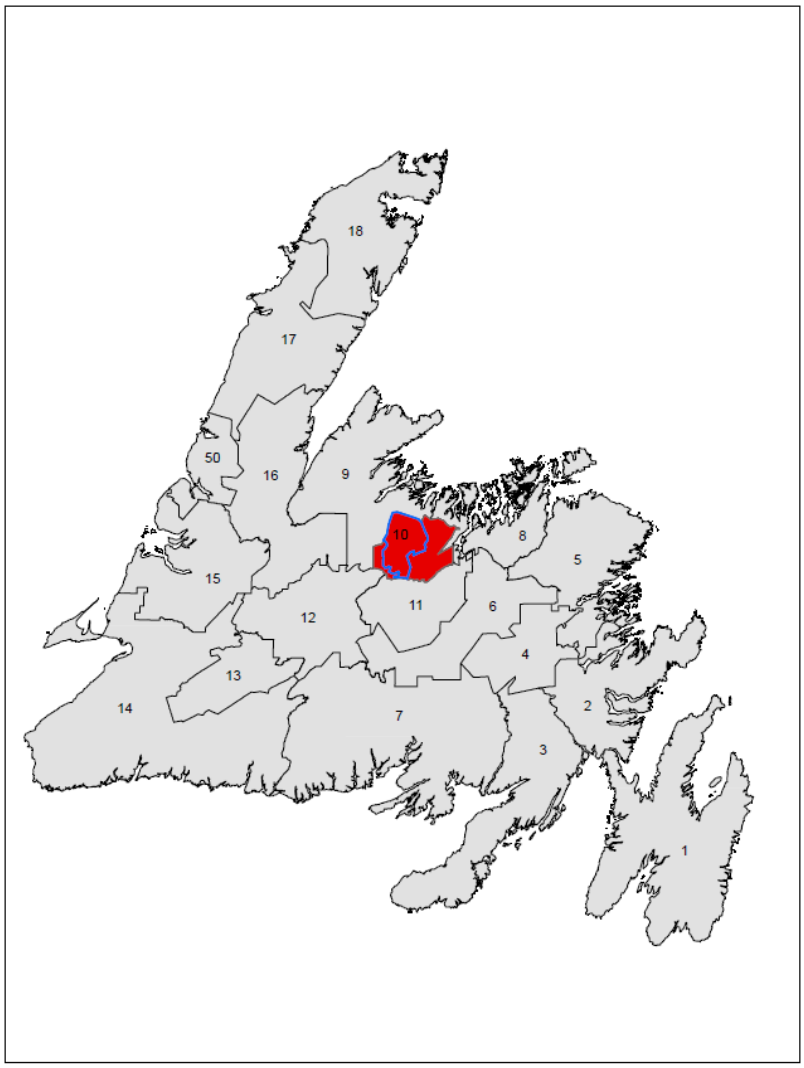
Kruger
Pulp and Paper

Corner Brook Pulp and Paper Limited

Five Year Operating Plan
Zone 5
Forest Management Districts 10
January 1, 2026 – December 31, 2030



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Introduction

This new five-year operating plan is scheduled for the period January 1, 2026, to December 31, 2030, and represents proposed forestry activity upon Corner Brook Pulp and Paper (CBPPL) timber lands within Forest Management District 10. The management of this land is consistent with strategies and philosophies implemented by CBPPL on all other CBPPL managed districts within the province.

This five-year operating plan is compliant with established provincial planning requirements, environmental protection guidelines, and standard operating procedures developed under a stringent Environmental Management System (EMS) which is registered under the ISO 14001 Standard and the Sustainable Forestry Initiative (SFI®) Forest Management Standard. Topics that are provincial in scope, such as carbon and global warming, are included in the provincial sustainable forest management strategy, while sections that are more descriptive or depict local conditions such as values, forest characterization and ecosystem description are included into this five-year operating plan.

Forest Management Districts 10, 11, 12 and 13 are adjacent and share common ecoregion characteristics and collectively form Planning Zone Five. Within a planning zone, there is a requirement for each tenure to develop a five-year operating plan. The requirement for submission to the Fisheries, Forestry and Agriculture Agency (FFA) and for environmental assessment is one five-year operating plan for each owner in each zone. In this zone there will be one submission by the Crown and one by CBPPL.

Forest Management Districts 11, 12 and 13 are comprised entirely of Crown land, while FMD 10 has both CBPPL and Crown tenure. As a result, there will be two five-year plan submissions for this zone. Throughout this five-year plan, references will be made to Districts 10, 11, 12 and 13 individually but when combined they will collectively be referred to as Planning Zone Five or “the zone”.

This document will attempt to fully integrate the presentation of information and discussions for CBPPL land in the zone. Discussion and information may be presented separately for each district where warranted based on unique and distinct differences in scope and content, with the focus being on District 10. The more descriptive sections of this plan will be generic in nature and give information for the entire zone as well as some broad comparative statistics.

Finally, this document will attempt to build on the positive results of previous five-year plan documents. Information will be updated as required and sections will be added as new information becomes available.

SECTION 1. DESCRIPTION OF THE LANDBASE

1.1 General

1.1.1 Location

Planning Zone Five encompasses Forest Management Districts 10, 11, 12 and 13 (Figure 1). It is located in central Newfoundland and extends from Victoria Lake in the west to the Bay D'Espoir highway in the east and from Island Pond in the south to North and South Twin Lakes in the north. Major towns located within the zone are Bishop's Falls, Grand Falls-Windsor, Badger, Millertown and Buchans. From a Forestry and Wildlife Branch perspective, Districts 10 and 11 are administered from Bishop's Falls, District 12 from Springdale, and District 13 from St. Georges.

1.1.2 History

The natural resources of the zone have played a major role in the well-being of the residents. Since the earliest settlement, the forest and fish resources were the mainstay of the economy. Initially, the forest was used as a source of fuelwood as well as construction materials for houses and fishery related items (stages, lobster pots, boats etc.). Small sawmills developed to supply the local demand for lumber and construction timber.

One of the earliest commercial uses of the forest in Central Newfoundland was to supply materials for the construction of the railway in the late 1800's. This, combined with the granting of the Reid Lots, opened up a large portion of previously inaccessible area to commercial activity. It resulted in an increase in the number and size of sawmills. Paper production started in 1909 with the opening of a mill at Grand Falls by the Anglo-Newfoundland Development (AND) Company. In the first half of the 1900's exports of material for pulpwood and mine pit-props were also common. Once the paper mill was firmly established, domestic cutting in the zone was limited to cutovers, birch and burnt timber. Commercial sawmill activity was also limited. In the early 1960's, the AND Company merged with the Price Brothers and Company Limited to form a new company called Price Pulp and Paper Limited. This company operated under various names until the closure of Abitibi-Bowater Inc. in 2009. At that time, the land area was expropriated by the Provincial Government and has been subsequently managed under Crown responsibility.

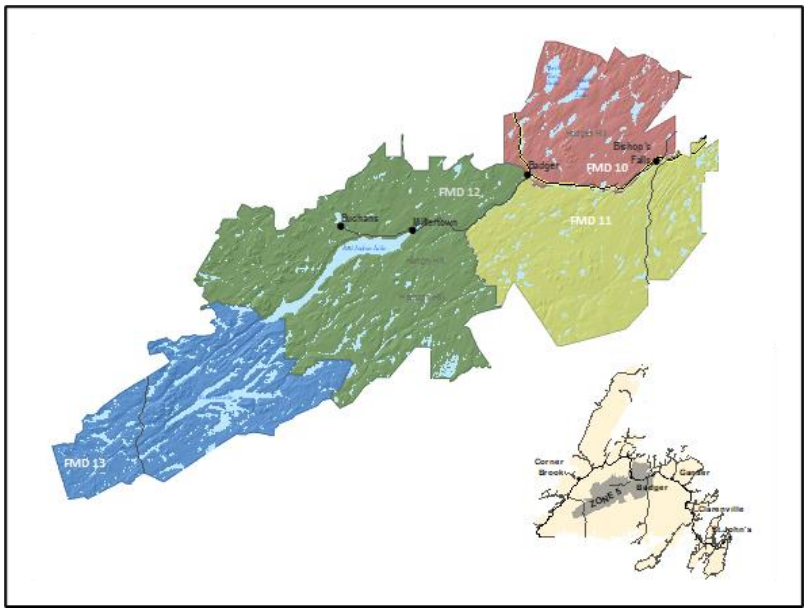

Figure 1 Planning Zone - District Map, Zone 5

Figure 2 Timber Ownership District 10, Zone 5Figure 3 Planning Zone - District Map, Zone 5

1.1.3 Ownership

Forest Management Districts 11, 12 and 13 are comprised entirely of Crown land and managed under Crown authority. In January 2020, an agreement was signed between FFA and Corner Brook Pulp and Paper (CBPPL), whereby the Crown transferred a portion of District 10 to CBPPL (under the authority of Section 12 of the Forestry Act (1990)). As a result, there is now both Crown and CBPPL tenure within Forest Management District 10. See Map 2 for CBPPL limits in District 10.

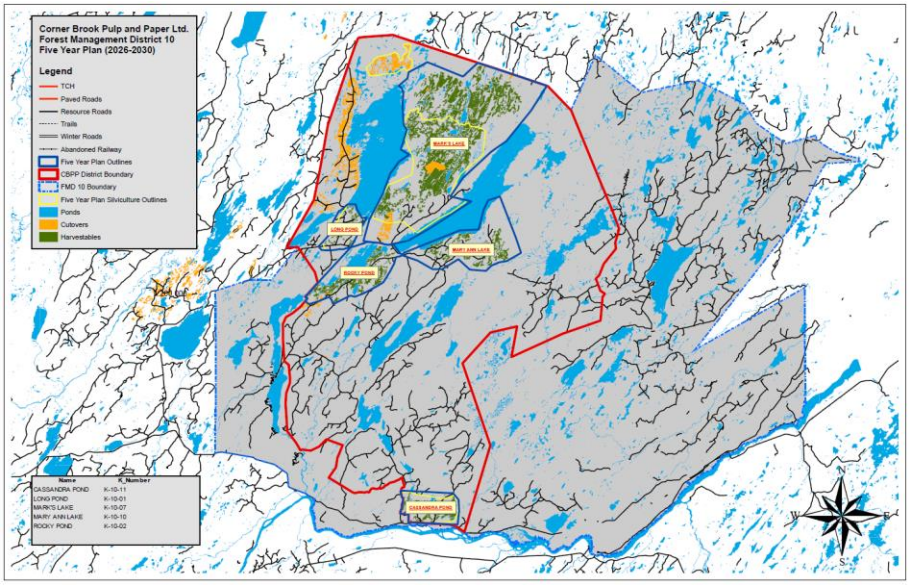

Figure 4 Timber Ownership District 10, Zone 5

Figure 5 Ecoregions and Subregions of Zone 5Figure 6 Timber Ownership District 10, Zone 5

1.2 Physical Description

1.2.1 Topography and Hydrology

The central portion of the zone comprises the majority of area and is gently undulating with slopes seldom exceeding 10 percent. In contrast, the terrain is very rough and hilly in the northern portion of District 10. The Gaff Topsails and Buchans Plateau occur north of Red Indian, recently renamed Beothuk Lake, in District 12 and consists mainly of highland areas and windswept barrens. The southern and south western portion of the zone consists of rolling hills that grow steeper as one moves farther south. Elevation ranges from 0 metres (m) at the coast to 610 m on the Buchans Plateau. Most of the zone is forested and interspersed with scrub, barren, and treed, wet, basin and domed bogs. Generally the most productive forest occurs on the more undulating terrain. The areas with the highest productivity occur in the river valleys. Forest productivity decreases beyond 400 m elevation, culminating in rock and soil barrens at the highest elevations.

The more prominent highland areas in the zone include Hodges Hills in the northeast, Buchans Plateau and Gaff Topsails in north central and the eastern extent of the Annieopsquotch range in the south west. The zone is dominated by three major river basins; the Exploits, Victoria and Lloyds River systems. These rivers originate in the interior areas and drain large watersheds. Red Indian/Beothuk Lake, is of extreme importance as a reservoir to allow flow control on the Exploits River for the generation of hydroelectricity.

1.2.2 Geology

In much of the zone, the underlying bedrock is composed of sedimentary and metamorphic shale, schist and sandstone dating from the Paleozoic era, with intrusions of harder granite and diorite. The area has been heavily glaciated and stony till with a sandy loam-to-loam texture covers the bedrock in most locations. In the northern section near Mark's Lake, Frozen Ocean Lake and Lewis Lake treeless granite outcrops occur on the steep terrain. There are several steep isolated rock hills or monadnocks located at Hodges Hills, Hungry Hill and Harpoon Hill which rise sharply above the surrounding terrain.

Glacial activity has played a prominent role in shaping landscape features. Most of the central area is covered with bedrock-derived glacial till with lesser areas of outwash terraces and moraine deposits. There is a local network of outwash terraces composed of well-sorted sands and gravels, along a narrow band of an earlier drainage channel of Stoney Brook. Eskers and kame terraces, composed of coarse-grained materials that have a limited moisture holding capacity are common. There are also some local moraine deposits below 150 m.

In the Buchans Plateau area north of Red Indian/Beothuk Lake there are three major types of bedrock: (1) medium to coarse grained granite to the north, (2) volcanic rock immediately north of Red Indian/Beothuk Lake from Buchans Junction to the Shanadithit lowlands, and (3) red sandstone, conglomerate and shale in the Shanadithit lowlands. The Buchans area is covered with a thick deposit of glacial till which are generally drumlin shaped in the direction of ice

movement. Most of the area is covered by upland barrens which consist of extensive areas of bog-soil-rock complexes above 244 m elevation. These uplands can be divided based mainly on elevation; the upper consisting of bog and exposed rock with thin deposits of glacial till and the lower composed of a bog-barren complex with a minor component of exposed rock.

In the southwest portion of the zone, the northerly extension of the Annieopsquotch range consists mainly of treeless granite outcrops. There is an area between this mountainous region and Red Indian/Beothuk Lake, which is underlain by softer, less erosion-resistant sandstone, shale, and conglomerate. Surface deposits in this location consist of medium textured glacial till, lacustrine and glacial-fluvial materials. Some material for the description of geologic features was taken from Batterson, M. J., 1991, 1999a and 1999b.

1.2.3 Soils

For most of the zone soil profiles developed in the till are chiefly orthic and humo-feric podzols on the well-drained upland sites, and gleysols and peats on the low-lying sites. The bogs are dominated by organic soils. The better-drained, more permeable soils, which offer better machine mobility and make better road construction material, are usually associated with poorer tree growth. The heavier, finer textured soils, which have greater water retention capabilities and poor vehicle mobility and make poor road building material, are usually associated with the best tree growth. These heavier soils form an almost continuous east-west strip along the river basins. There are some minor areas of more permeable soils within this area; however, they do not make up a significant portion.

There is little soil profile development in the Buchans Plateau which limits forest productivity. An escarpment along the northern shore of Red Indian/Beothuk Lake has surface deposits of glacial till with glacial-fluvial materials at the mouth of major brooks and streams. Forest growth is good along these sheltered slopes, although some areas are limited due to wet conditions. Soils are ferro-humic podzols which are dark soils with high organic content that usually occur on humid sites.

1.2.4 Climate

The eastern portion of the zone experiences warm summer temperatures and its location east of the Long Range Mountains makes it one of the driest on the island. This area experiences the least wind and fog because of the cold northeast winds of the Labrador Current. The area has high summer temperatures, low summer precipitation and prolonged dry periods which makes it very susceptible to fire.

The climate for the central and western portion of the zone is more moderate with lower summer temperatures and higher precipitation than in the east. It still has dry, warm summers relative to the rest of the island making fire occurrence more common. The climate for the Buchans Plateau area is notable for its short growing season and

permanent snow cover throughout the winter. Heavy drifting in exposed areas is common. Apart from a more moderate summer, climate is similar to the extreme southern boundaries of the zone.

1.3 Ecosystems

1.3.1 Forest Ecosystems

An ecosystem is a community of interacting and interdependent plants, animals, and microorganisms, together with the physical environment within which they exist. It is important to remember that within an ecosystem, the interactions between the biotic and abiotic components are at least as important as the component themselves. Another critical characteristic of ecosystems is their overlapping boundaries. While each is definable in time and space, and distinguishable from adjacent ecosystems, each is intimately integrated with other local ecosystems. Additionally, each local ecosystem is nested within increasingly larger ecosystems. The scale at which an ecosystem is viewed is contingent on the species or abiotic characteristic under consideration. While planet Earth represents the ultimate global ecosystem, complex ecosystems also exist under fallen logs and rocks.

A forest ecosystem, as the term implies, is an ecosystem dominated by tree cover. At the coarsest level, the forests of Planning Zone Five, like all forests on the island, form part of the boreal forest ecosystem. The boreal forest is a green belt which spans much of the northern hemisphere. It stretches from the Atlantic shores of Scandinavia through Russia, across Alaska, through the mid latitudes of Canada until it reaches the Atlantic Ocean again in Newfoundland and Labrador. One of the distinguishing characteristics of the boreal forest is the phenomena of periodic, catastrophic stand replacement natural disturbances such as fire and insect outbreaks which typically give rise to uniform, even aged forests dominated by a few tree species.

The tree species which characterize the Canadian boreal forest include black spruce, white spruce, balsam fir, eastern larch, trembling aspen, white birch and jack pine. All of these, except for jack pine, commonly occur on the Island. However, by far the dominant species are black spruce and balsam fir; together they represent more than 90% of the growing stock on the island. Black spruce is most abundant in North Central Newfoundland where a climate characterized by relatively dry, hot summers has historically favoured this fire-adapted species. In Western and Northern Newfoundland, the climate is somewhat moister, and fires are far fewer resulting in the ascendance of balsam fir, a species which is poorly adapted to fire.

1.3.2 Ecoregions and Subregions

Damman 1979, defined ecoregions as areas where comparable vegetation and soil can be found on sites occupying similar topographic positions on the same parent material, provided that these sites have experienced a similar history of disturbance. Thus, an ecoregion cannot be defined in isolation from the physical landscape, but vegetation toposequence, vegetation structure, floristic composition, and floristic distributions can provide the primary criteria.

According to Damman, nine ecoregions are represented in Newfoundland. Each of these is further divided into subregions (also known as ecodistricts) All of the Newfoundland ecoregions and subregions contain many of the same ecosystem variables. It is the dominance and variance of these variables (e.g., vegetation and climate) that determine their classification.

Figure 1 depicts Planning Zone Five relative to Damman's ecoregion classification system. The Central Newfoundland Forest Ecoregion encompasses the majority of the area in the zone and occupies the more productive sites. The Maritime Barrens and Long Range Barrens Ecoregions occur on the north-central, south western peripheries and are less important in terms of forest productivity. Note that all of District 10 falls within the Northcentral Subregion of the Central Newfoundland Forest Ecoregion.

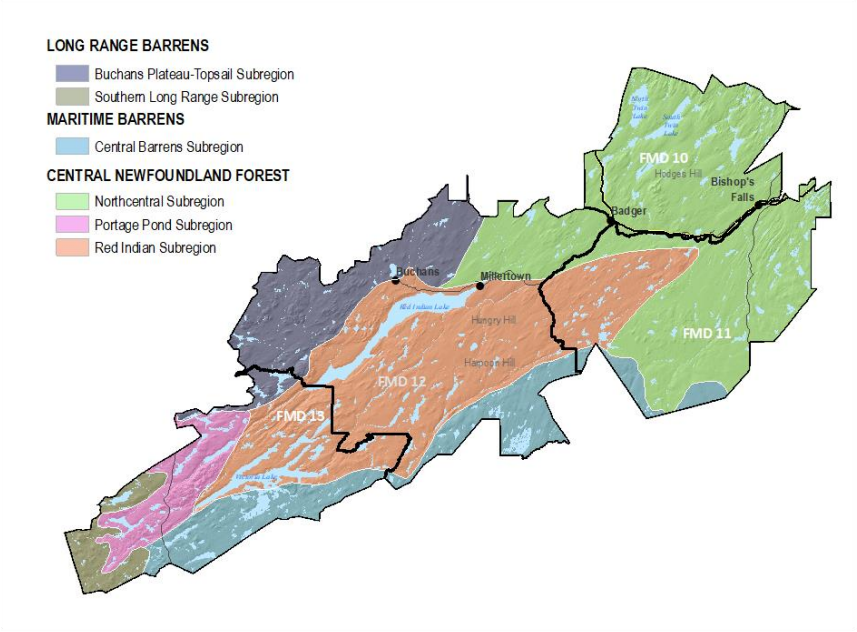

Figure 7 Ecoregions and Subregions of Zone 5

Figure 8 Land Class CBPPL Tenure FMD
10Figure 9 Ecoregions and Subregions of Zone

Table 1 below depicts the perce**5** presented in the zone. It describes each ecoregion and subregion as a percentage of the total in the province as well as the relative importance within each district and in the zone. For example, District 12 contains 59 % of the Beothuk Lake Subregion of the Central Newfoundland Forest Ecoregion in the province while the whole zone encompasses all of this subregion. As well, 47 % of District 12 and 31 % of the zone is located within this subregion. For complete descriptions of these Ecoregions refer to the Forest Site Classification Manual - A Field Guide to the Damman Forest Site Types of Newfoundland (Meades and Moores, 1994).

Table 1 Percentage of Ecoregions and Subregions in Zone 5

	Total Area within Province (ha)	Percentage of Total Area within Zone 5 Forest Management Districts					Relative Percentage of Total Area within Zone 5 Forest Management Districts				
Long Range Barrens		FMD 10	FMD 11	FMD 12	FMD 13	Total	FMD 10	FMD 11	FMD 12	FMD 13	Total
Buchans Plateau Topsail Subregion	369811	0	0	36	7	43	0	0	27	5	12
Southern Long Range Subregion	599815	0	0	0	6	6	0	0	0	13	3
Central Newfoundland Forest		FMD 10	FMD 11	FMD 12	FMD 13	Total	FMD 10	FMD 11	FMD 12	FMD 13	Total
Portage Pond Subregion	149319	0	0	0	44	44	0	0	0	24	5
Northcentral Subregion	2310742	9	9	3	0	21	100	70	17	0	38
Red Indian Subregion	393911	0	18	59	23	100	0	24	47	33	31
Central Newfoundland Forest		FMD 10	FMD 11	FMD 12	FMD 13	Total	FMD 10	FMD 11	FMD 12	FMD 13	Total
Energy Wood	1514392	0	1	4	5	10	0	7	12	25	11

1.3.2.1 Central Newfoundland Forest Ecoregion

This ecoregion is located in the north-central part of the island with a small outlet near Bay d'Espoir. The topography is gently rolling to hilly with most elevations between 150 and 450 m. It has the most continental climate in insular Newfoundland with the warmest summers and coldest winters. It has the least wind and fog of any ecoregion and a growing season of 140-160 days and average precipitation of 900-1300mm.

This ecoregion is heavily forested and is the most distinctly boreal part of the island. Balsam fir, black spruce, and to a lesser extent white birch are the dominant tree species. There is an extensive fire history thus fire origin stands of black spruce and white birch cover extensive areas in the northern and eastern portions. Trembling aspen forms local stands after fire but is restricted to the central and northern portion.

Hylocomium-balsam fir is the zonal forest type and is dominant in areas not disturbed by fire. *Kalmia*-black spruce and *Pleurosium*-balsam fir forests are also common. The *Kalmia*-black spruce-lichen forests, which occur on outwash sands and gravels, are unique to this ecoregion. Red pine also occurs but is restricted to extremely dry sites. This ecoregion comprises 74 % of the zone in the Portage Pond, North Central and Red Indian Lake subregions.

1.3.2.1.1 North Central Subregion

The North Central Subregion has the highest maximum temperatures, lowest rainfall, and highest forest fire frequency on the island. The subregion extends from Clarenville to Deer Lake with a mostly rolling topography of less than 200 m. The history of fire is evident by the pure black spruce forests with white birch and aspen stands that dominate the subregion.

1.3.2.1.2 Red Indian Lake Subregion

The entire Red Indian Lake Subregion is located in Planning Zone Five. The landscape is characterized by dense forest, bogs, and rolling hills. It is distinguished from the rest of the Central Newfoundland Ecoregion by having the

coolest summers, highest precipitation and shortest growing season. Despite this fact, there is still a high incidence of wildfire relative to other subregions of the province.

1.3.2.1.3 Portage Pond Subregion

This subregion includes the Annieopsquotch Mountains with elevations up to 677 m. It has rugged topography and is heavily forested, primarily with balsam fir.

1.3.2.2 Long Range Barrens Ecoregion

This ecoregion comprises the highlands extending from the southwest coast to the northern part of the Northern Peninsula. It consists of three distinct units, the Southern Long Range, the Buchan's Plateau-Topsails, and the Northern Long Range subregions. The subregions are separated by areas of more or less continuous forest with the former two occurring in the zone. Fire is of little importance and has played no role in the formation of these barrens. There are large areas of exposed bedrock in this ecoregion which are acidic in nature.

Cool summers and cold winters are typical of this ecoregion. The mean daily temperatures are relatively low therefore the vegetative season is short. Annual snowfall can exceed 500 cm and drifting is extreme throughout the winter. Snow cover is permanent throughout the winter and persists through to late spring. Western and southwestern facing slopes are severely exposed due to the prevailing winds from this direction.

This ecoregion contains mainly barren vegetation with shallow ribbed fens and tuckamore dominating the landscape. Sheep laurel heath is the predominant dwarf shrub vegetation with pink crowberry dominated Empetrum heath covering exposed areas that are subject to active erosion. Arctic alpine vegetation (e.g., *Diapensia* and *Loiseleuria*) is common on all highlands and exposed sites. In areas with persistent snow cover, snow bank species such as moss heather, mountain sorrel and dwarf bilberry are common.

Extensive areas of tuckamore, mostly of black spruce less than one metre high, occur on slopes and in valleys, but are absent from hill summits. Speckled alder is completely absent being replaced by sweet gale along brooks. Mountain alder is common on wet and dry sites but does not form alder swamps. Shallow peatlands, patterned fens and slope bogs cover extensive areas.

1.3.2.2.1 Buchans Plateau - Topsail Subregion

The Buchan's Plateau-Topsails Subregion lies between Grand Lake and Red Indian Lake and its southern edge extends into Districts 12 and 13. Most of the subregion is barren. Dwarf shrub heaths, shallow patterned peatlands, and areas with low krummholtz dominate the landscape.

1.3.2.2.2 Southern Long Range Subregion

The Southern Long Range Subregion is located on the western portion of District 13 and covers the upper reaches of the river valleys and the higher terrain. In these river valleys, more of the southern plant species are present, particularly yellow birch. Speckled alder thickets occur on alluvial soils.

1.3.2.3 Maritime Barrens Ecoregion

This ecoregion extends from the east coast of Newfoundland to the west coast through to the south central portion of the island. It is characterized by relatively mild winters with intermittent snow cover and the coldest summers with frequent fog and strong winds. The dominant landscape pattern consists of usually stunted, almost pure stands of balsam fir, broken by extensive open heathland. Good forest growth is localized on long slopes of a few protected valleys. The heaths are dominated by *Kalmia angustifolia* on protected slopes where snow accumulates and by cushions of *Empetrum nigrum* or *Empetrum eamesii* on windswept ridges.

1.3.2.3.1 Central Barrens Subregion

This subregion includes the barrens between the forests of Central Newfoundland and the foggy zone along the south coast. Summers are warmer, fog is less frequent, and snow cover is more persistent than in other subregions. Forest patches are common throughout the barren but Arctic-alpine species are poorly represented. Speckled alder is present but does not form alder swamps and bogs are slightly raised or domed. This subregion occurs on the southern extremes of Districts 11, 12 and 13.

1.4 Ecosystem Dynamics

1.4.1 Ecosystem Condition and Productivity

Landscape patterns determine the variety, integrity, and interconnectedness of habitats within a region. These landscape patterns are a direct result of the relationship amongst physical landforms and soils, disturbance history, and relationships among various species that make up the ecosystem communities. These factors, while listed separately for clarity, are unavoidably interrelated. Landscape patterns play a pivotal role in determining the current conditions and health of forest ecosystems. These variables are evaluated in terms of productivity, stability and resilience.

Another important variable determining the condition of a forest is change. Forests are an ever evolving entity, resisting stagnation, and constantly moving through their cycles of life, death, and renewal. The process of change over time is the essence of nature itself. It has been nature’s underlying storyline since time began, and will continue to be until time ends.

The main forces of change in our natural forest ecosystems are disturbance and succession. A definition of disturbance would indicate that it initiates a change in a community structure which often ends up in the replacement of one set of species by another. However, replacement is not always the end result (e.g., a species like black spruce is aided in germination by disturbances like forest fire).

Disturbances range from the fall of a single tree, to the destruction of thousands of hectares by forest fires. While disturbances may be very destructive, they can often rejuvenate ecosystems and diversify landscapes.

Succession involves changes in both community composition and in the ecosystem structure and process. Succession is the orderly change whereby the dominant species is replaced by another species, then another etc. until a new dominant species establishes a relatively stable community.
The following sections will discuss each of these concepts in more detail as they relate to the ecosystems of Planning Zone Five. For the most part this section will be descriptive and explanatory in nature.

1.4.1.1 Productivity

Productivity is the accrual of matter and energy in biomass. In simple terms, primary productivity is the sum total of all biomass produced through photosynthesis. Secondary productivity occurs when this “primary” biomass is ingested and is added to that organism’s biomass. Since secondary productivity is directly dependent on primary productivity, it is this primary productivity component that drives the system.

The level of primary production is dependent on the ability to produce biomass. This in turn is dependent on landscape features, soil, climate etc. In general terms, the more productive (ability to grow trees) a site is, the higher level of primary productivity. For example, a forested stand would have a higher primary productivity than a bog and a good site would have a higher potential than a poor site.

Overall, the landscape in Planning Zone Five has approximately 44% productive forest. As well, the relative proportion of site types is 17% good, 65% medium and 18% poor with a mean annual increment (MAI) of 2.6, 1.7 and 0.8 m3/ha/yr (metres cubed per hectare per year) respectively. The distribution of productive sites across the landscape and range of productivity within these sites is largely dependent on landscape patterns, climate and soils.

The more productive areas occur in the lowlands and gently rolling uplands of the zone with the most productive being in the river valleys. These areas have deeper soils and less exposed bedrock. The landscape patterns are more consistent, and the growing season is longer. In the Buchans Plateau section of District 12 and the south central and southwest portion of District 12 and 13 the soils are shallower with bedrock at or near the surface. The terrain is much rougher, and the growing season is shorter.

In practice, it is nearly impossible to measure the amount of biomass produced in an ecosystem, or the energy consumed in the process. One method is tracking mean annual increment in m3/ha/yr by tree species by ecoregion. This can be readily measured over time and manipulated through silvicultural treatments or affected by poor harvesting practices that increase soil compaction. An example of secondary productivity is the number of moose per unit area. One must also recognize the forest's inherent biological limits however, when attempting to measure or manipulate site productivity.

1.4.1.2 Resilience

Ecosystem resilience reflects the ability of the ecosystem to absorb change and disturbance while maintaining the same productive capacity and the same relationships among populations. Healthy forest ecosystems maintain their resilience and adapt to periodic disturbances. The renewal of boreal forest ecosystems often depends on these disturbances. Resilience is characterized by the forest's ability to stabilize vital soil processes and maintain succession whereby the system is returned to a community composition, and the productivity level is consistent with the ecosystems physical constraints. To a large degree, a forest ecosystems' resilience is controlled by properties such as climate, parent soil, relief, and flora.

The potential for populations to recover from low levels following disturbance by having adequate regeneration capacity and a balanced distribution of forest types and age classes provides a reliable measure of resilience at the landscape level. Other measures include the percent and extent of area by forest type and age class and the percentage of disturbed areas that are successfully regenerated. Measuring and monitoring these parameters determine resilience.

Forest activities must be carefully planned to not upset the natural balance and lower an ecosystem's resilience. An example is harvesting on the more fragile sites where steep slopes and shallow soil over bedrock increase the potential of site degradation beyond repair.

1.4.1.3 Stability

Nature is constantly changing and going through the unending processes of disturbance, growth, senescence, and decay. Therefore, stability of a forest ecosystem does not refer to one fixed position without variation. Ecosystem stability is more accurately defined as the maintenance of ecosystem changes within certain boundaries and the functional continuation of important potentials and processes such as energy capture. There are three levels of stability: species stability, structural stability, and process stability.

Species stability is the maintenance of viable populations or meta-populations of individual species. Structural stability is the stability of various aspects of ecosystem structure such as food web organization or species numbers. Process stability is the stability of processes such as primary productivity and nutrient cycling. To put stability in perspective, it must ensure that the system does not cross some threshold from which recovery to a former state is either impossible, (extinction) or occurs only after long time periods or with outside inputs (loss of topsoil).

Some indicators of stability which can be monitored are: area of forest converted to non-forest use, area, percentage and representation of forest types in protected areas, percentage and extent of area by forest type and age class, and change and distribution and abundance of various fauna. These indicators can be measured and monitored to ensure stability is maintained and to evaluate the impact, if any, of forest activities on ecosystem stability.

1.4.1.4 Disturbance Regimes and Successional Patterns

There are three main driving forces that cause disturbance in the boreal forest. Harvesting accounts for most of the disturbance in the zone and occurs on a regular and consistent basis. Fire and insect damage are the other two major disturbances and occur on a more irregular or cyclic basis. Except for a major atypical windstorm, wind throw usually occurs after some other agent like insects and/or disease weakens a stand. For this reason, successional patterns after insect damage and wind throw will be discussed together. The following is a brief synopsis of the typical successional patterns that occur in the zone after each major disturbance type.

1.4.1.4.1 Harvesting

Regeneration patterns in the black spruce forest type after harvesting is mainly back to black spruce, the component of which increases as site productivity increases. Regeneration failure in this forest type has the potential to be high, where NSR (non-satisfactory regeneration) rates increase from a low of near 10% on good sites to a high of approximately 50% on poor sites. A key silvicultural concern following harvesting on black spruce forest types is encroachment by balsam fir. Balsam fir does not perform particularly well on these types. Therefore, ensuring these types revert to black spruce post-harvest, either naturally or through planting, is important.

In the balsam fir types, regeneration success back to balsam fir is much higher, averaging 65%. Regeneration rates to balsam fir are consistent on all site types. Regeneration failure is low at 10 %.

Regeneration pattern in the mixed forest types is generally to balsam fir or to mixed species dominated by balsam fir. There is also a component of white spruce regeneration after harvest on these mixed forest types. There is a higher component of white birch regeneration after harvesting in types that had a higher percentage of hardwood before harvest. As well, the better the site class the more hardwood regeneration. Regeneration failure on the mixed forest types is variable across site types and ecoregions depending on local conditions but averages 15 % and is higher as the site gets poorer

Regeneration after harvest on the hardwood types is variable. Sites regenerate back to hardwood or to balsam fir in varying proportions. Mixed wood regeneration is also common. Usually, the better the site the more likely the site will regenerate to hardwood.

1.4.1.4.2 Fire

On the black spruce types, regeneration following fire is usually back to black spruce with a minor component of balsam fir. More fir regenerates after fire on the better sites. Regeneration failure is low on the better black spruce sites, averaging 10 % but increases to 45 percent as the sites get poorer. Regeneration patterns after fire on the balsam fir types occur in the same pattern as in black spruce. On the mixed wood types regeneration is variable. The softwood hardwood sites regenerate to fir and mixed wood while the hardwood softwood sites tend to have a higher component of black spruce and trembling aspen. The component of hardwood in the regeneration increases as the sites get better. Regeneration failure on the mixed wood forest types averages 10 % and decreases as the component of hardwood in the original stand increases. Regeneration on the hardwood types is generally mixed with equal components of black spruce, balsam fir, white birch and trembling aspen. The hardwood component can be dominated by aspen if it was present in the original stand.

1.4.1.4.3 Insect/Wind Throw

Balsam fir is highly susceptible to insect attack from the hemlock looper and spruce budworm whereas black spruce and hardwood is hardly impacted by these insects. For this reason, stands with a high component of balsam fir are more susceptible to insect attack and subsequent wind throw.

Mature balsam fir types usually regenerate to balsam fir with a component of black spruce and mixed wood on the poorer sites. Disturbance by insects in young balsam fir stands can cause succession to white spruce. In black spruce stands regeneration is usually consistently back to black spruce across site types with a lesser component of balsam fir that increases as the sites improve. Regeneration patterns in mixed wood types usually depend on the type of mixture. If black spruce is a component, then it will persist and form part of the new stand. Otherwise, balsam fir and balsam fir/hardwood mixtures regenerate after insect attack. Black spruce is also a component in stands with higher hardwood content. Regeneration patterns in the hardwood types are variable and can regenerate with equal components of black spruce, balsam fir, white birch and trembling aspen. Regeneration failure occurs approximately 10% of the time but can be significantly higher if pure stands of immature balsam fir are killed.

1.4.2 Biodiversity

Biodiversity is a term used to describe the variety of life on earth. A basic definition of biodiversity includes the variety of animals, plants and microorganisms that exist on our planet, the genetic variety within these species and the variety of ecosystems they inhabit.

While the boreal forest may not have the extent of biodiversity that some of the equatorial regions possess, Canada does have just over 70,000 species of plants, animals, and microorganisms in its boreal and other forest regions. While the boreal forest has less diversity of large plants than many other forest regions, it has greater biological diversity in some microorganisms. For example, the boreal forest has fewer tree species than the tropical rainforest but potentially up to 500 times as many mycorrhizal fungi. Despite the large number of organisms contained within the boreal forest, only a small amount are plants and vertebrates. The larger portion remains largely unrecorded and unstudied. As a result, we need to manage with caution so that species are not inadvertently extirpated.

Biodiversity provides such essential services for humans as: climate control, oxygen production, purification of freshwater supplies, carbon dioxide removal from the atmosphere, soil generation, and nutrient cycling.

The three components of biodiversity are species diversity, genetic diversity and ecosystem diversity. Each will be discussed in the following sections.

1.4.2.1 Species Diversity

Species diversity describes the overall range of species in a given area or ecosystem. Species are groups of animals, plants, and microorganisms capable of producing fertile offspring. An example would be that all breeds of domesticated dogs are of the same species, while dogs and cats are members of different species. Species extinction is the most dramatic and recognizable form of reduced biodiversity. The prevention of species extinction is a key factor in the conservation of biodiversity. Changes in species population levels indicate the potential for serious changes in ecosystem integrity.

1.4.2.2 Genetic Diversity

Genetic diversity describes the range of possible genetic characteristics found within and among different species. Hair and eye colour, weight and height, are examples of genetic diversity found in humans. Genetic diversity within species is the foundation of all biodiversity. Assessing genetic diversity does not mean tracking every gene in the zones forest. Responsible planning should design and implement measures which maintain or enhance viable populations of forest vegetation species and which use the genetic diversity of commercially important species to a maximum benefit. The genetic diversity of commercially important species can also be managed to increase economic benefit from some portions of the landscape while allowing other portions to provide greater social and ecological values. Genetic diversity is the basis by which populations (flora and fauna) can adapt to changing environmental conditions.

1.4.2.3 Ecosystem Diversity

Ecosystem diversity describes the range of natural systems found throughout a region, a country, a continent, or the planet. Wetlands and grasslands are examples of ecosystems in Canada. A complex and intricate mix of plants,

animals, microorganisms and the soil, water, and air they occupy create virtually limitless ecosystems around the world.

A forest interspersed with barrens, marshes, lakes and ponds provides for diversity across the landscape. Each ecoregion in the province should have representative areas protected which displays the diversity where such exists. These areas can serve as a benchmark from which to measure and guide management decisions. These representative areas protect the integrity of the ecoregion and are vital for guiding management actions. As benchmark areas, they will illustrate the multi-species mosaic that planning actions must maintain.

1.5 Forest Characterization

1.5.1 Land Classification

Table 2 displays the land classification broken down for District 10 in Planning Zone 5 on CBPPL tenure. There are four basic categories that currently represent how the land is classified: productive forest, non-productive forest, non-forest and fresh water. This is represented in Figure 4.

Table 2 Land Classification in District 10, Zone 5 on CBPPL Tenure

Land	District
	10
Disturbed / Non-Stocked	3,510
Cutover (No age class assigned)	1,294
Age Class 1	2,936
Age Class 2	12,829
Age Class 3	6,096
Age Class 4	5,257
Age Class 5	3,348
Age Class 6	9,627
Age Class 7+	3,023
Total Productive	**47,919**
Softwood Scrub	18,156
Hardwood Scrub	379
Total Non-Productive	**18,534**
Rock Barren	157
Soil Barren	700
Bog	13,063
Cleared Land	47
Agriculture Land	0
Residential	87
Right of Ways	9
Miscellaneous	111
Total Non-Forested	**14,173**
Fresh Water	**14,177**
Total All Classes	**94,804**

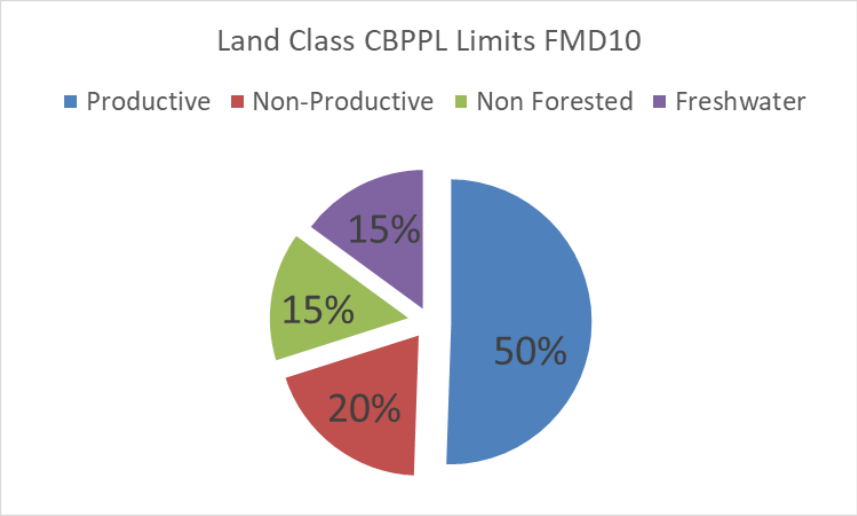

Figure 10 Land Class CBPPL Tenure FMD 10

Figure 11 Age Class Distribution CBPPL Tenure FMD 10Figure 12 Land Class CBPPL Tenure FMD 10

1.5.2 Age Class

Individual tree ages in a stand can all be the same after disturbance such as fire or harvesting; however, in most cases the ages vary. Forest managers describe stand ages in terms of age classes which generally encompass 20 years. The age classes present in the zone are described in Table 3 below.

Table 3 Age Class Description

Age	Description	Age	Description
0-20	Regenerating	81-100	Over mature
21-40	Immature	101-120	Over mature
41-60	Semi-mature	121-140	Over mature
61-80	Mature	141-160	Over mature

161 + (represents uneven-aged stands)

The age class distribution in District 10 for the entire productive forest is shown in Figure 5. In general terms, a continuous timber supply is limited by the lower age class. This means a more balanced age class distribution within a district would yield a greater opportunity for an even flow sustained yield of timber. The age class structure for District 10 is typical of the rest of the island with an abundance of area in the young and old age classes and a dip in the intermediate age classes. Strategies to rectify any age class imbalances or impacts on wood supply are developed during the timber supply analysis.

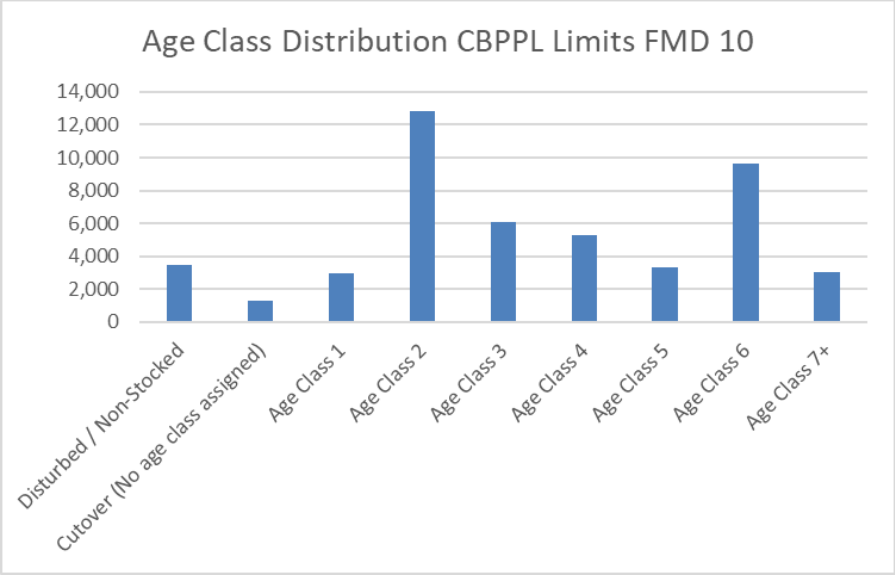

Figure 13 Age Class Distribution CBPPL Tenure FMD 10

Figure 14 Site class breakdown for productive land on CBPPL Tenure in

1.5.3 Site C

District 10Figure 15 Age Class Distribution CBPPL Tenure FMD 10

The productive forest in the zone is further sub-divided along a gradient of productivity ranging from poor to good site class. The site class is determined through air photo interpretation supplemented with field checks and is based primarily on the site's ability to produce timber. Site capability is determined by several factors including soil fertility, moisture regime and geographic (slope) position. In the zone, medium site types are most abundant accounting for approximately two-thirds of the productive forest area. The distribution of productive forest area by site class for District 10 is shown in Figure 5. On average, good sites can produce 2.6 m3/ha/yr, medium sites 1.7 m3/ha/yr, and poor sites 0.8 m3/ha/yr.

Table 4 Site Class Description

Class m^3 /ha			
High = 200+	Good = 150	Medium = 120	Poor = 80

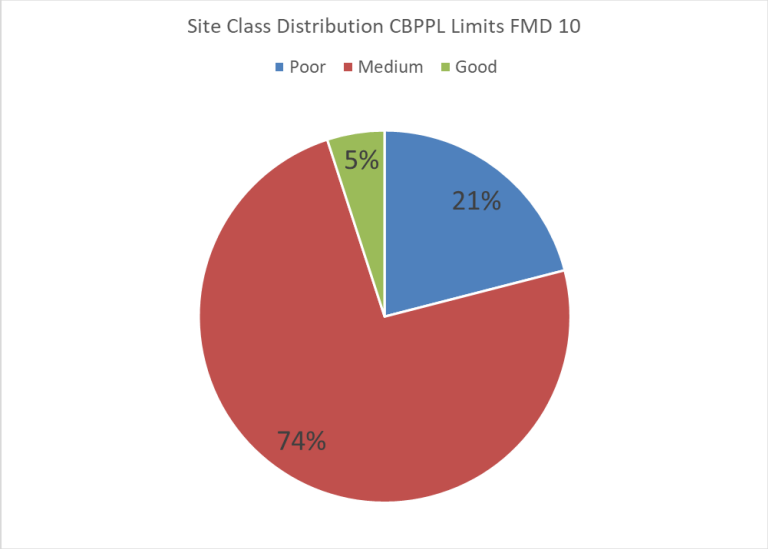

Figure 16 Site class breakdown for productive land on CBPPL Tenure in District 10

Figure 17 Working Group breakdown for CBPPL Tenure in District 10Figure 18 Site class breakdown for productive land on CBPPL Tenure in District 10

1.5.4 Working Group

A "working group" is a term used to describe the dominant tree species present in a forest stand. This species may occupy 100% of crown closure of a stand or may be present in association with other species. The working group designation describes the stand in general terms based on the prevalent species as opposed to species composition which specifically describes the relative proportion of each individual tree species that make up a stand.

In the zone, the softwood working groups dominate, accounting for over 85% of the productive forest. Black spruce is the most abundant working group in the zone followed by balsam fir (Figure 7). The black spruce working group can occur as pure stands or in association with balsam fir, white spruce, white birch, trembling aspen and/or eastern larch in varying species compositions. Balsam fir can occur in pure stands or in association with one or more of the species listed above.

The softwood hardwood working group occurs as varying mixtures of fir, spruce, and birch. Within the hardwood softwood working group, white birch and white spruce working groups occupy a small portion of the productive forest in each district.

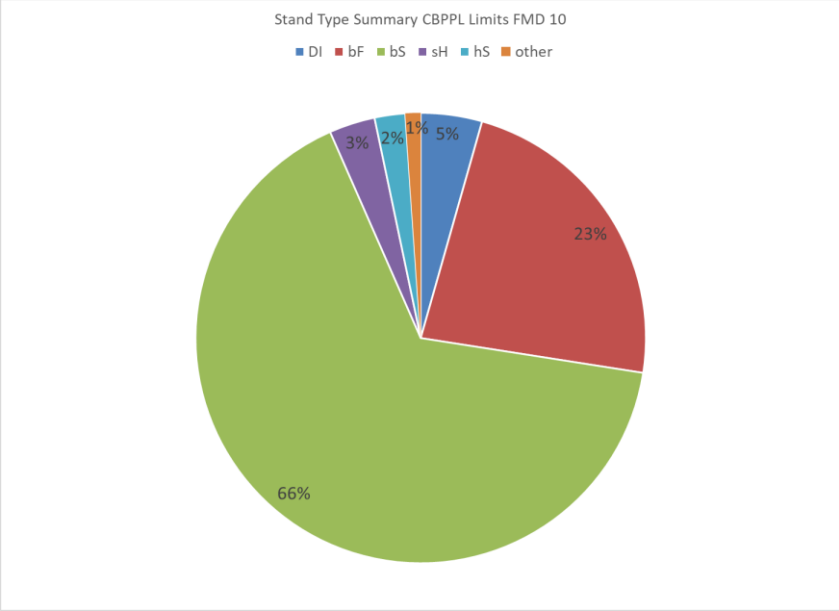

Figure 19 Working Group breakdown for CBPPL Tenure in District 10

1.5.5 Forest Disturbances

Forest harvesting, fire, insects and windthrow (blowdown) are considered forest disturbance types within the zone.

High summer temperatures combined with low summer precipitation and prolonged dry spells make the zone susceptible to fire. There has been a cyclical fire history in District 10. There was major fire activity in 1986 which resulted in a significant loss of timber in the zone. In recent years, loss has been minimal due to weather conditions, fire prevention activities and enhanced fire suppression capability. However, a major fire can occur in any year depending on weather conditions.

Hemlock Looper and Spruce Budworm are the main forest insects which have affected forests in western portion of the zone. There was a major infestation in the mid-late 1980's that resulted in significant mortality and subsequent blowdown. Fortunately, at that time, the opportunity for harvesting insect damaged timber was available and a large portion of insect damaged timber was salvaged. In addition, the Balsam Woolly Adelgid also impacts growth of balsam fir forests throughout the zone.

Aerial application of insecticides is a common management tool to control insect pests of balsam fir. To aid in the control of the hemlock looper infestation, a chemical spray program was implemented in 1969. However, in recent years, the use chemical insecticide has been eliminated in favour of a biologically insecticide called Bacillus Thurengiensis (bT) which is a naturally occurring, biological control agent. Despite control tactics, hemlock looper and the spruce budworm continue to pose a significant threat to the balsam fir forests in the western portion of the

zone. The Department of Fisheries, Forestry and Agriculture's Spruce Budworm Early Intervention Control Program has been active since 2020 in the province and aims to combat the outbreak hotspots though targeted spray treatments.

SECTION 2. PAST ACTIVITIES

2.1 Harvesting

2.1.1 Commercial Activity

Table 5 summarizes the commercial and domestic harvest (in metres cubed) in District 10 for 2021-2025. Commercial and incidental harvest was below the AAC for the period.

Table 5 Commercial Harvest Summary CBPPL FMD 10 (2021-2025)

AAC Tracking

SOFTWOOD

FMD 10		CORE					OPERATIONAL			
		Harvested		Remaining			Harvested		Remaining	
	AAC	M3	%	M3	%	AAC	M3	%	M3	%
2021	44,119	3,172	7	40,947	93	5,000	58	1	4,942	99
2022	44,119	22,842	52	21,277	48	5,000	0	0	5,000	100
2023	44,119	1,532	3	42,587	97	5,000	0	0	5,000	100
2024	44,119	20,050	45	24,069	55	5,000	147	3	4,853	97
2025	44,119	0	0	44,119	100	5,000	0	0	5,000	100
Totals	220,595	47,597		172,998	78	25,000	206		24,794	99

HARDWOOD

FMD 10		CORE					OPERATIONAL					INCIDENTAL			
		Harvested		Remaining			Harvested		Remaining			Harvested		Remaining	
	AAC	M3	%	M3	%	AAC	M3	%	M3	%	AAC	M3	%	M3	%
2021	219	0	0	219	100	0	0		0		2,984	975	33	2,009	67
2022	219	0	0	219	100	0	0		0		2,984	1,300	44	1,684	56
2023	219	0	0	219	100	0	0		0		2,984	1,150	39	1,834	61
2024	219	0	0	219	100	0	0		0		2,984	975	33	2,009	67
2025	219	0	0	219	100	0	0		0		2,984	0	0	2,984	100
Totals	1,095	0		1,095	100	0	0		0		14,920	4,400		10,520	71

Note: Up to the submission of this plan there was no commercial harvesting.

2.1.2 Domestic Activity

CBPPL does not manage its landbase for domestic harvesting with segregated blocks. Incidental harvest is allowed on the landbase through permitting. Domestic cutters can harvest hardwoods, downed and dead wood on this permit. The allowable cut per permit was 25m3 and in 2024 reduced to 15m3 to match Crown cut allowances. The incidental cut recorded is the maximum cut as per the permits issued during that year, as CBPPL does not collect past cut volumes. Estimation of cut can be found in Table 5 above.

2.2.2 Silviculture

Table 6 Summary of completed silviculture activity 2021-2025

Treatment	Proposed	Treated (ha)
	Tree Planting	381.02
	Site Preparation (Scarification)	0.00

Note: 2025 data is not included as it was not available at the time of plan submission.

2.2.3 Forest Access

Table 7 Summary of forest access road construction 2021-2025

Road Type	Constructed (km)
Primary	10.02
Secondary	8.21
Winter	0.00

Note: 2025 data is not included as it was not available at the time of plan submission.

2.2.4 Natural Disturbances

2.2.4.1 Fire

District 10 has had a very infrequent fire history due to its relatively long winters and abundant precipitation. There were no significant fires during the last planning period. Historical data can be found on the gov.nl website.

2.2.4.2 Insects

The provincial government has been implementing a proactive spray program to help prevent an outbreak of Spruce Budworm in the province since 2020. Using annual surveys including pheromone, aerial defoliation and fall forecasts (egg mass or L2 surveys) a spray plan is formed. This program is known as the Early Intervention Strategy and is supported by the Government of Canada and is matched by the 4 Atlantic Provinces and industry. The strategy includes:

- Monitoring populations to detect ‘hot spots’
- Targeted insecticide treatment to prevent spread
- Proactive public communications and engagement on project activities and results

The strategy is the first attempt of area wide management of a native forest insect population. CBPPL will continue to

be a member of the Provincial Forest Pest Management Committee. During the past 5 years there has been no planned spray in District 10 on CBPPL Limits.

SECTION 3. TIMBER SUPPLY ANALYSIS

The annual allowable cuts for District 10 will be in effect from January 1, 2026, to December 31, 2030.

3.1 Methodology

The province reviews its timber supply every five years in order to account for any changes in forest land base, growth rates, and management strategies. This schedule is consistent with the Forestry Act, 1990, which established management by forest management district and mandates that a wood supply analysis be completed every five years. The result of this analysis is a new set of annual allowable cuts (AAC's) for each forest management district. These AAC's are defined as the maximum annual rate at which timber can be harvested at a sustainable level indefinitely into the future (in reality, the AAC figures are applicable for a period of 160 years into the future and not infinity). Annual allowable cuts must be calculated on a district basis, however when "rolled up" provide us with the annual allowable harvest level for the island. More information on the Timber Supply Analysis Program can be found on the Governments Forestry website. www.ffa.gov.nl.ca.

3.2 Guiding Principles and Policy Direction

The key underlying principles that guide this analysis are:

(i) the AAC must be sustainable;
(ii) the level of uncertainty (risk) associated with the AAC must be minimized by using empirical information wherever possible;
(iii) there must be conformity between information and assumptions used in the analysis and actions and decisions taken on the ground;
(iv) the analysis must be consistent with other forest values and objectives; and
(v) the timber supply calculation must consider economic factors, not solely the physical supply of timber.

In concert with the policy of establishing sustainable timber harvest levels, Government policy requires that harvesting not exceed the established AAC's. Likewise, Governments policy is to optimize forest industry opportunities from the sustainable fiber supply. Government also requires consultation be conducted during the timber analysis. The forest industry was consulted directly throughout the process.

3.3 Factors Affecting Timber Supply

The forests of insular Newfoundland are very variable in terms of age distribution. Typically, there are significant amounts of mature/over-mature forest and regenerating forest but limited intermediate age forests. This imbalance is not unusual in a boreal forest where cyclic catastrophic disturbances are common.

The insufficient amount of intermediate age forest on the island is one of the most important factors influencing AAC's, therefore it is the basis for many of our forest management strategies. Essentially, we are employing a matrix of measures designed to fill the gap in our age structure, which include: an aggressive forest protection program, harvesting programs that attempt to exclusively target the oldest stands first, and thinning the regenerating forest so that it becomes operable at an earlier age.

Another important aspect of the province's forest posing a challenge to forest managers is the natural fragmentation of the resource. The province's landscape is characterized by many ponds, bogs, rivers, streams, and rock outcrops resulting in relatively small pockets of timber. This makes the determination of an economic timber supply very challenging given that each stand has unique economic characteristics.

Arguably the most important factor affecting present and future AAC's is the available productive landbase. However, this productive landbase available for forest activity is constantly being evaluated by the demands/requirements of other stakeholder values. Therefore, it is important that we manage relationships with other users to minimize loss to the forest landbase, while considering these other values. Also, to mitigate losses to the productive landbase, we must continue to explore ways for growing more volume on the existing landbase.

3.4 Timber Supply Analysis

The timber supply analysis is structured to determine sustainable timber availability, while respecting social, economic, and environmental objectives. Timber supply, in this context, refers to the rate at which timber is made available for harvesting on a sustainable basis. The determination of supply (represented as AAC's) involves the use of computer models to forecast the sustainability of possible AAS levels. These models require three basic inputs as described below:

1. A description of the current state of the forest (forest characterization and availability),
2. Growth rates associated with the current forest, and
3. Management strategies applied to the forest.

These basic inputs require careful and detailed consideration of a broad range of both timber and non-timber values. The following topics in this chapter are considered when determining the sustainable timber supply.

3.4.1 Land Characterization

To get a current description of the forest resource (or stock), the province has invested significant resources into creating and maintaining a Provincial Forest Inventory. This program accounts for all natural and man-made disturbances such as: fire, insects, harvesting, and any enhancement programs, including tree planting and pre-

commercial thinning. Also, each stand in the forest inventory is updated to reflect any yield changes that may have occurred since the previous inventory update.

3.4.2 Land Availability

The updated Forest Inventory was reviewed and classified at the stand level based on the availability of each stand for harvest. The classification system consists of two broad classes being available for the AAC calculation;

Core	- available for harvest under normal conditions, and
Operational	- has restrictions for harvesting due to economic constraints.

The remaining productive forest has been removed for varying social/legislative reasons. The major removals are listed below:

3.4.2.1 Non-Timber Related

Consideration of non-timber values has a direct impact on Provincial AAC's. It is obvious that as the amount of productive forest land available for timber management drops, so too will the AAC. With the current restrictions, the AAC landbase (area where harvesting operations can occur) is only 17% of the total productive forest land base. On average, in any one year, less than 1% of the productive forest land base is influenced by harvesting operations.

3.4.2.1.1 No-Cut Buffer Zones

The province has guidelines that require all water bodies (visible on a 1:50,000 map sheet) be given a minimum 30 meter uncut buffer (from waters edge). In addition to these legislated water buffers, District Ecosystem Managers, in consultation with various stakeholders, have increased buffer zone widths beyond the minimum to protect special values such as: salmon spawning areas, cottage development areas, aesthetic areas, wildlife habitat, outfitting camps, etc.

3.4.2.1.2 Pine Marten and Caribou Habitat

Habitat specialists are working in consultation with industry to study both species and ensure adequate habitat will be available for pine marten and caribou into the future. This work examines the quantity and quality of habitat, as well as the connectivity of habitat. With respect to Caribou, both the Forest Services Branch, Corner Brook Pulp and Paper and the Wildlife Division work together on an annual basis. A caribou management strategy has been put in place which identifies core habitat and outlines the requirements for harvesting in restoration/conservation herd habitat.

3.4.2.1.3 Protected Areas

All established and proposed protected areas are removed from the AAC calculations.

3.4.2.2 Timber Related

The potential AAC within a Forest Management District is also further impacted by taking into account other potential losses of landbase or timber as indicated below:

3.4.2.2.1 Insect/Fire/Disease Losses

The department reduces AAC's to account for anticipated future losses resulting from insects, disease and fire using historical information.

3.4.2.2.2 Logging Losses

Surveys of recent harvested areas are conducted each summer throughout the province to determine the quantity and quality of fiber remaining. The estimates of loss from these surveys are used to reduce the AAC.

3.4.2.2.3 Operational Constraints

Areas that are inaccessible (surrounded by bogs or hills), timber on steep slopes, and low volume stands are removed from the AAC calculation up front. Also, significant adjustments are applied to the Provincial Forest Inventory for stands deemed operable in the timber analysis but left unharvested within operating areas. The reasons for this are linked to the character of Newfoundland's forests; low volume, steep slopes, rough terrain, and excessively wet ground conditions etc. Again, all these timber and non-timber related issues are applied directly in the AAC calculation to ensure harvest levels do not exceed the sustainable level. With the introduction of new values and the broader application of current values, the pressure on future AAC's will continue to increase.

3.4.3 Growth Forecasting

A key requirement for forecasting future wood supply is an understanding of how forest stands grow and develop through time. That is, as a forest stand develops, how much merchantable (i.e. harvestable) volume does it carry at any given point? These yield forecasts (referred to as yield curves) are required for each type of forest stand (called a stratum) comprising the forest. In Newfoundland, there are dozens of distinct forest stratum for which separate yield curves are required. These are defined by the tree species in question (e.g., balsam fir, black spruce), the site quality (e.g., good, medium, poor), the geographic region (e.g., the Northern Peninsula, Western Newfoundland) and other factors likely to affect yield.

Yield curves are a key element in a wood supply analysis. In fact, the validity, or "usefulness", of the wood supply analysis is determined by the truth, or "correctness", of the yield forecasts. While there is no way of predicting with one hundred percent certainty how stands will actually grow in the future, care must be taken to ensure that the yield

projections are realistic and reasonable. Respecting the sensitivity and importance of these forecasts, the department has directed a large portion of its resources and time into developing realistic yield curves. Two growth models were used, one for projecting stand development under natural conditions and the other for projecting growth under managed (i.e., silviculturally enhanced) conditions. Tree and stand development data generated from the department's forest inventory program were used to make stand growth predictions. These projections were then evaluated against empirical data from thousands of temporary plots established throughout the island. If the projections varied from real-life evidence, the curves were adjusted to make them more accurate.

In this analysis, yield curves were developed on an ecoregion basis. Also, special yield curve sets were developed for defined geographic areas with demonstrated uniqueness. These include areas where chronic insect activity is ongoing and areas that have unique growth characteristics.

3.4.4 Management Strategies

With the current state of the forest described and the yield forecasts developed, the next step was to design a management strategy for each sector of the forest. The key objective was to maximize long term AAC while at the same time considering other forest values. This involved developing strategies that minimized fiber losses and enhance forest sustainability.

3.4.4.1 Harvest Flow Constraints

An even-flow harvest constraint was used in the analysis to maximize the sustainable harvest level. This strategy produced the maximum even flow harvest but resulted in less than optimum economic use of the forest resource. If no even flow constraint is used and harvest levels are permitted to fluctuate in response to market value, the overall economic potential of the forest will increase. However, the lower economic potential is offset by stability in manufacturing plants and employment.

3.4.4.2 Spatial Analysis

The provincial wood supply analysis implements a technique of manual harvest scheduling. In 2001, the harvest scheduling was an automated process where the software allocated the stands to be harvested over the upcoming 25 years, based on user supplied criteria. The 2001 approach of scheduling harvest stands was an improvement over previous wood supply analysis. However, the software used cannot realistically know all the operational restrictions within a forest management district. By utilizing the manual process, it is possible to identify specific ground conditions that restrict commercial harvesting, which are then incorporated into a spatial harvest schedule. The proposed harvest schedule is then vetted back through the modeling software to ensure sustainable and non-timber objectives are met. In most cases, this process must go through several cycles before an acceptable harvest schedule can be implemented. The spatial arrangement of areas for timber harvesting is especially challenging in this province because of the natural fragmentation of the forests. This model provided forest planners with the ability to mimic

realistic timber harvest schedules based on current practices and to identify other forest stands that are not as accessible for harvesting.

Manual harvest scheduling has several major benefits. First, it fosters the long-term sustainability of our AAC's by mimicking current harvest practices and accounting for actual on the ground conditions that delay or restrict the harvesting of stands. These restrictions, which were previously unaccounted for, have made our past AAC's higher than was realistically sustainable. Secondly, the mapped harvest schedules build credibility into the forest management process. A common misconception is that the province is running out of wood and soon will not be able to support existing forest industries. Every stand that will be harvested over the spatial plan must already be in the second or third age class and can be easily identified and highlighted.

Having the ability to visualize the timber that will be harvested in the future helps reassure the resource is being used in a responsible manner. Next, harvest scheduling helps integrate the management of other forest resource values into timber management planning. Specific forest values can be directly related to forest areas, which can be mapped, and potential issues can be addressed. Finally, the harvest schedule maps developed for the wood supply analysis can be a starting point for a 5-year operational planning process. Worthy to note is that harvest scheduling is completed for core landbase only. The operationally constrained AAC, for the most part, is considered opportunistic of economic conditions become favorable.

3.4.4.3 Planning Horizons

Given the Province's commitment to long term sustainability of our forest resource, timber supplies were projected 160 years (equivalent to two forest rotations) into the future to ensure actions and strategies applied today will result in a sustainable forest in the future. Long term planning is fundamental in timber supply forecasting and ecosystem management as well.

3.4.4.4 Operable Growing Stock Buffer

The province imposed an operable growing stock constraint in the analysis to ensure the sustainability of calculated timber supplies. The constraint imposes a condition that in any period there must be a minimum operable growing stock of two times the harvest level on the landscape. In other words, for every hectare that is harvested another harvestable hectare must exist on the landscape. The requirement for a growing stock buffer is based on several factors. First, several of our non-timber objectives are not explicitly accounted for in our planning process and therefore will require a growing stock buffer to achieve them. Second, we are unable to follow optimum harvest schedules explicitly due to operational restrictions on harvesting. Third, the Province is not willing to assume high risk with the sustainability of the timber supply. For these reasons a growing stock constraint of two times was used. This constraint was used in concert with harvest scheduling to help map out a reasonable harvest for the next 20 years.

3.4.4.5 Old Forest Targets

Consistent with our ecosystem policy, the province introduced into the analysis an old forest target that at least 15% of forests are older than 80 years. While this is the minimum target, actual results are usually higher. This initiative was designed to provide a coarse filter approach to maintaining representative forest structure. It ensures the presence of certain amounts of old forest across the landscape into the future. With advances in modeling, this target can now be tracked across a district rather than a single ownership. This has resulted in this strategy being less restrictive than the last analysis. Also, the site class distribution of the older forest reserve is being examined to make it representative of each ecoregion and subregion.

3.4.4.6 Operability Limits

Operability limits are the time windows in which forest management actions such as harvesting can be undertaken within forest stands. Stand growth development as measured in stand merchantable timber volume and individual piece size of trees determine a stands readiness for harvest. In some young stands, one can have acceptable harvest volumes, but still have trees that are too small to harvest. In the wood supply analysis, both stand volume and tree size were used to determine the earliest age when a stand could be initially harvested. In addition to determining the absolute earliest age a stand can be harvested, it was recognized that not all stands on the same site develop exactly at the same rate. The ending operability limits or the last age in which a stand can be harvested before it becomes too old to harvest is solely determined on a minimum stand volume of between 60 to 80 m^3/ha, after which that stand does not have enough volume to make it economical to harvest. It should be noted that while the operability limits define the extreme end points of when stands can be harvested, very few stands are ever harvested at these extreme points. To meet other non-timber objectives and in order to maximize the total volume of wood harvested the model schedule stands to harvest somewhere inside the operability limit window.

3.4.4.7 Silviculture

Silviculture is one of the main forest management tools available to forest managers when they are analyzing the many different future forests that are generated using the wood supply modelling software. The silvicultural actions used in the 2025 analysis included:

1. 1750 ha bS plant/period
2. 250 ha wS plant/period

3.5 Inventory Adjustments

One of the limitations of the current wood supply model is its inability to account for volume depletions outside of what is reported for harvesting operations. The model produces a gross merchantable volume (GMV) figure which needs to be adjusted to account for volume losses as: fire, insects/disease, timber utilization practices and the presence of stand remnants. It was recognized that a need existed to study each component more intensely and the staff from

the Forest Engineering and Industry Services Division, over a seven year period, completed an analysis of the individual components. The results of these (and other) analysis are incorporated into the current woodsupply analysis.

3.5.1 Fire

An estimate of productive area loss as a result of fire was based on an analysis of the historical fire statistics maintained by the Provincial Government Forestry Division. Fire losses in District 10, Zone 5 are very low.

3.5.2 Insects

An aerial mortality survey was completed on areas with historically high insect infestations. This information along with a GIS analysis of areas salvaged enabled NFS to determine the amount of productive area lost to insect mortality each year.

3.5.3 Timber Utilization

Information for this adjustment was derived from a series of intensive on-the-ground surveys which measured the amount of wood remaining on cutovers following harvesting. This wood was comprised of solid merchantable wood (logging losses) and wood with inherent cull (butt/heart rot). Surveys were conducted province wide and on all tenures where the information is analyzed by harvesting system and season.

3.6 AAC Results

The results of the 2026-2030 timber supply analysis for District 10 is shown in Table 8 below.

Table 8 Annual Allowable Cut 2026-2030

Provincial Annual Allowable Cut (AAC) 2026-2030

	Softwood		Hardwood		Incidental
	Core	Operational	Core	Operational	
District 10	39,500	3,500	280	0	2,984

SECTION 4. RESOURCE VALUES

4.1. Guiding Principles of Sustainability

There are five guiding principles of overall sustainability, which include environmental, economic, political, social, and cultural sustainability. Environmental sustainability looks directly at ecosystem health, both now and in the future. Ecosystem health is determined by such factors as ecosystem integrity, biodiversity, productive capacity, and resiliency. The five-year operating plan must ensure these factors are intact.

Economic sustainability demands that forest resources be managed and distributed efficiently and equitably among the stakeholders, within the capacity and limits of the forest ecosystem. Economic development has been given top priority by many of Newfoundland's people and their representative, the government. However, economic development should not proceed without the incorporation of the other factors into the decision-making process.

Political sustainability refers to goals and management objectives being applicable, administrable, and practical. These goals and objectives must maintain these qualities well into the future with the aid of public input and support. Social sustainability means fairness and equity to all stakeholders. Cultural sustainability is attained by applying Newfoundland's culture to the planning process. A forest management strategy cannot be successful without allowances within the strategy for traditional access and use of the land. For generations, many of Newfoundland's public had free range in our pristine wilderness, a fact that cannot be ignored when planning for the zone. All are key interlocking components, and each must be maintained if sustainable development is to be achieved.

4.1.1. CBPPL Sustainable Forest Management (SFM) Plan Introduction

The forest industry in Canada has evolved from the management of the timber resource to the management of the forest ecosystem. Previously, forest managers developed forest management plans in isolation, focusing on timber. But as the public began requesting the inclusion of other values, consultations with the public and other resource managers evolved simultaneously with the consideration of non-timber values. This has become a cornerstone of sustainable forest management.

Corner Brook Pulp and Paper Limited (CBPPL) has joined in this shift to sustainable forest management by incorporating social, environmental, and economic values in the sustainable development of Newfoundland's forests. Forestry Services and CBPPL have incorporated public consultations in the forest management planning process since the 1980s, developing a positive relationship among the government, CBPPL, and the community. Public involvement in the identification of values and the development of management plans benefits present as well as future generations.

The Sustainable Forest Management (SFM) Plan for the forested land on insular Newfoundland for which CBPPL has management responsibility, described as the Defined Forest Area (DFA). It was originally developed with the

cooperation of the Public Advisory Committee (PAC), a group of dedicated individuals and organizations interested in sustainable development of the forests of the DFA. The planning process involves public consultation and follows the principles of sustainable forest management.

CBPPL's first SFM Plan was developed over 16 months and released in July 2004. In late 2008, the Canadian Standard Association released a draft revised standard (CSA® Z809-08), and the PAC began updating CBPPL's plan to conform to the new standard, incorporating lessons learned and continual improvement. In 2012, CBPPL was also certified to Forest Stewardship Council (FSC®) Boreal Standard. In 2018 and 2019 both standards (FSC and CSA respectively) were not maintained and instead replaced with CBPPL's newest forest management standards. In July of 2019 certification to two Sustainable Forestry Initiative Standards (SFI), Forest Management and Fibre Sourcing, was achieved. The PAC committee, although a requirement of the CSA standard only, was kept intact to continue to aid in public consultation for future planning inputs and to meet standard and government requirements.

In 2025 CBPPL is again seeking to certify to the FSC National Forest Stewardship Standard of Canada. Preliminary work has begun and the company will have its third party audit in May of 2025.

CBPPL wishes to illustrate to the public (the landowners) and to its customers that the DFA is being managed on a sustainable basis. To this end, CBPPL seeks to maintain certification to SFI, and Canada's national sustainable forest management (SFM) Standard. Forest certification gives organizations a system for continually improving their forest management performance and engaging interested parties in a focused participation process. Rigorous and regular independent third-party audits are involved in certification to both standards.

CBPPL Woodlands' Environmental Management System (EMS) is the vehicle that ensures fulfillment of the SFI Standards requirements. CBPPL's EMS is a registrant to the ISO 14001 Standard, a standard that incorporates environmental aspects and continual improvement into all forest operations. EMS applies to all Woodlands operations controlled by the company including management planning, road construction and maintenance, harvesting operations, transportation of fibre, silviculture, and support services. The documented procedures of EMS will provide the system to satisfy all requirements of the ISO 14001 and SFI Forest Management and Fibre Sourcing Standards.

Throughout the SFM Plan, references are made to Indicator Profiles. The profiles, located in the final section of the plan (which can be found on CBPPL's website www.cbpplwoodlands.com), contain the background information, management strategy, and implementation details for each of the indicators of sustainable forest management and adapted to satisfy indicators for the SFI standards.

The auditing process, conducted by an independent third party, determines whether the requirements are implemented at the DFA level.

4.2 Values Structure

The forest ecosystems of the zone provide a wide range of values to different individuals and groups. These include consumptive values such as timber products, hunting, trapping, sport fishing, and berry picking, and non-consumptive values like skiing, snowmobiling, hiking, and bird watching. Also, there are intrinsic and intangible values such as a feeling of wilderness and peace which some people describe as spiritual. Although difficult to spatially describe or quantitatively measure, these spiritual values are a product or an accumulation of all values.

Other values such as water quality, parks and protected areas etc. provide for the protection of the forest ecosystems which can enhance the other values listed above. Many of the values in the zone were identified by this or previous or planning teams. Presentations of pertinent information on each value by knowledgeable individuals or groups provided stakeholders with relevant information to make informed decisions. Other values, while not specifically outlined by the planning team, are also identified, and discussed to provide a more complete description of the range of values found in the zone. The following represents a framework for characterizing values in a clear and consistent manner. This approach consists of three components:

(a) Characterization

- Description: Why the value is important, types of activities, intensity, spatial extent, employment, etc.
- Data in support: Statistical references.

(b) Critical Elements

- Forest Features: Elements at risk from harvesting or enhanced by harvesting (viewscapes, adjacency to water, mountains, habitat, wilderness ambiance, road access, etc.)

(c) Guiding Principles

A guiding principle is defined as "a fixed or predetermined policy or mode of action".

These ‘modes of action’ would be implemented in the five-year plan in the form of:

1. Policies that should be in place to protect or enhance the resource value.
2. Methods for negotiation or inclusion of other stakeholders in resolving potential conflicts.
3. Special management provisions/strategies - such as buffer zone consideration, temporal operating periods, modified harvesting, or a best management policy; and/or
4. Models and/or forecasting strategies to determine economic contribution, biodiversity impact, or community sustainability

Individual values were discussed both at the strategic and operational level. Strategic level information (characterization, critical elements, and guiding principles) is the focus of discussion in this section. They provide a

mechanism to resolve conflicts that might arise throughout or after the five-year planning process. Where possible, the physical location of the value on the landscape (operational level) was also identified during the discussion of values (Section 6). This helps facilitate the preparation of the five-year operating plan by identifying potential areas of conflicting use early into the process. In many instances, the Environmental Protection Guidelines (EPG's, Appendix 1) form the guiding principles for a value. Quite often the spatial extent or location of all values is not known (e.g., raptor nests). Specific guidelines are still listed to provide a direction or course of action when and if these values are encountered.

4.2.1. Biotic Value

4.2.1.1. Big Game

4.2.1.1.1 Moose

Characterization:

Moose are not native to the island. Today, moose are distributed throughout the Island and in 2020 the population was estimated to be around 118,000 animals. Currently, moose are managed on an area/quota system in the province. The Island is divided into Moose Management Areas (MMA's) and license quotas are set annually for each MMA. Quotas are set based upon the management objective for each area (i.e., whether it is desired that the population increase, decrease or stabilize). Generally, if an area has too high a moose population, managers will increase quotas to bring down the population to prevent damage to the habitat. However, if the habitat is in good condition, and the area could support more animals, future quotas may be increased. All or portions of moose management areas 11-13 and 15-22 are located within the zone.

Critical Elements:

Harvesting is not expected to have a negative impact on moose populations in the zone because moose prefer the early serial stages of a forest and generally do well in areas after harvesting.

Guiding Principles:

The proposed forestry activity is reviewed by the staff at the Wildlife Division and recommendations are incorporated into the five-year plan.

4.2.1.1.2. Caribou

Characterization:

Caribou is the only native ungulate species on the island. Biologists estimate that prior to the railway being built in 1898 the population on the Island was approximately 100,000 animals but by 1930 the population had declined to about 10,000 animals. Between 1980 and 2000 the number of caribou has increased considerably on the Island with a population estimated at 90-100,000 animals. In 2019 population estimates suggests 30,600 animals exist island wide. All or portions of caribou management areas 61-63, and 66-68, are in the zone.

In 2014 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed Newfoundland Caribou and recommended a listing of "special concern". COSEWIC assessments are usually done on a 10-year cycle.

Critical Elements:

It is unclear how forestry activities in the immediate vicinity of calving areas during the calving period may have an impact on caribou populations. Recent studies and anecdotal information have indicated that harvesting restriction zone around caribou calving zones may be significantly larger than first thought. It has also been shown that as roads are constructed and access is improved into remote areas, there is generally an increase in the number of animals which are killed due to roadkill and poaching.

Guiding Principles:

The Wildlife Division of FFA will be consulted on timber harvesting within woodland caribou habitat during the

preparation of each five-year operating plan, with further requirements to be outlined during the development of Annual Operating Plans.

- This plan supports the development and assessment of Caribou Management Guidelines for forest management planning.
- Currently the Wildlife Division has provided spatial data on restoration and conservation herds in the province, along with the targets for habitat renewal.
- The guiding principals for forestry operations and road construction will apply to CBPPL and Crown lands within the province. Wildlife Division will provide herd specific guidance and recommendations.

4.2.1.1.3. Black Bear

Characterization:

The black bear is native to the island and is found in forested areas (Northcott, 1980). Currently, the number of black bears occurring on the island is not known but is crudely estimated to be about 6 - 10,000 animals (Christine Doucette, Pers. Comm.). The province is divided into Black Bear Management Areas (BMA). Within the zone BBMA areas 203 and 204 are found. Currently, only one license (with a bag limit at 2 bears) is required by hunters on the island to hunt bear in both spring and fall.

Critical Elements:

- Den sites for winter hibernation.
- Forest cover

Guiding Principles:

A 50-metre, no harvesting activity buffer will be maintained around known bear winter denning sites or those encountered during harvesting. These den sites must be reported to the Wildlife Division.

4.2.1.2. Furbearers

Characterization:

Ten species of furbearers occur in the zone; lynx, red fox, beaver, otter, muskrat, short tailed weasel, red squirrel, mink, coyote, and pine marten (will be discussed in more detail in next section). Of these, red squirrel, mink and coyote are not native. Approximately 16,000 people in the province trap and snare furbearers as a means of supplementing income.

Critical Elements:

- Forest cover for protection;
- Water quality maintenance;
- Riparian buffer zones along aquatic areas;
- Snags and coarse woody debris (denning, nesting sites, etc.)

Guiding Principles:

Fur Bearer Management Strategy:

Recommendations concerning the management of furbearer species are developed annually by the Wildlife Division, upon consultation with provincial trappers, Newfoundland and Labrador Trappers Association, public, and departmental staff. Like the small game management plan, the fur management plan, reviews the status of each fur bearer species annually and addresses the season dates and lengths, and if necessary, closure of areas (or no open season). Management of all fur bearing species in the zone will continue to be managed through this process. Information regarding trapping is made available to the public through the Annual Hunting and Trapping Guide.

Environmental Protection Guidelines:

To protect beaver habitat, all hardwoods within 30 metres of an active beaver lodge are to be left standing.

4.2.1.3. Salmonids

Characterization:

The Atlantic salmon and the brook trout are native to the Island and are found in waterways surrounded by forested areas.

Critical Elements:

- Water quality maintenance
- Riparian buffer zones along water systems

Guiding Principles:

Salmonid Management (Atlantic salmon and brook trout)

Management of Atlantic salmon and brook trout in the province is delivered by the Federal Department of Fisheries and Oceans (DFO). DFO annually sets bag limits, season dates and river closure dates based on extreme water temperature.

Environmental Protection Guidelines and other requirements

- A 30m, no harvesting activity buffer zone shall be maintained around all water bodies that are identified on the latest 1:50,000 national topographic map.
- Streams greater than 2m in width that do not appear on the NTS maps require a 30m buffer
    - if they have a defined bottom,
    - banks that exceed 30cm in depth; and
    - meets or exceeds an average 2m in width measured at 40m intervals over a 200m distance along the stream

- Where the slope is greater than 30 per cent there shall be a no-harvest buffer of 30 metres plus 1.5 times per cent slope. All equipment or machinery is prohibited from entering waterbodies; thus, structures must be created to cross over such waterbodies for the protection of aquatic habitat. Every reasonable effort will be made to identify intermittent streams, and they will be subject to this buffer requirement.

-DFO recommends that a 100 metre no-cut buffer zone be left in designated sensitive spawning areas.

4.2.1.4. Song Birds

Characterization:

The distribution of songbird species in a forest ecosystem is widely considered to be a relative indicator of ecosystem health. Many songbird species are distinct to specific habitats (Whitaker et al., 1997) therefore; the presence, absence, or health of a specific songbird population can indicate the health of its corresponding habitat. Songbirds are also the natural predators of our native Lepidoptera pests (ie. looper and budworm) and help to control these populations. Consequently, their value cannot be underestimated.

Critical Elements:

- forest cover for protection;
- water quality maintenance;
- riparian buffer zones along aquatic areas;
- variety of forest seral stages and species (nesting sites, habitat, etc.)

Protection of songbird species will mainly involve protection of their habitat through the various methods discussed in earlier sections.

4.2.1.5. Other Avian Species

Characterization:

Other valued avian species include ptarmigan, grouse, migratory birds and raptors. The former includes important

game species, while the latter (ie. raptors) occupy higher trophic levels in the food chain. Higher level trophic feeders are considered important indicators of ecosystem health as they are sensitive to environmental stress. Population trends for these species as defined by the Wildlife Division and Canadian Wildlife Service (CWS) are available on a regional basis.

Critical Elements:

- forest cover for protection;
- water quality maintenance;
- riparian buffer zones along aquatic areas;
- snags and coarse woody debris (prey habitat)
- buffer zones on nesting sites
- The locations of all known bald eagle and osprey nests will be identified on all cutting maps and harvesters will be informed of their locations by Forest Services Staff. Regular operator checks and routine patrols of domestic cutting areas by Forestry Staff will ensure compliance of these guidelines.
- On recommendation by the CWS, sensitive waterfowl habitat has been protected through increased buffers of 50 meters on certain ponds.

Environmental Protection Guidelines

- The EPG's outline Beneficial Management Practices which would reduce the risk of incidental take by making forest operators aware of their responsibility in the following areas
    - Knowledge of Legal Obligations
    - Risk Assessment and Planning
    - Preventative and Mitigation Measures.

For further details see Appendix 1

4.2.1.6. Rare and Endangered Species

4.2.1.6.1 Pine Marten

Characterization:

Before 1900, marten ranged over most of the forested areas on the island. Unfortunately, due to a variety of reasons, the population levels dropped where this species was listed to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Endangered. Habitat loss, predation, disease and accidental trapping and snaring are thought to be primary reasons for marten population decline in Newfoundland. Marten still naturally occurs in three main areas on the island including: Main River watershed, Little Grand Lake and Red-Indian/Beothuk Lake areas. Additionally, marten also now exist at Terra Nova National Park (TNNP) and surrounding landscape. As well, in the Bay Du' Nord Wilderness Area around Lake St. John through a relocation effort by the Eastern Newfoundland Pine Marten Recovery Team. Representatives from TNNP, Forest Services Branch, Wildlife Division and CBPPL are represented as stakeholders of the recovery team. The purpose of this team is to set short-term and long-term population goals for the species in eastern Newfoundland and recommend ways in which this may be accomplished. The Team has been established for some time now and has worked on the process of evaluating critical and recovery marten habitat and determining which forest activities can take place within these areas. Approximately, 16 marten have been relocated to these areas and the population estimate today is approximately 300. Once listed as Endangered, COSEWIC has now downgraded the marten listing to Threatened.

It is important that marten habitat is protected in this area and some remnant stands of old growth (80+) forests remain throughout the zone. To accomplish this, a landscape approach to habitat management was initiated by the Forest Service in 1999. This involved working with stakeholders to identify critical or potential marten habitat, locating possible corridors, and identifying areas which would not be cut in the near future. This initiative has been ongoing since that time.

Critical Elements:

- Sufficient habitat to support a viable population of marten;
- Areas of known marten populations remain closed to snaring and trapping

Guiding Principles:

These guiding principles are put in place to further recover the species and allow for forest harvesting.

- Sustainably manage core marten areas
- Plan for habitat connectivity
- Limit activities within critical habitat areas during denning season (April 1st to June 30th)

4.2.1.6.2. Banded Killifish

Characterization

The Newfoundland population of Banded Killifish was first listed as special concern in 1989 due to the limited area of occupancy, limitation on potential for range expansion, and potential threats from logging and other activities that could lead to habitat degradation (Chippett, 2003). In 2003 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommended the status of special concern should be maintained. Banded killifish populations in Newfoundland are distributed over a wide range, but local populations are restricted to very confined regions within their respective watersheds. Populations appear to be locally abundant in representative areas that were sampled (i.e. Indian Bay watershed, Loch Leven and Freshwater Pond). Although multiyear data is not available, population estimates from 1999 indicate that over 20,000 individuals exist in the Indian Bay watershed. Estimates are not available for other local populations (Chippett, 2003). Although no killifish have been officially reported in other areas of the planning zone, it is highly likely other areas may contain suitable habitat.

Critical Elements:

- water quality maintenance;
- riparian buffer zones

Guiding Principles:

- guidelines for the protection of freshwater fish habitat are developed by DFO's Habitat Management Branch
- Designated protected public water supply areas (PPSWA's) also provide protection. As well, applying existing Environmental Protection Guidelines to these areas (ie. Increased buffers, 150 meters on intake ponds, 75 meters on main river stems, 50 meters on major tributaries and minimum 30 meter buffer regulated in the rest of the district).
- Protection of this species is also strengthened through partnerships with the community based watershed management groups.

4.2.1.6.3. Red and White Pine

Characterization:

Provincially, the range of white pine is shrinking due to a variety of reasons including past harvesting practices and infection from blister rust. However, significant stands of white pine still exist in forest management districts of Planning Zone 6. Red pine is the rarest tree species in the province with a distribution of some 22+ small stands (<15,000 trees in total). There is low representation of red pine in this Planning Zone. However, since both species occur in Planning Zone 6, local protection is required to maintain local and provincial biodiversity.

Critical Elements:

- maintenance or enhancement of stands on the landbase
- minimizing loss of trees/stands through public education
- minimize losses to fire, insect and disease
- enhancement of younger age classes through planting natural regeneration and pruning to ensure continuance of the species
- maintenance of native genetic stock

Guiding Principles:

- enforcement of forestry act, regulations, guidelines, and policies
- gene preservation gardens for these species and a clonal orchard for white pine have been developed by DNR at Wooddale Tree Nursery. At some point, the goal is to produce seed from these gardens/orchards to grow pine seedlings of native origin.
- some native red pine stands are protected under reserve status.
- DNR has adopted a no cutting policy of pine by nontraditional users and a phase out of cutting by traditional commercial users. Currently, no commercial operators harvest pine.
- protection of these species in planning zone is expected to be strengthened by public education and no-cut conditions on permits (both domestic and commercial).
- implementation of silviculture treatments designed to merge pine back into the landscape.
- DNR is collecting seed from red pine stands of native origin and the collection of white pine scions for the clonal orchard at Wooddale - DNR also implements stand level silviculture prescriptions such as pruning of immature white pine to reduce the infection rate of blister rust and cone production enhancement on red pine to ensure an adequate supply of native red pine seed.
- CBPP staff are members of the Red Pine Recovery Team.

4.2.1.6.4 Red Crossbill

The red crossbill is currently listed as endangered. Any recommendations on modified forestry activities, if any, will be developed by the Wildlife Division and will be presented in comments in future 5YP's or annually in the Certificate of Managed Lands.

4.2.1.7 Rare Plants

Characterization:

Approximately 300 plant species, or about a quarter of all plant species on the island of Newfoundland, are considered to be rare and are found in 20 or fewer locations. Rare plants are often found in habitat types that are themselves rare or at least fairly restricted. While the limestone barrens of the Great Northern Peninsula are the best-known rare plant habitat, other habitats with high rare plant diversity exist in central Newfoundland and other areas of the island.

Most of the rare plant species throughout Newfoundland are inhabitants of fairly open habitats, such as river gravels, salt marshes, wetlands, aquatic habitats and barrens. These are all areas where commercial forestry operations are not implemented. In Forest Management Districts 10, 11, 12 and 13 the greatest concentration of rare plants can be found in the flood plain of the Exploits River between Badger and Bishops Falls. The rare species occupy a variety of mostly open habitats, including gravelly and rocky shorelines and aquatic habitats in backwaters and ponds adjacent to the river. There are only two other areas where two or more rare plant species occur in close proximity, at Lloyds River, approximately 7 km upstream of its mouth (District 13), and at "the Quarry" on the former rail bed (border of Districts 12 and 16). Many areas of central Newfoundland appear to be devoid of rare plants, but it is likely that they have never been visited by botanists.

There are several rare plants that prefer or tolerate the partial shading found in forests. In Districts 10-13, some of these plants occur scattered throughout the forested area and they often occur alone, rather than in groups of several rare species. Unlike in Western Newfoundland, where rare forest species are more likely to be found in moist sites with nutrient rich or calcium influenced soils, most of the rare forest plants of Districts 10-13 are found in mesic or dry forests, often on sandy or rocky terrain. Some of these species are commonly associated with open forests, burned over areas or forest gaps and clearings, but can also occur in more closed forests under consideration for harvesting. Rare forest plant species in Districts 10-13 include:

- Teaberry, checkerberry - *Gaultheria procumbens* (dry, coniferous forest)

- Prince's pine, pipsissewa - *Chimaphila umbellata* (woods, dry or mesic, often with feathermoss understory)
- Red pine - *Pinus resinosa* (sandy soil)
- Carex foenea (dry to mesic forest, often in clearings)
- Carex adusta (sandy burned over and open areas)
- Dryopteris fragrans (cliffs, talus slopes, rocky woods)

Critical Elements:

- quarrying and road construction
- logging and extraction using heavy equipment
- mechanical site preparation
- all terrain vehicle traffic

Guiding Principles:

- To ensure that rare and endangered plant species present in the zone do not become extinct resulting from forest management operations.
- To identify and protect rare plant habitat
- To educate department personnel and the public on the locations and importance of rare plants
- Encourage domestic harvesting in the winter
- Identify and update all rare plant sites on GIS forestry data base
- Ensure that areas containing rare plants are marked and posted
- Work with the Wildlife Division to develop mitigative measures in areas where rare plants occur.

4.2.1.8 Waterfowl

Characterization:

- In District 10, two wetland sites located at Little Rushy Pond and Corduroy Brook within the Town of Grand-Falls Windsor Municipal Planning Area have been identified as significant wetland sites. In 1998, the Town signed a Stewardship Agreement with the provincial government to protect and conserve these areas. A third wetland site located in the Red Cliff area is also considered important for waterfowl but is not officially designated.

Critical Elements:

- Maintenance of habitat
- Disturbance of waterfowl during the brood rearing, breeding and staging period

Guiding Principles:

- 50-metre treed buffer will be established around designated sensitive waterfowl areas. As well, no forestry activities are recommended during the brood rearing, breeding, and staging period
- A minimum 30-metre, treed buffer must be maintained from the high water mark in other waterfowl breeding, molting, and staging areas.

4.2.1.9 Water Resources

Characterization:

The protection of water resources is an important topic both nationally and provincially. Events such as the E.coli outbreak in Walkerton Ontario, Newfoundland's Trihalomethane (THM) controversy, and numerous incidents of giardiasis in protected public water supplies have heightened public awareness on water issues. While much of the current focus is directed towards drinking water, it is also recognized that an equal importance must be attached to waters which have other beneficial uses. Human impacts both locally and globally have the potential to impair water for future uses.

In Planning Zone Five, most communities have water supplies, where ten of these supplies are protected under the province's Protected Water Supply Program. Recreational uses of water within this zone are used for activities such as: fishing, boating and as a water supply source for numerous cabin owners.

Human activity on the land has the potential to alter water quality and water quantity. Commercial forest harvesting is one of the predominant activities occurring throughout the zone. Hydroelectric development has also occurred in the zone which has resulted in several river diversions. Mining operations within the zone in the form of mineral exploration, mining operations and small quarrying operations associated with road construction. Some exploration activity for hydrocarbons, dimension stone and base metals has occurred sporadically throughout the region.

Critical Elements:

Forest management activities such as road construction, maintenance, timber harvesting, and silviculture may potentially alter the quality of water draining from watersheds. As well as other defining characteristics such as stream hydrology, sediment loadings, stream characteristics, and aquatic discharges from municipalities. Careless storage and handling of fuels by industrial and recreational users, stream diversions and agricultural operations are other examples.

Guiding Principles:

There are numerous protective measures listed in the Environmental Protection Guidelines under the broad categories of road construction, stream crossings, road abandonment, fuel oil handling and storage, support services and structures, harvesting, silviculture, and protected water supply areas.

Road Construction: Alteration to a body of water (e.g. Bridge or culvert installations) will require prior approval by the Water Resources Division of the Department of Environment and Climate Change. Construction within a PWSA also requires a permit from the same division.

Extraction trails and winter roads are constructed to minimize soil disturbance using best management practices.

Timber Harvesting: as per the EPG's, heavy equipment and machinery are not permitted in any waterbody, on a wetland or a bog unless frozen, without a permit from Water Resources. Woody material of any kind is not permitted to enter a waterbody. Depositing woody material on ice within the high water flood plain of any waterbody is also prohibited. Buffers within PWSA's may vary. Extraction trails and landings shall not be established within 30 meters of a waterbody. Minimum 30m buffers shall be established around all waterbodies that are identified on the latest 1:50,000 NTS maps.

Storage and Fuel Handling: No heavy equipment or machinery is to be refueled, serviced, or washed within 30 metres of a waterbody or within 150 meters of a body of water within a PPWSA.

Gasoline or lubricant depots must be stored at least 100 metres from the nearest waterbody. All fuel-storage tanks must be registered with Digital Government and Service NL and installed in accordance with the Storage and Handling of Gasoline and Associated Products Regulations, 2003 as amended, under the Environmental Protection Act. Used oil storage, handling and disposal is to comply with the Used Oil Control Regulations, NLR, 82/02 under the Environmental Protection Act. Contaminated soil or snow must be disposed of at an approved treatment facility.

Protected Public Water Supply Areas: In Newfoundland and Labrador forestry operations are permitted in most Protected Public Water Supply Areas on a limited and controlled basis provided the proposed operations have no or minimal, water quality impairment potential. The following permits and approvals are required prior to the beginning of any forestry operations,
whether commercial or domestic operations, and includes road construction, silviculture activities,
and harvesting within a Protected Public Water Supply Area:

1. Approval of the Five-year operating plan by the Environmental Assessment Division
2. Issuance of a permit under section 39(6) of the Water Resources Act which will include consultation with the community involved.

Buffer widths may vary from permit to permit. There is no bulk fuel storage within a PPWSA unless otherwise approved by WRMD. Fuel Storage is limited to two 205-litre drums or a 500-litre slip tank. Refueling must not take place within 150 metres of a body of water. All tanks must be located at a minimum distance of 500 metres from any major waterbody. A fuel or oil spill clean-up kit must be kept on site to facilitate any clean-up in the event of a spill. This kit must include absorbent pads, loose absorbent materials such as dried peat, speedy-dry or sawdust, a container such as an empty drum for recovering the fuel or oil, and a containment boom. CBPPL has requirements built into its Environmental Management Systems for Roads and Harvesting Operations. These emergency response supplies are regularly inspected during site visits.

4.2.2. Human Values

4.2.2.1. Timber Resource

Characterization:

One of the major resource values of the forest ecosystem is the harvesting of timber to provide forest products. Historical market value of forest products harvested and employment levels in this Zone is unknown at this time due to the closure of AbitibiBowater Mill in GFW in 2009. Re-development of the forest industry in this zone since that time has resulted in the two larger integrated sawmills having a more pronounced presence. As a result, there is potential to provide continued significant contributions to the local and provincial economy.

Historically, timber has been harvested since the first inhabitants settled in the zone. Initial uses were mainly domestic in nature to supply timber to build houses, fishing sheds and equipment and for heating and cooking. With the increase in population, more commercial uses have arisen to supply lumber and pulp and paper products. Commercial logging contractors are allocated the majority of the annual allowable cut level in the zone. Commercial harvesting and sawmilling activity provide many jobs in harvesting, sawmilling, trucking, pulp and paper manufacturing and related spin off industries for local residents.

Domestic harvesting provides fuelwood to heat many homes and sawlog material for residential house construction in the zone. Domestic harvesting is conducted in specific domestic cutting areas via a crown domestic cutting permit that is required and issued within each forest management district. Unless otherwise specified, domestic cutting is limited to these designated cutting areas. A Domestic Permit specifies the volume and species that can be harvested, utilization standards, and other relevant conditions. While some domestic cutting areas are designated for hardwood only, the majority of areas will allow the harvest of all hardwood and softwood species.

Silviculture treatments are important to the forest resource of the zone as it ensures that a vigorous and healthy forest is maintained. Forest renewal activities facilitate renewal of productive landbase by manual planting areas that are not sufficiently restocked. Forest improvement activities help improve and enhance the growing stock which can reduce harvest cost, enhance forest product options and increase sustainable timber supply. There will be a significant investment on silviculture in the zone each year creating seasonal employment.

Timely access to timber is critical to planning any forestry operations. Primary, secondary and tertiary roads form an integral part of operating areas for commercial harvesting activity. Upon completion, these roads are often used for silviculture and recreational purposes. A significant amount of money will be spent to construct forest access roads each year in the zone.

Protection of the forest from various disturbances is a major characteristic of resource management, which includes:

integrated pest management and forest fire prevention/suppression techniques. Other resource values are protected through modification of activities and enforcement.

Critical Elements:

The overall objective is to ensure the AAC is calculated using the latest information while taking into account other resource values and conducting environmentally sound operations. This is achieved by:

- maintenance or enhancement of productive land base
- planting of non-regenerating areas
- minimizing loss of land base to other users
- minimize losses to fire, insect and disease
- timely access road construction
- enhancement of younger age classes through thinning to correct age class imbalance

Guiding Principles:

- enforcement of Forestry Act, regulations, guidelines and policies
- minimize loss of productive land base through spatial and temporal compromises and continuous dialogue with other resource users
- education (staff, public, operators)
- aggressively conduct silviculture, access road, and protection activities
- implement best management practices. The *EPG's* outline courses of action and mitigative measures for forest activities. These EPG's are outlined in their entirety in Appendix 1, with some highlighted subject areas listed below.
    - garbage disposal
    - fuel storage
    - mineral soil exposure
    - buffer requirements
    - road and bridge construction
    - silviculture and harvesting activities

4.2.2.2. Agriculture

Characterization:

The vast majority of commercial agricultural activity is located in the Agriculture Development Area at Wooddale in forest management district 10. Additionally, hundreds of subsistence farming plots are 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.

Critical Elements:

Surveys indicate approximately five percent of soils in the province are suitable for agriculture. It is difficult to identify and plan all sites for potential future agriculture use and often this will result in conflicts with other land uses, particularly forestry because these sites are of high growing capability. Although a suitable landbase is the first critical element necessary for a successful agriculture operation, markets and the interest of individuals are also prime factors

in the development and location of future farms. In the spirit of managing the ecosystem for multiple benefits, provisions will be available for the agriculture industry to expand.

Guiding Principles:

Lands designated for forest management can include areas with high potential for agriculture. In 2017 the FFA Land Resource Stewardship Division and CBPPL developed a list of Agriculture Areas of Interest. These areas were in multiple districts and amounted to over 12,000ha on CBPPL limits. These areas are identified on Operating Plan maps and discussions occur on an annual basis if any modified forest activity is required due to an agriculture area of interest. The agriculture leasing policy initiated in 1976 ensures that new or existing land allocated for agriculture continues to be used for agriculture. The leases have no provision for fee simple grants and must be used exclusively for agriculture purposes.

The following will provide guidance for the development of agriculture within the zone:

- Home gardening leases should be confined to areas already developed for this activity.
- New agriculture leases should include a business plan approved by the Forestry and Agrifoods Agency.
- Wood harvested on agriculture leases shall be completed under a crown cutting permit.
- Where possible, existing commercial forest operators should be encouraged to work with farmers to clear new land for development.

4.2.2.3. Mining Exploration and Quarrying

Characterization:

There is a significant mining presence throughout the zone, where major base metal mines and deposits are located at Buchans Mine, Duck Pond, Buchans Lundberg, Point Leamington Boomerang, Bobby's Pond, Denny's Pond and Tulks Hill. Gold is also found at Valentine Lake. In addition, throughout the zone, there are also a number of active aggregate and quarry leases, which due to their small size are considered to have minimal negative impact upon the forest ecosystem. Exploration activities continue to form a large portion of the activities in the zone.

CBPPL supports mineral exploration and quarry activities and uses the Crown Lands Referral Policy to administer any permits as requested. Woodlands staff have reviewed and requires that permitted activity follow the Environmental Guidelines for Mineral and Quarry Exploration as found in Appendix 2.

Critical Elements:

To minimize the impact of mining and mineral exploration upon the forest ecosystem while providing a source of energy and aggregate material.

Mining: can have potential negative impacts to forest ecosystems and future wood supply calculations. Mining and quarrying represent permanent alterations to the landscape whereas mineral exploration activities at most involve temporary disturbance. It is also a requirement to rehabilitate after the mineral exploration is complete.

Timber Utilization: Mineral exploration where the cutting of trees is required:

a. Operators must attempt to extract the timber harvested. This can be delayed to winter months when access by snowmobile is possible.

b. It is permitted that the operator may use the harvested material as corduroy to lay down over sections of access trails constructed on wet or soft ground.

These activities may include: access trail construction, trenching, test pits, clearing for drill pads and creating campsite or laydown areas.

Guiding Principles:

- Ensure that quarries and open-pit mines are rehabilitated
- Ensure that the organic overburden is stockpiled and stored in a manner so that it can be used to rehabilitate the site.
- Avoid planning silviculture activity in areas adjacent to mines or quarries. Annual correspondence of silviculture plans to the Mines Division to identify overlaps and mitigate if needed.
- Every attempt will be made to extract timber harvested as part of oil and mining exploration and development.
- Crown Lands Referral Policy Version 4 (Including Compensation Rate Schedule) can be found in Appendix 3. This

outlines specific requirements for Mining Exploration and Development. Future updates to this policy are expected as CBPPL continues to work with Industry, Energy and Technology Department (IET).
- Road decommission, bridge removal or upgrade work that may take place on CBPPL Tenure will be communicated to the IET division to mitigate potential negative impacts.
- Permitted activity by CBPPL and IET are to follow the Environmental Guidelines for Mineral and Quarry Materials Exploration, as provided by the IET Department.

4.2.2.4. Historic Resources

Characterization:

The provincial archeology office (PAO) is the agency responsible for the management and protection of archaeological sites and artifacts in Newfoundland and Labrador. This program is carried out under the Historic Resources Act which ensures that developments with potential to have adverse impacts on historic resources are investigated as and monitored by a qualified archaeologist through archaeological impact assessments.

Archaeological sites are non-renewable resources and play a vital role in understanding our heritage. Most often, archaeological sites are small in size, so it is important to protect these sites and professionally record as much information possible to fully understand its history. To do this properly, the site must not be disturbed. Over the years, Archaeological surveys have been undertaken in several areas within the zone. However; there is potential that many areas still remain to be surveyed. To date, there are many archaeological sites recorded within the zone and are protected under the Historic Resources Act. Most notably is the evidence of the Beothic along the Exploits River. There is potential for other historic resources to be found in the zone.

Critical Elements:

Major threats to historic resources are projects involving activities which disturb soil layers and/or provide unintended public access to the archaeological resources. Forestry activities such as construction of access roads and bridges, harvesting and mechanical site preparation have the potential to destroy historic resources.

While forestry activities can have adverse impacts on historic resources there are also beneficial effects. When impact assessments are carried out and new sites found, it adds to our understanding of Newfoundland and Labrador's heritage. When archaeological sites are discovered through impact assessments these resources are protected from damage or destruction and preserved.

Guiding Principles:

Any project involving land-use has the potential to adversely impact historic resources, therefore it is important that the Provincial Archaeology Office be involved at the planning stage to ensure that mitigative measures to protect historic resources are developed at the earliest possible time. In order that known archaeological sites and potential unknown sites are protected from forestry activities buffer zones will be necessary in some areas whereas archaeological assessments may be required in others. Known archaeological sites must be avoided and buffers will be required around them. Buffers will also be required along all rivers and ponds, as well as long the coastline where there is potential for archaeological resources to be found. Occasionally there are accidental discoveries made of historic resources. If this does happen, activities should cease in this area and contact be made immediately with the Provincial Archaeologists.

4.2.2.5. Newfoundland T'Railway Provincial Park

Characterization:

The T'Railway is a linear park approximately 850 km in length, where a large section is located within the zone. It is comprised of the former CNR right of way, which varies from 25 to 100 feet each side of the center line. It provides for an all season, multi-use recreation corridor and is developed and managed with Parks and Natural Areas Division in conjunction with the T'Railway Council.

The *Provincial Parks Ac*t provides the legislative framework for the administration and management of the T'Railway and is protected for present and future enjoyment of the public. The T'Railway constitutes the province's contribution to the Trans Canada Trail System and is used primarily by snowmobile and all-terrain vehicles. Industrial or traditional uses such as: commercial and domestic harvesting, quarry and mining access and cabin access are also granted with a special permit.

Critical Elements:

- protection of the historical landscape integrity of the T'Railway corridor
- preservation of the scenic quality along the corridor
- control of land usage adjacent to the T'Railway

Guiding Principles:

- co-ordination of activities with various other agencies responsible for land management outside the T'Railway corridor to ensure that the integrity of the park is maintained
- build partnerships with other stakeholders and user groups such as communities, industry and recreational organizations for the long term maintenance and development of the T'Railway
- Establishment of a 100 meter buffer along the right-of-way corridor to preserve the natural value of the T'Railway. Also, consider viewscapes in forestry management plans.
- where access is required, any landings or turnaround areas shall be 100 meters or more along the resource roads from the T'Railway.
- where feasible and possible, Forestry Activity utilizing the T'Railway will avoid peak snowmobile and ATV seasons.

4.2.2.6 Parks and Protected Areas

Characterization:

The mission statement of the provincial Natural Areas Program is to protect, in an unimpaired condition, large wilderness areas, representative examples of all of the province's ecoregions including their natural processes and features, and rare natural phenomena, so as 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.

There are several different types of conservation areas in the province contributing to the provincial system of protected areas, as recognized by the International Union for the Conservation of Nature. Wilderness Reserves and Ecological Reserves are established via the *Wilderness and Ecological Reserves Act*. Wilderness Reserves are generally large (>1000 km2) and are designed to protect complete ecological systems. Ecological Reserves may be established to protect representative samples of each of the province's natural regions (ecoregions) with a mid-sized reserve (50-1000 km2), or to protect exceptional natural features, occurring in an area <10 km2, such as rare species or areas of unusual biological richness. Provincial Parks established under the *Provincial Parks Act*, do play a conservation role, but are primarily established as sites for outdoor recreation and nature-based education. Wildlife Reserves may be established under the *Wildlife Act* for the protection of specific species or habitats. Public or Crown Reserves may be established for conservation reasons under the *Lands Act*. National Parks such as Terra Nova, Gros Morne and Torngat Mountains are established under the federal *National Parks Act*.

The benefits of protected areas are to preserve biodiversity, provide areas for scientific research, opportunities for environmental education, provide standards against which the effects of development can be measured, and provide natural venues for enjoyment of nature.

Critical Elements:

- preservation of biodiversity
- maintenance of protected area integrity
- maintain natural processes and features
- can be utilized as "control blocks" measured against similar areas were forest management activities has occurred.

Guiding Principles:

- the type of activities encouraged or permitted within various protected areas in the province depends entirely on the type of protected area and the rational for its establishment
- generally all non-consumptive activities are permitted; educational activities and scientific research within protected areas generally require a permit and are encouraged
- in most protected areas, new development is prohibited such as mining activity, hydroelectric projects, forestry activity, agriculture activity, roads/trails, cabins and new structures;
- a 500 m no roads buffer is to be maintained around all existing and proposed protected areas to reduce access and minimize damage from motorized vehicles
- where forestry operations are scheduled within one kilometre of provisional and ecological reserves, wilderness reserves or provincial parks, modified operations may be necessary and any amendments to the forest plan may be required.

4.2.2.8. Outfitting

Characterization:

The outfitting industry has been an integral component of the tourism industry in Central Newfoundland since the early 1900's. This region has always been a popular hunting and fishing destination because of the pristine environment and abundance of fish and wildlife species. There are many outfitters operating within the boundaries of the zone that operate and maintain main and/or line camps. These operations provide seasonal employment for many local individuals.

From an article published on January 14, 2022 on the Saltwire website titled "Outiftting industry keeping a close eye on gold mining plans in Central Newfoundland" it is cited; "In a normal year about 7000 hunters and anglers book excursions with local outfitters, said Cory Foster, executive director with the Newfoundland and Labrador Outfitters Association (NLOA).The industry brings about $50 million to the province and employs approx. 1,300 people".

Over the past 10 years, a significant number of traditional hunting and fishing facilities have diversified into the non-consumptive areas of the tourism industry. Such activities include but are not limited to: snowmobiling, dog sledding, kayaking, canoeing, nature viewing, hiking, and wildlife photography. The ability to diversify has positively impacted the viability of outfitting operations and as such, increasing numbers of operators are considering these opportunities. Diversification can lengthen seasons of operation, increase and lengthen employment, and reduce dependency on a single sector of the tourism industry. Pristine wilderness settings are necessary for many of these types of diversification.

Critical Elements:

Remote outfitting camps are dependent on their remoteness. Forest access roads inevitably impact the ability of a camp to maintain its remote status. Increasing accessibility through increased access roads can also lead to increased hunting and fishing pressures in a given area. This can in turn lead to decreased success rates of tourists. This is of particular concern since Newfoundland is often the hunting destination of choice due to success rates upwards of 80 percent. An increase in access roads also tends to lead to increased cottage development that in turn can have an impact on both remoteness and game availability. While clients of big game and fishing outfitters are primarily interested in hunting or fishing experiences, they also show a great respect and admiration for pristine conditions and a healthy-looking landscape. The landscape view experienced by clients plays a large role in leaving a lasting impression of the province. The view also has a direct impact on repeat client bookings and recommending the destination to others. Viewscapes become even more important once outfitters begin diversification into non-consumptive tourism activities. With these activities, there is no trophy to bring home and that which is taken away is that which has been experienced by the senses (i.e. sights, sounds, smells, etc.).

In some cases, past harvesting practices has resulted in increased levels of garbage (skidder tires, abandoned buses, heaps of oil containers, etc.). This can be frustrating for outfitters who concentrate on not leaving permanent marks on the landscape. Possible erosion caused by hillside logging and heavy equipment use is also a concern - particularly due to its possible effects on water quality for fish habitat.

Guiding Principles:

It is necessary that no harvest buffer zones be left around outfitting camps that are agreed to by all parties involved. Buffer zones can be difficult to negotiate due to varying ranges of activity from operator to operator. Some operators make use of areas that are 8 to 10 kilometers away from the main lodge.

- Consideration should be given to decommissioning roads and bridges (where possible) after harvesting is completed. This will eliminate damage to the hunting area by reducing the possibility of increased hunting pressure. When roads are in use actively for harvesting purposes, access to hunters should be restricted or limited.
- Where possible harvest in the winter. Winter roads are less passable in summer and fall and will help to reduce traffic. These roads will also be cheaper and easier to decommission.
- Construct new roads as far away from existing outfitting camps as possible. The benefits of this are obvious. Harvesting should be restricted around hunting and fishing camps during their season of operation. At these times, harvesting should occur as far away as possible from outfitters.
- Forest operations should be carried out in compliance with existing regulations
- Efforts should be made to ensure that the integrity of the view from outfitter cabins is maintained when conducting forest operations.
- Forest operations should ensure that whatever is brought into an area is removed from the area once harvesting is complete.

4.2.2.9. Recreation

Characterization:

Non-timber recreational values such as: hiking, skiing, canoeing/kayaking, ATV/UTV and snowmobiling constitute an important role within this Zone. Central Newfoundland has outstanding scenery, varying topography and opportunities for viewing wildlife and flora in a natural setting. Regardless if you are canoeing/kayaking on the many rivers, walking the various hiking trails, utilizing forest access roads, or using groomed snowmobile trails, this zone provides excellent opportunities for sport hunting/fishing and adventure tourism activity.

Critical Elements:

Wilderness

Backcountry recreational activities are dependent on the existence of natural pristine wilderness areas. The temporary removal or alteration of this pristine wilderness through forest harvesting practices may result in decreased recreational activities for a given period.

Accessibility

An increase in forest access roads may increase accessibility to remote areas. In turn, this may increase the amount of traffic in an area (both vehicular and pedestrian) and decrease the value of the experience for many recreational activities. Most individuals involved in recreational activities are concerned about viewscapes. Many of the recreational activities occur because of particular viewscapes.

Guiding Principles:

To prevent negative ecological effects and provide positive experiences, access and levels of recreational activities can be monitored. Public surveys can be used to measure the experiences and the levels of recreation occurring in the zone.

Wilderness

If possible, forest operations should avoid wilderness areas where high concentrations of recreational activities occur. Where operations are necessary, stakeholder meetings could prevent conflicts through temporal scheduling.

Limiting Accessibility

Decommissioning of forest access roads could be a possible option when forestry activities are completed. Where

possible, harvesting should be conducted using winter forest access roads, which creates less traffic and better facilitates decommissioning. Where possible, the Land Branch of the Department of Environment and Conservation shall plan cottage development along newly developed forest access roads in conjunction with Forestry Services. This will allow for planned cottage development areas and potential Crown land reserves to help minimize potential land use conflicts.

Viewscape

Aesthetic views using landscape design techniques will be utilized in areas where forest operations occur with high concentrations of recreational activities.

4.2.2.10. Tourism

Characterization:

The tourism industry in Newfoundland and Labrador has experienced significant growth over the years, which is largely based on our natural and cultural resources. Newfoundland and Labrador has the resources to compete nationally and internationally with tourist destinations. As such, protection of these resources is vital for continued growth and prosperity. Tourism is becoming a great economic driver for provincial revenues. Some of the many excellent tourist destinations in the zone include: Salmonid Interpretation Centre, Cordury Brook walking trail, Recreational Parks (Catamaran, Mary March and Beothuck).

Critical Elements:

- Viewscape
- Accessibility
- Wilderness ambiance
- Remoteness

Guiding Principles:

As indicated in the Recreation Values section, Forestry Branch will collaborate with other stakeholders in this five year planning period, to implement strategies for minimizing the visual impact of harvesting operations near sensitive areas. This could mean that forest harvesting operations employ: treed buffers, tree retention methods or implement reforestation activity immediately to return the site to a forested condition. As well, temporal changes in harvest scheduling could minimize noise levels during busy seasons near adventure tourism locations.

SECTION 5. MITIGATIONS

Stakeholder	Contact	FMD	ISSUES / CONCERNS RAISED DURING 2026-2030 PLAN DEVELOPMENT on CBPPL Timber Limits (Government Depts. and on-on-one consultations with known stakeholders) Forest Management District 10	Mitigation
A1 Hunts	Nick Pelley	10	Harvesting operations during hunting season (Sept 1 to Oct 30). Viewscape at the Marks Lake Lodge. Bear and Moose stand buffers.	Avoid harvesting activity during hunting seasons. Buffers to be placed around important stands as identified by Nick Pelley.
Hideaway Lodge	Jason Folkes	10	Reviewed harvesting plans with Jason and there were no issues/overlaps identified. Locations of Main camp and remote fly in camp are not within the harvest boundaries.	No mitigations needed.
Water Resources	Trent Pollett	10	No boundaries overlap with PPWSA. Proposed cuts do boarder the Northern Arm Lake boundary but there is no adjacent work in this plan. No concerns raised with respect to Section 39 (PPWSAs).	No Mitigations Needed.
Newfoundland and Labrador Snowmobile Federation	Matthew Swain	10	Reviewed overlaps with NLSF trail system and proposed cutting areas. Multiple areas of overlap exist. Also reviewed an area of cut that does not utilize the existing resource road network. No buffering was requested of this trail. Also discussed replacement of a bridge that is part of the trail system.	Continued meetings annually with the Federation. Federation will have meeting with the Exploits Club to discuss overlaps. Bridge replacement is not planned currently but as plans are made future meetings will be held.
Department of Environment and Climate Change – Natural Areas	Jeri Graham	10	Some of the cut blocks were in previously proposed ecological reserve. Currently no identified values in the proposed harvest area.	No Mitigations Needed.
Canadian Wildlife Service	Sydney Roberts	10	Will provide comment to EA when plan is officially registered	Feedback to come with EA release conditions/comments if any.
Fisheries Forestry and Agriculture	Dave Poole	10	Reviewed 5YP areas and does not foresee any landbase conflicts. PSP's are in the areas that will require buffering. Questions around the area included in the plan and the volumes within.	Request for meeting to discuss further regarding questions presented on AAC levels and area included in plan.
Fisheries Forestry and Agriculture – Wildlife Division	Jana Fenske	10	Operating area maps provided. No wildlife concerns raised.	No Mitigations Needed.
Parks Canada	Darroch Whitaker	10	District is well away from any Parks Canada Sites. No concerns or feedback to share.	No Mitigations Needed
Email list sent with no comments received.				
SPAWN	John McCarthy			
CPAWS	Tanya Edwards			
Local 60N	Kerry Anstey			
Averys Contracting	Jake Avery			

Three Rivers Silviculture	Doug Cook			
Nobles Resources Inc	Grant Noble Gene Noble			
Northwest Forest Resources	Craig Reid Andrew Reardon			
Humber Arm Contracting	Billy Perrott			
Caribou Industries	Scott Lucas			
Lovells Logging	Kirk Lovell			
Majors Contracting	Dean Major			
Ducks Unlimited	Danielle Fequet			
College of the North Atlantic	Glenn Payne Peter Yates Jason Baker			
Birds Canada	Catherine Dale Jenna McDermott			
Adam Buckle	Marine Contracting			
Brad Eisan	Landmark			
Dean Command	EVREC			
Intervale	Kathleen Blanchard			
IATNL	Paul Wylezol			
Concerned Citizen	Dwight Oates			
Concerned Citizen	Jason Bull			
Concerned Citizen	Jeanette Goulet			
Concerned Citizen	Paul James			
Concerned Citizen	Junior Downey			
Concerned Citizen	Martha Drake			
Concerned Citizen	Glenn Troke			
Concerned Citizen	Lorie Philpott			

Former PAC - Concerned Citizen	Wilfred Bartlett			
PAC - FABEC	John Baird			
PAC - Town of Gander	James Blackwood			
PAC - Concerned Citizen	Mike Brake			
PAC - Concerned Citizen	Overton Colbourne			
PAC - MUN - Grenfell Campus	Stephen Decker			
PAC - Concerned Citizen	Sean Dolter			
PAC - Concerned Citizen	Basil English			
PAC - Burtons Cove Lumber	Terrance Fudge			
PAC - Town of Deer Lake	Carl Goudie			
PAC - NRCAN	Darrell Harris			
PAC - Hearn Consulting	Debbie Hearn			
PAC - IBEC	Carl Howell			
PAC - Ducks Unlimited Canada	Danica Jackson-Park			
PAC - CONA	Glenn Knee			
PAC - Majors Logging	Dean Major			
PAC - FLR	Wes Morgan			
PAC - Concerned Citizen	Tim Moulton			
PAC - NLOA	Cyril Pelley			
PAC - Concerned Citizen	Tom Philpott			
PAC - Concerned Citizen	Ralph Rice			
PAC - Concerned Citizen	Sean St. George			

PAC - Qalipu First Nation	Ian Sullivan		Meetings with Ian Sullivan to review maps. No feedback provided to date but will continue to work with Qalipu First Nations to determine if there are any areas of concern in the identified 5YP areas.	No Mitigations Identified at this time.
PAC - Concerned Citizen	George Van Dusen			
PAC - City of Corner Brook	Robert Wheeler			
Town of Millertown	Mayor Charlie Fost			
Canadian Wildlife Service	Joshua Mailhiot			
Exploits Chamber	Peter Morris			
Newfoundland and Labrador Outfitter Association	Cory Foster			
Red Indian Lake Outfitting	Thorne, Fred			
Sexton Lumber	Kevin Sexton			
Sexton Lumber	Neil Greening			
Water Resources	Trent Pollett			
Tourism	Paul Taylor			
Exploits Snowmobile Club	Dave Noel	10	Replied that they would discuss with the club executive and get back to us with any concerns.	No Concerns Raised to Date
Conne River Band - Miawpukek	Greg Jeddore			
Hideaway Lodge	Rob Folkes			
Hideaway Lodge	Jason Folkes			
MUN	Michael vanZyll deJong			
Newfoundland and Labrador Snowmobile Federation	John Alteen			
A & F Hollett	Jeff Hollett			
Department of Tourism	Scott W Andrews			

Town of Grand Falls Windsor	Barry Manuel Rhonda Hann			
Riverfront Chalets	Paul Rose			
D10 Ecosystem Manager	Bradley White			
Fisheries Forestry and Agriculture	Bryan Oke			
Newfoundland and Labrador Hydro	Craig Parsons			
Concerned Citizen	Dale Rideout			
NLOA Victorian Outfitters	Dave Evans			
Domestic Cutter	Dave Sampson			
Springdale Forest Resources	Dennis Young Kevin Regular			
Meyers Minerals	Jamie Meyer			
Land Management	Jonathan Grandy			
Concerned Citizen	Roger Mercer			
Snowshoe Lake Hunting and Fishing	Ron Hicks			
Marathon PGM Corporation	Sherry Dunsworth			
Exploits Rod and Gun Club	Si Thompson			
Cottles Island Lumber	Rex Philpott			

SECTION 6. PUBLIC CONSULTATION

A component of forest-management planning in this province is public engagement. Since the 1990s forest management plans have been developed with advice from public planning teams. This process was designed to garner advice from the public and was intended to improve forest management practices at the local scale while also mitigating land-use conflicts. Because the forest management planning process is the only regular interface for public input, the planning teams have become a catch-all for many provincial resource management issues. In many cases, issues raised extend beyond the district or zonal boundaries and may even be outside the scope of the planning team mandate. It is important to note that the forest management planning and consultation process has had a measure of success. Diligent work by district managers and planners has led to the submission and implementation of many plans over the past several decades.

The stakeholder involvement process into the development of new five-year operating plans has changed from historical processes. Over the years managers have seen a reduction in public participation in many zones. CBPPL has contacted several known stakeholders in District 10 during spring 2025 as the plan was being developed. This list of known stakeholders was sent instructions on how to provide feedback on the plan. A draft version of all maps for Zone 5 was posted to the Corner Brook Pulp and Paper Website in May 2025. On the website interested people can send questions/comments to CBPPL woodlands staff regarding the posted plans. Section 5 lists all mitigations from consultation.

SECTION 7. MANAGEMENT OBJECTIVES AND STATEGIES

7.1 Harvesting

The forest in this zone is part of the boreal forest, which is characterized as being disturbance driven resulting in the formation of relatively even aged stands. The clear-cut silviculture system most closely emulates this natural disturbance pattern and therefore is the most preferred method employed for harvest. The size, shape, arrangement, and juxtaposition of clear-cut areas vary across the landscape depending on localized topography and terrain conditions. A modification of the clear-cut system takes place in domestic areas whereby the cuts are relatively small and disbursed resulting in the creation of a range of age and development classes. The clear-cut system is the only harvest system being considered in the zone at this time.

7.1.1 Commercial

Section 3 outlines in detail a general approach for the timber supply analysis and specific results and sensitivity analysis for the zone. The model used to calculate wood supply is a maximization model, outlining a specific course of action and timing of such actions to maximize timber production. The harvest schedule is an example, which indicates the specific forest stratums to be harvested, and an indication on the timing of such harvest. The districts must follow this schedule as closely as possible in order for the AAC to remain valid. In general, the oldest timber considered in worst condition and losing volume fastest is targeted as first harvest priority. Younger stands that have been damaged by insects and disease may also receive high priority. Once managed stands are eligible for harvest, this priority may change in some cases to allow for a faster rotation on good sites that are silviculturally treated.

Specific commercial strategies are as follows:
- design irregular cut blocks that follow contours and natural boundaries
- vary buffer widths to protect other values
- utilize winter harvest on wet and sensitive sites
- use landscape design techniques to mitigate Viewscapes
- minimize timber utilization loss (< 6m3/ha)

7.1.2 Domestic

The harvest of domestic fuel wood from CBPPL limits in the Zone is confined to cutover cleanup and the harvesting of non-commercial species. Incidental AAC levels for District 10 will be used to track this cut. Domestic permits are given for 15m3 and issued through the Forest Safety Association of Newfoundland and Labrador. Table 5 shows the maximum estimated cut from 2021-2024.

7.2 Silviculture

As a general rule, approximately 80% of the Boreal Forest regenerates naturally following a disturbance. Forest renewal management programs are applied by forest managers within the 20% that do not successfully natural regenerate. Forest renewal silvicultural treatments are designed to help facilitate a new forest after disturbances caused by harvesting, insect, wind or fire. These prescriptions can involve either Site Preparation (scarification), Planting or Pre-Commercial Thinning.

7.2.1 Site Preparation

When a site does not regenerate at all, a full planting program is required. In some cases, the site may need to be manually prepared to aid in the establishment and growth of the planted seedlings (generally black or white spruce and to a lesser extent, Norway spruce). Site preparation techniques can include:

Mechanical site preparation (scarification) involves using heavy equipment (skidder) equipped with special attachments to reduce the thickness of the duff layer, and remove or disturb any kalmia that is present, which would restrict seedling growth.

Prescribed burning is used to sanitize some sites where adelgid is present. This treatment reduces the slash loading and duff thickness to prepare the site for planting and kills any balsam fir which could potentially perpetuate the adelgid problem.

Treatment to prepare sites that have been overgrown with hardwoods and other herbaceous species has been done with herbicides to reduce this competition, making the site more accessible and suitable for planting. Release herbicide treatment reduces the competition for a few years to allow planted seedlings to get established. In other instances, herbicides are used to control Kalmia either before or after planting. Herbicides, while used sparingly, are sometimes a necessary tool to help establishment of a new forest, particularly on better sites.

7.2.2 Planting

A full planting technique is required when no regeneration occurs to ensure regeneration of selected tree species is at acceptable levels. Gap planting is normally achieved with spruce seedlings, coupled with the natural regeneration already present on site to increase seedling density to acceptable levels.

On adelgid sites partially regenerated to balsam fir, planting is done through the existing regeneration to obtain a sufficient stocking level of an adelgid resistance species. However, where adelgid has been a problem, balsam fir regeneration is sometimes ignored and the site is planted with spruce seedlings.

Where possible, seedlings used in the silviculture program are grown with seed from local sources. Seed orchards have been established at Wooddale Tree Nursery to produce seed from plus trees collected throughout the province. Plus

trees are normally selected because they have superior growth and physiological characteristics. The ultimate goal is to plant seedlings that have superior growth characteristics and thus increase yield and maintain genetic diversity.

Exotic species have been planted in trials at some locations in the zone. However, it is not anticipated to form any substantive proportion of the planting program in the foreseeable future.

7.2.3 Thinning

In an attempt to enhance development, silviculture thinning programs are designed to treat established forest stands.

Pre-Commercial Thinning (PCT) usually involves partial removal of overstocked balsam fir stands at a young age 10 - 15 years. In areas which have high moose browsing potential, the age is increased to 20 – 25 years, so that crop trees are tall enough to be out of reach of moose. PCT reduces density levels which facilitates maximizing volume increment and operability (piece size). Trees removed are not of merchantable size and remain on site, returning the nutrients back into the soil. In the zone, balsam fir is usually thinned to favour any spruce present within the stand. This prescription results in a mixed softwood stand (depending on the original density of spruce) which is more diverse and less susceptible to insect infestation. As well, any hardwood species that are not in direct competition with spruce or fir are left to increase the biodiversity of the stand.

Commercial and Diameter Limit thinning would occur in the intermediate age 25 - 35 years and is undertaken in older balsam fir stands (either natural or previously thinned). It is designed to capture any mortality that would normally occur in the stand through self thinning. The trees removed from commercial thinning operations are extracted and utilized. The remaining trees are left to grow, free from competition and are harvested when mature. As with PCT, spruce and hardwoods are left where possible to increase the stand diversity.

Thinning programs aim to shorten the rotation period of a stand and produce large diameter stems. This program should increase the percentage of merchantable volume considered suitable for sawlogs. Commercial thinning has not been completed in the zone and diameter limit thinning has been done sparingly. In recent years the pre-commercial thinning program has dropped significantly. This trend is expected to continue.
More information on the Silviculture Program can be found on Government's Forestry website using the following address (https://www.faa.gov.nl.ca/forestry/managing/silviculture/index.html)

Specific silviculture strategies include:

- ensure regeneration of areas disturbed by harvest, insect, wind and fire to prevent loss of productive land base
- use thinning techniques in young stands to promote enhanced stand development, reduce rotation age, and increase the percentage of sawlogs
- leave hardwoods, where possible, in pre-commercially thinned areas to increase stand diversity

- where possible, promote species mixes particularly with spruce and hardwoods to reduce susceptibility to insect attack and increase biological diversity
- where possible, use seedlings grown from local seed sources to protect genetic diversity
- ensure levels of planting and thinning used in the wood supply analysis are achieved
- work towards pre harvest planning to identify areas with potential silviculture problems so that optimal prescriptions can be promptly employed

7.3 Forest Access Roads

Timely access to harvesting areas is the key to successful implementation of harvest allocations. Roads also provide access for other recreational values such as hunting, fishing, skiing, berry picking and hiking. However, it is recognized roads can also have a negative impact both from an environmental perspective (loss of productive land base) and other value perspective (access near remote outfitting lodges).

As a general principle from both an environmental and cost perspective, the minimal amount of road required to effectively harvest available timber will be built. Also, roads are constructed to standards (e.g. width of right-of-way and driving surface etc.) that are the minimum required to access the timber in a safe and effective manner. Forwarding distances are maximized to the economic limit to minimize the amount of road constructed. These principles ensure the loss of productive land base and environmental disturbance are minimized. In sensitive and wet areas, winter harvesting and road construction are encouraged, to minimize environmental disturbance.
In many instances, forest access roads "open up" new areas which are then subject to cabin development. Forest roads also provide access to remote areas where outfitting businesses operate. This generally leads to competition for hunting areas between local and "sport" hunters and may detract from the "remote" designation of the lodge. In such instances cabin development should be controlled to limit local access. As well, road decommissioning may also be considered, depending on cost and mitigation of conflicting uses for a particular road.

The nature of the current wood supply is that harvestable areas or stands are becoming smaller and more dispersed. Achievement of allocated harvest is contingent on accessing these areas and stands. Therefore, more road infrastructure is required to access this timber. Specific strategies include:

- Where possible, build winter roads to access sensitive and wet areas
- Minimize amount of road built by maximizing forwarding distances
- Use minimum road standard to safely and effectively match the logging chance
- Work with appropriate agencies (crown lands) to control cabin development
- Where possible, consider road decommissioning in areas of concern for other values
(e.g., near remote outfitting lodges, PPWSA's, caribou habitat restoration)

7.4 Forest Protection

7.4.1 Insect and Disease

As indicated in section 1.4.1.4.3, insects have been considered a major natural disturbance within the zone. Balsam fir is susceptible to most of the major insects including spruce budworm, hemlock looper, and balsam woolly adelgid. In the past, severe mortality has occurred in District 13 resulting in massive salvage efforts. In recent years, hemlock looper and spruce budworm counts have been low. However, populations of these insects are closely monitored and treatment is employed where warranted. The adelgid problem is worsening in District 10 and 11. Alternative silviculture prescriptions (centered on minimizing fir regeneration in susceptible areas) are being employed to minimize the impact of this insect. In the event of a major insect infestation, salvage efforts may change harvest priorities. However, deviations from harvest schedules will be closely monitored to ensure that the validity of the AAC is not compromised.

Monitoring and protection programs for insects and disease are coordinated by the forest protection division in Corner Brook. Local district staff provide assistance in detection, monitoring, and protection surveys against insects and disease. More information on the Forest Insect Control Program can be found on Government's Forestry website using the following address (https://www.faa.gov.nl.ca/forestry/idc/index.html)

Specific insect and disease strategies include:

- use silvicultural techniques at the stand level to alter species mix and increase stand vigor to make stands less susceptible to insect attack
- where possible, use harvest scheduling techniques to alter species mix across the landscape to minimize potential for severe insect infestation
- in conjunction with provincial and federal initiatives, use pertinent and approved insecticides

7.4.2 Fire

There has been a cyclic fire history in the zone. A fire in an unusually dry year can have devastating effects on the forest and can exacerbate an established wood supply. The risk of a serious forest fire can minimized by maintaining a highly trained, efficient and effective fire control program and by minimizing the risk in forest stands through maintenance of forest health and vigour. Within the zone, there have been major forest fires in the past. However, in recent years, wildfire has not been a major issue. There have been some minor wildfire's but all have been quickly contained and not much timber has been lost. The Department of Fisheries and Land Resources is committed to protection of the resource and continues to invest in a fire suppression program to ensure any future losses are minimized. There are fire crews and equipment stationed at local forestry depots within the zone during the forest fire season, whose direct responsibility is forest fire protection. In addition, support, equipment and manpower at both the regional and provincial level is available should the need arise. There are air tankers stationed at Deer Lake and Gander and helicopters in Gander that are available for initial attack. More information on the Forest Fire Program can

be found on Government's Forestry website using the following address (https://www.faa.gov.nl.ca/forestry/forest_fires/index.html)

Specific fire strategies include:

- use silvicultural treatments and protection from insects to increase health and vigour of stands
- maintain fire control capabilities
- promote species mixes in stands to minimize risk

7.4.3 Wind Throw

Wind throw or blow down occurs in stands that are old and decrepit or in stands that have been predisposed by some other disturbance such as insects and disease. Blow down can also be increased in high-risk stands when unnatural edges are left on cutovers such as in the case buffers. To minimize the effects of blow down, stands will be managed to promote health and vigor mainly through silvicultural treatments and protection from insects.

Specific strategies include:

- Avoid thinning in areas with high wind damage potential (hilltops on high elevations etc.)
- Maintain forest in healthy vigorous condition through silvicultural treatments and protection from insects
- Design cut blocks to follow contours and natural boundaries to minimize risk of wind throw to residual forest
- Investigate techniques to minimize the risk blow down in buffers (i.e., buffer management).
- Ensure harvest schedule is followed to target the oldest worst condition (and risk) timber first.
- Continue to sample overmature stands for signs of imminent breakup (e.g., wind throw and butt rot) and update harvest schedule on a 5-year basis accordingly to capture mortality

7.5 Environmental Protection & Climate Change

7.5.1 General Environment

Corner Brook Pulp and paper have developed an Environmental Management System (EMS) that is registered with the International Standards Organization (ISO). A Forest and Environmental Policy was developed, and standard operating procedures were established for all the forest management activity that occurs on the DFA. The initial registration occurred in 2002 and the company continues to remain certified to this standard.

Under the EMS, the woodlands department has developed stringent operating procedures for fuel handling, working around waterbodies, and overall pollution prevention. In addition, inspection programs are implemented to evaluate forest operations and rectify any deviations from established protocols.

To ensure forestry activity is conducted to minimize any potential negative impacts to the environment, operating procedures and best management practices called Environmental Protection Guidelines (EPG's) have been developed and implemented across the province. Highlights of measures to avoid these impacts include no activity buffer zones,

modification of harvesting design and equipment, avoidance of sensitive site during critical periods, consultation with other regulatory agencies, and monitoring. More information on EPG's can be found on Governments Forestry website using the following address (https://www.faa.gov.nl.ca/forestry/managing/pdf/Environmental-Protection-Guidelines.pdf)

Through implementation of the EMS and the EPG's, the company strives to be responsible stewards of the landbase. As well, the programs illustrated in this document relating to forest protection from Insects and Fires, help to maintain a forested landbase. As indicated in previous sections, harvested sites are evaluated for regeneration potential and proper reforestation techniques are implemented to facilitate tree growth. Maintaining and achieving a stocked forest at the earliest timeframe help provide for carbon storage.

7.5.2 Surveys

Utilization surveys will be conducted on both commercial and domestic cutovers to ensure loss of merchantable timber is minimized. Results of these surveys will be used to evaluate the expected volume in an operating areas to those actually attained. The results of this survey will help refine inventory deductions in future woodsupply analysis.

Reconnaissance and intensive regeneration surveys will be conducted on commercial cutovers in this upcoming five year period, and as well as those created in the past five years to determine the requirement for silvicultural activity. Reconnaissance surveys will be completed on regenerating stands to determine the suitability for pre-commercial thinning.

7.6 Information and Education

Information and education is one of the key elements to providing active and effective participation in the planning process at all levels. Through interaction with various user groups and the general public, a better understanding of ones values and positions is gained. The more we know about other values and their location, the better the ability to mitigate any potential negative impacts. For example, learning where a cabin is located can help planners when selecting areas for harvest and provide a contact to discuss impacts and mitigations. Districts within the zone will continue to educate the general public and engage in meaningful consultations with interested stakeholders where applicable. Annual National Forest Week activities provides a great opportunity for interested individuals to gain a greater understanding of the Provinces' Forest.

Sources of information can include:

- government website
- field trips
- school visits
- information meetings
- general day to day contact

SECTION 8. PROPOSED ACTIVITIES

8.1. Harvesting

This section will outline all forest activities that will occur on Corner Brook Pulp and Paper Limits in the zone from 2026-2030, including: proposed commercial and domestic harvesting, silviculture, and access road construction/bridge construction.

To present a more comprehensive overview of proposed activities on the entire district an overview map is presented in Appendix 5 This map shows all proposed operating areas so that operations can be viewed from a landscape perspective. Maps of individual operating areas and summary sheets are also presented in Appendix 5. The summary sheets give a brief description of each area, the type of activities that will occur and any issues raised and mitigative measures employed.

8.1.1. Commercial

The timber scheduled for commercial harvest in the district is overmature with some small pockets of mature dispersed throughout. This proposed harvest approximates the harvest schedule that was used to determine the AAC in Section 3. The allocated operating area and associated harvest volumes represent as much as two times the actual proposed harvest. The purpose of including more volume than is proposed is to allow for operational flexibility and inventory deviations within operating areas without having to constantly amend the plan. Historically a 9% reduction was applied in all areas to allow for operational constraints. A 9% reduction is applied during the wood supply modeling phases and the company has found that applying a further 9% reduction has not been necessary as the harvested volumes are normally higher than the inventory layers.

Table 9 Proposed Harvest 2026-2030 FMD 10 Zone 5

Proposed Harvest Total Volume m3							
FMD 10			CORE		OPERATIONAL		INCIDENTAL
			Harvested		Harvested		Harvested
		AAC	M3	AAC	M3	AAC	M3
	AAC and Plan Allowance	39,500	395,000	3,500	35,000	2,984	29,840
	5YP Areas		M3		M3		M3
Commercial	K-10-01 Long Pond		9,475		0		
	K-10-02 Rocky Pond		41,186		0		
	K-10-07 Mark's Lake		285,153		0		
	K-10-10 Mary Ann Lake		37,489		0		
	K-10-11 Cassandra Pond		21,020		0		
	Totals		394,323		0		
Domestic	Estimate 60 permits per Year * 15m3						9,000
	Totals						9,000

8.1.2. Domestic

Harvesting will occur within CBPPL limits and is generally conducted on a small patch cut system, or remnant cutting on past operations. The number of permits and volume associated with these permits is relatively low and insignificant. Tracking of domestic cutting started midway through the last 5YP and will be accounted for in all plans going forward.

All domestic cutting is done under permit which has conditions attached that outline the species (e.g., birch, larch and deadwood), volume, district boundaries and utilization standards to be employed. All domestic cutting occurs outside of forest fire season (normally Oct 1 – April 30). Domestic permit allocation is 15 m3. No permits are issued inside of Provincial Protected Water Supply Areas and mapping is provided which reflects this in all CBPPL districts.

8.1.3 Silviculture

Balsam fir is highly susceptible to insect and disease attacks and contains less desirable fibre quality than spruce for papermaking and lumber production. Since spruce is the more desirable species at this time, more aggressive approaches to maintaining and enhancing spruce content on sites will be employed in the next five years.
Each district in the zone has unique silviculture challenges:

- FMD 10 have sites transitioning to alders or kalmia post-harvest;

All districts in this zone share a common challenge of having to contend with associated balsam woolly adelgid issues. The range and severity of this insect is increasing within the province, and it continues to target balsam fir trees by severely reducing both growth rates and productivity of certain sites to the point where commercial viability is questionable. The silviculture program over the next five-year period will help mitigate the impacts of this insect on sites dominated by balsam fir. Potential silvicultural treatment areas need to undergo reconnaissance and / or intensive surveys to determine the regeneration level and severity adelgid attack. Such surveys will be conducted during this five-year period but until they are completed, specific locations and treatment amounts cannot be identified. However, silviculture prescriptions have been developed for implementation on specific site conditions. Areas that are scheduled for commercial harvest or have been harvested are identified on the operating area maps and are candidates for planting or gap planting to black, white or Norway spruce. These areas will undergo reconnaissance and or intensive regeneration surveys to determine the need for planting and the presence of adelgid.

Site preparation using either mechanical methods or prescribed burning will be employed on suitable sites having impediments to planting. On black spruce cutovers where kalmia is present, mechanical site preparation (row scarification) or prescribed burning will be used to disturb the kalmia and create suitable microsites to plant black spruce. In fir areas, burning is a preferred treatment to sanitize the site of any existing adelgid infested trees.

There have been problems in some parts of Zone 5 with sites transitioning to alders after harvest. A treatment employing mulching, herbicide and planting in successive years has been conducted to try and reclaim some of these

highly productive sites. The effectiveness of this treatment is still being evaluated; however, it has been discontinued due to high cost. Since there is a known regeneration problem on these sites, planting with white spruce immediately after harvest is employed to allow the seedlings to "get the jump" on the alders.

Table 10 Proposed Silviculture Treatments 2026-2030

Proposed Silviculture 2026-2030		
Treatment	Proposed	Treated (ha)
	Tree Planting	1,000
	Site Preparation (Scarification)	0

8.2. Forest Access Roads & Bridges

As timber closer to infrastructure has been harvested it is necessary to build roads to timber that have yet to be accessed. This remote timber has been incorporated into the timber supply analysis and must be accessed to ensure sustainability. For this plan there is no proposed capital road construction anticipated. The installation of a new bridge which will replace an older structure may be completed within this five-year plan.

8.3. Activities in Protected Public Water Supply Areas

Within CBPPL Limits in District 10 there are currently no Protected Public Water Supply Areas identified. If any changes occur during this 5-year planning period, precautions will be taken as outlined in the pertinent EPG's and these guidelines will be attached to any commercial or domestic permits issued for these areas. There will be continuous monitoring inside these areas and buffers will be flagged to ensure compliance with the guidelines. All activity within a PPWSA must be approved by the Department of Municipal Affairs and Environment.

8.4. Information and Education

CBPPL will continue to attempt to educate the public to ensure meaningful and effective consultation and input can be attained. This will be accomplished through field trips and meetings, school presentations, open houses, and National Forest Week activities. The company is currently seeking to recertify to the Forest Stewardship Council (FSC®) National Forest Stewardship Standard of Canada in late 2025. Further outreach of stakeholders will take place in the development of a conservation network and High Conservation Value Report. An annual requirement of the standard to engage with the public and groups will continue beyond the five-year plan consultation.

SECTION 9. PLAN ADMINISTRATION

9.1 Monitoring

Monitoring of planned activities is critical to ensure objectives and operations are carried out in a manner consistent with various guidelines and provincial and federal legislation. Monitoring occurs at the operational level and the planning level.

9.1.1 Operational Level

Annually, Corner Brook Pulp and Paper Limited is issued a Certificate of Managed Land (CML). Attached to this Certificate are schedules that set out the conditions that must be followed to maintain managed land status. Schedule five contains the Environmental Protection Guidelines (EPG's). Industry planning and operations must comply with schedule five or the land can be declared unmanaged, and fines levied. Government staff will monitor for compliance with schedule five and recommend managed or unmanaged status.

All planned activities are monitored to ensure all guidelines and regulations pertaining to environmental protection, harvesting, road construction, and silviculture are followed. Any infractions or deviations from the regulations or guidelines are dealt with as required under the Forestry Act.

In addition to the monthly Government monitoring for compliance Corner Brook Pulp and Paper Limited has put in place an Environmental Management System (EMS), which was registered to the internationally recognized environmental standards ISO 14001, CSA® Z809, FSC® Boreal Standard and SFI® Forest Management and Fibre Sourcing Standards.

As part of this EMS, many monitoring activities take place throughout the year (checking for non-compliances) including:

- Field inspections (Number 1, 2 and 3) completed by contractors and CBPPL Staff including Operations Superintendents,
- Yearly internal EMS audit,
- Yearly external EMS and field surveillance audits,
- External communication from the public through our web site, www.cbpplwoodlands.com.

All non-compliances are documented and reported to the EMS Management Review Committee. All non-compliances are reviewed by the EMS Committee, and corrective action is implemented where and when required.

9.1.2 Planning Level

The strategic planning section at forestry services monitors the implementation of this Five-Year Operating Plan for this zone. This is a crucial role, as many implementation commitments are stated in the plan. The primary function of the planning section is to monitor plan implementation for consistency with commitments in the plan through approval of the Annual Operating Plans derived from this plan and review of the past annual reports associated with each year's activities. The section will identify concerns with plan implementation, provide recommendations for plan changes and establish protocol for concerns reported to them. Additional meetings between CBPPL, Strategic Planning and/or relevant stakeholders may be required to review amendments or provide recommendations should changes be required because of a catastrophic event such as fire which may precipitate changes to the plan.

9.2 Amendments

Due to the dynamic nature of forest activities, amendments are often required because of changes in the forest, operational realities, imposition of addition requirements or guidelines, or some other unforeseen circumstance. These changes to the five-year operating plan must be submitted as amendments and approved before they are implemented. There are two types of possible amendments for this plan, one that can be approved internally by the Forestry and Agrifoods Agency and one that must be submitted to the Environmental Assessment Division for public review. Changes to this plan can be approved by the Forestry and Agrifoods Agency if they are:

- within one kilometer of an operating area described in the five-year operating plan, an additional area for timber harvesting that is, in total, not more than 50 hectares in each year of the plan

- within a forest management district, an additional area for silviculture treatment of not more that 20 percent of the total operating area described in the five-year operating plan over the five-year term of the plan

- within an operating area described in the five-year operating plan, not more than one kilometer, in total, of new primary forest access road in addition to existing and proposed primary forest access road in each year of the plan

- adjacent to an operating area described in the five-year operating plan, not more than half a kilometer, in total, of new primary forest access road in each year of that plan.

Changes that are not covered by the above must be submitted for Environmental Assessment (EA) in the form of an amendment to the five-year operating plan. Prior to approval through EA, the amendment must be approved by the Ecosystem Management Division of the Forest Service.

Amendments will be reviewed by the monitoring committee if the District Manager deems that they represent a significant change to the plan.

SECTION 10. PAST 5YP COMMITTMENTS

10.1 Women's Employment Plan

The Women's Employment Plan (WEP) has been prepared as a conditional requirement by the Government of Newfoundland and Labrador. It describes the gender-equity goals and initiatives that Corner Brook Pulp and Paper plans to implement by working collaboratively with our contractors and relevant community stakeholder organizations to help ensure a diverse and inclusive workforce during the various phases of the proposed project.

We are an equal opportunity employer in all sectors of its operation. We encourage and support the growth of women within our organization in many ways including identifying women for succession roles and providing equal opportunity in all job competitions. All roles that are posted externally are advertised on our website, or indeed.ca. For specialty positions we often will post on websites associated with professional organizations such as CPA, as well as alumni groups within CNA and Memorial University.

Corner Brook Pulp and Paper is committed to establishing qualitative and quantitative goals for gender equity to improve employment outcomes for women in Newfoundland and Labrador. CBPPL has developed this Women's Employment Plan (WEP) to establish a proactive approach toward a workplace environment with policies and practices that help ensure a work environment free from harassment and discrimination.
The complete WEP can be found in Appendix 4 of this plan.

10.2 Greenhouse Gas Management Plan

Corner Brook Pulp and Paper Limited (CBPPL) has employed various strategies to adapt to and mitigate climate change on the DFA. Throughout this document you will see various ways that the company is involved in partnerships with various groups, to stay abreast of possible change and to influence decision making with respect to climate change and impacts to forest operations. Though partnership with the Department of Fisheries, Forestry and Agriculture (FFA), CBPPL is involved in the process of wood supply modeling. Currently there has been no incorporation of the effects of climate change on the growth and yield into this model. CBPPL continues to partner with the FFA to work towards this goal.

A fuel consumption program was initiated across all aspects of our woodlands operations in 2009. Fuel consumption has a very significant economic cost associated with our operation, as well as the environmental cost. CBPPL evaluated fuel consumption to determine if it is a Significant Environmental Aspect of our operation and built programs to reduce it. Some of the programs are highlighted in Table 11 below. As opportunity arises, we will continually build on this program and make changes to the way we operate to decrease the amount of GHG that is emitted during forest operations, which include trucking wood to the mill.

Table 11 GHG Reduction Programs

Topic	Description
1st offering of Smart Driver Program for the Trucking Fleet	A reduction of 300,000lts annually realized by our trucking fleet. At 350lts per tonne of CO2 we reduced our GHG emission by 847 tonnes of CO2 annually.
Educational Tools	Distributed Fuel Consumption Guide entitled "In Forestry Operations: Fuel Economy Counts" to Contractors
2nd offering of Smart Driver Training	Training provided to Wood truck drivers provided by FP Innovations.
Backhauls	Backhaul routes were established to reduce the number of trips per unit volume of material. Less trips haul an equivalent amount of fiber, thus resulting in fuel savings. Example: Pulp wood delivered to CBPPL from central NL and logs returned to Sexton's Lumber in eastern NL (80% backhaul – loaded 80% of the time).
Increased Weight Permit Project	In 2023 CBPPL obtained permits for increased weight on its fleet of wood trucks. According to FPInnovations, the increased weight permit pilot project for 2023 resulted in 4% lower GHG emissions and 6% fewer log truck trips to haul a given volume. They estimate this to be the equivalent removal of 135 passenger vehicles from the road per year. Another way of looking at this is 8 Tonnes of Green House Gas emissions per year per truck with a Quad trailer, and 14 Tonnes of Green House Gas emissions per year per truck with a B-Train trailer. Since 2023 the company has continued this project and obtains the increased weight permits annually.

10.3 Newfoundland and Labrador Wood Supply Carbon Accounting Overview

Maintaining and enhancing ecosystem carbon storage is increasingly becoming an important forest management goal for addressing climate change mitigation and adaptation together. The achievement of such forest management objectives relies on sound assessment of forest stocks and carbon dynamics under future emission scenarios. Efforts are required for incorporation of climate change impacts on tree growth into the forest planning framework and carbon budget modeling, so that periodic variations in timber harvest level, forest structure, and forest carbon stocks can be simulated over the planning horizon, leading to optimal forest management with carbon benefits.

The goal of this research is to integrate climate change impacts on wood supply analysis with forest carbon accounting to help enhance forest mitigation and adaptation to climate change in Newfoundland and Labrador (NL), and update NL forest carbon information required for the Canadian Forest Service to operate and maintain Canada's national carbon reporting infrastructure. Through a combination of spatially explicit modeling and field experiments, this project will also attempt to enhance collaborations between Canadian Forest Service, NL government (FFA), industry (CBPPL) and universities in natural resources assessment and environmental management. The objectives of this research are:

1) To assess the forest carbon storage under different forest management scenarios in Newfoundland. Through integration of forest carbon accounting with wood supply analysis, the study will help determine where, when, and what, forest management strategies may be incorporated into long-term forest planning in order to improve or remain forest carbon storage in the province. The study will also provide important templates of how to integrate wood supply analysis with forest carbon modeling to support the province-wide incorporation of carbon modeling as part of the standard provincial wood supply analysis in Newfoundland.

2) To evaluate climate change impacts on forest carbon storage under a variety of combinations of management and climate change scenarios. With the usage of environmentally-sensitive yield curves (currently under development for the province) in wood supply analysis and forest carbon accounting, forest carbon storage and carbon dynamics will be explored under IPCC climate change scenarios to support the development of forest carbon management strategies in the province.

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Appendix 1 – Environmental Protection Guidelines
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Government of Newfoundland and Labrador
Department of Fisheries, Forestry and Agriculture

Environmental Protection Guidelines

for Forestry Operations in Newfoundland and Labrador

Date effective: January 01, 2025

Forestry and Wildlife Branch
Forest Ecosystem Management Division

CONTENTS

This Document reflects an adaptive approach to Forest Management, representing an operational type guide to the implementation of Forest Management and Wildlife Strategies.

FORWARD

The 2025 Environmental Protection Guidelines for Forestry Operations in Newfoundland and Labrador is an updated version of original guidelines initially developed in 1998. It has been developed through a consultative process with Forest Managers, Planners, Industry and other stakeholders throughout the province. These guidelines are intended to be stand level, on-the-ground procedures to be used by Forest Managers and operators to ensure sustainable use of the forest resource without degrading the environment. More specifically, the guidelines are designed to prevent and control degradation of soil, water, and vegetation in an effort to maintain healthy forest ecosystems. These guidelines are periodically reviewed and adjusted to reflect new policies and procedures and compliance is monitored by Departmental staff.

To facilitate use, the guidelines are structured by forestry activity and include sections on:

- harvesting;
- road construction;
- silviculture;
- forest protection;
- operations within protected water supply areas; and
- operations to reduce incidental take of migratory birds

The development of the Environmental Protection Guidelines will continue to be an evolving process within which the Department of Fisheries, Forestry and Agriculture (FFA) will incorporate the best available information about forest ecosystems and sustainable forest management concepts in a timely fashion through adaptive management and other innovative, scientific based approaches.

1. HARVESTING GUIDELINES

1.1. PLANNING OPERATIONS

1.1.1. PERMITS REQUIRED

1. When temporary water crossings are required to facilitate travel of harvesting equipment, the location and type of all water crossings must be submitted to the Department of Environment and Climate Change (ECC). A permit is required from Water Resources Management Division of ECC, for any water identified on the latest 1:50,000 topographic maps. A Letter of Advice is required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than 2.0 metre in width, at its narrowest point from the high water mark, not found on the 1:50,000 topographic maps. The intent of these measures is to safeguard water quality and fish habitat.

2. All waste disposal sites require a valid permit under the **Environmental Protection Act.** Application for approval can be made by contacting the nearest Government Services Centre.

3. Timber harvesting is considered a development under the **Urban and Rural Planning Act**, and when this activity is proposed within a municipal planning area boundary, a permit is required from the Municipality. If the activity is proposed within 400 meters of a protected road, a development permit is required from the Department of Digital Government and Service NL.

4. Operating Permits are required when conducting work during the Forest Fire Season

1.1.2. CONSULTATION REQUIRED

1. The Natural Areas Program and the Department of Tourism, Culture Arts and Recreation will be consulted during the preparation of each District five year operating plan. Where harvesting is proposed within one kilometer of an ecological reserve, wilderness reserve, provincial park or proposed reserve, Natural Areas and TCAR will be expected to identify/discuss any concerns during the planning consultation process. New access roads will not be located within 500 metres of the boundary of an ecological reserve, wilderness reserve, provincial park or proposed reserve, without first consulting Policy, Planning and Natural Areas Division.

2. The Wildlife Division will be consulted on timber harvesting during the preparation of each five year operating plan due to a variety of wildlife specific habitat requirements (eg, woodland caribou, listed flora and fauna), to implement applicable mitigations.

3. The Provincial Archaeology Office (PAO) of the Department of Tourism, Culture, Arts and Recreation will be contacted during the preparation of the five-year operating plans to determine the location of historic resources and appropriate mitigation measures.

1.1.3. Planning

Planning forest operations for both Industry and Crown may include, but is not limited to:

- boundaries of protected public water supplies (if applicable);
- existing and proposed access roads;
- general location of extraction trails and landing locations;
- areas sensitive to erosion;
- buffer zones around water bodies;
- location of approved stream crossings;
- location of fuel storage;
- sensitive wildlife areas as shown in the five-year operating plan; and
- sensitive fish habitat (e.g. salmonid spawning and rearing areas) identified in consultation with Department of Fisheries and Oceans (DFO).

1.1.4. Nutrient Poor Sites

If it is deemed necessary to harvest nutrient poor sites such as those typed as poor or scrub within the Provincial Forest Inventory, all effort will be made to ensure all sites (good, medium, poor) are regenerated.

1.1.5. Lichen Surveys

Potentially, rare lichens maybe found throughout the forest within the Avalon Peninsula and Southern portion of the island of Newfoundland. To minimize any negative effects to rare lichens, forestry staff will coordinate with Wildlife staff field protocols for conducting surveys. Triggers for initiating a Lichen Survey include:

- A rare lichen survey should be carried out when forest harvest or road construction is proposed in a Balsam Fir dominated stand, Age Class 4 and older, in Forest Management Districts 01, 03, and 07.

- A rare lichen survey should be carried out when harvest or road construction is proposed in a Balsam Fir or Balsam Fir dominated stand (any age class) within five kilometers of a previously identified rare lichen location.

1.2. Conduct of Operations

1.2.1. Minimizing Erosion and Disturbance

1. When extraction trails and winter roads are to be constructed, soil disturbance and impacts on water bodies are to be minimized. The operator will use culverts and/or temporary bridges, depending on site conditions, in order to minimize erosion and sedimentation, avoid restricting stream flow, and ensure fish passage in fish-bearing streams. Erosion control measures, such as the laying down brush mats and the construction of diversion ditches for water run-off, are to be maintained while an extraction trail is in use. The trail is to be left in an environmentally acceptable condition thereafter. All temporary crossings are to be removed at the end of the operating season. As well, when an extraction trail is located on steep ground and is no longer in use, cut-off ditches and push-lanes must be created.

2. No more than six per cent of the forested floor within the harvested land base of an operating area can be disturbed by equipment. In situations where specific operating areas require more than six per cent disturbance to capture available timber, the operator is required to obtain approval and then rehabilitate the area (i.e., leave the area in a condition suitable for successful forest regeneration and growth) to reduce the total net disturbance to the six per cent maximum. Disturbance is defined as per the Ground Disturbance Survey Guidelines developed by the Forestry & Wildlife Branch.

3. Heavy equipment and machinery are not permitted in any waterbody, on a wetland or a bog, unless frozen, without a permit from Water Resources Management Division of the Department of Environment and Climate Change

4. In areas prone to erosion and silting:
    I. conduct winter logging (i.e. harvest during winter), or
    II. place slash on extraction trails if conventional equipment is operating in an area.

5. Any forestry operation that directly or indirectly results in sedimentation entering a waterbody must be dealt with immediately by notifying either the DFO Area Habitat Biologist or the District Manager within 24 hours.

6. Woody material of any kind (i.e. trees, slash, sawdust, slabs, etc.) is not permitted to enter a waterbody. Depositing woody material on ice within the high water floodplain of any waterbody is also prohibited.

7. To minimize potential for erosion and sedimentation, temporary waterbody crossings shall:

    I. have stable approaches;

II. be at right angles, wherever possible, to the waterbody;
III. be located where channels are well defined, unobstructed, and straight;
IV. be at a narrow point along the waterbody; and
V. allow room for direct gentle approaches wherever possible

8. Extraction trails and landings shall not be established within 30 metres of a waterbody.

1.2.2. Archaeological Find

When an archaeological site or artifact is found, the **Historical Resources Act** requires that all development temporarily cease in the area and the discovery be reported to the Provincial Archaeology Office at (709) 729-2462. The Provincial Archaeology Office will respond immediately and will have assessment requirements and mitigation measures in place within seven days as agreed to by the Provincial Archaeology Office and the operator. Forestry activity can then continue. Ground Disturbing activities are not to occur within 50 meters of identified archaeological sites

1.2.3. Timing of Operations

1. Harvesting is not permitted within woodland caribou calving and post-calving areas from April 15 to July 15. Calving areas will be identified by the Wildlife Division and communicated during the five year plan development.

2. Harvest scheduling may be modified during the migration of wildlife (e.g., caribou, waterfowl, etc.) upon discussion with the Wildlife Division. Areas of concern and mitigation measures will be identify as part of the five year planning process.

1.2.4. Leaving Buffers and Wildlife Trees

1. A 30 metre no cut buffer zone, shall be established around all water bodies that are identified on the latest 1:50,000 national topographic system (NTS) maps.

   Streams greater than two metres in width that do not appear on the NTS maps require a 30 meter buffer and can be identified using the below criteria:

   - The stream must have a defined bottom;
   - banks that exceed 30 centimeters in depth:
   - meets or exceeds an average 2 meters in width measured at 40 meter intervals over a 200 meter distance along the stream.

2. Where the slope is greater than 30 per cent there shall be a no harvest buffer of 30 metres plus 1.5 times per cent slope. All equipment or machinery is prohibited from entering waterbodies; thus, structures must be created to cross over such waterbodies for the protection of aquatic habitat. Every reasonable effort will be made to identify intermittent streams, and they will be subject to this buffer requirement.

The District Manager must adjust the specified buffer requirements in the following circumstances:

I. A minimum 30 no cut buffer and 50 meter no grubbing zone for sensitive fish habitat (e.g., salmonid spawning habitat) as identified in the five year operating plan release conditions.

II. A 50 metre, no cut buffer will be maintained around newly discovered black bear winter denning sites or those encountered during harvesting. These den sites must be reported to the Wildlife Division.

III. No forestry activity is to occur within 800 metres of an active bald eagle nest or osprey nest during the nesting season (March 15 to July 31) and 200 metres during the remainder of the year. For other raptor species like hawks, falcons, and owls, no forestry activity is to occur within 160 metres of a known active nest during the nesting season. The location of any raptor nest site must be reported to the Wildlife Division. Travel on established access roads outside a 200m zone of an active nest is a permitted activity, including forwarding of harvested timber, with the requirement that if roads/ trails are in use for two weeks or longer between March and July, the nest must be monitored and a summary of breeding success and travelling activities with appropriate mapping be emailed to WD at the end of trail usage or end of July, whatever comes first.

IV. All hardwoods within 30 metres of an active beaver lodge are to be left standing.

V. A minimum 30 meter, no cut buffer and a 50 meter no grubbing zone will be maintained from the high water mark in Sensitive Wildlife Areas for waterfowl including breeding, moulting and staging areas.

VI. 50 meter no cut buffer is required near waterbodies hosting shellfish aquaculture operations. Aquaculture Division will work with Forestry Branch to determine locations of approved Aquaculture Leases

VII. A minimum 50 meter no cut buffer on significant wetlands / waterfowl areas as identified by the map in Appendix A. The map illustrates the location of SWA's, where forest harvesting can occur inside the identified boundaries, with implementation of buffers and using the operational guidance for determining the edge of a wetland in Appendix B.

VIII. 30 meter no cut buffer must be maintained around established hydrometric and climate stations. Locations are determined by the Water Resources Management Branch

IX. 100 meter no cut buffer around established drinking water wells. An up to date list of coordinates for private/drilled wells can be obtained from Water Resources Division

X. 100 meter no cut buffer from the centre line of the Newfoundland T'railway (both sides)

XI. Activities located within Protected Public Watersupply Areas (PPWSA's)

3. A minimum average of 10 Wildlife Trees (i.e., standing dead trees) or other suitable living trees per hectare shall be left individually or as small clumps on sites identified as habitat for wildlife (i.e., nesting and perching sites for birds, den sites for particular wildlife species, etc.). Preference should be given to the largest trees (i.e., standing dead trees or live hardwoods). Research has shown that larger diameter snags are more valuable (last longer and contribute more to the biomass pool) than smaller diameter snags. Consequently, the trees retained should be ones, which are from the dominant or co-dominate portion of the stand and be left in a fairly evenly distributed manner.

1.2.5. Petroleum Products

1. In the event of a spill and/or leak of petroleum products, the owner or operator must make every effort to first; contain and second; clean up the spill. Spills in excess of 70 liters and **all leaks**, must be reported by calling the following spill report line:

   Environmental Emergencies Spill Report Line
   Canadian Coast Guard
   (709) 772-2083 collect or 1 (800) 563-9089

   In this province, spills and leaks must be remediated in accordance with the Guidance Document for the Management of Impacted Sites prepared by Pollution Prevention Division of ECC.

2. No heavy equipment or machinery is to be refueled, serviced, or washed within 30 metres of a waterbody or within 150 meters of a body of water within a PPWSA. Gasoline or lubricant depots must be stored at least 100 metres from the nearest waterbody. All fuel-storage tanks must be registered with Digital Government and Service NL and installed in accordance with the **Storage and Handling of Gasoline and Associated Products Regulations,** 2003 as amended, under the **Environmental Protection Act**.

3. Used oil storage, handling and disposal is to comply with the **Used Oil Control Regulations,** NLR, 82/02 under the **Environmental Protection Act**.

4. Above ground fuel storage tanks shall be registered with Digital Government and Service NL and have appropriate approvals for tank design. Construction and installation standards are clearly listed in section 27 of the **Storage and Handling of Gasoline and Associated Products Regulations**, 2003 as amended, under the **Environmental Protection Act**.

5. Contaminated soil or snow must be disposed of at an approved treatment facility.

1.2.6. Clean up of Site

Garbage is to be disposed of at an approved waste disposal site with the prior permission of the owner or operator. Prior to disposal it must be contained in a manner not to attract wildlife. All equipment and waste materials are to be removed from the operating area when operations are completed.

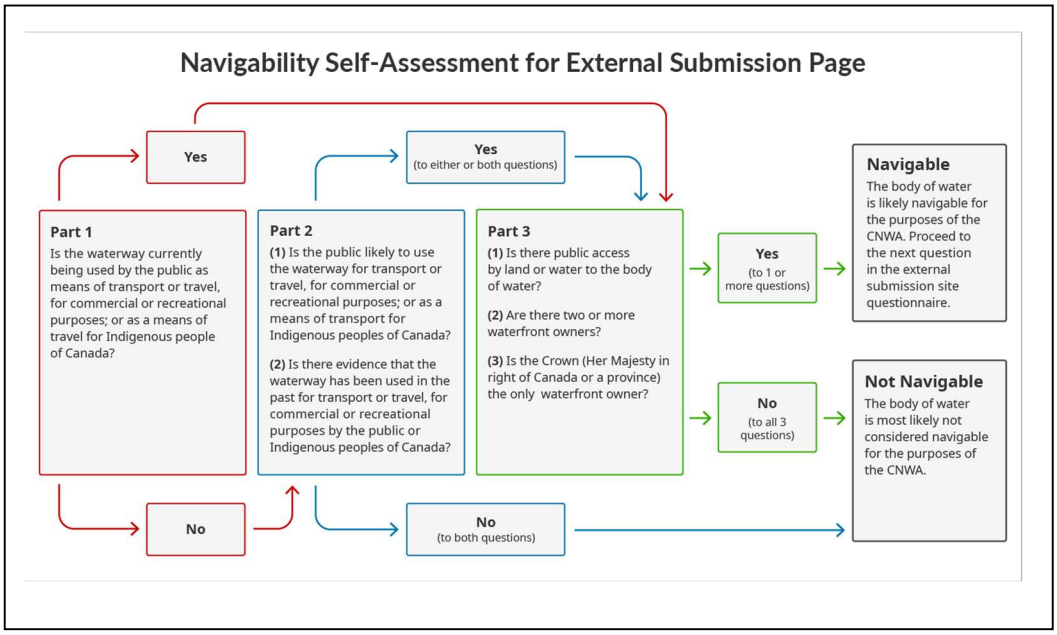
2. Forest Access Road Guidelines

2.1. Planning of Roads

2.1.1. Permits Required

1. Any alteration of a waterbody or work within 15 metres (i.e. any water identified on the latest 1:50,000 NTS map) or development within a protected public water supply area, will require prior approval by the Water Resources Management Division of the ECC. For alteration of a waterbody, a permit is required under Section 48 of the **Water Resources Act**, SNL 2002 cW-4.01. For any development in a protected public water supply area a permit is required under Section 39(6) of the **Water Resources Act**, SNL 2002 cW-4.01. Alteration of a waterbody may include culvert installations, temporary or permanent stream crossings, outfalls, infilling; and bridge, dam, and wharf construction. A Letter of Advice is also required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than two metre in width not found on the 1:50,000 topographic map (using stream criteria as indicated in 1.2.4

2. In addition to approvals from Water Resources Management Division and DFO, approvals from Transport Canada are required for culverts, bridges and abutments on navigable waters (i.e. any waterbody capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation. This includes both inland and coastal waters). Transport Canada's Navigability Self-Assessment Tree must be utilized for each project to determine if a stream is Navigable or Not Navigable.



3. Resource road construction or any forestry activity is considered a development under the **Urban and Rural Planning Act**. Where this activity occurs within a planning area boundary or within 400 metres of a protected road, a development permit is required from Digital Government and Service NL before any activity takes place.

4. No roads are to be constructed within 500 meters of an established Provincial Park

2.1.2. Areas to Avoid

Forest access roads, borrow pits, and quarries, should avoid:

I. deltas, floodplains or fluvial wetlands (Refer to Appendix B – Determination of Wetland Edge);
II. terrain with high potential for erosion;
III. known sensitive wildlife areas such as:
    a. caribou areas (i.e. calving, post calving, migrations routes, rutting areas, and winter areas);
    b. waterfowl areas (i.e. nesting and staging areas);
    c. raptor nest sites; and

d. species at risk habitat, rare flora or fauna habitat, and other unique habitats as determined by qualified authorities.

IV. known sensitive fish habitat areas such as spawning and rearing grounds;
V. historically significant areas such as archaeological sites;
VI. existing reserves such as parks (municipal, provincial, national), wilderness areas, ecological reserves and wildlife reserves; and
VII. riparian buffer areas.

2.1.3. Waterbody Crossings

Waterbody crossings shall:

I. have stable approaches;
II. be at right angles, wherever possible, to the waterbody;
III. be located where channels are well defined, unobstructed, and straight;
IV. be at a narrow point along the waterbody; and
V. allow room for direct gentle approaches wherever possible.

2.1.4. Burrow Pits and Quarries

With respect to borrow pits and quarries, the operator should:

I. minimize the number of new borrow areas opened for construction and/or maintenance;
II. use existing borrow pits whenever practical;
III. be in possession of a valid quarry permit from the Mineral Lands Division of Department of Industry, Energy and Technology and FFA, for borrow pits outside resources roads right of way, prior to aggregate extraction activities as per the **Quarry Materials Act**, and
IV. not locate borrow pits and quarries in sensitive areas as identified by planning processes.

2.1.5. Wildlife Values

1. Wherever possible, forest access roads shall not obstruct wildlife movement. The following guidelines should be followed:
    a. roads should be of low profile (i.e. less than one metre above the surrounding terrain);
    b. slash and other debris shall be removed or buried; and
    c. the slope of ditches and road banks shall be minimized.

2. Where road construction is to occur around identified waterfowl breeding, moulting and staging areas, mitigating measures will be identified during the five year operating plan development process.

2.1.6. Road Access

1. Areas proposed for harvest using winter roads shall not be harvested without a reforestation plan approved in the Certificate of Managed Lands or Annual Operating Plans.

2. A regeneration survey is required for all forest areas that will be affected by access due to road decommissioning and bridge or stream crossing removals. Prior to decommissioning, a survey must be conducted and an approved reforestation plan by the Silviculture and Research Section of the Forest Ecosystem Management Division is required for all areas that fail to meet the provincial silviculture stocking standards.

2.1.7. Decommissioning Roads

On a site specific basis, roads may be decommissioned. Levels of decommissioning include:

I. barring access;
II. removal of watercourse crossings; and
III. restoration of roadway including planting of trees.

Decommissioning is identified through the five year plan development or under compelling circumstances, as decided by FFA (e.g. emergency closures).

2.2. Construction and Decommissioning of Roads

2.2.1. Road Construction

1. There shall be no bulldozing or burying of merchantable timber or poor utilization of merchantable softwoods and hardwoods during the cutting of road right-of-way's. All merchantable timber shall be utilized and processed.

2. Where brush mat or corduroy is required, sub-merchantable or non-merchantable stems should be used first. In the event these are not available or sufficient, permission must be obtained from a Forestry Official prior to merchantable stems being utilized. Stems are to be placed in a "butt to top" alternating fashion for the entire length of the area to be brush matted.

3. Earth shall be excavated as required to complete earth cuts, ditching, and sub-excavation, and shall include hauling, handling and disposal as directed. Only with the approval of the forestry official may excavation occur outside the limits of the roadway for the purpose of obtaining suitable or sufficient material to complete embankments. All holes and pits are to be rehabilitated.

4. Fill materials for road building must not be obtained from any waterbody, from within the floodplain of any waterbody, or within the 60 metres of a no grubbing zone.

2.2.2. Pits and Quarry Activity

1. Where borrow pit or quarry activity is likely to cause sediment, laden runoff to contaminate a waterbody, sediment control measures such as filter fabric berms or sedimentation ponds are to be installed. Contact is to be made with a Forestry Official prior to construction where such conditions exist.

2. Overburden or grubbed material pushed off any gravel pit site must be retained in a manner that allows it to be pushed back into the pit after construction and spread in a neat and tidy fashion.

3. Existing pits are to be used, where possible, to minimize the opening of new pits.

4. Borrow pits are to be located at least 60 metres from the nearest waterbody.

2.2.3. Working near Waterbodies and Instream Work

1. A no grubbing zone of 30 meters of undisturbed ground vegetation must be maintained around any waterbody crossing to minimize the damage to the lower vegetation and organic cover, thus reducing erosion potential.

2. Trees are to be felled away from all waterbodies. Slash and debris should be piled above the high water mark so that it cannot enter waterbodies during periods of peak flow.

3. Right-of-way widths at waterbody crossings should be kept to a minimum, preferably to the width of the driving surface plus water control features.

4. Unnecessary side casting or backfilling in the vicinity of waterbodies is not permitted. Where topographical constraints dictate that the roadbed must be constructed adjacent to a waterbody, road slope stabilization is to be undertaken at the toe of the fill (an area where active erosion is likely). The placement of large riprap, armour stone or slope stabilization material is recommended in such areas.

5. Take-off ditching should be used on both sides of the road or in conjunction with culverts to divert the ditch flow off into the woods or stable vegetation areas before reaching the waterbody. The ditch itself shall not lead directly into the waterbody.

6. Grades in excess of 10 per cent shall have culverts with baffle or ditch blocks on one end and cut-off ditches every 150 meters along the road. Baffle or ditch block can be constructed from gabion baskets, wooden structures, rock walls or other approved

materials. Unless otherwise specified, the height of the baffle shall be a minimum of one-half the diameter of the culvert requiring the baffle.

7. When working near waterbodies, road building operations causing erosion or siltation are to be suspended during periods of intense rainfall or when soils are saturated.

8. Any forestry operation that directly or indirectly results in sediment or turbid water entering a waterbody must be dealt with immediately.

9. Fording of equipment for stream crossing installation is to be kept to a minimum. Equipment activity in water crossing areas is to be kept to a minimum. All work is to be carried out from dry stable areas. Permission for exceptions must be obtained from DFO.

10. Heavy equipment and machinery is not permitted in any waterbody, on a wetland or a bog, unless it is frozen, without a permit from Water Resources Management Division.

11. Exposed mineral soil shall be stabilized during bridge construction and culvert installation.

12. All instream work is to be performed as per DFO's policy for applying measures to offset adverse effects on fish and fish habitat

13. Coffer dams are to be used to separate work areas from the stream when installing bridges or similar structures requiring abutments, or footings.

14. Water pumped from work areas and coffer dams is to be directed into a settling pond or stable vegetation areas.

15. Not more than one third of the stream width is to be blocked at any one time.

16. The stream banks are to be rehabilitated upon completion and removal of a coffer dam.

17. All culverts, in fish bearing streams, are to be installed as per the DFO's policy for applying measures to offset adverse effects on fish and fish habitat

18. In fish bearing streams;
    a. culverts having a diameter equal to or exceeding 2000 millimetres should be countersunk a minimum of 15 per cent of the diameter below the streambed elevation;

b. a minimum water depth of 200 millimetres should be provided throughout the culvert length. To maintain this water depth at low flow periods an entrance or downstream pool should be constructed; and
c. downstream outlet pools are of particular importance for long culverts or culverts to be installed on steep slopes.

19. Work to be competed in the stream bed, should be scheduled to avoid potential adverse impacts on spawning activities, egg incubation, spawning habitat and fish migration. It should also be done in consultation with the DFO Area Habitat Biologist.

2.2.4. Archaeological Find

When an archaeological site or artifact is found, the condition in Guideline 1.2.2 will apply.

2.2.5. Petroleum Products

In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in road construction and decommissioning operations.

2.2.6. Winter Roads

As with all season roads, soil disturbance and impacts on waterbodies are to be minimized with winter roads. Culverts or temporary bridges are to be used. Erosion control measures are to be maintained while the winter road is in use. After use, it is to be left in an environmentally acceptable condition. All temporary crossings are to be removed at the end of the operating season and an inspection is to be conducted by a Forestry Official, engineer or other qualified person. This inspection is to ensure any required remediation has been completed.

2.2.7. Decommissioning Roads

1. When roads are decommissioned or barred by gating or ditching or placement of obstacles, appropriate signage warning of any hazardous condition shall be placed in open view.

2. When decommissioning is through removal of watercourse crossings, areas adjacent to former culverts or bridge locations shall be stabilized to reduce potential for erosion. Appropriate signage shall also be placed.

3. When decommissioning roads by replacing soil, overburden and other natural obstacles on former roadway, so as to deny vehicular access and to enable planting in order to

restore productive forest on the site, standard precautions such as silt fencing shall be used to prevent entry of silt in waterways.

4. Decommissioning shall not be undertaken until all necessary reforestation activities beyond the decommissioning point has taken place.

3. Silvicultural Guidelines

3.1. Silviculture Planning

3.1.1. Permits Required

Silviculture is considered a development under the **Urban and Rural Planning Act**. Where this activity occurs within a municipal planning area boundary or within 400 metres of a protected road, a development permit is required from either the municipality or Digital Government and Service NL for the protected road, before any activity can occur. Also, a permit is required if located inside a PPWSA.

3.2. Conduct of Silviculture Operations

3.2.1. Preventing Erosion

To prevent erosion on sites proposed for row scarification, every effort should be made to follow the contours where slopes exceed 15 per cent. If in such instances scarification has to occur parallel to the slope, the scarified trenches are to be intermittent (i.e. for every 20 metres of trench, an un-scarified section two metres m in length should be left).

3.2.2. Protection of Waterbodies

1. Unless frozen, heavy equipment and machinery is not permitted in any waterbody, on wetland or a bog without a permit from Water Resources Management Division.

2. Any forestry operation that directly or indirectly results in sediment and/or turbid water entering a waterbody must be dealt with immediately.

3. Trees thinned during pre-commercial thinning, diameter limit thinning, commercial thinning or any other silviculture treatment shall not be felled into waterbodies.

3.2.3. Placement of Windrows

When slash is piled into windrows, it should be located where the slash cannot be washed into streams at peak flooding conditions.

3.2.4. Tress Left for Wildlife and Other Values

1. There is to be no cutting of Eastern White Pine, *Pinus strobus,* Red Pine *Pinus resinosa,* or Black Ash. Information regarding endangered species can be located on the website (https://www.gov.nl.ca/ffa/wildlife/endangeredspecies/)

2. Hardwood species, such as birch, are to be left when encountered in a stand scheduled for thinning where these do not compete with the conifer crop trees. Portions of thinning areas which are pure hardwood may be left unthinned when encountered. In mixed regeneration, various hardwood or softwood species may be favoured in future stand development in accordance with management objectives stated in the approved operating plan for the area.

3.2.5. Timing of Silviculture

Where possible, silviculture operations are to be reduced or avoided in areas identified by the Wildlife Division during the periods of birth and hatching.

3.2.6. Archaeological Find

When an archaeological site or artifact is found, the condition in Guideline 1.2.2 will apply.

3.2.7. Fuels and Petroleum Products

1. In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details.

2. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in silviculture operations.

3.2.8. Scarification Method

Where mechanical site preparation is required, the method selected shall be best suited for preparing the area for planting and for minimizing ground disturbance.

3.2.9. Choice of Species to Plant

In planting situations, the use of native species is preferred. However, in certain situations, use of non-invasive, exotic species, such as those which have been established in the province for decades, or those which may come under future review, may be planted.

4. Forest Protection Guidelines

4.1. Planning for the Application of Pesticides (Insecticides and Herbicides)

4.1.1. Regulation of Pesticides

The use of pesticides is regulated federally by Health Canada and provincially by MAE. The federal **Pest Control Products Act** states which products are registered for use in Canada, and the provincial **Environmental Protection Act, Pesticide Control Regulations** outlines licensing requirements and the conditions under which they can be purchased, sold or handed.

4.1.2. Licences Required

1. To apply pesticides in the province, two licences are required from the Pollution Prevention Division of ECC. The first is a Pesticides Operators Licence which is issued for a specific program and valid for five years. To obtain this licence, the applicant must submit project details including a map of the area to be treated, product to be used, and time of the year to be used. Following the completion of the project, a report must be submitted to ECC. The second licence required is a Pesticide Applicators Licence. To obtain this licence, the applicator must complete an exam. Only people in possession of this licence may use the pesticide. It is valid for a period of five years.

2. To apply herbicides, the same conditions apply as above. An Operator's Licence must be obtained for the project and is valid for five years. In addition, each member of the crew involved with application of the herbicide must complete an exam and obtain a Pesticide Applicators Licence.

3. A third program which requires an Operator's Licence and a Pesticide Applicators Licence is the tree nursery program which may use pesticides to grow seedlings. The same conditions apply as above.

4.2. Conduct of Operations

4.2.1. Pesticide Use

Only bio-degradable pesticides will be used and only as part of an integrated pest management strategy.

5. Guidelines for Forestry Operations within Protected Public Water Supply Areas

The primary function of a Protected Public Water Supply Area (PPWSA) is to provide the public with an adequate quantity of safe and good quality water on a permanent basis and to meet its present and future demands. By definition, a Protected Public Water Supply Area is the area of land and water designated as a Protected Public Water Supply Area, for a municipal authority operating a waterworks or using or intending to use a water sources, under Section 39 of the **Water Resources Act.** Any other activity within a Protected Public Water Supply Area is considered secondary, and if permitted, must be strictly regulated and monitored to ensure that the water supply integrity is not threatened and the quality of the water is not impaired.

In Newfoundland and Labrador forestry operations are permitted in most Protected Public Water Supply Areas on a limited and controlled basis provided the proposed operations have no or minimal, water quality impairment potential.

The following permits and approvals are required prior to the beginning of any forestry operations, whether commercial or domestic operations, and includes road construction, silviculture activities, and harvesting within a Protected Public Water Supply Area:

I. Approval of the Five year operating plan by the Environmental Assessment Division of ECC,
II. Issuance of a permit under section 39(6) of the **Water Resources Act** which will include consultation with the community involved. Applications for development inside Protected Public Water Supply Area can be obtained from the Water Resources Management Division website.

5.1. Conduct of Operations

All permits and contracts should include any conditions outlined under section 39(6) of the **Water Resources Act.** In addition to environmental guidelines specified in sections above, the following will apply in Protected Public Water Supply Areas.

5.1.1. Map of Operating Area

The appropriate Forestry or Company official will provide the operator with a map indicating the harvesting area and the location of no-cut buffer zones, and will ensure the operator is familiar with the boundaries and conditions of the approved detailed plan of operations.

5.1.2. Prevention of Erosion

In areas sensitive to erosion, depending on the nature and location of the proposed forestry operation, the Water Resources Management Division may not permit the activity to take place. However, where permitted, the following mitigation measures should be put in place:

1. Sensitive areas prone to erosion and areas which have high potential for erosion can be harvested if proper harvesting and site restoration techniques are a part of a detailed plan.
2. Wherever possible, extraction trails should run along contours and avoid wetlands.
3. Use of landings will be minimized. Any approved landing area shall be less than 0.25 ha and located at least 150 metres from Protected Public Water Supply intake ponds.

5.1.3. Buffer Zones

Riparian buffer zone requirements in Protected Public Water Supply Areas are as follows:

Water Body	Width of Buffer
Intake Pond, Lake or Reservoir	Minimum 150 metres
River Intake (for a distance of 1000 metres upstream and 100 meters downstream)	Minimum 150 metres
Main River Channel	Minimum of 75 metres
Major Tributaries, Lakes or Ponds	Minimum of 50 metres
Other Waterbodies	Minimum of 30 metres

Any deviation will require approval from Water Resources Management Division.

5.1.4. Petroleum Products

Fuel storage and the operation of fuel storage equipment are regulated by the **Storage and Handling of Gasoline and Associated Products Regulations,** 2003 as amended and the **Heating Oil Storage Tank System Regulations,** 2003 as amended.

In addition to the above regulatory requirements and Sections 1.2.5.1 to 1.2.5.5 the following are to be adhered to;

I. There is no bulk fuel storage within a PPWSA unless otherwise approved by WRMD. Fuel Storage is limited to two 205-litre drums or a 500 litre slip tank.
II. Refueling must not take place within 150 metres of a body of water.
III. All tanks must be located at a minimum distance of 500 metres from any major waterbody.
IV. A fuel or oil spill clean-up kit must be kept on site to facilitate any clean-up in the event of a spill. This kit must include absorbent pads, loose absorbent materials such as dried peat, speedy-dry or sawdust, a container such as an empty drum for recovering the fuel or oil, and a containment boom.

5.1.5. Structures Prohibited in Water Supply Area

1. Dormitory camps, garages or any other structures are prohibited within a Protected Public Water Supply Area.

2. Any new applications for either a domestic or commercial sawmill in a PPWSA will first have to contact Water Resources Division for Development Permit before a new licence is issued.

5.1.6. Reporting Water Quality Problems

Any water quality impairment problem should be reported immediately to the Water Resources Management Division.

6. Guidelines for Forestry Operations to Reduce Incidental Take of Migratory Birds

In Canada migratory birds, nests and eggs are protected under the Migratory Bird Convention Act (MBCA). Currently, the inadvertent harming, killing, disturbance or destruction of migratory birds, nests, and eggs often referred to as "incidental take", may be considered a violation under the MBCA and its regulations.

Bird nests occur in virtually every stand logged during the nesting season, which can run from mid-April through mid-August each year in Newfoundland and Labrador. This places forest operations in direct conflict with the MBCA during nesting season, with no opportunity to obtain a permit for authorization. Shutting down forest operations for this period would have huge economic and social implications.

Beneficial Management Practices (BMP) are designed to reduce risk of incidental take by making forest operators aware of their responsibility in the following areas:

I. Knowledge of Legal Obligations
II. Risk Assessment and Planning
III. Preventative and Mitigation Measures

BMPs in this document apply to commercial forest operations during the migratory bird breeding season in Newfoundland and Labrador. Operations include the construction and maintenance of forest access roads, timber removal and transportation activities, silviculture related activities and forest harvesting.

6.1. Knowledge of Legal Obligations

During planning, and immediately before implementation of operations, forest operators must familiarize themselves with the current legislation for the protection of migratory birds, their nests and their eggs. Section 6 subject to subsection 5(9) of the **Migratory Bird Regulations** and Section 75 of the **Wild Life Regulations** outline the responsibilities of operators concerning this.

Forest operators are also responsible for the protection or avoidance of species listed under the **Species at Risk Act** (SARA) or the **Endangered Species Act** (ESA).

6.2. Risk Assessment and Planning

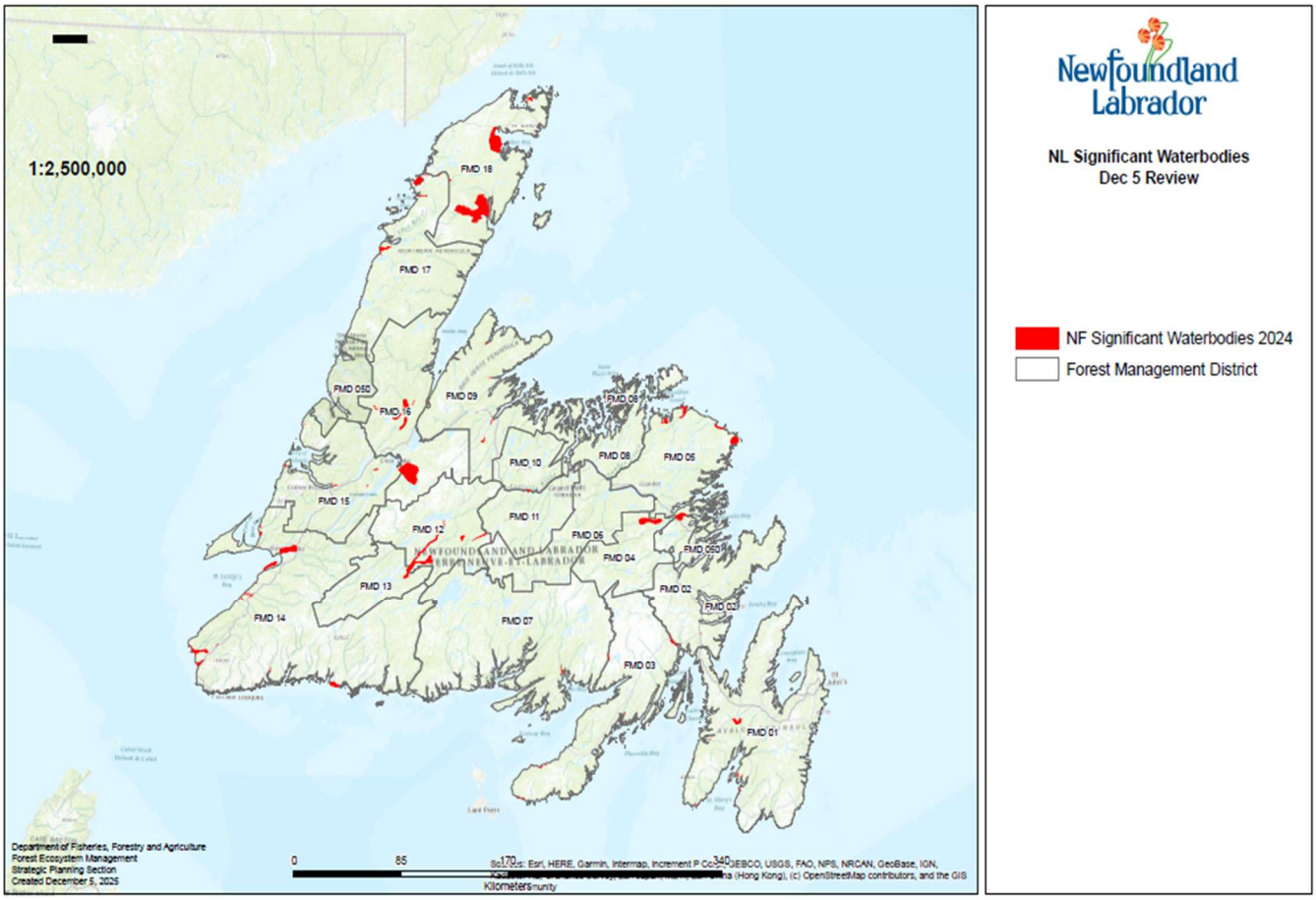
Planning ahead can help you comply with the law and minimize the risk of detrimental effects to migratory birds. Assessing the risks of effects is the first step for developing appropriate prevention and mitigation measures that help maintain sustainable populations of migratory birds.

In order to help ensure that you are complying with legal obligations, you should first determine the likelihood of the presence of migratory birds and their nests or eggs when planning activities to be carried out. It is recommended to use scientifically sound approach that considers the available bird habitats, the migratory bird species likely to be encountered in such habitats, and the time period of encounters. You should plan to avoid engaging in potentially destructive or disruptive activities at key locations or during key periods, such as the breeding season.

6.3. Preventative and Mitigation Measures

Planning To prevent incidental take of migratory birds during forestry operations it is recommended to schedule activities to reduce disturbance during the migratory bird breeding season. The breeding season for most migratory birds within the province occurs between April 15th and August 15th, though some species do nest outside of this time period.

APPENDIX A - 50 METER NO CUT BUFFER ZONE ON SIGNIFICANT WETLANDS – OVERVIEW MAP



APPENDIX B - OPERATIONAL GUIDANCE TO DETERMINE THE EDGE OF A WETLAND

Modern high-resolution digital mapping of wetlands in NL help approximate the location and boundary of wetlands, but these maps can underestimate the scale/extent of wetlands, particularly forested swamps and floodplains. Although techniques exist, it is not generally operationally possible to delineate the actual extent of wetlands, as those techniques, at scale, would be onerous, time consuming, expensive and require specific expertise.

For operational purposes the wetland edge can be determined by where the vegetation obviously changes in height and/or the composition of observed vegetation becomes non-hydrophytic (plants not dependent upon the periodic flooding of water). As such, the width of required riparian buffers on the edges of wetlands can be measured from the edge of the non-hydrophytic vegetation, and does not necessarily mean treed.

Following are several examples of wetland situations requiring the determination of an edge

Example A: Simple wetland

Example B: Less simple wetland situations:

APPENDIX C – RESOURCE MATERIAL

Development Applications in Protected Public Water Supply Areas

http://www.env.gov.nl.ca/env/waterres/regulations/appforms/index.html

Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Labrador

http://www.dfo-mpo.gc.ca/Library/240270.pdf

Guidance Document for the Management of Impacted Sites

http://www.env.gov.nl.ca/env/env_protection/ics/Guidance_Document_For_the_Management_of_Impacted_Sites_V2.0_Feb_6_2014.pdf

FEDERAL LEGISLATION

Canada Fisheries Act

http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html

Canada Navigable Waters Protection Act

http://laws.justice.gc.ca/eng/acts/N-22/

Canada Species at Risk Act

http://laws-lois.justice.gc.ca/eng/acts/s-15.3/

PROVINCIAL LEGISLATION

Newfoundland and Labrador Endangered Species Act

http://www.assembly.nl.ca/Legislation/sr/statutes/e10-1.htm

Newfoundland and Labrador Environmental Protection Act

http://www.assembly.nl.ca/legislation/sr/statutes/e14-2.htm

Newfoundland and Labrador Forestry Act

http://www.assembly.nl.ca/legislation/sr/statutes/f23.htm

Newfoundland and Labrador Historical Resources Act

http://www.assembly.nl.ca/legislation/sr/statutes/h04.htm

Newfoundland and Labrador Quarry Material Act, 1998

http://www.assembly.nl.ca/legislation/sr/statutes/q01-1.htm

Newfoundland and Labrador Urban and Rural Planning Act, 2000

http://assembly.nl.ca/Legislation/sr/statutes/u08.htm

Newfoundland and Labrador Wildlife Act

http://www.assembly.nl.ca/Legislation/sr/statutes/w08.htm

Introduction

(sheet 1 of 2)

INTRODUCTION:

This guidelines document is issued under Section 46 of the *Mineral Regulations* (CNLR 1143/96) under the *Mineral Act* (SNL 1990 c M-12) and applies to mineral exploration.

In addition, the terms and conditions of quarry materials exploration licences ("QMELs") issued under the *Quarry Materials Act, 1998* (SNL 1998 c Q-1.1) require that this guidelines document shall apply to exploration for quarry materials carried out within the area of the licence.

Guidelines in this document are subdivided into "Requirements", which are mandatory and enforced, and "Recommendations", which are provided as suggestions to be considered.

This document occasionally references regulatory, permitting, and policy requirements other than those administered by the Mines Branch, Department of Industry, Energy and Technology, however such information is provided as a convenience only, is not exhaustive, and no guarantee is made with respect to its accuracy and completeness. Approval holders are referred to their exploration approval letter for project-specific requirements and for guidance concerning requirements that may apply under other legislation, regulations, or policy. Parties seeking to conduct exploration are strongly advised to establish early contact with those government agencies responsible for administering or enforcing permitting, regulatory, and policy requirements that their activities may be subject to.

This document replaces and supersedes a previous document titled *Environmental Guidelines for Construction and Mineral Exploration Companies*.

The Requirements and Recommendations set out in this document apply to all mineral exploration taking place within the province on mineral licences, mining leases, and impost lands, with the exception of within Labrador Inuit Lands where the *Mineral Exploration Standards Regulations*, NLR 39-07, under the *Labrador Inuit Land Claims Agreement Act*, SNL 2004 c L-3.1, have precedence over these Requirements and Recommendations in the event of a conflict between them.

All parties involved in mineral exploration and all parties involved in quarry materials exploration on a quarry materials exploration licence are responsible for adhering to the applicable Requirements and for being aware of the applicable Recommendations. In the case of mineral exploration carried out on a mineral licence, the current licence holder is responsible for outstanding Requirements incurred in the course of mineral exploration from the recording date of the licence within which the activities occurred.

This document is presented in modular format for maximum ease of reference, however as a legal document must be interpreted as a whole.

Requirements and Recommendations dealing with fuel and oil (most of which are in Sections 12 and 13) shall apply except in situations where there is a disagreement with another piece of legislation, a policy of the Department of Environment and Climate Change, Service NL, or Fisheries and Oceans Canada, or the terms and conditions of another government permit (e.g., fuel cache approval, water use licence / permit, exploration approval), or a work plan approval issued by the Nunatsiavut Government.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act*, RSNL 1990 c O-3 (as amended), and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

Introduction

(sheet 2 of 2)

The goal of the Department of Industry, Energy and Technology is that all exploration sites be left in a condition conducive to natural re-vegetation, and this goal informs many of the Requirements and Recommendations contained herein. The current version of this document is available at http://

SOME DEFINITIONS:

Most mineral exploration in the province is carried out on mineral licences, mining leases, or impost lands. However, since mineral licences are the most common form of mineral tenure, mining leases and impost lands are not mentioned again in this document but are to be understood as included along with “licence” where mentioned when applying to mineral exploration. When applying to exploration for quarry materials, “licence” where mentioned refers to the quarry materials exploration licence.

“Exploration site” means any location utilized for exploration purposes, including but not limited to drill sites, trench sites, test pit sites, access trails, camp sites, laydown areas, fuel storage sites, helicopter landing sites, cut lines, channel sample sites, bulk sample sites, and water intake sites.

“Department” unless indicated otherwise means the Department of Industry, Energy and Technology.

“Approval holder” means the party holding an ‘exploration approval’ issued under the Mineral Act when applying to mineral exploration or issued under a condition of the quarry materials exploration licence when applying to exploration for quarry materials.

“Operator” means the party with the day-to-day responsibility for carrying out an exploration program, and includes all parties acting under the direction of the Operator in carrying out an exploration program. The Operator is typically the holder of the exploration approval under which the exploration work is authorized. In mineral exploration, the Operator is typically an exploration company, but may also be a geophysical survey company, prospecting business, consulting company, etc. In exploration for quarry materials, the Operator is typically a construction company which operates one or more quarries or a consultant.

Additional definitions are introduced elsewhere in the document, however, apply throughout the document.

TABLE OF CONTENTS:

General Practices

The Department of Industry, Energy and Technology promotes:

GOOD PLANNING

A well-planned exploration program will minimize your rehabilitation requirements.

ADEQUATE SUPERVISION

The Operator is responsible for supervising the work of all employees and contractors.

BUDGETING FOR REHABILITATION

If you budget for the work, budget for rehabilitation. Rehabilitation work counts for assessment credit.

PROGRESSIVE REHABILITATION AND CLEAN-UP

Do not accumulate outstanding environmental requirements – rehabilitate and clean up as you go.

COMMUNICATION WITH THE MINERAL LANDS DIVISION

Keep us updated and ask questions – we are here to help.

ENVIRONMENTAL AND SOCIAL RESPONSIBILITY

Responsibly represent your industry to regulators and the public.

READING AND UNDERSTANDING YOUR PERMITS

Your exploration program is approved on terms and conditions – read them up front. Ensure that everyone involved in the program understands what is required of them to comply with the terms and conditions of your approval. If clarification is required, please ask us or the department responsible for those requirements.

1. Basic Documentation

(sheet 1 of 1)

BACKGROUND:

The Department may issue requests for information regarding completed, ongoing, or planned exploration and rehabilitation work. In order to be able to respond in a timely fashion with comprehensive information, standardized photographic documentation should be maintained for this purpose.

Note that rehabilitation expenditures are eligible for assessment credit provided that the work is documented in the assessment report. The photographic documentation recommended below will be suitable for that purpose.

The photographic documentation recommended below will also be valuable as internal records for monitoring environmental performance, as an indication of the potential environmental liabilities attached to the property, and as documentation that can be provided to government agencies or Indigenous governments or organizations.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

RECOMMENDATIONS:

1.1. Before, during, and after photographs should be taken of all exploration sites and representative sections of access trail:

> "Before" photographs should be taken after the removal of trees (if any) and before the arrival of equipment. It is especially important to take "before" photographs of sites previously used for exploration, to serve as a baseline for distinguishing the environmental impact of current exploration activity.
>
> "During" photographs should be taken once the drill is set up and running, the trench excavated and washed, etc.
>
> "After" photographs should be taken once equipment and waste are removed and rehabilitation completed as required.

1.2. Photographs should be taken in high resolution although they may be re-sampled for email and reports.

1.3. "Before", "during", and "after" photographs should be taken from the same vantage each time and from a vantage that is neither too close nor too far away.

1.4. Photographs should display a date stamp if the camera is capable of producing one.

1.5. Photographs should be accompanied by a map showing photographed locations or a list of UTM coordinates of the same (with datum indicated, e.g., NAD 83).

2. Cutting Trees

(sheet 1 of 2)

BACKGROUND:

Cutting of trees on Crown land for exploration purposes requires a cutting permit which may be obtained from the local Forest Management District Office. In addition, an operating permit is required to carry out mechanized activities on forested land during the forest fire season.

Note that certain areas correspond to timber rights held by Corner Brook Pulp and Paper Limited (CBPPL); these areas are viewable on the provincial Land Use Atlas (https://www.gov.nl.ca/landuseatlas/details/). The requirement for a cutting permit and requirement (in-season) for an operating permit still apply for these areas however the Operator is also required to contact CBPPL to discuss the proposed work with the goal of determining an acceptable mitigation, rehabilitation, or compensation plan that would minimize the impact on silviculture and forest resources.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction violate the terms and conditions of their cutting permit or direction from CBPPL (if applicable).

REQUIREMENTS:

2.0. The Operator shall ensure that each person involved in cutting is fully informed of the following Requirements and Recommendations, as applicable.

2.1. Cutting of the largest trees shall be avoided unless necessary to ensure a safe work site.

2.2. Stumps shall be cut as low as conveniently possible and in compliance with the *Cutting of Timber Regulations* under the *Forestry Act*. Where stumps are used to place structures such as camp buildings, drill rigs, and decking, stumps need only meet this requirement upon the removal of the structure.

2.3. Trees and other woody debris shall not be felled or discarded into streams or waterbodies. Woody debris should be piled above the high water mark so that this material cannot enter a watercourse during periods of peak flow.

2.4. Unless required for drill cribbing or other construction purposes, tree trunks and branches cut to clear an exploration site (including access trails) shall be utilized for corduroy and brush-matting to lay down over sections of access trail located on wet or otherwise soft ground, before using the trail for the first time and thereafter as may be needed.

2.5. Branches and tree trunks less than 9 cm in diameter not needed to satisfy Requirement 2.4 shall be spread over disturbed sites, active or inactive, that could cause sedimentation into nearby streams or waterbodies. The Mineral Lands Division Information Resource on Erosion and Sediment Control may be consulted for more information on erosion prevention and sediment control.

2.6. Branches and tree trunks less than 9 cm in diameter not needed to satisfy Requirements 2.4 and 2.5 shall be spread over sites having been backfilled or re-contoured.

2. Cutting Trees

RECOMMENDATIONS:

2.7. With the exception of survey lines requiring line-of-sight, cutting should not extend to the perimeter of bodies of open water or watercourses; a buffer zone of undisturbed vegetation, including trees, should be maintained for all activities adjacent to a body of open water or watercourse. Note that specific buffer requirements may be imposed in the terms and conditions of the exploration approval or in other permit documents.

2.8. Branches and tree trunks less than 9 cm in diameter spread for erosion control or rehabilitation purposes should not be piled to a thickness greater than 30 cm.

3. Vehicles and Equipment

BACKGROUND:

The use of vehicles or machinery on forested land during the forest fire season requires an operating permit which may be obtained from the local Forest Management District Office.

Winter drilling on ice is not addressed in this document however is addressed during the exploration approval process.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

3.0. The Operator shall ensure that each person involved in the activities described below is fully informed of the following Requirements and Recommendations, as applicable.

3.1. The use of skidders shall be strictly limited to dry, firm ground resistant to rutting and established access roads.

3.2. Vehicles and equipment involved in mineral exploration shall be kept clean of potential pollutants (e.g., spilled fuel or oil) and maintained in good working order.

3.3. Equipment maintenance, fueling and washing – other than emergency repairs – shall not be carried out within 30 m of a waterbody. The only exception to this requirement is that drill rigs and water pumps may be refueled within 30 m of a waterbody, however no more than the amount of fuel required to supply the drill and water pump for the drilling of the current hole shall be stored within 30 m of the waterbody.

3.4. Water pumps shall be located on stable ground and shall not be placed closer to the waterbody than necessary given the length of the intake hose. The only exception to this distance requirement is at locations where the only stable site for a water pump is at the bottom of a slope.

3.5. All water pumps shall be underlain by effective secondary containment (e.g., a drip tray) lined with absorbent pads. Absorbent pads shall be changed before becoming saturated. Secondary containment where the containment rim is broken or otherwise ineffective must be replaced or placed within additional containment (e.g., a tarp-lined wooden tray) without delay.

RECOMMENDATIONS:

3.6. Vehicles and drill rigs with wide tracks are the preferred mode of transportation on exploration access trails. Nodwell-, Morooka- and Muskeg-type vehicles are examples. Rubber-tracked vehicles are preferable to steel-tracked vehicles, where possible.

3.7. Excavators are the preferred vehicle for carrying out excavation and leveling, where necessary. Excavators are also the preferred vehicle for backfilling and trail restoration.

4. Access Trails

(sheet 1 of 5)

BACKGROUND:

"Exploration access trail" means a temporary, low-impact route for which preparation and maintenance activities in support of using the route for exploration purposes is limited to one or more of the following:

a) Cutting trees to clear a route.

b) Laying down corduroy or brush-matting to prevent disturbance of wet or soft areas.

c) Vehicle use to the extent that the natural ground cover is disturbed and a conspicuous path of travel established.

d) Minimal amounts of local in-filling ("minimal" meaning only at specific locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the original topography).

e) Minimal amounts of local grubbing ("minimal" meaning only at specific locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the vegetation).

Exploration access trails qualify as resource roads with respect to the *Motorized Snow Vehicles and All-Terrain Vehicles Regulations* under the *Motorized Snow Vehicles and All-Terrain Vehicles Act*. Exploration access trails are therefore "approved areas" for all-terrain vehicle traffic as defined by Section 2(c) of those Regulations. To distinguish exploration access trails from those roads which involve higher impact preparation and maintenance activities (e.g., significant in-filling, emplacement of a road bed, grading, ditching, or installing metal culverts) exploration access trails may also be referred to as **temporary, low-impact resource roads.**

Note that all trails used in support of mineral exploration activities must be approved through the Department's exploration approval process, irrespective of whether the trails are to be newly prepared or are pre-existing. More specifically, exploration access trails must be approved on an on-going basis (i.e., each year) so long as they are required for use. The mapping and (or) GIS data provided along with the application for exploration approval must clearly distinguish planned new trails from pre-existing trails, both of which require approval for use in support of mineral exploration.

Where vehicle use takes place in other "approved areas" as per the *Motorized Snow Vehicles and All-Terrain Vehicles Regulations* and does not involve any of the preparatory activities listed above (or involves them only very sparsely) and does not disturb the natural ground cover or create a conspicuous path of trail, then no mineral exploration access trail is considered to have been established. Tracked vehicle travel over snowpack is an example of off-road vehicle use in an "approved area" where no exploration access trail is established.

"Exploration access road" means a route that involves preparation and maintenance activities in support of using the route for exploration purposes in excess of those specified above for exploration access trails. Examples of road preparation activities are significant in-filling, emplacement of a road bed, grading, ditching, and installing culverts. The development of an exploration access road may invoke regulatory requirements that do not apply to exploration access trails. If an exploration project reaches a stage where it becomes impractical to continue travelling a route that falls within the definition of an access trail, that is, without significant upgrading, maintenance, or road preparation activities, then the required authorizations must be sought to approve road construction including (but not necessarily limited to) a licence to occupy from Crown Lands. Exploration access roads quality as resource roads however should not be confused with "temporary, low-impact resource roads" which refer specifically to exploration access trails.

"Access trail" and "trail" in this document are shorthand for "exploration access trail" as defined above. "Access road" and "road" are likewise used as shorthand for "exploration access road".

4. Access Trails

Subsections 42(1)(f) and (g) of the *Mineral Regulations* require that all applications for exploration approval must "identify the location of all existing roads, woods roads or trails that will be used to access the site or move to and from locations within the project area" and "the location of all new trails to be prepared to facilitate the planned program". Subsection 42(3) requires that "Exploration work is to be carried out without deviation from the exploration plan."

All crossings of watercourses must be authorized by a permit issued under Section 48 of the *Water Resources Act*, issued by the Department of Environment and Climate Change. Note that ice roads, snow dams and bridges are considered water crossings.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

4.0. The Operator shall ensure that each person involved in exploration activities involving ground access is informed of these Requirements and Recommendations, as applicable.

4.1. Insofar as possible without greatly increasing the length of the planned route, trails shall be planned to:

a) Avoid wetland areas (bogs, fens, saltwater and freshwater marshes, swamps, shallow water areas) or any other ground that may be susceptible to significant rutting;

b) Avoid close approaches to waterbodies and watercourses (note that establishing an access trail within 15 m of a waterbody may require a permit under the *Water Resources Act*);

c) Fit the topography by following natural benches, ridge tops and flatter slopes in order to minimize the need for in-filling; and

d) Avoid steep grades.

4.2. Documentation such as maps or aerial photographs demonstrating that planned access trail routes – whether new or pre-existing – comply with a) through d) of Requirement 4.1 shall be included in the application for exploration approval. As required by subsections 42(4) and (5) of the *Mineral Regulations*, the Mineral Lands Division must be informed of any changes to the initial trail plan, especially any changes that affect compliance with Requirement 4.1.

4.3. Access trails or roads branching off of thoroughfares used by the public, tourists, or outfitters shall be dog-legged at the entrance to reduce the visibility of the access.

4.4. Access trails and access roads shall not branch off of the public highway system except where approved by the Department of Transportation and Infrastructure and in accordance with their Policy for Highway Access Management.

4.5. **Preparation of access trails by grubbing** (that is, the pushing aside of vegetation and topsoil) is permitted only locally, at specific locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the vegetation.

4.6. Grubbed areas shall be rehabilitated once there are no longer documented plans to use or potentially use the

affected sections of access trail to support mineral exploration or earlier still if required by the Department to address an environmental impact or to preclude the risk of abandonment without rehabilitation. Grubbed areas are rehabilitated by placing the grubbed materials back over the trail surface.

4.7. **Preparation of access trails by in-filling** is permitted only locally, at locations where it can be demonstrated that it would have been unsafe or impractical for an all-terrain vehicle to drive over the original topography. Material for in-filling shall be sourced immediately adjacent to the area to be in-filled, whether from a small borrow pit or by grading a short section of trail so that material from higher areas is pushed or pulled into lower areas. Borrow pits excavated for this purpose shall be shallow and broad rather than deep.

4.8. In-filled areas and borrow pits shall be rehabilitated once there are no longer documented plans to use or potentially use the affected sections of access trail to support mineral exploration or earlier still if required by the Department to address an environmental impact or to preclude the risk of abandonment without rehabilitation. In-filled sections of access trail and associated borrow pits shall be rehabilitated by re-contouring the site and spreading the original organic cover (topsoil, ground vegetation, and any trees not used for other purposes) back over the re-contoured site. If the original organic cover proves insufficient to completely re-cover the site then an organic mulch or seeding must be used in addition to complete the process, provided that no invasive species are introduced. Organic mulches and seeding are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

4.9. Sections of access trail require rehabilitation as per Requirements 4.6 and 4.8 only to the extent necessary to restore the topography and extent of organic ground cover which existed before the section of access trail was first used for exploration purposes since the issuance date of the mineral licence or, in the case of exploration for quarry materials, since the onset of exploration for quarry materials by the holder of the quarry materials exploration licence or their subsidiary, parent, or sister company.

4.10. **Access trails located on wet or soft ground** are permitted only if the route has been surfaced with corduroy or brush-matting before first pass by a motor vehicle. Trees cut in the exploration area to prepare exploration sites (e.g., to clear trench sites, drill sites, access trails, etc.) shall provide the materials for corduroy and brush-matting. Corduroy and brush-matting shall be replaced or topped up as necessary to maintain effective protection of the wet or soft ground beneath. Plywood, planks, pallets, coreboxes, etc. (however not cresoted or chemically treated wood), may be used instead of corduroy and brush-matting and these may be the only options in treeless areas. Unlike corduroy and brush-matting, manufactured ground covers must be removed before the access trails are decommissioned.

4.11. If surfacing materials are too scarce or too costly to import for Requirement 4.10 to be feasible, then one of the following shall apply:

a) In locations where the landscape is variable on a fine scale (e.g., small hummocks and bogs) the route shall be planned at a fine scale to avoid the wettest patches, even if this increases the length of the route considerably, and any scarce surfacing materials that may be available shall be reserved for the wettest or softest sections of the route.

b) In locations where large expanses of wet or soft ground need to be crossed, the expanses shall be bypassed instead (e.g., by routing the trail inland of the bog), even if this increases the length of the route considerably.

Situations where this Requirement applies (i.e., where Requirement 4.10 is not feasible) shall be clearly indicated in the application for exploration approval.

4. Access Trails

4.12. **Access trail routes may be changed without prior notification** in cases where the planned and approved route encounters unanticipated wet or soft ground and, rather than submitting to Requirement 4.10, the Operator decides to change the route to avoid the wet or soft ground. The Mineral Lands Division shall be notified without undue delay of the revised trail route, thereby satisfying Section 42 of the *Mineral Regulations*, however the Mineral Lands Division reserves the right to require that the revised route be re-approved before continued use.

4.13. The purpose of Requirements 4.10 to 4.12 is to prevent rutting of wet and soft ground. If significant rutting occurs, even despite reasonable efforts to meet Requirements 4.10 to 4.12, the **rutting shall be rehabilitated before the end of the exploration season** or earlier still if required by the department to address an environmental impact**.** Ruts are rehabilitated by collapsing them in. This can be accomplished using an excavator. Even though the excavator will cause temporary additional ground disturbance, it will leave the ground restored in its wake. For peaty ground having been significantly churned by rutting, a layer of scattered organic mulch (e.g., straw) shall be applied to the restored ground to facilitate re-vegetation. Organic mulches are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control.

4.14. **Ruts that have intersected local drainage and become streams** shall be in-filled with bundles timber and brush (or clean gravel) as soon as it is possible to do so. This practice and the problem of channelized runoff are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control. The purpose of bundles or timber and brush is to slow the flow of water, and thereby reduce erosion rates and sediment loads, as well as restore the ground surface. Erosion and sediment control methods shall be employed as necessary as per Requirement 4.15. If the water flowing through ruts intercepts an existing watercourse (even if only a small stream or intermittent channel), then the ruts located immediately upstream of the outflow location shall be in-filled with bundles of timbers and brush (or clean gravel) before others.

4.15. Sections of access trail that have been grubbed, in-filled, or rutted, or that are otherwise associated with ground disturbance, are susceptible to erosion and could become a source of waterborne sediment that could flow into a nearby waterbody or watercourse, including by way of small streams or intermittent channels that may not appear on 1:50,000 scale maps but are nonetheless capable of carrying waterborne sediment into a larger waterbody. **To the extent that may be necessary to prevent waterborne sediment eroded from an access trail entering into a waterbody or watercourse,** the Operator shall employ some combination of erosion and sediment control measures:

a) Erosion control: To the extent that may be necessary, the trail shall be covered with corduroy or brush-matting and shall be monitored frequently enough to ensure continued effectiveness of the corduroy or brush-matting in preventing waterborne sediment proceeding from the trail, and the corduroy or brush-matting topped up or extended as may necessary.

b) Sediment control: To the extent that may be necessary, sediment fences or sediment retention ponds shall be installed proactively at locations beside the trail where water exits or may be expected to exit the trail, including during times of higher runoff. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff. Sediment control methods must be monitored frequently enough to ensure continued effectiveness and replaced or redoubled if necessary.

The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about erosion and sediment control methods. The combination of erosion and sediment control methods chosen and the relative proportions in which they are employed (including the option that only one method of either erosion or sediment control is chosen) are at the discretion of the Operator provided that the method(s) are effective in preventing waterborne sediment from entering a waterbody or watercourse. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this requirement, then the Operator shall abide by the direction of the Department in remedying the situation. Significant production of waterborne sediment from a grubbed, in-filled, rutted, or otherwise disturbed section of trail may constitute grounds for the department to

4. Access Trails

require early rehabilitation under Requirements 4.6, 4.8, and 4.13.

4.16. Sediment fences and sediment retention ponds installed to comply with Requirement 4.15 shall be removed or rehabilitated, respectively, once the corresponding section of access trail is required to be rehabilitated or if there are no longer documented plans to use or potentially use the corresponding section of access trail to support mineral exploration, whichever occurs earlier. Sediment fences are removed by cutting the fence fabric off at the ground level and pulling the posts. Once rehabilitation is due, sediment retention ponds shall be rehabilitated according to the process required for trenches and test pits (Section 6 of this document).

RECOMMENDATIONS:

4.17. Trails should be ground-truthed by the Operator before any trail preparation activity begins (e.g., cutting) and no later than the first pass by a vehicle. The main purpose of ground-truthing is to verify compliance with Requirement 4.1.

4.18. Where trail surfaces devoid of vegetation have become compacted, the trail surfaces should be scarified to facilitate re-vegetation. Scarification is the use of an excavator or rake to roughen, loosen, or create small rows upon compacted soil.

5. Trench and Test Pit Preparation

(sheet 1 of 2)

BACKGROUND:

"Trench" means any excavation made for the purpose of studying or sampling the underlying bedrock, soil, or till, however does not include test pits as defined below. Stripped areas and grubbed areas meeting this definition are considered trenches. "Test pit" means an excavation that is excavated and backfilled either the same day or without the excavator having departed the test pit site. Trenches are typically associated with mineral exploration and test pits typically with exploration for quarry materials.

"Organic cover" means all vegetation and topsoil remaining after trees have been cut to clear a site.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. **Note that there are specific Occupational Health and Safety Regulations related to trenching, as well as blasting.** The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

5.0. The Operator shall ensure that each person involved in trench or test pit preparation is informed of the following Requirements and Recommendations, as applicable.

5.1. Before trenching or test pitting, the site shall be cleared to a sufficient width so that all requirements related to stockpiling, including those under the Occupational Health and Safety Regulations, may be met.

5.2. The organic cover shall be grubbed (i.e., excavated) and stockpiled before deeper excavation occurs and shall be stockpiled separately from the deeper materials (e.g., subsoil, till) that are excavated. The reason for this requirement is that if the organic cover is stockpiled together with deeper materials, it may not be practical to separate out the components before backfilling in order to meet requirement 6.2 for rehabilitation. Trees and branches cut to clear the site shall also be stockpiled, whether with the organic cover or on their own (so that they may be accessible for other purposes such as those listed in Requirement 2.4, if necessary). This Requirement makes no implication about the absolute distances that excavated material, woody material, or overburden in general must be kept from the excavation; please refer to the Occupational Health and Safety Regulations.

5.3. Where the organic cover is less than 30-40 cm thick, removal of the upper 30-40 cm of ground material shall be considered acceptable to comply with Requirement 5.2 to separately stockpile the organic cover.

5.4. Excavated materials shall not be stockpiled in standing trees or other locations from which they would be difficult to retrieve during rehabilitation. This Requirement makes no implication about the absolute distances that excavated material, woody material, or overburden in general must be kept from the excavation; please refer to the Occupational Health and Safety Regulations.

5.5. All trenches shall be designed to allow for easy exit of people and large animals such as caribou and moose. In practice this means ensuring that a person or large animal can exit the trench by walking rather than climbing.

5.6. Trench walls and stockpiles are susceptible to erosion and could become a source of waterborne sediment that could flow into a nearby waterbody or watercourse, including by way of small streams or intermittent channels that may not appear on 1:50,000 scale maps but are nonetheless capable of carrying waterborne sediment into a larger waterbody. **To the extent that may be necessary to prevent waterborne sediment eroded from a trench or**

5. Trench and Test Pit Preparation

stockpile entering into a waterbody or watercourse, the Operator shall employ some combination of erosion and sediment control measures:

a) Erosion prevention: To the extent that may be necessary, trench walls and stockpiles of excavated material shall be covered with organic mulch (e.g., straw) or brush-matting. Trenches and their stockpiles shall be monitored frequently enough to ensure continued effectiveness of erosion control methods, and erosion control methods augmented (e.g., organic mulch or brush-matting topped up) or extended as may be necessary.

b) Sediment control: To the extent that may be necessary, sediment fences or sediment retention ponds shall be installed proactively where water exits or may be expected to exit the trench, and downslope of stockpiles. To clarify, expanses of densely vegetated flat ground provide an effective natural means of sediment control, and where present, it may not be necessary to use other sediment control methods. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff. One form of sediment retention pond applicable in this context is a tapered ditch located at the downslope end of the trench. Sediment control methods must be monitored frequently enough to ensure continued effectiveness and replaced, augmented, or extended if necessary.

The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about erosion and sediment control methods. The combination of erosion and sediment control methods chosen and the relative proportions in which they are employed (including the option that only one method of either erosion or sediment control is chosen) are at the discretion of the Operator provided that the method(s) are effective in preventing waterborne sediment from entering a waterbody or watercourse. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this Requirement, then the Operator shall abide by the direction of the Department in remedying the situation.

RECOMMENDATIONS:

5.7. Organic cover may be stockpiled on one side of the trench or test pit and deeper materials stockpiled on the other. Alternately, organic cover may be stockpiled at a greater distance from the trench or test pit than deeper materials, for example, forming outer and inner stockpiles surrounding the trench (or test pit), respectively. This Recommendation makes no implication about the absolute distances that excavated material must be kept from the excavation; please refer to the Occupational Health and Safety Regulations.

5.8. For each trench deep enough to pose a possible safety hazard, signs should be posted in a conspicuous places for the purpose of alerting the public to the presence of the open trench. Signs should clearly display the name and contact information of the Operator. It is also recommended that caution tape be placed along the perimeter of each such trench.

6. Trench and Test Pit Rehabilitation

BACKGROUND:

"Trench" means an excavation made for the purpose of studying or sampling the underlying bedrock, soil, or till, however does not include test pits as defined below. Stripped areas and grubbed areas meeting this definition are considered trenches. "Test pit" means an excavation that is excavated and backfilled either the same day or without the excavator having departed the test pit site. Trenches are typically associated with mineral exploration and test pits typically with exploration for quarry materials.

"Organic cover" means all vegetation and topsoil remaining after trees have been cut to clear a site.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the Occupational Health and Safety Act and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

6.0. The Operator shall ensure that each person involved in trench and test pit rehabilitation is fully informed of the following Requirements and Recommendations, as applicable.

6.1. Trench rehabilitation as per these Requirements shall be completed before the expiry date of the exploration approval unless the Department has indicated in writing that a later rehabilitation due date is acceptable for the specific trench in question. If it would be impractical, considering the logistics and timelines of the exploration program, including with regard to deposit appraisal and promotional efforts, for the approval holder to rehabilitate one or more trenches before the expiry date of the exploration approval then application must be made to the Mineral Lands Division, Department of Industry, Energy and Technology, requesting an extension of time to leave the trench or trenches un-rehabilitated and the reasons for the request. In granting approval for such a request, the Department may impose additional terms and conditions considered appropriate under the circumstances.

6.2. Test pit rehabilitation as per these Requirements shall be completed either the same day or without the excavator having departed the test pit site. While a party possessing an exploration approval for test pitting is required to adhere to this Requirement, test pits for which this rehabilitation timeline is not met shall become subject to the following additional Requirements and considered as "trenches" for the purpose of interpreting these Requirements: 5.5, 5.6, 6.5, 6.6. In such a case, a sign shall be posted in a conspicuous place alerting the public to the presence of an open excavation and displaying the name of the Operator and contact information and the test pit surrounded by a caution tape barrier.

6.3. Trenches and test pits shall be rehabilitated by first completely backfilling stockpiled deeper materials (e.g., subsoil, till) and then covering the backfilled site with stockpiled organic cover and any additional organic materials that may be required (as per Requirement 6.4) to completely re-cover the site.

6.4. Organic cover stockpiled during preparation shall be placed on top of the backfilled trench or test pit. Unless used or set aside for another purpose advocated in this document or otherwise approved by a regulatory agency, trees and branches cut to clear the trench site shall also be placed on top of the backfilled trench or test pit. If additional organic material is needed to completely re-cover the site to achieve compliance with Requirement 6.3 then one or more of the following materials may be used:

a) Trees and branches already having been cut for exploration purposes elsewhere in the exploration area (e.g.,

6. Trench and Test Pit Rehabilitation

trees cut for access trails, cut lines, or drill sites).

b) Hay, straw, woodchips, or any other organic mulch provided that it does not introduce an invasive species.

c) Vegetation produced by seeding provided that the seeding does not introduce an invasive species. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

Organic mulches and seeding methods are addressed in the Mineral Lands Division Information Resource on Erosion and Sediment Control.

6.5. Once a trench is rehabilitated, barriers and signage no longer needed shall be removed from the site.

6.6. Sediment fences associated with trenches shall be removed once the corresponding trench is rehabilitated. Sediment fences are removed by cutting the fence fabric off at the ground level and pulling the posts.

6.7. Sediment retention ponds associated with trenches shall be backfilled seasonally with rehabilitation completed (i.e., organic cover and (or) a substitute material spread over the backfilled site) once the corresponding trench is required to be rehabilitated. Sediment retention ponds shall be rehabilitated according to the process as required for trenches and test pits (Requirements 6.3 and 6.4).

RECOMMENDATION:

6.8. Except for what is required to approximately re-establish original site topography, the surface of a backfilled trench or test pit should not be smoothed or compacted.

7. Drill Site Preparation

(sheet 1 of 2)

BACKGROUND:

The goal of the Department is that all exploration sites be left in a condition conducive to natural re-vegetation. Sites where the organic cover has been removed or lost by burial will naturally re-vegetate much slower than sites where organic material, in some form, has been spread back over the site.

Drill sites prepared by removing the organic cover to create a level surface are subject to rehabilitation requirements.

Winter drilling on ice is not addressed in this document however is addressed during the exploration approval process.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the Occupational Health and Safety Act and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

7.0. The Operator shall ensure that each person involved in preparing a drill site is fully informed of the following Requirements and Recommendations, as applicable.

7.1. For drill sites prepared by removing the organic cover (e.g., by leveling, by cut-and-fill), the organic cover shall be stockpiled separately from deeper excavated materials (e.g., subsoil, till). Trees and branches cut to clear the site shall also be stockpiled, whether with the organic cover or on their own (so that they may be accessible for other purposes such as those listed in Requirement 2.4, if necessary).

7.2. For drill sites prepared by removing the organic cover (e.g., by leveling, by cut-and-fill), excavated materials shall not be stockpiled in standing trees or other locations from which they would be difficult to retrieve during rehabilitation.

7.4. Drill sites prepared by removing the organic cover, even if only from a portion of the site, are susceptible to erosion and could become a source of waterborne sediment that could flow into a nearby waterbody or watercourse, including by way of small streams or intermittent channels that may not appear on 1:50,000 scale maps but are nonetheless capable of carrying waterborne sediment into a larger waterbody. **To the extent that may be necessary to prevent waterborne sediment from a drill site from entering a waterbody or watercourse,** the Operator shall employ some combination of erosion and sediment control measures:

a) Erosion prevention: To the extent that may be necessary, portions of the drill site where the organic cover has been removed and any stockpiles of excavated material shall be covered with organic mulch (e.g., straw) or brush-matting. Drill sites and any associated stockpiles shall be monitored frequently enough to ensure continued effectiveness of erosion control methods, and erosion control methods augmented (e.g., organic mulch or brush-matting topped up) or extended as may be necessary.

b) Sediment control: To the extent that may be necessary, sediment fences or sediment retention ponds shall be installed proactively downslope of the drill site and any stockpiles. To clarify, expanses of densely vegetated flat ground provide an effective natural means of sediment control, and where present, it may not be necessary to use other sediment control methods. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff. Sediment retention ponds are commonly used for sediment control at drill sites and are

7. Drill Site Preparation

sometimes referred to as “sump pits”. Sediment control methods must be monitored frequently enough to ensure continued effectiveness and replaced, augmented, or extended if necessary.

The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about erosion and sediment control methods. The combination of erosion and sediment control methods chosen and the relative proportions in which they are employed (including the option that only one method of either erosion or sediment control is chosen) are at the discretion of the Operator provided that the method(s) are effective in preventing waterborne sediment from entering a waterbody or watercourse. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this Requirement, then the Operator shall abide by the direction of the Department in remedying the situation.

7.2. Sediment retention ponds (or “sump pits”) excavated to contain water runoff from drilling and shall be prepared according to Requirements 5.1, 5.2, 5.3, and 5.4, and considered as “trenches” for the purpose of interpreting these Requirements.

RECOMMENDATIONS:

7.3. Drill sites should be prepared with the minimum ground disturbance necessary to ensure practical and safe working conditions. Ideally, drill sites should be prepared by clearing the trees and then cribbing the drill rig on timbers or lumber (no ground disturbance necessary). Helicopter-accessed drill sites are generally prepared in this way. Ground-accessed drill sites should be prepared in the same way insofar as working conditions remain practical and safe.

7.4. Drill sites should not be cleared of trees to widths any greater than necessary for practical and safe working conditions.

8. Active Drilling

(sheet 1 of 3)

BACKGROUND:

The main environmental concerns presented by active drilling are the potential for drill cuttings and drilling additives to enter a waterbody or watercourse and for petroleum spills.

One type of petroleum spill which may occur on an active drill site is a spill of hydraulic oil, generally characterized by one or more dark stains located within several metres of the casing. Deposits of used drill grease may also be left behind, generally located at the base of the casing.

Fuel spills at water pump sites may also occur, and while generally very small in volume, present the most direct opportunity for petroleum contamination of a waterbody.

Spills into a waterbody or with the potential to enter a waterbody and spills greater than 70 litres or of an unknown or unrecoverable volume on land must be reported without delay by calling the 24-hour Emergency Spill Report line: (709) 772-2083 or 1-800-563-9089.

General requirements for addressing fuel and oil spills are included in Section 13 of this document. Some requirements in the present section are repeated in other sections of this document.

Winter drilling on ice is not addressed in this document however is addressed during the exploration approval process.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the Occupational Health and Safety Act and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

8.0. The Operator shall ensure that each person involved in active drilling is fully informed of the following Requirements and Recommendations, as applicable.

8.1. Drill discharge waters shall not be permitted to flow overland into a waterbody or watercourse and waterborne drill cuttings and drilling additives shall not be permitted to enter a waterbody or watercourse. A waterbody or watercourse may include a small stream or intermittent channel and refers to the presence of a physical feature irrespective of whether it is displayed on the 1:50,000 scale NTS map. For drilling within a Public Protected Water Supply Area or in any other circumstance where drilling is subject to a permit issued under the Water Resources Act, drill discharge waters and cuttings shall be treated as per the conditions of the permit issued under the Water Resources Act. Otherwise, unless there are conditions of exploration approval or of another permit which specify in greater detail how drill discharge waters and (or) drill cuttings are to be treated, one or more of the following measures shall be employed as necessary to meet this Requirement:

a) Sediment retention ponds (or “sump pits”) for settling drill cuttings and allowing the discharge waters to dissipate into the ground. Refer to Requirement 7.2.

b) Pumping discharge waters onto forested or otherwise well-vegetated ground, provided that from there the discharge does not find a channel or small stream by which to travel into a waterbody or watercourse.

c) Settling tanks or another effective means of collecting drill cuttings.

d) Sediment fences to intercept drill discharge waters. With respect to sediment fences, in order to be effective, they must be installed parallel to contour across level ground rather than across existing channels or channels formed by the runoff.

The Operator shall consider whether multiple of the above measures should be adopted in a layered or combined fashion so as to ensure compliance with this Requirement (e.g., a sump pit with a sediment fence in place to intercept potential overflow waters). Methods used to prevent drilling discharge waters and their contents from entering a waterbody must be monitored frequently enough to ensure continued effectiveness and replaced, augmented, or extended if necessary. The Mineral Lands Division Information Resource on Erosion and Sediment Control contains information about sediment control methods that can be used for meeting this Requirement. Should the Department be of the opinion that the method(s) employed are not effective or are inadequate for meeting this Requirement, then the Operator shall abide by the direction of the Department in remedying the situation.

8.2. Drilling additives shall be fully biodegradable and used only in the amounts necessary as prescribed by the manufacturer. This requirement does not apply to brine used for drilling salt and potash.

8.3. Water pumps shall be located on stable ground and shall not be placed closer to the waterbody than necessary given the length of the intake hose. The only exception to this distance requirement is at locations where the only stable site for a water pump is at the bottom of a slope.

8.4. All water pumps shall be underlain by effective secondary containment (e.g., a drip tray) lined with absorbent pads. Absorbent pads shall be changed before becoming saturated. Secondary containment where the containment rim is broken or otherwise ineffective must be replaced or placed within additional containment (e.g., a tarp-lined wooden tray) without delay.

8.5. All reasonable means shall be employed to prevent spills of petroleum, including spills of hydraulic oil beneath drill rigs.

8.6. Petroleum spills shall be completely cleaned up without delay. Spills related to active drilling are typically cleaned up in the following ways:

a) For spills on land, including spills of hydraulic oil beneath a drill rig and spills of fuel alongside a water pump, excavate all contaminated materials (e.g., soil, vegetation) and place into empty drums or similar containers. Be sure to excavate deep enough to retrieve all of the contaminated soil.

b) For spills on water, keep adding absorbent pads and remove them as they become saturated with petroleum. Place the contaminated absorbent pads in empty drums or similar containers.

The cleanup of petroleum spills and the disposal of petroleum-contaminated materials is addressed further in Section 13 of this document.

8.7. Spills shall be reported to the Mineral Lands Division.

8.8 **Spills having entered a waterbody or watercourse or with the potential to enter a waterbody or watercourse and spills greater than 70 litres or of an unknown or unrecoverable volume on land must be reported without delay by calling the 24-hour Emergency Spill Report line: (709) 772-2083 or 1-800-563-9089.**

8. Active Drilling

8.9. Immediately after demobilization from a drill site, the site shall be inspected for spills of hydraulic oil or fuel, deposits of drill grease, garbage, and waste equipment, and these shall be cleaned up in their entirety without delay. Be sure to excavate deep enough to retrieve all of the contaminated soil. Soil contaminated by hydraulic oil or fuel shall be excavated and disposed of at an approved waste disposal site. Contact the nearest Government Service Centre to find out the location of the nearest approved waste disposal site accepting the materials you have cleaned up. Refer to Requirements 13.5 and 13.6 which describe special cases involving petroleum-contaminated materials which may modify this Requirement.

9. Drill Site Rehabilitation

(sheet 1 of 2)

BACKGROUND:

The goal of the Department is that all exploration sites be left in a condition conducive to natural re-vegetation. Sites where the organic cover has been removed will naturally re-vegetate much slower than sites where organic material, in some form, has been spread back over the site.

Drill sites prepared by removing the organic cover to create a level surface are subject to rehabilitation requirements.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

9.0. The Operator shall ensure that each person involved in demobilizing from a drill site or rehabilitating a drill site is fully informed of the following Requirements and Recommendations, as applicable.

9.1. Unless the site has been re-approved under another exploration approval for additional drilling, drill sites shall be rehabilitated before the expiry date of the exploration approval.

9.1. Drill sites prepared by removing the organic cover (e.g., by leveling, by cut-and-fill) shall be rehabilitated as follows:

a) The site shall be re-contoured so as to approximately restore the original site topography. In meeting this requirement, it is acceptable to leave a depression around the casing if required to keep the casing exposed for possible future work.

a) The original organic cover (topsoil, ground vegetation) and any trees and branches not used for other purposes shall be spread back over the re-contoured site. If these materials prove insufficient to completely re-cover the site then an organic mulch or seeding must be used in addition to complete the process, provided that no invasive species are introduced. Organic mulches and seeding are described in detail in the Mineral Lands Division Information Resource on Erosion and Sediment Control. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

9.2. Sediment retention ponds (or “sump pits”) associated with drill sites shall be backfilled seasonally, with the organic cover to be replaced no later than when the associated drill site(s) is rehabilitated.

9.3. For drill sites located in open areas accessible to ATVs and snowmobiles, including within an access route, the casing shall either be removed or cut off at ground level. Drill holes that are required to be sealed, for example as per Requirement 9.6, shall be sealed before the casing is cut off.

9.4. Immediately after demobilization from a drill site, the site shall be inspected for spills of hydraulic oil or fuel, deposits of drill grease, garbage, and waste equipment and these shall be cleaned up in their entirety without delay. Soil contaminated by hydraulic oil or fuel shall be excavated and disposed of at an approved waste disposal site. Contact the nearest Government Service Centre to find out the location of the nearest approved waste disposal site accepting the materials you have cleaned up. Refer to Requirements 13.5 and 13.6 which describe special cases involving petroleum-contaminated materials which may modify this Requirement.

9. Drill Site Rehabilitation

9.5. Casings that are not pulled or removed shall be capped as soon as possible upon completion of the drill hole, and before the end of the exploration season. Capping means any effective and durable means of completely covering the casing opening, excluding the use of natural materials for this purpose (e.g., placing a rock over the casing, stuffing with large branch or piece of wood). Sawn off casings may be capped using steel caps with bolts. Drill holes for which the casing is pulled shall be covered over at the surface with material containing a large proportion of gravel coarser than the hole diameter (to limit subsidence of surface materials into the hole).

9.6. Drill holes which produce artesian water at the surface (i.e., water flowing out of the top of the casing) while the drill rig is present on site shall be plugged before the drill rig departs from the site. The drill hole shall be plugged with high-swelling bentonite, cement, or another material with suitable properties. Capping is not a substitute for plugging, since many caps cannot fully stop the water and the caps will eventually break due to freeze-thaw cycles. If downhole geophysics is being considered for the exploration project, the Operator and Approval Holder are advised to take this contingency into consideration, and may wish to be ready to carry out downhole geophysics before plugging the hole and the drill rig departing the site in the event that a hole producing artesian water is encountered.

10. Uranium

BACKGROUND:

These guidelines are based in part on those developed by the Government of Saskatchewan.

Scintillometers that meaure radiation in counts per second must have the measurements converted to microsieverts per hour (µSv / hr) according to the specifications of the instrument. Concentrations specified are by weight.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

10.0. The Operator is responsible for ensuring that each person involved in exploration for uranium is fully informed of the following Requirements and Recommendations, as applicable.

10.1. Following the rehabilitation of a trench or other excavation, gamma radiation levels must not exceed 1.0 µSv / hr at one metre above ground level or the natural background radiation level characterizing the area, whichever is greater .

10.2. Drill cuttings or other solid discharge with a uranium equivalent concentration (eU3O8 = radiometric equivalent U3O8 concentration) greater than 0.05 percent are to be collected and disposed of down the drill hole and the hole pugged with cement or another material with similar properties. Before being collected, drill cuttings meeting this description shall not be permitted to flow beyond the immediate vicinity of the drill setup, and one or more settling tanks may be required to ensure that this does not happen.

10.3. Drill cuttings representing rock for which gamma ray logs or assays have not yet been produced but that may reasonably be expected to meet the description in Requirement 10.2 shall be handled as per requirement 10.2. The same shall apply in instances where the Operator is uncertain of whether the drill cuttings meet the description in requirement 10.2.

10.4. As per Requirement 8.1, drill waters shall not be permitted to flow above ground into a waterbody or watercourse and drill cuttings and drilling additives shall not be permitted to enter a waterbody or watercourse, including any small streams or intermittent channels that may be present.

10.5. Drill holes that encounter rock with a uranium equivalent concentration (eU3O8) greater than 1.0 percent over a length of at least 1 metre shall be sealed with cement over the entire length of each mineralized zone and not less than 10 metres above and below each mineralized zone.

10.6. Drill holes that intersect mineralized zones for which gamma ray logs or assays have not yet been produced but that may be reasonably be expected to meet the description in Requirement 10.5 shall be handled as per Requirement 10.5. The same shall apply in instances where the Operator is uncertain of whether the mineralized zones within the hole meet the description in Requirement 10.5.

10.7. In locations where the local bedrock is characterized by higher concentrations than those specified in Requirements 10.2 and 10.5 the drill cuttings may be deposited at surface, however not into a waterbody or watercourse, and the drill hole may be left unsealed provided it is not producing water.

11. Camps and Laydown Areas

BACKGROUND:

'Fly camp' means a camp occupying a site for up to 90 days and not involving significant ground disturbance. An example of significant ground disturbance would be the deliberate or inadvertent removal of ground vegetation or topsoil over an area greater than 10 square metres.

'Base camp' means a camp occupying a site for greater than 90 days or involving significant ground disturbance.

Occupation of a site means not only the presence of people, but also the presence of structures, equipment, garbage, fuel or any other imported materials.

Base camps require a Licence to Occupy (LTO) under the *Lands Act*, whereas fly camps require 'exploration approval' under the *Mineral Act*. That being said, the application process for an LTO for a base camp can be initiated through the exploration approval process administered by the Mineral Lands Division.

The use of personal-size tents for prospecting and mapping is not considered a fly camp.

The Pollution Prevention Division of the Department of Environment and Climate Change has established specific waste management requirements for exploration camps in the guidance document *Environmental Standards for Waste Management at Remote Camps*.

Exploration camps are subject to the *Sanitation Regulations* under the *Public Health Act* and sanitation requirements in addition to those given below may apply. Exploration camps where food is served are subject to the *Food Premises Regulations* under the *Food Preparation Act.* For inquiries concerning sanitation requirements or food storage and preparation requirements, please contact Digital Government and Service NL.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

11.0. The Operator shall ensure that each person involved in the setup or maintenance of a mineral exploration camp is fully informed of the following Requirements and Recommendations, as applicable.

11.1. All structures and other imported materials, including fuel and equipment, shall be removed upon abandonment of a camp site. Fly camp sites shall be abandoned at the end of the season and prior to 90 days occupancy.

11.2. Base camps shall not be located within 30 metres of a waterbody.

11.3. Pit privies shall be located at least 25 metres from the camp in a direction away from waterbodies (including intermittent streams) and shall be backfilled upon abandonment of the pit privy. Further requirements or recommendations for pit privies may be specified by Digital Government and Service NL.

11.4. Dishwater and wash water (i.e., grey water) shall be disposed of in a pit large enough to contain the volume of water discarded, located at least 30 metres away from waterbodies (including intermittent streams), and backfilled upon abandonment of the pit.

11. Camps and Laydown Areas

11.5. Where the camp is equipped with a water distribution system and this system provides water to plumbing fixtures, then all wastewater (including from the kitchen sinks, bathroom sinks, showers, clothes washer and toilets) shall be disposed of by means of a sewage disposal system approved by Digital Government and Service NL.

11.6. Garbage, used consumables, packaging and all other wastes shall be properly contained and handled, and shall be removed on a sufficiently regular basis to a waste disposal site approved to handle the type(s) of waste being disposed of. For base camps, waste shall not be left on site later than the seasonal departure of personnel. More specific waste disposal requirements are set out in the guidance document *Environmental Standards for Waste Management at Remote Camps*.

11.7. Ground preparation and rehabilitation of camp sites and laydown areas prepared by ground disturbance (e.g., bulldozing, trenching, in-filling) shall proceed as follows:

a) The organic cover (topsoil and ground vegetation), as well as any trees and branches not used for other purposes, shall be stockpiled separately from deeper excavated materials (e.g., subsoil, till).

b) Excavated materials shall be stockpiled in locations where they can be easily retrieved during rehabilitation.

c) Once structures and other imported materials are removed, the site shall be re-contoured so as to approximately restore the original site topography.

a) The original organic cover and any trees and branches not used for other purposes shall be spread back over the re-contoured site. If these materials prove insufficient to completely re-cover the site then an organic mulch or seeding must be used in addition to complete the process, provided that no invasive species are introduced. Organic mulches and seeding are described in the Mineral Lands Division Information Resource on Erosion and Sediment Control. Seeding that is unsuccessful in the opinion of the Department shall not be considered sufficient to meet this requirement.

11.8. All horizontal drums of heating fuel connected to a stove shall have positioned beneath the connection a drip tray lined with one or more absorbent pads, and the absorbent pads shall be changed before becoming saturated. This requirement does not apply if the horizontal drum is placed in a protective case that would contain any leakage from the connection.

11.9. Base camps shall be equipped to fight fires.

RECOMMENDATIONS:

11.10. To increase the fire protection for base camps, camp buildings should be spaced widely apart and the camp site should be widely separated from surrounding forest.

11.11. To reduce the likelihood of eroded sediments and organic particles entering a waterbody or watercourse, stockpiles of organic cover and other excavated materials should be located at least 50 m from the nearest waterbody or watercourse.

12. Fuel & Oil Storage & Handling

BACKGROUND:

Storage of 5 or more drums requires a fuel cache approval from Service NL. Application forms can be obtained from the nearest Government Service Centre.

The Requirements and Recommendations in this section shall apply except in situations where there is a disagreement with another piece of legislation or regulation, a policy of or set of instructions provided by the Department of Environment and Climate Change, Digital Government and Service NL, or Fisheries and Oceans Canada, the terms and conditions of another government permit (e.g., fuel cache approval, water use licence / permit, exploration approval), or a work plan approval issued by the Nunatsiavut Government.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

12.0. The Operator shall ensure that each person working with fuel or oil is fully informed of the following Requirements and Recommendations, as applicable.

12.1. All fuel storage sites, active drill sites, and heavy equipment laydown areas shall be equipped with a spill kit containing *at minimum* the following contents or equivalent:

a) One recovery container such as an empty 205 litre drum or large plastic drum (the spill kit contents may be stored in the recovery container).

b) One shovel.

c) One hand-operated fuel pump.

d) One pair of neoprene oil / chemical resistant gloves.

e) One pair of protective goggles.

f) 25 absorbent pads – approximately 46 x 46 cm each.

These contents are in addition to spill kit items required by other permits (e.g., permit for development in a protected water supply area, fording permits) or the jurisdiction (e.g., Labrador Inuit Lands). Additional items may include absorbent blankets, containment booms, bags of peat moss, a pickaxe, and a thick-walled polyethylene bag.

12.2. All spill kits associated with active drill sites located in within 30 m of a waterbody must be additionally equipped with, *at minimum*:

a) One rope at least 15 metres long.

b) Six metres of absorbent containment boom or water-buoyant socks.

12. Fuel & Oil Storage & Handling

12.3. A person carrying out fueling, or replacing oil, or transferring fuel or oil from one container to another must be at all times in a position to immediately shut off flow if necessary.

12.4. Hoses and fuel pumps shall be maintained to be free of leaks and in good working condition.

12.5. Unless specifically allowed by another permit or regulation and except where fuel is delivered by plane, boat, or barge, fuel may only be stored within 30 m of a waterbody during active drilling and no more fuel shall be stored within 30 m of a waterbody than the amount required to supply the drill and water pump for the drilling of the current hole.

12.6. When stored within an exploration area longer than one season, drums shall be stored on their sides with each drum rotated so that the bung is located in the 3 o'clock or 9 o'clock position.

12.7. Drums with significant damage such as denting, rusting, corrosion, expanded heads, and damaged rings shall be replaced as soon as possible.

12.8. All horizontal drums of heating fuel connected to a stove shall have positioned beneath the connection a drip tray lined with one or more absorbent pads, and the absorbent pads shall be changed before becoming saturated. This requirement does not apply if the horizontal drum is placed in a protective case that would contain any leakage from the connection.

12.9. Petroleum-contaminated water shall not be discharged or permitted to drain into the environment. Where drums are placed together in secondary containment (e.g., impermeable berms), some means shall be employed to remove petroleum from accumulated rain water and melt water before discharging the water into the surroundings. Using an excessive amount of absorbent pads is one option. Another option is to use a device designed to filter petroleum from water. For advice on disposal of hydrocarbons or contaminated materials please contact Service NL.

12.10. All water pumps shall be underlain by effective secondary containment (e.g., a drip tray) lined with absorbent pads. Absorbent pads shall be changed before becoming saturated. Secondary containment where the containment rim is broken or otherwise ineffective must be replaced or placed within additional containment (e.g., a tarp-lined wooden tray) without delay.

RECOMMENDATIONS:

12.11. On any given site, empty fuel containers should be stored separately from non-empty containers so that easy estimates can be made of the amount of fuel stored on site.

12.2. Drums stored in an upright position should be stably raised on one side (e.g., by a 2 x 4 beneath that side) and the bung and vent located in the 3 o'clock and 9 o'clock positions so that water will drain off the top of the drum and not get pulled into the bung or vent.

13. Fuel & Oil Spills & Cleanup

BACKGROUND:

Storage of 5 or more drums requires a fuel cache approval from Service NL. Application forms can be obtained from the nearest Government Service Centre.

The Requirements and Recommendations in this section shall apply except in situations where there is a disagreement with another piece of legislation or regulation, a policy of or set of instructions provided by the Department of Municipal Affairs and Environment, Service NL, or Fisheries and Oceans Canada, the terms and conditions of another government permit (e.g., fuel cache approval, water use licence / permit, exploration approval), or a work plan approval issued by the Nunatsiavut Government.

Nothing in this document shall be interpreted as precluding the timely reporting of spills to another government agency or any other party that may be required to be notified.

Nothing in these Requirements and Recommendations shall necessitate that the Operator or any person acting under their direction undertake an activity that would be considered unsafe under the circumstances. The Operator and persons acting under their direction shall continue to comply with the requirements and standards established by the *Occupational Health and Safety Act* and its associated Regulations. The Occupational Health and Safety Division of Digital Government and Service NL provides a guidance document titled *Safety Guidelines for Mineral Exploration in Newfoundland and Labrador*.

REQUIREMENTS:

13.0. The Operator shall ensure that each person working with fuel or oil is fully informed of the following Requirements and Recommendations, as applicable.

13.1. **In the event of a spill or leak**, the Operator or the person(s) in control of the situation – to the extent that they consider it would be safe to do so – shall carry out the following steps:

STEP 1: Prevent further spillage or leakage.

STEP 2: Contain the spill – above all, prevent the spill from entering a waterbody or watercourse.

ON LAND:
- Dig a trench to intercept the flow.
- Use absorbents, e.g., absorbent pads, snow, gravel, hay, straw, sawdust, moss.

ON WATER:
- Use fixed barriers spanning the water body, e.g., absorbent booms, floating hoses, floating rope, floating logs, fencing, rope, or wire with absorbents attached.

BENEATH ICE:
- Cut slots in the ice in the path of the spill.

STEP 3: Report the spill to the required parties and take additional steps as per the Requirements below.

13.2. All spills shall be reported to the Operator, and the Operator shall keep documentation of the spills reported to them or having otherwise come to their attention. The Operator's documentation shall record such details as date, time, location, cause, containment measures, cleanup measures, current situation, and plans for future measures (if any).

13. Fuel & Oil Spills & Cleanup

13.3. **Spills into or having entered a waterbody or watercourse or with the potential to enter a waterbody or watercourse and spills greater than 70 litres or of an unknown or unrecoverable volume on land must be reported without delay by calling the 24-hour Emergency Spill Report line: (709) 772-2083 or 1-800-563-9089.**

13.4. Petroleum spills shall be completely cleaned up without delay. Relatively small spills related to exploration are typically cleaned up in the following ways:

a) For spills on land, including spills of hydraulic oil beneath a drill rig and spills of fuel alongside a water pump, excavate all contaminated materials (e.g., soil, vegetation) into empty drums or similar containers. Be sure to excavate deep enough to retrieve all of the contaminated soil.

b) For spills on water, keep adding absorbent pads and remove them as they become saturated with petroleum. Place the contaminated absorbent pads in empty drums or similar containers.

13.5. Petroleum contaminated soil shall be disposed of at an approved waste disposal site provided that the quantity of soil is less than 150 tonnes or has a total petroleum hydrocarbon concentration of less than 1000 ppm. Contact the nearest Government Service Centre to find out the location of the nearest approved waste disposal site that will accept petroleum-contaminated soil. Quantities of soil exceeding 150 tonnes and having a total petroleum hydrocarbon concentration exceeding 1000 ppm require treatment at a licenced facility; in such a scenario, contact the Pollution Prevention Division of the Department of Environment and Climate Change for further instructions.

13.6. Absorbent materials used to clean up a petroleum spill shall be disposed of at an approved landfill provided that the waste does not contain any free (i.e., liquid) product and the volume does not exceed the equivalent of two (205 L) barrels. For instructions on how to handle, transport, and dispose of quantities of petroleum-contaminated waste larger than two (205 L) barrels or on how to dispose of free (i.e., liquid) petroleum products, contact the Pollution Prevention Division of the Department of Environment and Climate Change.

13.7. Spills shall be reported to the Mineral Lands Division. The preferred contacts for reporting spills to the Mineral Lands Division are the Mineral Exploration Site Inspector and Exploration Approvals Geologist.

Kruger
Pulp and Paper

Corner Brook Pulp and Paper Limited
P. O. Box 2001
Corner Brook NL A2H 6J4
Tel.: 709 637-3000
Fax: 709 637-3469

Referral Policy and Compensation Schedule for Applications for Crown Lands on Corner Brook Pulp and Paper Limited Timber Licence Areas

Applications for Crown land on Corner Brook Pulp and Paper Limited timber licence areas will only be recommended where it has been determined that no potential land use conflicts exist, and compensation is received for the loss of timber rights. All applications are reviewed on an individual basis and the following **guidelines** will be used in making the final recommendation.

To avoid potential conflict with forest harvesting activities, forest management activities, road construction activities or any similar activity, applications will be reviewed to determine if approval may potentially negatively impact the Company's responsibilities with respect to the environment and the health and safety of its employees. The Company's commitment to the environment is reflected in its Mission Statement, it's Forest and Environmental Policy and its certificate to the Sustainable Forestry Initiative (SFI®) Forest Management and Fibre Sourcing Standards. The Company's commitment to the health and safety of its employees is reflected in its Health and Safety Policy.

General:

1. All requests within existing and potential 5 Year Operating Plans may be refused.

2. All requests adjacent to an existing forest access road will be refused if the location is considered unsafe as related to conflict with timber transportation, employee, and public safety.

3. All requests within areas deemed environmentally sensitive (i.e., sensitive wildlife habitat, sensitive sites with potential for soil degradation, water quality degradation, visual quality degradation, etc.) will be refused unless they are subject to the Environmental Assessment Process.

4. All requests for grants (commercial, residential or cottage) will be refused, unless the Company receives compensation for the loss of timber rights or silviculturally treated areas on that property.

5. It is understood that any potential development area identified will not be exempt from forest management planning activities including silviculture.

6. The company may complete, where necessary, a 3rd party landbase analysis to determine compensation.

Cottage and Remote Cabins:

1. All requests in or adjacent to existing or planned forest improvement areas (i.e. PCT, plantations, or other silviculture investment areas) may be refused.

2. Remote cottage and cabin applications may be refused if the area is not located within an existing cabin development area.

Quarry Development:

1. Quarry applications will be reviewed on a case-by-case basis.

2. Quarry applications that are submitted where a viewscape buffer is preferred, must include the viewscape area the in the quarry application. Any area that will be used for a viewscape must be included in the overall area requested in the application.

3. Once a quarry site is permitted to an applicant and compensation for the lost resources is received by Corner Brook Pulp and Paper, there will be no refund available for any sections of that area that may be undeveloped. Applicants should only request the area that will be developed. Applications for extensions to quarry sites can be submitted.

4. CBPPL Approved quarry sites that are sold to new owners do not require an application to Corner Brook Pulp and Paper for use and no compensation is required, unless quarry expansion beyond the original approved area is requested. Compensation for approved extension areas will be necessary.

5. Once compensated CBPPL relinquishes ownership of the forest resource contained in the area applied for.

Mining Exploration and Development:

1. Mineral exploration, and mining are recognized as separate and distinct activities, each of which requires approval by Corner Brook Pulp and Paper and possible compensation.

2. It is expected that the applicant will carry out activities and rehabilitation of the site using the standards as outlined in the Environmental Guidelines for Mineral and Quarry Materials Exploration and the Environmental Protection Guidelines.

3. Mineral exploration where the cutting of trees is required:

a. Operators must attempt to extract the timber harvested. This can be delayed to winter months when access by snowmobile is possible.

b. It is permitted that the operator may use the harvested material as corduroy to lay down over sections of access trails constructed on wet or soft ground.

4. Mineral exploration activities may include:

i. Access trail construction
ii. Trenching

iii. Test pits
iv. Clearing for drill pads
v. Creating campsite and laydown areas

5. All exposed mineral soil must be rehabilitated with organic soil (topsoil). Such soil removed to facilitate the above activities, must be stock piled, and spread over exposed sites upon completion of the exploration activities.

6. A final inspection complete with photographs of rehabilitated sites is also required. Future submissions from the applicant will not be processed until all required actions from an active application are complete.

7. If mining exploration results in future mine development, the compensation rate will be determined using Schedule 1.

Agriculture:

1. All requests for agriculture leases will be refused unless the Company receives compensation for the loss of timber rights or silviculturally treated areas on that property. See schedule 1 for compensation rates.

2. Corner Brook Pulp and Paper retains the right to harvest any merchantable timber from any approved agriculture site unless alternate plans are agreed to by the applicant and the company.

For information on 5 Year Development Plan Areas please go to www.cbpplwoodlands.com.

Schedule I

Compensation Rate Schedule for Crown Land Applications for Corner Brook Pulp and Paper Limited Timber Licence Areas

Merchantable Timber - Softwood	$75.00/m^3
Merchantable Timber – Hardwood	$5.56/m^3
Natural Regeneration\Immature Trees	$1,500.00/hectare
Non-Productive areas	$300.00/hectare
Tree Plantation	$1,500.00/hectare
Pre-Commercial Thinning	$2,000/hectare

NOTE

- the minimum charge for areas less than 1 ha. will be $1200.
- If the area in question has a combination of land types, then the total compensation will be calculated by applying a combination of the different rates. E.g. – 100 m3 of softwood and 0.5 Ha of PCT in area would be: (100 x $75) + (0.5 x $2000) = $8500.

For further information please contact:

cbpplandreferral@kruger.com

Corner Brook Pulp and Paper Limited
P.O. Box 2001
Corner Brook, NF.
A2H 6J4

709-637-3469 (fax)

NOTE: These rates are subject to change.
September 28, 2023

MISSION STATEMENT AND VALUES

MISSION STATEMENT

The mission of Kruger Inc. is to provide our customers with products and services that continually fulfill their expectations.

This is achieved by all employees optimizing the quality of each action that takes place in the business of buying, producing, selling, and servicing our products – all within a safe work environment that encourages personal development and satisfaction.

Kruger Inc.'s objective is to be the quality leader and low cost producer in our industry while taking a leadership role in respecting the environment.

Joseph Kruger II
Chairman of the Board
and Chief Executive Officer

VALUES

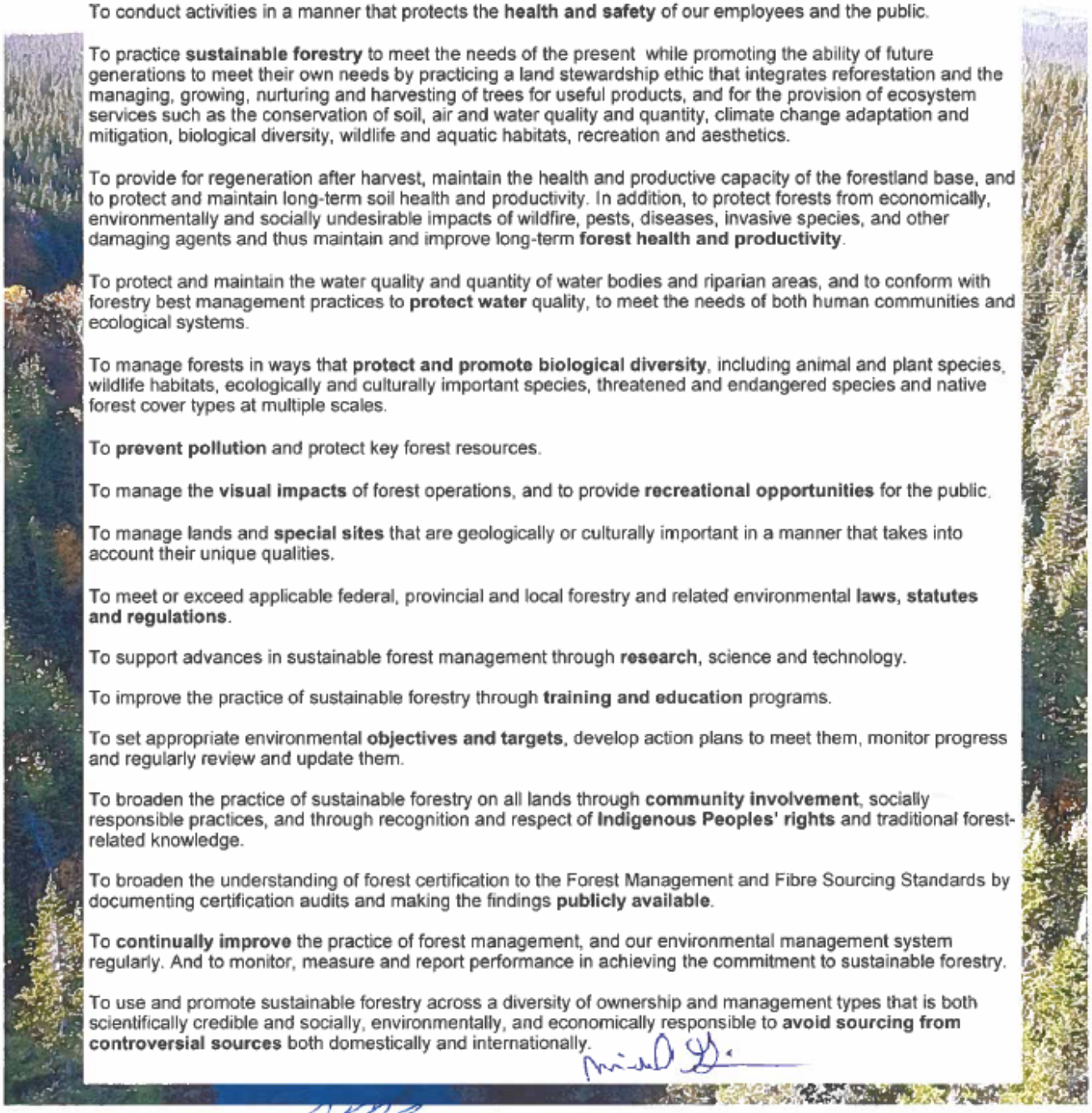
- Customer focus
- Employee involvement
- Employee development
- Value added activity
- Quality leader Low cost producer
- Excellence in environmental protection and sustainable development

Kruger

Forest and Environmental Policy and SFI Principles

This Forest and Environmental Policy applies to the scope of the environmental management system for the Woodlands Division and the principals of the SFI Forest Management and Fibre Sourcing Standards.

We commit:



To conduct activities in a manner that protects the **health and safety** of our employees and the public.

To practice **sustainable forestry** to meet the needs of the present while promoting the ability of future generations to meet their own needs by practicing a land stewardship ethic that integrates reforestation and the managing, growing, nurturing and harvesting of trees for useful products, and for the provision of ecosystem services such as the conservation of soil, air and water quality and quantity, climate change adaptation and mitigation, biological diversity, wildlife and aquatic habitats, recreation and aesthetics.

To provide for regeneration after harvest, maintain the health and productive capacity of the forestland base, and to protect and maintain long-term soil health and productivity. In addition, to protect forests from economically, environmentally and socially undesirable impacts of wildfire, pests, diseases, invasive species, and other damaging agents and thus maintain and improve long-term **forest health and productivity**.

To protect and maintain the water quality and quantity of water bodies and riparian areas, and to conform with forestry best management practices to **protect water** quality, to meet the needs of both human communities and ecological systems.

To manage forests in ways that **protect and promote biological diversity**, including animal and plant species, wildlife habitats, ecologically and culturally important species, threatened and endangered species and native forest cover types at multiple scales.

To **prevent pollution** and protect key forest resources.

To manage the **visual impacts** of forest operations, and to provide **recreational opportunities** for the public.

To manage lands and **special sites** that are geologically or culturally important in a manner that takes into account their unique qualities.

To meet or exceed applicable federal, provincial and local forestry and related environmental **laws, statutes and regulations**.

To support advances in sustainable forest management through **research**, science and technology.

To improve the practice of sustainable forestry through **training and education** programs.

To set appropriate environmental **objectives and targets**, develop action plans to meet them, monitor progress and regularly review and update them.

To broaden the practice of sustainable forestry on all lands through **community involvement**, socially responsible practices, and through recognition and respect of **Indigenous Peoples' rights** and traditional forest-related knowledge.

To broaden the understanding of forest certification to the Forest Management and Fibre Sourcing Standards by documenting certification audits and making the findings **publicly available**.

To **continually improve** the practice of forest management, and our environmental management system regularly. And to monitor, measure and report performance in achieving the commitment to sustainable forestry.

To use and promote sustainable forestry across a diversity of ownership and management types that is both scientifically credible and socially, environmentally, and economically responsible to **avoid sourcing from controversial sources** both domestically and internationally.

John MacLellan
Woodlands Manager

Michel Girard
Vice President & General Manager

CBPPL Woodlands fully endorses the Kruger Inc. Corporate Environmental and Fibre Procurement Policies.

Jan 2023

intertek
Total Quality. Assured.

CERTIFICATE OF REGISTRATION

This is to certify that

Corner Brook Pulp and Paper Limited

Main Site: 1 Mill Road, P.O. Box 2001, Corner Brook, Newfoundland and Labrador, A2H 6J4, Canada

complies with the requirements of:

SFI 2022 FOREST MANAGEMENT STANDARD

for the following scope of certification:

Forest management activities - planning, harvesting, transportation and silviculture on forest management units under the company control.
Fiber sold under this certificate counts as 100% SFI and 100% PEFC certified forest content.

Certificate Number:
0159990

SFI® Forest management No.:
ITK-SFIFM-200395

Issue Date:
10 November 2023

Original Certification Date:
09 August 2019

Certification Effective Date:
10 November 2023

Certification Expiry Date:
09 November 2028

Calin Moldovean
President Business Assurance

Intertek Testing Services NA, Inc. dba Intertek
900 Chelmsford Street, Lowell, MA, USA

intertek
Total Quality. Assured.

CERTIFICATE OF REGISTRATION

This is to certify that

Corner Brook Pulp and Paper Limited

Main Site: 1 Mill Road, P.O. Box 2001, Corner Brook, Newfoundland and Labrador, A2H 6J4, Canada

complies with the requirements of:

SFI 2022 FIBER SOURCING STANDARD

for the following scope of certification:

Sourcing of fiber to support the company forest products facility.The facility is Corner Brook Pulp & Paper Mill

Certificate Number:
0159989

SFI Fiber Sourcing No.:
ITK-SFIFS-200395

Issue Date:
10 November 2023

Original Certification Date:
08 August 2019

Certification Effective Date:
10 November 2023

Certification Expiry Date:
09 November 2028

intertek

ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17021-1
MANAGEMENT SYSTEMS CERTIFICATION BODY

SUSTAINABLE FORESTRY INITIATIVE

Calin Moldovean
President Business Assurance

Intertek Testing Services NA, Inc. dba Intertek
900 Chelmsford Street, Lowell, MA, USA

Kruger Industrial

Health and Safety Policy

Corner Brook Pulp & Paper Woodlands Division

ZERO HARM
SAFETY FIRST, SAFETY ALWAYS

Corner Brook Pulp and Paper Woodlands is committed to providing a healthy and safe work environment for its employees and is dedicated to the objective of eliminating the possibility of injury and workplace illness by controlling and managing risk.

Corner Brook Pulp and Paper Woodlands will ensure that its staff, its contractors and their supervisors are trained and fully aware of their responsibilities and authority relative to ensuring that employees under their supervision adhere to this policy, use safe work practices, and receive training to protect their health and safety. This includes but is not limited to the prevention of musculoskeletal injuries, and an ergonomics program that is reviewed annually. Woodlands staff, contractors and their supervisors also have the authority and will be responsible for ensuring the safety of equipment and facilities at all job sites under their direct control.

All levels of management within Corner Brook Pulp and Paper Woodlands will cooperate with the Occupational Health and Safety Committees established at each job site, to create a healthy and safe work environment.

The Occupational Health and Safety Committees will participate in the identification of workplace hazards, and receive and record health and safety concerns from employees. The Committees will make recommendations for the enforcement of safe work practices.

The employees of Corner Brook Pulp and Paper Woodlands must support this policy and cooperate with the Occupational Health and Safety Committees or other regulatory bodies exercising authority under applicable laws.

The employees must accept responsibility for protecting their own health and safety by complying with the Occupational Health and Safety Regulations and by following policies, procedures, rules and instructions as prescribed by Corner Brook Pulp and Paper Woodlands. Employees must also report any hazardous condition, injury, incident, or illness related to the workplace to their supervisor or member of the OHS Committee as soon as possible. Corner Brook Pulp and Paper Woodlands encourages employees to offer suggestions or ideas to improve the health and safety program.

Corner Brook Pulp and Paper Woodlands will require the use of personal protective equipment by employees if it is deemed necessary to prevent injuries.

Corner Brook Pulp and Paper Woodlands will conduct an annual internal safety audit of the health and safety program to show their commitment to continual improvement.

John MacLellan
Woodlands Manager

January 1, 2020

Kruger Inc. Corner Brook Pulp and Paper Ltd.

Women's Employment Plan

Contents

1.0 Introduction

Corner Brook Pulp and Paper is a Kruger Company manufacturing newsprint for national and international markets. We manage approx. 1.4 million hectares of forest land which is used in the production process, mostly as pulpwood and saw logs.

This Women's Employment Plan (WEP) has been prepared as a conditional requirement by the Government of Newfoundland and Labrador. It describes the gender-equity goals and initiatives that Corner Brook Pulp and Paper plans to implement by working collaboratively with our contractors and relevant community stakeholder organizations to help ensure a diverse and inclusive workforce during the various phases of the proposed project.

Currently, active harvesting is an ongoing operation that maintains the Corner Brook Pulp Mill. Also included in this is tree planting, pre-commercial thinning and conventional cutting.

Describe the company's leadership and commitment to gender equality at the Executive level and lines of accountability? We are an equal opportunity employer in all sectors of its operation. We encourage and support the growth of women within our organization in many ways including identifying women for succession roles, and providing equal opportunity in all job competitions. All roles that are posted externally are advertised on our website, and on indeed.ca. For speciality positions we often will post on websites associated with professional organizations such as CPA, as well as alumni groups within CNA and Memorial University.

Corner Brook Pulp and Paper is committed to establishing qualitative and quantitative goals for gender equity in order to improve employment outcomes for women in Newfoundland and Labrador. CBPPL has developed this Women's Employment Plan (WEP) to establish a proactive approach toward a workplace environment with policies and practices that help ensure a work environment free from harassment and discrimination.

1.1 Project Timeframes and Workforce Estimates

The WEP was implemented January 1, 2019 and is considered an ongoing project for the life of the facility. Due to the nature of the project there is no construction phase required.

The workforce requirements and estimated number of workers required by NOC code for the Construction Phase are outlined in Table 1.

Occupation	NOC	Duration of Work	Number of Employees	CH/DE
Project Management				
Supervisors Skilled Trades				
Professionals				
Semi-Professionals and Technicians				
Skilled Trades				
Manual Workers				

Not Applicable

Table 1: Estimated Full-time Contractor-Hired (CH) or Direct Employee (DE) Hires, Construction Phase, by Occupation/NOC

Table 1A: Employment Targets by Occupational Group – Construction Phase

Occupation (NOC)	FT/PT/Seasonal	# of Employees	Target Female (%)	Direct Hire (DH) or Contractor (CT)	Estimated Timeframe
Project Management					
Administration					
Supervisors of Skilled Trades					
Semi-Professionals, Technicians					
Skilled Trades					
Manual Workers/Labourers					
Apprentices					

Not Applicable

Describe the scope of work in the Operations Phase:

Occupation	NOC	Duration of Work	Number of Employees	CH/DE
Project Management				
Supervisors Skilled Trades	**8211 Supervisors, logging and forestry**	**10 months annually for**	**5**	**CH**
Professionals	0811 Managers in natural resources production and fishing **2122 Forestry professionals**	**Full time**	**14**	**DE**
Semi-Professionals and Technicians	**2223 Forestry technologists and technicians**	**Full time**		**CH, DE**
Skilled Trades	**7521 8241**	**10 months annually for**	**133**	**CH**
Manual Workers	**8422 Silviculture and forestry workers**	**10 months annually for**	**21**	**CH**

Table 2: Estimated Full-time (FT), Contractor-Hired (CH) or Direct Employee (DE) for the Operations Phase, Occupation//NOC

Table 2A: Employment Targets by Occupational Group – Operations Phase

Occupation (NOC)	FT/PT/Seasonal	# of Employees	Target Female (%)	Direct Hire (DH) or Contractor (CT)	Estimated Timeframe
Project Management			25%		
Administration			25%		
Supervisors of Skilled Trades					

Semi-Professionals, Technicians					
Skilled Trades	Seasonal		25%	CH	5 years
Manual Workers/Labourers	Seasonal		25%	CH	5 years
Apprentices	n/a				

1.2 Employment Diversity Commitments and Practices

Corner Brook Pulp and Paper has developed the following commitments to advance gender equity in employment and smooth the transition of women into leadership roles:

- Establish senior executive responsibilities for gender equality, develop capabilities and lines of accountability among senior management;
- Develop and communicate an executive-level vision statement to all staff and contractors, including commitments and goals;
- We conduct Respectful Workplace training on a three year refresher cycle to remind employees of the importance of diversity and inclusion in the workplace.

2.0 Recruitment and Employment

Corner Brook Pulp and Paper commits to the following measures to reduce the barriers to women's participation and improve their employment on this project.

- Describe your pre-employment outreach to the Office to Advance Women Apprentices (OAWA) and Women in Resource Development Corporation (WRDC) to improve recruitment of women;
  We have been in contact with the Office to Advance Women Apprentices, however, this project wouldn't involve any apprentice roles.
- Describe internal employment equity processes including:
  - assigned lines of accountability for the Women's Employment Plan;
  - delivery of mandatory Respectful Workplace training for all employees;
  - the review of HR policies and practices for gender bias;
  - workplace accommodation policies and practices, , exit interviews, climate surveys, etc. ;

- Union groups within our organization are inclusive in their practices, including creating gender neutral language in agreements, ensuring parental leave is included in wording to follow language in legislation
- All policies and programs outlined by CBPPL are required to be complied with by all contractors.
- Using the attached Table 3 (Appendix 1), identify targets that are above the National Occupational Classification Code employment figures for the following groups (for more information on NOC Codes for your project's labour force requirements, please go to http://noc.esdc.gc.ca/English/noc/welcome.aspx?ver=16):
    - Project Management
    - Administration
    - Supervisors of Skilled Trades
    - Semi-professionals, Technicians and Technologists
    - Skilled Trades
    - Manual Workers
    - Apprentices

3.0 Communication

To assist with maximizing opportunities for women, CBPPL is committed to outreach with a range of stakeholder organizations and institutions to improve opportunities for women through the following activities:

- We use appropriate language and imagery in all job advertisements and other communications to encourage women to apply for all job opportunities. A gender equity and diversity statement is included in any such promotional materials related to the development of this project and all opportunities with CBPPL.
- CBPPL has been in contact with to organizations supporting women in science, trades and technical occupations such as the Office to Advance Women Apprentices (OAWA), and intends to expand this outreach in the coming years.
- We have participated in information sessions at the community level in collaboration with government and non-government stakeholders including the College of the North Atlantic to discuss opportunities for them to offer programs that align with the needs of industry.
- Conduct focus groups or other outreach sessions with stakeholders to better understand barriers to female employment with CBPPL.
- Develop and maintain a corporate culture and work environment within CBPPL that facilitates the achievement of the career goals of women and provides them with the training and support they need to assist them in meeting their goals and the goals of the company.
- The WEP is to be distributed with all capital works RFP.

4.0 Monitoring

CBPPL works closely with contractors on a daily basis, and will regularly discuss the progress of the Women's Employment Plan.

Corner Brook Pulp and Paper Ltd.
Forest Management District 10
Five Year Plan (2026-2030)

Legend

- TCH
- Paved Roads
- Resource Roads
- Trails
- Winter Roads
- Abandoned Railway
- Five Year Plan Outlines
- CBPP District Boundary
- FMD 10 Boundary
- Five Year Plan Silviculture Outlines
- Ponds
- Cutovers
- Harvestables

MARK'S LAKE

LONG POND

MARY ANN LAKE

ROCKY POND

CASSANDRA POND

1:200,000

Name	K_Number
CASSANDRA POND	K-10-11
LONG POND	K-10-01
MARK'S LAKE	K-10-07
MARY ANN LAKE	K-10-10
ROCKY POND	K-10-02

N

W

E

S

CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	10	**Plan Period:**	Jan 1, 2026 - Dec 31, 2030
Operating Area:	Long Pond	**Inventory Map #:**	052, 053
Harvest Area #:	K-10-01	**NTS Map #:**	12H06 2E05

Forest Inventory

Gross Volume

Volume: 9,475 m3

Area: 115 ha

Working Group

bF: 17 %

bS: 83 %

Subsequent to commercial harvest, domestic cutting permit holders will be allowed to remove birch, larch, aspen, downed and deadwood (spruce/fir) from cutovers for personal use.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Fairly flat terrain, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

- Consultation was held with all Outfitters operating within CBPPL Limits in FMD 10. Harvest plans were provided for their review. Mitigations, if any, will be developed.

- CBPPL will adhere to Wildlife Divisions requirements with regard to forest management activities in areas designated for wildlife habitat.

- 15m buffer will be placed on hydrometric station.

- Riparian buffers will be maintained as per Environmental Protection Guidelines or other permit requirements.

- The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

- Silviculture and Five-year plan boundary overlap.

- Private Land adjacent to CBPPL Tenure.

- Private cabin blocks in area.

Corner Brook Pulp and Paper Woodlands is currently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 10
Five Year Plan (2026- 2030)

Long Pond (K-10-01)
Scale: 1:19,000
Forest Inv Map 052, 053
NTS Map 12H06, 2E05

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

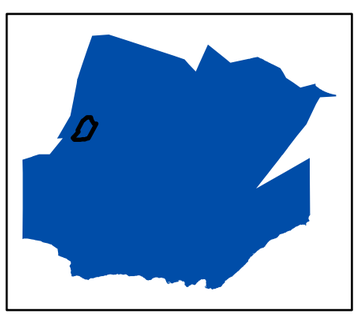
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area
- Primary Core (No Forestry Activity)
- Secondary Core (April 15-July15)

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 10



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	10	**Plan Period:**	Jan 1, 2026 - Dec 31, 2030
Operating Area:	Rocky Pond	**Inventory Map #:**	053
Harvest Area #:	K-10-02	**NTS Map #:**	2E05

Forest Inventory

Gross

Volume: 41,186 m3

Area: 473 ha

Working Group

bF: 26 %

bS: 74 %

Subsequent to commercial harvest, domestic cutting permit holders will be allowed to remove birch, larch, aspen, downed and deadwood (spruce/fir) from cutovers for personal use.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Fairly flat terrain, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of Hardwood.

Other Considerations and Mitigations:

- Consultation was held with all Outfitters operating within CBPPL Limits in FMD 10. Harvest plans were provided for their review. Mitigations, if any, will be developed.

- CBPPL will adhere to Wildlife Divisions requirements with regard to forest management activities in areas designated for wildlife habitat.

- 15m buffer will be placed on hydrometric station.

- Riparian buffers will be maintained as per Environmental Protection Guidelines or other permit requirements.

- The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

- Silviculture and Five-year plan boundary overlap.

Corner Brook Pulp and Paper Woodlands is currently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 10
Five Year Plan (2026- 2030)

Rocky Pond (K-10-02)
Scale: 1:30,000
Forest Inv Map 053
NTS Map 2E05

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

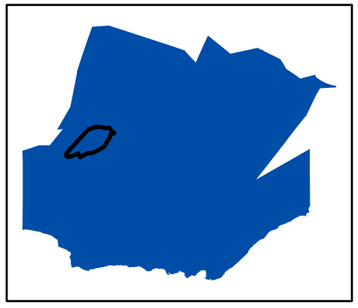
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area
- Primary Core (No Forestry Activity)
- Secondary Core (April 15-July15)

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 10



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	10	**Plan Period:**	Jan 1, 2026 - Dec 31, 2030
Operating Area:	Mark's Lake	**Inventory Map #:**	053
Harvest Area #:	K-10-07	**NTS Map #:**	2E05

Forest Inventory

Gross

Volume: 285,153 m3
Area: 3,395 ha

Working Group

bF: 37 %
bS: 63 %

Subsequent to commercial harvest, domestic cutting permit holders will be allowed to remove birch, larch, aspen, downed and deadwood (spruce/fir) from cutovers for personal use.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Fairly flat terrain, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of Hardwood.

Other Considerations and Mitigations:

- Consultation was held with all Outfitters operating within CBPPL Limits in FMD 10. Harvest plans were provided for their review. Mitigations, if any, will be developed.

- CBPPL will adhere to Wildlife Divisions requirements with regard to forest management activities in areas designated for wildlife habitat.

- 15m buffer will be placed on hydrometric station.

- Riparian buffers will be maintained as per Environmental Protection Guidelines or other permit requirements.

- The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

- Silviculture and Five-year plan boundary overlap.

- Permanent Sample Plots in this area. 100m buffer to be in place.

- CBPPL overlaps with EVREC Wind Energy Project Area.

Corner Brook Pulp and Paper Woodlands is currently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 10
Five Year Plan (2026- 2030)

Mark's Lake (K-10-07)
Scale: 1:80,000
Forest Inv Map 053
NTS Map 2EO5

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

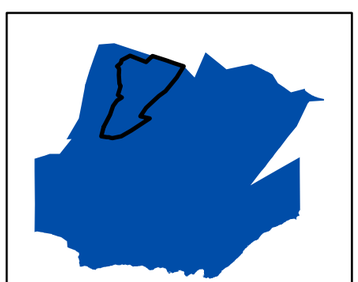
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area
- Primary Core (No Forestry Activity)
- Secondary Core (April 15-July15)

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 10



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	10	**Plan Period:**	Jan 1, 2026 - Dec 31, 2030
Operating Area:	Mary Ann Lake	**Inventory Map #:**	053
Harvest Area #:	K-10-10	**NTS Map #:**	2E05

Forest Inventory

Gross

Volume: 37,489 m3
Area: 390 ha

Working Group

bF: 27 %
bS: 73 %

Subsequent to commercial harvest, domestic cutting permit holders will be allowed to remove birch, larch, aspen, downed and deadwood (spruce/fir) from cutovers for personal use.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Fairly flat terrain, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of Hardwood.

Other Considerations and Mitigations:

- Consultation was held with all Outfitters operating within CBPPL Limits in FMD 10. Harvest plans were provided for their review. Mitigations, if any, will be developed.

- CBPPL will adhere to Wildlife Divisions requirements with regard to forest management activities in areas designated for wildlife habitat.

- Riparian buffers will be maintained as per Environmental Protection Guidelines or other permit requirements.

- The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

- Permanent Sample Plots in this area. 100m buffer to be in place.

Corner Brook Pulp and Paper Woodlands is currently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 10
Five Year Plan (2026- 2030)

Mary Ann Lake (K-10-10)
Scale: 1:37,142
Forest Inv Map 053
NTS Map 2E05

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
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- UTM Grid
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- Transmission Lines
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- Secondary Core (April 15-July15)

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Land Features
- Forested Land
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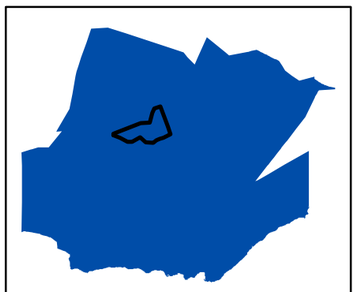
Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 10



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	10	**Plan Period:**	Jan 1, 2026 - Dec 31, 2030
Operating Area:	Cassandra Pond	**Inventory Map #:**	075
Harvest Area #:	K-10-11	**NTS Map #:**	2D13

Forest Inventory

Gross

Volume: 21,020 m3
Area: 264 ha

Working Group

bF: 28 %
bS: 72 %

Subsequent to commercial harvest, domestic cutting permit holders will be allowed to remove birch, larch, aspen, downed and deadwood (spruce/fir) from cutovers for personal use.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Fairly flat terrain, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of Hardwood.

Other Considerations and Mitigations:

- Consultation was held with all Outfitters operating within CBPPL Limits in FMD 10. Harvest plans were provided for their review. Mitigations, if any, will be developed.

- CBPPL will adhere to Wildlife Divisions requirements with regard to forest management activities in areas designated for wildlife habitat.

- A development permit will be required for this 5YP operating area. Applications will be sent as needed.

- Riparian buffers will be maintained as per Environmental Protection Guidelines or other permit requirements.

- The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

- Private Land within CBPPL Boundary.

- Cabin lots in the area.

Corner Brook Pulp and Paper Woodlands is currently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 10
Five Year Plan (2026- 2030)

Cassandra Pond (K-10-11)
Scale: 1:18,000
Forest Inv Map 075
NTS Map 2D13

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area
- Primary Core (No Forestry Activity)
- Secondary Core (April 15-July15)

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 10