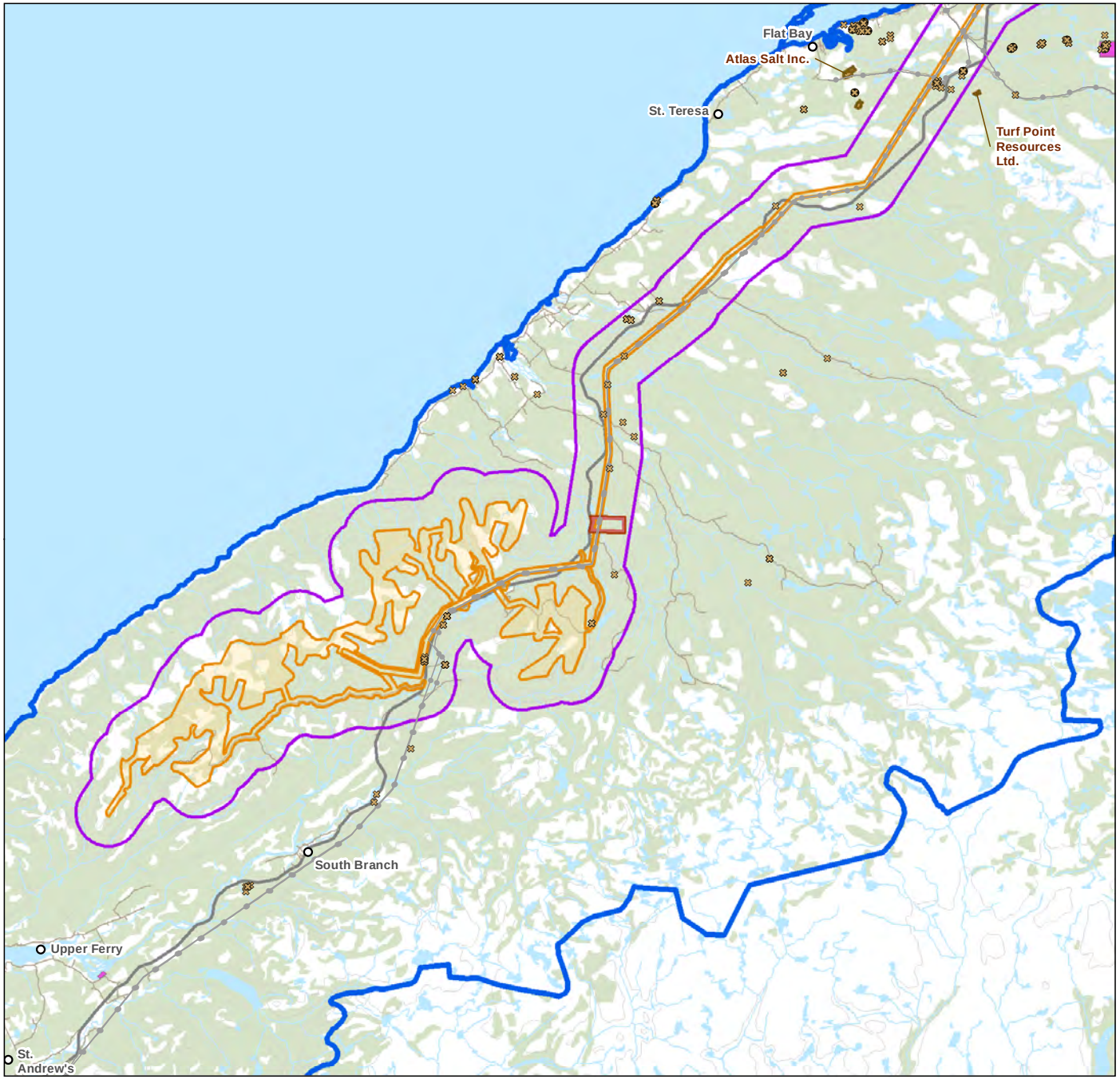
Prepared by MB on 2023-05-18
Revised by AC on 2023-07-28
QR by AW on 2023-07-19

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_051b

Figure No.
4.14

Title
Mining Leases around the Stephenville and Port au Port Areas of Western Newfoundland



Stantec

- Quarry - Archive
- Quarry - Lease or Permit
- Mining Lease
- Impost Land
- Exempt Mineral Land
- Local Assessment Area
- Regional Assessment Area

Proposed Project Features

- Project Area

Other Features

- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Forested Area

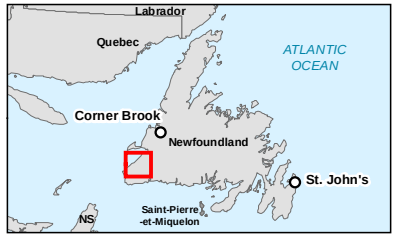
N

0 5 10 km

(At original document size of 8.5x11)
1:400,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2; Government of NL Dept. of Fisheries, Forestry and Agriculture; NRCan CanVec; OpenStreetMap
3. Background: NRCan; CanVec



Project Location
Stephenville
NL

Prepared by MB on 2023-05-18
Revised by AC on 2023-07-28
QR by AW on 2023-07-19

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_051b

Figure No.
4.15

Title
Mining Leases around the Bay St. George and Codroy Areas of Western Newfoundland

\\ca0151-ppfss01\Work_group\1214\active\121417233\03_data\gis_cad\gis_data\mapping\mxd\general\Land_Resource_Use\Baseline\121417233_051b_3_Fig_4.15_Mining_Use_RAA.mxd Revised: 2023-08-02 By: acuff

Land Tenure on the Port au Port Peninsula

There is a history of zinc-lead exploration west of Stephenville, on the Port au Port Peninsula. Mineral exploration related to galena, minor sphalerite, and iron sulphides was documented in the 1920s at the Round Head property and was subsequently explored by the Newfoundland Department of Mines and Energy again in the 1940s. In the 1970s, British Newfoundland Exploration Limited and their various joint venture partners completed further exploration for zinc-lead deposits (Dickie et. Al. 1975; Lyn 1979) resulting in the area being staked in 1991 for further exploration (Thomas 1992).

The Port au Port Peninsula has also been heavily prospected for carbonates to be mined for industrial minerals used for production of cement and aggregate (Saunders and Hardy 1975; Saunders 1988,1990, Strickland 1990,1999). This prospecting has resulted in the development of the present-day limestone and dolomite mines owned and operated by AML. In a report prepared by Strickland (1999), it was noted that the author was not aware of a comparable deposit of dolomite or limestone in Eastern North America in terms of its purity, accessibility, and extractability. Celestite and barite prospects have been documented at Gillams Cove and Hookers Brook, although the grades are undetermined (Thomas 1992) as well as at the Ronan Deposit (Mercer 1998).

Multiple, relatively short duration, commercial quarry permits have been issued to individuals or small local contractors throughout the Port au Port Peninsula (NLDIET 2023a). The permits are typically only valid for a short time and are understood to be related to use of local pit run sand and gravel fill for construction activities.

Land Tenure Around the Codroy Area

Prospecting for gypsum has been documented as early as 1960 in the Codroy area. In 1960, Flintkote Company of Canada entered into a 12-year exploration agreement with the provincial government giving Flintkote exclusive rights to explore for gypsum (NLDIET 2023a). Gypsum in this region generally occurs within highly distorted and faulted rock zones in the Codroy Group. The gypsum exposures could not be traced laterally due to existing cover and their position on small anticlinal crumples (Hayes and Johnson 1937).

A base metal exploration program was completed by Westfield Minerals between 1974 and 1976 in the Codroy Basin, where the latter segments of the exploration were directed towards uranium. Several anomalous areas were identified through water and stream sediment sampling, along with radiometric prospecting in 1978 (Tuach 1979).

Multiple, relatively short duration, commercial quarry permits have been issued to individuals or small local contractors throughout the Codroy area (NLDIET 2023a). The permits are typically only valid for a short time and are understood to be related to use of local pit run sand and gravel fill for construction activities.

Land Tenure Around the Stephenville Area

Prospecting for magnetite has been documented as early as 1931 in an area 25 km east of Stephenville that has more recently been targeted by Triple Nine Resources Ltd in 2010. During the work completed by French and Mugford (2010) it was identified that the bedrock may contain a mineralized zone of a magnetite-ilmenite enriched intrusion that potentially contains significant concentrations of iron, titanium, and vanadium. Between 2006 and 2008, Ucore Uranium Inc. expanded upon exploration programs initially completed by in 1980 by Shell Canada Resources Limited for uranium at Lost Pond approximately 30 km east of Stephenville (Penney and Reid 2008).

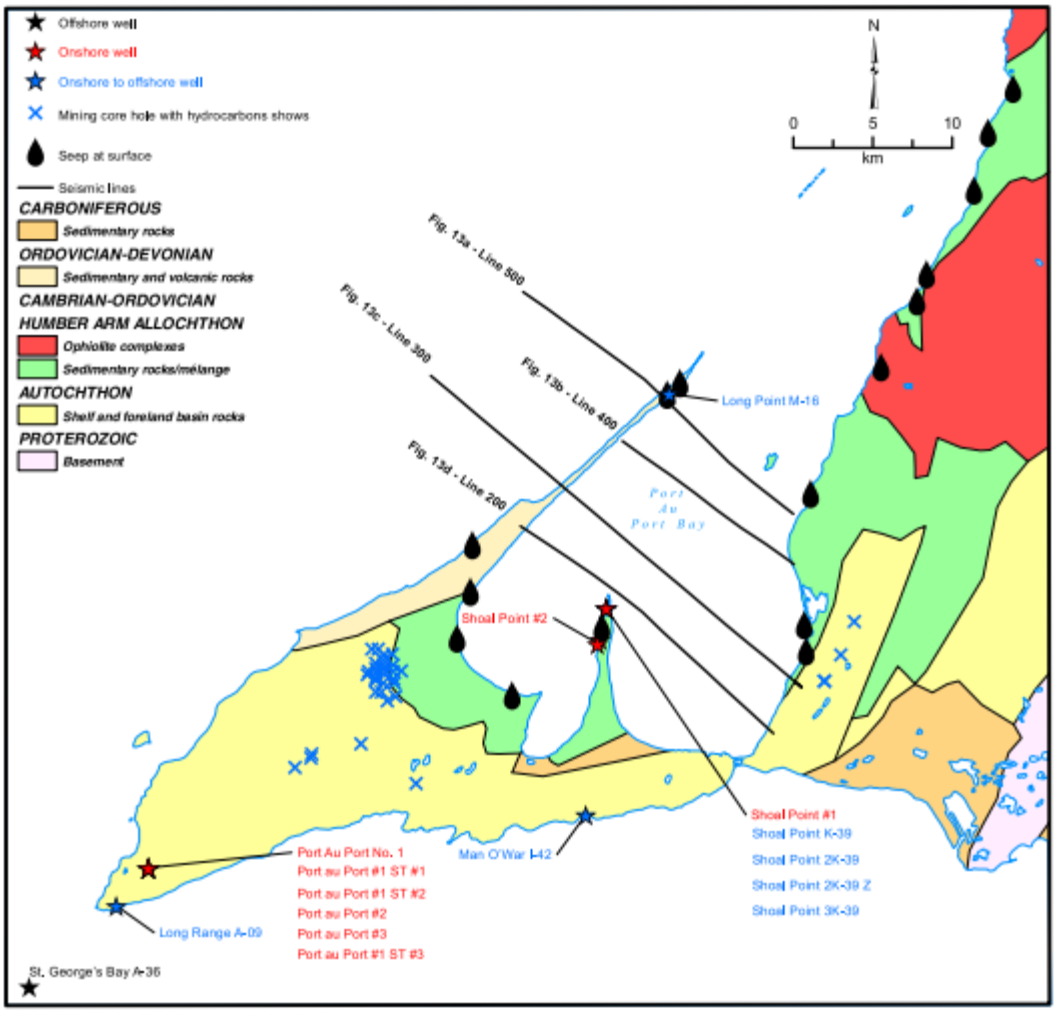
Chromite was discovered at the Bluff Head Property, located approximately 25 km north of Stephenville, in 1894. The deposit was mined commercially by the Halifax Chrome Company for an indeterminate number of years before being abandoned. Exploration for chromite was more recently completed by Asamera Inc. and Falconbridge Ltd. in 1984 (Saunders and Reusch 1984).

Carbonates are also found within the Humber Zone around the Stephenville area (GSNL 2005) as documented by the commercial gypsum quarries that were initially operated between the 1950s and 1980s and re-opened in recent years (CBC 2018; Furey 1987).

Multiple, relatively short duration, commercial quarry permits have been issued to individuals or small local contractors in and around the Town of Stephenville and the general RAA (NLDIET 2023). The permits are typically only valid for a short period of time and are understood to be related to use of local pit run sand and gravel fill for construction activities.

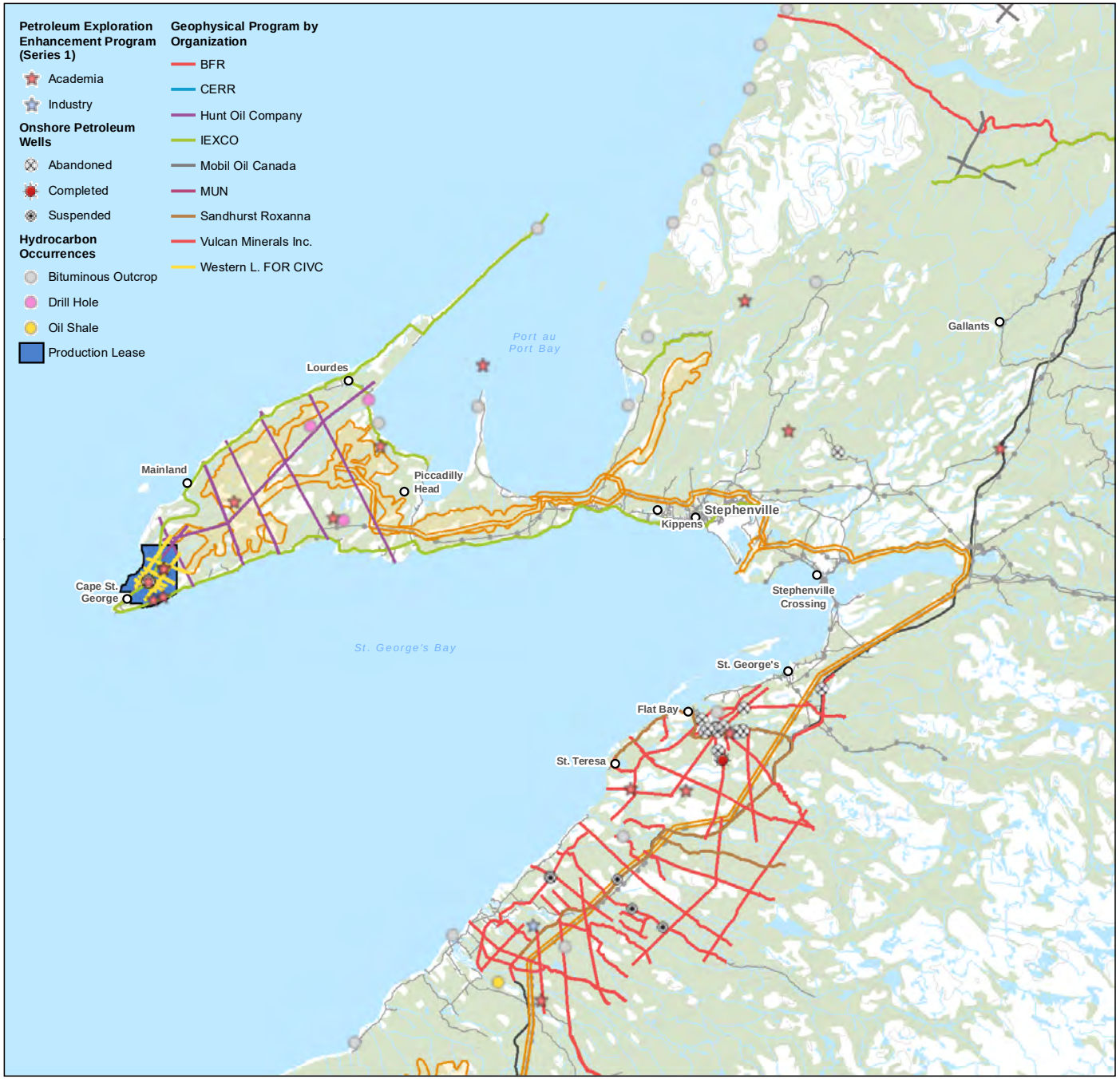
Land Tenure for Onshore Petroleum Exploration – Port Au Port

Since 1994, over forty onshore wells have been drilled in western Newfoundland, including exploration wells, delineation wells, and shallow stratigraphic test holes. Onshore wells have experienced premature abandonment or failed to penetrate the overburden materials in some circumstances. Of the locations investigated, only the Garden Hill Port au Port #1 well on the Port au Port Peninsula (Figure 4.16) was successful in achieving limited hydrocarbon production (Hicks and Owens 2015). The discovery well in the Aguathuna Formation (a dolomitized limestone) formed the basis for a production lease initially awarded to Canadian Imperial Venture Corporation (NLDIET 2023b). The production lease, now owned by Enegi Oil Ltd. / Gestion Resources Ltd., occupies approximately 19.5 km^2 on the western tip of Port au Port Peninsula (NLDIET 2023); the Project Area overlaps approximately 5.3 km^2 of this production lease area (Figure 4.17).



Source: Hinchey et al. 2014.

Figure 4.16 Onshore Petroleum Exploration Around the Port au Port Area of Western Newfoundland



Stantec

Proposed Project Features

Project Area

Other Features

Transmission Line, Existing

Trans-Canada Highway

Road

Contour (100 m)

Watercourse

Waterbody

Forested Area

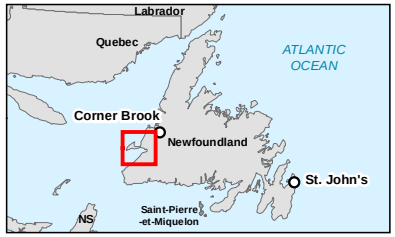
N

0 5 10 km

(At original document size of 8.5x11)
1:520,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, GovNL Petroleum Development Mapping Application Hub
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MB/AC on 2023-07-25
QR by AW on 2023-07-18
IR Review by BK on 2023-07-28

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_065

Figure No.
4.17

Title
Geophysical seismic survey lines, Western NL

Land Tenure for Onshore Petroleum Exploration – Bay St. George Basin

Live oil showings in the form of liquid hydrocarbons slowly seeping from conglomeratic sandstone were discovered in the Bay St. George region in 1957 during the Flat Bay gypsum prospect (McKillop 1957). Petroleum exploration later resumed in 1996 when London Resources Inc (Vulcan Minerals Inc.) commenced drilling adjacent to the hydrocarbon-bearing Flat Bay gypsum site. Vulcan Minerals, a Newfoundland based company, advanced a series of exploratory wells between 1996 and 2009, confirming earlier findings from the Department of Mines and Energy (Hinchey et al. 2014).

Vulcan Minerals has completed a series of geophysical seismic assessments in the Bay St. George region, illustrated by the red lines in Figure 4.17 (NLDIET 2023b). Approximately 1,100 km of seismic survey lines have been collected in Western Newfoundland, with concentrations in specific regions including Parsons Pond, Port au Port Peninsula, northern St. George's Bay, and the Deer Lake area lowlands of the upper Humber River (Hinchey et al. 2014).

Offshore petroleum activity is considered separately, in Section 6.3.6.7 of the Aquatic Environment Baseline Study (Stantec 2023c).

4.3.3.2 Forestry

The provincial *Forestry Act* (1990) mandates the Forest Service of Newfoundland and Labrador to manage the forest resources of the province. The province is divided into 24 Forestry Management Districts (Districts), with 18 in Newfoundland and six in Labrador. To facilitate planning, some districts are combined into Planning Zones (Figure 4.18).

Zone 6 encompasses District 14 and District 15 (Figure 4.18). It is located on the west and southwest coasts of the Island of Newfoundland and extends from Burgeo and Port aux Basques in the south to the southern boundary of Gros Morne National Park in the north. Major towns located within Zone 6 include Deer Lake, Pasadena, Corner Brook, Stephenville, Port aux Basques and Burgeo. District 14 is administered from St. Georges with a satellite office in Burgeo while District 15 is administered from Corner Brook (NLDFLR 2018). The Project Area is located entirely within District 14 of Zone 6.

Overall, the landscape in Zone 6 has approximately 45% productive forest. The distribution of productive sites across the landscape, and the range of productivity within these sites, is largely dependent on landscape patterns, climate, and soils (NLDFLR 2018). The dominant forest cover in the portions of District 14 where the Project Area is located is predominantly balsam fir. Yellow birch and red maple are also common in these areas. Other species that occur in the parts of District 14 in the vicinity of the Project Area include white spruce, eastern larch, trembling aspen, balsam poplar, white pine, and black ash (NLDFLR 2018).

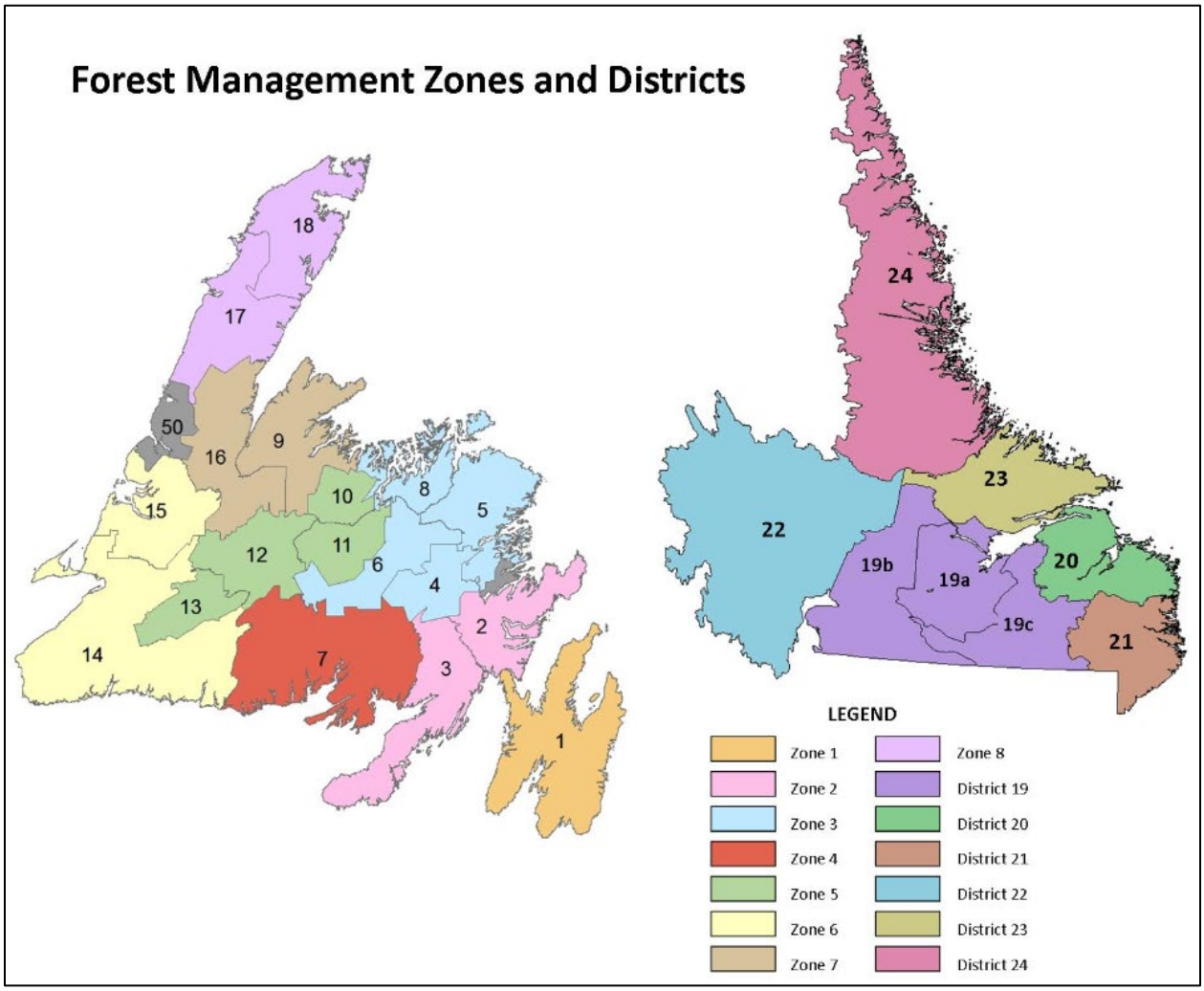


Figure 4.18 Forest Management Zones and Districts in NL

Forest management planning in NL occurs on a district-by-district basis and is scheduled on a five-year cycle. Five-year operating plans outline on 1:50,000 scale maps where forest management activities (e.g., timber harvesting, planting, thinning, and road construction) are proposed. It is at this level that strategies and policies within the 10-year *Provincial Sustainable Forest Management Strategy* are applied (NLDFFA n.d.[f]). The result of this analysis is a new set of annual allowable cuts (AACs) for each Forest Management District. These AACs are defined as the maximum annual rate at which timber can be harvested at a sustainable level for a period of 160 years into the future (NLDFLR 2018).

The latest five-year management plans for Zone 6, including District 14, was published in 2018 and apply to the 2019-2023 period (NLDFLR 2018). Separate plans were developed by two proponents: NLDFFA (NLDFLR 2018) and Corner Brook Pulp and Paper Limited (CBPPL) (Kruger 2018).

As shown on Figure 4.19, the provincial Crown and CBPPL are the two major forestry land tenure holders within Planning Zone 6. Overall, CBPPL, through its timber licenses, accounts for approximately 30% of the total land area in the zone, with the Crown controlling approximately 70%. Most of these licenses are due to expire in 2037. The productive forest breakdown for the zone is approximately 50% for each tenure holder. In District 14, the Crown controls 92% of the total land area and 63% of the productive forest. This is mainly due to the large area of unmapped Crown land on the south coast (NLDFLR 2018).

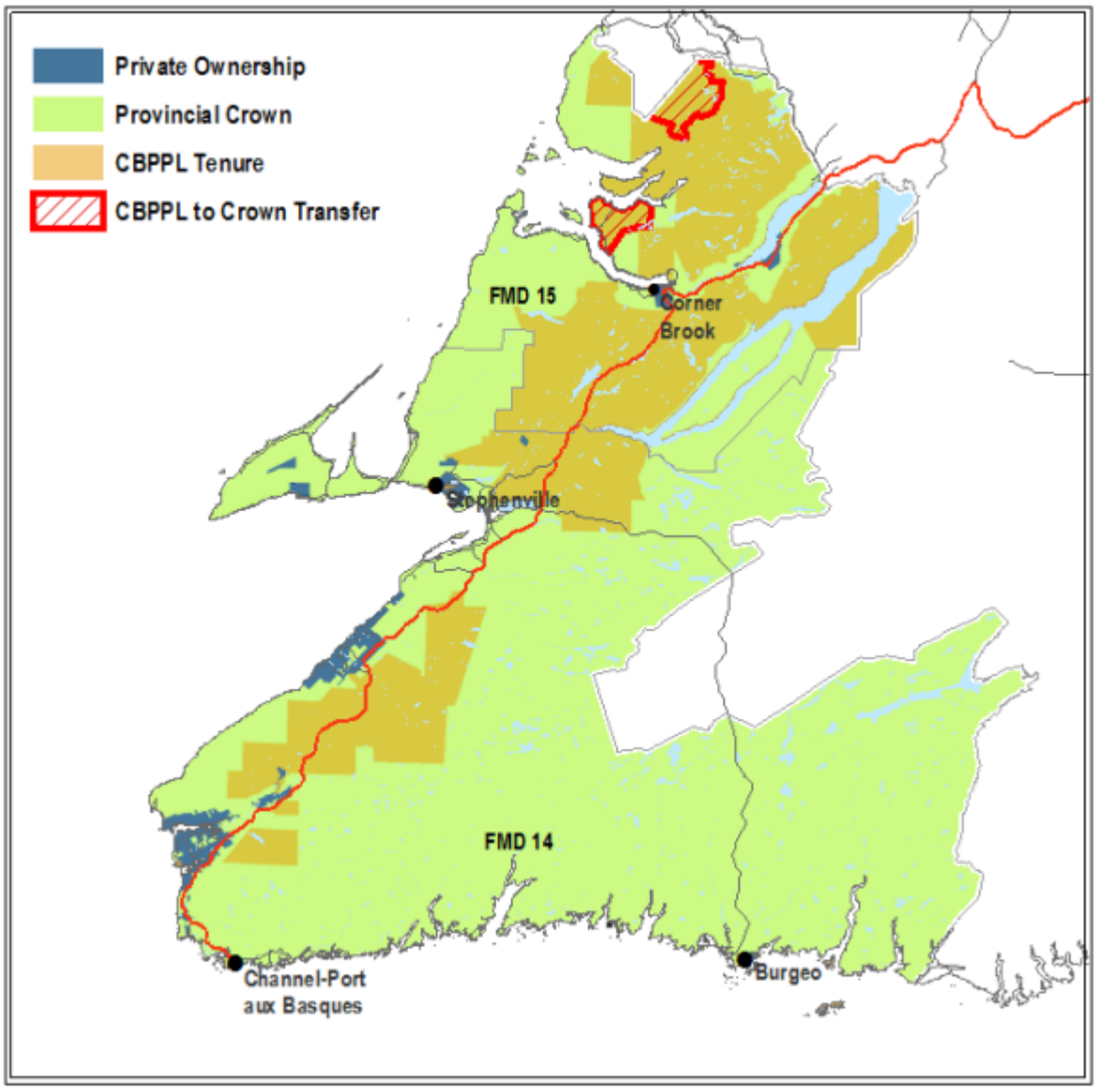


Figure 4.19 Land Ownership in Planning Zone 6 (NLDFLR 2018)

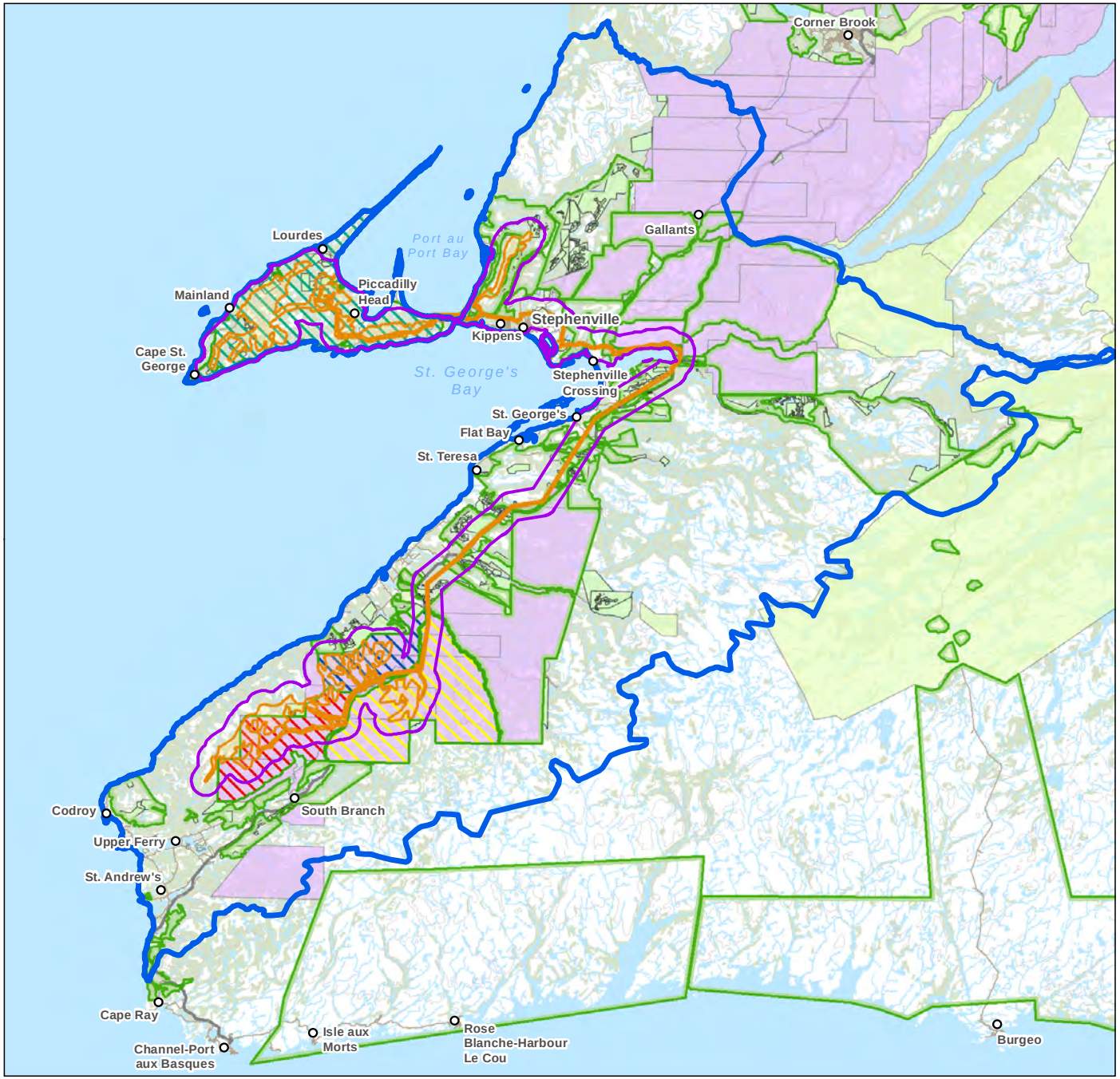
Activity conducted in District 14 during the last plan period (i.e., from 2014 to 2018) included the following:

- Commercial harvesting of over 38,589 m^3 of wood on Crown land (including approximately 30,414 m^3 of softwood and approximately 8,175 m^3 of hardwood) (NLDLFR 2018)
- Commercial harvesting of approximately 404,063 m^3 of wood on CBPPL-tenured land (including 388,456 m^3 of softwood and approximately 15,607 m^3 of hardwood) (Kruger 2018)
- Domestic harvesting of approximately 181,945 m^3 of wood on Crown land (including approximately 143,902 m^3 of softwood and approximately 21,734 m^3 of hardwood as well as approximately 16,309 m^3 of non-AAC wood harvested as birch or landing and cutover clean-up on CBPPL limits) (NLDLFR 2018)

Approximately 25,000 m^3 was harvested domestically on CBPPL exchange areas (i.e., areas transferred to the Crown by CBPPL) in District 14 (NLDFLR 2018). There were also 108 ha silviculturally treated on Crown land, and 4.5 km of access roads constructed / reconstructed on Crown land during this period (NLDFLR 2018). Commercial harvesting is carried out manually and with shortwood harvesters and forwarders; access roads are constructed using excavators and/or bulldozers; and silvicultural activities are carried out using brushsaws, pottiputkis, and shovels (NLDFLR 2018).

Under the *Forestry Act* and associated Cutting of Timber Regulations, a cutting permit is required to cut timber on or remove timber from Crown lands or public lands. Permits for cutting timber are personal use, and not for sale or barter, are referred to as Domestic Cutting Permits (NLDFFA n.d.[g]). Domestic fuelwood and sawlogs are harvested from four main sources in District 14: designated domestic cutting blocks on land; cutover clean-up on Crown and industry limits; landing and roadside clean-up on Crown and industry limits; and hardwood harvest on industry limits. There are several designated domestic wood harvesting areas within District 14 where Domestic Cutting Permit holders can cut / remove timber for subsistence purposes, including the following domestic cutting blocks in the vicinity of the Port au Port and Codroy wind farms (Figure 4.20): C1401 Port au Port (Figure 4.21), K1449 Round Valley (Figure 4.22), K1450 Morris Brook (Figure 4.23), and K1451 Bauld Mountain (Figure 4.24).

Domestic Cutting Permit allocations for Districts 14 and 15 vary from 14.4 m^3 to 25 m^3. The lower amount is issued on the Port au Port Peninsula, where demand and supply are relatively equal. In most other parts of the district, the amount issued per permit is higher because of greater supply and harvest on CBPPL limits (NLDFLR 2018). Most domestic cutting happens in the winter where harvesting is conducted by chainsaw and access for extraction is achieved using an ATV or snowmobile. Approximately 2,000 domestic cutting permits were issued each year during the last planning period (2014–2018) for District 14 (NLDFLR 2018). The volume of softwood and hardwood harvested domestically on Crown land during the last planning period (2014-2018) was approximately 143,902 m^3 and 21,700 m^3, respectively, excluding birch or landing and cutover clean-up on CBPPL limits (NLDFLR 2018).



Stantec

Crown Land; Development-Lands; Private

Corner Brook Pulp and Paper (CBPPL) Timber Limits

Silviculture; Silviculture Roadside Clearing

Forestry - Crown Reserve

Domestic Harvest Area

Domestic Wood Harvest Blocks

C1401-Port au Port

K1449-Round Valley

K1450-Morris Brook

K1451-Bauld Mountain

All Other

Local Assessment Area

Regional Assessment Area

Proposed Project Features

Project Area

Other Features

Trans-Canada Highway

Road

Contour (100 m)

Watercourse

Waterbody

Forested Area

N

0 10 20 km

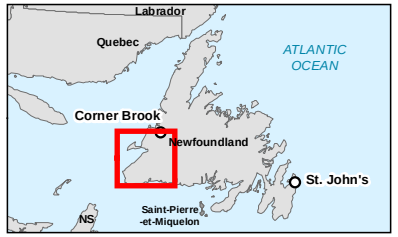
(At original document size of 8.5x11)
1:900,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N

2. Data Sources: World Energy GH2; Government of NL Dept. of Fisheries, Forestry and Agriculture; NRCan CanVec; OpenStreetMap

3. Background: NRCan CanVec Province of Newfoundland and Labrador



Project Location
Stephenville
NL

Prepared by MB/AC on 2023-07-25
QR by AW on 2023-07-19
IR Review by BK on 2023-07-28

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
4.20

Title
Forestry Use in the Regional Assessment Area

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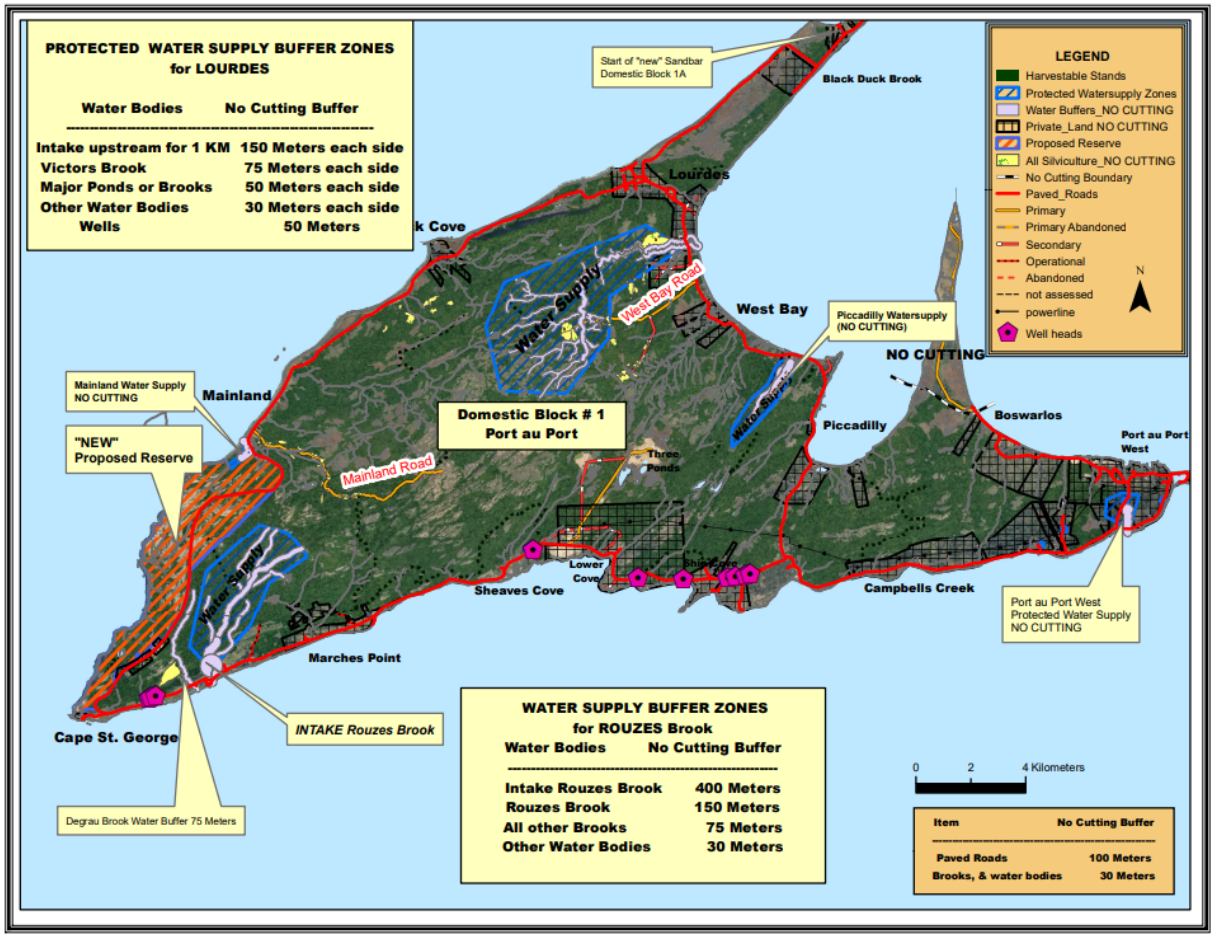
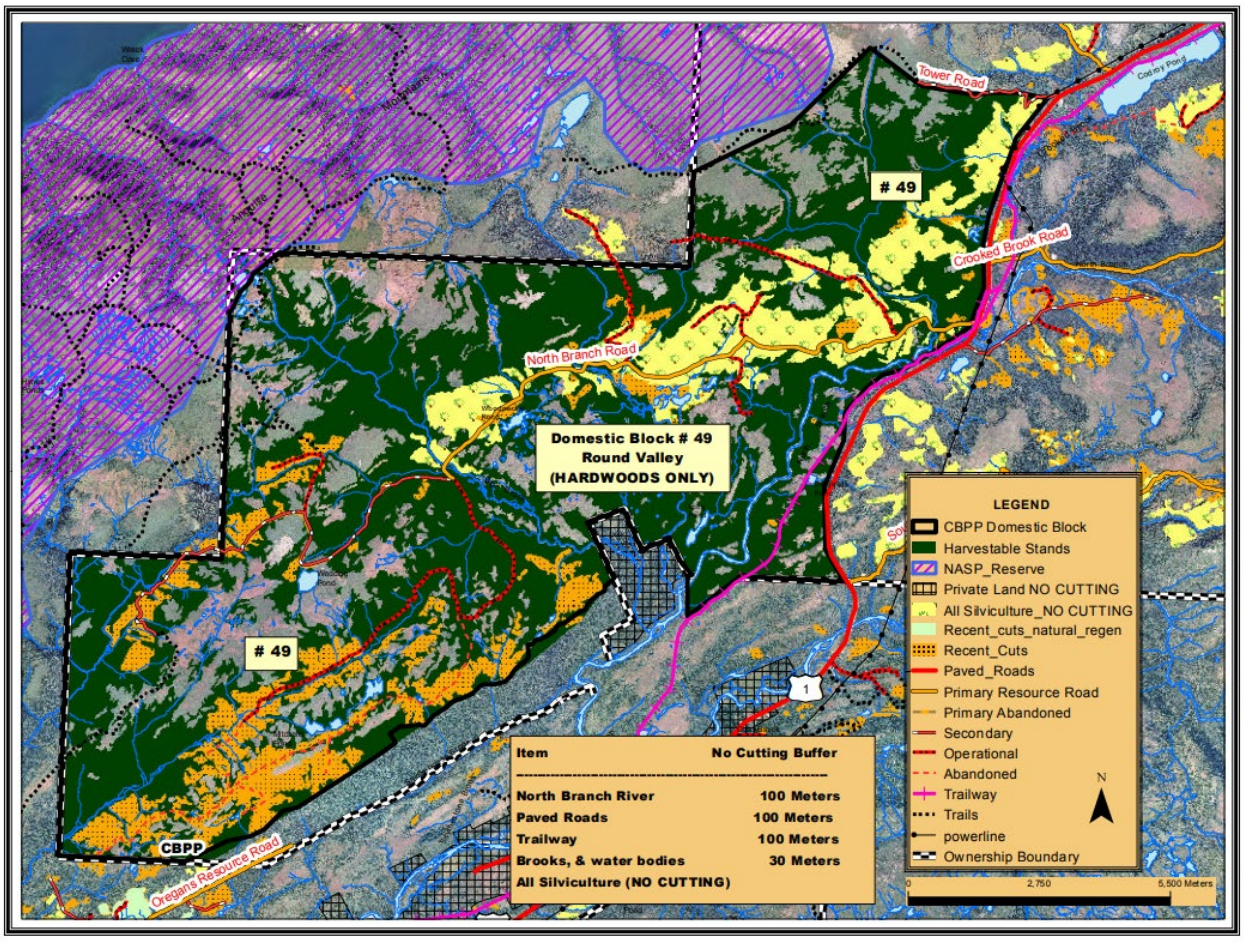


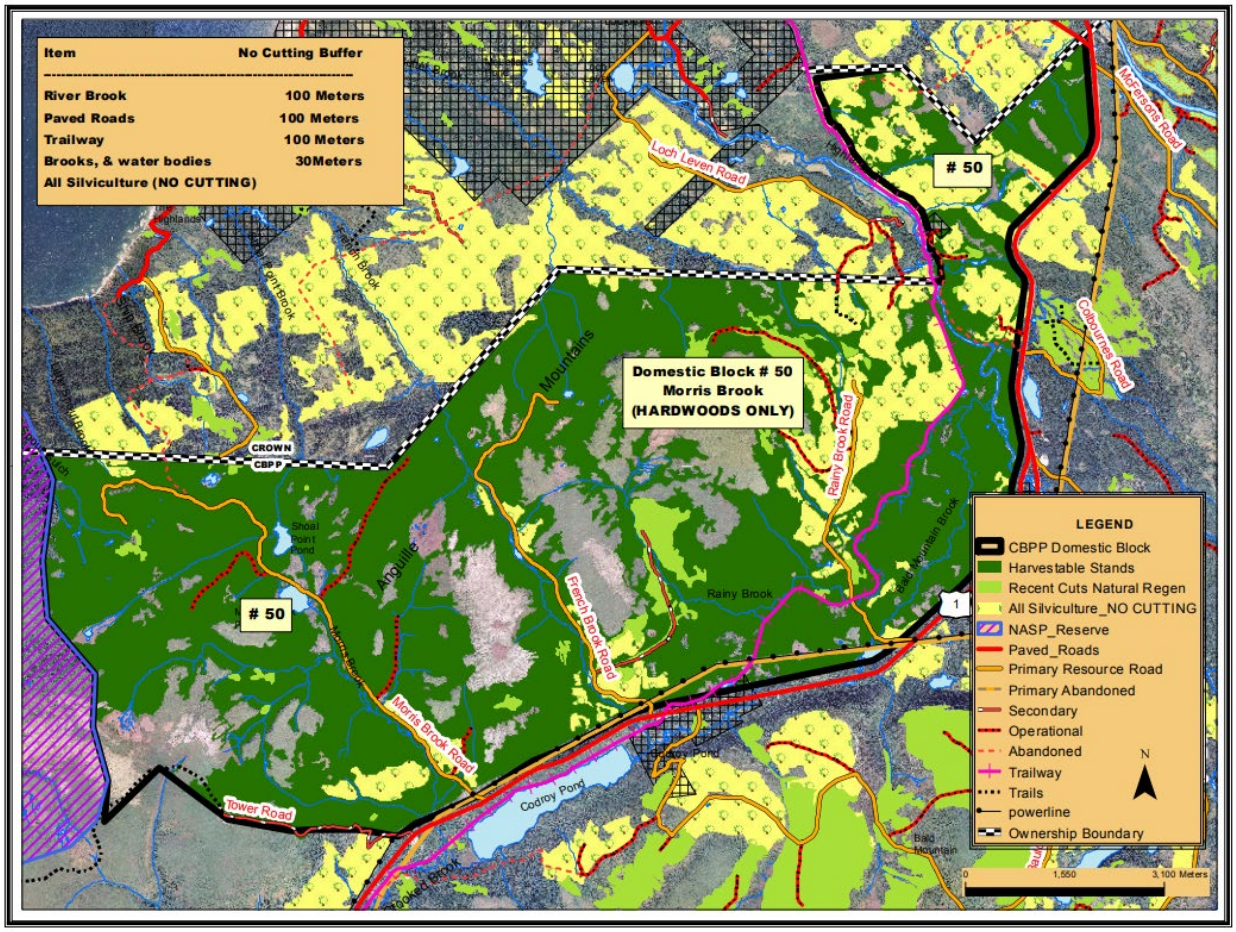
Source: NLDFFA via G. Carroll, pers. comm, 2023

Figure 4.21 Domestic Wood Cutting Block for Port au Port (C1401)



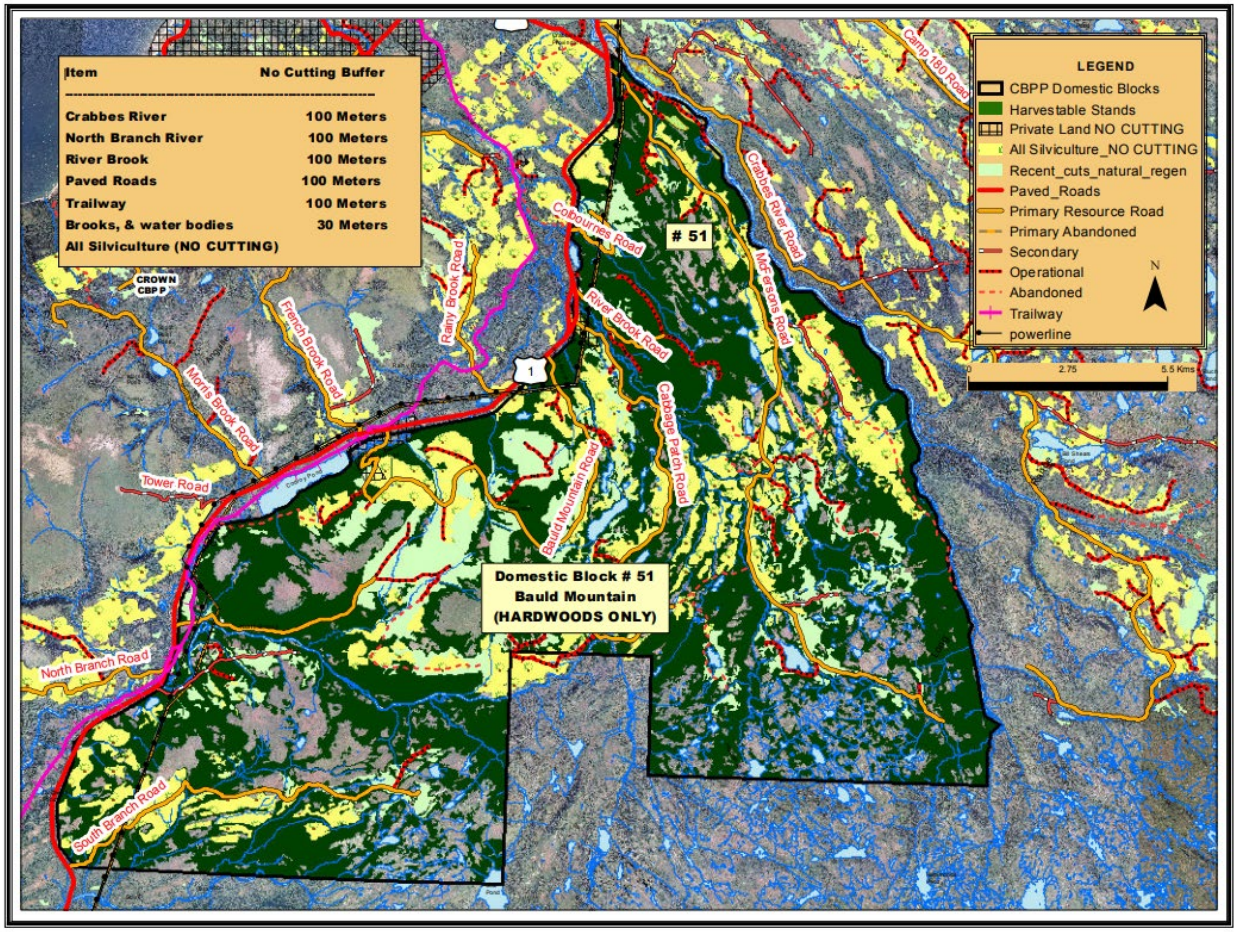
Source: NLDFFA via G. Carroll, pers. comm. 2023

Figure 4.22 Domestic Wood Cutting Block for Round Valley (K1449)



Source: NLDFFA via G. Carroll, pers. comm. 2023

Figure 4.23 Domestic Wood Cutting Block for Morris Brook (K1450)



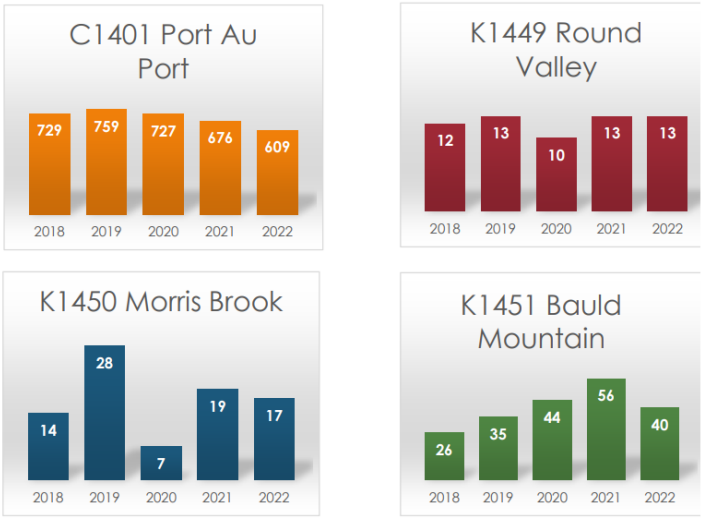
Source: NLDFFA via G. Carroll, pers. comm. 2023

Figure 4.24 Domestic Wood Cutting Block for Bauld Mountain (K1451)

Between 2018–2022, the number of Domestic Cutting Permits issued near the proposed Port au Port wind farm ranged from 609 to 759 for the domestic cutting block on the Port au Port Peninsula (Table 4.6; G. Carroll, pers. comm. 2023). For domestic cutting blocks near the proposed Codroy wind farm, the number of permits issued between 2018-2022 ranged from 10 to 13 in the Round Valley area, 7 to 28 in the Morris Brook area, and 26 to 56 in the Bauld Mountain area (Table 4.6; G. Carroll, pers. comm. 2023). The three domestic cutting blocks near the Codroy wind farm are located within CBPPL limits; NLDFA issues domestic permits for hardwoods only in these blocks (G. Carroll, pers. comm. 2023). CBPPL does not manage its landbase for domestic harvesting with segregated blocks. Historically, CBPPL issues 100 domestic permits, in each of its Zone 6 tenures, for the harvest on non-commercial hardwood and larch species (Kruger 2018).

Table 4.6 Domestic Cutting Permits Issued between 2018-2022 for Areas in the Vicinity of the Port au Port and Codroy Wind Farms

District 14 Permits Issued					
	2018	2019	2020	2021	2022
C1401 Port Au Port	729	759	727	676	609
K1449 Round Valley	12	13	10	13	13
K1450 Morris Brook	14	28	7	19	17
K1451 Bauld Mountain	26	35	44	56	40



Source: NLDFFA via G. Carroll, pers. comm. 2023

Questions 86–89, 90–93, and 94–97 of the LRU survey included questions about domestic wood cutting activities in and around Port au Port Peninsula, Codroy, and Stephenville, respectively. The responses to those survey questions were as follows:

- Of the 436 participants who responded to **Question 86** of the LRU survey, approximately 32.1% (n=140) reported that they, or a member of their family, engage in domestic wood cutting activities in or around the Port au Port Peninsula, and 67.9% (n=296) indicated they did not.
  - In response to **Question 87**, approximately 31.2% (n=136) of the 436 participants who indicated they, or a member of their family, engage in domestic woodcutting in or around the Port au Port Peninsula provided a response regarding the locations in which they cut wood. Approximately 24.3% (n=33) participants indicated that they did not know where they, or a member of their family, engage in domestic wood cutting activities in or around the Port au Port Peninsula. Approximately 75.7% (n=103) of the participants identified where they engage in domestic wood cutting activities. In order of frequency of mention, the primary areas where domestic woodcutting occurs include Mainland (and areas near Mainland) (n=37), Cape St. George (n=13), Three Rock Cove (n=15), Piccadilly (n=11), Lourdes (n=12), West Bay (n=8), and eastern (n=1) and western portions of the peninsula (n=4). Areas identified by at least two participants include Campbell's Creek, Lower Cove, White Hills, Sheaves Cove, Ship Cove, "Local Road" and Stephenville. Areas

identified by at least one participant include eastern portions of the peninsula, Goose Pond Area, Point au Mal, Boswarlos, Kippens, Romains River, Central, Black Duck, Noels Pond, Cold Brook, Fox Island River, and De Grau. Thirteen participants reported that they engage in domestic wood cutting all over the Port au Port Peninsula.

- **Question 88** allowed participants to select only one option. Approximately 26.5% (n=36) of the participants reported that they, or a member of their family, engage in domestic wood cutting in or around the Port au Port Peninsula once or twice a week, 22.8% (n=31) reported cutting wood daily, and 21.3% (n=29) reported cutting wood once a year. Approximately 19.1% (n=26) reported cutting wood once every few months and 6.6% (n=9) reported cutting wood once a month. Approximately 2.9%(n=4) reported they did not know the frequency at which they or a family member engage in domestic wood cutting in and around the Port au Port Peninsula. One participant (0.7%) indicated that they never engage in domestic wood cutting in and around the Port au Port Peninsula.
- **Question 89** allowed participants to identify one or more of the purposes for harvesting wood under a domestic wood cutting permit. The primary use of wood harvested under a domestic wood cutting permit identified by 95.6% (n=130) of the participants was heating their home (or other structures such as cabins, sheds, garages, etc.). Other uses identified by the participants include domestic construction (fences, sheds) (34.6%; n=47), Christmas tree cutting (31.6%; n=43), traditional/cultural purposes (30.2%; n=41), firewood collection (29.4%; n=40), cooking food (22.8%; n=31), artisanal purposes (13.2%; n=18), given as gift to neighbour/friend/family (9.6%; n=13), and making utensils (2.2%; n=3). One participant provided a response to the "other" option however, they did not provide a response related to their wood cutting activities, indicating instead "you must come talk to our people".

- Of the 431 participants who responded to **Question 90** of the LRU survey, 32.3% (n=139) reported that they, or a member of their family, engage in domestic wood cutting activities in or around Codroy. Most of the participants (67.8%; n=292) indicated that they did not engage in domestic wood cutting in this area.
  - Of the 137 participants who responded to **Question 91**, approximately 27% (n=37) of the participants indicated that they did not know where they, or a member of their family, engaged in domestic wood cutting in this area. Approximately 73% (n=100) of the participants provided a response regarding the locations in which they cut wood. The areas where domestic woodcutting was reported to occur include Codroy (including Great Codroy; Codroy Pond), Upper Ferry, St. Andrews, Booms Brook, North Branch, South Branch, Doyle's area, Cape Anguille (and Cape Anguille Mountain), Woodville, Millville, Mine Road, Camp 185, Loch Leven, Lou Brook, Morris Brook, Ryan's Bank, Searston, Bauld Mountain, Riverview, Shoal Point, Benoit Siding, Coal Brook, Second Brook, Highlands, Area 9, Area 27, Tompkins, Upper Ferry, K1449 Round Valley, C1431 Codroy, O'Regan's, and "west coast". A few participants provided longer responses, including "I'm not familiar with the area personally but I have friends out there who cut wood for hearing their homes, building homes or cabins. Building fences or garbage boxes. Picnic tables."; "I'm not about to name every community that way either. From Ramea to Port Saunders I have family."; "Around the proposed windmill location"; "I do not track my family's activities and nor should you"; and, "We harvest wood on private property at this time and do not require or have a

wood cutting permit. My family traditionally harvested wood above Cape Anguille on a road colloquially known as "Jims Road", named for my grandfather". '

- **Question 92** allowed participants to select only one option. Approximately 43.1% (n=59) of the participants reported that they, or a member of their family, engage in domestic wood cutting in or around Codroy once or twice a week, 217.5% (n=24) reported cutting wood daily and the same amount reported cutting wood once every few months. Approximately 11% (n=15) of the participants reported cutting wood once a month and 8.8% (n=12) reported cutting wood once a year. Two participants (1.5%) reported that they never cut wood in Codroy, and one (0.7%) participant indicated that they did not know the frequency at which they, or a member of their family, cut wood in the area.
- **Question 93** allowed participants to identify one or more of the purposes for harvesting wood under a domestic wood cutting permit. The primary use of wood harvested under a domestic wood cutting permit identified by 98.5% (n=135) of the participants was heating their home (or other structures such as cabins, sheds, garages, etc.). Other uses identified by the participants include domestic construction (fences, sheds) (48.2%; n=66), firewood collection (45.3%; n=62), Christmas tree cutting (35.8%; n=49), cooking food (26.3%; n=36), traditional/cultural purposes (22.6%; n=31), artisanal purposes (13.1%; n=18), given as gift to neighbour/friend/family (11%; n=15), , and making utensils (5.1%; n=7). Four (2.9%) of the participants provided responses for other purposes for domestic wood cutting in the area, these include "craft material", "logs for milling into lumber", home heating and lodge heating for tourists", and the letter "w". The three complete open-ended responses provided were all related to one or more of the options listed.

- Of the 429 participants who responded to **Question 94** of the LRU survey, only 12.1% (n=52) reported that they, or a member of their family, engage in domestic wood cutting activities near Stephenville. Most of the participants (87.9%; n=377) indicated that they did not engage in domestic wood cutting in this area.
  - In response to **Question 95**, approximately 38.5% (n=20) of the participants indicated that they did not know where they, or a member of their family, engaged in domestic wood cutting activities near Stephenville. Approximately 61.5% (n=32) of the 52 participants who indicated they, or a member of their family, engage in domestic woodcutting near Stephenville provided a response regarding the locations in which they cut wood. The areas where domestic woodcutting was reported to occur include Area 6, Area 8, Whites Road, North of Route 460 between Stephenville from Kippens to Black Duck Sidding, Burgeo Road, North of Stephenville, Gull Pond, Cold Brook, Kippens, Stephenville, Stephenville Crossing, Bottom Brook, Noels Pond, Seal Cove Road, Stephenville dump road, "area of old dump", Romains, West Bay, and Port au Port East. One participant indicated "Again, I'm not about to specify every community name. I'd be here all day!".
  - **Question 96** allowed participants to select only one option. Approximately 36.5% (n=19) of the participants reported that they, or a member of their family, engage in domestic wood cutting near Stephenville once or twice a week, 15.4% (n=8) reported cutting wood once every few months, and the same amount (15.4%; n=8) reported cutting wood once a year. Approximately 13.5% (n=7) reported cutting wood daily, and 11.5% (n=6) reported cutting wood once a month. Four participants (7.7%) indicated that they do not know the frequency with which they, or a member of their family, engage in domestic wood cutting near Stephenville.

- **Question 97** allowed participants to identify one or more of the purposes for harvesting wood under a domestic wood cutting permit. The primary use of wood harvested under a domestic wood cutting permit identified by 95.2% (n=50) of the participants was heating their home (or other structures such as cabins, sheds, garages, etc.). Other uses identified by the participants include firewood (48.1%; n=25), domestic construction (fences, sheds) (228.9%; n=15), traditional/cultural purposes (25%; n=13), Christmas tree cutting (21.2%; n=11), cooking food (19.2%; n=10), given as gift to neighbour/friend/family (17.3%; n=9), artisanal purposes (17.3%; n=9), and making utensils (1.9%; n=1). One participant (1.9%) indicated that they engage in domestic wood cutting for other purposes, and only left a single letter "k" as their response.

4.3.3.3 Agriculture

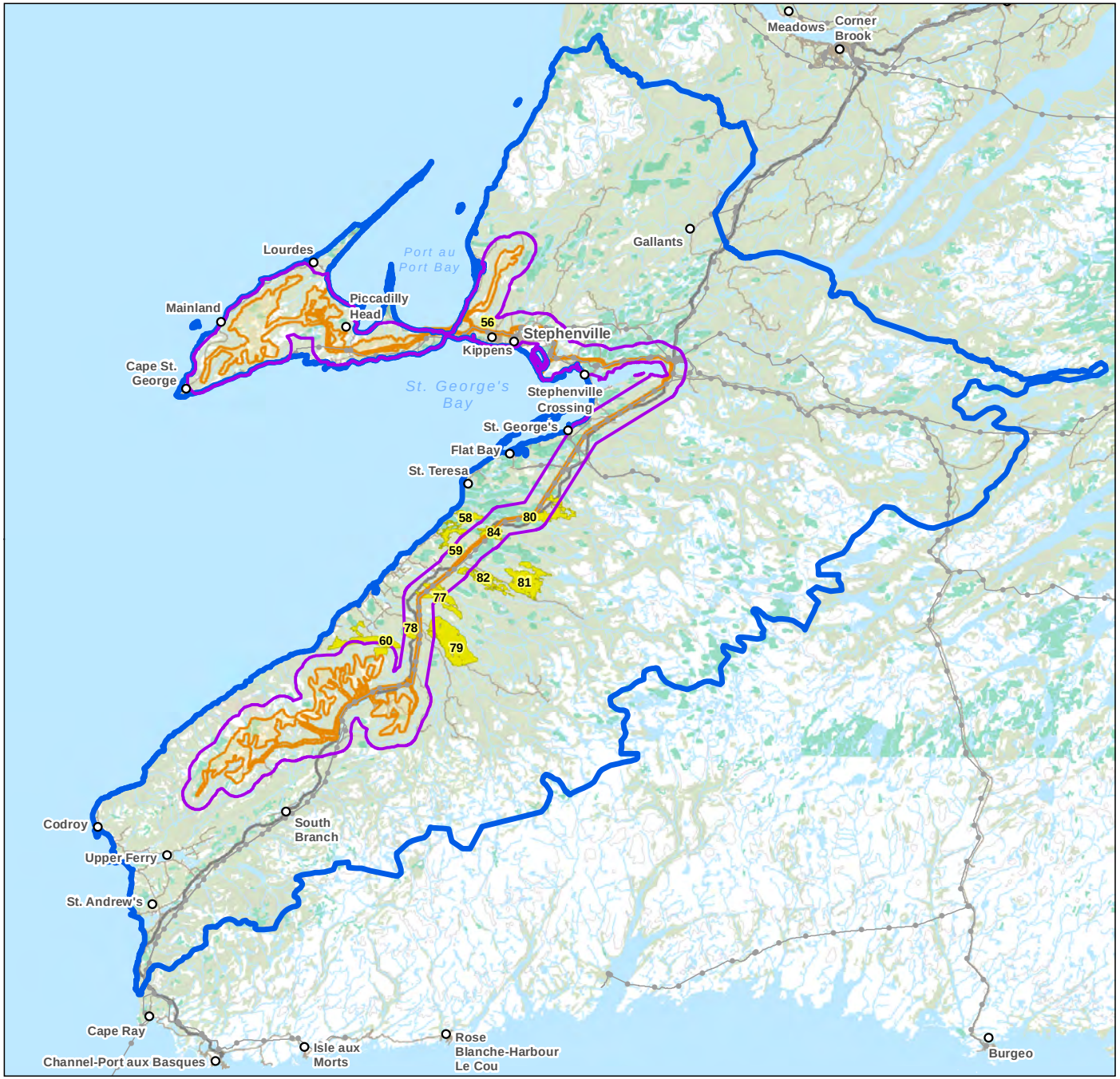
Approximately 5% of soils in the province of NL are suitable for agriculture (Kruger 2018). There are approximately 80-100 farms in Forestry Planning Zone 6 (Kruger 2018), which encompasses the RAA for the Project and extends beyond the RAA to the north and east. Although Zone 6 includes a substantial amount of land outside of the RAA, much of the following characterization of agricultural land use within Zone 6, as provided by Kruger (2018) in CBPPL's *Five-Year Operating Plan*, is generally representative of agricultural land use within the RAA:

> *The majority of [the farms in Forestry Planning Zone 6] are located in the Humber Valley, Codroy Valley, and Bay St. George (Robinsons, Highlands, and Flat Bay) areas. These farms employ 250-300 people with gross farm receipts of $15-20 million. Main commodities produced in the zone are dairy, vegetables, and greenhouse products. Other commercial items include fur, berries, eggs, hogs, sheep, beef, honey, and sods. Additionally, there are hundreds of subsistence farming plots scattered throughout the zone. The vegetables grown on these plots are used to supplement food requirements during the winter months. There are also several pastures and areas designated for hay production. The wild berry industry (bakeapple, partridgeberry, strawberry, blueberry, and raspberry) plays a significant role in the economic picture for the zone. While there is no actual record of domestic production, thousands of kilograms of berries are harvested annually. These berries are sold locally and to travelling tourists.*

Agriculture leases and licences are available where no land use conflicts exist, although written approval is required from municipal council with respect to land within municipal and planning area boundaries. Agricultural leases are issued for a term of fifty years and must be approved by the Land Management Division of NLDFFA (Government of NL n.d.[c]). Within the RAA, there are several plots of provincially owned Crown land designated for agricultural purposes (Figure 4.25). These areas are advertised by the Agriculture and Lands Branch of NLDFFA for farmers to apply for a lease and utilize the land as an Agricultural Crown Land Lease (NLDFFA n.d.[h]). There are currently nine Agricultural Areas of Interest (AAOIs) available for application in the vicinity of Stephenville and the Anguille Mountains (Table 4.7). There are no plots of land designated for agriculture purposes on the Port au Port Peninsula.

Table 4.7 Crown Land in the RAA Designated as Areas of Interest for Agricultural Development

Location of Agricultural Area of Interest	Lot #	Approximate Size	Approximate Spatial Overlap of AAOI with RAA, LAA, and Project Area / Approximate Distance of AAOI from LAA and/or Project Area
Romaines Brook	56	0.3 km^2	• Overlap with RAA: 0.3 km^2 (100% of AAOI) • Overlap with LAA: 0.3 km^2 (100% of AAOI) • No overlap with Project Area
Heatherton	59	6 km^2	• Overlap with RAA: 6 km^2 (100% of AAOI) • Overlap with LAA: 0.5 km^2 (9% of AAOI) • No overlap with Project Area
Highlands	60	14 km^2	• Overlap with RAA: 14 km^2 (100% of AAOI) • Overlap with LAA: 4 km^2 (28% of AAOI) • No overlap with Project Area
Mitchells Pond	77	9.5 km^2	• Overlap with RAA: 9.5 km^2 (100% of AAOI) • Overlap with LAA: 5 km^2 (52% of AAOI) • Overlap with Project Area: 0.6 km^2 (6% of AAOI)
Crabbes River West	78	2.5 km^2	• Overlap with RAA: 2.5 km^2 (100% of AAOI) • Overlap with LAA: 2.3 km^2 (93% of AAOI) • No overlap with Project Area
Crabbes River East	79	26 km^2	• Overlap with RAA: 26 km^2 (100% of AAOI) • Overlap with LAA: 2 km^2 (7% of AAOI) • No overlap with Project Area
Middle Brook	80	9 km^2	• Overlap with RAA: 9.3 km^2 (100% of AAOI) • Overlap with LAA: 5 km^2 (54% of AAOI) • Overlap with Project Area: 0.5 km^2 (5% of AAOI)
Robinsons River	82	7 km^2	• Overlap with RAA: 7 km^2 (100% of reserve area) • Overlap with LAA: 1 km^2 (17% of AAOI) • No overlap with Project Area
Fischells	84	4 km^2	• Overlap with RAA: 4 km^2 (100% of reserve area) • Overlap with LAA: 4 km^2 (100% of AAOI) • Overlap with Project Area: 0.6 km^2 (16% of AAOI)
Source: NLDFFA n.d.[h] and GIS metrics			



Stantec

Agricultural Area of Interest

Local Assessment Area

Regional Assessment Area

Proposed Project Features

Project Area

Other Features

- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

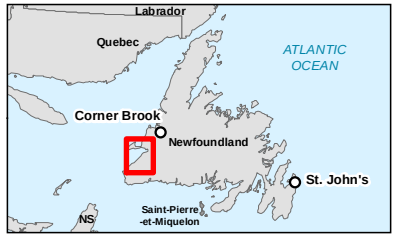
N

0 10 20 km

(At original document size of 8.5x11)
1:900,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2; Government of NL Dept. of Fisheries, Forestry and Agriculture; NRCan CanVec; OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by NW/AC on 2023-07-25
QR by AW on 2023-07-18
IR Review by XX on 2023-XX-XX

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_051c

Figure No.
4.25

Title
Agricultural Areas of Interest in the Regional Assessment Area

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4.3.3.4 Electrical Infrastructure

The Newfoundland generation and transmission system is currently made up of 11 hydroelectric plants, one thermal generating station, four gas turbines, and 25 diesel plants generating electricity, along with 54 high-voltage terminal stations, 25 lower-voltage substations, and thousands of kilometres of transmission and distribution lines across the province (Figure 4-26).

Source: NL Hydro

Figure 4.26 Newfoundland Provincial Generation and Transmission System (2021)

As can be seen in Figure 4.26 above, the Project Area includes NL Hydro-owned 230 kV transmission equipment running in and out of Bottom Brook and on to Stephenville, 138 kV and ± 350 / ± 200 kV HV_{dc} transmission equipment to the south near Codroy, and Newfoundland Power 69 kV transmission equipment near Port au Port, Stephenville, Bottom Brook, and down towards Codroy. Many of these locations also include MV and/or LV distribution as well. Along with these transmission lines, there are associated terminal stations used for switching operations, or stepping up/down the voltage. In addition to the transmission infrastructure, the Project Area contains gas turbine generation in Stephenville, an electrode station at Indian Head, and a converter station near Bottom Brook.

The Project is based around the construction of a new, hydrogen and ammonia processing plant (H_2 Plant) and terminal station near Stephenville and will include staged installation of wind farms alongside expansion of the H_2 Plant. The Project will be broken into three phases, with each phase involving the installation of approximately 1,000 MW of wind generation and 650 MW of hydrogen and ammonia processing load along with all associated transmission and distribution infrastructure for an ultimate generation of approximately 3,000 MW and load of approximately 1,950 MW.

The first phase of the Project involves construction of three stations, a large collector transmission station on the Port au Port peninsula, a smaller collector transmission station to the east of the Port au Port peninsula, and a terminal station near Stephenville. These stations will be connected to each other by two new 230 kV transmission lines. The Port au Port West Collector Substation will be centrally located near a new, customer owned 850 MW, 34.5 kV wind farm and collection system to step the voltage up from 34.5 kV to 230 kV for transmission. Similarly, the Port au Port East Collector Substation will be located near a new, customer owned 150 MW, 34.5 kV wind farm and collection system to step the voltage up for transmission. The terminal station will step the voltage down from 230 kV to 34.5 kV to be utilized at the new 650 MW H_2 Plant, constructed during this phase.

The second phase of the Project will include similar infrastructure to the first phase, extending the customer-owned 230 kV transmission system south from the terminal station towards Codroy, installing a customer-owned 1,000 MW, 34.5 kV wind farm and collection system, and a dedicated wind farm collector substation for stepping the generated power up. Expansions to the H_2 Plant during this phase would add an additional 650 MW of load.

The third and final phase of the Project would again include similar infrastructure to the first two phases, with an extension of the 230 kV transmission system, a 1,000 MW, 34.5 kV wind farm and collection system, and a step-up wind farm collector substation. The location of the third phase wind farm is still in discussion but expected to be located north of the terminal station. Expansions to the H_2 Plant during this phase would add an additional 650 MW of load.

The Project is being designed to be able to provide for all its own power requirements, with interconnections to the NL Hydro grid being provided for temporary import on project startup to allow early production of hydrogen and ammonia. Once the generation has been installed, the interconnections to NL Hydro would be considered a backup to be used in emergency situations. The proposed locations for interconnection involve a primary connection to the NL Hydro Grid at Bottom Brook terminal station, with a secondary interconnection at Stephenville terminal station. This will be finalized after a System Impact Study has been performed by the Newfoundland and Labrador System Operator.

Where the Project involves new transmission lines running adjacent to existing buried infrastructure or overhead transmission or distribution infrastructure, an AC Interference Study will be performed to ensure that induced currents and voltages are minimized and kept to acceptable levels.

4.3.4 Recreational and Subsistence Land and Resource Use

4.3.4.1 Recreational Activities

The LRU survey included questions about recreational activities in and around Port au Port Peninsula, Codroy, and Stephenville, respectively. Relevant survey results are summarized below.

Recreational Activities In and Around the Port au Port Peninsula

Most of the survey participants (72.8%; n=367) confirmed that they engage in recreational activities in or around the Port au Port Peninsula. Walking / hiking was the most common recreational activity identified by the participants (87%; n=315). Other common recreational activities identified by the participants include all-terrain vehicle (ATV) use or other touring (71.8%; n=260), camping (69.1%; n=250), snowmobiling (53.9%; n=195), snowshoeing (44.8%; n=162), bird watching (43.9%; n=159), whale watching (40.9%; n=7148), swimming (40.3%; n=146), boating (33.7%; n=122), and canoeing / kayaking (30.9%; n=112). Running/jogging (21.8%; n=79), cycling (21.3%; n=77), cross-country skiing (19.3%; N=70), and skating (17.4%; n=63). Approximately 9.9% (n=36) of the participants identified engaging in "other" recreational activities not listed. Responses provided for the "other" option include driving to restaurants, scenic activities and sight-seeing, hunting, fishing, photography, visiting / picnicking / having fires at the beach, picking berries, harvesting shellfish (mussels, clams), collecting sea glass and shells on the beach, guiding tourists, harvesting medicinal plants and other foraging activities, spiritual rituals and meditation (e.g., forest bathing), connecting with nature, snorkelling, star gazing, firewood collection, motorcycling, and rock/ mineral/ fossil identification, collection and preservation (Stantec 2023a).

Recreational Activities In and Around Codroy

More than half of the survey participants (58.7%; n=289) confirmed that they engage in recreational activities in or around Codroy. Walking / hiking was the most common recreational activity identified by the participants (84.8%; n=245). Other common recreational activities identified by the participants include ATV use or other touring (79.6%: n=230), camping (74.4%; n=215), snowmobiling (56.8%; n=164), swimming (51.9%; n=150), bird watching (49.8%; n=144), snowshoeing (44.6%; n=129), canoeing / kayaking (43.6%; n=126), and boating (motor) (35.6%; n=103). Recreational activities reported by 30% or less of the participants include cycling (28.7%; n=82), whale watching (24.6%; n=71), running / jogging (23.5%; n=68), and skating (18%; n=52). Approximately 12.8% (n=37) of the participants identified engaging in "other" recreational activities not listed. Responses provided for the "other" option include berry picking / foraging, hunting, fishing, gardening, tracking, outfitting tourists, exploring, painting, photography, travelling, geocaching, festivals, outdoor yoga, camping (already included in list), backcountry skiing (already included in list), and "none". Four participants provided longer responses, these include: "former hiker, skier, runner, geologist (prospecting / rock hounding) – now disabled"; "Spiritual Rituals and meditation; Harvest of wild plants for natural medicine and health care"; "Spending

the day with family at the beach in Codroy pond"; "Piping plovers they are an endangered bird that are found along the south west coast beaches and grasslands" (Stantec 2023a). –

Recreational Activities In and Around Stephenville

More than half of the survey participants (56.6%; n=278) confirmed that they engage in recreational activities within or near Stephenville. Walking / hiking was the most common recreational activity identified by the participants (83.1%; n=1231). Other common recreational activities identified by the participants include ATV use or other touring (59%: n=164), camping (58.6%; n=163), snowmobiling (44.6%; n=124), swimming (37.4%; n=104), bird watching (334.2%; n=95), snowshoeing (30.9%; n=86), canoeing / kayaking (26.6%; n=74), cycling (20.5%; n=57), running / jogging (19.4%; n=54), whale watching (19.4%; n=54), boating (motor) (18.4%; n=51), and skating (13.3%; n=37). Approximately 6.8% (n=19) of the participants identified engaging in "other" recreational activities not listed. Responses provided for the "other" option include hunting, berry picking, foraging, fishing, picnicking, golf, sightseeing, photography, cross-country skiing, and beach combing. One participant indicated "former hiker, skier, runner, geologist (prospecting / rock hounding) – now disabled" (Stantec 2023a). –

4.3.4.2 Tourism

Newfoundland and Labrador Tourism (NL Tourism), the Tourism Division of the NL Department of Tourism, Culture, Arts and Recreation, categorizes the "Western Region" of NL – which stretches 750 km from Channel-Port aux Basques on the southwest corner to the Viking site of L'Anse aux Meadows at the tip of the Great Northern Peninsula – as a tourist destination for marketing purposes (NL Tourism n.d.[a]). Popular tourist attractions in the Western Region, according to NL Tourism (n.d.[a]), include various sites outside of the RAA (i.e., Gros Morne National Park, L'Anse aux Meadows National Historic Site, Humber Valley, and St. Anthony) as well as the Codroy Valley within the RAA. Codroy Valley is described as "a haven for birders, nature lovers, adventurers, historians, and travellers alike" due to the presence of the Grand Codroy Estuary Ramsar Site and IBA (refer to Section 4.3.2.4), which can be visited for hiking and bird watching, as well as scenic features such as dramatic churches standing on cliffs overlooking the ocean, traditional farmlands with grazing Newfoundland ponies, and the lighthouses at Cape Anguille (NL Tourism n.d.[a]).

In addition to positioning Codroy Valley as a tourist attraction and indicating that the Western Region of NL offers a variety of dining, shopping, nightlife, and outdoor adventures, the *Traveller's Guide 2023* (NL Tourism 2023) highlights the following specific tourist attractions that are located within the RAA:

- Unique French culture of the Port au Port Peninsula
- Stephenville Theatre Festival
- The Friendly Invasion Festival in Stephenville
- Scenic areas along Routes 404 and 405 for walking, biking, or riding an ATV
- Tea by the Sea Restaurant in Mainland
- Secret Cove Brewing Company in Port au Port East
- Park Boutte du Cap in Cape St. George

- Pirate's Haven ATV Touring, Adventures & Rentals in Robinsons
- Codroy Valley Wetland Interpretive Centre in Upper Ferry
- Starlite Trail in Doyles
- Gravels Rest Stop and Danny's Trail in Port au Port West

The *Traveller's Guide 2023* (NL Tourism 2022) also highlights the following tourist accommodations in the RAA:

- Codroy Valley Cottage Country (Route 406, Doyles)
- Pirate's Haven ATV Friendly RV Park, Chalets & Adventures (Route 404, Robinsons)
- Acadian Hotel (19 Oregon Drive, Stephenville)
- Days Inn Stephenville (44 Queen Street, Stephenville)
- Cape Anguille Lighthouse Inn (Route 406, Main Road, Cape Anguille)
- Dreamcatcher Lodge (14 Main Street, Stephenville)
- Green Acres Cottages (Route 406, Millville)

The provincial parks, nature reserves, and proposed ecological and transitional reserves described in Section 4.3.2.4 also serve as potential tourist attractions, as do the hunting and outfitting opportunities described in Section 4.3.4.3 and the trails and unique sites described in Section 4.3.4.5.

Tourism operators in NL include Cape Race Newfoundland Adventures Inc., Linkum Tours, Maxxim Vacations, McCarthy's Party Tours, Miki Enterprises, Newfoundland International Vacation Group, Newfoundland Tours, Platinum Limousine Tours, Rock+Water Stan Cook Travel, Shamasha, and Wildland Tours (NL Tourism 2022).

4.3.4.3 Hunting, Trapping, Fishing, and Outfitting

Hunting in NL is a valued cultural and/or recreational activity for residents and non-residents, who, as a result, contribute to the province's wildlife management programs and economy through local spending and the outfitting industry (NLDFFA n.d.[i]). Hunting is regulated by NLDFFA and a licence is required to hunt, take, or kill any wildlife in the province. Non-residents must apply for a licence through outfitting companies for big game hunting as well as possess a non-resident hunting licence (NLDFFA n.d.[j]). Hunting must also take place during open seasons with bag limits in place, depending on the species. Target species for hunting are divided into two categories: big game (moose, caribou, black bear), and small game (e.g., grouse and snowshoe hare).

Big Game

The NLDFFA-Wildlife Division oversees big game populations and determines the maximum number of moose, caribou, and black bear that can be harvested safely to prevent population declines while ensuring populations are maintained at levels that will not degrade the habitat and potentially lead to a

population collapse (NLDFFA n.d.[k]). Hunting seasons and licence quotas are discussed below for moose, caribou, and black bear.

The hunting season for moose varies year to year but generally occurs between mid-September and late December for MMAs 06,08,09,10,11, and 43 with a bag limit of one moose per licence. Licences are available to residents and non-residents. The 2023-2024 moose quota for the Island of Newfoundland is set to 27,575 licenses, which is 90 licences less compared to the 2022-2023 (Government of NL n.d.[d]). This is a result of a decrease in moose quotas within 14 MMAs, none of which are found within the RAA. Moose quotas remained stable from the previous year in five out of the six MMAs within the RAA, apart from MMA 6, which saw an increase by 50. In 2021, success rates for the six MMAs within the RAA were approximately 59% (Government of NL n.d.[e]). Details of the 2023-2024 moose quotas issued for MMAs within the RAA are listed in Table 4.8. The overall moose population on the Island between 2012-2022 has been relatively stable with a population estimate of 110,000 in 2022 (Government of NL n.d.[e]).

Table 4.8 2023-2024 Moose Hunting Season Quotas for MMAs within the RAA

Management Area	Management Area ID	Population Estimate (in 2021)	Total License Quotas (for 2023-2024)	Quota Changes (from 2022)
Corner Brook (Area 6)	06	6819	1550	+50
St. George's (Area 8)	08	3019	920	0
Anguille Mountains (Area 9)	09	1684	530	0
Port aux Basques (Area 10)	10	2604	900	0
Dashwoods (Area 11)	11	3298	660	0
Port au Port (Area 43)	43	506	100	0
Sources: Government of NL n.d.[d, e]				

Woodland caribou (*Rangifer tarandus*) on the Island of Newfoundland is a SAR that has been assessed as a species of Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (2014). The 2023 caribou hunting season is scheduled to take place between mid-September and early December. There are 55 caribou licences issued in total for CMA 61 and 75 licences for CMA 62 with a bag limit of one caribou per licence (Government of NL n.d.[d]).

For black bear, the bag limit is two (either sex) per licence in management areas open to hunting (Government of NL n.d.[d]). Hunting on the Island is permitted in either of the designated spring or fall seasons. In 2023, the spring hunting season is set to start early May to mid-July and the fall hunting season will start early September and mid-November. There is also a fall bow hunting season, which begins on August 26 in 2023.

Further information on the existing conditions for wildlife in the vicinity of the Project is provided in the Terrestrial Baseline Study (Stantec 2023b).

Questions 11–15, 16–20, and 21–25 of the LRU survey included questions about big game hunting activities in and around Port au Port Peninsula, Codroy, and Stephenville, respectively. The responses to those survey questions were as follows (Stantec 2023a):

- Of the 490 participants who responded to **Question 11** of the LRU survey, approximately 56.9% (n=279) indicated that neither they, nor a member of their family, hunt for big game (moose, bear, caribou) in or around the Port au Port Peninsula. Approximately 43.1%% (n=211) reported that they, or a member of their family, hunt for big game in this area.
  - **Question 12** allowed participants to identify one or more of the purposes for harvesting big game. Recreation and/or food was identified as the most common purpose for hunting big game (e.g., moose, caribou, bear) in and around the Port au Port Peninsula (91%; n=193). Traditional and/or cultural purposes was identified as the second most common purpose for hunting big game (50.9%; n=108). Traditional/cultural purposes for hunting big game would include use of game meat for food, trade, bait, ceremonies, and other purposes. Eight participants (3.8%) indicated they hunt big game in and around the Port au Port Peninsula for commercial purposes, and 1.9% (n=4) indicated they harvest big game for "other" purposes. However, the participants that selected "other" did not provide any new purposes for hunting big game. Open-ended responses received for Q12 can all be categorized under one or more of the listed options and include "Food is not recreational. Moose is a source of lower fat game meat. It is a necessity."; "Food only not recreational"; "rabbit"; and "Without it, my family would starve without it some weeks during the winter".
  - **Question 13** allowed participants to identify one or more species of big game that they, or a member of their family, hunt in and around the Port au Port Peninsula. Moose was identified as the most harvested species of big game in and around the Port au Port Peninsula (99.1%; n=210). Bear (16%; n=34) and caribou (12.3%; n=26) were also identified; however, they are less commonly hunted in this area when compared to moose. Approximately 7.6% (n=16) of the participants indicated that they hunt "other" species of big game not listed. However, only "small game", "rabbit", "hare", "grouse", and "waterfowl" were listed, all of which are considered small game.
  - **Question 14** allowed participants to select only one option regarding their frequency of big game hunting in or around the Port au Port Peninsula. Approximately 23.6% (n=50) of the participants reported that they, or a member of their family, engage in big game hunting in and around the Port au Port Peninsula every day during the open season. Approximately 31.1% (n=66) reported hunting for big game once a year during the open season, while 28.8% (n=61) reported hunting for big game once or twice a week, 4.3% (n=9) reported hunting once every few months, and 2.4% (n=5) reported hunting big game once a month during the open season. Approximately 8.5% (n=18) reported they did not know the frequency at which they or a family member engage in big game hunting in and around the Port au Port Peninsula during the open season. Approximately 1.4% (n=3) of the participants indicated that they never hunt big game in and around the Port au Port Peninsula during the open season.

  - **Question 15** allowed participants to select only one option regarding their frequency of consumption of big game hunted in or around the Port au Port Peninsula. Big game hunted in or around the Port au Port Peninsula was reported to be consumed at least once or twice a week by approximately 60.4% (n=128) of the participants. Approximately 17% (n=36) reported consuming big game hunted in the area once a month on average. Approximately (9%; n=19) reported consuming big game once every few months and 7.1% (n=15) reported consuming big game daily. Approximately 4.3% (n=9) reported not knowing the frequency with which they consume big game that was hunted in the Port au Port area, and 2.4% (n=5) reported never consuming big game.

- Of the 485 participants who responded to **Question 16** of the LRU survey, approximately 51.8% (n=251) indicated that neither they, nor a member of their family, hunt for big game (e.g., moose, bear, caribou) in or around Codroy. Approximately 48.3% (n=234) reported that they, or a member of their family, hunt for big game in this area.
  - **Question 17** allowed participants to identify one or more of their purposes for harvesting big game in or around Codroy. Recreation and/or food was identified as the most common purpose for hunting big game (moose, caribou, bear) in and around Codroy (99.1%; n=230). Traditional and/or cultural purposes was identified as the second most common purpose for hunting big game (43.1%; n=100). Traditional/cultural purposes for hunting big game would include use of game meat for food, trade, bait, ceremonies, and other purposes. Twenty-two participants (9.5%) indicated they hunt big game in and around Codroy for commercial purposes, and five participants (2.2%) indicated they harvest big game for "other" purposes. However, the participants that selected "other" did not provide any new purposes for hunting big game. Open-ended responses received for Q17 can all be categorized under one or more of the listed options and include "subsistence", "I hunt for food", "tourist outfitting", "Food is not recreational" and "to feed their family during the cold months. Grocery stores are too expensive".
  - **Question 18** allowed participants to identify one or more species of big game that they, or a member of their family, hunt in and around Codroy. Moose was identified as the most harvested species of big game in and around Codroy (99.1%; n=230). Bear was the second most harvested species of big game (41.9%; n=97). Caribou is also harvested in Codroy, as identified by 25.9% (n=60) of the participants. Seven participants (3%) indicated that they hunt species of big game not listed. However, rabbit, grouse, ptarmigan, and "small game" were reported, all of which are considered small game. One participant listed salmon, which is a freshwater fish species. One participant provided a longer response, indicating that they "Would hunt caribou but the number is so low it's very hard to get a license".
  - **Question 19** allowed participants to select only one option regarding their frequency of big game hunting in and around Codroy. Approximately 41% (n=95) of the participants reported that they, or a member of their family, engage in big game hunting in and around Codroy once or twice a week during the open season. Approximately 31% (n=72) reported hunting for big game daily during the open season, while 14.2% (n=33) reported hunting for big game once year. Eleven participants (4.7%) indicated hunting once every few months, and 3.9% (n=9) of the participants indicated hunting once a month during the open season. Approximately 4.3% (n=10) of the participants reported they did not know the frequency at which they or a family member engage in

big game hunting during the open season. Two participants (0.9%) indicated that they never hunt in the Codroy area during the open season.

- **Question 20** allowed participants to select only one option regarding their frequency of consumption of big game hunted in or around Codroy. Big game hunted in or around Codroy was reported to be consumed at least once or twice a week by approximately 66.8% (n=155) of the participants. Approximately 13.4% (n=31) reported consuming big game hunted in the area daily and 12.1% (n=28) reported consuming big game once a month. Approximately 4.3% (n=10) reported consuming big game once every few months. Six participants (2.6%) reported not knowing the frequency with which they consume big game that was hunted in Codroy, and 0.9%% (n=2) reported never consuming big game hunted in this area. I

- Of the 482 participants who responded to **Question 21** of the LRU survey, approximately 64.5% (n=311) indicated that neither they, nor a member of their family, hunt for big game (e.g., moose, bear, caribou) near Stephenville. Approximately 35.5% (n=171) reported that they, or a member of their family, hunt for big game in this area.
  - **Question 22** allowed participants to identify one or more of their purposes for harvesting big game near Stephenville. Recreation and/or food was identified as the most common purpose for hunting big game (moose, caribou, bear) near Stephenville (95.9%; n=162). Traditional and/or cultural purposes was identified as the second most common purpose for hunting big game (48.5%; n=82). Traditional/cultural purposes for hunting big game would include use of game meat for food, trade, bait, ceremonies, and other purposes. Nine participants (5.3%) indicated they hunt big game near Stephenville for commercial purposes, and four participants (2.4%) indicated they harvest big game for "other" purposes. However, the participants that selected "other" did not provide any new purposes for hunting big game. Three of the open-ended responses received for Q22 can be categorized under one or more of the listed options and include "subsistence", "Food is not recreational" and "Many family occasions are held in Stephenville and game is always prepared as we believe creator made game abundant to feed and nourish us". One participant indicated that "[they] I usually do not hunt Stephenville area".
  - **Question 23** allowed participants to identify one or more species of big game that they, or a member of their family, hunt near Stephenville. Moose was identified as the most harvested species of big game near Stephenville (100%; n=169). Bear (23.7%; n=40) and caribou (20.1%; n=34) were also identified, however, they are less commonly hunted in this area when compared to moose. Four participants (2.4%) indicated that they hunt species of big game not listed. However, only "small game", rabbit and grouse were listed, all of which are considered small game.
  - **Question 24** allowed participants to select only one option regarding their frequency of big game hunting near Stephenville. Approximately 58.7% (n=89) of the participants reported that they, or a member of their family, engage in big game hunting near Stephenville once or twice a week during the open season. Approximately 20.1% (n=34) reported hunting for big game once a year during the open season, while 16% (n=27) reported hunting for big game daily, 3.6% (n=6) reported hunting once a month, and 3% (n=5) reported hunting big game once every few months during the open season. Approximately 4.7% (n=8) reported they did not know the frequency at

which they or a family member engage in big game hunting near Stephenville during the open season.

- **Question 25** allowed participants to select only one option regarding their frequency of consumption of big game hunted near Stephenville. Big game hunted near Stephenville was reported to be consumed at least once or twice a week by approximately 60.4% (n=102) of the participants. Approximately 14.2% (n=24) reported consuming big game hunted in the area once a month. Approximately 9.5% (n=16) reported consuming big game once every few months, and 7.7% (n=13) reported consuming big game daily. Approximately 7.1% (n=12) reported not knowing the frequency with which they consume big game that was hunted near Stephenville. Two participants (1.2%) indicated that they never consume big game that was hunted in this area.

Small Game, Birds, and Furbearers

Small game harvesting is considered an important recreational and subsistence activity with up to 35,000 people in the province participating by shooting and snaring (NLDFFA n.d.[l]). Six small game species are currently managed and hunted in NL: snowshoe hare, Arctic hare (hunted in Labrador only), willow ptarmigan, rock ptarmigan, ruffed grouse, and spruce grouse. Management zones for hares, ptarmigan, and grouse are established in the fall of the year when breeding has stopped and the young have reached adult size. Small game licences issued for locations that overlap with the Project Area and RAA are indicated in Table 4.9.

Table 4.9 Small Game Licences Issued for 2023-2024

Species	Zone Designation	Shooting Season Dates	Snaring Season Dates	Daily Bag Limit	Possession Limit
Willow and Rock Ptarmigan	Remainder of Island[A]	Sept 16–Dec 03, 2023	Oct 07, 2023–Mar 10, 2024	12 (not more than 6 rock ptarmigan)	24 (not more than 12 rock ptarmigan)
Ruffed and Spruce Grouse	Island of Newfoundland	Sept 16–Dec 24, 2023	Oct 07, 2023–Mar 10, 2024	20	40
Snowshoe Hare	Remainder of Island[B]	Oct 07, 2023–Mar 10, 2024	Oct 07, 2023–Mar 10, 2024	NA	40
Red Squirrel	Remainder of Island[B]	Oct 07, 2023–Mar 10, 2024	NA	NA	NA

Notes:

[A] Remainder of the Island refers to those areas not included within the Avalon / Swift Current, Burin, Topsail zones for these species

[B] Remainder of the Island refers to those areas not included within the Great Island, Little Bay Islands, and Bell Island for these species

NA = Not applicable

Source: Government of NL n.d.[d].

Migratory bird game hunting also occurs in NL, likely including within the RAA, and is permitted in accordance with the *Migratory Birds Hunting Regulations* (ECCC 2023) under the federal *Migratory Birds Convention Act*. Migratory birds that are of interest for hunting include ducks, geese, snipe, and turrs. Hunting of migratory birds is managed by the Canadian Wildlife Service of ECCC, and participants require a valid Migratory Bird Hunting Permit. Since migratory bird hunting occurs primarily along the coast, details pertaining to migratory bird hunting is discussed within the Aquatic Baseline Study (Other Ocean Users) (Stantec 2023c).

A variety of furbearer species that are subject to trapping activity in the province include beaver, muskrat, otter, mink, coyote, fox (coloured and white), lynx, wolf, ermine, and squirrel. Trapping seasons vary, although generally are set from late-October to February (Government. Of NL n.d.[b]). The RAA overlaps with Fur Zones 7, 9, and 10, which have several trapline zones within each. The RAA also overlaps with Restricted Snaring / Trapping Areas where the use of snaring / trapping devices may be prohibited, depending on the area, to mitigate accidental mortality of American marten (Newfoundland population) in areas of known presence (Figure 4.26; Government of NL n.d.[d]).

As described in Section 4.3.2.4, proposed critical habitat for Newfoundland marten is currently protected in NL through implementation of a combination of land use restrictions in various areas. In the Category One areas shown on Figure 4.27, traps must be set in such a manner as to avoid the capture of non-target species, specifically the Newfoundland marten; land-based traps (including leg hold and conibear sets on dry land) and locking neck snares (fox/lynx/coyote) are prohibited. In the Category Two areas shown on Figure 4.27, snares/traps "acknowledge the potential for accidental harvest but mitigate for marten mortality" (Government of NL n.d.[d]); land-based traps are prohibited. In the Category Three areas shown on Figure 4.27, legal snaring/trapping devices are allowed and not subject to restrictions (Government of NL n.d.[d]).

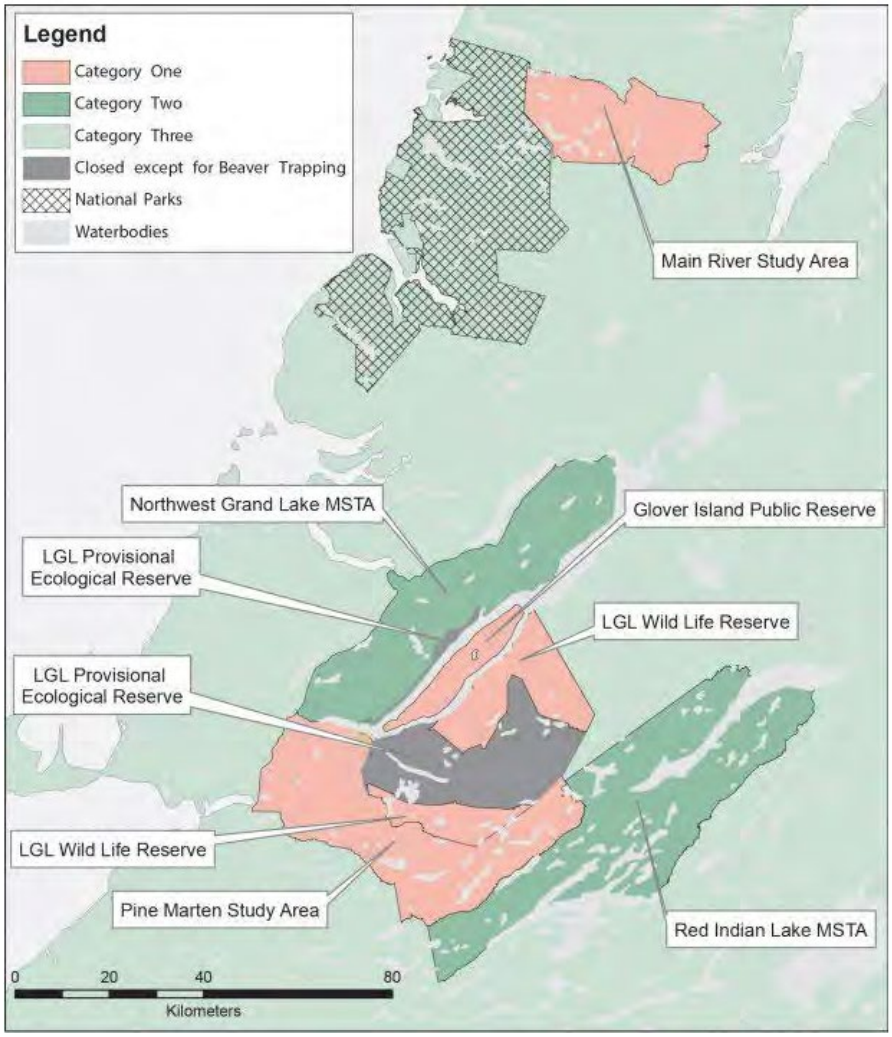

Figure 4.27 Restricted Snaring / Trapping Areas in Western Newfoundland (Government of NL n.d.[d])

Questions 26–30, 31–35, and 36–40 of the LRU survey included questions about small game hunting and/or trapping activities in and around Port au Port Peninsula, Codroy, and Stephenville, respectively. The responses to those survey questions were as follows (Stantec 2023a):

- Of the 478 participants who responded to **Question 26** of the LRU survey, approximately 65.5% (n=313) reported that they, or a member of their family, do not hunt and/or trap small game (rabbit, partridge, muskrat, fox) in or around the Port au Port Peninsula. Approximately 34.5% (n=165) indicated they do hunt and/or trap for small game in this area.
  - **Question 27** allowed participants to identify one or more of their purposes for harvesting small game in or around the Port au Port Peninsula. Recreation and/or food was identified as the most common purpose for hunting and/or trapping small game (rabbit, partridge, muskrat, fox) in and around the Port au Port Peninsula (89.1%; n=147). Traditional and/or cultural purposes was identified as the second most common purpose for hunting and/or trapping small game (60%; n=99). Traditional/cultural purposes for hunting and/or trapping small game would include use of game meat for food, bait, ceremonies, furs, and other purposes. Four participants (2.4%) indicated they harvest for commercial purposes, and 3.6% (n=6) indicated they harvest small game for "other" purposes. However, only two of the six participants that selected "other" provided a purpose for harvesting small game that were not listed. This includes "outfitting" and "paw". Outfitting relates to commercial purposes. "Paw" may relate to commercial purposes (e.g., selling rabbit foot keychains), traditional/cultural purposes, or other purposes. Open-ended responses received from the other four participants include "Food is not recreational, it is food"; "Food only not recreational"; "Hunt food for the purpose of augmenting my household budget"; and "To keep families fed! We live an hour from town, and most are on budgets. It keeps us fed!". These four open-ended responses indicate that small game is an economically viable food source for some of the participants.
  - **Question 28** allowed participants to identify one or more species of small game that they, or a member of their family, hunt and/or trap in and around the Port au Port Peninsula. Rabbit was identified as the most harvested species of small game on the Port au Port Peninsula (reported by approximately 98.8% [n=163] of the participants). Partridge (47.9; n=79) was reported as the second most harvested species, followed by ptarmigan/grouse (43%; n=71), ducks (42.4%; n=70), fox (10.3%; n=17), and muskrat (3%; n=5). One participant (0.6%) identified harvesting "other" species of small game not listed; the participant reported harvesting moose, which is a big game species.
  - **Question 29** allowed participants to select only one option regarding their frequency of small game hunting and/or trapping in or around the Port au Port Peninsula. Approximately 41.8% (n=69) of the participants reported that they, or a member of their family, engage in small game hunting and/or trapping in and around the Port au Port Peninsula one or twice a week. Approximately 27.3% (n=45) reported hunting and/trapping small game daily, 13.3% (n=22) reported hunting and/or trapping small game once every few months, 9.7% (n=16) reported hunting and/or trapping small game once a month, and 6.7% (n=11) reported that they did not know the frequency at which they, or member of their family, hunt and/or trap small game. Approximately 1.2% (n=2) participants indicated that they never engage in small game hunting and/or trapping in and around the Port au Port Peninsula.

- **Question 30** allowed participants to select only one option regarding their frequency of consumption of small game hunted and/or trapped in or around the Port au Port Peninsula. Approximately 47.8% (n=79) of the participants reported consuming small game harvested in or around the Port au Port Peninsula once or twice a week and 26.7% (n=44) reported consuming small game once a month. Approximately 14.6% (n=24) reported consuming small game once every few months and 4.2% (n=7) reported consuming small game daily. Approximately 3.6% (n=6) reported not knowing the frequency with which they consume small game harvested from the Port au Port Peninsula, and 3% (n=5) reported never consuming small game.

- Of the 477 participants who responded to **Question 31** of the LRU survey, approximately 56.2% (n=268) of the participants indicated that they do not engage in hunting/trapping small game (rabbit, partridge, muskrat, fox) in or around Codroy. Approximately 43.8% (n=209) reported that they, or a member of their family, hunt and/or trap small game in or around Codroy..
  - **Question 32** allowed participants to identify one or more of their purposes for harvesting small game in or around Codroy. Recreation and/or food was identified as the most common purpose for hunting and/or trapping small game (rabbit, partridge, muskrat, fox) in and around Codroy (98.1%; n=203). Traditional and/or cultural purposes was identified as the second most common purpose for hunting and/or trapping small game (42%; n=87). Traditional/cultural purposes for hunting and/or trapping small game would include use of game meat for food, bait, ceremonies, furs, and other purposes. Eleven participants (5.3%) indicated they harvest for commercial purposes, and 2.9% (n=6) indicated that they harvest small game for "other" purposes. However, the participants that selected "other" did not provide any new purposes for hunting and/or trapping small game. Open-ended responses received from the other four participants include "subsistence", "outfitting", "Food only not recreational"; "no"; "Hunt food to augment my household budget"; and "to eat!!!!!! Budgets are everything these days. These animals are traditional to us! Self sufficient".
  - **Question 33** allowed participants to identify one or more species of small game that they, or a member of their family, hunt and/or trap in or around Codroy. Rabbit was identified as the most harvested species of small game in Codroy (reported by approximately 96.1% [n=199] of the participants). Ducks and partridge are tied for the second most harvested species (each reported by approximately 59.9%% [n=124] of the participants) and ptarmigan/grouse is a close third, reported by 57% (n=118) of the participants. Approximately 8.2% (n=17) of the participants reported harvesting fox and nine participants (4.4%) reported harvesting muskrat. Ten participants (4.8%) identified harvesting "other" species of small game not listed, these include coyote, weasel, lynx, otter, geese, and beaver. One participant responded "none".
  - **Question 34** allowed participants to select only one option regarding their frequency of small game hunting and/or trapping in or around Codroy. Approximately 44% (n=91) of the participants reported that they, or a member of their family, engage in small game hunting and/or trapping in and around Codroy once or twice a week. Approximately 21.7% (n=45) reported hunting and/trapping small game daily, 17.9% (n=37) reported hunting and/or trapping small game once every few months, and 7.7% (n=16) reported hunting and/or trapping small game once a month. Approximately 7.3% (n=15) reported that they did not know the frequency at which they, or

member of their family, hunt and/or trap small game, and 1.5% (n=3) indicated that they never hunt and/or trap in and around Codroy.

- **Question 35** allowed participants to select only one option regarding their frequency of consumption of small game hunted and/or trapped in or around Codroy. Approximately 45.9% (n=95) of the participants reported consuming small game harvested in or around Codroy once or twice a week and 29.5% (n=61) reported consuming small game once a month. Approximately 13.5% (n=28) reported consuming small game once every few months and 6.3% (n=13) reported consuming small game daily. Approximately 4.4% (n=9) reported not knowing the frequency with which they consume small game harvested from Codroy, and 0.5% (n=1) reported never consuming small game from this area.

- Of the 472 participants who responded to **Question 36** of the LRU survey, most of the participants (80.5%; n=380) indicated that they, or members of their family, do not hunt and/or trap small game (rabbit, partridge, muskrat, fox) near Stephenville. Approximately 19.5% (n=92) indicated that they or a member of their family hunt and/or trap for small game in this area. .
  - **Question 37** allowed participants to identify one or more of their purposes for harvesting small game near Stephenville. Recreation and/or food was identified as the most common purpose for hunting and/or trapping small game (rabbit, partridge, muskrat, fox near Stephenville (97.8%; n=90). Traditional and/or cultural purposes was identified as the second most common purpose for hunting and/or trapping small game (57.6%; n=53). Traditional/cultural purposes for hunting and/or trapping small game would include use of game meat for food, bait, ceremonies, furs, and other purposes. Five participants (5.4%) indicated that they harvest for commercial purposes, and 3.3% (n=3) indicated that they harvest small game for "other" purposes. However, the participants that selected "other" did not provide any new purposes for hunting and/or trapping small game. Open-ended responses received from the other three participants include "Food only not recreational", "Hunt for food to augment my household" and "Self sufficient, affordable and part of our heritage. It is our right".
  - **Question 38** allowed participants to identify one or more species of small game that they, or a member of their family, hunt and/or trap near Stephenville. Rabbit was identified as the most harvested species of small game near Stephenville (reported by approximately 97.8% [n=90] of the participants). Ptarmigan/grouse were the second most harvested species (58.7%; n=54), followed closely by partridge (51.1%; n=47). Approximately 40.2% (n=37) of the participants reported harvesting ducks, 6.5% (n=6) reported fox and three participants (3.3%) reported harvesting muskrat. Three participants (3.3%) identified harvesting "other" species of small game not listed, these include "coyote" and "geese". One participant provided a longer response, stating "I have family members who hunt near S'ville, but I don't know what they hunt".
  - **Question 39** allowed participants to select only one option regarding their frequency of small game hunting and/or trapping near Stephenville. Approximately 47.8% (n=44) of the participants reported that they, or a member of their family, engage in small game hunting and/or trapping near Stephenville one or twice a week. Approximately 18.5% (n=17) reported hunting and/trapping small game once every few months, 13% (n=12) reported hunting and/or trapping small game once a month, and 10.9% (n=10) reported hunting and/or trapping small game daily. Approximately 8.7% (n=8) reported that they did not know the frequency at which they, or

member of their family, hunt and/or trap small game near Stephenville. One participant indicated that they never hunt and/or trap small game in this area.

- **Question 40** allowed participants to select only one option regarding their frequency of consumption of small game hunted and/or trapped near Stephenville. Approximately 32.6% (n=30) of the participants reported consuming small game harvested near Stephenville once or twice a week, 31.5% (n=29) reported consuming small game once a month,19.6% (n=18) reported consuming small game once every few months and 4.4% (n=4) reported consuming small game daily. Approximately 7.6% (n=7) reported not knowing the frequency with which they consume small game that was harvested near Stephenville, and 4.4% (n=4) reported never consuming small game from this area.

Fishing / Angling

Fishing / angling occurs regularly in the inland waters of the RAA. These activities are regulated federally by DFO, under the *Fisheries Act* and associated Fishery (General) Regulations and Newfoundland and Labrador Fishery Regulations, and provincially by NLDFFA, under the *Wild Life Act* and associated Wild Life Regulations. Target species include salmon and trout. Fishing / angling is discussed further in the Aquatic Environment Baseline Study (Stantec 2023c).

Questions 41–45, 46–50, and 51–55 of the LRU survey included questions about freshwater fish and/or aquatic species harvesting activities in and around Port au Port Peninsula, Codroy, and Stephenville, respectively. The responses to those survey questions were as follows (Stantec 2023a):

- Of the 469 participants who responded to **Question 41** of the LRU survey, approximately 59.5% (n=279) reported that neither they, nor a member of their family, catch freshwater fish and/or aquatic species (e.g., trout, salmon, eel) in or around the Port au Port Peninsula. Approximately 40.5% (n=190) indicated that they, or a member of their family, catch freshwater fish and/or aquatic species in this area.
  - **Question 42** allowed participants to identify one or more of their purposes for harvesting freshwater fish and/or aquatic species in or around the Port au Port Peninsula. Of the 190 participants that indicated that they or a member of their family catch freshwater fish and/or aquatic species in and around the Port au Port Peninsula, 188 participants provided a response. Of these participants, approximately 91% (n=171) indicated that they harvest freshwater fish and/or aquatic species for recreational and/or food purposes, 53.7% (n=101) indicated they harvest freshwater fish and/or aquatic species for traditional and/or cultural purposes, 4.3% (n=8) indicated they harvest for commercial purposes, and 2.1% (n=4) indicated they harvest freshwater fish and/or aquatic species for "other" purposes. However, the participants that selected "other" did not provide any new purposes for harvesting freshwater fish and/or aquatic species. Open-ended responses received for Q42 include "no", "Food", "Food only not recreational" and "To have food in the freezer come winter". These open-ended responses indicated that freshwater fish is an important food source and winter staple for some of the participants.

- **Question 43** allowed participants to identify one or more freshwater fish and/or aquatic species that they, or a member of their family, catch in and around the Port au Port Peninsula. The most harvested freshwater fish and/or aquatic species in and around the Port au Port Peninsula identified by the participants are brook trout (91%; n=171), rainbow smelt (56.4%; n=106) and Atlantic salmon (39.4%; n=74). Other species harvested by the participants include American eel (19.7%; n=37) and arctic char (6.9%; n=13). Approximately 10.1% (n=19) reported harvesting "other" freshwater fish and/or aquatic species not listed. Species identified in the "other" category include mackerel (n= 6), cod (n=5), scallops and mussels (n=1), capelin (n=3), smelts (n=3), trout (n=3), lobster (n=1), crab (n=1), and perch (n=1). Three participants responded "none" and one participant shared that it was "illegal to salmon catch". Several of the fish species listed in the "other" category are considered marine fish.
- **Question 44** allowed participants to select only one option regarding their frequency of catching freshwater fish and/or aquatic species in or around the Port au Port Peninsula. Approximately 41.5% (n=78) of the participants reported that they, or a member of their family, catch freshwater fish and/or aquatic species in and around the Port au Port Peninsula once or twice a week. Approximately 22.3% (n=42) reported catching freshwater fish and/or aquatic species once a month, 17.6% (n=33) reported catching freshwater fish and/or aquatic species once every few months, and 10.1% (n=19) reported catching freshwater fish and/or aquatic species daily. Approximately 6.9% (n=13) reported they did not know the frequency at which they or a family member catch freshwater fish and/or aquatic species in and around the Port au Port Peninsula. Three participants (1.6%) indicated they never catch freshwater fish and/or aquatic species in and around the Port au Port Peninsula.
- **Question 45** allowed participants to select only one option regarding their frequency of consumption of freshwater fish and/or aquatic species harvested in or around the Port au Port Peninsula. Approximately 46.3% (n=87) of the participants reported consuming freshwater fish and/or aquatic species harvested in or around the Port au Port Peninsula once or twice a week and 21.8% (n=41) reported consuming freshwater fish and/or aquatic species once every few months. Approximately 19.2% (n=36) reported consuming freshwater fish and/or aquatic species once a month and 3.2% (n=6) reported consuming freshwater fish and/or aquatic species daily. Approximately 5.9% (n=11) reported not knowing the frequency with which they consume freshwater fish and/or aquatic species harvested from the Port au Port Peninsula, and 3.7% (n=7) reported never consuming freshwater fish and/or aquatic species harvested from this area.

- Of the 464 participants who responded to **Question 46** of the LRU survey, approximately 51.1% (n=140) indicated that neither they, nor a member of their family, catch freshwater fish and/or aquatic species (e.g., trout, salmon, eel) in or around Codroy. Approximately 48.9% (n=227) reported that they catch freshwater fish and/or aquatic species in this area.
  - **Question 47** allowed participants to identify one or more of their purposes for harvesting freshwater fish and/or aquatic species in or around Codroy. Approximately 100% (n=225) of the participants indicated that they harvest freshwater fish and/or aquatic species for recreational and/or food purposes, 34.7% (n=78) indicated they harvest freshwater fish and/or aquatic species for traditional and/or cultural purposes, 5.3% (n=12) indicated they harvest for commercial purposes, and 1.3% (n=3) indicated they harvest freshwater fish and/or aquatic species for

"other" purposes. However, the participants that selected "other" did not provide any new purposes for harvesting freshwater fish and/or aquatic species. Open-ended responses received for Q47 include "outfitting", "k" and "Food only not recreational".

- **Question 48** allowed participants to identify one or more freshwater fish and/or aquatic species that they, or a member of their family, catch in or around Codroy The most harvested freshwater fish and/or aquatic species in and around Codroy identified by the participants are brook trout (892%; n=207), Atlantic salmon (76.4%; n=172), and rainbow smelt (36%; n=81). Other species harvested by 10% or less of the participants include American eel (10.2%; n=23) and arctic char (6.2%; n=14). Approximately 4.9% (n=11) reported harvesting "other" freshwater fish and/or aquatic species not listed. Species identified in the "other" category include pond trout (n=1), brown trout (n=5), sea trout (n=1), smelt (n=1), mackerel (n= 3), lobster (n=1) and cod (n=2). Lobster, cod, and mackerel are considered under marine fish and/or aquatic species.
- **Question 49** allowed participants to select only one option regarding their frequency of catching freshwater fish and/or aquatic species in or around Codroy. Approximately 48% (n=108) of the participants reported that they, or a member of their family, catch freshwater fish and/or aquatic species in and around Codroy once or twice a week. Daily and monthly harvesting of freshwater fish and/or aquatic species was reported with the same frequency (16.4%; n=37 participants). Approximately 15.1% (n=34) reported catching freshwater fish and/or aquatic species once every few months. Nine participants (4%) indicated that they did not know the frequency at which they or a family member catch freshwater fish and/or aquatic species in and around Codroy.
- **Question 50** allowed participants to select only one option regarding their frequency of consumption of freshwater fish and/or aquatic species harvested in or around Codroy. Approximately 47.1% (n=106) of the participants reported consuming freshwater fish and/or aquatic species harvested in or around Codroy once or twice a week and 27.6% (n=62) reported consuming freshwater fish and/or aquatic species once a month. Approximately 16% (n=36) reported consuming freshwater fish and/or aquatic species once every few months and 4% (n=9) reported consuming freshwater fish and/or aquatic species daily. Nine participants (4%) reported not knowing the frequency with which they consume freshwater fish and/or aquatic species harvested from Codroy, and three participants (1.3%) reported never consuming freshwater fish and/or aquatic species harvested from this area.

- Of the 462 participants who responded to **Question 51** of the LRU survey, most (approximately 72.9%; n=337) indicated that neither they, nor a member of their family, catch freshwater fish and/or aquatic species (e.g., trout, salmon, eel) near Stephenville. approximately 27.1% (n=125) reported that they catch freshwater fish and/or aquatic species in this area.
  - **Question 52** allowed participants to identify one or more of their purposes for harvesting freshwater fish and/or aquatic species near Stephenville. Of the 125 participants that indicated that they or a member of their family catch freshwater fish and/or aquatic species near Stephenville, approximately 97.6% (n=122) indicated that they harvest freshwater fish and/or aquatic species for recreational and/or food purposes and 52% (n=65) indicated they harvest freshwater fish and/or aquatic species for traditional and/or cultural purposes. Six participants (4.8%) indicated they harvest for commercial purposes, and one participant (0.8%) indicated they harvest freshwater fish and/or aquatic species for "other" purposes. However, the participants that

selected "other" did not provide any new purposes for harvesting freshwater fish and/or aquatic species. The open- ended response received for Q52 was "food only".

- Only eight participants (1.6%) provided a response to **Question 53** and allowed participants to identify one or more freshwater fish and/or aquatic species that they, or a member of their family, catch in and around Stephenville. The most harvested freshwater fish and/or aquatic species in and around Stephenville identified by the participants are brook trout (87.5%; n=7), and Atlantic salmon (62.5%; n=5). American eel and rainbow smelt were reported with the same frequency (25%; n=2).
- **Question 54** allowed participants to select only one option regarding their frequency of catching freshwater fish and/or aquatic species near Stephenville. Approximately 38.4% (n=48) of the participants reported that they, or a member of their family, catch freshwater fish and/or aquatic species near Stephenville once or twice a week. Approximately 28.8% (n=36) reported catching freshwater fish and/or aquatic species once a month, 17.6% (n=22) catch freshwater fish and/or aquatic species once every few months, 8% (n=10) catch these resources daily. Approximately 7.2% (n=9) indicated that they did not know the frequency at which they or a family member catch freshwater fish and/or aquatic species near Stephenville.
- **Question 55** allowed participants to select only one option regarding their frequency of consumption of freshwater fish and/or aquatic species harvested near Stephenville. Approximately 36% (n=45) of the participants reported consuming freshwater fish and/or aquatic species harvested near Stephenville once or twice a week and 28.8% (n=36) reported consuming freshwater fish and/or aquatic species once a month. Approximately 22.4% (n=28) reported consuming freshwater fish and/or aquatic species once every few months and 3.2% (n=4) reported consuming freshwater fish and/or aquatic species daily. Nine participants (7.2%) reported not knowing the frequency with which they consume freshwater fish and/or aquatic species harvested near Stephenville, and three participants (2.4%) reported never consuming freshwater fish and/or aquatic species harvested from this area.

Outfitting

As described in Section 4.3.2.3, there are 22 outfitters operating on Crown lands within the RAA. One outfitter can have multiple lodges or other facilities (e.g., camps). There are a total of 31 outfitter lodges / facilities in the RAA (five of which are located within the LAA, and two of which are located within the Project Area); the locations of these outfitter lodges / facilities are shown on Figure 4.6 (in Section 4.3.2.3) and Table 4.10.

Table 4.10 Outfitter Lodges or Other Facilities in the RAA

Operator of Outfitter Lodge / Facility	Location of Outfitter Lodge / Facility	Is the Outfitter Lodge / Facility Located within the LAA?	Is the Outfitter Lodge / Facility Located within the Project Area?
70405 Newfoundland and Labrador Ltd.	Benoits Siding	No	No
Adventure Quest Outfitters & Tours Ltd.	Southwest Brook	Yes	No
Adventure Quest Outfitters & Tours Ltd.	Mitchell's Pond	No	No
Besaw's Log Cabin Outfitters	Spruce Brook	No	No
Burgeo Road Outfitters Inc.	Sullivan's Pond	No	No
Crabbes River Outfitters	Hammonds Pond	No	No
Deep Valley Outfitters Ltd.	Little Codroy Pond	No	No
Git' Er Dun Outfitters Ltd.	Rifle Pond	No	No
Git' Er Dun Outfitters Ltd.	Cross Pond	No	No
Grandy's River Outfitting	Bill's Pond	No	No
Grandy's River Outfitting	Bill's Pond	No	No
JDI Outdoor Adventures Ltd.	Bluchers Pond	No	No
JDI Outdoor Adventures Ltd.	Hungry Grove Pond	No	No
Moose Creek Lodge	Edmund's Ridge	No	No
Moose Hunting Adventures Ltd.	Alexander Pond	No	No
Moose Valley Outfitters	Island Pond	No	No
Moose Valley Outfitters Ltd.	Bear Pond	No	No
Moosehill Cabins Ltd.	South Branch	Yes	Yes
Moosehill Cabins Ltd.	South Branch	Yes	Yes
Moosehill Cabins Ltd.	Morris Brook	Yes	No
Mountain Top Cabin	Doyles	No	No
Mountain Top Cabin	Coal Brook	No	No
Mountain Top Cabin Ltd.)	Little Mica Pond	No	No
Newfound Outfitting Ltd.	Southwest Lake	No	No
Newfound Outfitting Ltd.	Little Barachois Pond	No	No
Northside Outfitting & Adventures Ltd.	Wedding Pond	Yes	No
Ryan's Outfitters	Doyles	No	No
Sandy Pond Outfitters	Sandy Pond	No	No
Steel Mountain Lodge	Benabbey Pond	No	No
West Woods Outfitters	Crabbes River	No	No
Woodland Lodges	Old Country Pond	No	No

Six LRU survey participants self-identified as being members of the Newfoundland and Labrador Outfitters Association (NLOA). All six (100%) of these respondents indicated that they participate in recreational activities in or around Codroy, while half (50%) indicated that they participate in recreational activities in or around the Port au Port Peninsula, and one-third (33.3%) indicated that they participate in recreational activities in or around Stephenville (Stantec 2023a).

All six (100%) of the self-identified NLOA members who participated in the survey indicated that they hunt big game (e.g., moose, bear, caribou) in or around Codroy, while one-third (33.3%) hunt big game in or around the Port au Port Pensinsula and Stephenville, respectively. The self-identified NLOA members indicated that their big game hunting activities are conducted primarily for recreational / food, commercial, and traditional / cultural purposes. One survey participant submitted "tourists outfitting" as an open-ended response indicating their purpose for conducting big game hunting in or around Codroy (Stantec 2023a).

All six (100%) of the self-identified NLOA members who participated in the survey indicated that they hunt and/or trap small game (e.g., rabbits, partridge, ducks, muskrat, fox) in or around Codroy, one-third (33.3%) indicated that they hunt and/or trap small game in or around the Port au Port Peninsula, and one (16.7%) indicated that they hunt and/or trap small game near Stephenville. The self-identified NLOA members indicated that their small game hunting activities are conducted primarily for recreational / food, commercial, and traditional / cultural purposes. "Outfitting" was also submitted by survey participants as an open-ended response indicating their purpose for conducting small game hunting in or around Port au Port Peninsula and Codroy (Stantec 2023a).

All six (100%) of the self-identified NLOA members who participated in the survey indicated that they catch freshwater fish and/or aquatic species (e.g., trout, salmon, eel) in or around Codroy, and one-third (33.3%) indicated that they catch freshwater fish and/or aquatic species in or around Stephenville, primarily for recreational / subsistence, commercial, and traditional / cultural purposes. "Outfitting" was also submitted by a survey participant as an open-ended response indicating their purpose for harvesting freshwater fish and/or aquatic species in or around Codroy. One (16.7%) of the self-identified NLOA members who participated in the survey indicated that they catch freshwater fish and/or aquatic species in or around the Port au Port Peninsula for recreational / food purposes (Stantec 2023a).

As described in Section 4.2.2, WEGH2 developed a questionnaire to solicit feedback from outfitters about the Project, as well as to identify issues, concerns, or inquiries related to the Project. WEGH2 also held a follow-up video conference call with outfitters. A summary of input received from outfitters on key issues and concerns is provided in Appendix 4-D of the EIS.

4.3.4.4 Domestic Wood Harvesting and Wild Berry / Wild Plant Harvesting

Domestic wood harvesting activities are described in Section 4.3.3.2.

Questions 71–75, 76–80, and 81–85 of the LRU survey included questions about wild berry and/or wild plant harvesting in and around Port au Port Peninsula, Codroy, and Stephenville, respectively. The responses to those survey questions were as follows (Stantec 2023a):

- Of the 488 participants who responded to **Question 71** of the LRU survey, approximately 47.8% (n=214) reported that they, or a member of their family, pick wild berries and/or harvest other wild plants in or around the Port au Port Peninsula. Approximately 52.2% (n=234) indicated that they did not pick wild berries and/or harvest other wild plants in this area.
  - **Question 72** allowed participants to identify one or more of their purposes for harvesting wild berries / plants in or around the Port au Port Peninsula. Of the 214 participants that indicated that they or a member of their family harvest wild berries/plants in and around the Port au Port Peninsula, approximately 89.1% (n=188) indicated that they harvest wild berries/plants for recreational and/or food purposes, 53.1% (n=112) indicated they harvest wild berries/plants for traditional and/or cultural purposes, 1.9% (n=4) indicated they harvest for commercial purposes, and 3.3% (n=7) indicated they harvest wild berries/plants for "other" purposes. However, the participants that selected "other" did not provide any new purposes for harvesting berries/plants, as each response is related to one of the listed options. Open-ended responses received for Q72 include "medicinal purposes" (n=3), as well as "food"/ "food only not recreation"/ "food to augment my household", and "To have berries for winter. Winter months are hard on us around here. Hence why we live off of the land so much!" (n=6). These open-ended responses indicates that wild berries/plants are important food sources for some of the participants and indicates that some of the harvested plant species have important medicinal properties/value for some of the participants.
  - **Question 73** allowed participants to identify one or more food / medicinal plant species that they, or a member of their family, harvest in or around the Port au Port Peninsula. The most harvested food/medicinal plants in and around the Port au Port Peninsula include blueberries (95.3%; n=201), raspberries (84.4%; n=178), bakeapple (68.7%; n=145), partridgeberries (67.8%; n=143), squash berries (46%; n=97), and wild cranberries (38.9%; n=82). Other species harvested by 30% or less of the participants (in order of frequency of mention) include blackberries, mushrooms, low bush juniper, cherry bark, hazelnut, lily pad roots, chuckley pear/ saskatoonberry, and ewe bush. Approximately 25.6% (n=54) reported harvesting "other" food/medicinal plants species not listed. Species identified in the "other" category include wild strawberries (n=46), red and black currant (n=2), Labrador tea (n=2), crowberries (n=2), wild garlic (n=2), squash (n=1), and gooseberries (n=2). One participant listed "bakeapples" which were one of the options listed. Wildflowers (n=1), fireweed (n=1), wild onions (n=1) and wild mustard (n=1) were also identified. Non-plant species, including mussels (n=1) and clams (n=1) were also listed under the "other" option. One participant indicated "all of the above" and one participant reported "none" for the other category.

  - **Question 74** allowed participants to select only one option regarding their frequency of harvesting wild berries / plants in or around the Port au Port Peninsula. Approximately 44.6% (n=94) of the participants reported that they, or a member of their family, harvest wild berries/plants in and around the Port au Port Peninsula once or twice a week. Approximately 22.8% (n=48) reported harvesting wild berries/plants once every few months, 14.7% (n=31) reported harvesting wild berries/plants daily, and 11.9% (n=25) reported harvesting wild berries/plants once a month. Approximately 5.2% (n=11) reported they did not know the frequency at which they or a family member harvest wild berries/plants in and around the Port au Port Peninsula. Two (1%) of the participants indicated that they never harvest wild berries/plants in and around the Port au Port Peninsula.
  - **Question 75** allowed participants to select only one option regarding their frequency of consumption of berries / plants harvested in or around the Port au Port Peninsula. Approximately 39.3% (n=83) of the participants reported consuming wild berries/plants harvested in or around the Port au Port Peninsula once or twice a week and 31.8% (n=67) reported consuming wild berries/plants daily. Approximately 12.8% (n=27) reported consuming wild berries/plants once every few months and 10.4% (n=22) reported consuming wild berries/plants once a month. Approximately 4.3% (n=9) reported not knowing the frequency with which they consume wild berries/plants, and 1.4% (n=3) reported never consuming wild berries/plants harvested in or around the Port au Port Peninsula.

- Of the 441 participants who responded to **Question 76** of the LRU survey, approximately 51.7% (n=228) reported that they, or a member of their family, pick wild berries and/or harvest other wild plants in or around Codroy. Approximately 48.3% (n=213) indicated they did not pick wild berries and/or harvest other wild plants in this area.
  - **Question 77** allowed participants to identify one or more of their purposes for harvesting wild berries / plants in or around Codroy. Approximately 97.8% (n=222) indicated that they harvest wild berries/plants for recreational and/or food purposes, 40.1% (n=91) indicated they harvest wild berries/plants for traditional and/or cultural purposes, 3.1% (n=7) indicated they harvest for commercial purposes, and 4.9% (n=11) indicated they harvest wild berries/plants for "other" purposes. Open-ended responses received for Q77 include "medicinal purposes" (n=6), and tourism (n=1); tourism would be captured under "commercial". A few participants provided longer responses, these include: "once and a while" (pertaining to frequency of harvest and not purpose of harvesting), "food only not recreation", and "to have food for winter". One participant used the text box to report that "There wasn't a page for caplin and cod for Codroy Valley. I harvest caplin, cod, and some members of my family also harvest seal"; this statement pertains to marine fish and/or aquatic species and would have been captured under Q63 (species harvested in Bay St. George).
  - **Question 78** allowed participants to identify one or more food / medicinal plant species that they, or a member of their family, harvest in or around Codroy. The most harvested food/medicinal plants in and around Codroy include blueberries (96.5%; n=219), bakeapple (82.8%; n=188), raspberries (79.7%; n=181), partridgeberries (64.8%; n=147), blackberries (38.8%; n=88), wild cranberries (32.2%; n=73), squash berries (27.8%; n=163), and mushrooms (24.2%; n=55). Other species harvested by 7% (n=16) or less of the participants include (in order of frequency)

cherry bark, hazelnut, low bush juniper, chuckley pear/ Saskatoon berry, lily pad roots, and ewe bush. Approximately 17.2% (n=39) reported harvesting "other" food/medicinal plants species not listed. Wild strawberries were reported by approximately 11% (n=26) of the participants and chaga (type of mushroom) was reported by three participants (1.3%). Unlisted species identified by at least one participant in the "other" category include wild roses, wildflowers, red clover, roots (unspecified species), dandelion, wild onion, wild mustard, fireweed, plantain, wild mint, marshberries, gooseberries, rhubarb, Labrador tea, and wild garlic. A few participants identified species that were already listed, including blueberry (n=1), bakeapples (n=1), and raspberries (n=1)

- **Question 79** allowed participants to select only one option regarding their frequency of harvesting wild berries / plants in or around Codroy. Approximately 44.5% (n=101) of the participants reported that they, or a member of their family, harvest wild berries/plants in and around Codroy once or twice a week. Approximately19.8% (n=45) reported harvesting wild berries/plants daily, and 17.6% (n=40) reported harvesting these resources once every few months. Approximately 15.4% (n=35) reported harvesting once a month. Approximately 2.6% (n=6) reported that they did not know the frequency at which they or a family member harvest wild berries and/or plants in and around Codroy.
- **Question 80** allowed participants to select only one option regarding their frequency of consumption of berries / plants harvested in or around Codroy. Approximately 47.1% (n=107) of the participants reported consuming wild berries/plants harvested in or around Codroy once or twice a week and 26.4% (n=60) reported consuming wild berries/plants daily. Approximately 14.1% (n=32) reported consuming wild berries/plants once a month and 10.6% (n=24) reported consuming wild berries/plants once every few months. Approximately 1.8% (n=4) reported not knowing the frequency with which they consume wild berries/plants harvested in and around Codroy.

- Of the 439 participants who responded to **Question 81** of the LRU survey, approximately 33.7% (n=148) reported that they, or a member of their family, pick wild berries and/or harvest other wild plants in or around Stephenville. Most of the participants (66.3%; n=291) indicated that they did not pick wild berries and/or harvest other wild plants in this area.
  - **Question 82** allowed participants to identify one or more of their purposes for harvesting wild berries / plants in or around Stephenville. Approximately 95.2% (n=138) indicated that they harvest wild berries/plants for recreational and/or food purposes, 49% (n=71) indicated they harvest wild berries/plants for traditional and/or cultural purposes, 2.8% (n=4) indicated they harvest for commercial purposes, and 0.7% (n=1) indicated they harvest wild berries/plants for "other" purposes. However, the participant that selected "other" did not provide any new purposes for harvesting wild berries/plants, as this participant reported "food only not recreation".
  - **Question 83** allowed participants to identify one or more food / medicinal plant species that they, or a member of their family, harvest in or around Stephenville. The most harvested food and/or medicinal plants in or near Stephenville include blueberries (95.9%; n=139), raspberries (76.6%; n=111), bakeapple (62.1%; n=90), partridgeberries (49%; n=71), wild cranberries (37.9%; n=55), squash berries (30.3%; n=44), blackberries (26.9%; n=39), and mushrooms (18.6%; n=27). Other species harvested by 10% (n=15) or less of the participants include hazelnut, chuckley pear/

saskatoon berry, cherry bark, lily pad roots, low bush juniper, and ewe bush. Approximately 10.3% (n=15) reported harvesting "other" food/medicinal plants species not listed. Species identified in the "other" category include mint (n=1), nettles (n=1), wildflowers (n=2), wild strawberries (n=12), roots (n=1), gooseberries (n=1), Labrador tea (n=1), and currants (n=1). One participant reported "all of the above".

- **Question 84** allowed participants to select only one option regarding their frequency of harvesting wild berries / plants in or around Stephenville. Approximately 35.2% (n=51) of the participants reported that they, or a member of their family, harvest wild berries/plants in or near Stephenville once or twice a week. Approximately 25.5% (n=37) reported harvesting wild berries/plants once every few months and 20% (n=29) reported harvesting once a month. Approximately 14.5% (n=21) reported harvesting these resources daily. Approximately 4.8% (n=7) reported they did not know the frequency at which they or a family member harvest wild berries/ plants in or near Stephenville.
- **Question 85** allowed participants to select only one option regarding their frequency of consumption of berries / plants harvested in or around Stephenville. Approximately 34.5% (n=50) of the participants reported consuming wild berries/plants harvested in or near Stephenville once or twice a week and 30.3% (n=44) reported consuming wild berries/plants daily. Approximately 16.6% (n=124) reported consuming wild berries/plants once every few months, and 13.8% (n=20) reported consuming wild berries/plants once every few months. Approximately 4.8% (n=7) reported not knowing the frequency with which they consume wild berries/plants harvested in or near Stephenville.

4.3.4.5 Trails and Unique Sites

A variety of recreational and/or cultural land and resource use activities are likely to occur within the unique natural areas of the RAA, including the provincial parks, provincial reserves, and private nature reserves described in Section 4.3.2.4. Potential recreational and/or cultural activities at such sites include the hunting, outfitting, fishing / angling activities described in Section 4.3.4.3 and the wild berry and/or wild plant harvesting activities described in Section 4.3.4.4. Other recreational land use activities that may take place at trails and unique sites in the RAA include backcountry camping, hiking, swimming, ATV use, and snowmobiling.

Various campgrounds are located within the RAA, as shown in Section 4.3.5.

Recreational swimming may occur in freshwater and coastal bodies of water in the RAA, including at Benoits Beach (near Marches Point on the Port au Port Peninsula), The Bar Beach and Blue Beach (northeast of Black Duck Brook-Winterhouse on the Port au Port Peninsula), Port Harmon Beach (in Stephenville), and Black Banks Beach (in St. George's).

Barachois Pond Provincial Park (Section 4.3.2.4), which is located approximately 8 km east of Black Banks Beach, is one of the largest and most popular provincial parks in NL; it includes a large lake for swimming, boating, angling, and kayaking (Parks NL n.d.[b]). The Erin Mountain Trail at Barachois Pond Provincial Park offers hikers with varying levels of ability an easier path over boardwalk to a lower lookout as well as a more challenging path to the top of Erin Mountain, which concludes on a 340-m summit with

a panoramic view of St. George's Bay, the Gulf of St. Lawrence, and the top of the Long Range Mountains (NL Tourism n.d.[b]). There are also a variety of hiking trails associated with the other provincial parks, nature reserves, and proposed ecological and transitional reserves described in Section 4.3.2.4, including the T'Railway Provincial Park, which provides an approximately 900-km trail system for hikers, bikers, horseback riders, cross-country skiers, ATVs, and snowmobilers (Parks NL n.d.[b]).

A segment of the International Appalachian Trail (IAT), which connects portions of the Appalachian Mountain system in the U.S. state of Maine and the Canadian provinces of New Brunswick, Québec, Prince Edward Island, Nova Scotia, and Newfoundland (IAT 2020), intersects the RAA (Figure 4.28). The Newfoundland segment of the IAT extends from Channel-Port aux Basques (outside of the RAA), northeast along the Long Range Mountains (within the RAA), and ends at L'Anse aux Meadows National Historic Site (outside of the RAA). Adventurous hikers can explore numerous side trails into extremely remote and scenic areas such as the Lewis Hills (within the RAA) and Gros Morne National Park (outside of the RAA) (IAT 2020).

- Several other trails are located within the RAA (Figures 4.28, 4.29, and 4.30), including the following Danny's Trail, in Port au Port West, starts at the Port au Port isthmus and has several paths leading off from the main trail, including a slight detour leading to Our Lady of Mercy Church, which is the largest wooden structure in the province. The trail ends in the old Aguathuna Limestone Quarry (NL Tourism n.d.[b]). This 6.4-km out-and-back trail is also sometimes referred to as The Gravels and is generally considered an easy route that is suitable for birding, hiking, and walking (Stephenville Heritage 2022).
- Hidden Falls, in the Abrahams Cove / Sheaves Cove area of the Port au Port Peninsula, is a secluded 1.3-km loop trail featuring a waterfall that is generally considered an easy route and is suitable for hiking and walking (Stephenville Heritage 2022).
- Pine Tree Trail is a 5.8-km out-and-back trail near Port au Port East that is generally considered a challenging route and is suitable for birding and hiking (Stephenville Heritage 2022).
- Scott Pollard Memorial Trail is a 2.3-km out-and-back trail near Noels Pond that is generally considered a moderately challenging route and is suitable for hiking (Stephenville Heritage 2022).
- Neds Pond and Devils Pond Trail is a 4.3-km loop trail near Stephenville that is generally considered a moderately challenging route and is suitable for hiking, running, and walking (Stephenville Heritage 2022).
- Blanche Brook Loop is a 1.1-km loop trail near Stephenville that is generally considered an easy route and is suitable for running and walking (Stephenville Heritage 2022). It is associated with Blanche Brook Park, which includes a playground.
- Joey's Lookout is a 5-km out-and-back trail near Stephenville that is generally considered a moderately challenging route and is suitable for birding, hiking, and running (Stephenville Heritage 2022).

- The Walk-A-Ways Trail system is an 18-km network of six interconnected gravel and sidewalk trails in Stephenville, with directional markers and trail-head signage at the entrance to each trail. A main trail sign occurs at the entrance to the We Care Nature Trail at the Kindale Public Library. The trails are generally considered easy to moderate, are compacted and dry, and are suitable for walkers wearing normal footwear (Stephenville Heritage 2022).
- The Mark Rock Trail (A Memorial Hike in Honour of the Late Sargeant Craig Gillam) is a 5.1-km out-and-back trail near Codroy that is generally considered a moderately challenging route and is suitable for hiking, snowshoeing, and running (Stephenville Heritage 2022).
- La Marche des Miettes is a 7.7-km out-and-back coastal trail near Cape St. George that is generally considered a moderately challenging route and is suitable for camping, hiking, and off-road driving (Stephenville Heritage 2022). This trail is associated with Park Boutte du Cape, which offers views of cliffs, whales, and seabirds. Park Boutte du Cape also features a traditional bread oven available for public use, with demonstrations daily and firings with free bread tastings from 12:00–2:00 PM during the operational season for the park (i.e., June 24 to October 1), and is the location of the only Acadian Monument in Newfoundland (Tourism NL n.d.[c]).

Snowmobiling occurs throughout the Island of Newfoundland and is managed by the Newfoundland and Labrador Snowmobile Federation (NLSF), which is the provincial governing body with volunteer clubs across the Island responsible for the maintenance of 3,300 km of trails (NLSF 2020). There are groomed snowmobile trails in the RAA leading to the community of Kippens; around Stephenville, Noels Pond, and Stephenville Crossing; and along the Newfoundland T'Railway corridor (NLSF 2020). The NLSF snowmobile trail and the T'Railway corridor are shown on Figure 4.28; the T'Railway corridor is also shown on Figure 4.29 as well as Figure 4.7 (in Section 4.3.2.4).

The Port au Port Peninsula presents many scenic views. The French Ancestor's Route is a 161 km scenic drive around the perimeter of the peninsula, which gives tourists access to Felix Cove, Abrahams Cove, Jerry's Nose, Lower Cove, and Sheaves Cove and Hidden Falls.

Stantec

- Trailhead
- Trail

Proposed Project Features

- Turbine Location
- Substation
- Transmission Line 230 kV
- Collector Line
- Port au Port Interconnection
- Proposed Route
- Alternate Route
- Access Road
- Project Area
- Regional Assessment Area

Other Features

- Substation, Existing
- Transmission Line, Existing
- Road
- Resource Road / Trail
- Contour (100 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

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(At original document size of 8.5x11)
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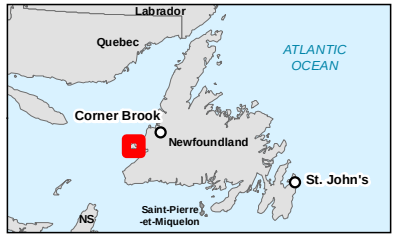
Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, NRCan CanVec, OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

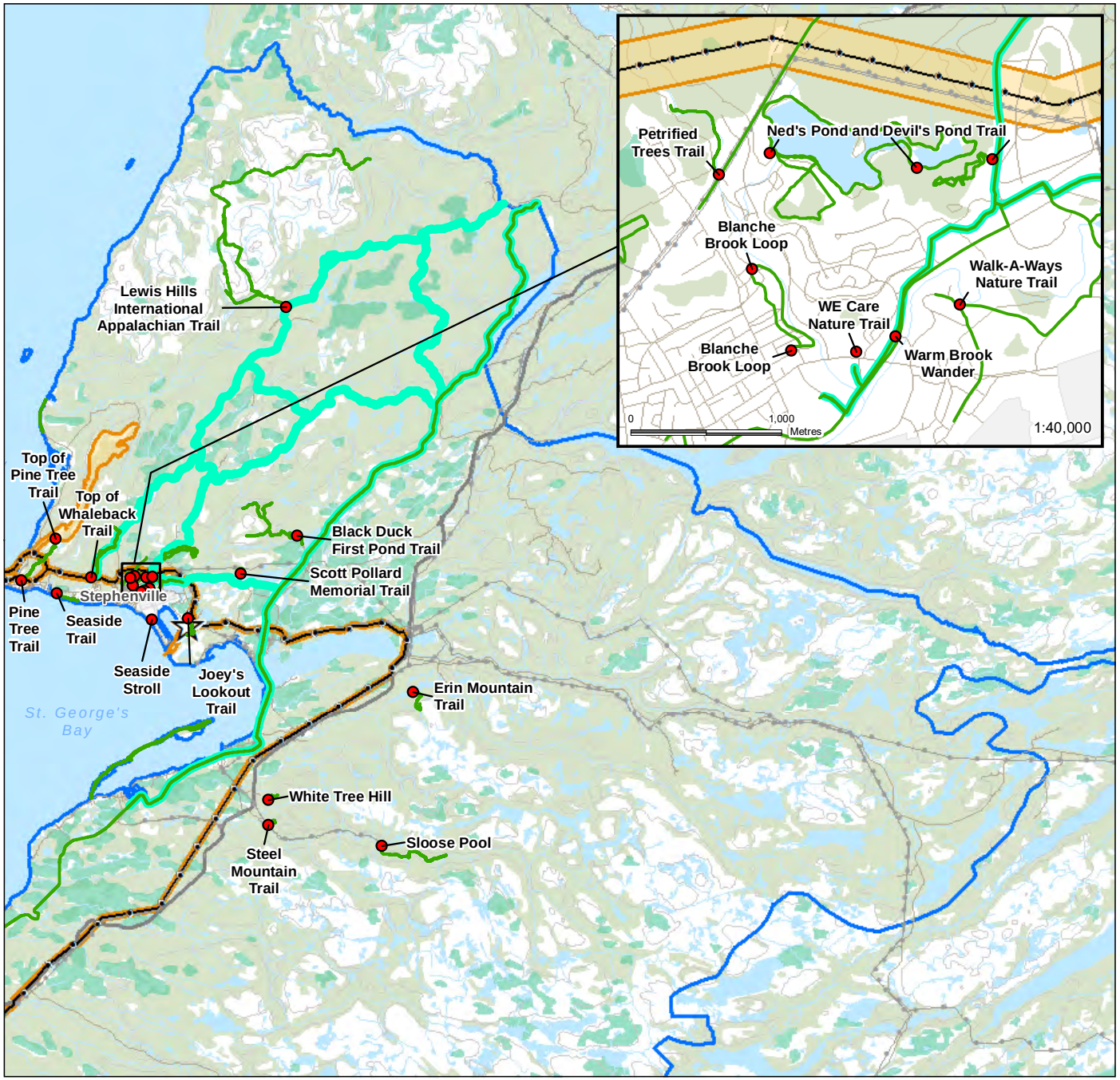
Prepared by AC on 2023-06-26
QR by AW on 2023-06-26
Rev. by NW on 2023-07-06

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_077

Figure No.
4.28

Trails in the RAA - Port au Port Peninsula



Stantec

- Trailhead
- Trail
- Snowmobile Trail/Route
- Hydrogen / Ammonia Plant Location
- Transmission Line 230 kV
- Project Area
- Land Resource Use Regional Assessment Area

Other Features

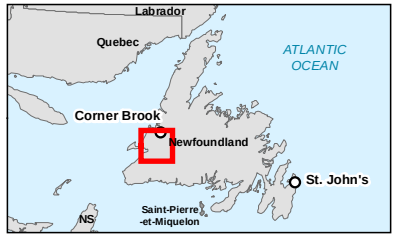
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

0 10 km
(At original document size of 8.5x11)
1:500,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, NRCan CanVec, OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by AC on 8/2/2023
QR by AW on 2023-06-26

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_077

Figure No.
4.29

Trails in the RAA - Stephenville Area and Transmission Line to Codroy Wind Farm

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Stantec

- Trailhead
- Trail
- Snowmobile Trail/Route
- Transmission Line 230 kV
- Project Area
- Regional Assessment Area

Other Features

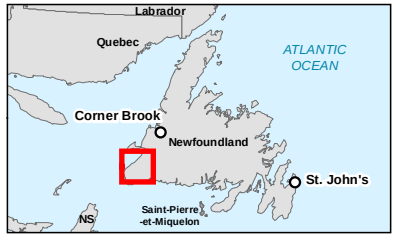
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Contour (100 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

0 10 km
(At original document size of 8.5x11)
1:500,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, NRCan CanVec, OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by AC on 8/2/2023
QR by AW on 2023-06-26

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_077

Figure No.
4.30

Trails in the RAA - Codroy Wind Farm

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4.3.4.6 Landscapes and Viewscapes

The landscape character of an area, and its associated viewscape, can be defined by the basic pattern of landform (topography), vegetation, water features, land use, and development. The following subsections provide an overview of existing visual conditions in and around the portions of the LAA associated with the proposed Port au Port wind farm, hydrogen / ammonia plant, Codroy wind farm, and high-voltage transmission line corridor. Additional information regarding landscapes and viewscapes is provided separately in the Visual Impact Assessment report for the Project.

Landscapes and Viewscapes In and Around the Portions of the LAA Associated with the Proposed Port au Port Wind Farm and Hydrogen / Ammonia Plant

The proposed Port au Port wind farm is located within the Western Newfoundland Forest Ecoregion, which includes the Port au Port Subregion. The Port au Port Subregion is dominated by wind-exposed limestone barrens, bedrock, and shallow soils. These have restricted vegetation that have adapted to shallow soil conditions and can survive on the limestone barrens. The Port au Port Peninsula is characterized by hilly lands, reaching an elevation of approximately 355 metres above sea level (masl) to the south, sloping to an elevation of approximately 20 masl to the north. Although the interior of the Peninsula has eroded over time and has been influenced by past and present mineral and petroleum exploration and development, the landscape exhibits a substantial amount of vegetation. Elevations along the rocky coastline are variable, including generally smooth transitions to beach-like settings and vertical cliffs rising 200 masl above the Gulf of St. Lawrence.

The viewscape extending inland is characterized by hilly to mountainous lands. The landscape exhibits a significant amount of vegetation, and a series of undulating ridge tops with deeply cut ravines and valleys. Elevations range from approximately 140 to 355 masl. The shoreline is characterized by steep, vertical cliffs extending approximately 200 masl, where it then rises approximately 155 m by traversing hilly to mountainous landforms.

Dominant tree species in the area are representative of the *Dryopteris-Hylocomium*-balsam fir zonal forest found throughout much of the region (NRCan 2006). Species include balsam fir, yellow birch (found at elevations below 200 masl), red maple, white spruce, eastern larch, trembling aspen, balsam poplar, white pine and black ash. Outside of developed areas (e.g., Stephenville) and scattered cleared areas for residential and commercial uses, this portion of the LAA and surrounding RAA contains a large amount of forested lands.

Water features are an important and scenic component of the visual landscape. This portion of the LAA is bordered, to the north, south and west, by the Gulf of St. Lawrence, and includes numerous rivers (including tributaries) and ponds. The shoreline of the Gulf is irregular and is characterized by a series of bays (e.g., St. George's Bay and Port au Port Bay) of varying sizes, steep dramatic cliffs extending 200 m asl, and beaches.

There are several water bodies in and around this portion of the LAA that drain to the south or west into St. George's Bay and to the north and west into Port au Port Bay. These waterways include Victors Brook. Lourdes Brook, Three Rock Cove Brook, Mainland Brook, Cointres Brook, Red Brook, Big Cove

Brook, Falls Brook, Smelt Brook, and Fox Island River. In addition to the river tributaries, small streams, and wetlands, there are dozens of inland ponds in and around this portion of the LAA, including Gravels Pond, Gulls Pond, Long Gull Pond, Noels Pond, and Two Guts Pond. The Port of Stephenville (formerly Port Harmon), located on the north shore of Bay St. George, is a sheltered and ice-free deep sea port that operates year-round.

The primary roadway in and around this portion of the LAA is the east-west running Route 460, which also connects the Port au Port Peninsula with the mainland. Additional major thoroughfares include Route 490 (which connects the Trans-Canada Highway with Stephenville), and Route 463 (which provides access to the north side of the Peninsula and originates/terminates at Route 460). These corridors are two lanes with multiple access points, connecting multiple community centers. There are numerous local roads in and around this portion of the LAA.

Community centres (also referred to as population centres) in and around this portion of the LAA vary in size and density. The largest centre is the Town of Stephenville, which is located along the shores of the St. Georges Bay where residents and visitors can take advantage of the available water views; recreation, commercial, and industrial services; and experience a mix of cultures and their traditions. As evident by the Town's street patterns, it appears that the Town was planned at different times likely based on developmental pressures; street patterns in the downtown area reflect a loose grid-like pattern, while a curvilinear pattern is seen to the east and south of Blanche Brook. Scattered throughout the Town are several commercial establishments, including service facilities and offices; a higher concentration of establishments appears to be located along Main Street and just south. The community is also home to the Sir Thomas Roddick Hospital, College of the North Atlantic, and Stephenville Dymond International Airport. Low to moderate density single-family and multi-family residential housing is found throughout the Town, with the higher concentration of housing towards the community centre. These residential dwellings are mostly one to two- stories in height and tend to be older and well maintained. Multi-family dwellings, including apartment complexes, appear to be concentrated near the intersection of West Street and Bolands Drive and along Carolina Avenue east of the Warm Brook. Development density drops substantially to the north and east of the municipal boundary. Smaller communities (e.g., settlements, villages, and local service districts) in the area include Boswarlos, Cape St. George, Kippens, Lourdes, Port au Port, and Red Brook.

Transmission structures of varying heights, styles, and configurations are visible in and around the LAA. These structures range from single wooden poles, to wooden H-frame transmission structures, to steel lattices carrying lines with voltages up to 230 KV. On the Port au Port Peninsula, there are wooden monopole transmission structures along Highways 460 and 463. Wooden H-frame transmission structures carrying a 69 kV line are found further inland and connect the AML mining operation to the Berry Head substation in Port au Port. The Picadilly Substation is also located along this line. On the mainland, there are several transmission structures and associated infrastructure, as well as wooden monopoles found roadside in the more populated areas such as the Town of Stephenville or those needed for the local communities or roadside development. Several 69 kV lines are found along the route extending from the Port au Port substation, proceeding around the Town of Stephenville, connecting to the 50 MW Stephenville Turbine Station and/or the Bottom Brook Substation. The lines are carried on a varity of pole types, including wooden monopole and H-frame structures, as well as select steel lattice

structures. Substations are found on Galliant Street, and at the intersection of Highway 460 and Minnesota Drive. Wooden H-frame structures carrying a 230 kV line can be found exiting the Stephenville Turbine Station and extending east to the Bottom Brook Substation.

As described in Section 4.3.3.1, there is a history of mining on the Port au Peninsula; much of its interior has been claimed by mineral exploration and quarrying companies. The high concentrations of dolomitic and limestone deposits found in this area makes this the primary activity on the Peninsula. Currently, mining operations near Lower Cove are clearly evident as AML mines chemical grade high calcium limestone, dolomite and construction aggregates. The operation consists of the mine, processing facilities, and a marine terminal on the Port au Port Peninsula. These materials are distributed across North America, South America, and Europe. The mine is a recognizable element within the landscape as it has been in production since 1988, operating 24 hours a day, seven days a week for nine months of the year.

Landscapes and Viewscapes In and Around the Portion of the LAA Associated with the Codroy Wind Farm

The proposed Codroy wind farm is located within the Western Newfoundland Forest Ecoregion, which includes the Codroy Subregion. The landscape exhibits a significant amount of vegetation, and a series of undulating ridge tops with deeply cut ravines and valleys. Elevations range from approximately 30 to 540 masl.

The shoreline in and around this portion of the LAA is characterized by steep, vertical cliffs extending 150 masl. The land then rises approximately 390 m by traversing hilly to mountainous landforms before it drops to approximately 30 masl in the Codroy Valley. East of the valley, the land again traverses mountainous terrain, climbing to approximately 640 masl.

Dominant tree species in the area are representative of the *Dryopteris-Hylocomium*-balsam fir zonal forest found throughout much of the region (NRCan 2006). Species include balsam fir, yellow birch (found below 200 masl), red maple, white spruce, eastern larch, trembling aspen, balsam poplar, white pine and black ash. This portion of the LAA and surrounding RAA contains a large amount of forested lands; however, there are scattered cleared areas for uses such as residential and commercial development.

Water features are an important and scenic component of the visual landscape. This portion of the LAA is bordered, to the north and west, by the Gulf of St. Lawrence, and includes numerous rivers (including tributaries) and ponds. The shoreline of the Gulf is irregular and is characterized by a series of bays of varying sizes and steep dramatic cliffs extending approximately 150 masl.

There are several water bodies in and around this portion of the LAA that drain westerly to the Gulf, including the Grand Codroy Estuary, Little Codroy River, and Brooms Brook (both of which drain into the Estuary). There is also a series of waterways entering the Gulf in a northerly fashion, including Robinson River, Middle Barachois River, Crabbes River, and Highlands River. In addition to the river tributaries, small streams, and wetlands, there are dozens of inland ponds in and around this portion of the LAA. These ponds include Little Codroy Pond, Ocean Pond, Mitchells Pond, Tuckers Pond, Shoal Point Pond, Hynes Ponds, Friars Ponds, and Johns Pond.

The primary roadway in and around this portion of the LAA is the north-south running Trans-Canada Highway. There are several roads originating / terminating from the Highway that extend westward towards the Gulf. These connect smaller communities (e.g., Codroy, Jeffreys, Millville, and Robinsons) and include Highways 404, 405, 406, and 407. While the limited access Trans-Canada Highway is four lanes, the others are two lanes with multiple access points, in part a result of roadside residences. While all these highways and many roads in and around the LAA are paved, there is also a vast network of dirt log roads that extend into the hilly, forested non-developed areas.

Residential dwellings and commercial buildings are clustered within small roadside communities (e.g., Millville).

In addition to wooden monopoles found roadside or in populated areas, there are two transmission lines that generally follow the Trans-Canada Highway corridor: steel lattice structures are used to carry an existing 138 kV transmission line as well as existing lines associated with the Maritime Link. Doyles Terminal Station is located towards the southwestern extent of the RAA.

Landscapes and Viewscapes In and Around the Portions of the LAA Associated with the Proposed High-Voltage Transmission Line Corridor

Since the transmission lines for the Project will extend between the Port au Port wind farm, the hydrogen / ammonia plant, and the Codroy wind farm, many of the characteristics described above will occur within the portions of the LAA associated with the high-voltage transmission line corridor for the Project.

The proposed high-voltage transmission line corridor for the Project is located within the Western Newfoundland Forest Ecoregion and spans the Port au Port and Codroy Subregions. The landscape in and around the LAA exhibits a substantial amount of vegetation and exhibits hilly to mountainous terrain with ravines and valleys. In general, the land slopes from the east (with higher elevation to the west), with elevations ranging from approximately 5 to 200 masl.

Dominant tree species in the area are representative of the *Dryopteris-Hylocomium*-balsam fir zonal forest found throughout much of the region (NRCan 2006). Species include balsam fir, yellow birch (found below 200 metres), red maple, white spruce, eastern larch, trembling aspen, balsam poplar, white pine and black ash. This portion of the LAA and surrounding RAA contains a large amount of forested lands; however, there are scattered cleared areas for uses such as residential and commercial development.

Water features are an important and scenic component of the visual landscape, particularly in the vicinity of Stephenville Crossing. The LAA in this area is bordered to the west by the Rothesay Bay, with a shoreline that is irregular and contains additional bays of varying sizes. The LAA and surrounding RAA include numerous rivers (including tributaries) and ponds throughout.

There are several water bodies in and around this portion of the LAA that drain westerly to the Gulf, including the St. George's River, Southwest Brook, Little Barachois Brook, Dribble Brook, Fischells Dribble, and Robinsons River. In addition to the river tributaries, small streams, and wetlands, there are dozens of inland ponds in and around the LAA. These ponds include Barachois Pond, Duck Pond, First Pond, Goose Pond, Gulf Pond, and Indian Pond.

The primary roadways around the transmission line corridor include the north-south running Trans-Canada Highway and the east-west running Route 460. The proposed transmission route generally parallels each of these roads. As noted above, there are a number of roads originating / terminating from the Highway and Route 460 that connect communities of varying sizes.

Communities in and around the LAA are limited and primarily found along Route 461. Population centres consist of the Town of Stephenville Crossing and the Town of St. George's. In between and just outside of these communities, dwellings are found along the roadside and connecting roads. While mostly residential in nature, there are scattered commercial and institutional services.

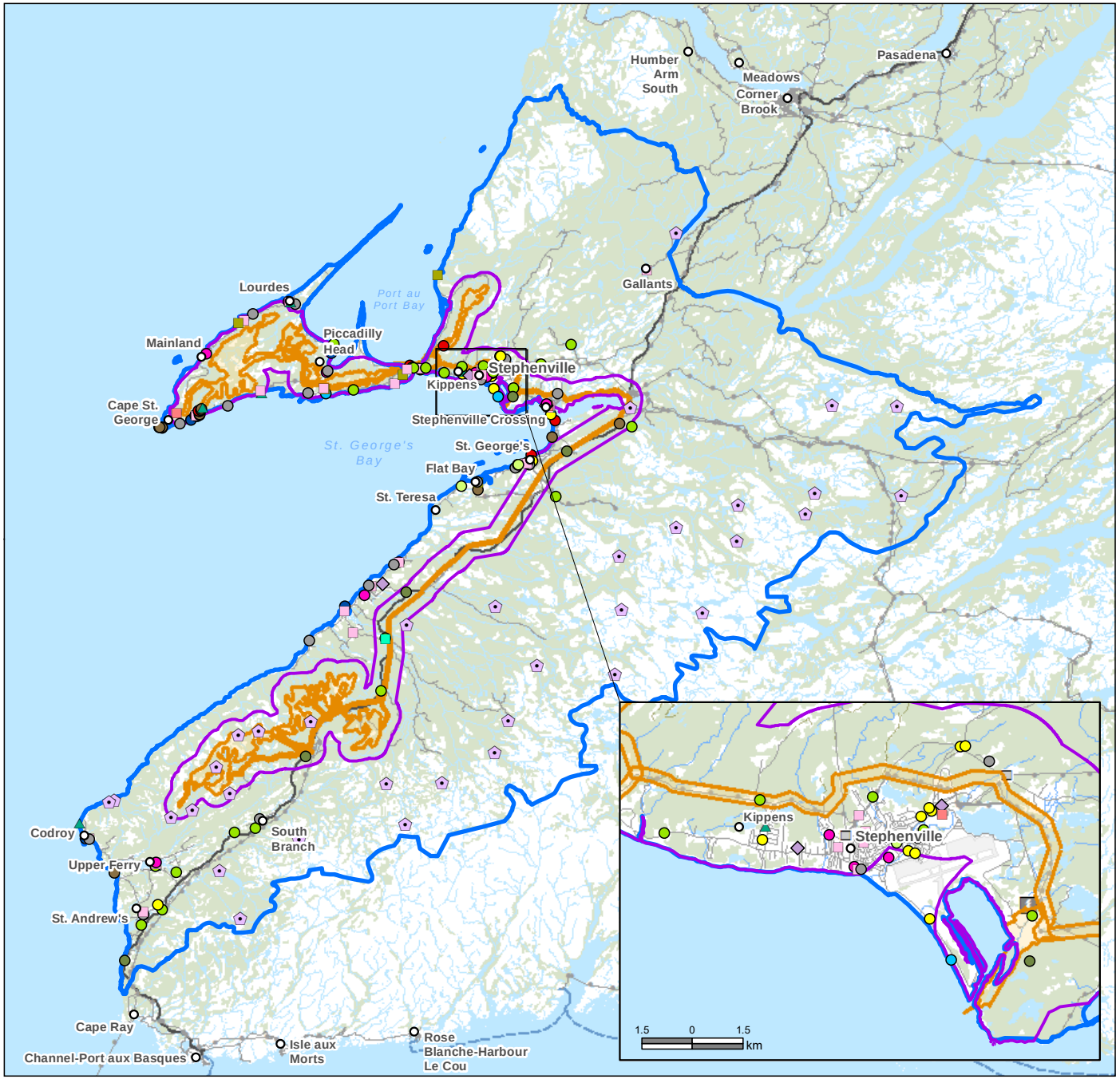
In addition to wooden monopoles found roadside or in populated areas such as Stephenville Crossing, there are multiple transmission lines found in and around the LAA. These include steel lattice structures used to carry an existing 138 kV transmission line as well as existing lines associated with the Maritime Link. There are several lines exiting the Bottom Brook Substation, including three 230 kV lines, two 138 kV lines, and the Maritime Link. The lines are carried on a varity of pole types including wooden monopole and H-frame structures, as well as lattice structures. A 69 kV line is found extending from the Stephenville Turbine Station to the Lookout Brook Hydro plant. The line is carried on wooden monopoles. Along this line is the Saint George's substation.

4.3.5 Potentially Affected Receptors

Figure 4.31 shows the locations of several receptors within the RAA that have potential to be affected by nuisance impacts and/or other effects on LRU associated with wind energy development and/or industrial projects in general. Table 4.11 provides details for those potentially affected receptors that are overlapped by the LAA and/or Project Area.

According to CanVec topographic data (NRCan 1984), there are thousands of buildings within the LAA, including several within the Project Area. It is possible that many of the buildings within the LAA and the Project Area may be residences. Additional receptors within the Project Area for the two wind farms appear to be seasonal residences (i.e., cabins) that have been identified through satellite imagery, with some locations having been field verified. Despite also being potentially affected receptors, only some of these buildings are captured on Figure 4.31 and in Table 4.11 due to the large number of records in the CanVec dataset.

The building in closest proximity to the hydrogen / ammonia plant that appears to be a residence (based on review of satellite imagery) is located outside of the Project Area, in Little Port Harmon, at a distance of approximately 1.4 km from the plant site.



Stantec

- Campground
- Cemetery
- Church
- Community Beach
- Community Centre
- Cultural Site
- Historic Place
- Hospital
- Park
- Public Wharf
- Recreation
- Scenic Lookout
- School
- Seniors Residential Facility
- Tourism Operator
- Trail
- Unique Site
- Outfitter Operator

- Local Assessment Area
- Regional Assessment Area
- Project Area

Other Features

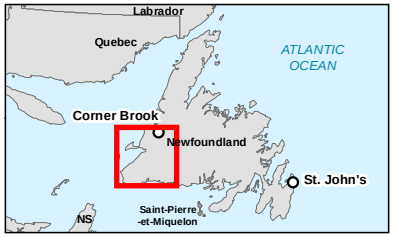
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Ferry Route
- Contour (100 m)
- Watercourse
- Waterbody
- Forested Area

N

0 10 20 km
(At original document size of 8.5x11)
1:950,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, NRCan CanVec, Openstreetmap, GovNL
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by MB on 2023-07-10
QR by AW on 2023-07-19
IR Review by BK on 2023-07-28

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
4.31

Title
Potentially Affected Receptors in the RAA

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Table 4.11 Potentially Affected Receptors in the LAA and/or Project Area

Type of Receptor	Descriptor	Is the Receptor Located within the LAA?	Is the Receptor Located within the Project Area?
Campground	Zenzille RV Campground	Yes	No
	Crabbes River Park	Yes	No
	Wishingwell Campground	Yes	No
Cemetery	Roman Catholic Cemetery (Ship Cove)	Yes	No
	Saint James Anglican Cemetery	Yes	No
	Gallants/Hillside Interfaith Cemetery	Yes	No
	Roman Catholic Cemetery (Saint George's)	Yes	No
	Piccadilly Roman Catholic Cemetery	Yes	No
	Three Rock Cove Roman Catholic Cemetery	Yes	No
	St. Benedicts Cemetery – Sape' wit Penwa' Wutqutaqne'Katim	Yes	No
	Our Lady of the Cape De Grau Cemetery	Yes	No
	Marches Point RC Cemetery	Yes	No
	Unnamed Cemetery #1	Yes	Yes
	Unnamed Cemetery #2	Yes	No
Church	Our Lady of Mercy Church Complex and Museum	Yes	No
	United Pentecostal Church	Yes	No
	United Church of Canada	Yes	No
	Saint Philomena's Chapel	Yes	No
	Saint Anne Roman Catholic Church	Yes	No
	Our Lady of the Cape Parish Rectory	Yes	No
	Saint Joseph Catholic Church	Yes	No
	Our Lady of Fatima Catholic Parish	Yes	No
	Our Lady of Mercy Heritage Church	Yes	No
	Saint James Anglican Church	Yes	No
	Maria Regina Catholic Church	Yes	No
	St Stephen Roman Catholic Church	Yes	No
	Salvation Army Citadel	Yes	No
	Anglican Church (Stephenville)	Yes	No

Table 4.11 Potentially Affected Receptors in the LAA and/or Project Area

Type of Receptor	Descriptor	Is the Receptor Located within the LAA?	Is the Receptor Located within the Project Area?
Community Beach	Fishing Shacks	Yes	No
	Port Harmon Beach	Yes	No
Cultural Site	Legion Memorial	Yes	No
	Benoit First Nation Penwaaq L'nu'k	Yes	No
	Mawio'mi Cultural Grounds	Yes	No
	K'Taqmkuk Mi'Kmaq Historical Museum	No	No
	Powwow Grounds (Flat Bay)	No	No
Historic Place	Lead Cove	Yes	No
	French Bread Oven	No	No
	Joe-Mic's Trail	Yes	No
	Stephenville Radar Station	Yes	No
	Stephenville Crossin Trestle	No	No
	Turf Point (Indian Cove)	No	No
Hospital	Sir Thomas Roddick Hospital	Yes	No
	Clinique St. George	Yes	No
Outfitter Lodge / Facility	Refer to Table 4.10 in Section 4.3.4.3	Yes	Yes
Park	Boutte du Cap Park	No	No
	Boutte du Cap Park	No	No
	Park	Yes	No
	Loon Park and Forest	Yes	No
	Benoit First Nation M'gmaw Heritage Park	Yes	No
	Long FIeld	Yes	No
	Mi'kmaw Heritage Park and Farm	Yes	No
	Big Field	Yes	No
	Blanche Brook Park	Yes	No
	Black Banks Beach	No	No
	Calm Waters Park	No	No
	Barachois Pond Provincial Park	Yes	No
	Codroy Valley Provincial Park	No	No

Table 4.11 Potentially Affected Receptors in the LAA and/or Project Area

Type of Receptor	Descriptor	Is the Receptor Located within the LAA?	Is the Receptor Located within the Project Area?
Public Wharf	Wharf (St. David's)	No	No
	Beach Point (Codroy)	No	No
	Piccacdilly Small Craft Harbour	No	No
	Cape Saint George Marina	Yes	No
Recreation	Mayfield Soccer Pitch	Yes	No
	Community Ballfield	No	No
	Hatcher Field	Yes	No
	Whaleback Nordic Ski Club	Yes	No
	St. Andrews na Creige Golf Course	No	No
	Cape St. George Recreation Centre	Yes	No
	Ballfield	Yes	No
	Dan McIssac Baseball Field and Walking Track	Yes	No
	Kippens Recreation Complex	Yes	No
	Stephenville Harmon Ball Diamond	Yes	No
	Stephenville Aquatic Centre	No	No
	Stephenville Dome	Yes	No
	Whaleback Nordic Ski Club Attraction	Yes	No
	Siki Bennett Memorial Stadium	Yes	No
	Harmon Seaside Links	No	No
Scenic Lookout	Arrêt pour une nuit	No	No
	The Boot	No	No
	Joey's Lookout	Yes	No
	Trans-Canada Highway Parking	Yes	No
	Trans Canada Highway Parking 2	Yes	No
	Riverside Rest Area	Yes	No
	Arrêt pour une nuit	No	No
School	E.A. Butler All Grade School	No	No
	Saint Michaels Elementary School	Yes	No
	Stephenville Middle School	No	No
	Piccadilly Central High	Yes	No
	Belanger Memorial School	No	No

Table 4.11 Potentially Affected Receptors in the LAA and/or Project Area

Type of Receptor	Descriptor	Is the Receptor Located within the LAA?	Is the Receptor Located within the Project Area?
School (cont'd)	Lourdes Elementary School	No	No
	École Sainte-Anne	Yes	No
	École Notre-Dame-Du-Cap	Yes	No
	Our Lady of the Cape School	Yes	No
	St Thomas Aquinas Elementary School	Yes	No
	Stephenville High School	Yes	No
	Stephenville Elementary	Yes	No
	College of the North Atlantic	Yes	No
	Bayview Academy	No	No
	Heatherton Hall	No	No
Seniors Residential Facility	Silverwood Manor	Yes	No
	Acadian Village	Yes	No
	Crosswinds Seniors Resort	No	No
Tourism Operator	Salmon Run Resort	Yes	No
Trail	Scott Pollard Memorial Trail	No	No
	Walk-A-Ways Nature Trail	Yes	No
	The Gravels Walking Trail	Yes	No
	Pine Tree Trail	Yes	No
	Top of Whaleback Trail	Yes	Yes
	Black Duck First Pond Trail	No	No
	Steel Mountain Trail	No	No
	Newfoundland T'Railway	No	No
	Sgt. Craig Gillam Mark Rock Trail	No	No
	Erin Mountain Trailhead	No	No
	Starlite Trail	No	No
	Ice Caves	Yes	No
	Danny's Walking Trail	Yes	No
	Joey's Lookout Trail	Yes	Yes
	Lewis Hills International Appalachian Trail	Yes	No
	Wetlands Trail	No	No

Table 4.11 Potentially Affected Receptors in the LAA and/or Project Area

Type of Receptor	Descriptor	Is the Receptor Located within the LAA?	Is the Receptor Located within the Project Area?
Unique Site	The Gravels	Yes	No
	Cape St. George Community Pasture	Yes	No
	Hidden Falls	Yes	No
	Kippens Community Garden	Yes	No

4.4 Discussion

Although the RAA is primarily rural in nature, with a dispersed low-density population, it contains several small communities and sensitive receptors and supports a variety of land and resource uses, including designated land and resource use, commercial and industrial land and resource use, and recreational and subsistence land and resource use. Project activities and components have potential to interact with existing land and resource uses in the RAA, particularly in the Project Area and LAA.

The Port au Port and Codroy wind farms are located entirely on provincially-owned Crown land. The public has expressed concern about the use of Crown lands for the Project, particularly on the Port au Port Peninsula (CBC 2022). Outside of Crown lands, substantial portions of the LAA and Project Area (primarily associated with the transmission lines and the hydrogen / ammonia plant) intersect municipal planning areas for the Town of Cape St. George, the Town of Port au Port West-Aguathuna-Felix Cove, the Town of Port au Port East, the Town of Kippens, the Town of Stephenville, the Town of Stephenville Crossing, and the Town of St. George's. These areas are subject to municipal planning restrictions that may have permitting implications for the Project (i.e., if Project activities are incompatible with applicable municipal land use plans, development regulations, and/or zoning). Portions of the Project Area and LAA overlap with the following provincial parks and reserves: the existing T'Railway Provincial Park, the proposed Cape John Ecological Reserve, the proposed Bras Mort Ecological Reserve, and the proposed Cape St. George Transitional Reserve. Project activities and components within these areas may be subject to permitting implications, including Crown land leasing requirements and associated restrictions. The LAA also partially overlaps the existing Barachois Pond Provincial Park.

The Project Area and LAA overlap areas that are currently used for various commercial and industrial LRU activities, including:

- areas where tourism and outfitting activities take place
- commercial forestry lands, including tenured Crown lands held by Corner Brook Pulp and Paper
- agricultural areas of interest on Crown land
- tenured Crown lands for mining, quarrying, petroleum development, and associated exploration activities, including existing mining and petroleum production lease areas

Recreational and subsistence LRU activities within the RAA are widespread and diverse and have potential to occur in the LAA and Project Area. The LAA and Project Area overlap several domestic wood harvesting blocks.

Compensation may be required if overlap with commercial / industrial and subsistence LRU areas cannot be avoided.

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5.0 Traditional Land and Resource Use

5.1 Scope And Objectives of the Traditional Land and Resource Use Study

Traditional Land and Resource Use (TLRU) information was collected to meet the requirements outlined in the Final EIS Guidelines which require inclusion of information related to Indigenous knowledge, Indigenous fisheries, and other TLRU. This information informs the assessment of the Indigenous Fisheries VEC which was selected to address requirements in the Final EIS Guidelines for an assessment of effects on existing and potential commercial, recreational, and Indigenous fisheries and aquaculture operations.

Project activities can affect TLRU activities, sites, and resources identified as important by the Indigenous groups, as well as potential quality of life and socio-economic conditions. This includes effects on Indigenous health, social services, economy, governance, Indigenous historic and cultural sites, and current use of lands and resources for traditional purposes. Standard mitigation measures will be in place to reduce potential effects to Indigenous people, including ongoing communication and engagement with potentially affected Indigenous groups.

The objectives of this TLRU baseline study are to identify and describe the following within the Socio-economic RAA:

- Indigenous knowledge that is publicly available and/or identified through engagement with the Indigenous groups
- Concerns shared with WEGH2 through engagement with the Indigenous groups
- Current and historical traditional land and resource use areas
- Specific traditional land and resource use activities, the frequency of those activities, and geographic areas of use
- Indigenous fisheries, including marine aquaculture operations
- Indigenous health, governance and socio-economic conditions

5.2 Methods

This section describes the site selection, use of Indigenous knowledge and information sources, the results of the public LRU survey, the Aboriginal Traditional Knowledge (ATK) study prepared by Qalipu First Nation (QFN 2023) and the literature review conducted for this baseline study.

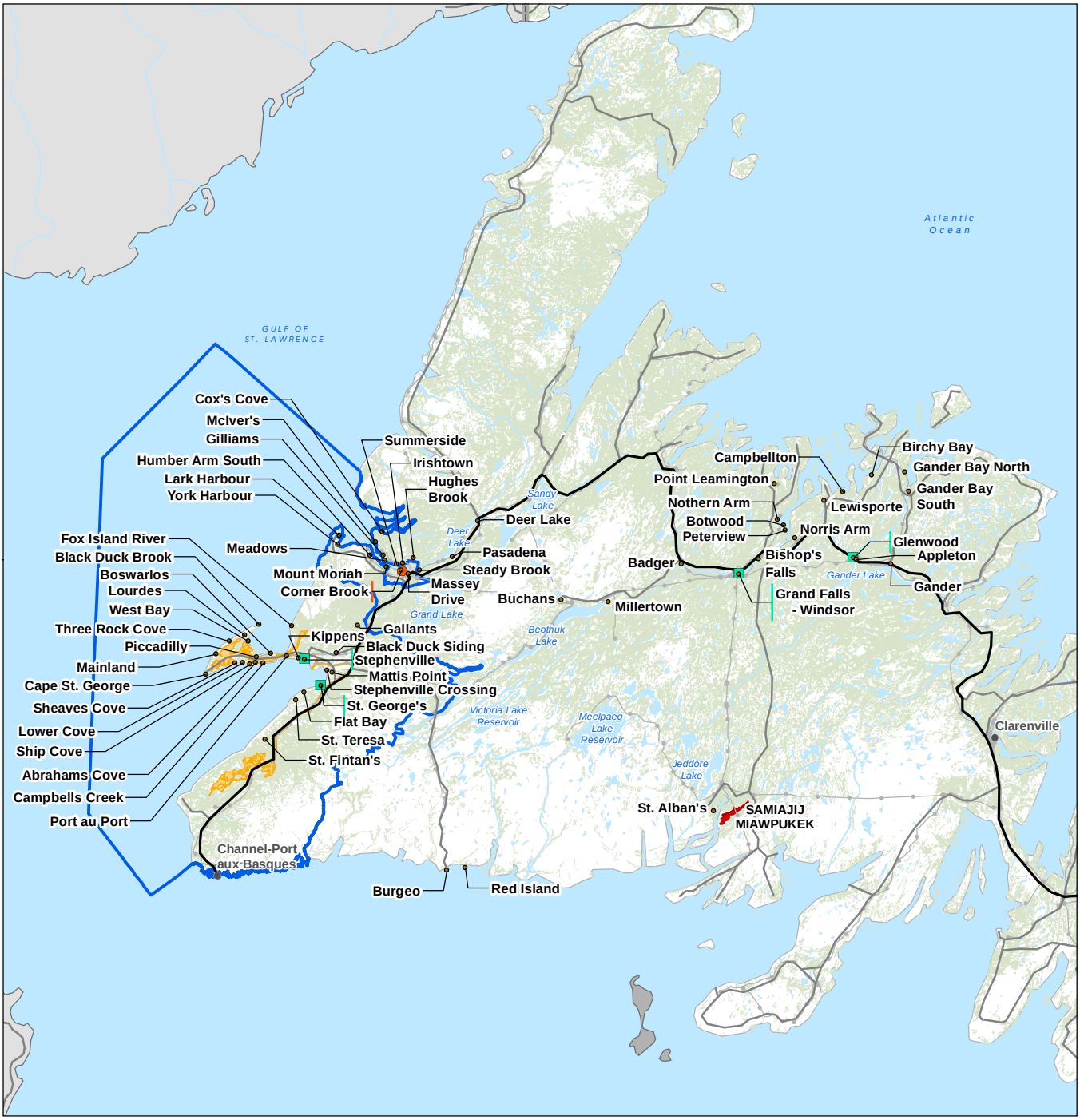
5.2.1 Spatial Boundaries

Information obtained through engagement with the Indigenous groups and the literature review were considered primarily in relation to the Project components.

The LAA for the TLRU baseline study includes the geographic extent over which direct (e.g., habitat loss; alteration of hunting, trapping, and gathering areas and/or activities; loss of income) and indirect (e.g., sensory disturbance; loss of sense of safety; loss of cultural identity) residual effects on Indigenous interests may reasonably be expected to occur. The LAA for the TLRU baseline study therefore includes the combined maximum extent of the LAAs established for related VECs assessed in the EIS (i.e., Atmospheric; Acoustic; Groundwater; Surface Water; Fish; Marine Environment; Vegetation and Wetlands; Avifauna; Bats; Other Wildlife; Areas of Conservation Concern; Employment and Economy; Communities; Human Health; Land and Resource Use; Heritage and Cultural Resources) (Figure 5.1).

The TLRU baseline study RAA encompasses the maximum extent of the RAAs of the various VECs (as above) to capture relevant potential cumulative effects on Indigenous interests. The TLRU RAA was selected for the purpose of identifying existing conditions related to the exercise or practice of Indigenous rights because the spatial area encompassed within the RAA represents the combined extents of potential effects on the environmental VECs that directly and indirectly support the exercise or practice of Indigenous rights in the TLRU RAA (e.g., wildlife, vegetation, etc.) (Figure 5.1).

This report also considers the Project's potential to influence the activities of Indigenous rightsholders associated with socio-economic conditions, such as, employment and economy, infrastructure and services, social and cultural well-being and health.



Communities where Qalipu Membership Resides
Qalipu Main Office
Qalipu Administrative Office
Miawpukek Federal Reserve Land

Other Features
Trans-Canada Highway
Secondary Road
Transmission Line
Project Area
Regional Assessment Area

0 30 60 Kilometres
(At original document size of 8.5x11)
1:3,000,000

N

Stantec

Notes
1. Coordinate System: NAD 1983 UTM Zone 21N
2. Data Sources: World Energy GH2, NRCan CanVec

Project Location
Stephenville
NL

Prepared by NW on 2023-06-29
Revised by MB on 2023-07-27
QR by AW on 2023-07-20

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_27d REVE

Figure No.
5.1

Title
Traditional Land and Resource Use RAA

V:\1214\active\121417233\03 data\gis cad\gis data\mapping\mxd\general\Traditional Land and Resource Use\121417233 027d Fig.5.1 TLRU RAA Aboriginal Communities REVE.mxd Revised: 2023-08-02 By: mblackwood

5.2.2 Indigenous Knowledge and Information Sources

Indigenous knowledge used in this baseline study is derived from ongoing engagement with the Indigenous groups, secondary sources, and publicly available information.

WEGH2 signed an MOU with Qalipu First Nation and coordinated a capacity funding agreement to support the collection of primary data for the Project. Qalipu First Nation prepared a Project-specific ATK study for consideration in the EIS and future project planning. The ATK study was funded through the benefit agreement established with WEGH2 and was guided by the MOU. The ATK study explores the knowledge and understanding of 65 members of the Qalipu Mi'kmaq First Nation Band regarding hunting and gathering, as well as culturally significant areas (QFN 2023). The ATK Study Area encompasses the proposed Project Area on the Port au Port Peninsula and the Codroy area (i.e., Anguille Mountains, Codroy Valley, and Bay St. George South regions), which overlaps with the Project Area and LAA for this VEC (QFN 2023). To preserve the anonymity of Qalipu First Nation data a grid of 10 km by 10 km was generated and the results of each mapping question were generalized into the grid (QFN 2023). The ATK study topics included hunting moose, bear, caribou, and waterfowl, trapping furbearing animals, frequency of consumption of wild game, harvesting medicinal and food plants and berries as well as the identification of sacred Mi'kmaq sites. The ATK study also included several questions centered around the proposed wind farm on the Port au Port Peninsula and Bay St. George South and how the Project may impact the lives of Qalipu members residing in these areas (QFN 2023). The results of the ATK Study have been incorporated below (as applicable) and will be used by WEGH2 in preparing the EIS.

As described in Section 4.2.2, WEGH2 also launched an LRU survey to engage the public (including Indigenous groups) and solicit feedback, identify about land and resource use activities that occur in the Project Area, and to identify public perceptions around the potential risks and/or benefits of the Project (Stantec 2023; Appendix 4C).

The LRU survey was completed by 515 participants, including 184 Qalipu members and two Miawpukek members (Stantec 2023). The Nation-specific results of the LRU survey have been incorporated below (as applicable) and will be used by WEGH2 in preparing the EIS.

5.2.3 Literature Review

A literature review was conducted to provide an overview of existing publicly available information for the Indigenous groups. The literature review focused on socio-economic, demographic and ethnographic information for the Indigenous groups, as well as information related to the availability of harvested resources, access to resources and use areas, and locations of cultural importance that support the exercise of rights as described by the Indigenous groups. Information was drawn from sources relevant to the locations of the Project assessment areas and to the Indigenous groups.

The literature review considers information from the following sources:

- Publicly available information collected for studies previously completed by the Indigenous groups for other development projects in the region
- Regulatory filings for proximate projects

- Government reports and databases
- Historical and ethnographic literature
- Peer-reviewed scientific publications
- Relevant internet sources (e.g., Nation web sites)

5.3 Results

The following sections describe Qalipu First Nation's and Miawpukek First Nation's history, socio-economic conditions, cultural practices, and TLRU activities within the Project Area, LAA, and RAA.

Sixty-five members of Qalipu First Nation participated in the ATK study, representing approximately 0.2% of the total registered population of Qalipu First Nation (n=24,979) (CIRNAC 2021a; QFN 2023).

Of the 24,979 registered members of Qalipu First Nation, 184 participated in the LRU survey (CIRNAC 2021a; Stantec 2023). Results of the LRU survey therefore reflect approximately 0.7% of the total registered population of Qalipu First Nation and should therefore not be regarded as fully representative of Qalipu First Nation's land and resource use within the Project Area and LAA.

The two Miawpukek members that participated in the LRU survey represent approximately 0.06% of the total registered population (n=3,089) of Miawpukek First Nation (CIRNAC 2021b; Stantec 2023); the Miawpukek LRU survey results should therefore not be regarded as representative of Miawpukek First Nation's land and resource use within the Project Area and LAA.

5.3.1 Qalipu First Nation

Qalipu First Nation formed as an Indigenous band in 2011 under the federal *Indian Act* (QFN 2016; Robinson 2014) and is part of the Federation of Newfoundland Indians (FNI). Members of the Qalipu First Nation are Ktamkukeweq (Newfoundland) Mi'kmaq peoples. The FNI is an aggregate group of Indigenous peoples of the Island of Newfoundland that was founded in 1972; prior to 1972, the group was called the Native Association of Newfoundland and Labrador (FNI 2002; QFN 2016). The FNIs primary goal was to obtain Government of Canada recognition of Mi'kmaq eligibility for registration under the *Indian Act* (QFN 2016).

The Mi'kmaq belong to the Algonquian language group, with speakers residing throughout Canada's Maritime provinces, the Gaspe Peninsula in Quebec, the island of Newfoundland, as well as within the United States (Massachusetts and Maine) (Robinson 2014). Mi'kmaq Nation traditional territory extends from Quebec through the Maritime Provinces and into Newfoundland (QFN 2016). Spanning pre-contact time through the historic period, Mi'kmaq peoples of Eastern Canada were considered "competent marine travelers who made use of the archipelago of islands and coastal regions throughout the Gulf of St. Lawrence;" where they travelled by sea canoe to hunt, fish, and engage in trade (Robinson 2014; Martjin 1989; QFN 2021). Following the arrival of Europeans, Qalipu First Nation (Mi'kmaq peoples) became involved and dependent on European trade, focusing on small game trapping and inland hunting (FNI 2002).

Qalipu First Nation, and Mi'kmaq people more broadly, have long-established culture and lifeways and maintain deep-time connections to the land and resources of Ktaqmkuk (the Island of Newfoundland) (QFN 2021). Mi'kmaq oral historical accounts indicate Mi'kmaq presence on the island of Newfoundland by the early 1400s (Hanrahan 2003). When the Island of Newfoundland joined Confederation in 1949, it was claimed by Joey Smallwood (Newfoundland and Labrador's first premier) that the Mi'kmaq people were brought to the Island of Newfoundland and are therefore not Indigenous to the island (QFN 2021). As a result, Mi'kmaq peoples on the Island of Newfoundland did not hold recognized rights or title to the lands and resources therein (QFN 2021). Today, the Mi'kmaq peoples, including Qalipu First Nation, are seeking resurgence of the Mi'kmaq culture in Ktaqmkuk (QFN 2021).

5.3.1.1 Population, Governance and Reserves

Qalipu First Nation is part of the larger Mi'kmaq Nation and is considered a "landless band" with no designated Indigenous reserve (IR) lands under the *Indian Act* (Robinson 2014). The Agreement for the Recognition of the Qalipu Mi'kmaq Indian Band (the Agreement) was ratified and signed by the Government of Canada and the FNI in 2008 (INAC 2021). Qalipu First Nation was registered as a First Nation and a band as defined in section 2(1) of the *Indian Act* in 2011; however, it is considered a "landless band" with no designated Indigenous reserve (IR) lands under the Indian Act (QFN 2016; QFN 2023; Robinson 2014).

Approval for Qalipu First Nation status under the *Indian Act* is based on a set of criteria established by Canadian federal agencies (Robinson 2014). The status criteria established by the federal agencies challenge existing Mi'kmaw political organizations, such as the Grand Council and Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO), which have been interpreted as limiting Qalipu First Nation capacity for self-governance and self-determination, as they are "governed by rules and regulations not of their own making and over which they have limited control" (Robinson 2014:383).

Qalipu First Nation is one of the largest Indigenous groups in Canada with a registered population of 24,979 members as of December 2022 (CIRNAC 2021a; QFN 2016). Its members are spread across 67 traditional Newfoundland Mi'kmaq communities and nine electoral wards (QFN 2016). Qalipu First Nation is governed by an elected Chief, two Vice-Chiefs and a Council; each of the nine electoral wards has an elected Ward Councilor (QFN 2016). The elected Chief is the official spokesperson and leader of Qalipu First Nation, and the two Vice-Chiefs represent the western and central Newfoundland communities (QFN 2016). Qalipu First Nation communities are also represented by their central administrative office in Corner Brook, as well as four satellite offices in Glenwood, Grand Falls-Windsor, St. George, and Stephenville (QFN 2016). The nine electoral wards include:

- Benoit's Cove Ward: The Benoit's Cove Indian Band occupies an area bounded by Lark Harbour in the Bay of Islands and Cook's Brook located on the southern side of Humber Arm (FNI 2002). The Benoit's Cove Ward is located approximately 15 km north of the RAA (Figure 5.1).
- Corner Brook Ward: The Corner Brook Band is dispersed throughout Corner Brook and the north side of Humber Arm and the Bay of Islands (FNI 2002). The Corner Brook Ward is located approximately 16 km northwest of the RAA (Figure 5.1).

- Exploits Ward: The Exploits Indian Band occupies the Grand Falls-Windsor area (FNI 2002). The Exploits Ward is located approximately 128 km northwest of the RAA (Figure 5.1).
- Flat Bay Ward: The Flat Bay Indian Band occupies an area from Sandy Point to the mouth of Barachois Brook and southwest along the shore to where Sandy Point joins the main shore (FNI 2002). The Flat Bay Ward is located is located within the RAA (Figure 5.1).
- Gander Bay Ward: The Gander Bay Indian Band occupies area spanning the west side of the bay near the mouth of the Gander River to Clarke's Head (FNI 2002). The Gander Bay Ward is located approximately 252 km northwest of the RAA (Figure 5.1).
- Glenwood Ward: The Glenwood Indian Band occupies the area of Glenwood (FNI 2002). The Glenwood Ward is located approximately 215 km northwest of the RAA (Figure 5.1).
- Port au Port Ward and Stephenville Ward: The Port au Port Band and the Stephenville Band are located within a few miles of one another and share the same resource use areas in the vicinity of Stephenville and Port au Port (FNI 2022). The Wards are located within the RAA (Figure 5.1).
- St. George's Ward: The St. George's Indian Band occupies St. George's Bay and areas extending inland to King George IV Lake and south to the Burgeo La Poile area (FNI 2002). St. George's Ward is located within the RAA (Figure 5.1).

Qalipu First Nation Chief and Council initiated the development of the Nation's first Comprehensive Community Plan (CCP) in 2019 through a community-based and member-driven process (QFN 2021). The CCP was completed in 2021, symbolizing Qalipu First Nation's "commitment to moving forward collaboratively and with the community's values at the heart of every decision-making process" (QFN 2021:3). The CCP covers eight interrelated planning areas including health and social services, education, language, culture, land and resources, economy, governance, and infrastructure development (QFN 2021). Examples of programs proposed for these planning areas include the creation of an Urban Reserve, revitalization of the Mi'kmaw language in Newfoundland, and updating the provincial K-12 curriculum to reflect the history and culture of the Newfoundland Mi'kmaq peoples more accurately (QFN 2021). Overall, the process and creation of the CPP is intended to provide healing for Qalipu First Nation membership, and "address the division that has been created in the band, [their] communities and [their] families. It will also seek to heal [their] experience of erasure and the damage it has created." (QFN 2021:12).

Most of the Qalipu First Nation members that participated in the ATK study reside in Corner Brook/ Bay of Islands and Stephenville (QFN 2023). Other Qalipu members that participated in the ATK study reside in Stephenville Crossing, Central Newfoundland, Burgeo, Port au Port, the Northern Peninsula, the Avalon Peninsula, St. George's Bay, Flat Bay, and the Codroy Valley (QFN 2023).

Most of the Qalipu First Nation members that participated in the LRU survey reside in Mainland (18.5%). Members of Qalipu First Nation that participated in the LRU survey also reside in Cape St. George (14%), Stephenville (9.8%), Cape St-George (9.2%), Port au Port West – Aguathuna-Felix Cove (6%), Kippens (5.4%), Lourdes (4.9%), Port au Port East (4.9%) (Stantec 2023). Other areas of residence identified by 3.8% or less of the Qalipu participants include (in order of frequency of mention), West Bay, St. George's, Piccadilly Head, Piccadilly Slant-Abrahams Cove, Bay St. George South, Ship Cove – Lower Cove – Jerry's Nose, St. Andrews, Corner Brook, Sheaves Cove, Stephenville Crossing, Three Rock Cove, Black

Duck Brook-Winterhouse, Cape Ray, Channel-Port aux Basques, O'Regan's Central, Upper Ferry, Campbell's Creek, Flat Bay, Fox Island River – Point au Mal, McKay's, St. Fintan's, and St. Jude (Stantec 2023).

5.3.1.2 Health, Education, Employment and Economy

Members of Qalipu First Nation live in communities throughout Newfoundland and use the infrastructure and services available within these communities (Marathon Gold 2020). Qalipu First Nation access services and programs, including health and educational services, through local municipal and provincial agencies, private businesses, and service agencies in communities and regions where they reside (QFN 2016). Qalipu First Nation also has access to several non-insured health benefits from Indigenous Services Canada, such as the Medical Transportation Benefit and the Mental Health Counselling Benefit that are administered by the Band council and the Qalipu Health Department (QFN 2022). Qalipu First Nation offers core programs, yearly special programs, and regular services to their membership; examples include education and training, tourism development, health benefits and services, employment programs, registration assistance, environmental monitoring, culture and heritage, and community economic development (QFN 2016).

Qalipu First Nation has several wholly owned commercial enterprises such as the Qalipu Holding Limited. Partnership (formerly known as the Qalipu Development Corporation), Mi'kmaq Commercial Fisheries Incorporated (MCF), Qalipu Management Services Incorporated, and Qalipu Marine Holdings Ltd. (QMH) (QFN 2022). Qalipu First Nation's elected Chief and Council established the Qalipu Holding Limited Partnership to represent an independent corporate business entity that leads economic and corporate development for Qalipu First Nation (QFN 2016). The Qalipu Holding Limited Partnership functions as a holding company for Qalipu First Nation's business operations and investments (QFN 2016). The Qalipu Holdings Limited Partnership therefore manages Qalipu First Nation's portfolio of existing business operations and actively pursues new investment and joint-venture opportunities to promote the Nation's long term economic growth and overall sustainability (QFN 2016).

Through the Qalipu Holding Limited Partnership, Qalipu First Nation holds business partnerships with several construction firms including Marine Contractors Inc. Other business entities consist of the Qalipu Project Support Services, Qalipu Safety and Industrial Supply, and Eastern Door Logistics (QFN 2022). In 2021-2022, the Band earned revenues of $19.8 million and had total expenditures of $19.1 million, resulting in a surplus of $705,500 (QFN 2022).

Of the 184 members of Qalipu First Nation that participated in the LRU survey, 38 members indicated that they were part of a local resource user group, an environmental organization, or business organization (Stantec 2023). Approximately 55.3% (n=21) participants indicated they preferred not to disclose which group(s)/ organization(s) of which they are a member (Stantec 2023). The other 544.7% (n=17) indicated they were members of the following group(s)/ organization(s): Ducks Unlimited (n=3); Delta Waterfowl (n=4); Newfoundland Snowmobile Federation (n=8); NL Outfitters Association (n=1), Benoit First Nation (n=1); Port au Port Mi'kmaq Band (n=1); Hunter/trapper (n=1). Benoit First Nation and the Port au Port Mi'kmaq Band are subgroups of the larger Qalipu First Nation (see Section 5.3.1.1) (Stantec 2023).

Qalipu First Nation previously expressed the following concerns regarding socio-economic conditions that may be affected by projects in the region (Marathon Gold 2020):

- The need to balance economic benefits against potential adverse environmental effects
- Employment opportunities, including the targets for employment of women and Indigenous women, and the establishment of training funds and training programs
- Need for ongoing engagement with youth

5.3.1.3 Physical and Cultural Heritage

Information on physical and cultural heritage specific to Qalipu is not publicly available. General physical and cultural heritage information related to the Mi'kmaq on the Island of Newfoundland is provided in Section 6.0 Archaeological and Heritage Resources.

Qalipu members that participated in the ATK study identified five built cabin/tilt/wigwam sites, six burial sites, three overnight stay locations, one sacred area, two spirit sites, two specialty stone sites, and three Mi'kmaq village sites on the Port au Port Peninsula (QFN 2023). The ATK study participants also identified 15 built cabin/tilt/wigwam sites, two birthplace sites, one overnight stay location, and one Mi'kmaq village site within Codroy/Bay St. George South (QFN 2023). These sites are located within the RAA and/or within or near the Project Area. The specific locations of these sites are not provided in the ATK study and are instead represented by 10 km by 10 km polygons in consideration of data sensitivity and user anonymity; one or more of the sites may be located within each of the polygons (QFN 2023).

Qalipu First Nation established their Culture, Tourism, and Community Development Department called "Experience Qalipu" to preserve and promote the culture, language, and traditions of the Mi'kmaq of Newfoundland and Labrador (QFN 2016). Qalipu First Nation are actively creating teachings and new ceremonial ways through involvement of youth and Elders in cultural activities within the Band; these activities integrate the core heritage values of ancestral Mi'kmaq spirituality in the modern world (QFN 2016; Marathon Gold 2020).

5.3.1.4 Traditional Land and Resource Use

Between the 16th and 18th centuries, Qalipu First Nation (Mi'kmaq peoples) engaged in a traditional cycle of land and resource use that involved intentional annual (seasonal) movements around the lands and waters of their territories (FNI 2002). Mi'kmaq peoples typically gathered in coastal villages near the mouths of large rivers from the end of March to the middle of October (FNI 2022). Harvesting activities during this time focused on fishing, harvesting shellfish and sea-urchins from intertidal areas, hunting caribou inland during their spring migration, as well as harvesting birds and small mammals (FNI 2002). Mi'kmaq peoples gathered berries and nuts in the early autumn (FNI 2002). During the late autumn and early winter, Mi'kmaq peoples would separate into smaller groups or bands, alternating between the coast and inland areas, focused on hunting seals, walrus, and bear, trapping beaver, and engaging in ice fishing (FNI 2002). February to March (late winter) was a time of general resource scarcity; Mi'kmaq peoples would split up into smaller family units to hunt on the land (FNI 2002). When engaged in their traditional cycle of land and resource use, Mi'kmaq peoples would set up wigwams at their seasonal

harvesting sites and camps (FNI 2002). Although most of the Mi'kmaq acquired European houses between 1839 and 1869, they continued to use wigwams at their inland hunting and trapping territories (FNI 2002).

There are several historical Mi'kmaq villages within and near the RAA that were used by Qalipu First Nation. Former Mi'kmaq village sites, including Matti's Point, Fox Island River, and Fox Island, Sandy Point, Jacotar Point, Seal Rocks, Barachois Brook, Indian Pond, Young's Cove, Blank Bank, Little River, Path End, Hell's Gulch, Jack Webb's Pond, Muddy Hole, and Codroy Pond are located within the RAA; these sites are currently used as campgrounds by members of Qalipu First Nation and they hold spiritual and cultural importance (FNI 2002).

Qalipu members that participated in the ATK study identified 438 data points within their Study Area (i.e., within the LAA) (QFN 2023). The data points capture numerous resource harvesting sites, cultural and sacred sites, habitation sites, and other important Qalipu values within the Study Area (QFN 2023). Qalipu reported that "maintaining environmental integrity in this area is imperative to membership to ensure [their] members can use the land and the resources it has to offer for decades to come" (QFN 2023:16).

Previous ATK studies conducted by Qalipu identified several locations for harvesting medicinal plants, food plants and berries on the Port au Port Peninsula (i.e., the Project Area), as well as farming and lodging/overnight camping locations (QFN 2023). The Port au Port Peninsula was also identified as an active area for built cabins, built lean-tos/wigwams, village sites, spiritual sites, harvesting waterfowl and other birds, gathering specialty stones, and cut logs for cabins and wharves (QFN 2023). Moose hunting, trapping, harvesting rabbit, harvesting ptarmigan/grouse as well as fishing for trout were all identified as activities undertaken by Indigenous peoples that spanned the entirety of the peninsula (QFN 2023).

Previous ATK studies conducted by Qalipu also identified that Bay St. George south, ranging from the Robinson's area and extending down to the Codroy Valley (i.e., the Project Area), was "a hotbed of Indigenous activity" where hunting grounds for moose, ptarmigan/grouse, waterfowl and other birds, rabbit, bear, and caribou are present (QFN 2023). The area was also used for cabins and wigwams, overnight stays, harvesting wild berries, food and medicinal plants, farming and cut logs (QFN 2023). Several old Mi'kmaw village sites were identified in the vicinity of the Project Area as well as various spiritual sites (QFN 2023). Many past participants of Qalipu First Nation's "ATK Caribou Study" identified a caribou herd in the Codroy area and marked it as a potential migration route (QFN 2023).

Of the 184 members of Qalipu First Nation that participated in the LRU survey, 82.4% indicated they engaged in recreational activities in or around the Port au Port Peninsula, 37.3% indicated they engaged in recreational activities in or around Codroy, and 65.3% indicated they engaged in recreational activities in or around Stephenville.

The four recreational activities most reported by members of Qalipu First Nation in or around the Port au Port Peninsula in the LRU survey include hiking/walking (89.1%), all-terrain vehicle (ATV) or other touring (UTV, side-by-side, etc.) (78.2%), camping (tent, cabin, recreational vehicle [RV], etc.) (72.8%), and snowmobiling (62.6%) (Stantec 2023). Approximately 52.4% of the participants reported engaging in snowshoeing, 47.6% engage in whale watching, 47.3% engage in bird watching and swimming, and

41.5% engage in boating (motor) in the area. Recreational activities reported by 30% or less of the Qalipu participants include canoeing and/or kayaking, cycling (mountain biking; trail biking), cross-country skiing, running/ jogging, and skating (Stantec 2023). Eleven participants indicated that they engaged in "other" recreational activities in the area (Stantec 2023). Other identified activities include salmon fishing, moose hunting, calm digging, picking mussels, sightseeing, photography, picking berries, collecting sea glass and shells, and sightseeing (Stantec 2023). Longer open-ended responses include "make fires on the beach, having a wiener roast, and trailing", "general exploration of our gorgeous province", "foraging, forest baths, harvesting berries and medicinal plants", "cut firewood, hunt, explore", and "I live in nature every day and enjoy the peace the forest and mountains provide me" (Stantec 2023).

The four recreational activities most reported by members of Qalipu First Nation in or around Codroy include camping (73.9%), hiking/walking (73.9%), ATV and other touring (69.2%), and snowmobiling (52.3%) (Stantec 2023). Other recreational activities reported by members of Qalipu First Nation for the area include bird watching (46.2%), snowshoeing (35.4%), and swimming (35.4%). Recreational activities reported by 30% or less of the Qalipu participants include canoeing and/or kayaking, whale watching, running/jogging, cycling, and skating. Nine participants indicated that they engaged in "other" recreational activities in the area (Stantec 2023). Other identified activities include salmon fishing, moose hunting, hunting (general), fishing (general), exploring barrens, photography, travelling, and festivals. A participant also responded "none" indicating that they do not engage in recreational activities in or around Codroy (Stantec 2023).

The four recreational activities most reported by members of Qalipu First Nation in or around Stephenville include hiking/walking (80%), camping (60.9%), ATV and other touring (60%), and snowmobiling (53.9%) (Stantec 2023). Other recreational activities reported by members of Qalipu First Nation for the area include swimming (41.7%), snowshoeing (35.7%), and bird watching (32.2%). Recreational activities reported by 30% or less of the Qalipu participants include canoeing and/or kayaking, cycling, boating (motor), running/jogging, whale watching, and skating. Two participants indicated that they engaged in "other" recreational activities in the area which include photography and sightseeing (Stantec 2023).

The following sections describe Qalipu First Nation TLRU activities and areas within and near the RAA, including fishing, hunting and trapping, harvesting and gathering, water bodies, and travel ways.

Fishing

Qalipu First Nation harvests anadromous fish, salmon, and trout, as well as eels and a variety of ground fish and pelagic fish from preferred fishing sites on and around Newfoundland (QFN 2020; FNI 2002). Groundfish were an important food source for Qalipu First Nation during historic times, however, commercial overharvesting and a subsequent moratorium on ground-fish harvesting has affected Qalipu First Nation ground fish harvesting practices (FNI 2002). Both freshwater and marine fish species remain important traditional subsistence resources for Qalipu First Nation, however, various commercial developments operating in the RAA have "restricted and changed the patterns of these activities" (FNI 2002:20). Qalipu First Nation previously reported that prior to the 1980s they used to be able to "go anywhere for […] fishing and other resources", however, all the rivers in the RAA are now licensed, and this has resulted in fishing restrictions and constraints for Qalipu First Nation (FNI 2002:19). Qalipu First

Nation previously reported: "[fishing] is hardly worth the effort when comparing the cost of harvesting to the value of food provided" (FNI 2002:20).

The Serpentine River, Romaine's River, South West River, and Bottom Brook and the numerous brooks and rivers flowing into St. George's Bay were traditional salmon and trout bearing rivers utilized by Qalipu First Nation for subsistence purposes (FNI 2002). Other traditionally harvested fish and aquatic species include Atlantic herring, lobster, crab, eels, smelts, and scallops (FNI 2002). Like the salmon fisheries, restrictions have been in effect on herring fisheries after commercial developments contributed to the decline of herring stocks in the area; although herring can still be harvested for subsistence use, they cannot be given away or sold by Qalipu First Nation (FNI 2002). Although lobster was a traditionally harvested food and once available in such abundance that it was used for fertilizer, Qalipu First Nation is no longer permitted to harvest it, save for the occasional live lobster taken from the beach for sustenance use (FNI 2002). Restrictions and licensing also exist for crab, smelt, and eel harvested for traditional food (FNI 2002). Eels were traditionally harvested and continue to be harvested with spears at Bottom of the Bay, Two Guts Pond, and Muddy Hole (St. George's Bay area); all located within the RAA. Qalipu First Nation previously reported that the introduction of commercial harvests by net in Muddy Hole has reduced the abundance of eels available for subsistence purposes over the last few decades (FNI 2002). Scallops are harvested for personal consumption by diving or using hand drag nets (FNI 2002).

Qalipu First Nation has access to salmon for food, social, and ceremonial (FSC) purposes through the recreational fishery (DFO 2020).Qalipu First Nation is currently involved in several fishing enterprises, including one large commercial enterprise in coordination with MCF (Marathon Gold 2020; Qalipu First Nation, MAMKA, and Mi'kmaq Commercial Fisheries 2017). MCF also administers seven other small inshore fisheries, two of which are enterprises owned by Qalipu First Nation (Marathon Gold 2020). The Mi'kmaq Alsumk Mowimsikik Koqoey Association (MAMKA) is a joint association between Miawpukek First Nation and Qalipu First Nation; together they administer five inshore fishing enterprises for various fish and marine species (Qalipu First Nation, MAMKA, and Mi'kmaq Commercial Fisheries 2017; BP 2018). Other inshore enterprises are designated to individuals who pay an annual administration fee proportional to the number of licenses included in the enterprise (QFN et al., 2017). These fishery enterprises are located throughout western and central areas of the Island, including within the RAA (QFN et al., 2017).

Qalipu members that participated in the ATK study identified three trout harvesting locations and five unidentified fish harvesting locations on and around the Port au Port Peninsula. The ATK study participants also identified two eel harvesting sites, one medicinal fish harvesting site, and three trout harvesting sites within Codroy/Bay St. George South (QFN 2023). These sites are located within the LAA and/or within or near the Project Area.

Most of the ATK study participants (n=38) indicated that they never consume trout harvested within the Study Area (Project area/LAA) (QFN 2023). One ATK study participant reported consuming trout a couple times a week, three ATK study participants reported consuming trout about one a month, one ATK study participant reported consuming trout several times a month, and 22 ATK study participants reported occasionally consuming trout (QFN 2023).

Most of the ATK study participants (n=46) indicated that they never consume salmon harvested within the Study Area (Project area/LAA) (QFN 2023). One ATK study participant reported consuming salmon once a week, and 18 ATK study participants reported occasionally consuming salmon harvested in this area (QFN 2023).

Most of the ATK study participants (n=61) indicated that they never consume eel harvested within the Study Area (Project area/LAA) (QFN 2023). One ATK study participant reported consuming eel several times a month, and three ATK study participants reported occasionally consuming eel harvested in this area (QFN 2023).

LRU survey results: Qalipu First Nation freshwater fish and aquatic species harvesting in and around the Project Area

Of the 184 members of Qalipu First Nation that participated in the LRU survey, 61.9% indicated they, or a member of their family, catch freshwater fish and/or aquatic species in or around the Port au Port Peninsula, 27.5% indicated they catch freshwater fish and/or aquatic species in or around Codroy, and 34.7% indicated they catch freshwater fish and/or aquatic species in or around Stephenville (Stantec 2023).

Recreation and/or food was identified by Qalipu participants as the primary purposes for catching freshwater fish and/or aquatic species in and around Port au Port Peninsula (85.9%), Codroy (100%), and Stephenville (98.3%) (Stantec 2023). Traditional/ cultural (FSC) purposes was identified as the second most common purpose for catching freshwater fish and/or aquatic species in and around Port au Port Peninsula (67.9%), Codroy (67.4%), and Stephenville (69.5%). Catching freshwater fish and/or aquatic species for commercial purposes was reported for Port au Port Peninsula (2.8%), Codroy (6.5%), and Stephenville (1.7%) (Stantec 2023).

Brook trout was the most frequently identified freshwater and/or aquatic species caught in and around the Port au Port Peninsula (91.5%), Codroy (91.3%), and Stephenville (100%) (Stantec 2023). Other freshwater and/or aquatic species harvested in and around the Port au Port Peninsula include rainbow smelt (64.2 %), Atlantic salmon (31.1%), American eel (26.4%) and arctic char (5.7%) (Stantec 2023). Other freshwater and/or aquatic species harvested in and around Codroy include Atlantic salmon (80.4%), rainbow smelt (34.8%), American eel (21.7%) and arctic char (2.2%). Other freshwater and/or aquatic species harvested in and around Stephenville include American eel (50%) and Atlantic salmon (50%) (Stantec 2023). One-hundred and six Qalipu participants reported catching freshwater and/or aquatic species in and around the Port au Port Peninsula when the fisheries are open. Of these participants, 43.4% reported fishing once or twice a week, 22.6% reported fishing once a month, 17.9% reported fishing once every few months, and 9.4% reported fishing daily (Stantec 2023). Seven members of Qalipu First Nation indicated that they did not know the frequency with which they, or a member of their family, catch freshwater and/or aquatic species in and around the Port au Port Peninsula (Stantec 2023).

Forty-six Qalipu participants reported catching freshwater and/or aquatic species in and around Codroy when the fisheries are open (Stantec 2023). Of these participants, 43.5% reported fishing once or twice a week, 30.4% reported fishing daily, 13% reported fishing once a month, and 10.9% reported fishing once every few months. One member of Qalipu First Nation indicated that they did not know the frequency with

which they, or a member of their family, catch freshwater and/or aquatic species in and around the Codroy (Stantec 2023).

Fifty-nine Qalipu participants reported catching freshwater and/or aquatic species in and around Stephenville when the fisheries are open (Stantec 2023). Of these participants, 40.7% reported fishing once or twice a week, 30.5% reported fishing once a month, 17% reported fishing once every few months, and 5.1% reported fishing daily (Stantec 2023). Three members of Qalipu First Nation indicated that they did not know the frequency with which they, or a member of their family, catch freshwater and/or aquatic species in and around Stephenville (Stantec 2023).

Freshwater fish and/or aquatic species harvested within the Project Area were identified as an important food source for Qalipu participants (Stantec 2023). Freshwater fish and/or aquatic species harvested in and around the Port au Port Peninsula are consumed by 50.1% of participants once or twice a week, by 18.8% once every few months, by 18.8% once a month, and by 2.8% daily (Stantec 2023). Six members of Qalipu First Nation indicated that they did not know the frequency at which they consume freshwater and/or aquatic species harvested in and around the Port au Port Peninsula, and three participants indicated that they never consume freshwater and/or aquatic species harvested from this area (Stantec 2023).

Freshwater fish and/or aquatic species harvested in and around Codroy are consumed by 60.9% of participants once or twice a week, by 17.4% once a month, by 8.7% once every few months, and by 6.5% daily (Stantec 2023). Two members of Qalipu First Nation indicated they never consume freshwater and/or aquatic species harvested from this area (Stantec 2023). One member of Qalipu First Nation indicated that they did not know the frequency at which they consume freshwater and/or aquatic species harvested in and around Codroy (Stantec 2023).

Freshwater fish and/or aquatic species harvested in and around Stephenville are consumed by 38.9% of participants once or twice a week, by 28.8% once a month, by 22% once every few months, and by 1.7% daily (Stantec 2023). Four members of Qalipu First Nation indicated that they did not know the frequency with which they consume freshwater and/or aquatic species harvested in and around Stephenville, and one participant indicated that they never consume freshwater and/or aquatic species harvested from this area (Stantec 2023).

LRU survey results: Qalipu First Nation marine fish and/or aquatic species harvesting in and around the Project Area

Of the 184 members of Qalipu First Nation that participated in the LRU survey, 55% indicated they, or a member of their family, catch marine fish and/or aquatic species in or around the Port au Port Bay, 38.7% indicated they catch marine fish and/or aquatic species in or around St. George's Bay, and 20.4% indicated they catch marine fish and/or aquatic species in or around the Port of Stephenville (Stantec 2023).

Recreation and/or food was identified by Qalipu participants as the primary purposes for catching marine fish and/or aquatic species in and around Port au Port Bay (79.4%), St. George's Bay (92.3%), and the Port of Stephenville (88%) (Stantec 2023). Traditional/ cultural (FSC) purposes was identified as the

second most common purpose for catching marine fish and/or aquatic species in and around Port au Port Bay (54.4%), St. George's Bay (61.5%), and the Port of Stephenville (70.6%). Catching marine fish and/or aquatic species for commercial purposes was reported for Port au Port Bay (28.3%), St. George's Bay (20%) and the Port of Stephenville (23.5%) (Stantec 2023).

Atlantic cod was the most frequently identified marine fish and/or aquatic species in and around Port au Port Bay (90.2%), St. George's Bay (87.7%) and the Port of Stephenville (88.2%). Mackerel, capelin, and lobster were identified by approximately are also harvested at three of these areas, as reported by approximately 60% or more of the participants (Stantec 2023). Other marine and/or aquatic species harvested by Qalipu First Nation within the Project Area that were identified by 50% or less of the participants (for each area) include, halibut and herring. Snow crab, scallop, mussels, turbot, flounder, haddock, seal, lumpfish, redfish, pollock, and skate were also identified as marine and/or aquatic species harvested by Qalipu First Nation within the Project Area. Qalipu participants reported harvesting hagfish and hake are in Port au Port Bay and one Qalipu participant reported harvesting swordfish in the Port of Stephenville and Port au Port Bay (Stantec 2023).

Ninety-two Qalipu participants reported catching marine and/or aquatic species in and around the Port au Port Bay when the fisheries are open (Stantec 2023). Of these participants, 40.2% reported fishing daily, 30.4% reported fishing once or twice a week, 8.7% reported fishing once a month, and 7.6% reported fishing once every few months (Stantec 2023). Eleven Qalipu participants indicated that they did not know the frequency with which they, or a member of their family, catch marine fish and/or aquatic species in and around the Port au Port Bay and one participant indicated that they never catch marine fish and/or aquatic species in this area (Stantec 2023).

Sixty-five Qalipu participants reported catching marine and/or aquatic species in and around Bay St. George when the fisheries are open (Stantec 2023). Of these participants, 30.8% reported fishing daily30.8% reported fishing once or twice a week, 18.5% reported fishing once every few months, and 112.3% reported fishing once a month (Stantec 2023). Four Qalipu participants indicated that they did not know the frequency with which they, or a member of their family, catch marine fish and/or aquatic species in and around Bay St. George and one participant indicated that they never catch marine fish and/or aquatic species in this area.

Thirty-four Qalipu participants reported catching marine fish and/or aquatic species in and around the Port of Stephenville when the fisheries are open (Stantec 2023). Of these participants, 53.9% reported fishing once or twice a week, 17.7% reported fishing daily, 17.7% reported fishing once every few months, and 5.9% reported fishing once a month. Two Qalipu participants indicated that they did not know the frequency with which they, or a member of their family, catch marine fish and/or aquatic species in and around the Port of Stephenville (Stantec 2023).

Marine fish and/or aquatic species within the Project Area were identified as an important food source for Qalipu participants. Marine fish and/or aquatic species harvested in and around the Port au Port Bay are consumed by 67.4% of participants once or twice a week, by 17.4% once a month, by 4.4% daily, and 3.3% once every few months (Stantec 2023). Five Qalipu participants indicated that they did not know the frequency at which they consume marine and/or aquatic species harvested in and around the Port au

Port Bay, and one participant indicated that they never consume marine and/or aquatic species harvested from this area (Stantec 2023).

Marine fish and/or aquatic species harvested in and around Bay St. George are consumed by 63.1% of participants once or twice a week, by 16.9% once a month, by 10.8% once every few months, and by 3.1% daily (Stantec 2023). Four members of Qalipu First Nation indicated that they did not know the frequency at which they consume marine and/or aquatic species harvested in and around the Bay St. George (Stantec 2023).

Marine fish and/or aquatic species harvested in and around the Port of Stephenville are consumed by 67.7% of participants once or twice a week, by 11.8% once a month, by 8.8% once every few months, and by 2.9% daily (Stantec 2023). Three members of Qalipu First Nation indicated that they did not know the frequency at which they consume marine and/or aquatic species harvested in and around the Port of Stephenville (Stantec 2023).

Hunting and Trapping

Qalipu First Nation engage in big game hunting and small game hunting and trapping activities inland and along coastal areas of Newfoundland, including within the RAA (FNI 2002). Qalipu First Nation hunt and/or trap moose, caribou, ptarmigan/grouse, waterfowl (turr), and snowshoe hares from preferred hunting and trapping areas across Newfoundland (QFN 2020; Emera 2013). Throughout the 19th century, caribou, black bear, and beaver were key food resources for Mi'kmaq peoples (FNI 2002). Trapping was focused on fox, otter, marten, lynx, and bear (FNI 2002). Arctic hare, partridge, ducks, and geese were also regularly harvested and consumed (FNI 2002).

Qalipu First Nation previously reported that its member's used to be able to "go anywhere for big game, small game, […] and other resources" in the 1960s, however, big game hunting areas are now determined by a license (FNI 2002:19). The Newfoundland Moose Management areas 6, 8, 9,10 and 43 are located within the RAA (FNI 2002; Government of Newfoundland and Labrador n.d.a; FNI 2002). These areas are considered prime moose hunting areas by Qalipu First Nation as they are easily accessible to local community members (FNI 2002). Today, moose kill sites are established by the management areas assigned to the license holder (FNI 2002).

Qalipu First Nation have reported harvesting caribou on the high lands near Suspan at the north end of the Grass Reserve, across from the Robinson River, in the vicinity of My Howley, Big Level north of Fishell's Pond, and Flat Bay neck located north and east of Meat Hole; these areas are within the RAA (FNI 2002). Tilts, tents and lean-tos are used as overnight shelter for trappers or for hunters who travel to the highlands or far from home (Emera 2013; FNI 2002). Qalipu First Nation members also engage in caribou hunting near Red Indian Lake and the Burgeo areas which are outside of the RAA.

Qalipu First Nation have reported snaring rabbits and marten and hunting partridge and ruffed grouse within their core areas, which overlap with the RAA (FIN 2002). Key trapping areas identified by Qalipu First Nation include Red Indian Lake, Lewis Hills, Peter Strides Pond, Lloyd's Lake and Victoria Lake; trapping activities are less frequent in these areas today (FNI 2002).

Qalipu First Nation have reported that ducks and geese were traditionally harvested from the mud flats at Bottom of the Bay, Two Guts, and near the mouth of Little River (FNI 2002). Ducks and geese were harvested from Harry's River (FNI 2002). These areas are considered key habitat and feeding areas for migratory birds and are located within the RAA (FNI 2002). Although there are harvesting restrictions for most of the seabirds in these areas, Qalipu First Nation previously reported occasionally harvesting murres and seagull eggs for subsistence use off Indian Head and off Stephenville Crossing which overlap with the RAA (FNI 2002).

Qalipu First Nation have reported that seals are harvested for subsistence use, including domestic consumption, however, seals are of lesser importance compared to other harvested species and licenses are required for harvesting (FNI 2002; BP 2018).

Qalipu First Nation have identified an important campground within the RAA located across from Glover Island in Grand Lake; the campground was used by caribou hunters in historic times and continues to be accessed by Qalipu First Nation today (FNI 2002). Qalipu First Nation have expressed concerns regarding the terrestrial environment including the disturbance of caribou migration routes and the potential for the introduction of invasive plant and wildlife species (Marathon Gold 2020).

Qalipu members that participated in the ATK study identified one bear harvesting site, three moose harvesting sites, one ptarmigan/grouse harvesting site, and two rabbit harvesting sites on the Port au Port Peninsula. The ATK study participants also identified one medicinal wildlife site, one rabbit harvesting site, one moose harvesting site, one trapping site, and one waterfowl harvesting site within Codroy/Bay St. George South (QFN 2023). These sites are located within the RAA and/or within or near the Project Area.

Most of the ATK study participants (n=61) reported that they never consume bear meat harvested within the Study Area (Project area/LAA) (QFN 2023). Two ATK study participants indicated that they consume bear meat once a month on average and two ATK participants indicated they occasionally consume bear meat harvested in this area (QFN 2023).

Most of the ATK study participants (n=47), reported they never eat rabbit meat harvested within the Study Area (Project area/RAA) (QFN 2023). Three of the ATK study participants indicated that they eat rabbit meat harvested from the Study Area once a month, 12 ATK study participants reported that they occasionally eat rabbit meat, and three ATK study participants indicated that they eat rabbit meat several times a month (QFN 2023).

Most of the ATK study participants (n=60) indicated that they never eat caribou meat that was harvested within the Study Area (Project area/RAA) (QFN 2023). Three ATK study participants reported occasionally consuming caribou meat harvested within the Study Area, one ATK study participants indicated they eat caribou meat several times a month, one ATK study participants indicated they eat caribou meat about once a month (QFN 2023).

Most of the ATK study participants (n=53) indicated that they never consume ptarmigan/grouse harvested within the Study Area (Project area/RAA) (QFN 2023). Nine ATK study participants reported occasionally consuming ptarmigan/grouse harvested within the Study Area, one ATK study participant indicated they

consume this species several times a month, and two ATK study participants indicated they consume this species about once a month.

The results of the ATK study demonstrate that wild game (big and small game) harvested within the RAA are important dietary staples/country foods for some members of Qalipu First Nation.

LRU survey results: Qalipu First Nation big game hunting in and around the Project Area

Of the 184 members of Qalipu First Nation that participated in the LRU survey, 61.9% (n=109) reported hunting in and around the Port au Port Peninsula, 28.7% (n=50) reported hunting in or around Codroy, and 46.6% (n=81) reported hunting in or around Stephenville (Stantec 2023). Recreation and/or food was identified by the Qalipu participants as the primary purposes for hunting big game in the Project area and traditional/cultural purposes was identified as the second most common purpose (Stantec 2023). A few Qalipu members also reported engaging in big game hunting in the Project area for commercial purposes (Stantec 2023).

Recreation and/or food was identified by the Qalipu participants as the primary purposes for hunting big game in and around Port au Port Peninsula (86.1%), Codroy (100%), and Stephenville (97.5%). Traditional/ cultural purposes was identified as the second most common purpose for hunting big game in and around Port au Port Peninsula (67.6%), Codroy (74%), and Stephenville (62.5%). Hunting big game for commercial purposes was reported for Port au Port Peninsula (1.9%), Codroy (12%) and Stephenville (2.5%). A few of the Qalipu participants commented that big game is an important food source (e.g., country food/ staple), for example, one participant indicated "Food is not recreational. Moose is a source of lower fat game meat. It is a necessity" (Stantec 2023).

Qalipu participants identified moose as the most hunted species of big game in and around the Port au Port Peninsula (98.2%), Codroy (98%), and Stephenville (100%). Caribou and bear hunting within the Project Area were reported with less frequency. Approximately 10.2% of the participants reported hunting caribou in and around the Port au Port Peninsula, 30% reported hunting caribou in and around Codroy, and 22.5% reported hunting caribou in and around Stephenville. Approximately 12% of the participants reported hunting bear in and around the Port au Port Peninsula, 48% reported hunting bear in and around Codroy, and 22.5% reported hunting bear in and around Stephenville (Stantec 2023).

Of the 108 Qalipu participants that reported engaging in big game hunting in and around the Port au Port Peninsula during the open season, 32.4% reported hunting daily, 32.4% reported hunting once a year, 23.2% reported hunting once or twice a week,7,4% reported hunting once every few months, and 0.9% reported hunting once a month (Stantec 2023). Four Qalipu participants indicated that they did not know the frequency at which they or a member of their family engage in big game hunting in and around the Port au Port Peninsula (Stantec 2023).

Of the 50 Qalipu participants that reported engaging in big game hunting in and around Codroy during the open season, 38% reported hunting daily, 34% reported hunting once or twice a week, 10% reported hunting once a year, 6% reported hunting once every few months, and 4% reported hunting once a month in this area (Stantec 2023). Three Qalipu participants indicated that they did not know the frequency at

which they or a member of their family engage in big game hunting in and around Codroy, and one Qalipu participant indicated that they never engage in hunting in this area (Stantec 2023).

Of the 80 Qalipu participants that reported engaging in big game hunting in and around Stephenville during the open season, 47.5% reported hunting once or twice a week, 23.8% reported hunting once a year, 16.3% reported hunting daily, 5% reported hunting once every few months and 5% reported hunting once a month in this area (Stantec 2023). Two Qalipu participants indicated that they did not know the frequency at which they or a member of their family engaged in big game hunting in and around Stephenville (Stantec 2023).

Big game hunting within the Project Area was identified as an important food source for Qalipu participants. Big game harvested in and around the Port au Port Peninsula is consumed by 63% of participants once or twice a week, by 14.8% once a month, by 9.3% once every few months, and by 8.3% daily (Stantec 2023). Four Qalipu participants indicated that they did not know the frequency at which they consume big game harvested in and around the Port au Port Peninsula, and one participant indicated that they never consume big game harvested from this area (Stantec 2023).

Big game harvested in and around Codroy is consumed by 66% of participants once or twice a week, by 14% daily, by 8% once every few months, and by 6% once a month. Two Qalipu participants indicated that they did not know the frequency at which they consume big game harvested in and around Codroy, and one participant indicated that they never consume big game harvested from this area (Stantec 2023).

Big game harvested in and around Stephenville is consumed by 61.3% of participants once or twice a week, by 13.8% once a month, by 11.3% once every few months, and by 8.8% daily. Three Qalipu participants indicated that they did not know the frequency at which they consume big game harvested in and around Stephenville, and one participant indicated that they never consume big game harvested from this area (Stantec 2023).

LRU survey results: Qalipu First Nation small game hunting and/or trapping in and around the Project Area

Of the 184 members of Qalipu First Nation that participated in the LRU survey, 56.1% indicated they, or a member of their family, engage in small game hunting and/or trapping in or around the Port au Port Peninsula, 25% indicated engaging in small game hunting and/or trapping in or around Codroy, and 28.7% indicated engaging in small game hunting and/or trapping in or around Stephenville (Stantec 2023).

Recreation and/or food was identified by Qalipu participants as the primary purposes for hunting and/or trapping small game in and around Port au Port Peninsula (83.3%), Codroy (96.7%), and Stephenville (98 %) (Stantec 2023). Traditional/ cultural purposes was identified as the second most common purpose for hunting and/or trapping small game in and around Port au Port Peninsula (71.9%), Codroy (81.4%), and Stephenville (71.4%) (Stantec 2023). Hunting and/or trapping small game for commercial purposes was for the Port au Port Peninsula (1%), Codroy (4.7%), and Stephenville (2%) (Stantec 2023).

Rabbit was the most frequently reported hunted and/or trapped species identified by the Qalipu participants for the Port au Port Peninsula (99%), Codroy (95.4%), and Stephenville (98%) (Stantec 2023). Other species of small game commonly hunted and/or trapped in and around the Port au Port Peninsula include partridge (51%), ducks (42.7%), ptarmigan/grouse (36.5%), fox (13.5%) and muskrat (2.1%) (Stantec 2023). Other species of small game commonly hunted and/or trapped in and around Codroy include partridge (79.1%), ptarmigan/grouse (69.8%), ducks (65.1%), fox (11.6%), and muskrat (4.7%) (Stantec 2023). Other species of small game commonly hunted and/or trapped in and around Stephenville include partridge (53.1%), ptarmigan/grouse (49%), ducks (26.5%), and fox (4.1%). Qalipu participants did not report harvesting muskrat in or around Stephenville (Stantec 2023).

Ninety-seven Qalipu participants reported hunting and/or trapping small game in and around the Port au Port Peninsula during the open season (Stantec 2023). Of these participants, 36.5% reported hunting/trapping once or twice a week, 32.3% reported hunting/trapping daily, 16.7% reported hunting/trapping once every few months, and 19.4% reported hunting/trapping once a month. Five members of Qalipu First Nation indicated that they did not know the frequency at which they or a member of their family hunt and/or trap small game in and around the Port au Port Peninsula (Stantec 2023).

Forty-three Qalipu participants reported hunting and/or trapping small game in and around Codroy during the open season (Stantec 2023). Of these participants, 34.9% reported hunting/trapping daily, and the same amount reported hunting/trapping once or twice a week. Approximately 14% of the Qalipu participants reported hunting/trapping in this area once every few months and 4.7% reported hunting/trapping once a month (Stantec 2023). Three Qalipu participants indicated that they did not know the frequency at which they or a member of their family hunt and/or trap small game in and around Codroy, and two Qalipu participants indicated that they never hunt and/or trap small game in this area (Stantec 2023).

Forty-nine Qalipu participants reported hunting and/or trapping small game in and around Stephenville during the open season (Stantec 2023). Of these participants, 40.8% reported hunting/trapping once or twice a week, 20.4% reported hunting/trapping once every few months, 16.3% reported hunting/trapping once a month, and 112.2% reported hunting/trapping daily (Stantec 2023). Five members of Qalipu First Nation indicated that they did not know the frequency at which they or a member of their family hunt and/or trap small game in and around Stephenville (Stantec 2023).

Small game hunted and/or trapped within the Project Area was identified as an important food source for Qalipu participants (Stantec 2023). Small game harvested in and around the Port au Port Peninsula is consumed by 51% of participants once or twice a week, by 26% once a month, by 14.6% once every few months, and by 2.1% daily (Stantec 2023). Four Qalipu participants indicated that they did not know the frequency at which they consume small game harvested in and around the Port au Port Peninsula and two Qalipu participants indicated that they never consume small game harvested from this area (Stantec 2023).

Small game harvested in and around Codroy is consumed by 62.8% of the Qalipu participants once or twice a week, by 14% once a month, by 7% daily, and by 7% once every few months (Stantec 2023). Four Qalipu participants indicated that they did not know the frequency at which they consume small game harvested in and around Codroy (Stantec 2023).

Small game harvested in and around Stephenville is consumed by 32.7% of participants once or twice a week, by 26.5% once every few months, by 24.5% once a month, and by 2% daily (Stantec 2023). Five Qalipu participants indicated that they did not know the frequency at which they consume small game harvested in and around Stephenville, and two participants indicated that they never consume small game harvested from this area (Stantec 2023).

Harvesting and Gathering

Qalipu First Nation harvest wild berries, specialty plants, medicinal, and food plants from preferred harvesting areas across the Island of Newfoundland, including within the Project Area and RAA (FNI 2002; Stantec 2023; QFN 2023). Qalipu First Nation previously identified favoured berry picking sites within the RAA, including Jerry's Nose area located on the south side of the peninsula and the Brow for blueberry harvesting (FNI 2002). Hazelnut was also identified as an important food plant (FNI 2002). Qalipu First Nation previously reported that they continue to harvest medicinal plants including low bush juniper, ewe bush, and squash berry as well as specialty woods such as willow, pine, yellow birch, maple and witch hazel (FNI 2002). Qalipu members that participated in the ATK study identified six farming sites, three food plant harvesting sites, two medicinal plant harvesting sites, two specialty plant harvesting sites, and seven berry harvesting sites in and around the Port au Port Peninsula. The ATK study participants also identified one berry harvesting site within Codroy/Bay St. George South (QFN 2023). These sites are located within the RAA and/or within or near the Project Area.

Qalipu First Nation members also harvest firewood, which is an important component of their subsistence economy. Harvesting firewood largely occurs close to their communities (Emera 2013). Specialty woods are gathered for making craft items, snowshoes, sleds, boats, axe handles, and baskets (Emera 2013). Items such as snowshoes, sleds, boats, axe handles, and baskets are crafted for sale (Emera 2013). Qalipu members that participated in the ATK study identified four wood cutting sites on the Port au Port Peninsula and two wood cutting sites within Codroy/Bay St. George South (QFN 2023). Trees felled at these locations are often used to produce logs for cabin and/or dock construction (Qalipu 2023).

LRU survey results: Qalipu First Nation food and medicinal plants harvesting in and around the Project Area

Of the 184 members of Qalipu First Nation that participated in the LRU survey, 70.7% indicated they, or a member of their family, harvest food and/or medicinal plants in or around the Port au Port Peninsula, 29.9% harvest food and/or medicinal plants in or around Codroy, and 70.7% harvest food and/or medicinal plants in or around Stephenville (Stantec 2023).

Recreation and/or food (and medicinal purposes) was identified by Qalipu participants as the primary purposes for harvesting food and/or medicinal plants in and around Port au Port Peninsula (85.3%), Codroy (98%), and Stephenville (85.3%) (Stantec 2023).Traditional/ cultural purposes was identified as the second most common purpose for harvesting food and/or medicinal plants in and around Port au Port Peninsula (62.9%), Codroy (63.3%), and Stephenville (62.9%). Harvesting food and/or medicinal plants for commercial purposes was reported for the Port au Port Peninsula (0.9%), Codroy (2%), and Stephenville (0.9%) (Stantec 2023).

Blueberries (b) and raspberries (r) were identified as the most commonly harvested food plants by Qalipu participants in and around the Port au Port Peninsula (b=95.7%; r=89.7%), Codroy (b=93.9%; r=79.6%), and Stephenville (b=95.7%; r=89.7%) (Stantec 2023). Other food and/or medicinal plants harvested by Qalipu First Nation within the Project Area that were identified by 70% or less of the participants (for each area) include bakeapples, partridgeberries, squash berries, wild cranberries, mushrooms, blackberries, hazelnut, cherry bark, lily pad roots, low bush juniper, ewe bush, crow berries, squashes, chuckley pear/ saskatoon berry, wild strawberries, currants, chaga mushroom, and Labrador tea (Stantec 2023).

One-hundred and eighteen Qalipu participants reported engaging in food and/or medicinal plant harvesting and gathering activities in or around the Port au Port Peninsula (Stantec 2023). Of these participants, 50.9% reported harvesting/gathering plants once or twice a week, 19.8% reported harvesting/gathering plants once every few months, 12.9% reported harvesting/gathering plants daily, and 9.5% reported harvesting/gathering plants once a month in this area (Stantec 2023). Seven Qalipu participants indicated that they did not know the frequency at which they or a member of their family harvest/gather plants in and around the Port au Port Peninsula and one Qalipu participant indicated that they never harvest/gather plants in this area (Stantec 2023).

Forty-nine Qalipu participants reported engaging in food and/or medicinal plant harvesting and gathering activities in or around Codroy. Of these participants, 36.7% reported harvesting/gathering plants once or twice a week, 30.1% reported harvesting/gathering plants daily, 20.4% reported harvesting/gathering plants once a month, and 8.2% reported harvesting/gathering plants once every few months (Stantec 2023). Two Qalipu participants indicated that they did not know the frequency at which they or a member of their family harvest/gather plants in and around Codroy (Stantec 2023).

Sixty-seven Qalipu participants reported engaging in food and/or medicinal plant harvesting and gathering activities in or around Stephenville (Stantec 2023). Of these participants, 43.1% reported harvesting/gathering plants once or twice a week, 21.5% reported harvesting/gathering plants once every few months, 18.5% reported harvesting/gathering plants once a month, and 15.4% reported harvesting/gathering plants daily (Stantec 2023). One Qalipu participant indicated that they did not know the frequency at which they or a member of their family harvest/gather plants in and around Stephenville (Stantec 2023).

Wild berries and other food plants harvested within the Project Area were identified as an important food source for Qalipu participants (Stantec 2023). Wild berries and other food plants harvested in and around the Port au Port Peninsula are consumed by 40.5% of participants daily, by 36.2% once or twice a week, by 10.3% once every few months, and by 9.5% once a month (Stantec 2023). Four Qalipu participants indicated that they did not know the frequency at which they consume wild berries and other food plants harvested in and around the Port au Port Peninsula (Stantec 2023).

Wild berries and other food plants harvested in and around Codroy are consumed by 42.9% once or twice a week, by 34.7% of participants daily, by 14.3% once every few months, and by 6.1% once a month. One Qalipu participant indicated that they did not know the frequency at which they consume wild berries and other food plants harvested in and around Codroy (Stantec 2023).

Wild berries and other food plants harvested in and around Stephenville are consumed by 36.9% daily, by 35.4% of participants once or twice a week, by 8.9% once every few months, and by 10.8% once a month (Stantec 2023). Two Qalipu participants indicated that they did not know the frequency at which they consume wild berries and other food plants harvested in and around Stephenville (Stantec 2023).

LRU survey results: Qalipu First Nation domestic wood cutting activities in and around the Project Area

Approximately half of the 184 Qalipu participants reported that they, or a member of their family, engage in domestic wood cutting under a provincial permit in or around the Port au Port Peninsula (51.9%; n=84) (Stantec 2023). Fewer Qalipu participants reported engaging in domestic wood cutting activities in and around Codroy (14.4%; n=23) and Stephenville (15.6%; n=25) (Stantec 2023). Qalipu participants specified several locations where they engage in domestic woodcutting within or near the Project Area. These include Mainland, Area 6, Area 8, Port au Port East, Cape St. George, Black Duck, Campbell's Creek, Cold Brook, Lourdes, Lower Cove, "local road", Lower Cove Mine, Piccadilly, Point au Mal, Romaine's River, Sheaves Cove, Ship Cove, Stephenville and Stephenville Crossing, Three Rock Cove, West Bay, Goose Pond area, Kippens, Fox Island River, Northern De Grau, O'Regan's, Codroy, Codroy Pond, Bauld Mountain, Cape Anguille, South Branch, West coast near Codroy, North and South side of the Grand Codroy River, Stephenville dump road, White's Road, and "North of route 460 between Stephenville from Kippens to Black Duck Siding" (Stantec 2023).

Qalipu participants reported engaging in wood cutting in and around the Port au Port Peninsula once a year (25.6%), once or twice a week (23.2%), daily (22%), and once every few months (20.7%) (Stantec 2023). For areas within and near Codroy and Stephenville, most of the Qalipu participants indicated they engage in wood cutting once or twice a week (Stantec 2023).

Heating homes, cabins, or other structures was the most frequently reported purpose for domestic wood cutting within the Project Area; domestic wood cutting was reported to be a cost-efficient way for Qalipu participants to heat their homes and reduce their utility bills (Stantec 2023). Domestic construction was the second most common purpose for wood cutting within the Project Area. Cutting wood for Christmas trees, traditional/ cultural purposes, and/or firewood collection were reported with similar frequencies within the Project Area (Stantec 2023). Other uses identified for wood cut in the Project area include cooking food, gift giving (e.g., to family, friends, neighbors), making utensils, and artisanal purposes (e.g., furniture, art, toys, instruments) (Stantec 2023).

Water and Travel Ways

The ATK report did not contain information about Qalipu use of waterbodies or water sources, and it did not identify water features of importance within the Project Area or RAA (QFN 2023). However, several camp sites, Mi'kmaw village sites, fishing sites, hunting sites, gathering sites, and trapping sites were identified by Qalipu participants within the Project Area, and these sites are typically established either immediately adjacent to, or with walking distance of, water features (i.e., streams, rivers, lakes, and marine waters) (QFN 2023).

Rivers and waterways are used by Qalipu First Nation for travel, resource use, communal and spiritual activities, and for recreation (Emera 2013; FNI 2002). During the 20th century, Qalipu First Nation engaged in trapping activities along the numerous brooks, ponds, lakes, streams and rivers of their territories (FNI 2002). There are several camping sites associated with water bodies within the RAA, including Lloyds Lake, Cormacks Lake, Checker Pond, Whales Back, and along Harry's River (FNI 2002). King George IV Lake was also traditionally used as a key water-based travel route and continues to be accessed by Qalipu First Nation today (FNI 2002).

Qalipu First Nation previously reported using a combination of walking trails, snowmobile and ATV trails, logging roads, and formerly active rail beds to access their campsites and traditional land and resource use areas (FNI 2002). Rivers and waterways are also used for travel, resource use, communal and spiritual activities, and for recreation (Emera 2013; FNI 2002). During the 20th century, Qalipu First Nation accessed various water bodies for resource harvesting and travel purposes (FNI 2002). Some of the key water-based travel routes include the Salmon River, Bay du Nord River, the Exploits River (and its principal tributary, Noel Paul's Brook), the Northwest Gander River, the Southwest Gander River, Victoria River, and Lloyd's River (FNI 2002). Traditional canoe routes also include Humber River, Harry's River, Romaine's River, the Serpentine River, and Castor River (FNI 2002). These river systems continue to be used and accessed by Qalipu First Nation today (FNI 2002).

Qalipu First Nation key travel ways within the RAA include Harry's River and Trout Brook, the Serpentine River, its tributaries, and areas along the eastern extent of the St. Lewis Hill (FNI 2002). A key land-based trail system utilized by Qalipu First Nation within the Port au Port wind farm RAA begins at York Harbour, passes the Serpentine River, and Sandy Deserts and terminates at Big Cove (FNI 2002). Various walking trails branch from the main trail and were used to access trapping areas (FNI 2002). Qalipu First Nation also make use of the extensive logging roads that allow access to George Lake, Mt. Moriah, and Frenchman's Cove and they continue to use the Trans-Canada Highway and the Burgeo Highway to access distant areas for recreation and resource harvesting (FNI 2002).

A major pedestrian travel route used by Qalipu First Nation called Country Path spans from Seal Rocks in St. George's Bay to the shores of King George IV Lake; this trail was established during historic times and continues to be used by Qalipu First Nation today (FNI 2002). Qalipu First Nation previously reported that canoes would be used once they arrived at King George IV Lake to access land and resource use areas to the north, south, and east (FNI 2002). Qalipu First Nation traditionally made use of dog teams and sleds to access these areas during the winter season whereas today they use snowmobiles (FNI 2002). The travel route continues to be accessed on foot during the summer and fall seasons (FNI 2002). A member of Qalipu First Nation previously identified a spiritual site along the Country Path called Manawaki (FNI 2002).

5.3.2 Miawpukek First Nation

Miawpukek First Nation is a member of the Taqamkuk (Newfoundland) Mi'kmaq peoples and former members of the FNI; the Nation withdrew from the FNI in 1982 when it became eligible for registration under the *Indian Act* as members were determined to be "residents of a designated native community" (QFN 2016). The name "Miawpukek" means "middle river" and is the Mi'kmaq name for the Conne River (MFN 2023). Like Qalipu First Nation, Miawpukek First Nation belong to the Algonquian language group (Robinson 2014).

5.3.2.1 Population, Governance and Reserves

Miawpukek First Nation has a single Indigenous reserve (IR) called Samiajij Miawpukek (IR 0608; also called, Miawpukek Mi'kamawey Mawi'omi); the IR is a village and is located at the mouth of the Conne River on the south coast of Newfoundland, approximately 188 km east of the RAA (CIRNAC 2021b) (Figure 5.1). Samiajij Miawpukek is approximately 620 ha in size, and it is accessible year-round via the Trans-Canada Highway as well as by water through Bay d'Espoir (MFN n.d.). Miawpukek First Nation oral history suggests that the village of Samiajij Miawpukek was one of many semi-permanent camping sites used by the Nation that later became a long-term habitation site around 1822, and a permanent community by 1870 (FNMHF 2018; MFN 2023). Samiajij Miawpukek was registered under the *Indian Act* as IR 0608 in 1987 (FNMHF 2018).

As of December 2022, Miawpukek First Nation's total registered membership is 3,089, comprising approximately 1,572 men and 1,517 women (CIRNAC 2021c). Approximately 830 members reside at Samiajij Miawpukek; most of the population (73%) reside off-reserve in various communities throughout Newfoundland and elsewhere (CIRNAC 2021c). Miawpukek First Nation's population is considered relatively young, with 34% of residents under the age of 25 (Michelin 2019). Miawpukek First Nation speak the Mi'kmaw language (part of the Algonquian language family), as well as French and English (CIRNAC 2021d).

The two members of Miawpukek First Nation that participated in the LRU survey reside within the RAA; one of the Miawpukek participants resides in Upper Ferry and the other resides in the Codroy Valley (Stantec 2023).

Miawpukek First Nation is governed by an elected Chief and six Council members (MFN 2023). Councilors of the Miawpukek First Nation, after being elected and sworn in by the Traditional Saqamaw of Newfoundland and the community, as a collective, are responsible for the program planning, budgeting, implementation, financial controls, and service delivery monitoring and enhancement within the specific area(s) of their assigned portfolios (e.g., health and safety, social development, education, natural resources, economic development, justice, customs and traditions, governance, finance, and public works and capital) (MFN 2023).

Miawpukek First Nation established a Self-Government Agreement-in-Principle with Canada, as represented by the Minister of Aboriginal Affairs and Northern Development (now, CIRNAC), and the province of Newfoundland and Labrador (including the Minister of Labrador and Aboriginal Affairs and the Minister of Government Municipal and Intergovernmental Affairs) in 2014 (Aboriginal and Northern Affairs

Canada 2014). The agreement addresses Miawpukek First Nation self-government process with Canada and the Province and describes how the Nation will exercise Jurisdictions (e.g., legislation, definition of membership, government, land, laws, and resource use) set out in the final agreement consistent with their culture and traditions (Aboriginal and Northern Affairs Canada 2014).

Miawpukek First Nation subsequently negotiated with the Province for the establishment of a forestry management area within which timber and/or firewood cannot be harvested by non-Miawpukek members (Marathon Gold 2020). Within the forestry management area, Miawpukek First Nation's Indigenous Guardians conduct monitoring in collaboration with Parks Canada and the Department of Fisheries and Oceans Canada (DFO) related to forestry, traditional lands, species at risk, salmon, rivers, wetlands, wildlife, fishery, caribou, song birds, bats, migratory birds, trap zones and other fur bearing animals, boreal felt lichen, pine marten, and human activities on the land (Marathon Gold 2020; Indigenous Guardians Toolkit 2023). The Indigenous Guardians monitor natural resources within Miawpukek traditional lands and beyond and work to educate youth and the community of the importance of their culture and of the land in preserving it for generations to come (Indigenous Guardians Toolkit 2023). The Indigenous Guardians are designated under the *Fisheries Act* by the Minister as Aboriginal Fishery Guardians to carry out enforcement of Newfoundland and Labrador's *Wilderness and Ecological Reserves Act*, *Wildlife Act*, and *Aquaculture Act* (Indigenous Guardians Toolkit 2023).

In 2015, Miawpukek First Nation developed the Miawpukek First Nation Climate Change Assessment and Adaptation Plan Conne River NL in collaboration with their consultants and members of the Memorial University of Newfoundland (MFN et al., 2015). Miawpukek First Nation initiated the plan as they determined that they required a well-planned and researched strategy to assess the natural hazards and risks of climate change, evaluate local vulnerability, and prepare a climate change adaptation strategy to address and manage potential adverse climate change related events (MFN et al., 2015). Miawpukek First Nation utilized traditional knowledge and worked with professionals in the land use planning and climate change field to assess the community's risk and vulnerability to a range of potential and probable adverse weather events arising from climate change (MFN et al., 2015). Areas in which Miawpukek First Nation Band could most effectively and proactively mitigate damage and destruction from a significant climate-related event through immediate and short-term interventions and revised longer range planning frameworks were identified (MFN et al., 2015). Many issues were analyzed to determine the impact and response capability of a major adverse climate-related event on the health and safety of the community (MFN et al., 2015). The issues included land use development patterns and policies, housing and other built forms, roadway networks and access locations, emergency response preparation, food and water security, medical access, and social services (MFN et al., 2015). The project included documenting and recommending actions, strategies and implementation measures for local residents, businesses, emergency responders and governance organizations to address, manage and mitigate the risks and impacts of climate change (MFN et al. 2015). The collective findings of risk and management strategies were integrated in the development of a community level preparedness action plan (MFN et al., 2015).

In 2022, the federal government announced the provision of approximately $3 million to Miawpukek First Nation to support the establishment of the Nation's Indigenous Protected and Conserved Area (Government of Canada 2022). Through the funding, Miawpukek First Nation has hired four Indigenous community members as Indigenous Guardians (Government of Canada 2022). These Indigenous

Guardians are using their Two-Eyed Seeing to collect data for negotiations toward a potential Forest Management Agreement with the Government of Newfoundland and Labrador (Government of Canada 2022). The Indigenous Guardians spend time on the land documenting conservation values for the purpose of continuing Miawpukek traditions and way of life (Government of Canada 2022). This work has enabled the community to identify and record sites of cultural and historical significance on the land (Government of Canada 2022).

5.3.2.2 Health, Education, Employment, and Economy

Members of Miawpukek First Nation living on-reserve at Samiajij Miawpukek access the Conne River Health and Social Services (CRHSS) department for community-based programs that enhance the awareness and provide for the continuing care of the members, including: social work; childcare; mental health and addictions; continuing care; and health promotion (CRHSS 2023). The Miawpukek Band Government has been delivering health services in the community of Samiajij Miawpukek since 1975 (CRHSS 2023). Prior to 1991, health services were delivered under a contribution funding agreement with Health Canada (CRHSS 2023). The CRHSS provides community health services, including clinical nursing services, a wellness centre, youth centre, nutrition centre, ambulance services, and on-call nurses (CRHSS 2023). A weekly nutritional supplement program for community members is provided through CRHSS to support community members assessed as being deficient with their nutritional intake to receive one nutritious meal six days a week (CRHSS 2023). The nutrition program is funded through the CRHSS Health Transfer Agreement (CRHSS 2023). There is a volunteer fire department provided under CRHSS (Marathon Gold 2020).

In 2006, Miawpukek First Nation Band Chief and Council and CHRSS collaborated with the Newfoundland and Labrador Centre for Health Information to conduct a study using a unique approach to examine the burden of diabetes among the Miawpukek living on-reserve on the Island of Newfoundland (Collins et al. 2006). Rates were calculated for diabetes prevalence, co-morbidities, and health service utilization (Collins et al. 2006). Results of the study have been used by Miawpukek First Nation in planning and evaluating diabetes strategies for their community (Collins et al. 2006).

In addition to the CRHSS, Miawpukek First Nation administers the following departments: the Education Department, the Finance Department, the Justice Department, and the Training and Economic Development Department (TEDD) (MFN n.d.). Miawpukek First Nation's Education Department is owned and operated by Miawpukek Mi'kmaw Mawi'omi of Conne River (MFN n.d.). Miawpukek First Nation administers its own school curriculum, alongside provincially authorized curriculum, through provincially certified Miawpukek First Nation teaching staff at St. Anne's School (Government of Newfoundland and Labrador n.d.b). Curriculum is K-12, and inclusive and reflective of Mi'kmaq cultural practices, heritage, and tradition (Government of Newfoundland and Labrador n.d.b). In 2017, Miawpukek First Nation opened a new school in the community situated near the Powwow grounds and an active salmon river and adjacent forested areas that allow students an opportunity to learn about their culture (Marathon Gold 2020). The school also includes a dental office and daycare center (BP 2018).

Miawpukek First Nation's Finance Department is responsible for maintaining a system of internal accounting and administrative controls as well as managing financial records for the Miawpukek First

Nation including its responsibilities for financial reporting (MFN n.d.). Miawpukek First Nation's Justice department enforces Miawpukek First Nation by-laws, including the zoning bylaw that came into effect on August 13, 2015 (MFN n.d.).

Miawpukek First Nation's TEDD has four divisions managed by the administration division, including: post-secondary student support program (PSSSP); business; tourism, cultural and recreation; and career counselling (MFN n.d.). The PSSSP, along with the Indigenous Skills and Employment Training Program, provides Miawpukek First Nation members with access to skills training and employment assistance to gain access to postsecondary education and to support their long-term career goals (MFN n.d.). Career counselling is provided to community members to learn about, and actively engage in the required steps associated with the career planning process (Marathon Gold 2020).

The TEDD's business division is responsible for managing Miawpukek First Nation's community owned businesses (MFN n.d.). Miawpukek First Nation owns and operates many small businesses, such as Christmas tree farms, hunting camps and small fisheries, and the Miawpukek Gas Bar and Convenience Store (BP 2018). The TEDD's culture, and recreation division hosts the annual Powwow and operates several culture-based operations including Micmac Crafts and Jipuijij'kuei Kuespem Nature Park (Marathon Gold 2020). Jipuijij'kuei Kuespem Nature Park includes overnight camping sites, kayak and canoe rentals, walking trails, and float plane charters.

Since 1987, when Samiajij Miawpukek was established as IR 0608, Miawpukek First Nation became a self-proclaimed strong, vibrant community with nearly 100% full/part-time employment (MFN n.d.). Miawpukek First Nation members have secured employment in nursing, education, trades, business, law, and caregiving (Marathon Gold 2020).

Public information on the current health conditions of Miawpukek First Nation is not publicly available. However, Miawpukek First Nation participated in a First Nations Food, Nutrition and Environment Study (FNFNES) undertaken with eleven First Nations communities in New Brunswick, Nova Scotia, and the Island of Newfoundland in 2014 that provides information regarding the relationship between diet, lifestyle and health risks for these Indigenous groups (Chan et al. 2017). The FNFNES report does not provide Nation-specific results, however, it provides a summary of the general conditions for the Atlantic Region and Miawpukek First Nation previously indicated that the results of the FNFNES are representative of current conditions experienced by their members living on-reserve (Marathon Gold 2020). The FNFNES documents a series of health-related topics including body mass index, obesity, diabetes, smoking, physical activity, and self-perceived health (Chan et al. 2017). Approximately 30% of the FNFNES participants reported 'very good' or 'excellent' self-perceived health, approximately 38% reported health as 'good', and older adults (51+) were most likely to report 'fair' or 'poor' health (Chan et al. 2017). Obesity was identified as a concern by the participants and is a major risk factor for diabetes and heart disease. Approximately 22% of the participants in the FNFNES reported having been told by a health care provider that they had diabetes (Chan et al. 2017). Adults aged 40 and over were four times more likely to report having diabetes than younger adults (Chan et al. 2017). Half of First Nations adults in the FNFNES reported that they smoked cigarettes, and this is more than double the rate reported for the population of Newfoundland (19.5%) (Chan et al. 2017). Miawpukek First Nation previously reported a decline in the number of members with diabetes due to the use of modern medicine, educational

awareness and improved nutrition (Marathon Gold 2020). In addition to diabetes and heart disease, Miawpukek First Nation identified that cancer was an increasing health concern for their members (Marathon Gold 2020).

Miawpukek First Nation previously expressed the following concerns regarding potential effects on their socio-economic conditions (Marathon Gold 2020):

- The need to balance economic benefits against potential adverse environmental effects
- Employment opportunities, including the targets for employment of women and Indigenous women, and the establishment of training funds and training programs
- Need for ongoing engagement with youth

One of the two members of Miawpukek First Nation that participated in the LRU survey indicated that they are part of Delta Waterfowl, also known as the Duck Hunters Organization, a leading conservation group founded in Manitoba (Stantec 2023).

5.3.2.3 Physical and Cultural Heritage

As described in Section 5.3.2.2, the TEDD's culture, and recreation division hosts the annual Miawpukek First Nation Powwow and operates several culture-based operations including Micmac Crafts and Jipuijij'kuei Kuespem Nature Park (Marathon Gold 2020).

Information on physical and cultural heritage specific to Miawpukek First Nation is not publicly available. General physical and cultural heritage information related to the Mi'kmaq on the Island of Newfoundland is provided in Section 6.0 Archaeological and Heritage Resources.

Miawpukek First Nation previously expressed concerns regarding potential effects to heritage resources (Marathon Gold 2020).

5.3.2.4 Traditional Land and Resource Use

Miawpukek First Nation harvests marine and terrestrial resources on and around the Island of Newfoundland in accordance with their guiding principle of Netukulimk, which involves the use of resources to support the nutrition and economic well-being of Miawpukek members without jeopardizing the integrity, diversity, or productivity of their traditional land and marine environments (Marathon Gold 2020; UINR n.d.).

The two members of Miawpukek First Nation that participated in the LRU survey indicated that they did not engage in recreational activities in or around Stephenville or the Port au Port Peninsula (Stantec 2023). Miawpukek participants did however identify that they engage in recreational activities in and around Codroy (Stantec 2023). Recreational activities identified by the Miawpukek participants for the Codroy area include ATV or other touring, camping, hiking/walking, snowmobiling, snowshoeing, bird watching, cycling, and running/jogging (Stantec 2023). As described in Section 5.3.2.2., members of Miawpukek First Nation participated in the FNFNES conducted in 2014 with eleven other First Nations communities in New Brunswick, Nova Scotia, and the Island of Newfoundland (Chan et al. 2017). The

FNFNES results indicated that over half (62%) of the households engaged for the study participated in traditional harvesting and gathering activities in 2013 (Chan et al. 2017). Almost half of the households reported fishing (49%), while 34% hunted, 26% collected wild plants, 21% collected seafood and 15% had a garden (Chan et al. 2017). While 15% reported gardening, 36% of the adults in the FNFNES reported eating vegetables from a family or community garden (Chan et al. 2017). More than three-quarters of adults (83%) reported eating traditional food in 2013 (Chan et al. 2017). Wild plants comprise approximately 26% of the traditional foods types harvested by the study participants (Chan et al. 2017). (Chan et al. 2017). Participants in the FNFNES identified "lack of time, knowledge, equipment or transportation, and the availability of the country foods" as some of the key barriers faced by community members that wish to engage in traditional food harvesting activities (Chan et al. 2017).

Miawpukek First Nation previously reported that harvesting efforts are largely undertaken on-reserve (Marathon Gold 2020). Specifically, approximately 75% of Miawpukek First Nation members participate in hunting activities, 60% participate in fishing activities and 60% participate in gardening (Marathon Gold 2020). In recent years, Miawpukek First Nation has seen an increase in traditional harvesting activity due in part to the increase in grocery costs (Marathon Gold 2020). A volunteer-based community garden was established on reserve and produces potatoes, carrots, turnips, and cabbage for the Nation (Marathon Gold 2020).

Miawpukek First Nation previously expressed the concerns regarding limitation of access to lands and resources for traditional use and the need for environmental monitoring (Marathon Gold 2020). The following sections provide a description of harvesting activities related to fishing, hunting and trapping, gathering, and travel ways.

Fishing

Information on subsistence and recreational fishing activities within the RAA by Miawpukek First Nation is not publicly available. Miawpukek First Nation members frequently consume cod, American eel, redfish, herring, lobster, caplin, and squid. Salmon species remain an important resource for the Nation, however, they are consumed with less frequency over the last 25 years when compared to other fish species due to concerns for the salmon population (Marathon Gold 2020). Miawpukek First Nation consumption of salmon is generally reserved for cultural events, such as feasts, powwows, and other celebrations (Marathon Gold 2020; Denny and Fanning 2016). In keeping with their guiding principle of 'Netukulimk', there is little to no waste when salmon are harvested, and unusable parts are buried so that the spirit and body of the salmon can be recycled (Marathon Gold 2020; Denny and Fanning 2016).

As described in Section 5.3.1.4 Miawpukek First Nation is a member of the joint-association MAMKA, in collaboration with Qalipu First Nation (Qalipu First Nation, MAMKA, and Mi'kmaq Commercial Fisheries 2017; BP 2018). Communal commercial licences are issued by DFO to Miawpukek First Nation to carry out commercial fishing and related activities (BP 2018). Miawpukek First Nation holds communal commercial licenses for a variety of species in the offshore area of Newfoundland including groundfish, capelin, herring, mackerel, snow crab, squid, swordfish, scallop, select tuna species, and seal (BP 2018). Miawpukek First Nation initiated Netukulimk Fisheries Ltd. in 1999 when they obtained their first crab licence (Marathon Gold 2020). The commercial communal fishing licence enables Miawpukek First Nation

members to harvest for personal and community consumption; many members harvest fish and provide to members that are unable to engage in harvesting activities (e.g., Elders, members with disabilities) (Marathon Gold 2020). Miawpukek First Nation also holds a FSC communal salmon fishing license however, the First Nation has chosen not to harvest salmon under this license since 1997 due to conservation concerns (DFO 2020). Miawpukek First Nation also has access to salmon for FSC purposes through the recreational fishery (DFO 2020). Miawpukek First Nation previously expressed concerns regarding potential effects on fish (Marathon Gold 2020).

The two members of Miawpukek First Nation that participated in the LRU survey indicated that they do not catch freshwater fish and/or aquatic species within or near Stephenville or the Port au Port Peninsula (Stantec 2023). Miawpukek participants did however identify that they catch freshwater fish and/or aquatic species in and around Codroy (Stantec 2023). Both Miawpukek participants reported catching freshwater fish and/or aquatic species in and around Codroy for recreational/food purposes and one Miawpukek participant indicated they catch freshwater fish for traditional/cultural purposes (Stantec 2023). Both Miawpukek participants reported catching brook trout in and around Codroy and one of the Miawpukek participants also reported catching Atlantic salmon and rainbow smelt in the area (Stantec 2023). One of the Miawpukek participants reported catching freshwater fish and/or aquatic species daily when the fisheries are open, and one Miawpukek participant reported catching freshwater fish and/or aquatic species once or twice a week during this window (Stantec 2023). Both Miawpukek participants reported that they consume freshwater fish and/or aquatic species caught in Codroy once or twice a week on average (Stantec 2023).

The two members of Miawpukek First Nation that participated in the LRU survey indicated that they do not catch marine fish and/or aquatic species within or near Stephenville or the Port au Port Peninsula (Stantec 2023). One of the two Miawpukek participants identified that they catch marine fish and/or aquatic species within Bay St. George (Stantec 2023). This Miawpukek participants reported catching freshwater fish and/or aquatic species within Bay St. George for recreational/food purposes as well as traditional/cultural purposes (Stantec 2023). Marine fish and/or aquatic species identified by the Miawpukek participant within Bay St. George include Atlantic cod, capelin, flounder, halibut, lobster, mackerel, redfish, and seal (Stantec 2023). The Miawpukek participant reported that they catch marine fish and/or aquatic species once or twice a week when the fisheries are open and that they consume marine fish and/or aquatic species caught within Bay St. George once every few months (Stantec 2023).

Hunting and Trapping

Information about Miawpukek First Nation hunting and trapping activities within the RAA is not publicly available. Miawpukek First Nation members hunt species including caribou, moose, geese, grouse, ducks, and partridge and trap species including beaver, rabbits, muskrats, and snowshoe hare (Marathon Gold 2020). A community hunt for moose occurs annually in Terra Nova, with moose provided first to Elders, persons with disabilities, single parents, and then to other community members (Marathon Gold 2020). Miawpukek First Nation previously reported that historical trapping grounds were located east of the Victoria Lake Reservoir and Red Indian Lake (Marathon Gold 2020). Miawpukek First Nation previously expressed concerns regarding potential effects on pine marten habitat and on caribou

migration because of increased industrial activity in the Central Region of Newfoundland, and potential effects on moose (Marathon Gold 2020).

The two members of Miawpukek First Nation that participated in the LRU survey indicated that they do not engage in big game hunting or small game hunting/trapping within or near Stephenville or the Port au Port Peninsula (Stantec 2023). Miawpukek participants did however identify that they engage in big game hunting and small game hunting/trapping in and around Codroy (Stantec 2023). Miawpukek participants reported in engaging in big game hunting and small game hunting/trapping in and around Codroy for recreational/food purposes and traditional/cultural purposes (Stantec 2023). Both Miawpukek participants reported hunting moose in and around Codroy and one of the Miawpukek participants reported hunting bear in the area (Stantec 2023). Partridge, ptarmigan/grouse, and rabbits were identified as small game species that are hunted/trapped in and around Codroy by both Miawpukek participants (Stantec 2023). One of the Miawpukek participants also reported hunting/trapping ducks, fox, muskrat, weasel, coyote, lynx, and otter in and around Codroy (Stantec 2023). Both Miawpukek participants reported hunting for big game and hunting/trapping small game daily during the open season (Stantec 2023). Both Miawpukek participants reported that they consume big game and small game obtained in Codroy once or twice a week on average (Stantec 2023).

Harvesting and Gathering

Miawpukek First Nation members harvest a variety of plants for medicinal purposes. Some examples include cherry bark, which is used to treat sore throats, coughs and colds, lily pad roots, which are used to treat tumours, ulcers, and inflamed skin, and alder, which used for a variety of medicinal purposes including treatment of headaches and migraines (Marathon Gold 2020). Miawpukek First Nation members also harvest white pine for a variety of purposes including its use in torches, shelter, and canoes (Marathon Gold 2020). Commonly harvested plant species include blueberry, raspberries, Newfoundland tea berries, partridge berries, and bakeapples (Marathon Gold 2020).

The two members of Miawpukek First Nation that participated in the LRU survey indicated that they do not pick wild berries and/or harvest other wild plants (e.g., food plants, medicinal plants) within or near Stephenville or the Port au Port Peninsula (Stantec 2023). Miawpukek participants did however identify that they pick wild berries and/or harvest other wild plants in and around Codroy (Stantec 2023). Both Miawpukek participants reported picking wild berries and/or harvesting other wild plants in and around Codroy for recreational/food purposes and one Miawpukek participant indicated they harvest/gather these resources for traditional/cultural purposes (Stantec 2023). One of the Miawpukek participants reported gathering bakeapples, blueberries, and blackberries in and around Codroy and one of the Miawpukek participants also reported gathering low bush juniper, partridge berries, raspberries, strawberries, squash berries, and wild cranberries in the area (Stantec 2023). One of the Miawpukek participants reported gathering wild berries and/or other wild plants once or twice a week and one Miawpukek participant reported engaging in these activities once every few months (Stantec 2023). One of the Miawpukek participants reported consuming wild berries and/or other wild plants daily and one Miawpukek participant consuming these resources once or twice a week (Stantec 2023).

Water and Travel Ways

Information regarding water use and travel routes used by Miawpukek First Nation within the RAA is not publicly available. Miawpukek First Nation previously expressed concerns regarding the Victoria Lake Reservoir in relation to the Valentine Gold Project, and the need for treatment to protect water quality (Marathon Gold 2020).

As described in Section 5.3.2.1, the current Miawpukek First Nation reserve land (Samiajij Miawpukek; IR 0608) was a camping area that was frequently used by Miawpukek First Nation through time when they were semi-nomadic (Michelin 2019). This area is located 188 km east of the RAA.

5.4 Discussion

From pre-contact times through to the present day, Mi'kmaq peoples, including Qalipu First Nation and Miawpukek First Nation, have engaged in TLRU activities on Newfoundland and adjacent marine areas (Martjin 1989; QFN 2021; MFN n.d.). Project activities may affect TLRU activities as well as sites and resources identified as important by the Indigenous groups within the RAA, and potential quality of life and socio-economic conditions. Publicly available information regarding current TLRU practiced by the Indigenous groups is limited.

The LRU survey resulted in the collection of data regarding Qalipu First Nation and Miawpukek First Nation land and resource use activities within the Project Area (Stantec 2023), however, the information provided by the LRU survey participants is not representative of the full range of TLRU practiced by the Indigenous groups. The ATK study prepared by Qalipu First Nation also provided valuable information regarding TLRU within the RAA and Project Area (QFN 2023).

WEGH2 seeks to work collaboratively with the Indigenous groups to respond to Project-related concerns, and provide updates based on outcomes of engagement, including how information provided by the Indigenous groups influenced Project planning. WEGH2 is committed to ongoing engagement with the Indigenous groups throughout the lifetime of the Project. WEGH2 will continue to build on the engagement that has already been undertaken as part of the Project development activities. WEGH2 strives to continuously improve on, and expand, previous engagement efforts to support the thoughtful development of the Project and to identify how the Project can provide tangible, appropriate benefits for the Indigenous communities.

WEGH2 will continue to ask and respond to questions and will seek to address concerns from the Indigenous groups through ongoing engagement efforts.

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6.0 Archaeological and Heritage Resources

6.1 Scope And Objectives of the Archaeological and heritage Resources Study

Heritage and cultural resources are non-renewable resources consisting of places, buildings, objects, or sediment deposits located above or below the ground and include sites, materials and, in certain instances, landscapes and/or places of historical, archaeological, cultural / spiritual, paleontological, and architectural importance. Such resources can date to the precontact, historic or contemporary periods, and are valued for their cultural, spiritual, natural, and scientific importance.

Heritage and cultural resources can comprise the only physical information on Indigenous lifestyles prior to the arrival of Europeans in North America and help to understand the history, land-use, fossil record, and architectural history of a region. Moreover, this information could be lost because of the potential interactions between the Project and potential disturbance to these resources, including the insight into the interactions that took place between different cultural groups and the connections each had with the environment in which they lived.

The assessment of the potential for heritage and cultural resources to be affected by the Project includes the identification of known sites of historical, archaeological, cultural and spiritual, paleontological, and architectural importance, along with identification of locations with potential to contain such sites. The following subsections define and describe the scope of the assessment on the VEC.

6.1.1 Regulatory Setting

In the province of Newfoundland and Labrador (NL), heritage and cultural resources are protected under the provincial *Historic Resources Act* (1985) (HRA), administered by the Provincial Archaeology Office (PAO) of the Department of Tourism, Culture, Industry and Innovation, and, in the case of architectural resources, by the Heritage Foundation of NL.

Heritage and cultural resources are typically broken down into four broad categories:

- Archaeological sites and materials (e.g., remains of campsites and/or stone tools pre-dating 1970)
- Cultural / spiritual sites (e.g., indigenous and non-indigenous burial sites and other sacred places)
- Paleontological sites and materials (fossils)
- Architectural resources (e.g., historical buildings and properties)

Archaeological sites identified during field research in NL are recorded, inventoried and assigned numbers under the Borden System (the Canadian registry for archaeological resources).

Contemporary cultural and spiritual sites can include, for example, evidence of campsites or tilts, or remains suggestive of hunting, fishing or trapping. Contemporary sites are recorded by regulators under the Borden System, and they are classified or inventoried as ethnographic sites (i.e., 50 years old or

less). Ethnographic sites can be affiliated with Euro-Canadians or Indigenous communities and would be subject to mitigation measures in consultation with the PAO and Indigenous Communities, as warranted.

A paleontological resource means a construct, structure or work of nature consisting of, or being evidence of, prehistoric multicellular organisms and paleontological resources that are designated by regulation. These resources are important for their historical, cultural, spiritual, and scientific value. Only sedimentary rocks have the potential to be paleontological resources (i.e., fossils).

Structures or sites that are of architectural significance are designated Registered Heritage Structures by the Heritage Foundation of NL, established by the provincial government in 1985.

6.2 Methods

6.2.1 Spatial Boundaries

The following spatial boundaries were used to assess Project effects, including residual environmental effects, on heritage and cultural resources in areas surrounding the Project components (Figure 6.1):

- Project Area: The Project Area encompasses the immediate area in which Project activities and components occur and is comprised of following distinct areas: the Port au Port Wind Farm, the Codroy Wind Farm, the Hydrogen/Ammonia Production and Storage Facility (hydrogen / ammonia plant), Port Facilities, and the 230 kV Transmission Lines, as well as associated infrastructure including roads, substations, and water supply infrastructure. The Project Area is the anticipated area of direct physical disturbance associated with the construction, operation and decommissioning, rehabilitation and closure of the Project. In addition to encompassing the immediate area in which Project components and activities will occur, the Project Area also includes a buffer of up to 300 m for access roads and turbines and a 350 m-wide corridor to accommodate the 70 to 75 m wide RoW for the transmission line. These buffers allow flexibility for the micro-siting of Project components during detailed design, based on technical considerations as well as the avoidance of environmentally sensitive areas, where practicable.
- Local Assessment Area (LAA): The LAA is based on the area within which direct Project-related ground disturbance has potential to occur within the Project Area. The LAA for heritage and cultural resources is the same as the Project Area as it is only within the Project Area that construction and ground-disturbing activities could interact with heritage and cultural resources. Heritage and cultural resources located outside of the Project Area are discussed in the "existing conditions" section below only to inform this assessment regarding the potential for unknown heritage and cultural resources within the Project Area. However, the resources outside of the Project Area will not be directly affected by the Project and are not considered further in this assessment.
- Regional Assessment Area (RAA): The assessment of heritage and cultural resource potential within the Project Area depends on a larger regional review of southwestern Newfoundland. The RAA for this VEC consists of an area of southwestern Newfoundland bounded to the north by Serpentine River, to the east as far as Island Pond, to the south by the community of Red Rocks, and the west by St. George's Bay and the Gulf of St. Lawrence (Figure 6.1).

Stantec

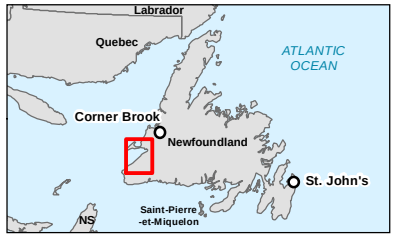
- Project Area / Local Assessment Area
- Regional Assessment Area
- Trans-Canada Highway
- Road
- Transmission Line, Existing
- Ferry Route
- Watercourse
- Waterbody
- Forested Area

N

0 10 20 km
(At original document size of 8.5x11)
1:900,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, and OpenStreetMap.
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/10/2023
QR by AW on 7/10/2023

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_022a

Figure No.
6.1

Title
Spatial Boundaries for Heritage and Cultural Resources

\\CA0151-PPFSS01\work_group\12141active\121417233\03_data\gis_cad\gis_data\mapping\mxd\general\archaeology\121417233_022b_Historic_Resources_Arch_Sites.mxd Revised: 2023-07-10 By: mrooney

6.2.2 Methods

Information on existing conditions (i.e., known information) for heritage and cultural resources was gathered from a desktop level through a combination of documentary research, consultation, and previous archaeological assessments conducted within or near the Project Area. Digital and archival information available from various government and non-government resources was used to gather an understanding of the general and specific history of the Project Area. Resources included:

- General archaeological, historic, and ethnohistoric literature pertaining to the broad culture-historical framework of Pre-Contact and Historic Period settlement in Newfoundland, with particular reference to settlement in the southwest of the province;
- Specific archaeological, historic and ethnohistoric literature bearing on the archaeology of the southwestern Newfoundland;
- Literature and other information on environmental factors pertinent to archaeological potential within the Project Area, such as fauna abundance, coastal, lakeshore, and riverine characteristics, and the impacts of previous development;
- Aerial (Google Earth) imagery and topographic maps reviewed for preliminary identification of specific locations of enhanced archaeological potential;
- Topographic hillshade raster datasets generated from Digital Elevation Models (DEM) at 5 m resolution in a Geographic Information System (GIS) to identify potential landforms and topographic features conducive to past human settlement or activity; and
- Relevant information gathered from the Traditional Land and Resource Use study conducted for the Project.

For information regarding archaeological resources, the PAO was contacted to request baseline data relating to known heritage and cultural resources as well as reports and literature from previous archaeological work conducted in southwestern Newfoundland. Baseline data provided by PAO included known palaeontological sites. Built heritage (i.e., architectural) resources were identified through a review of the Heritage Foundation of NL's provincial database.

A field assessment for heritage and cultural resources has not yet been undertaken for the Project. A desktop level Historic Resources Overview Assessment (HROA) was completed that outlines baseline conditions and identified areas of enhanced potential for unknown heritage and cultural resources within the Project Area characterized by dry, level, habitable terrain, particularly near coves or points of land and constrictions in waterways, streams mouths and confluences, and proximity to falls and rapids (Stantec 2023). Habitable terrain near first-order streams were assessed using mapping overlays that combined aerial imagery, topogpraphic hillshades, refined aquatics data, and known heritage and cultural resource baseline data. Other topographic characteristics such as steep slopes, aspect, and elevation were also considered during the assessment. Overland drainages (i.e., slopewash), watercourses with no visible channels, and bog holes were excluded from consideration as data-driven modeling suggests these types of water features are not conducive to past human settlement or activity. On the other hand, special attention was given to areas within 50 m of major watercourses and coastal areas within the Project Area

as well as fish-bearing streams and lakes believed to be favoured by Pre-Contact and Historic Period peoples. The HROA recommended that if avoidance of known heritage and cultural resource sites and enhanced potential areas for unknown resources by Project-related construction activities was not possible, then a field assessment, i.e., a Historic Resources Impact Assessment (HRIA), would be required to ground-truth these areas and conduct additional mitigation (i.e., shovel testing or excavation) as warranted.

6.3 Results

Previous archaeological work on Newfoundland as a whole indicates approximately 5,000 years of pre-contact Indigenous occupation in four distinct periods: two Pre-Inuit and two of Amerindian affiliation. Indigenous occupation was demonstrably intensive along the coast. Interior occupation, primarily by Amerindian groups, but increasingly including some evidence for Pre-Inuit occupation, appears to have been focused on near-coastal interior lakes, and major NE-SW-oriented lakes and rivers traversing the deep interior. Along these waterways, specific site locations tend to be associated with sandy coves and points of land, prominent constrictions in major waterways, stream confluences and stream mouths, and above or below falls and rapids. Historic European archaeological sites are known primarily from coastal areas until the 20th century, but historic Mi'kmaq and Beothuk sites have been recorded, and may be anticipated, in deep interior settings on the Island.

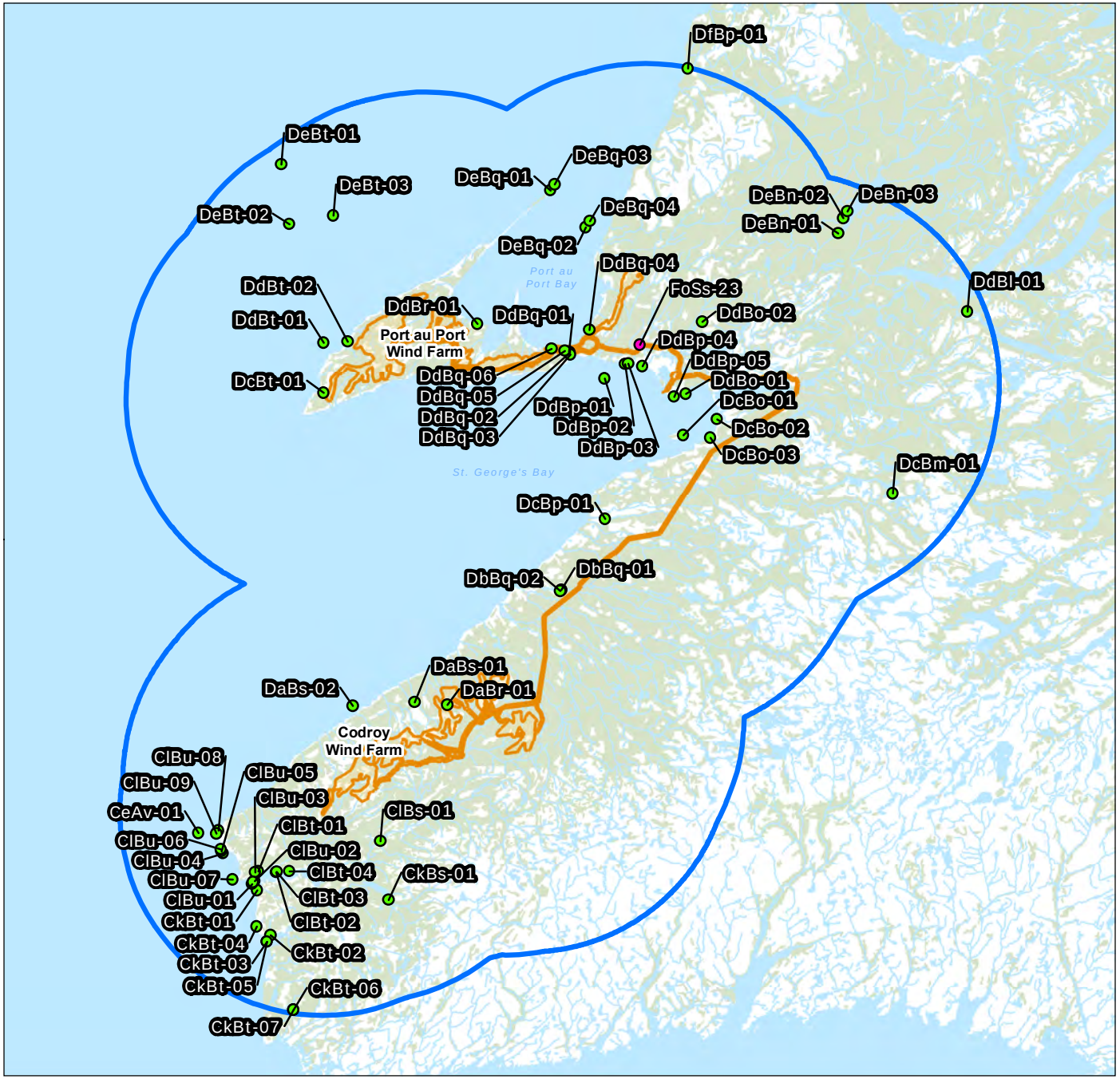
Ethnohistoric evidence indicates that caribou migrated to the southern barrens semi-annually (Speck 1922) and some herds may have encroached within the Project Area, particularly in the Codroy region, but archaeologically we know that coastal adapted pre-contact peoples relied heavily on the abundant marine fauna, which suggests that archaeological resources may be more conspicuous along coastal areas of the Project or near-coast interior lakes and rivers. In short, within the Project Area there is potential for pre-contact sites of all periods, particularly for sites of Maritime Archaic, Pre-Inuit, and late pre-contact Amerindian peoples. Turning to the potential for Historic Period sites, notwithstanding theoretically high potential for sites relating to European migratory fisheries and settlement, particularly those of Basques, Portuguese, French, or English origin, the Project Area lies within the territory of the Mi'kmaq prior to the second half of the 20th century, so there is potential for historic Mi'kmaq sites and, to a lesser extent, for historic Beothuk sites dating to before the second half of the 18th century, prior to their confinement to interior ranges.

The archaeological history of southwestern Newfoundland extends back to earlier in the 20th century when, in 1929, W.J. Wintemberg of Ottawa's Victoria Museum conducted archaeological surveys of areas that included Flat Bay Brook, Doyles, St. George's District, and the Grand Codroy River (Penney 1994: Appendix A). It was not until 1975, however, when the next intensive archaeological survey of western Newfoundland was conducted by Paul Carignan, Curator of Archaeology for the Newfoundland Museum. His surveys included areas of Port au Port, St George's Bay, and the Codroy Valley among others (Carignan 1975). Following this in 1983, the Port au Port Archaeology Project was initiated by David Simpson of Memorial University on behalf of the Newfoundland Museum. The aim of that project was to construct a culture history for the region and explore subsistence-settlement patterns (Simpson 1983). The next large-scale survey of the region was the Katalisk Archaeological Survey of 1993 led by Gerald Penney. Katalisk is the Mi'kmaq name for the Codroy Valley, and this survey involved a collaborative

relationship with the Miawpukek Band Council of Conne River whereby community members participated and learned about archaeological field methods (Penney 1994). The Katalisk Archaeological Survey led to the registration of sixteen archaeological sites, five of which were pre-contact sites.

Development-led archaeological work known as cultural resource management (CRM) emerged over the last three decades with the ratification of the *Historic Resources Act* (1990). Along with several CRM-related archaeological assessments previously conducted within the RAA, several assessments have been conducted by the Provincial Archaeology Office (PAO) as well as by academic researchers (Barnable and Penney 2006; CRM Group 2013; Daly 2015; Daly and Green 2013 and 2014; Deal and Hillier 2007; Edwards and Schofield 2017; Guiry *et al*. 2010; Holly 2002 and 2019; Hull 2001 and 2011; JWEL 1991 and 1992; Keeping 2021; Leonard 2017; MacLean 1991; Mumford and Parcak 2018; Neudorf and Lian 2017; Penney 1980, 1994, 1995, 2001, 2014, and 2015; Penney *et al*. 2017; Rast 2003 and 2010; Reynolds 1997a and 1997b; Robbins 1985 and 1989; Schwarz 1994; Schwarz *et al*. 2016; Simpson 1983 and 1986; Stantec 2017, 2020, and 2021, and Tuck 1989).

As a result of previous archaeological work, assessment of the Project's archaeological potential is therefore initially based on a review of an archaeological site inventory for the RAA provided by the PAO which includes sixty-three (63) archaeological and ethnographic (i.e., 50 years old or less) sites and one palaeontological site (i.e., fossils) for a total of sixty-four (64) provincially registered sites. Of these, thirteen sites are associated with the Pre-contact Period, forty-six are associated with the Historic Period (including shipwrecks and aircraft wrecks), three include components from both the Pre-contact and Historic Periods, one is undetermined, and one is the fossil site. Figure 6.2 shows the distribution of registered heritage and cultural resource sites within the RAA. With regard to the Project Area, specifically, out of the sixty-four (64) heritage and cultural resource sites registered by the PAO within the RAA, six (6) interact directly with the Project Area (i.e., DdBq-01, DdBq-02, DdBq-05, DdBq-06, FoSs-23, and DaBr-01). Two (2) additional registered sites are within 500 m of the Project Area (i.e., DdBq-03 and DdBq-04). All sites in proximity to this Project will have a regulatory 50 m "no disturbance" buffer associated with them.



Stantec

Known Heritage and Cultural Resources

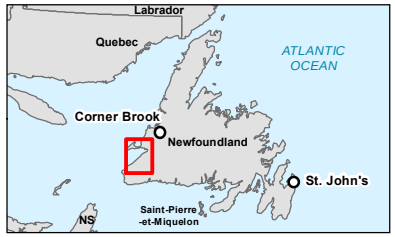
- Archaeological / Ethnographic Site
- Fossil Site
- Project Area / Local Assessment Area
- Regional Assessment Area
- Watercourse
- Waterbody
- Forested Area

N

0 10 20 km
(At original document size of 8.5x11)
1:900,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, and OpenStreetMap.
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/10/2023
QR by AW on 7/10/2023

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_022b

Figure No.
6.2

Title
Distribution of Known Heritage and Cultural Resource Sites in the Regional Assessment Area

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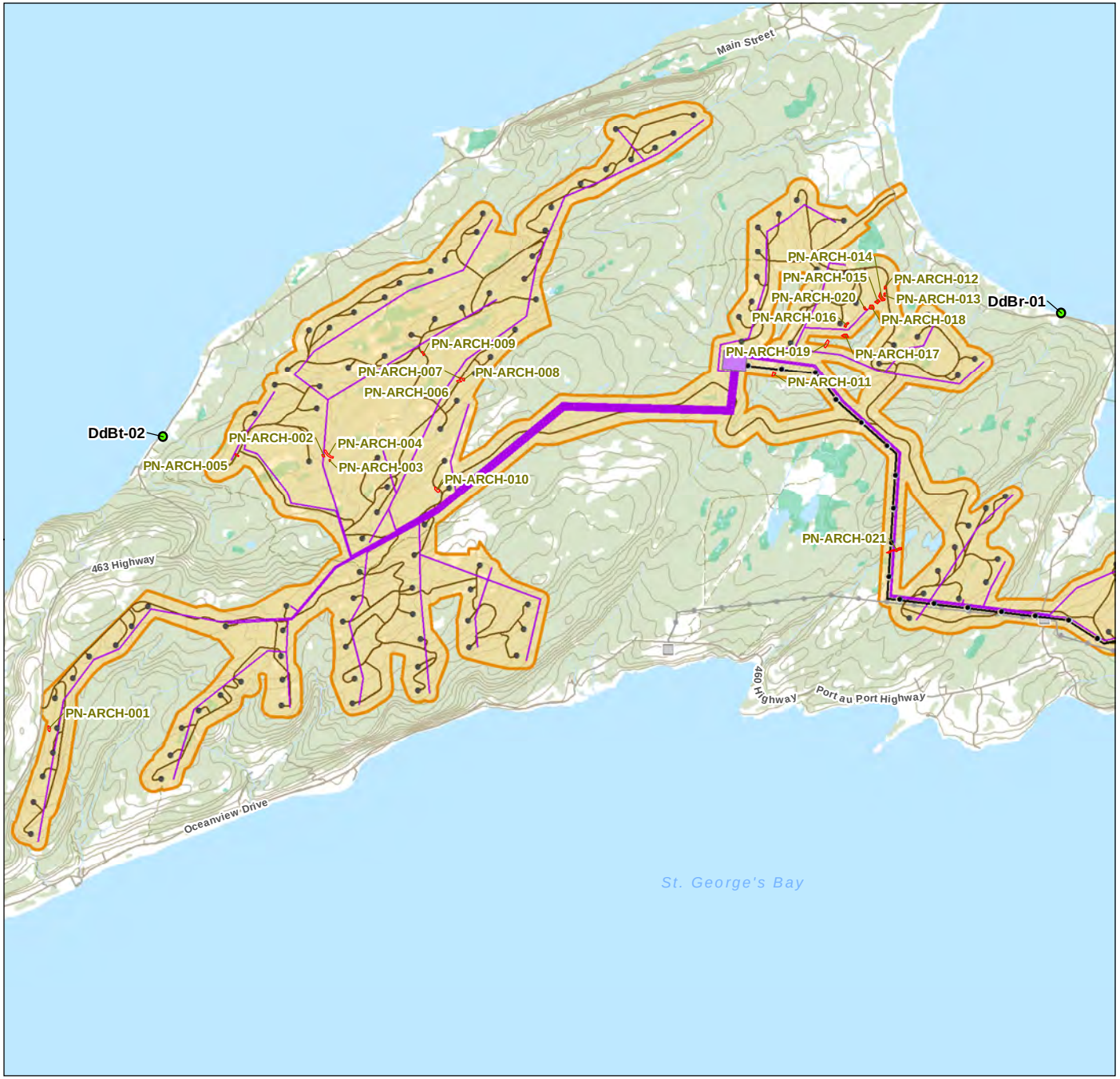
These known sites support theoretical potential for unknown heritage and cultural resources elsewhere within the Project Area, including the potential for resources relating to fossils, or to human activity from any period and culture within the last 5,000 years of human occupancy on the Island of Newfoundland. Some potential may have been reduced by the impacts of development including industrial development or the flooding of rivers and lakes for hydroelectric projects. Potential may be particularly high, however, on dry, level, habitable terrain, particularly near coves or points of land and constrictions in waterways, stream mouths and confluences, falls, and rapids. Potential also exists for marine-based heritage resources in East Bay (Port au Port Bay) where a subsea cable crossing is proposed.

Desktop assessment of the Project Area (Stantec 2023) has led to the identification of seventy-seven (77) locations within the Project Area with enhanced potential to yield heritage and cultural resources. These areas of enhanced archaeological potential have been subdivided into three main categories: 'Medium', 'High', and 'Known' areas of archaeological potential. Collectively, these areas are referred to as 'enhanced' archaeological potential areas. For this assessment specifically, the 'Medium" potential category refers to areas within the elevated, mountainous portions of the Project such as found at the Port au Port West and East collector systems and the Codroy wind farm (Anguille Mountains) where evidence for transitory activity areas or temporary encampments from logistical forays by past peoples might be found. Of the 77 enhanced archaeological potential areas, twenty-one (21) are associated with the 'Medium' potential category. The 'High' potential category refers to those areas more conventionally understood to be favoured by past groups characterized by proximity to various amenities. Fifty-one areas out of the 77 are associated with the 'High' potential category. The latter 'Known' potential category refers to areas where the Project interacts with known sites. Five areas out of the 77 are associated with 'Known' archaeological potential. It should be noted that although these areas all lie within the Project Area, several of these locations may not interact directly with Project components that require ground disturbing activities. Figure 6.3 shows the areas of enhanced archaeological resource potential within the Project Area.



Stantec

Archaeological Potential Area
- Medium Potential
- High Potential

Known Heritage and Cultural Resources
- Archaeological / Ethnographic Site

Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Collector Line
- Access Road
- Substation
- Project Area

Other Features
- Substation, Existing
- Transmission Line, Existing
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

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(At original document size of 8.5x11)
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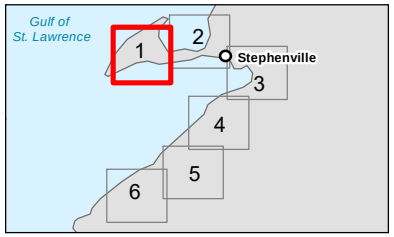
Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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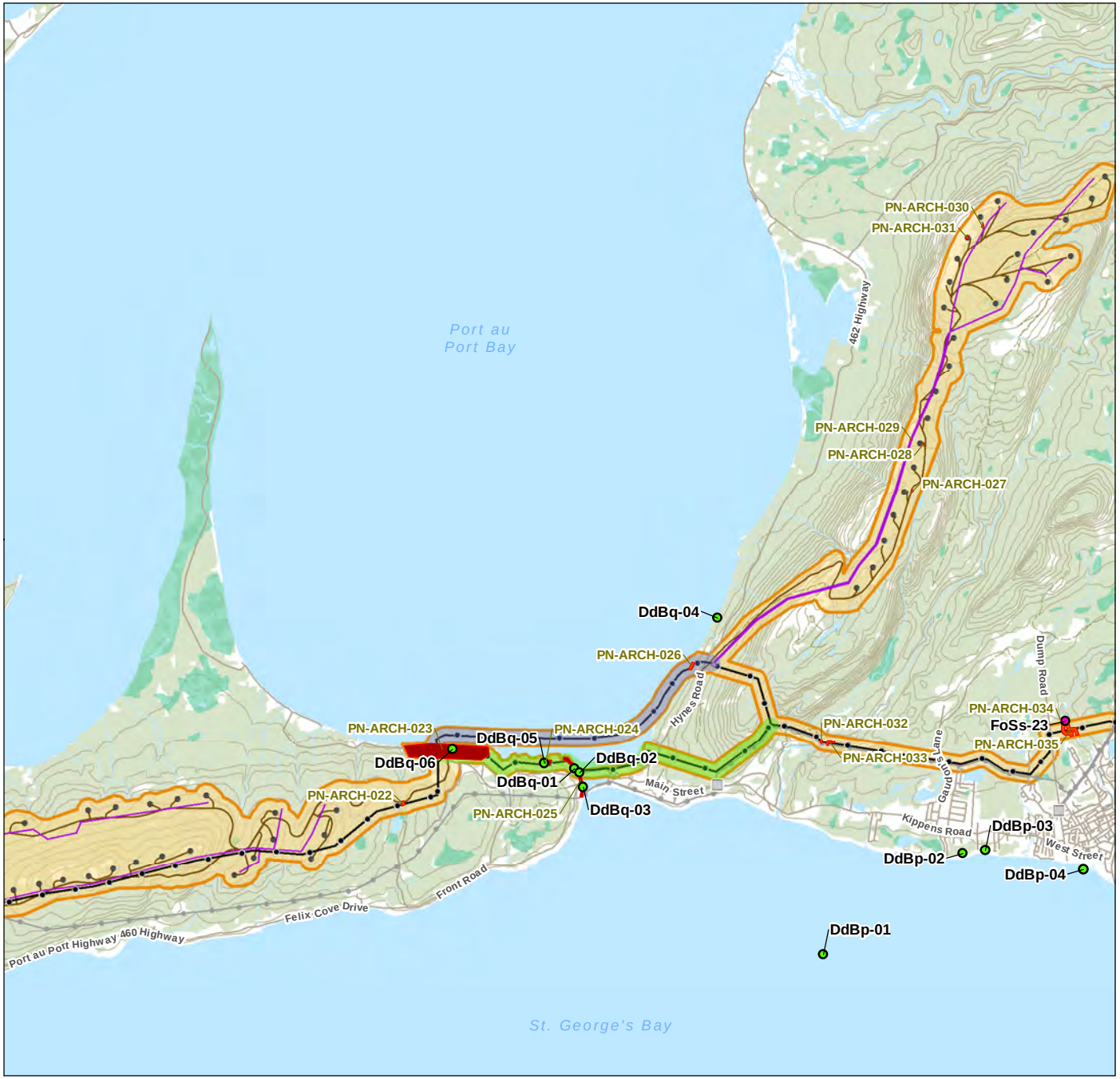
Figure No.
6.3

Page 1 of 6

Archaeological Potential Areas - Port au Port West



Stantec

Archaeological Potential Area
- Medium Potential
- High Potential
- Known Potential

Known Heritage and Cultural Resources
- Archaeological / Ethnographic Site
- Fossil Site

Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Port au Port Interconnection
- Proposed Route
- Alternate Route
- Collector Line
- Access Road
- Substation
- Project Area

Other Features
- Substation, Existing
- Transmission Line, Existing
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

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Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
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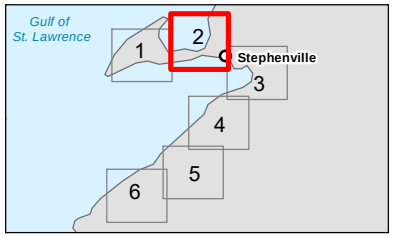


Project Location
Stephenville
NL

Prepared by MR on 7/10/2023
QR by AW on 2023-07-07

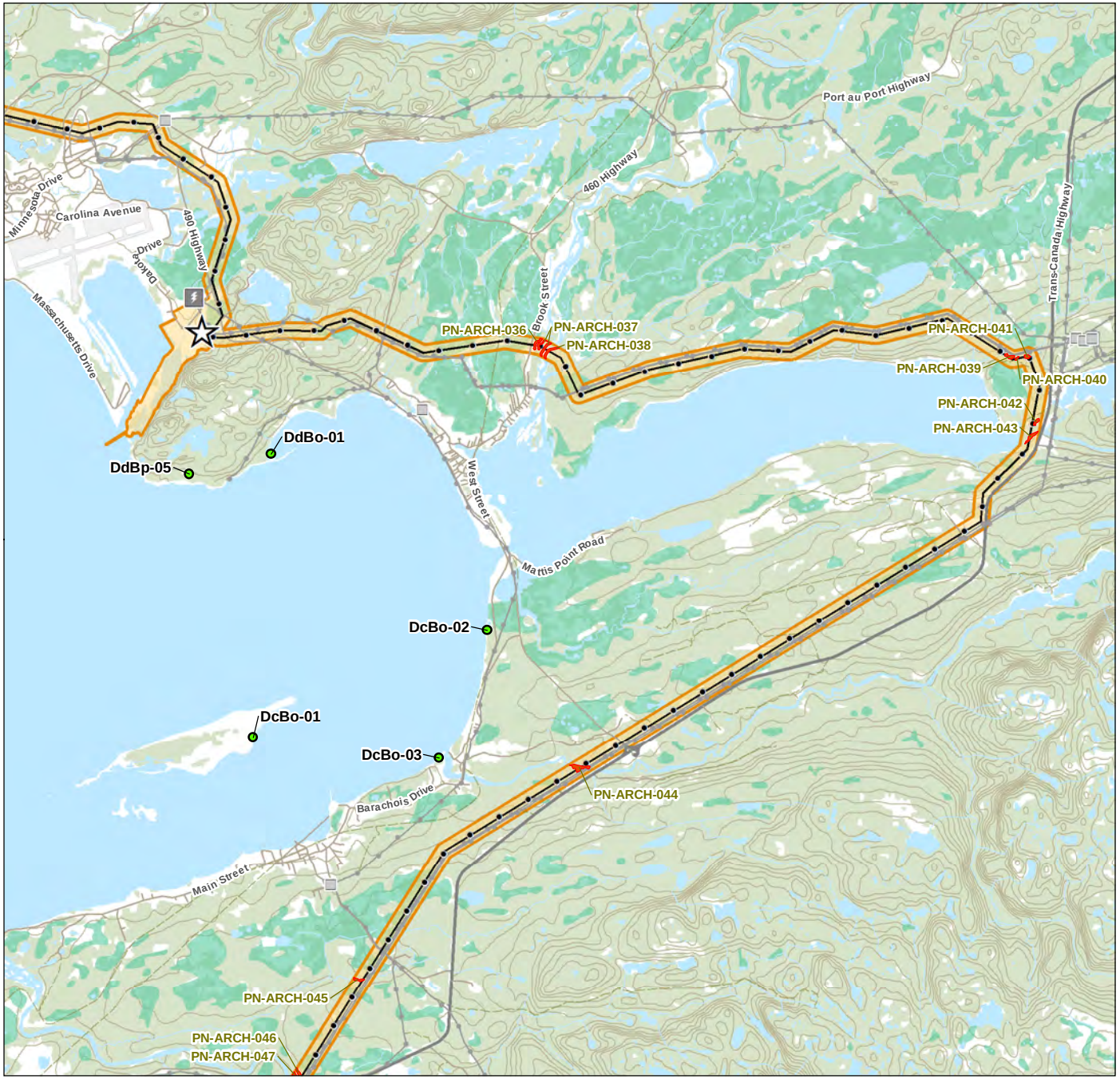
Client/Project
World Energy GH2
Project Nujio'qonik

121417233_0022c

Figure No.
6.3

Page 2 of 6

Archaeological Potential Areas - Port au Port East



Stantec

Archaeological Potential Area

- High Potential

Known Heritage and Cultural Resources

- Archaeological / Ethnographic Site

Proposed Project Features

- Hydrogen / Ammonia Plant Location
- Transmission Line 230 kV
- Project Area

Other Features

- Substation, Existing
- Electrical Generation, Existing
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

0 1.5 3 km

(At original document size of 8.5x11)
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Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
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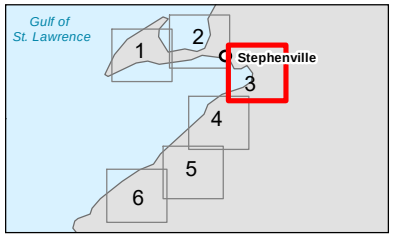

Project Location
Stephenville
NL

Prepared by MR on 7/10/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

121417233_0022c

Figure No.
6.3

Page 3 of 6

Archaeological Potential Areas - Port of Stephenville

Stantec

Archaeological Potential Area
- High Potential

Known Heritage and Cultural Resources
- Archaeological / Ethnographic Site

Proposed Project Features
- Transmission Line 230 kV
- Project Area

Other Features
- Substation, Existing
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

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Notes
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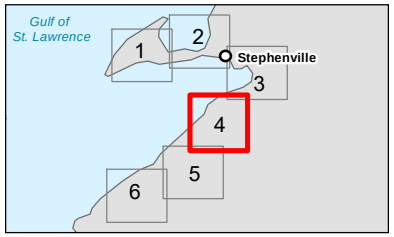

Project Location
Stephenville
NL

Prepared by MR on 7/10/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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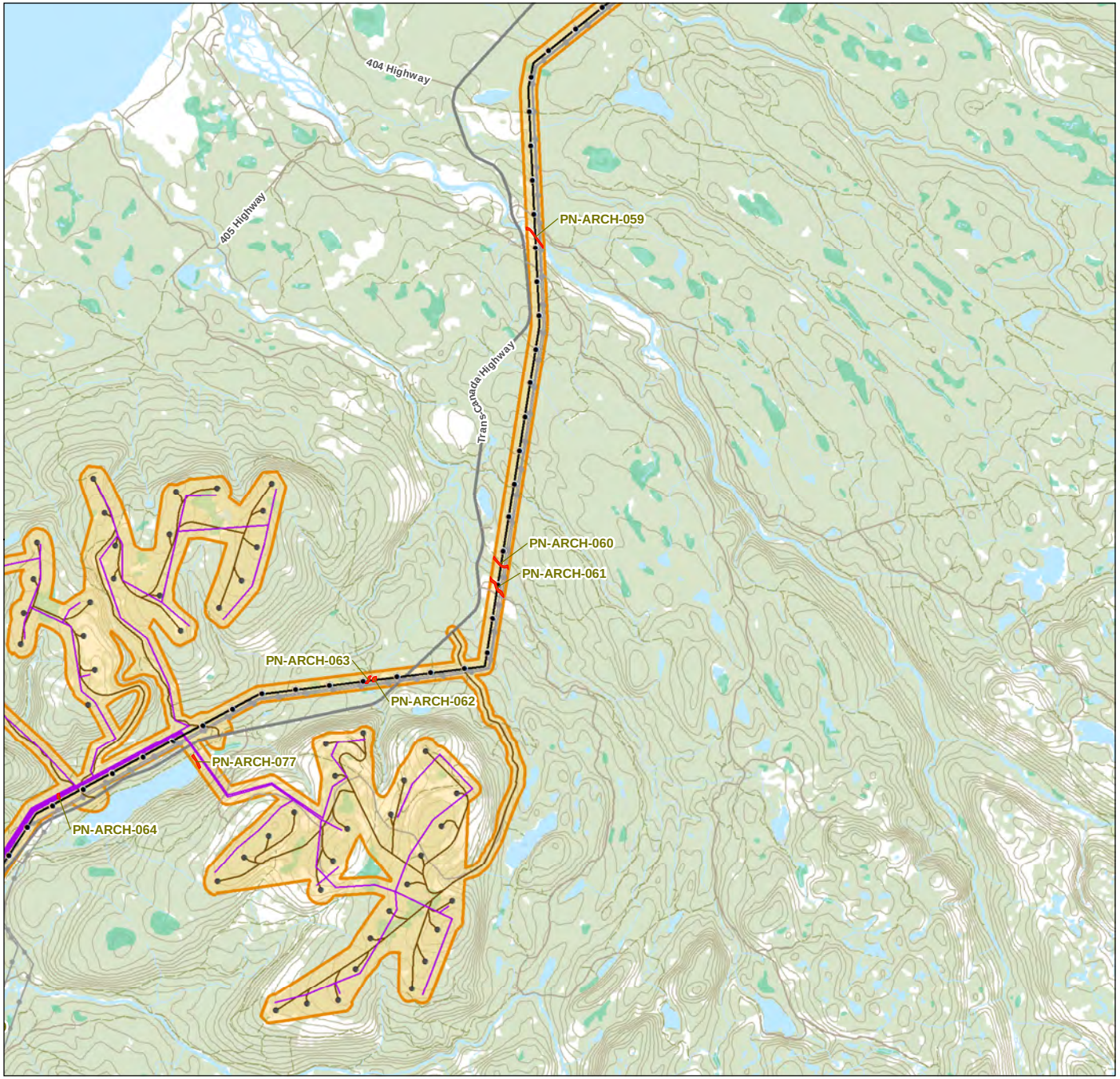
Figure No.
6.3

Archaeological Potential Areas - Fischells



Stantec

Archaeological Potential Area
- High Potential

Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Collector Line
- Access Road
- Project Area

Other Features
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

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Notes
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2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
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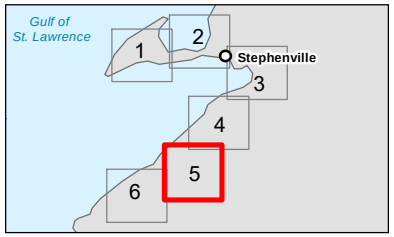


Project Location
Stephenville
NL

Prepared by MR on 7/10/2023
QR by AW on 2023-07-07

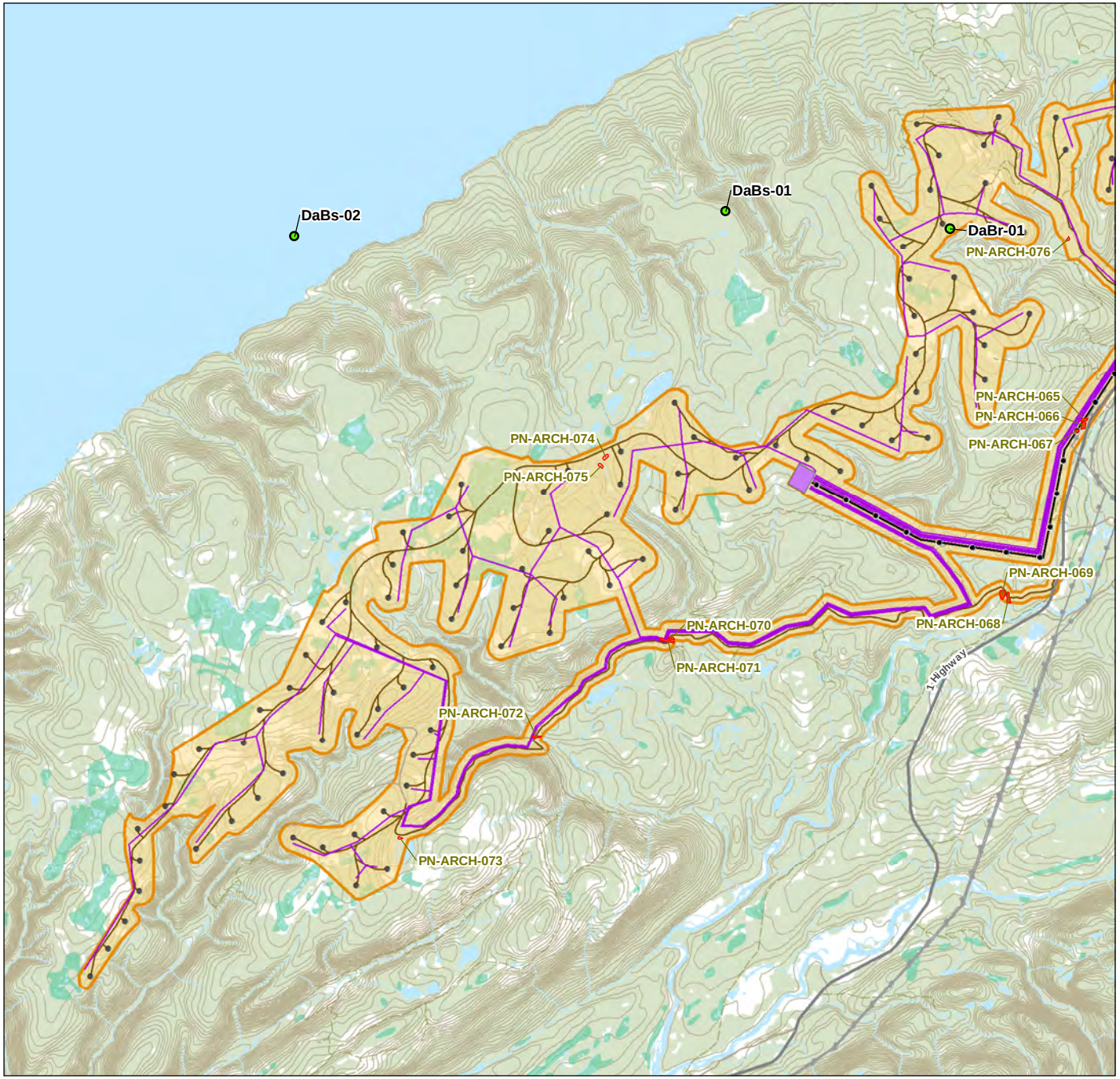
Client/Project
World Energy GH2
Project Nujio'qonik

121417233_0022c

Figure No.
6.3

Page 5 of 6

Archaeological Potential Areas - Highlands



Stantec

Archaeological Potential Area
- Medium Potential
- High Potential

Known Heritage and Cultural Resources
- Archaeological / Ethnographic Site

Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Collector Line
- Access Road
- Substation
- Project Area

Other Features
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

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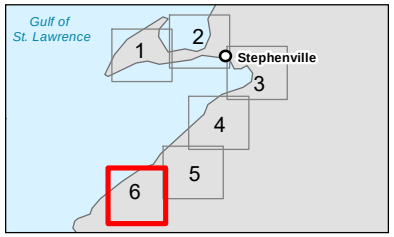
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/10/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
6.3

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Archaeological Potential Areas - Codroy

6.4 Discussion

Assessment of heritage and cultural resources for the Project has identified six (6) registered resource sites within the Project Area including five archaeological sites and one palaeontological site. These sites will have a regulatory "no disturbance" setback or buffer zone of 50 m around them by default in the case of archaeological sites. For the palaeontological site, known as the Blanche Brook Site (FoSs-23), there is a regulatory setback of 70 m from the shorelines of Blanche Brook. In addition to known heritage resource sites, review of regional archaeological data indicates that the Project Area has broad theoretical potential for archaeological resources pertaining to most, if not all, of the cultural affiliations of the Pre-contact and Historic Periods. Review of mapping overlays has identified 77 locations within the Project Area with the potential to yield historic resources. It is understood that the Project's design team will have the opportunity to review the HROA's baseline data for known sites and areas of elevated historic resource potential prior to the construction phase of the Project and, to the extent possible, make design changes that could potentially avoid Project-related ground disturbance that would otherwise interact with these areas.

With this in mind, the primary recommendation is the avoidance of known historic resource sites (and their buffer zones) as well as areas of enhanced historic resource potential by Project-related ground disturbance or land clearing construction activities, where possible.

If avoidance is not possible, specifically for areas of 'Medium' or 'High' historic resource potential, then it is recommended that a field-based archaeological reconnaissance (i.e., ground-truthing) be undertaken prior to construction activities to re-evaluate these areas for historic resource potential. Should it be determined during archaeological reconnaissance that the potential for historic resources in any of these areas remains elevated, then it is recommended that additional mitigation (i.e., judgmental shovel testing) be conducted prior the construction. In the interest of efficiency, and due to the relatively isolated nature of many of these locations with some access requiring the use of a helicopter, any shovel testing effort should be implemented during the field-based ground truthing assessment.

If avoidance is not possible, specifically for the areas of 'Known' historic resource potential, then it is recommended that additional mitigation be conducted in consultation with the PAO, which could include aerial excavation and documentation of the known resources.

With regard to the two options being explored for the 230 kV cable route crossing at the Port au Port isthmus, should the proponent decide on the subsea cable route across East Bay, a marine-based field assessment is recommended prior to construction to determine if historic resources are present along the route, or at least in proximity to both cable landings, which could otherwise be adversely affected.

It is further recommended that the Project's Environmental Protection Plan include the development of a Historic Resource Protection Plan to mitigate the potential for adverse effects on historic resources resulting from accidental discovery.

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Appendix A

Archaeological Assessment Stage 1

Project Nujio'qonik: Historic Resources Overview Assessment

Final Report

July 20, 2023

Prepared for:

World Energy GH2 Inc.

Prepared by:

Stantec Consulting Ltd.
141 Kelsey Drive
St. John's, NL
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File: 121417575

PROJECT NUJIO'QONIK: HISTORIC RESOURCES OVERVIEW ASSESSMENT

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Prepared by _____
(signature)

Michael Rooney

Reviewed by _____
(signature)

Chris Blair

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2023.07.21
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Approved by _____
(signature)

Leslie Amundson

Table of Contents

LIST OF FIGURES

1.0 INTRODUCTION

Project Nujio'qonik (pronounced *new-geo-ho-neek*; the "Project") is named after the Mi'kmaw term for St. George's Bay, Newfoundland and Labrador (NL), which means "where the sand blows," to pay homage to the Mi'kmaq First Nations people who are among the original inhabitants of Atlantic Canada. The Project, as proposed by World Energy GH2 Inc. (WEGH2), involves the development, construction, operation and maintenance, and eventual decommissioning and rehabilitation of one of the first Canadian, commercial-scale, "green hydrogen"[1] and ammonia production plants powered by renewable wind energy.

The Project is subject to provincial environmental assessment (EA) requirements under the NL *Environmental Protection Act* (NL EPA) and associated Environmental Assessment Regulations (EA Regulations). As per the NL EPA and EA Regulations, an EA registration document regarding the Project (WEGH2 2022) was submitted to the NL Department of Environment and Climate Change (NLDECC) Environmental Assessment Division (EA Division) on June 21, 2022. On August 5, 2022, following public and regulatory review of the EA registration document, the Minister of Environment and Climate Change informed WEGH2 that an Environmental Impact Statement (EIS) is required in support of the Project. Final EIS Guidelines were issued for the Project on December 13, 2022.

1.1 PROJECT OVERVIEW AND LOCATION

Located on the western coast of the Island of Newfoundland, NL (Figure 1.1), the Project will produce approximately 1,200 megawatts (MW) / 1.2 gigawatts (GW) of renewable power, generated by two onshore wind farms situated on Crown lands, to produce up to approximately 206,000 metric tonnes (t) of green hydrogen (equivalent to approximately 1.17 megatonnes [Mt] of ammonia) annually via electrolysis. The 1,200 MW hydrogen / ammonia plant will have the ability to be expanded in the future to approximately 1,800 MW of installed electrolyzer capacity, which will enable the production of up to approximately 309,000 t of green hydrogen (equivalent to approximately 1.75 Mt of ammonia) annually. The hydrogen produced by the Project will be converted into ammonia and exported to international markets by ship. The hydrogen / ammonia plant and associated storage and export facilities will be located at the Port of Stephenville (in the Town of Stephenville, NL) on a privately-owned brownfield site and at an adjacent existing marine terminal, both of which are zoned for industrial purposes. The Project also includes civil works and supporting infrastructure and facilities associated with the two wind farm sites, the hydrogen / ammonia plant, and the hydrogen / ammonia storage and export facilities.

[1] "Green hydrogen" is produced via electrolysis using renewable electricity to split water into hydrogen and oxygen. This type of hydrogen, which is referred to by the European Commission (n.d.) as "renewable fuel of non-biological origin", is often called "green hydrogen" in industry.

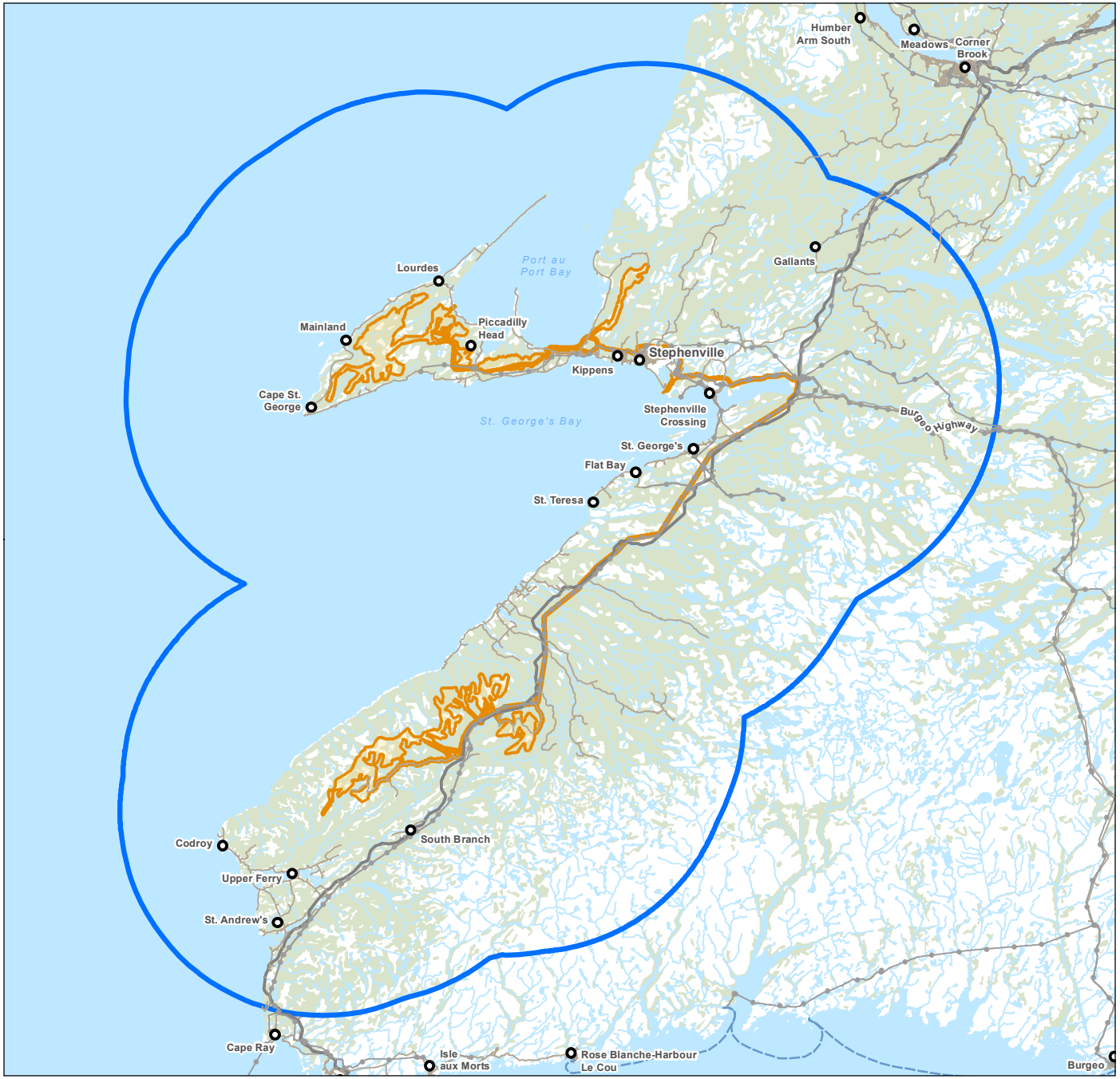
The Project Area shown on Figure 1.1 represents the spatial extent of potential Project-related direct physical disturbance (i.e., the Project footprint) and incorporates a 175-m buffer (350 m right-of-way [RoW]) around key Project components. This buffer allows some flexibility for the micro-siting of certain Project components (e.g., wind turbines) during detailed design, based on technical considerations as well as the avoidance of environmentally sensitive areas, where practicable. Figure 1.1 also depicts the wider Study Area used to provide a regional context for historic resources.

1.2 HISTORIC RESOURCES OVERVIEW ASSESSMENT APPROACH

The HROA of the Project serves as a preliminary assessment of the archaeological potential of the Project Area, to assist in Project planning, and to determine the requirements for a Historic Resources Impact Assessment (HRIA) of the Project Area.

This HROA is a desktop exercise. The desktop assessment of archaeological potential depends on a number of elements including a review of archaeological work previously conducted in Newfoundland, and specifically within the broader Study Area encompassing most of southwestern Newfoundland. The HROA was conducted using digital and archival information available from various government and non-government resources to gather an understanding of the general and specific history of the Project Area. Resources included:

- General archaeological, historic, and ethnohistoric literature pertaining to the broad culture-historical framework of Pre-Contact and Historic Period settlement in Newfoundland, with particular reference to settlement in the southwest of the province;
- Specific archaeological, historic and ethnohistoric literature bearing on the archaeology of the southwestern Newfoundland;
- Literature and other information on environmental factors pertinent to archaeological potential within the Project Area, such as fauna abundance, coastal, lakeshore, and riverine characteristics, and the impacts of previous development;
- Aerial (Google Earth) imagery and topographic maps reviewed for preliminary identification of specific locations of elevated archaeological potential;
- Topographic hillshade raster datasets generated from Digital Elevation Models (DEM) at 5 m resolution in a Geographic Information System (GIS) to identify potential landforms and topographic features conducive to past human settlement or activity; and
- Relevant information gathered from the Traditional Land and Resource Use study conducted for the Project.



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- Project Area
- Study Area
- Trans-Canada Highway
- Road
- Transmission Line, Existing
- Ferry Route
- Watercourse
- Waterbody
- Forested Area

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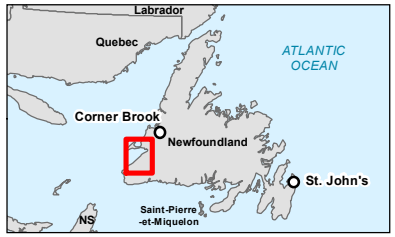
Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, and OpenStreetMap.
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 7/7/2023

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
1.1

Title
Project Area / HROA Study Area

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2.0 NEWFOUNDLAND CULTURE-HISTORICAL OVERVIEW

2.1 PRE-CONTACT PERIOD

Archaeological investigations in Newfoundland, particularly over the last forty years, have provided a relatively clear understanding of the Island's long-term culture-history. The initial human occupation of the Island appears to have occurred late in the Maritime Archaic period, ca. 5,000 - 3,200 years BP (Before Present), although one site in the Deer Lake area may potentially be older (Reader 1999). Nearby southern Labrador shows clear evidence for occupation much earlier in the Maritime Archaic period, by 7,500 - 8,000 BP (McGhee and Tuck 1975, Schwarz 2010), and insular Newfoundland was theoretically habitable by this time as well (Macpherson 1981).

The scarcity of evidence for an early Archaic occupation of the Island, and the apparent delay in the expansion of Archaic hunters from Labrador to Newfoundland, has never been satisfactorily explained. The Maritime Archaic occupation (5,000 BP – 3,200 years BP) is followed, after a hiatus of several centuries, by an Early Pre-Inuit (Groswater) occupation, dating to 2,800 – 2,000 years BP. This in turn is followed by a distinct Late Pre-Inuit (Middle Dorset) occupation beginning ca. 1,900 years BP.

Dorset sites in Newfoundland are both larger and more numerous than those of any other period, and although absolute population estimates are not possible, the Dorset occupation appears to have been the most extensive. Its population levels may be the highest in the Island's pre-contact period. Perhaps because of the large size and number of sites, it has proved possible to recognize regional variation in Newfoundland Dorset artifact styles. It has been suggested that the Dorset population of Newfoundland may be divided into at least three distinct regional groups (Robbins 1985). While it may have seen the most extensive occupation, the Dorset period was also the briefest, apparently ending by ca. 1100 B.P.

The Recent First Nation Period (2,000 years BP to 200 BP) of occupation began with an early "Cow Head Complex" occupation, contemporary with the Dorset, indicating shared occupation of the Island by both Amerindian and Pre-Inuit peoples (Hartery 2007; Holly 2002). It includes subsequent cultural occupations such as the Beaches Complex and the Little Passage Complex before ending with the historically documented extinction of the Beothuk early in the nineteenth century. Beothuk sites of the early contact period (A.D. 1500-1700) have been identified on the Avalon Peninsula, Bonavista Bay, and Notre Dame Bay. Later historic Beothuk sites (A.D. 1700 - 1829) are limited to the Exploits Valley, including Red Indian Lake, among the final refuges of the Beothuk prior to their extinction in 1829 (Devereux 1965, 1970; LeBlanc 1973).

It is important to note that most archaeological work on the Island has been concentrated on the coast (Bell and Renouf 2003). Archaeologists have tended to regard Newfoundland's marine resources as rich and stable, in contrast to an interior resource base, which is limited, impoverished, and prone to periodic fluctuations in abundance (cf. Tuck and Pastore 1985). As a result, archaeologists have tended to concentrate their efforts on investigating coastal sites, assuming that the archaeological potential of the interior is generally low. It has long been recognized that the archaeological potential of one interior region - the Exploits River - has been high, but this has been viewed as unique. The historic resources of

the Exploits Valley are dominated by the remains of the Beothuk, a people forced into a deep interior caribou hunting adaptation by the spread of European settlement along the coast. Pre-Beothuk remains are relatively scarce along the Exploits. This historic Beothuk interior adaptation ended ultimately in extinction, and the Beothuk have thus been regarded as the exception that proves the rule: successful hunter-gatherer adaptation to the deep interior is impossible over the long term and would not have occurred without competition from expanding European settlement (Robbins 1989).

Archaeological work since the 1980s, however, has somewhat modified this pessimistic view of the Newfoundland interior resource base. Examinations of the interior by a number of archaeologists(for an overview, see Schwarz 1994a) have confirmed the archaeological potential of the Newfoundland interior, for pre-contact sites, particularly on near coastal interior lakes, and along the major SW-NE-oriented river systems (most notably the Exploits River), which offer travel routes into the deep interior and strategic locations from which to intercept migrating caribou. Most of the interior sites identified to date pertain to the Recent First Nation Period, but Maritime Archaic sites have also been identified, and, increasingly, evidence for Early Pre-Inuit occupations has been discovered, even at deep-interior locations, such as Birchy Lake and the Exploits River (Erwin and Holly 2006). Late Pre-Inuit (Dorset) sites in the interior remain relatively rare. In terms of micro-locational attributes, pre-contact interior sites appear to be particularly associated with points of land and constrictions in waterways, as well as with stream mouths and falls or rapids (Schwarz 1992, 1994a).

2.2 HISTORIC PERIOD

Newfoundland has had a long history of European settlement, and historical archaeology in Newfoundland has tended to focus on the province's unusually early European remains and on the archaeology of the historic Beothuk.

The earliest known historic European site on the Island is the Norse site at L'Anse aux Meadows, dated ca. 1000 BP (Ingstad 1969), a period that archaeologists still generally regard as "pre-contact" in Newfoundland. The intensive European migratory fishery, which developed and expanded through the sixteenth century, is documented by the Basque remains at Red Bay (Tuck and Grenier 1989). The seventeenth century has recently become a focus of investigation; outside of the Avalon, this century is still sparsely documented archaeologically, though there are likely many sites of this period along the coast, pertaining to the English, French, and Basque migratory fisheries. The eighteenth century, a period which saw significant growth in the resident population of Newfoundland, is well represented at archaeological sites across the Island.

Much of the francophone population of Newfoundland's west coast, particularly in and around Stephenville, Bay St. George, and the Codroy Valley, can trace its origins back to Acadian settlers, migrating from Cape Breton Island near the end of the 18th century, who had developed an economy based largely on farming and, to a lesser extent, fishing (Thomas 1983). A second wave of French settlement during the 19th century was the result of French fisherman who deserted their vessels and took up residence on the Port au Port Peninsula (Thomas 1977) at a time when France enjoyed fishing privileges along what is known as the French Treaty Shore (1783 – 1904). The "French Shore" covered all of western Newfoundland from Cape St. John to Cape Ray, and the Port au Port Peninsula was at its

centre. Through shared language, regular interaction, and intermarriage, both the Acadians and the French settlers assimilated. Until recently, the isolation and family-based economy of Port au Port allowed for French language and customs to persist.

As with pre-contact archaeology, and for many of the same reasons, research in historic archaeology has been strongly focused on the coast. Historic European activities in the interior such as trapping (Pastore 1987, Schwarz 1995) have not been investigated archaeologically although archaeological research into European near-coastal interior "winterhousing" (Smith 1987) has recently begun (Venovcevs 2016).

For the Beothuk, the only Indigenous group in Canada to become extinct, the centuries from the late 15th century to the death of Shanadathit, the last known Beothuk, in 1829, were years when English, Portuguese, Basque, and French fishermen encroached upon not only the coast and its rich resources, but also upon salmon-fishing rivers (for reviews of this e Beothuk of hunting and fishing locations, although documentary evidence suggests the Beothuk period, see Howley 1915 and Marshall 1996). Mi'kmaq settlement from the mainland also deprived th use of the St. George's River estuary near the Project, and even a period of "shared occupation" of inner St. George's Bay between Beothuk and Mi'kmaq in the early 1700s (Marshall 1996: 47-49). The Beothuk rarely traded with Europeans and their need for metal led to raiding of seasonal fishing stations during the winters, followed by retaliation from Europeans. This hostility, coupled with Europeans excluding the Beothuk from the coastline and from favoured salmon fishing spots, contributed to the decline of the Beothuk. By the 19th century the remaining Beothuk were largely confined to the Exploits River and Red Indian Lake, along with the lakes in the interior hinterland of western Notre Dame Bay.

The earliest known historical reference to the Mi'kmaq in Newfoundland is from James Cook who, in 1767, encountered Mi'kmaq families near St. George Harbour in St. George's Bay near the Project (Cook 1767). Through the 18th century, the Mi'kmaq's favoured destinations on the Island included St. George's Bay, Cape Ray, Bay d'Espoir, and Placentia (Speck 1922). Initially, Mi'kmaq in Newfoundland regularly returned to Cape Breton, but by the end of the 18th century or early 19th century, Mi'kmaq families were settling permanently in southern and southwestern Newfoundland, hunting caribou, trapping, and later, serving as guides for European explorers and sportsmen (see Pastore 1978b).

In the 18th and early 19th centuries, there was little territorial overlap between the Mi'kmaq and the Beothuk: Mi'kmaq settlement and harvesting being focused on the southern and southwestern interior from St. George's Bay to Placentia Bay, while the Beothuk ranged to the north, principally along the Exploits and Red Indian Lake (Pastore 1978b). In 1822, William Epps Cormack and his Mi'kmaq guide, Joseph Sylvester, walked across the Newfoundland interior from Trinity Bay to St. George's Bay via Flat Bay Brook near the Project, including the country between Meelpaeg, Granite Lake and George IV Lake (for a complete transcript of Cormack's journal, see Howley 1915). The Mi'kmaq families they encountered along their route informed them that the southern border of Beothuk territory lay 15 to 25 km north of the Mi'kmaq camp on King George IV Lake (Marshall 1996: 156). King George IV Lake marked the approximate eastern limit of Mi'kmaq canoe travel inland from St. George's Bay (Penney 1987).

Through the 19th century, following the demise of the Beothuk, the Mi'kmaq extended their range to encompass most of the central and western Newfoundland interior, as far north as the Bay of Exploits and Gander Bay. Although there was some competition with European trappers in the hinterlands of the northeast coast, through the second half of the 19th century and the beginning of the 20th century, the Mi'kmaq had the interior of the Island largely to themselves (Pastore 1978a: 170). In 1914, the anthropologist Frank Speck mapped the hunting and trapping territories of individual Mi'kmaq families across the Newfoundland interior. For example, the large territory extending from Sandy Lake down through Red Indian Lake, Victoria River and Lake, and Lloyd's River, as far east and Meelpaeg, and as far south as the northern end of King George IV Lake was at that time the territory of Frank Joe, a hunter and trapper of mixed Mi'kmaq and Innu descent (Speck 1922).

Archaeologically, the historic Mi'kmaq occupation of the Newfoundland interior is attested by a number of recorded 20th century "home tilts". Two historic Mi'kmaq sites, both situated on Middle Ridge east of the Bay d'Espoir Highway, have been excavated (Penney and Nicol 1984). Burnt Knaps 1 (DbAv-01) yielded the remains of a rectangular wigwam dating to the first quarter of the 20th century, and Burnt Knaps 2 (DbAv-02), appeared to be slightly older, dating to the last half of the 19th century.

2.3 SUMMARY

In summary, previous archaeological work on Newfoundland as a whole indicates approximately 5,000 years of pre-contact Indigenous occupation in four distinct periods: two Pre-Inuit and two of Amerindian affiliation. Indigenous occupation was demonstrably intensive along the coast. Interior occupation, primarily by Amerindian groups, but increasingly including some evidence for Pre-Inuit occupation, appears to have been focused on near-coastal interior lakes, and major NE-SW-oriented lakes and rivers traversing the deep interior. Along these waterways, specific site locations tend to be associated with sandy coves and points of land, prominent constrictions in major waterways, stream confluences and stream mouths, and above or below falls and rapids. Historic European archaeological sites are known primarily from coastal areas until the 20th century, but historic Mi'kmaq and Beothuk sites have been recorded, and may be anticipated, in deep interior settings on the Island.

Ethnohistoric evidence indicates that caribou migrated to the southern barrens semi-annually (Speck 1922) and some herds may have encroached within the Project Area, particularly in the Codroy region, but archaeologically we know that coastal adapted pre-contact peoples relied heavily on the abundant marine fauna, which suggests that archaeological resources may be more conspicuous along coastal areas of the Project or near-coast interior lakes and rivers. In summary, within the Project Area there is potential for pre-contact sites of all periods, particularly for sites of Maritime Archaic, Pre-Inuit, and late pre-contact Amerindian peoples. Turning to the potential for Historic Period sites, notwithstanding theoretically high potential for sites relating to European migratory fisheries and settlement, particularly those of Basques, Portuguese, French, or English origin, the Project Area lies within the territory of the Mi'kmaq prior to the second half of the 20th century, so there is potential for historic Mi'kmaq sites and, to a lesser extent, for historic Beothuk sites dating to before the second half of the 18th century, prior to their confinement to interior ranges.

3.0 HISTORIC RESOURCES OF THE PROJECT AREA AND SOUTHWESTERN NEWFOUNDLAND

3.1 HISTORIC RESOURCES OF THE STUDY AREA

As the assessment of archaeological / historic resource potential within the Project Area depends on a larger regional review, this section of the HROA will focus specifically on a broader Study Area of southwestern Newfoundland that is bounded to the north by Serpentine River, to the east as far as Sandy Pond, to the south by the community of Red Rocks, and to the west by St. George's Bay and the Gulf of St. Lawrence (Figure 1.1). As can be surmised from a Study Area of this magnitude, numerous professional archaeological assessments have been undertaken within it including several within the immediate vicinity of the Project Area.

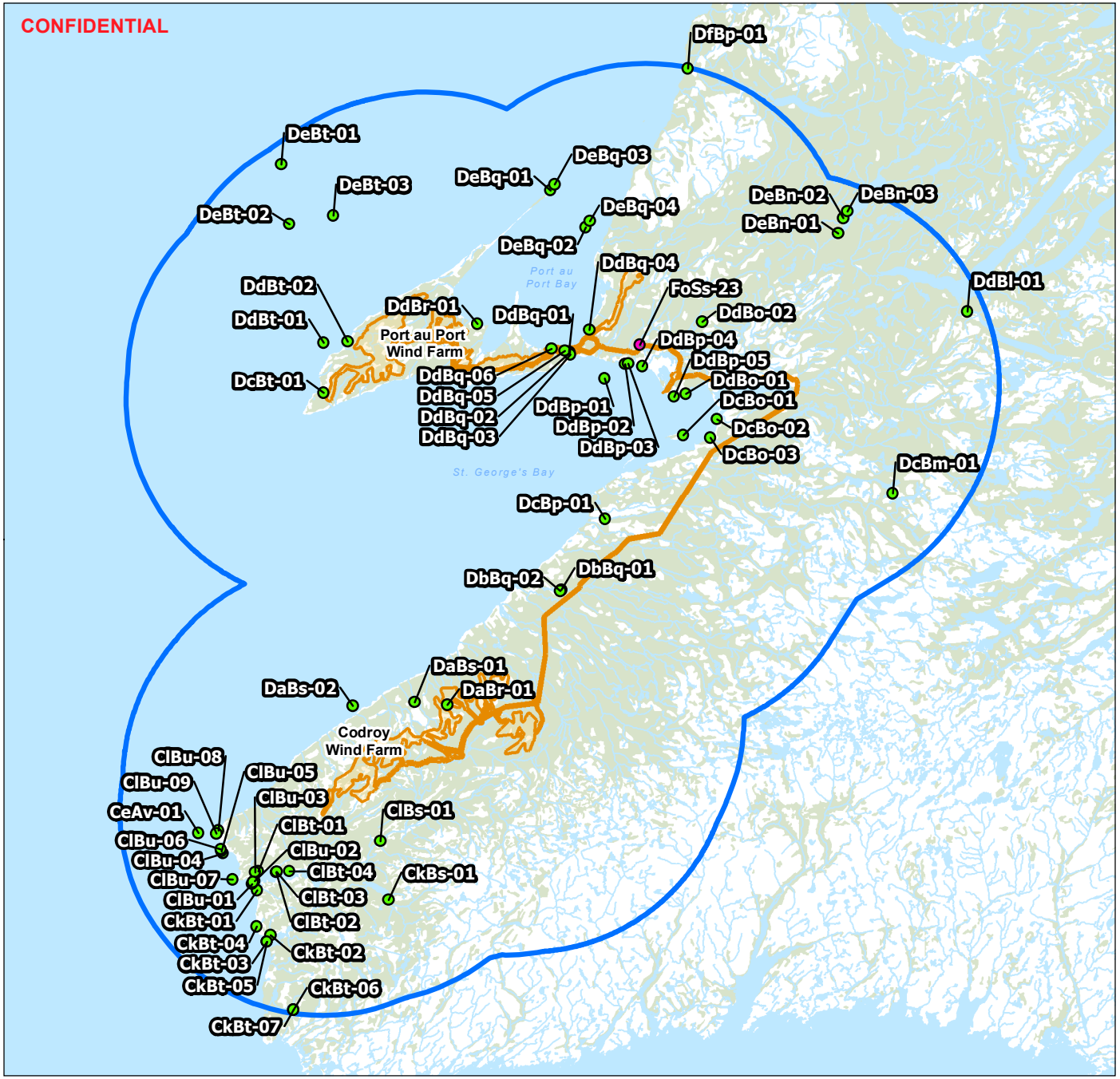
The archaeological history of southwestern Newfoundland extends back to earlier in the 20th century when, in 1929, W.J. Wintemberg of Ottawa's Victoria Museum conducted archaeological surveys of areas that included Flat Bay Brook, Doyles, St. George's District, and the Grand Codroy River (Penney 1994: Appendix A). It was not until 1975, however, when the next intensive archaeological survey of western Newfoundland was conducted by Paul Carignan, Curator of Archaeology for the Newfoundland Museum. His surveys included areas of Port au Port, St George's Bay, and the Codroy Valley among others (Carignan 1975). Following this in 1983, the Port au Port Archaeology Project was initiated by David Simpson of Memorial University on behalf of the Newfoundland Museum. The aim of that project was to construct a culture history for the region and explore subsistence-settlement patterns (Simpson 1983). The next large-scale survey of the region was the Katalisk Archaeological Survey of 1993 led by Gerald Penney. Katalisk is the Mi'kmaq name for the Codroy Valley, and this survey involved a collaborative relationship with the Miawpukek Band Council of Conne River whereby community members participated and learned about archaeological field methods (Penney 1994). The Katalisk Archaeological Survey led to the registration of sixteen archaeological sites, five of which were pre-contact sites.

Development-led archaeological work known as cultural resource management (CRM) emerged over the last three decades with the ratification of the Historic Resources Act (1990). Along with several CRM-related archaeological assessments previously conducted within the Study Area, several assessments have been conducted by the Provincial Archaeology Office (PAO) as well as by academic researchers (Barnable and Penney 2006; CRM Group 2013; Daly 2015; Daly and Green 2013 and 2014; Deal and Hillier 2007; Edwards and Schofield 2017; Guiry *et al*. 2010; Holly 2002 and 2019; Hull 2001 and 2011; JWEL 1991 and 1992; Keeping 2021; Leonard 2017; MacLean 1991; Mumford and Parcak 2018; Neudorf and Lian 2017; Penney 1980, 1994, 1995, 2001, 2014, and 2015; Penney *et al*. 2017; Rast 2003 and 2010; Reynolds 1997a and 1997b; Robbins 1985 and 1989; Schwarz 1994b; Schwarz *et al*. 2016; Simpson 1983 and 1986; Stantec 2017, 2020, and 2021, and Tuck 1989). Where relevant, information provided by these assessments and studies is presented in the sections below.

As a result of previous archaeological work, assessment of the Project's archaeological potential is therefore initially based on a review of an archaeological / historic resource site inventory for the Study Area provided by the PAO which includes sixty-three (63) archaeological and ethnographic (i.e., 50 years old or less) sites and one palaeontological site (i.e., fossils) for a total of sixty-four (64) provincially registered sites. Of these, thirteen sites are associated with the Pre-contact Period, forty-six are associated with the Historic Period, three include components from both the Pre-contact and Historic Periods, one is undetermined, and one is the fossil site. Figure 3.1 shows the distribution of registered historic resource sites within the Study Area.

Included amongst the pre-contact sites within the Study Area (including multi-component sites) are nine sites affiliated with Pre-Inuit occupations, six are affiliated with Recent First Nation occupations, one is affiliated with a Maritime Archaic Occupation, one is tentatively affiliated with a Norse occupation, and three are of undetermined cultural affiliation. With one exception (discussed in Section 3.2 below), most of the pre-contact sites represent site types that do not reflect habitation per se (due to a lack of dwelling features), but rather undetermined activity areas or spot finds. With respect to the Study Area's Historic Period sites, thirty-four are considered European, thirteen are considered Euro-American, two are believed to be affiliated with historic Mi'kmaq, and one is of undetermined cultural affiliation. Historic site types include thirteen shipwrecks, twelve habitation sites, five industrial / work sites, five aircraft wrecks, two temporary camp sites, two cemeteries, two log cabin "hotels", a burial site, and five undetermined activity areas.

Although located just outside of the Study Area for the Project, there is one site complex that is very important to the archaeology of southwest Newfoundland which is the Cape Ray Light site (CjBt-01). It was first excavated in the 1960s and has been re-visited for study by archaeologists on numerous occasions since (Devereux 1966; Fogt 1998; Linnamae 1975). The Cape Ray Light site represents several occupations by Groswater and Dorset Pre-Inuit dating to between 2,400 years BP and 1,300 years BP and includes several dwellings, a midden, hearths, and a possible tent ring. It is interpreted as a seal hunting basecamp and much of the lithic cultural material that was recovered, specifically cherts and soapstone, may have been sourced from outcrops in the Port au Port region (Fogt 1998: 97). As such, traces of Pre-Inuit activity near the Project Area could potentially relate directly to the Cape Ray Light site.



Stantec

Known Historic Resources

- Archaeological / Ethnographic Site
- Fossil Site
- Project Area
- Study Area
- Watercourse
- Waterbody
- Forested Area

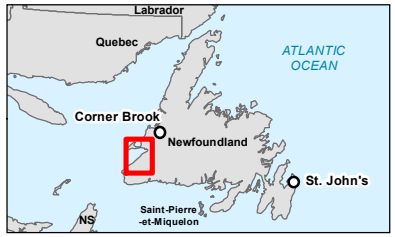
N

0 10 20 km

(At original document size of 8.5x11)
1:900,000

Notes

1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, and OpenStreetMap.
3. Background: NRCan, CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 7/7/2023

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
3.1

Title
Distribution of Known Historic Resource Sites in the Study Area

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3.2 HISTORIC RESOURCES OF THE PROJECT AREA

This section will provide more detail on the archaeological / historic resource sites and signatures of archaeological potential within or near the Project Area and is organized according to the three main areas of the Project. Preliminarily, it should be noted that out of the sixty-four (64) historic resources sites registered by the PAO within the Study Area, six (6) interact directly with the Project Area. These are described below (i.e., DdBq-01, DdBq-02, DdBq-05, DdBq-06, FoSs-23, and DaBr-01). Two (2) additional registered sites are within 500 m of the Project Area (i.e., DdBq-03 and DdBq-04) and their relevance for historic resource potential within the Project Area is discussed. The PAO has confirmed that all sites in proximity to this Project will have a regulatory 50 m "no disturbance" buffer associated with them (email dated June 29, 2023).

At least three previous archaeological assessments were conducted close to the Project Area (i.e., CRM Group 2013; MacLean 1991; and Penney 2014) and a fourth was conducted inside the Project Area (i.e., Penney 2015). The three assessments in close proximity relate to linear corridor projects involving telecommunications and electrical transmission lines that closely parallel much of the proposed 230 kV transmission line component of this Project. One of these assessment (i.e., MacLean 1991) led to the registration of two Historic Period sites while the other two assessments led to negative results. Although they were conducted close to this Project and their findings are taken into account, the areas assessed by those other surveys do not overlap with areas that may require assessment in the field for this Project. The fourth previous assessment (i.e., Penney 2015) conducted within the Project Area refers to the Aguathuna Quarry Site, a registered archaeological site discussed in more detail below. One implication of Penney's (2015) assessment of the Aguathuna Quarry Site is that a field-based site reconnaissance of that study's footprint the Project may be unwarranted since it was previously assessed within the last few years.

3.2.1 Port au Port Wind Farm

The proposed Port au Port wind farm comprises the Port au Port West collector system located on the Port au Port Peninsula and the Port au Port East collector system located on the mainland east of the isthmus connecting the two areas. Both areas belong to the Port au Port ecological subregion, which is characterized by exposed limestone barrens, shallow soils with high pH (due to the limestone), and large areas of exposed bedrock. The climate is rather anomalous compared to other nearby subregions in that summers are generally warmer with a longer frost-free period but with cold winters and heavier snowfall (Damman 1983). A key factor in why the Port au Port region would have been attractive to pre-contact peoples, especially for Pre-Inuit groups, is that the peninsula acts as a stopping point for the annual Harp seal migration along the western coast of the Island. Moreover, the rivers in the region are rich in anadromous fish runs and there are outcrops of high-quality chert available. One such outcrop, the East Bay Outcrop, has been registered as an archaeological site (DdBq-04) and is located on the mainland coast of Port au Port Bay at a distance of approximately 400 m from that portion of the Project Area relating to an access road and transmission lines for the Port au Port East collector system. Another outcrop of fine chert has been registered on the peninsula at Piccadilly Head (DdBr-01), 1.5 km from the Project Area.

The Port au Port Site (DdBq-01) interacts directly with the overland 230 kV cable route crossing option at the Port au Port isthmus (one of two cable route options being considered by WEGH2, the other being the subsea route across East Bay). The site could be considered the most significant pre-contact site on the peninsula. It was first recorded by Carignan in 1975 and has been re-visited and studied in subsequent years (Carignan 1975; Guiry *et al*. 2010; Robbins 1985; Simpson 1983 and 1986). It is located north of the isthmus overlooking East Bay, but stretches for approximately 200 m along an eroding 2 m to 5 m high coastal bank. The site represents a multi-component pre-contact occupation affiliated with Dorset and Recent First Nation groups. The Recent First Nation components yielded lithic cultural material from the Beaches and Little Passage complexes. Carignan (1975) initially attributed some of this material to the Beothuk, but these have since been shown to conform to the Beaches Complex instead (Simpson 1986: 90). Although the site is actively eroding, the Dorset component is well preserved with an assemblage that includes harpoon endblades and endscrapers created from fine cherts, and faunal evidence dominated by seal bones (Simpson 1986). Simpson has suggested the site could represent a summering ground for the seal hunt based on the absence of clearly defined dwelling features. He considered the possibility however that the more substantial (and archaeologically visible) winter dwellings could have been present before potentially being washed away by erosion. Robbins (1989: 145) suggests the Dorset component at the Port au Port Site could reflect a "western expression" of Newfoundland Dorset culture characterized by large permanent or semi-permanent sites based on the availability of migratory and non-migratory seal populations throughout most or all of the year. A small assemblage of Dorset material culture, including soapstone or soapstone-like abraders, was also discovered on the peninsula near the tip of Long Point. The Long Point Site (DeBq-01), identified by Simpson, was probably much more substantial prior to eroding into Port au Port Bay (Simpson 1986: 109). Although well outside the Project Area, the Long Point Site illustrates a Dorset presence on the peninsula in two distinct locales.

Also examined by Carignan (1975) and Simpson (1986) are The Isthmus Site (DdBq-02) and the Gravel Pond Site (DdBq-03). The Isthmus Site interacts directly with the Project Area where the 230 kV transmission line crosses the isthmus at the Gravels and the Gravel Pond Site is within 200 m of this proposed transmission line crossing. Both are affiliated with Late Dorset Pre-Inuit groups and contain possible Recent First Nation components (in the case of DdBq-02) and European components (in the case of DdBq-03).

The Aguathuna Quarry Site (DdBq-06) interacts directly with the Project Area where the 230 kV transmission line, substation, and an associated access road is proposed. Located in the community of Aguathuna on the south shore of East Bay, the Aguathuna Quarry Site is an industrial historic site which supplied limestone for the manufacture of steel from 1912 to 1964. The site represents "a significant early mineral extraction operation and an example of efforts to realize the resource potential of western Newfoundland following the final settlement of the French Shore issue in 1904" (Penney 2015: 76). Moreover, the Aguathuna town site, known as "The Block", is an early example of civic planning in Newfoundland and played an important role in the commercial, cultural, and settlement history of Port au Port. The site was archaeologically assessed in late 2014 by Gerald Penney Associates Ltd. (GPA). GPA identified significant remaining historic resources at the quarry and town site and noted the considerable geological significance of the site in terms of visible fossil remains in the exposures of stratigraphy in the quarry faces. GPA (Penney 2015: 76) identified four aspects of significant historic resources: 1) the

quarry itself as an early 20th century industrial site; 2) The Block town site; 3) landscape modifications; and 4) Aguathuna as geological attraction. GPA also noted the safety risks associated with access to the quarry including loose material eroding at the 'lips' of the quarry and three conveyor openings (Penney 2015: 77). GPA recommended the openings be capped but it is not known whether this has since occurred.

Another historic period industrial site situated 2 km east of Aguathuna Quarry and which interacts directly with the 230 kV transmission line is the Lead Cove Mine Site (DdBq-05). It is a late 19th century drift mining tunnel at the base of the cliff opening onto the beach. According to Howley ([1873] 2009: 264-265), a mining promoter named Charles Fox Bennett started to mine galena there but as soon as it became promising, a French commander from a nearby fishing station felt the operation would infringe on their fishing rights, forcing the venture to be abandoned.

The Blanche Brook Site (FoSs-23), located on the mainland north of Stephenville but still within the Port au Port ecological subregion, is designated as a significant palaeontological site with protected status due to the prevalence of well-preserved tree and other plant fossils. The site interacts directly with that portion of the Project Area where the 230 kV transmission courses eastward from Port au Port peninsula to the Stephenville hydrogen / ammonia plant. According to site records, fossil occurrences span 3 km up the brook from where it is crossed by Route 460 and there is potential for fossils to be within 50 m on either side of the brook. The PAO also recommends a setback of an additional 20 m from this 50 m zone (email dated June 29, 2023). As such, the potential for fossil resources to be affected by Project-related ground disturbance in this area is considered high. It should also be noted, however, that given the prevalence of limestone bedrock throughout the Port au Port region and the Carboniferous shales of the Codroy Valley, both of which are well known for containing fossil remains, together with the observations of fossils made by GPA at the Aguathuna Quarry (Penney 2015), the potential for fossils to be encountered by Project activities anywhere within the Project Area is elevated.

With respect to the thirteen registered shipwrecks within the Study Area, eight of these are in the Port au Port region and all but three of the thirteen date to the 20th century. The three oldest shipwrecks include two from the late 18th century near Cape Ray and one that is possibly the remains of a Basque vessel at Black Bank near the mouth of St. George's River. None of the known shipwreck's interact with the Project Area but they illustrate the theoretical potential for unknown Historic Period wrecks near the marine-based areas of the Project, particularly near the shorelines around East Bay (Port au Port Bay), Little Port Harmon, and St. George's River. In relation to this, the remains of fishing stations associated with Historic Period migratory fisheries is another site-type that could theoretically be found interacting with the marine-based components of the Project.

3.2.2 Codroy Wind Farm

The proposed Codroy wind farm is located in the Codroy ecological subregion in the Anguille Mountains of the Codroy Valley (Figure 1.1). The Anguille Mountains are part of the Long Range Mountains from Cape Anguille along St. Georges Bay. The U-shaped Codroy Valley is evidence of a rich glacial history that formed a rugged and mountainous region characterized by steep slopes and deep protected valleys that are climatically the warmest on the Island (PAANL 2008). The subregion is heavily forested, primarily

with balsam fir, and is covered with lush, fern-dominated vegetation due to the rich soils formed from glacial deposits and runoff. The region's wildlife is among the most diverse on the Island, particularly for migratory birds (PAANL 2008). The valley is drained by the Grand and Little Codroy rivers and is underlain by Carboniferous shales. The Grand Codroy River system provides a thoroughfare for travel between the south coast and St. Georges Bay.

Known archaeological sites in this area are primarily concentrated in the south along the coast and near the mouth of the Grand Codroy River. Many of these sites were identified during the Katalisk Archaeological Survey and include a mix of historic European and pre-contact sites attributed to Dorset Pre-Inuit and Recent First Nation occupations (Penney 1994). Closer to the proposed Codroy wind farm, only one registered archaeological site interacts directly with the Project Area with the next nearest site being more than 3 km away. The paucity of known sites in proximity to this part of the Project could be attributed to a combination of biases in archaeological research, which disproportionally favours the coast, and the rugged topography of the region, which might have impeded field surveys. It is also understood that historic period European groups comprised of French, Irish, English, and predominantly Scotch settlers, who arrived in the mid-19th century, tended to avoid these more elevated and rugged areas of the region. As agrarian communities, they favoured the protected valley floors with rich soils near major waterways such as the Grand Codroy River and laid the foundations for the established communities that dot the valley today (Ommer 1973). Pre-contact and Historic Period Indigenous groups are also not likely to have strayed too far from the abundant resources of the valleys, but temporary encampments from logistical forays (Binford 1982) could still potentially be encountered in the mountainous areas pertaining to caribou hunting, trapping, tool-stone acquisition, and the harvesting of edible plants and balsam fir for fuel and construction.

The Codroy Pond C-54 Site (DaBr-01) is the only site that interacts directly with the Codroy wind farm Project Area. It comprises a Douglas C-54A Skymaster aircraft wreck that crashed in the mountains as it made its way to deliver cargo and supplies to Harmon Air Force Base in 1944 (Deal and Hillier 2007). As of 2006, many pieces of the wreck still remained at the site, but it had been subjected to looting and it is unclear what amount of material still remains there today. The location of the crash site is at a distance of approximately 200 m from the location of a proposed wind turbine and has a 50 m regulatory no disturbance buffer.

3.2.3 Port of Stephenville Hydrogen / Ammonia Plant and Port Facilities

The Port of Stephenville hydrogen / ammonia plant and port facilities will be located on privately-owned land at the Port of Stephenville on a property already designated for industrial use. Based on a review of aerial imagery including historic air photos from Natural Resources Canada (NRC 1949), the landscape around the site has undergone extensive previous development, modification, and disturbance since it was constructed by the US Corps of Engineers in the early 1950s after which it served as a base for naval, commercial, and government marine operations for national and international users (Port of Stephenville 2023). The overall property is known locally as the Abitibi Mill site. From 1970 to 1973, the Linerboard Mill was located there before it closed in 1977 and was subsequently acquired by Abitibi-Price in 1979. They eventually became the Abitibi-Consolidated Company of Canada and converted the facility to a newsprint operation up until 2005. Demolition and limited site rehabilitation was conducted during

2007 and 2008. This industrial area is considered a brownfield and still contains several large above ground bulk fuel and liquids storage tanks and piles of demolition debris with the most visible components being piles of broken concrete with rebar scattered over the old plant site.

Although the area in and around the barriered lagoon could have been attractive for Pre-contact and Historic Period use, the areas specifically where the plant and port facilities are proposed appear to have been stripped away of original soils that might have contained historic resources, particularly for the plant site property and the southeastern shoreline of the lagoon where extensive modifications to the land has occurred. The nearest registered sites to this part of the Project include the Seal Cove Site (DdBo-01), a Recent First Nation occupation, and the Rosalie Mage Site (DdBp-05), a 1942 freighter shipwreck. Both of these sites are between 2 - 3 km away from the Project Area along the Indian Head coastline.

3.3 HISTORIC RESOURCES FROM THE TRADITIONAL LAND AND RESOURCE USE STUDY

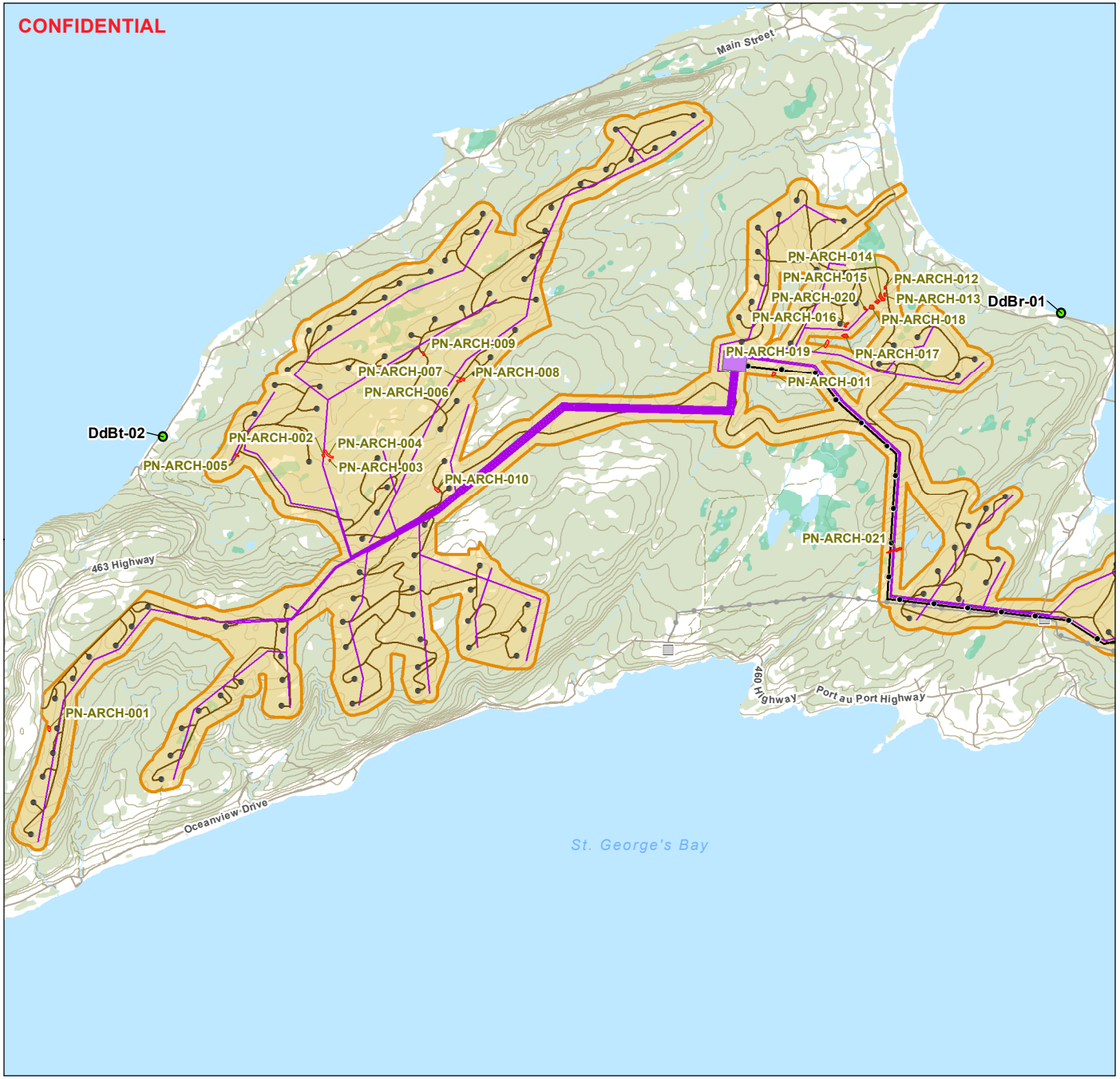
As part of the Project's environmental baseline studies, a Traditional Land and Resource Use (TLRU) study was conducted. Qalipu First Nation (QFN) was commissioned to gather the TLRU baseline data that was outlined in a report (QFN 2023). QFN have identified several current use sites (e.g., Mi'kmaq village sites, harvesting sites, cultural and spiritual sites / features, etc.) within or near the Project Area. These sites were all represented as 10 km² polygons in consideration of data sensitivity and user anonymity (QFN 2023: 5). Due to the generalized nature of the spatial data reported in the TLRU study, it is not possible to discern the precise location of each of the current use sites, nor is it possible to calculate the exact distance between these current use sites and Project components. As a result, it is unclear if one or more of these current use sites would be directly affected by Project-related ground disturbance and / or land clearing activities during the construction phase. This HROA conservatively assumes that one or more of the current use sites identified in the TLRU study may be situated within or near Project footprints (QFN 2023). Assessment of whether the activities or features associated with these sites are of the type that would leave an archaeological footprint is undetermined.

4.0 ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL WITHIN THE PROJECT AREA

Five registered archaeological sites and one registered palaeontological site have been inventoried for a total of six (6) known historic resource sites within the Project Area. These known sites support theoretical potential for unknown historic resources elsewhere within the Project Area, including the potential for historic resources relating to fossils, or to human activity from any period and culture within the last 5,000 years of human occupancy on the Island of Newfoundland. Some potential may have been reduced by the impacts of development; including industrial development or the flooding of rivers and lakes for hydroelectric projects. Potential may be particularly high, however, on dry, level, habitable terrain, particularly near coves or points of land and constrictions in waterways, stream mouths and confluences, falls, and rapids.

As detailed in the aquatics baseline study (Stantec 2023), the Project will involve approximately 600 watercourse / waterbody crossings. With a Project Area of this magnitude, an effort was made to refine the scope of the assessment of archaeological potential by excluding proximity to specific watercourse / waterbody types that are not necessarily conducive to past human activity. These include watercourses defined as overland drainages (i.e., slopewash) and those documented with no visible channels. For waterbodies, bog holes were excluded from consideration. Data-driven archaeological modeling suggests that known sites do not appear to be affiliated with water features exhibiting these characteristics. On the other hand, special attention was given to areas within 50 m of all major watercourses and coastal areas within the Project Area as well as fish-bearing streams and lakes which were favoured by Pre-contact and Historic Period peoples.

Review of mapping overlays that combined aerial imagery, topographic hillshades generated from 5 m DEMs, refined aquatics data, and known historic resource baseline data led to the identification of seventy-seven (77) locations within the Project Area with potential to yield historic resources. Other topographic characteristics such as steep slopes, aspect, and elevation were also considered during the assessment. Areas of elevated potential that have been identified are subdivided into three main categories: 'Medium', 'High', and 'Known' Areas of Historic Resource Potential. For this HROA specifically, the 'Medium" potential category refers to areas within the elevated, mountainous portions of the Project such as found at the Port au Port West and East collector systems and the Codroy wind farm (Anguille Mountains) where evidence for transitory activity areas or temporary encampments from logistical forays by past peoples might be found. The 'High' potential category refers to those areas more conventionally understood to be favoured by past groups characterized by proximity to various amenities. The latter 'Known' potential category refers to areas where the Project interacts with known sites. It should be noted that although these areas all lie within the Project Area, several of these locations may not interact directly with Project components that require ground disturbing activities. The Figure 4.1 map series below shows the areas of elevated historic resource potential within the Project Area.



Stantec

Archaeological Potential Area
- Medium Potential
- High Potential

Known Historic Resources
- Archaeological / Ethnographic Site

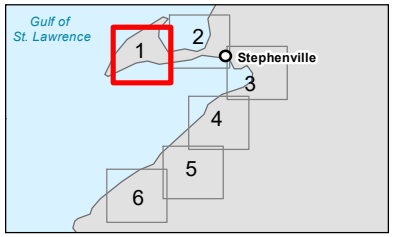
Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Collector Line
- Access Road
- Substation
- Project Area

Other Features
- Substation, Existing
- Transmission Line, Existing
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

0 1.5 3 km
(At original document size of 8.5x11)
1:130,000

Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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CONFIDENTIAL

Figure No.
4.1

Archaeological Potential Areas - Port au Port West

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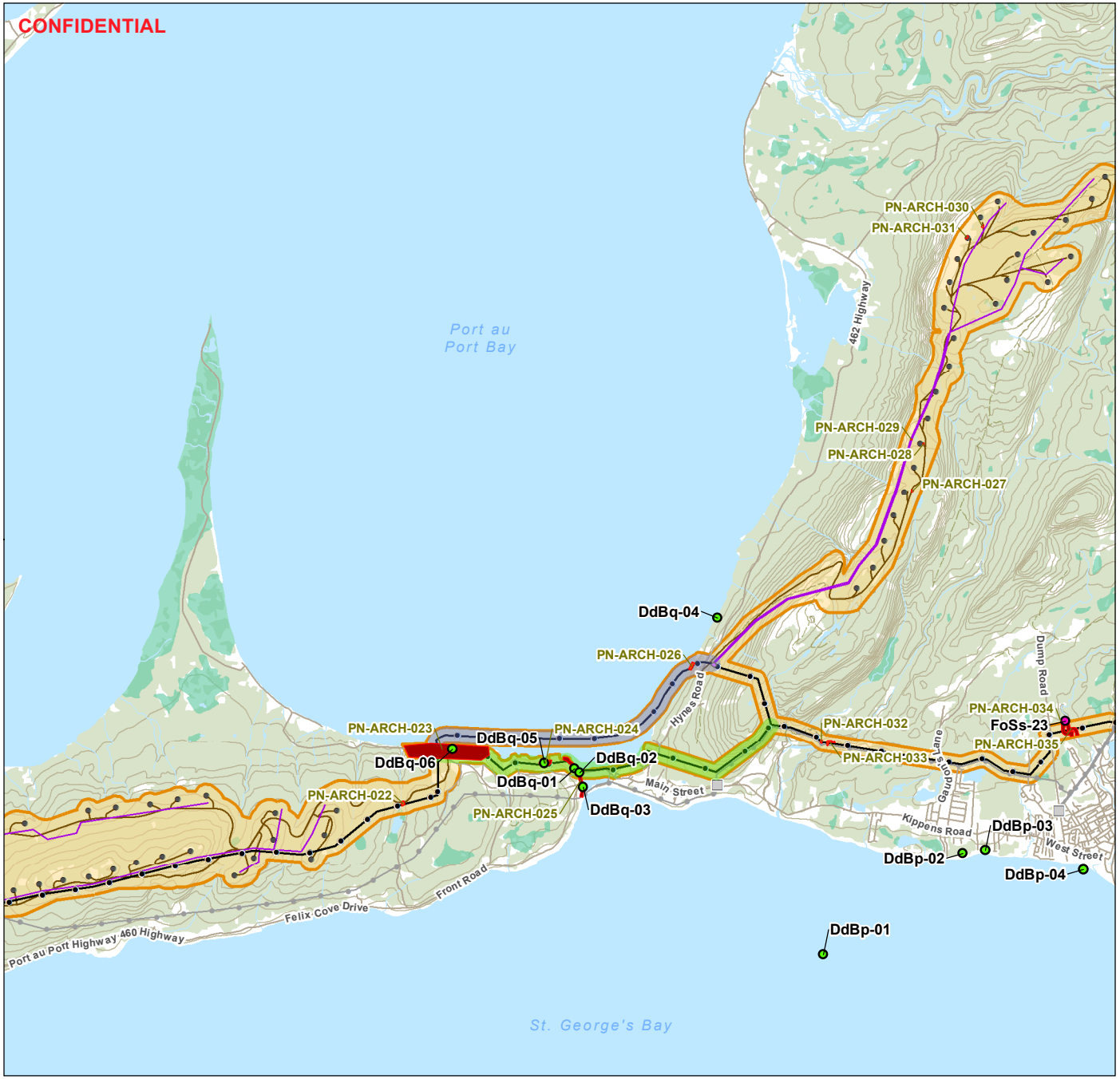

Stantec

Archaeological Potential Area
- Medium Potential
- High Potential
- Known Potential

Known Historic Resources
- Archaeological / Ethnographic Site
- Fossil Site

Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Port au Port Interconnection
- Proposed Route
- Alternate Route
- Collector Line
- Access Road
- Substation
- Project Area

Other Features
- Substation, Existing
- Transmission Line, Existing
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

0 1.5 3 km
(At original document size of 8.5x11)
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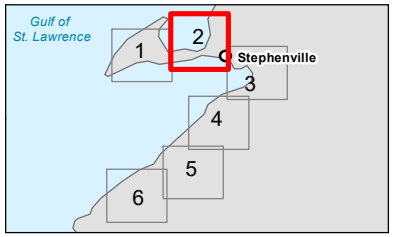


Project Location
Stephenville
NL

Prepared by MR on 7/11/2023
QR by AW on 7/11/2023

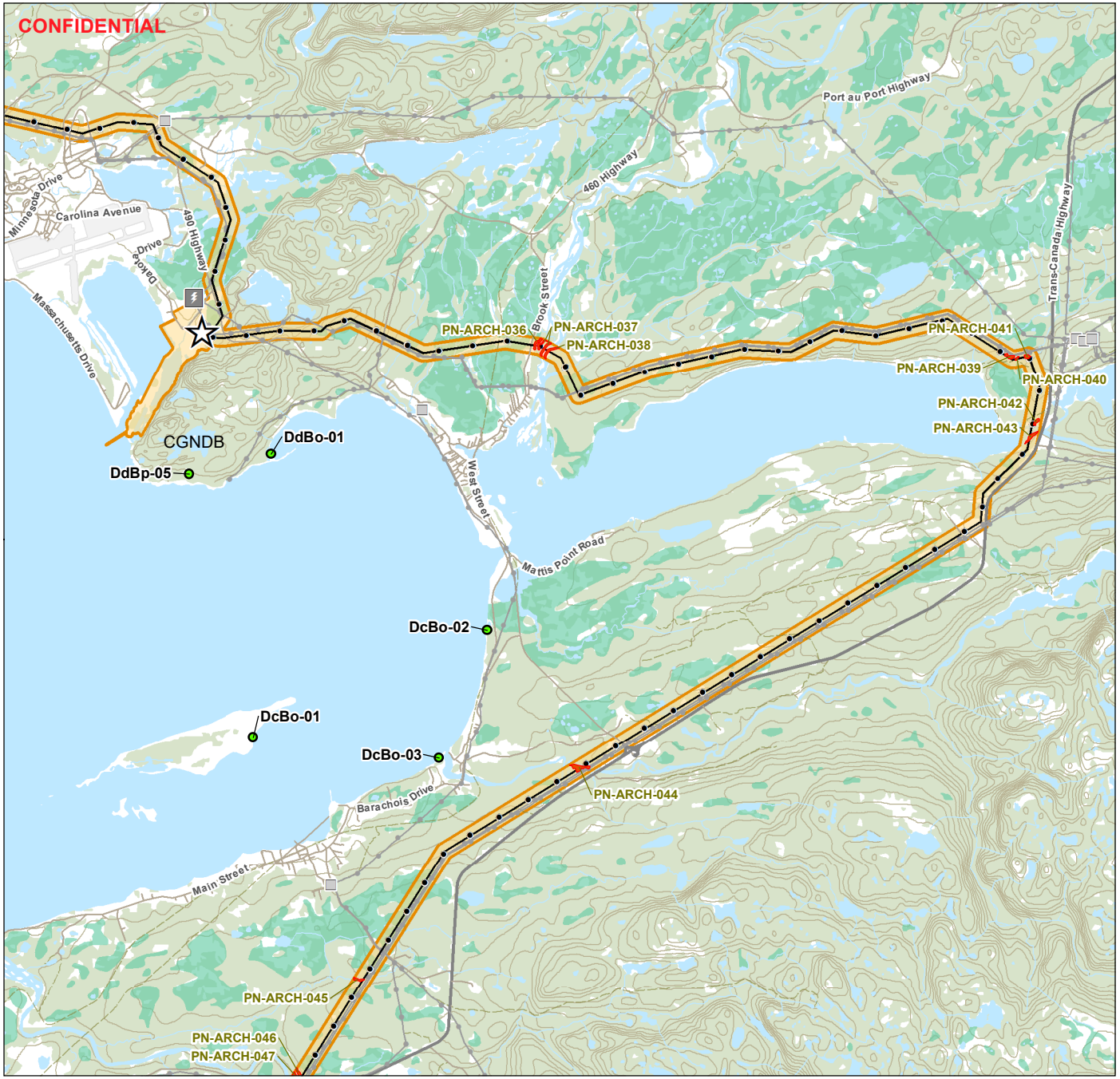
Client/Project
World Energy GH2
Project Nujio'qonik

121417233_0022c

CONFIDENTIAL

Figure No.
4.1

Archaeological Potential Areas - Port au Port East



Stantec

Archaeological Potential Area
- High Potential

Known Historic Resources
- Archaeological / Ethnographic Site

Proposed Project Features
- Hydrogen / Ammonia Plant Location
- Transmission Line 230 kV
- Project Area

Other Features
- Substation, Existing
- Electrical Generation, Existing
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

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(At original document size of 8.5x11)
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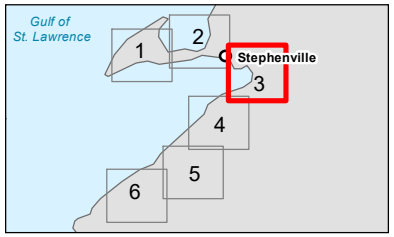
Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
3. Background: NRCan CanVec



Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
4.1

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Archaeological Potential Areas - Port of Stephenville

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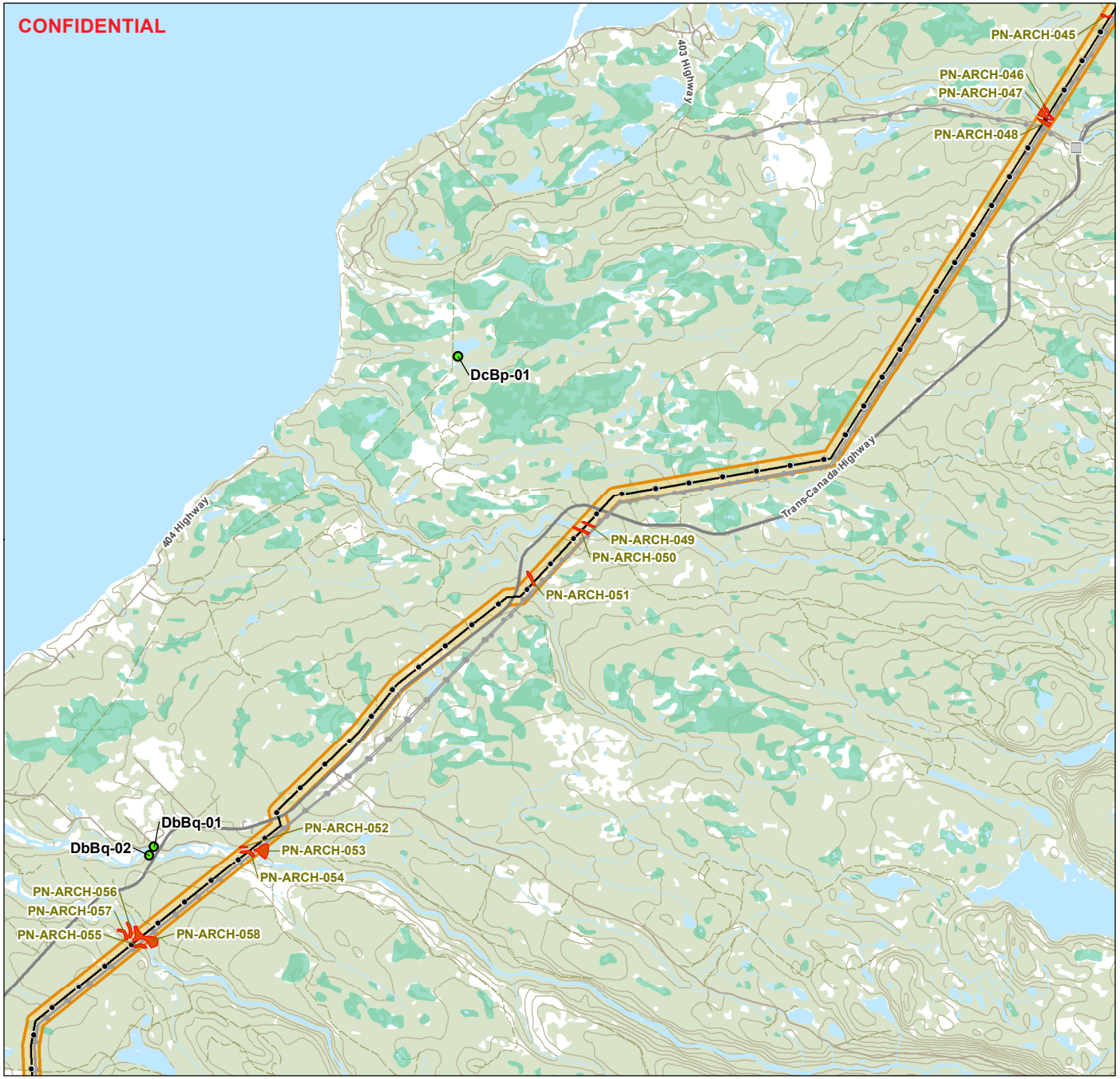

Stantec

Archaeological Potential Area
- High Potential

Known Historic Resources
- Archaeological / Ethnographic Site

Proposed Project Features
- Transmission Line 230 kV
- Project Area

Other Features
- Substation, Existing
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

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(At original document size of 8.5x11)
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Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
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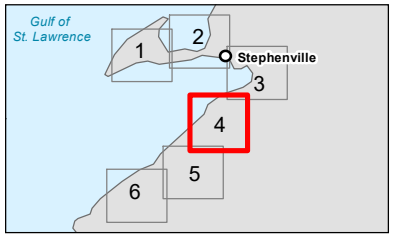

Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
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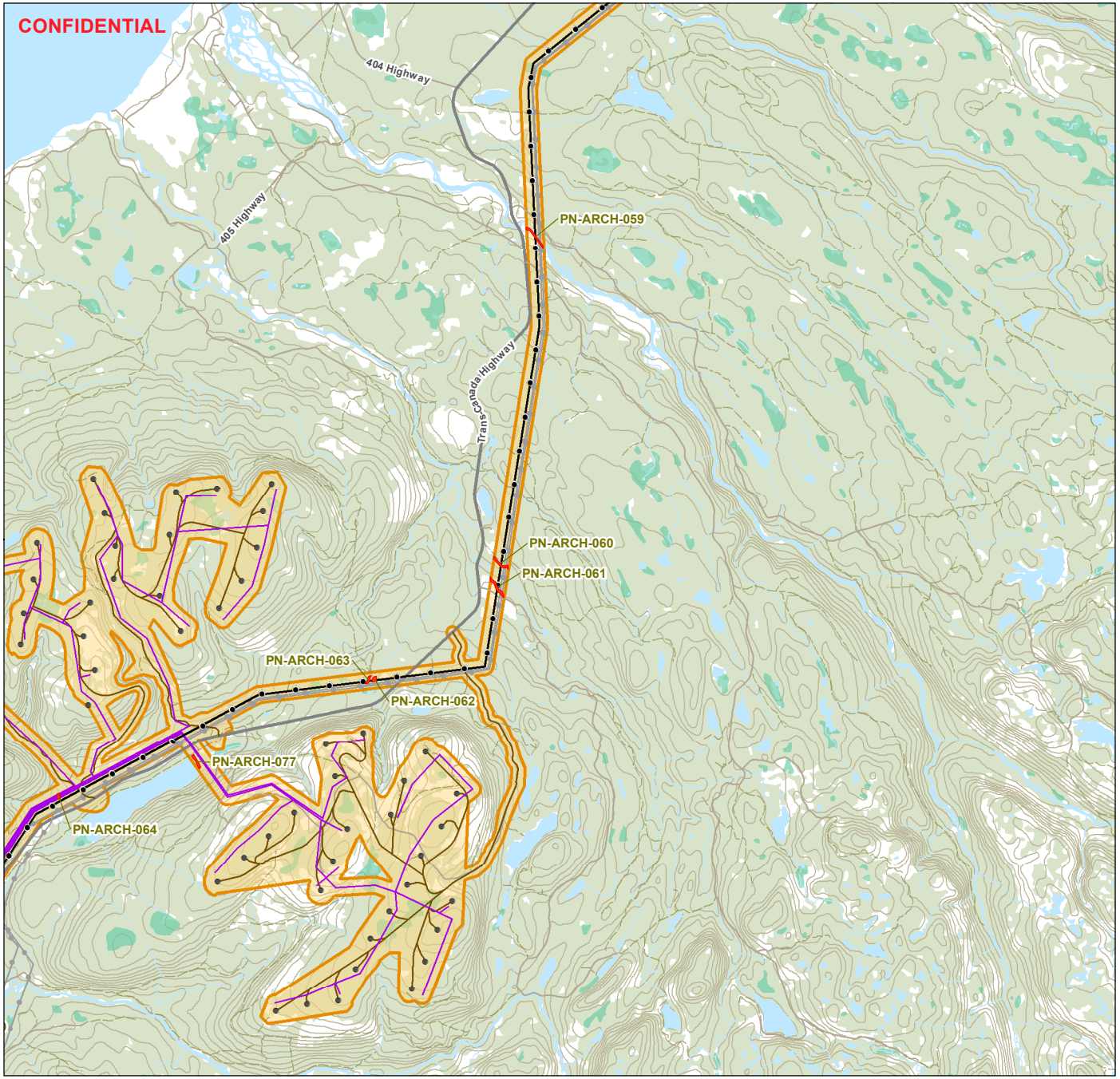
Archaeological Potential Areas - Fischells



Stantec

Archaeological Potential Area
- High Potential

Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Collector Line
- Access Road
- Project Area

Other Features
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

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(At original document size of 8.5x11)
1:130,000

Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
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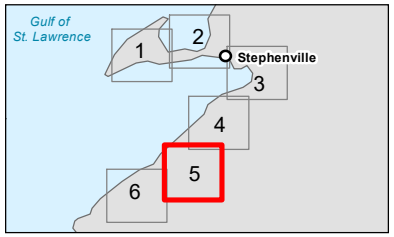

Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
4.1

Archaeological Potential Areas - Highlands

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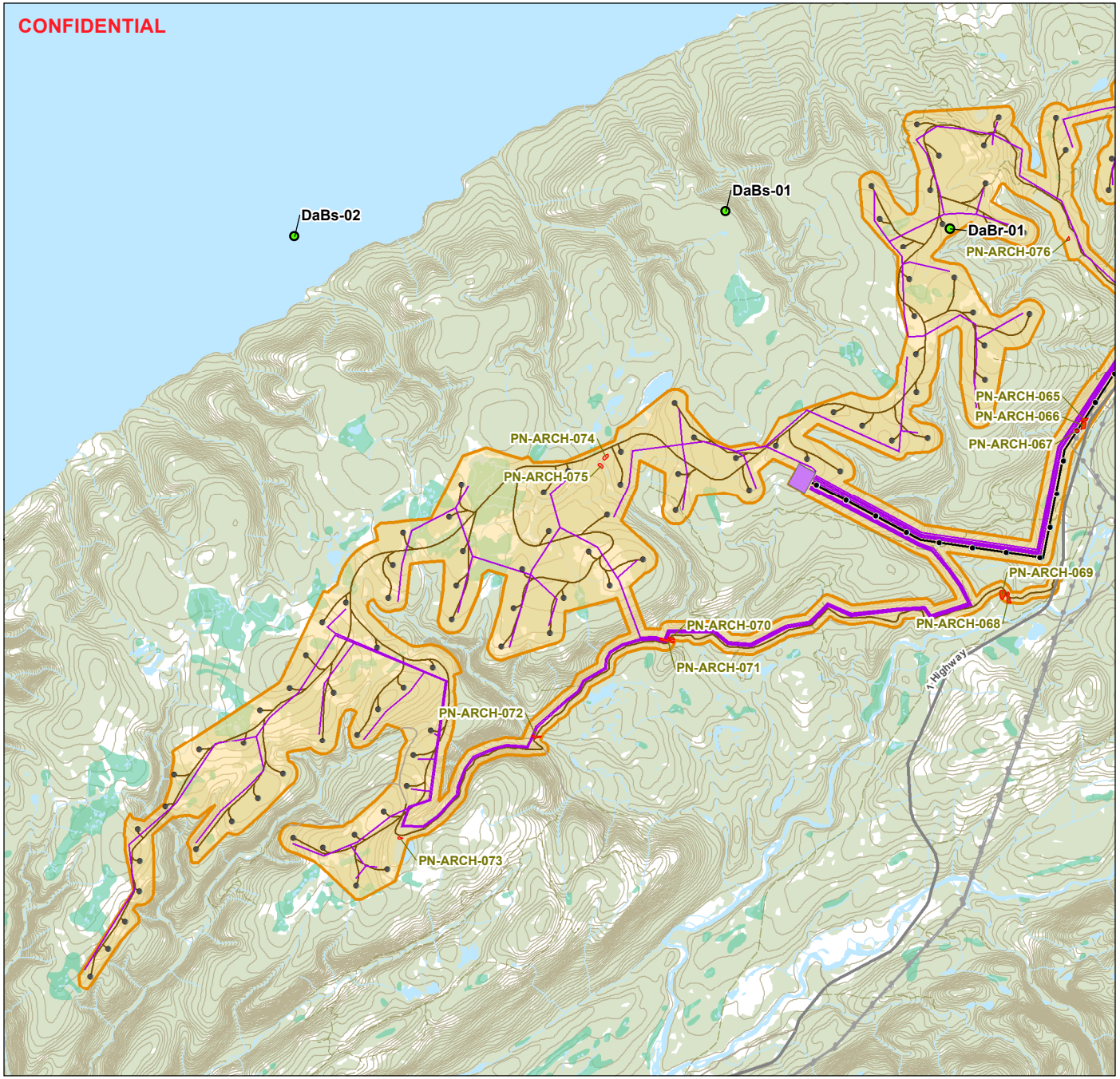

Stantec

Archaeological Potential Area
- Medium Potential
- High Potential

Known Historic Resources
- Archaeological / Ethnographic Site

Proposed Project Features
- Turbine Location
- Transmission Line 230 kV
- Collector Line
- Access Road
- Substation
- Project Area

Other Features
- Transmission Line, Existing
- Trans-Canada Highway
- Road
- Resource Road / Trail
- Contour (20 m)
- Watercourse
- Waterbody
- Wetland
- Forested Area

N

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(At original document size of 8.5x11)
1:130,000

Notes
1. Coordinate System: NAD 1983 CSRS UTM Zone 21N
2. Data Sources: World Energy GH2, PAO, NRCan CanVec, OpenStreetMap
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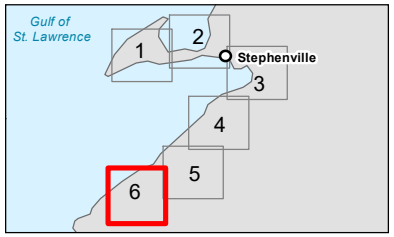

Project Location
Stephenville
NL

Prepared by MR on 7/7/2023
QR by AW on 2023-07-07

Client/Project
World Energy GH2
Project Nujio'qonik

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Figure No.
4.1

Page 6 of 6

Archaeological Potential Areas - Codroy

5.0 CONCLUSIONS AND RECOMMENDATIONS

This HROA has identified six registered historic resource sites within the Project Area including five archaeological sites and one palaeontological site. These sites will have a regulatory "no disturbance" setback or buffer zone of 50 m around them by default in the case of archaeological sites. For the palaeontological site, known as the Blanche Brook Site (FoSs-23), there is a regulatory setback of 70 m from the shorelines of Blanche Brook. In addition to known historic resource sites, review of regional archaeological data indicates that the Project Area has broad theoretical potential for archaeological resources pertaining to most, if not all, of the cultural affiliations of the Pre-contact and Historic Periods. Review of mapping overlays has identified seventy-seven (77) locations within the Project Area with the potential to yield historic resources. It is understood that the Project's design team will have the opportunity to review the HROA's baseline data for known sites and areas of elevated historic resource potential prior to the construction phase of the Project and, to the extent possible, make design changes that could potentially avoid Project-related ground disturbance that would otherwise interact with these areas.

With this in mind, the primary recommendation of this HROA is the avoidance of known historic resource sites (and their buffer zones) as well as areas of elevated historic resource potential by Project-related ground disturbance or land clearing construction activities.

If avoidance is not possible, specifically for areas of 'Medium' or 'High' historic resource potential, then it is recommended that a field-based archaeological reconnaissance (i.e., ground-truthing) be undertaken prior to construction activities to re-evaluate these areas for historic resource potential. Should it be determined during archaeological reconnaissance that the potential for historic resources in any of these areas remains elevated, then it is recommended that additional mitigation (i.e., judgmental shovel testing) be conducted prior to construction. In the interest of efficiency, and due to the relatively isolated nature of many of these locations with some access requiring the use of a helicopter, any shovel testing effort should be implemented during the field-based ground truthing assessment.

If avoidance is not possible, specifically for the areas of 'Known' historic resource potential, then it is recommended that additional mitigation be conducted in consultation with the PAO, which could include aerial excavation and documentation of the known resources.

With regard to the two options being explored for the 230 kV cable route crossing at the Port au Port isthmus, should WEGH2 decide on the subsea cable route across East Bay, a marine-based field assessment is recommended prior to construction to determine if historic resources are present along the route, or at least in proximity to both cable landings, which could otherwise be adversely affected.

It is further recommended that the Project's Environmental Protection Plan include the development of a Historic Resource Protection Plan to mitigate the potential for adverse effects on historic resources resulting from accidental discovery.

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