

Evaluation of Land Parcels (Existing and Proposed)

**Component Study
Environmental Impact Statement
Cavendish Cattle Farm
Registration # 2002**

Volume 1

January, 2022

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Evaluation of Land Parcels (Existing and Proposed) March 31

Component Study Environmental Impact Statement Cavendish Cattle Farm Registration # 2002

This Component Study requires an evaluation of suitable land in the area, which shall include but not limited to, a description and mapping of:

- a) Wetlands and type
- b) Forestry domestic cutting areas
- c) Suitable lands for forage production
- d) Water flow direction and connection to adjacent water systems
- e) Locations of municipal water mains and residential lines; and
- f) Proximity to residential, commercial and tourism related operations/assets
- g) Zoning; Land use designations (not included in the EIS Guidelines)

1) Rationale/Objectives

The rationale/objectives of the evaluation of the land parcels are to obtain a thorough understanding of the natural resource base, the existing and proposed uses of natural resources, the land use designations which guide the use of resources and the suitability of land for forage use from an agronomic and environmental perspective.

2) Study Area

The Study area, (Map 1) is rectangular shaped, approximately two kilometres along Trinity Bay and three kilometres from the ocean in an eastward's direction, including the existing Viking Fur Farm (buildings, pasture and forage lands.) The original application for Agricultural Crown Land Leases included about 120 hectares of which approximately 60 hectares was proposed to be cleared for pasture and forage. In other words, less than 20% of the Study area is proposed for land clearing. This detailed study area includes the foot print of the existing and proposed farm expansion, along with adjacent lands.

3) Methodology

The preparation of the component study included the collation of information on land resources, water flows, resource use, existing land use and land use planning/designations which control the development of private and granted land. This information was combined with additional information collected in the field and in consultation with resource managers. Such information is basic to a planning process for integrated multi use land development,

Study Area and Lot layout

Map 1

Existing Agricultural Leases (letters) and applications for leases (numbers)
Detailed Study Area

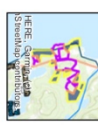


Viking Fur Inc., Cavendish, NL
Index

NTS Reference: N114
M10, 300, 100, 200, 200
Township: Miramichi
Department of Fisheries and Aquaculture
Agriculture and Lands Branch
April 13, 2020

Legend	
	Farm Road
	Private Road
	Upland Road
	Lease Boundary = 276.1, 307112.1 ha
	Application Boundary = 260.4, 307117.2 ha
Landuses	
	Dampground = 14.18ac (5.7ha)
	Channel Land = 108.50ac (43.7ha)
	Road Area = 2.88ac (1.1ha)
	Tree Island = 2.29ac (0.9ha)
	Wetland = 2.27ac (1.1ha)

Area Converter: 1 Ha = 2.47 Ac
Designed for Illustrative Purposes Only
Amended by H. Scamm, Nov. 2021.



1:12,500
0 75 150 300 450 600
Meters

4) Study Outputs

The interpretation of the information collected in this Component Study will facilitate the preparation of a plan for ongoing and future resource use in the Study Area. The information will allow for the fine tuning of the land proposed for farm expansion in respect to land suitability, environmental buffers, identification of sensitive environmental areas and commitments to ongoing resource use, notably domestic wood cutting. Along with mapping, the section will provide an overview land and water resources which will be used to propose adjustments to the proponent's farm expansion plans.

5) Background

5a) Topography

The topography of the Avalon Peninsula varies considerable ranging from the central lowlands of the interior to the highlands which dominate the arms of the Peninsula. In a few places the uplands are rocky and rugged but generally they are a rolling plain of low relief.

The land along the eastern side of Trinity Bay, including the Study Area consists primarily of low, rolling hills with bedrock ridges. Generally speaking, it slopes gently westward to the Trinity Bay coastline. Much of the study area has low relief, however the land east of the project area rises sharply to an elevation of 130 metres (1).

5b) Vegetation

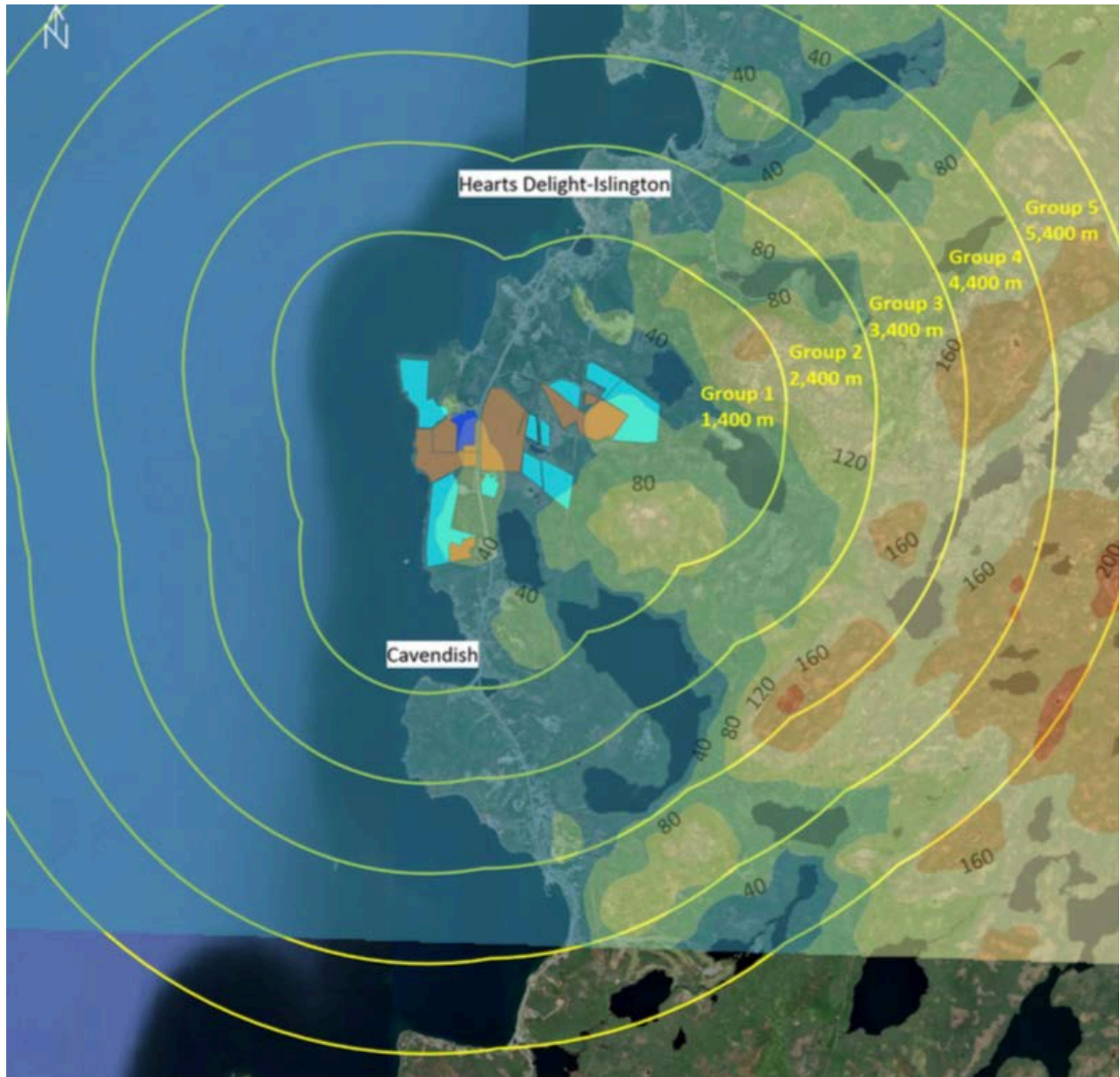
On the Avalon Peninsula balsam fir is the dominant species of trees found on well drained ridges. White spruce can be found on the moderately well to well drained sites with black spruce on the poorer drained soils. Generally, the best fir stands are in the central part of the peninsula with black spruce dominant in the north. Birch trees are more likely to be found amongst stands of fir. The study area is reflective of the description of the Avalon Peninsula, however there is an absence of birch trees. Heath and barrens occupy 34 % of the Avalon Peninsula; organic soils (bog) occupy 12 percent of the Peninsula.

5c) Ecoregion

The proposed Forestry Management Plan for the Avalon Peninsula, 2022-2026 explains that Damman 1979 defined ecoregions as areas where comparable vegetation and soil can be found on sites occupying similar topographic positions and parent material provided the sites have similar history of disturbance (2). The Trinity/Conception Bay Peninsula is referred to as the Maritime Barrens Forest Ecoregion, which is characterized but cool, foggy and windy summers and relatively mild winters. The most productive forests are on long slopes in

Map 2

Visual of Terrain of the Study Area.



1)

5d) Drainage

The abundance of precipitation combined with cool temperatures and generally complex/uneven topography has resulted in a landscape which is dominated by many lakes and water courses. Approximately 9% of the Avalon Peninsula is covered with water.

The uneven terrain, contains various small depressions or basins. The drainage of these depressions depends on the porosity and stoniness of the soil and the extent of bedrock. The surface soils, particularly on slopes/ridges are generally porous, however with heavy rainfall or long periods of wet weather causing saturated soil conditions, moisture will runoff. The runoff is extensive and typically accumulates at or near the bottom of hills. This is particularly the case where soils are impermeable or bedrock is close to the surface. Sedge-sphagnum bogs are typical of these poorly drained slopes and depressions.

6) Introduction

The following is an evaluation of land as specified in the EIS Guidelines. (Guidelines) In addition to the items identified in the Guidelines, the proponent recognized the importance of adding a section on zoning/land use designations which explains existing land use controls and help to explain resource and resource use in the Study Area.

6a) Wetlands and type

A wetland is defined as: land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, vegetation which grows in wet conditions and various kinds of biological activity which are adapted to a wet environment (3).

There are two broad categories of wetlands including organic wetlands, which are commonly referred to as peat lands or bogs and mineral wetlands which are formed where an excess of water collects on the surface of mineral soils.

Organic wetlands include bogs and fens and are typically located on flat, poorly drained terrain, Wetlands are characterized by organic deposits greater than 40 cm deep and build up slowly due to wet, cool conditions with little or no oxygen. They can be open, shrubby and occasional (in Newfoundland) treed.

Within the Study Area, the 1:50,000 National topographical maps identify two areas of wetlands by the names of Sooleys Marsh and Highland Marsh. These two marshes are organic wetlands, or more simply, peatlands or generally referred to as bogs.

These peatlands, as illustrated on Map 3 are located within the project area, however Viking will not develop these areas for agricultural or any other purposes. Buffers will be maintained between the mineral soils planned for farm use and the peat lands. (notably lots 3 and 4.)

Bogs are peatlands that receive water only through precipitation. Bogs are nutrient poor and isolated from groundwater and surface run-off. Bogs are stagnant, non-flowing systems and have low plant diversity due to low nutrient availability. The surface of a bog is typically 'dry' (not much standing water), but with a thick ground cover of sphagnum mosses. Some bogs contain stunted black spruce and low-lying shrubs. (4,5).

Fens are peatlands which receive water from a combination of precipitation, surface runoff and groundwater. They are more nutrient rich than bogs because of surface and groundwater inputs and have greater plant diversity. Fens can be nutrient rich or nutrient poor depending on water sources and nutrient availability. Nutrient-poor fens more closely resemble bogs, while nutrient-rich fens have more diverse and robust vegetation. Fens have a complex hydrology with high water tables and can transport large volumes of water and nutrients across the landscape often connecting wetlands systems over long distances. The vegetation in fens is dominantly covered of graminoid (herbaceous plant with grass like appearance) and brown grasses (4,5)

The wetlands information described in Map 4 was adopted from an inventory developed by Northlands Associated in 1980 (6,7).

6.a.i) Interior Side of the Highway

Sooleys Marsh

Sooleys Marsh, (Peatland) is located north of Round Pond, bordered by a developed Agricultural Crown Land Lease, B2 and proposed, Lease 4b. (Map 1) The peatland is approximately 31 hectares (77 acres) in size. (Map 3) The peatland /marsh is more particularly described as a combination of a domed bog and sloped bog. The sloped bog is located in the south eastern portion of the peatland, where it slopes and drains through a series of small ponds (flashets) towards Round Pond. The domed portion overlaps the former rail line as illustrated on Map 3.

Highland Marsh

Highland Marsh consists of approximately 16 hectares (40 acres) of sloped bog and 2.5 hectares (6 acres) of sloped fen. A brook cuts through the Highland Marsh in a south east/northwest direction where it eventually flows into Brook Cove Brook.

6.a.ii) Ocean side of the Highway

Peatlands

There are three areas of sloped bog located between the highway and the ocean, with a total area of 8.4 hectares (21 acres) One area of 2.8 hectares (7 acres) is located on an existing lease and has not been developed for farm use. The remaining areas have been excluded from Viking's application for Crown land.

Mineral Wetlands

There are five areas of mineral (soil) wetlands located on the oceanside of the highway. (Map 3) There are shallow deposits of organic deposits (less than 40 cm depth) in saucer shaped depressions. An evaluation of these sites will be used to determine decisions on whether to develop for rough pasture or whether they be deleted from applications for Crown land.

6.b) Forestry Domestic Cutting Areas

Many people in the Study Area burn wood to heat their homes. Throughout the communities along the Trinity Bay coastline, wood piles are an indication that access to fire wood is important to many residents.

The Province's Five-Year Sustainable Forest Management Plan for the Avalon Peninsula, 2017 to 2021 (Unit 1 Forest Management Plan) includes plans for the commercial and domestic harvesting of wood. In vicinity of the Study Area, the Plan identifies twelve domestic cutting areas consisting of approximately 2600 hectares (6400 acres) of land (2). The Plan states domestic harvesting of wood, in the District, will occur in designated cutting areas and is generally conducted on a small patch cut system. All domestic cutting is done under permit which has conditions attached that outline species, volume location and utilization standards. Most cutting occurs in the fall and winter with extraction by snowmobile or ATV. Domestic permit allocation varies from 7 to 9 cubic metres depending on the particular ecozone.

In the area of the proposed farm expansion, there are two domestic cutting areas, referred to as Valley Ponds. The site south of the Outside Island Cove Pond, accessed via Fox Farm Road overlaps one area of the proposed farm expansion. Of the approximate 225 hectares, (556 acres) in this designated Domestic Cutting Area, the farm has proposed to develop 27 hectares (67 acres) of land. (Map, 9) The other Valley Pond site is situated outside the Study area, east of Inside Island Cove Pond. The proponent does not have plans to apply for any of this cutting area for farm purposes. (2).

The third domestic cutting area located inland of Highway Route 80 is rectangular shaped, east of Long Pond and includes ridges of land referred to as Shoal Harbour Hill and Camels Hill on 1:50,000 topographical map. The site includes approximately 400 hectares (1000 acres) The proponent has no plans to apply for land in this domestic cutting area for farm development.

There are two small domestic cutting areas on the ocean side of Route 80, Cavendish and Cavendish 1-22. The northern piece overlaps Lot 1 which Cavendish Cattle Farm has applied to develop for pasture. The other parcel, located adjacent to the ocean in Cavendish, is not located in the detailed study area (9).

The Forestry Management Plan's (Plan) policy for agriculture recognizes a suitable land base is critical for a successful agriculture operation (9) Furthermore, the Plan recognizes the interest of individuals (the farmer) are prime factors in the development of farms. The Plan states "provisions must be given for the agriculture industry to expand." At the same time Government Forestry personnel have explained the Study Area along with other areas on the Bay de Verde

peninsula are under constant demand for uses of land which result in the removal of forested land from the land base. The demand for local fuelwood exceeds the supply for the Peninsula so “it is imperative” if the proposal is approved that access is maintained to allow residents to harvest timber before the land is developed for farm use (2). Google imagery of 2020 and field work in 2020 and 2021 reveal there has been significant tree harvesting in proposed parcels 4b, 5, 6 and 7.

Viking recognizes the importance of access to wood to residents in the area and the necessity of harvesting all wood suitable for domestic use from land allocated to the farm in advance of land clearing. Historically, the farm has allowed residents to cut and remove wood before the land was cleared and developed for farming. This cooperation has been a benefit to the farm and residents; residents acquire a wood supply and the farm has the wood removed before the farm initiates land clearing, including the removal of roots, non- merchantable wood and rocks /boulders.

Viking agrees with the Forestry Branch to reserve a formal right of way through lot 7/or along a boundary to ensure access to wood in lot 7 and east of the lot. Furthermore, the proponent will establish an access road suitable for typical wood harvesting equipment. Current public access to the southern portion of the block is done along traditional woods roads and the former trailway.

In regards to the northern Cavendish Cutting block which overlaps Lot 1 the proponent would work with the Forestry Branch to facilitate access to those who wish to harvest fire wood.

The Forestry Branch has provided the following breakdown as to the issuance of permits in the immediate vicinity of the detailed Study area. The Forestry Branch explained most residents will only cut wood in the immediate vicinity of their communities.

Cutting permits in the Whiteway, Cavendish, Hearts Delight Islington Area

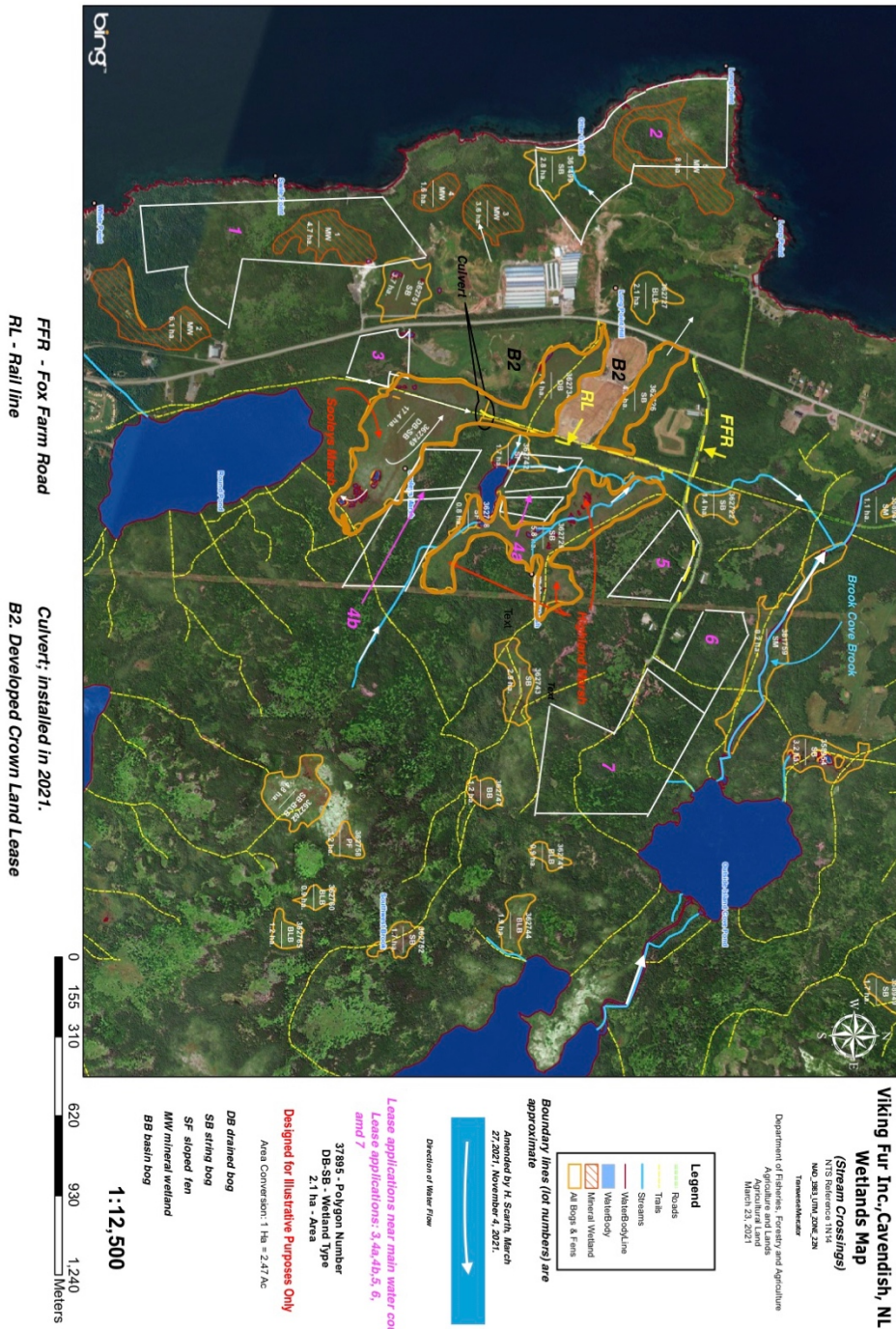
Table 1

Domestic Area	Name	2020	2019	2018	2017	2016
I-8D	Valley Ponds	54	78	66	58	58
I-9D	Tickle Ponds	33	48	45	48	51
I-22D	Cavendish	6	7	5	6	

10)

Wetlands and Stream Flow Direction

Map 3



6c) Suitable Lands for Forage Production

Although this section of the Environmental Assessment Guidelines focuses on lands suitable for forage production. This section also discusses the suitability of soils for pasture and forage.

6.c. i Soils

In most cases soils are made up of layers, referred to as horizons. A road cut provides the opportunity to view horizons, which on well drained sites one can observe a dark, duff, horizon on the top, then red soils and possible more of a grey colour on the bottom. All undeveloped soils in boreal forests are acidic and have low natural fertility

The horizons vary in thickness, stoniness, texture (a range from a clay to sandy texture) and drainage. In consideration of these properties, soil scientists are able to group the soils into broad categories of similar kinds of soils and then further define the soils in a more detailed breakdown. (subdivisions) These groups of soils, or map units, are named after a geographical area, such as a community.

6.a.ii) Soils in the Study Area

In the detailed Study Area, there are five map units which include the following soil groups:

- Torbay
- Hearts Content
- Cochrane Pond
- Pouch Cove
- Turks Cove
- Placentia Junction

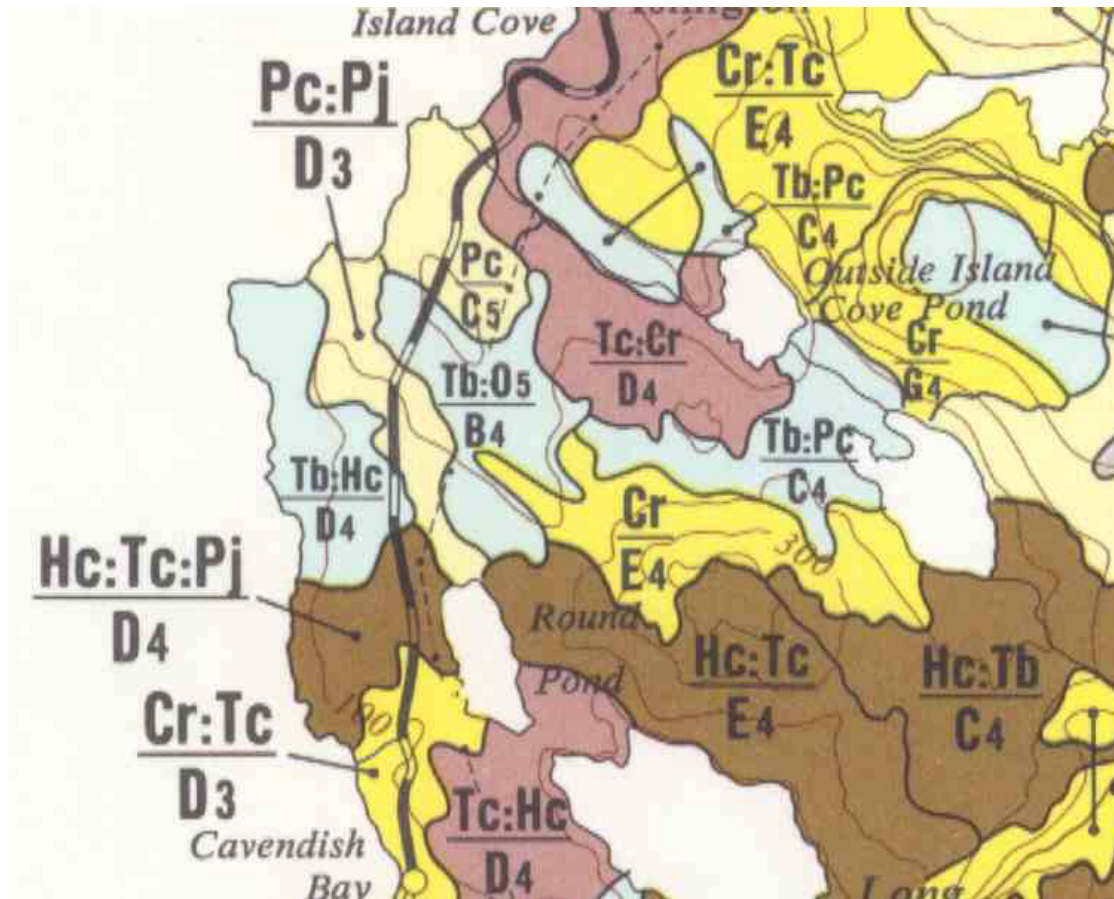
In some cases, there are combinations of map units and therefore the area includes a varied landscape with a wide range of soils and suitability for agricultural development. All the mineral soils are formed on glacial tills. The following is an overview of the map units/soil groups to provide a general description of soils in the Study area. This information was obtained from regional soil surveys and were adopted from: Soils of the Avalon Peninsula, Peter Heringa, 1981. (Heringa Report) (11)

Soil Map Units

Table 2

Map Unit	Topography	Drainage	Soil Depth	Land use
Cochrane Cr	Hilly terrain; slopes range from 5-20%	Well to rapidly well drained	35 to 60 cm	Most of the farming on the Avalon is on these soils
Hearts Content Hc	Rolling slopes range 5-20%	Moderately well on surface; internal drainage is imperfect	35-60 cm organic matters varies.	Use is limited by stoniness, topography and rockiness. Can be improved for pasture
Placentia Junction PJ	Moderate rolling; upper slopes 8-15%	Moderately good	35-60 cm	Suitable for hay and pasture land; better sites suitable for crop land
Pouch Cove PC	Undulating slopes; usually 2-10%	Imperfectly to well drained; imperfect to poor internally	As drainage becomes poorer; soil depth decreases	Generally exceedingly stony and wet. Can be improved for pasture and hay land
Torbay Tb	Level < 3 % slope	Surface drainage is poor	Shallow; organic soils can be in the 60 cm range.	With a few small areas used for pasture; these soils have little agriculture use
Turks Gut Tc	Slopes 4-30%	Good to rapid on surface	Similar to Cochrane soils	Historically used for pasture; stoniness varies

Overview of Soils in the Study Area Map 4



The Heringa Report is the result of a regional soils survey of the Avalon Peninsula, which provided a general overview of soils which could be used to identify areas of soils suitable for agricultural development. Larger scale surveys, more detail, were required to facilitate detailed farm development planning.

In regards to the Study Area, the above overview illustrates the variety of soil conditions in the area. Many of the areas are complex, with a combination of two groups. eg. Pc:Pj (Portugal Cove: Placentia Junction.) In this case, by looking at Table Map Units, one can learn that some of the area (Pouch Cove) is exceedingly stony and wet and that it can be improved for pasture and hay land; while the Placentia Junction Soils are moderately well drained and suitable for hay land and in some cases suitable for cropland. (vegetables)

Some soils, including Torbay soils, which are very wet and shallow, have limited potential for pasture. Meanwhile, east of the highway there are Cochrane soils, (and Turks Gut) soils which are reflective of the better soils on the Avalon Peninsula and representative of much of the

farmland on the Avalon Peninsula. One of the most important attributes of these soils is that they are “well to rapidly well drained” (11).

6.c.iii) Soil Suitability (Background)

In order to determine soils suitability for a variety of crops, such as forage/hay, vegetable crops and pasture, detailed soil surveys, including aerial photo interpretation and digging soil pits are used to determine soil properties which determine/influence the agricultural use of such soils. These soil properties include:

- Drainage
- Stoniness and boulders
- Texture (e.g. Coarse to fine (gravel to clay))
- Topography (slope length and steepness)
- Potential rooting zone (depth of soil)

Based on the soil properties, there are four levels of soil suitability for different types of farming. e.g., For pasture and hay/forage:

Soil Suitability Ratings

Table 3

A1	The map unit is suitable for a particular use. The soils of the map unit are relatively free of problems or limitations, or if they exist, they can be easily overcome.
A2	Suitable with moderate limitations for a particular use. The soils of the map unit have problems or limitations which can be overcome with good management and careful design. Input costs should be carefully assessed
A3	Suitable with severe limitations for a particular use. The soils of the map unit have problems or limitations which are severe enough to make use questionable because of costs of overcoming them or continuing problems expected from such use.
Unsuitable soils	The map unit is unsuitable for a particular use. The soils of the map unit have problems or limitations which are so severe that the inputs required to utilize the soil is too great to justify the effort under existing conditions.

The suitability ratings are based on soil and landscape characteristics. The following are not considered: size and shape of map unit, distances to market, location, farm size, land tenure, skill or resources of the operator (e.g., heavy equipment) and weather extremes.

The degree of suitability is determined by the most restrictive or severe rating assigned to any of the listed soil properties. For example, if the degree for suitability for a given crop is A1 for all but one soil property and that one soil property is in the A2 category, the rating for that soil is

A2. Some restrictions such as stoniness, low soil organic matter and poor drainage can be reduced or eliminated with good management practices, thus raising the rating class (12)

6.c.iv) Soil Suitability for Proposed Forage and Pasture Expansion Areas.

The Provincial Agrifoods Branch has conducted detailed soil surveys of the Farm and expansion area. Soil suitability ratings for forage (hay) and pasture use were determined for the land which the farm has applied to expand their pasture and forage land base.

Map 5, forage suitability, explains the land suitable for forage (hay) production is primarily located on the east side of Route 80. The soils are identified as A3 soils which have severe limitations for the production of forage. Although the land has severe limitations, the Farm has been successful in developing similar and adjacent lands for forage production. Heavy equipment has been used to remove boulders and rocks. Subsequent improvements in levelling the land have allowed the use of a broad range of farm equipment required to produce a forage crop. The availability of mink manure and farm produced compost have been essential contributors to of improving soil quality, tilth, and fertility.

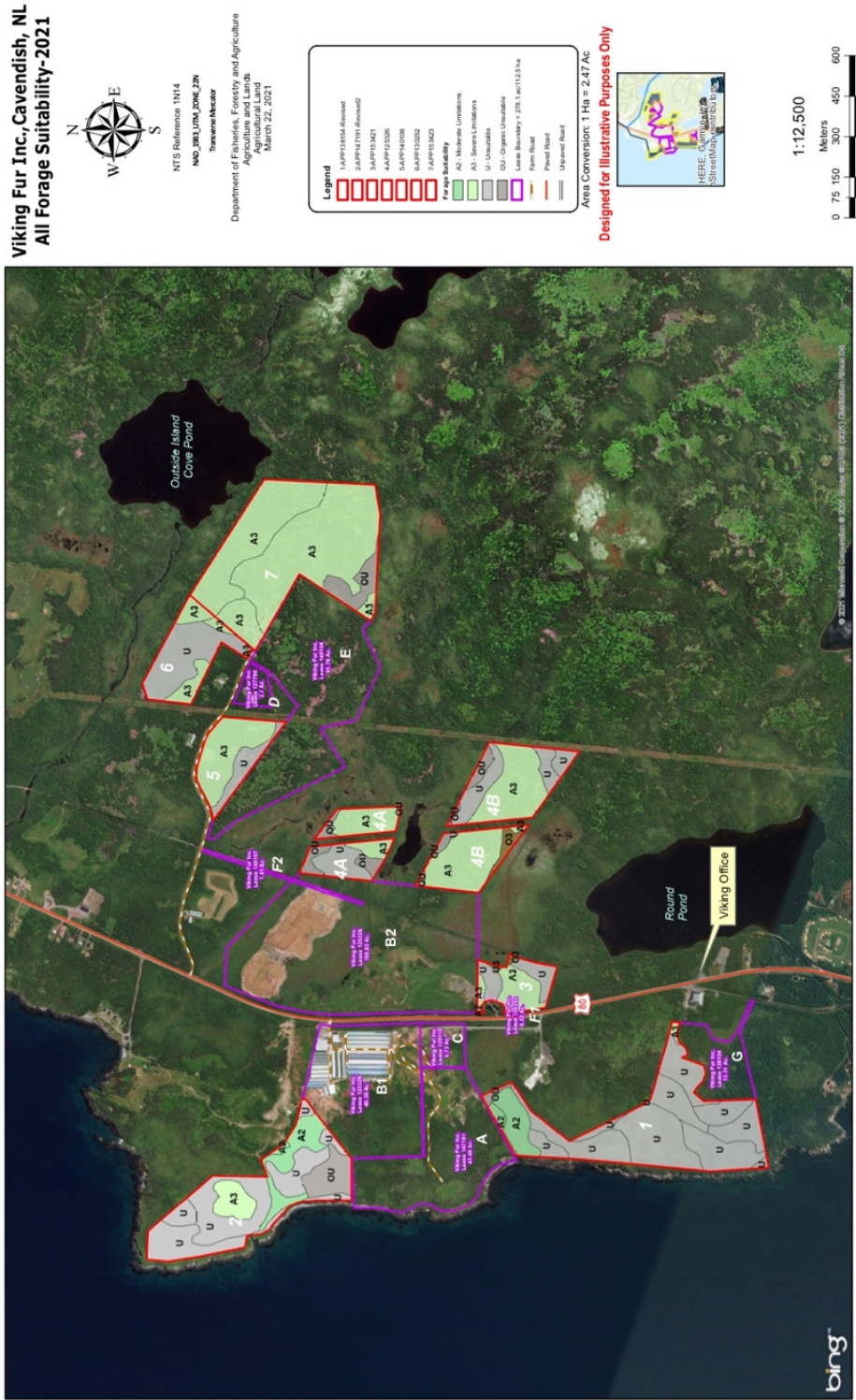
Map 6 pasture suitability map shows that a lot more of the land base is suitable for pasture as compared to forage. This is because pasture can be established on ‘poorer’ land base. The land does not need to be as level, as farm equipment is not needed for annual seeding or to harvest a crop. In addition, there is no expectation the pasture land will have to be renovated with farm equipment which would be particularly challenging because of the rocky conditions of the terrain. The farm has demonstrated its ability to develop similar, adjacent land for pasture purposes. The farm has the equipment, knowledge and supply of compost and manure to improve the productivity of these lands, primarily on the ocean side of the highway for pasture use.

6.c.v) Conclusion

The soils suitability ratings, combined with the success the farm has had in developing similar rated (soil suitability) landforms, provides a high degree of confidence in the soil suitability the ratings for forage and pasture and the proponent’s ability to develop the land as proposed. As will be explained, a closer look of some areas in respect to soil suitability ratings and other buffers such as environmental, land use considerations, access challenges and requests from residents, will result in the adjustment of the boundaries of some lots, some of which will result in a significant decrease in the size of the parcels of land which the proponent has applied.

Soil Capability for Forage

Map 5)



13)

6.d) Water Flow Direction and Connection to Adjacent Water Systems

The Brook Cove Brook watershed includes the main stem of the river which flows through several ponds, including: Valley Ponds, Inside Island Cove Pond and Island Cove Pond. The brook enters Trinity Bay at Brook Cove. (Islington) There is also a tributary of the river which flows from Sooleys Marsh and Highland Marsh, in a northerly direction where it joins Brook Cove Brook about one kilometre upstream from the mouth of the Brook. The watershed drains an area of approximately 18 square kilometres. Map 7 based on the 1:50,000 national topographical map shows the general location of the Brook Cove Brook watershed. Map 3, shows the details off waterflow direction in the area the detailed Study Area.

In regards to the main stem of Brook Cove Brook, Lot 7 of the proposed farm expansion is the closest farm development to the brook. (see Map 3) The tributary which drains from Sooleys and Highland Marshes, flows through lot 4a.

The watershed which flows primarily from Highlands Marsh and Sooleys Marsh includes about 4 of the 18-kilometre square portion of the entire Brook Cove Brook Watershed. A small portion of Sooleys Marsh, a string bog, in the southwestern portion of the 'marsh' flows towards Round Pond. The 'Highlands/Sooleys' watershed includes existing farmland and proposed Lot 4. At its closest point, proposed lot is approximately 150 metres from where the brook flows under Fox Farm Road.

In the spring runoff, particularly in 2020, significant runoff along the former railway line was observed where it borders Sooleys Marsh. Over the years, the railway line has become a significant drainage route for Sooleys Marsh and further inland. Consequently, the development of lot 4 as initially proposed by Viking would require a bridge to cross the Brook Cove Brook tributary and a culvert to intercept drainage from the former rail line towards Brook Cove Brook Tributary. In addition to other reasons, including soil/land suitability, has resulted in the deletion of lot 4a from the project proposal. This would remove the requirement for a bridge to cross the Brook Cove Brook tributary, however a culvert would be required for lot 4b.

In 2021 the Provincial Government upgraded the former rail line south from Fox Farm Road towards lots 4a and 4b. This upgrade included a culvert underneath the former rail route adjacent to lot 4b. The placement of this culvert removed any requirements for stream crossings for the entire project.

Location Map of Brook Cove Brook & Sooleys Marsh and Highland Marsh

Map 7)



Brook Cove Brook flows through a park (swimming pole) near the mouth of the Brook. The Town has zoned a buffer along both sides of the brook which flows within the town's boundaries. To be consistent with the Town's zoning, a buffer of 90 metres would be established between Lot 7 and Outside Island Cove Pond (15).

On the oceanside of Route 80 there are no water courses which appear on the Province's 1:50,000 topographical maps. Drainage in the area is considered intermittent, subject to seasonal weather events, and often dry up in the summer months.

6.e) Locations of Municipal Water Mains and Residential Lines

In the Study Area there are no municipal water mains or residential lines. There are four residences, south of the existing farm on Route 80, all of which rely on domestic wells and septic systems. There are four summer residences in the Long Point area and 4 cabins at Ocean Delight Cottages, have their own wells and septic systems. Farm development is not proposed within 75 metres of these residences hence the separation distances are sufficient to comply with the requirements of the Health and Sanitation Regulations.

6.f) Proximity to residential, commercial and tourist related operations/assets

The location of the farm in respect to residential, commercial and tourist related operations/assets is discussed in detail in two other component studies: *Tourism and Potential Effects on Tourism Operators* and *Odour*.

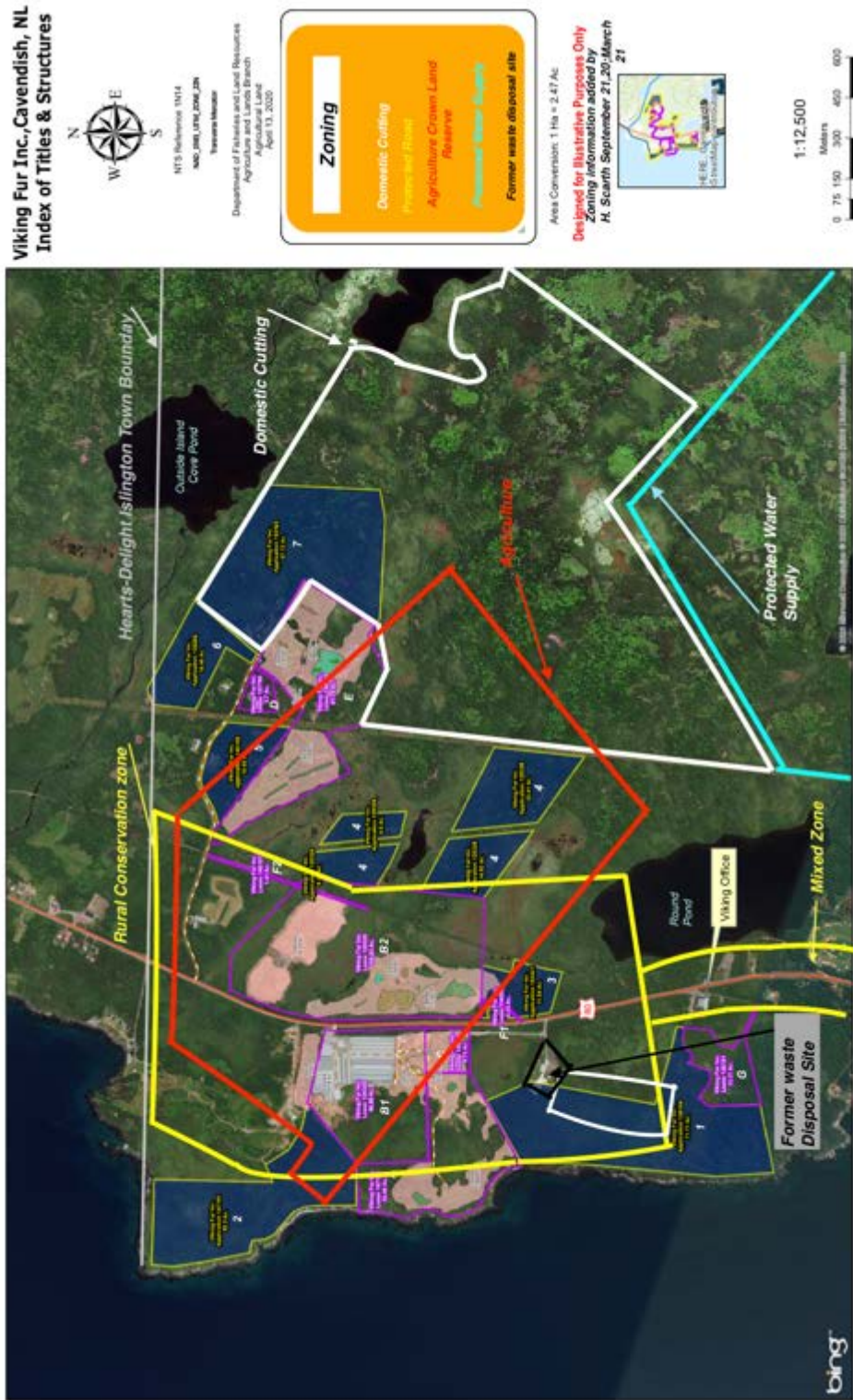
However, map 11 and Table 4 show the location of the closest residential and tourist operations near Viking Fur Farm.

6.g) Zoning /Land Use Designations)

The control of land use development, including the protection of land, is for the most part based on zoning. Typical of rural parts of the Province, planning policy in the Study Area is varied, based on municipal plans and land use designations as illustrated in the Provincial Land Use Atlas (Atlas). The Atlas is accessible on the internet.

Map 8

Land Use Zoning and Designations Map



The Atlas identifies land use designations throughout the Province. The Atlas includes many designations, including but not limited to: Municipal boundaries, water supplies, cabin, agricultural and forestry designations, including domestic wood cutting (16). The Atlas also includes archaeological, nature/wilderness protection and other designations. The Atlas is a valuable planning tool for the protection of the Province's resources and to guide development to areas which are suitable for a proposed use of land

Viking Fur Farm and the proposed Cavendish Cattle Farm are located south of the Hearts Delight-Islington Town Planning Boundary and north of the Whiteway Town Boundary. The Community of Cavendish is a Local Improvement District. Cavendish does not have a land use plan, however the Atlas, includes residential infill along community roads. Much of Route 80 is zoned pursuant to the Protected Roads Regulations. Hearts Desire has a planning boundary and an extensive protected water supply.

Within the Detailed Study Area, (Study Area) the Atlas identifies five land use designations including: protected roads, agriculture, forestry, protected water supplies and the former Cavendish waste disposal site. The protected water supplies for the communities of Hearts Delight-Islington and Whiteway are located outside of the land proposed for farm land expansion. The closest forage land to the Whiteway protected water supply is lot 4 located about one kilometre distant, in a different watershed. About one acre on the north-east corner of lot 6 is within the Town of Hearts Delight-Islington. To facilitate the application process, this small area of land would be deleted from an amended application for an Agricultural Crown Land Lease.

As illustrated on Map 9, development along Route 80 is zoned and controlled pursuant to the Development Control Regulations which guide development the Trinity South Protected Road (17). In vicinity of the farm, most of the corridor, Rural Conservation Zone is 400 metres deep. South of the rural conservation zone, in the area of Round Pond, there is a 60-metre-deep mixed zone which allows a variety of uses, notably residential infill. Within the Rural Conservation zone, resource use, including agriculture is a permitted use. This designation does not allow residential infilling and is intended to protect existing resource use.

The agriculture designation was established many years ago to guide the development of land in vicinity of a fur farm operated by the local development association. This designation requires applications for Crown Land development be referred to the Provincial Department responsible for agriculture.

A domestic cutting designation on the Atlas, described on Map 9, overlaps lot 7, which has been proposed for forage production. Lot 7 represents about 14 percent of the entire domestic cutting area. Much of the area within the proposed lot has been cutover. Map 9 shows the location of a small domestic cutting area, on the ocean side of Route 80, As a result of the proponent's decision to amend lot one, in part to provide a wider buffer next to the former waste disposal site, less than a couple of acres of the domestic cutting area are in revised lot one. In respect to Map 9, the location of this domestic cutting area is approximate and for illustrative purposes only. The former waste disposal site is now used as a depot for the temporary waste storage destined for landfill or recycling.

Municipal

Hearts Delight-Islington

The Hearts Delight-Islington Municipality, located north of the Study Area, includes 'Town' zoning along Route 80. This zoning allows residential development up to the southern boundary of the municipality which is about 700 metres from Viking Fur Farm buildings. The plan states residential development in this area is subject to buffers required by the Department responsible for Agrifoods. The Town's plan includes 'rural' zoning up to the Town's southern boundary and an 'environmental' zoning designation along the brook which drains from Outside Island Cove Pond to the ocean.

Whiteway

The Department of Municipal Affairs and Provincial Affairs list of municipal plans and development regulations registered under the *Urban and Rural Planning Act* does not include a listing for the community of Whiteway. Consequently, at this time the Community does not have a municipal planning area or municipal plan in legal effect. The Atlas includes a land planning designation within which development applications received by the provincial department responsible for Crown lands are referred to the Community of Whiteway.

7) Outcomes

Based on this Component Study and discussions elsewhere in the EIS, five amendments were made to four of the seven parcels for which the Proponent applied to obtain Agricultural Crown Land Leases. The approximate locations of these changes are illustrated on Map 10.

- A) The reconfiguration of Lot 2 was a result of a request to provide a buffer between land applied for to expand pasture and private land. There are four summer residences located east of the northern portion of Parcel 2.
- B) The size of Lot 1 was reduced to establish a buffer between the former Waste Disposal Site and land on which the proponent proposes to develop pasture. The deleted area also includes organic soils (mineral wetland) considered unsuitable for pasture development. The buffer between the former waste disposal site and the area proposed for pastureland is at least 75 metres wide.
- C) Consistent with the environmental protection designation in the Hearts Delight-Islington Municipal Plan, a portion of Lot 7 was deleted to establish a 90 metre buffer between farm development and the brook which flows from Outside island Cove Pond.
- D) Parcel 4 consists of two parcels of land, north (4a) and south (4b) In reviewing stream flows, it was determined access to both lots would require a culvert to handle the

considerable flow down the former rail line. Access to lot 4a would require a bridge to cross the Sooley/Highland Marsh tributary of Brook Cove Brook. The cost of access, for a relatively small piece of land could not be justified. Field assessments confirmed the western half of lot 4a would take considerable effort to improve for forage land. A combination of environmental buffers next to the pond and the brook would further reduce the amount of land available for forage development. The elimination of this stream crossing would remove the possibility of negative environmental impacts during construction of a bridge, clearing of farmland and future farm operations.

- E) Lot 3 and 4b. Buffers of 50 metres are recommended between the peatland, water courses and the land proposed for forage production.

In addition to changes to the boundaries of the land under applications, the following conclusions were made:

- F) Forestry domestic cutting areas. The Forestry Department's plan recognizes the importance of land availability to existing farms. Although there are substantial areas of land on the Provincial Land Use Atlas designated for domestic and commercial cutting, residents require wood which is easily accessible. Furthermore, the Forestry Branch has stated the necessity and importance land allocated for farm development that all merchantable wood be removed before land clearing. Viking has, in the past, encouraged residents to cut trees before land clearing and will continue to do so should they be approved for more land. Furthermore, access and if required, rights of way, will be established and maintained. It is noted, in the past the proponent has helped residents establish access trails suitable for equipment used in removing firewood.
- G) Suitable Land for Forage Production. As discussed, some of boundaries of the parcels of land under application, were reduced in size. Overall, based on: soil type and suitability for agriculture, the development of farm fields on similar and often adjacent landforms, the demonstrated ability of the farm to develop similar parcels of land, the farm's equipment inventory, access to heavy equipment to clear land and ready access to manure and compost, provides the farm the ability to develop land for forage and pasture use on the parcels of land recommended for approval in this EIS.
- H) The proximity to residential, commercial and tourism related operations/assets are discussed in the Tourism and Odour Component Studies. Maps and tables provide a snapshot of residential, commercial and tourism businesses and assets in the area.
- I) Zoning (land use designations) The proposed development is permissible pursuant to the existing zones as illustrated in Map 8.
- J) Locations of municipal water mains and residential lines. It has been determined there are no municipal water main within the study area and that other uses of land, notably residential, other than the farm, have their own, on site, water and septic systems, all of which are well over 75 metres from any proposed farm development.

Amendments to the Crown Land Under Application for Forage and Pasture

Map 9



Viking Fur Inc, Cavendish, NL
 Index of Titles & Structures



N13 Reference 1114
 NAD 2011 UTM, Zone 20N
 Transverse Mercator
 Department of Fisheries and Land Resources
 Agricultural Land
 Application and Land Bank
 11/12/2021

**Adjusted lots:
 buffers and
 deletions**
 Approximate locations
 Buffers edited by: H. Searth
 December 2021.

Aerial Conversion: 1" = 2.47 Aic
 Designed for Illustrative Purposes Only

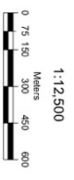
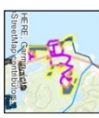


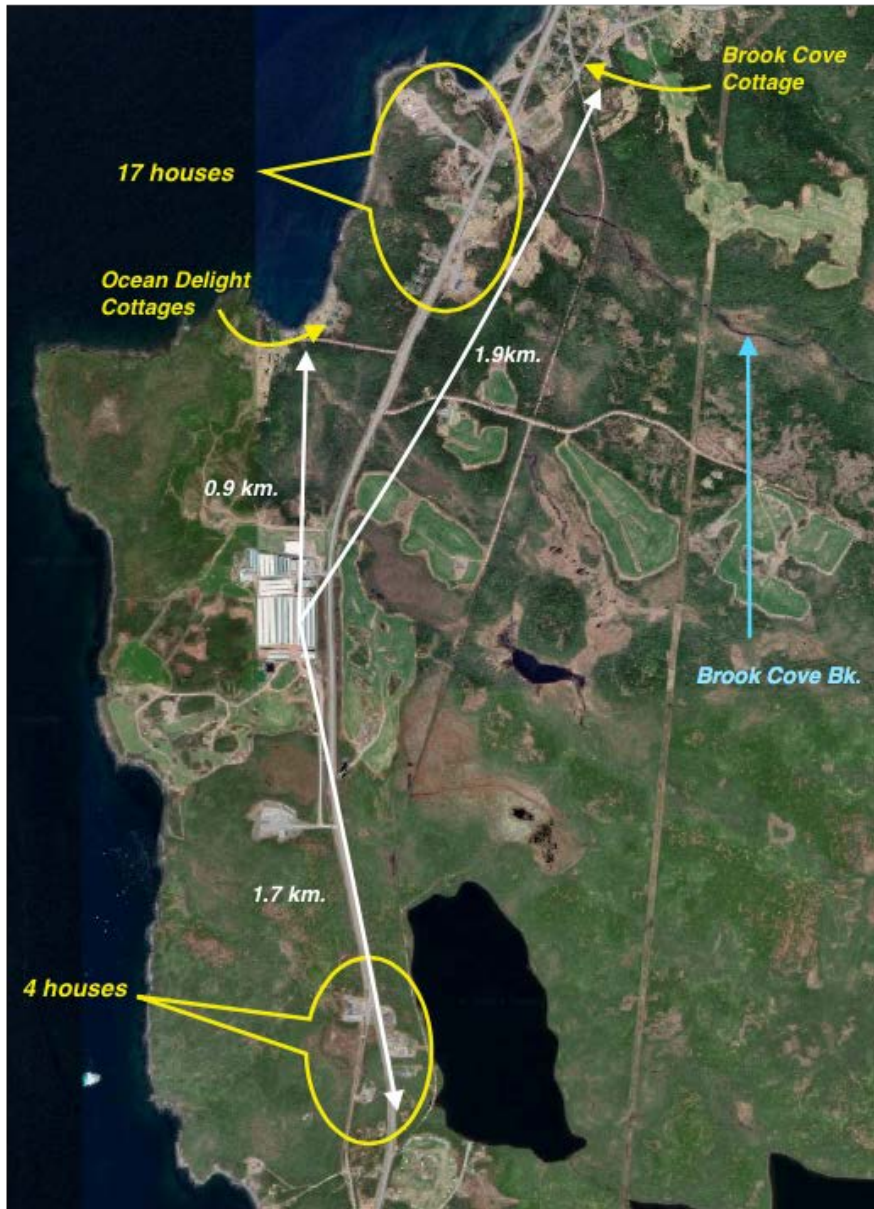
Table 4

**Land Use close to the Farm
Evaluation of Land Parcels Study Area**

		Location	Type	Latitude/Longitude
	Residences			
A	1.7 km south of the farm	4 houses within 215 m of each other	Residences on main road	47 43 47 N 53 29 29 W
B	1.7 km north east of the farm	17 houses and a 4 unit apartment	Residences (on main road)	47 45 06 N 53 29 23 W
C	Rental cabins	Ocean Delight	Rental accommodations	47. 75 50N 53 49 45W
D	Seasonal residences	North of Viking Closest house, 730 metres		47 74 80 N 53 49 71W
	*	Closest house to the farm 1.3 km.		47 45 03 N 53 29 30 W
	**	Closest house to the farm 1.1 km.		47 45 03 W 58 29 26 W

Closest Residential and Tourist Operations Near Viking Farm

Map 10



8) References

- 1) Independent Environmental Consultants (IEC) Qualitative Odour Risk Assessment and Mitigation Planning Report Cavendish Beef Farm (EIS Registration 2002) September 2021.
- 2) Government of Newfoundland and Labrador (GNL) Department of Fisheries Food and Agriculture. (DFFA) Forestry Management Plan for the Avalon Peninsula (Unit 1) 2022-2026.
- 3) Wamer, B.G. and Rubec, C.D.A. National Wetlands Working Group. The Canadian Wetland Classification System. 1997.
- 4) The Canadian Wetland Classification System, National Wetlands Working Group, 1997.
- 5) Ducks Unlimited, Field Guide, Boreal Wetland Classes, In the Boreal Plains Ecozone of Canada, 2015.
- 6) Northlands Associates; Newfoundland Peatland Inventory, 1980.
- 7) Howlett, S. DFFA, personal communication.
- 8) Glode, Jason.. DFFA, Personal Communication. June 2020.
- 9) DFFA. Forest management Plan, Unit 1, 2017 – 2021.
- 10) Glode, Jason. Personal communication. June 2020.
- 11) Heringa., Peter. Government of Canada. Soils of the Avalon Peninsula. 1981
- 12) DFFA. Soil Suitability Ratings.
- 13) DFFA. Soil Capability for Forage.
- 14) DFFA. Soil Capability for Pasture
- 15) Town of Hearts Delight-Islington Municipal Plan.
- 16) Provincial Land Use Atlas. Internet.
- 17) GNL, Trinity South Protected Road Plan