Gordon Cosens Independent Forest Audit 2023

April 1, 2016 – March 31, 2023

Prepared by
Caliber Forestry Services

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1.0 Executive Summary

This report presents the findings of an Independent Forest Audit of the Gordon Cosens Forest by Caliber Forestry Services. The audit followed the risk-based approach as outlined in the 2022 Independent Forest Audit Process and Protocol. The audit included a review of documentation and records, field assessments and opportunities for First Nation and Métis community and stakeholder input.

The Independent Forest Audit for the Gordon Cosens Forest covered a seven-year period of April 1, 2016 – March 31, 2023. The Sustainable Forest Licence (SFL # 550039) for the Gordon Cosens Forest is held by GreenFirst Forest Products (QC) Inc. During the period being audited the ownership of the Sustainable Forest Licence changed hands from Tembec Industries Inc.to Rayonier Advanced Materials to GreenFirst Forest Products. Throughout the transitions the forestry staff have not changed. The Forest is administered by the Ontario Ministry of Natural Resources and Forestry Kapuskasing Work Center, Hearst Cochrane Kapuskasing District in the Northeast Region. The Kapuskasing Local Citizens Committee provides input into the management of the Gordon Cosens Forest.

The audit scope covers the implementation of Phase II of the 2010-2020 Forest Management Plan (Years 7, 8, 9, 10), the preparation and implementation of the 2020-2030 Forest Management Plan (Years 1, 2, 3).

The forest is certified as sustainably managed according to the requirements of the Forest Stewardship Council Canada Forest Management Standard and the certificate is valid until 2028.

The auditors found that the GreenFirst Forest Products and Ministry of Natural Resources and Forestry Kapuskasing Work Center staff are a dedicated, professional team. The Kapuskasing Local Citizens Committee is functioning well and there is regular attendance at the meetings. GreenFirst and Ministry of Natural Resources and Forestry have been responsive to the public, stakeholder, Métis and Indigenous input and concerns.

The forest is very large and productive. The Great Clay Belt is a challenging portion of the forest to harvest and renew. The available wood supply from the forest is not being fully utilized due to a lack of markets for some species/products and as a result merchantable, non-marketable poplar is being left piled at the roadside. This practice is allowed under the Northeast Region Creating Forest Operations Opportunities in Low Market Conditions Strategy. The Sustainable Forest Licence is actively seeking markets for all under utilized wood and they are exploring methods to reduce the land taken out of production.

Forest management planning requires the use of current and accurate information to guide good decision making. The time delay between inventory imagery acquisition and interpretation was 10 years and as such required extensive updating. Interpretation of the inventory was challenging and the planning team worked hard to make the inventory usable for the spatial model and the other planning tools. The classification of water bodies was not adequate to confidently apply standard protective measures. Caribou have not been sufficiently monitored to provide accurate calving and nursery area locations.

Overall, forest management operations were found to be very well done. The harvest operations did not cause site disturbance, residual patches and wildlife trees were in place. The silviculture

program relies heavily on natural regeneration. Where planting or seeding is done, the areas are well monitored to identify any issues with establishment. Replanting is done where issues are identified and tending is done where required. The tending is constrained by the current, dated guidelines for aerial spray application. Large buffers will impact the ability of some sites to reach the intended forest composition.

Forest operations monitoring has been carried out on the forest but with some shortcomings. The Ministry of Natural Resources and Forestry are not monitoring as required. Their Annual Compliance Operations Plan is not being consistently produced and implemented. The Sustainable Forest Licence is preparing a compliance plan annually and reporting on findings in each annual report. However, renewal and maintenance activities are not being reported annually and the bridge reports do not contain all the detail that is required. The monitoring of forest establishment is slightly behind but is progressing. The auditors confirmed that the establishment information collected and reported is correct. The Ministry of Natural Resources and Forestry Kapuskasing work center had been consistently implementing Silviculture Effectiveness Monitoring until the COVID pandemic interfered with the implementation of the program and it has not fully resumed.

Overall, the objectives of the 2010-2020 Forest Management Plan were met and any deviations assessed and the impact on sustainability determined. New objectives were incorporated into the 2020-2030 Forest Management Plan to meet the changing requirements. The current Forest Management Plan is mostly on track to achieve objectives with a few exceptions which are identified in this report. These exceptions can be achieved for the end of the plan.

The audit team reviewed the contractual obligations in the licence and found that they were being met. All dues were paid and the renewal trust fund is well above the minimum balance. The work undertaken during the term of the specified procedures review was completed as reported.

Overall, the audit team concludes that the management of the Gordon Cosens Forest was in compliance with the legislation, regulations and policies that were in effect during the period covered by the audit and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence (SFL # 550039) held by GreenFirst Forest Products (QC) Inc. The forest is being managed consistently with the principles of sustainable forest management, assessed through the Independent Forest Audit Process and Protocol.

Janet Lane, R.P.F., Lead Auditor Seal

2.0 Table of Findings

Concluding Statement: Overall, the audit team concludes that the management of the Gordon Cosens Forest was in compliance with the legislation, regulations and policies that were in effect during the period covered by the audit and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by GreenFirst Forest Products Inc. The forest is being managed consistently with the principles of sustainable forest management, assessed through the Independent Forest Audit Process and Protocol.
FINDINGS
Finding #1: An accurate and current forest resource inventory was not delivered to the planning team.
Finding #2: Current and accurate caribou habitat use data was not provided for the protection of critical habitat.
Finding #3 The guidelines for the application of aerial herbicides in forestry in Ontario are outdated.
Finding #4 The District Ministry of Natural Resources and Forestry did not complete a compliance monitoring program in accordance with Ministry of Natural Resources and Forestry manuals, policies and procedures.
Finding #5 The Sustainable Forest Licensee's Annual Compliance Plan has not been implemented to consistently assess the compliance of water crossing installations, silviculture activities and aerial tending with the FMP, AWS, and related legislation.
Finding #6 For the current 2020-2030 Gordon Cosens Forest Management Plan, progress towards achieving management objectives 2.7, 7.1, 8.1, and 8.3 are not on track.
BEST MANAGEMENT PRACTICES
Best Management Practice #1: The Sustainable Forest Licensee has developed an effective monitoring system to ensure planted sites are fully stocked and well-tended. These are not regulated surveys and continuing to carry out the surveys exhibits a dedication over and above normal practice.
Best Management Practice #2: The Ministry of Natural Resources and Forestry District has taken a unique and pragmatic approach to gathering fish and wildlife values to inform area of concern prescription application and inform plan strategies in the Forest Management Plan. (Cold water identification, camera traps to validate caribou use areas, and the evaluation of moose habitat direction). The initiative by the Ministry of Natural Resources and Forestry district and support by the Sustainable Forest Licensee are noteworthy.

3.0 Introduction

This report presents the findings of an Independent Forest Audit of the Gordon Cosens Forest (GCF) by Caliber Forestry Services. The audit followed the risk-based approach as outlined in the 2022 Independent Forest Audit Process and Protocol (IFAPP)[1].

The Independent Forest Audit for the GCF covered a seven-year period of April 1, 2016 – March 31, 2023. The Sustainable Forest Licence (SFL # 550039)[2] for the GCF is held by GreenFirst Forest Products (QC) Inc. (GreenFirst). The Forest is administered by the Ontario Ministry of Natural Resources and Forestry (MNRF) Kapuskasing Work Center, Hearst Cochrane Kapuskasing District in the Northeast Region. The Kapuskasing Local Citizens Committee (LCC) is associated with the Forest.

The audit scope covers the implementation of Phase II of the 2010-2020 Forest Management Plan (FMP) (Years 7, 8, 9,10), the preparation and implementation of the 2020-2030 FMP (Years 1, 2, 3).

The audit included a review of documentation and records, field assessments and provided opportunities for stakeholder input.

3.1 Audit Process

Independent Forest Audits (IFAs) are a requirement of the Crown Forest Sustainability Act (CFSA)[3]. All Sustainable Forest Licences (SFLs) and Crown Management Units (CMUs) must be audited once every ten to twelve years by an independent auditor. The 2022 Independent Forest Audit Process and Protocol (IFAPP) was used as the guiding document to assess if the forest is meeting the requirements of Ontario Regulation 319/20 made under the CFSA. The auditees include the Sustainable Forest Licence (SFL) holder and applicable Ministry of Natural Resources and Forestry (MNRF) Districts, Region and Corporate organizations.

The auditors review audit criteria (Appendix A of the IFAPP), previous audit results, and provided background information to determine through a risk assessment which, if any, optional audit criteria to recommend for inclusion in the audit. For this audit, fifteen optional procedures were added to assess the effectiveness of the Local Citizens Committee, and the effectiveness of the issue resolution process, the plan production activities with a new manual and new tools, the new forest resources inventory, the quality of the fish and wildlife information provided, the implementation of the caribou harvest strategy, regeneration monitoring, the submission of the annual reports, compliance monitoring, pest protection given the spruce budworm outbreak and the monitoring of the indicators of sustainability. The final audit scope is reviewed and accepted by the Forestry Futures Trust Committee (FFTC) and approved by MNRF.

[1] *OMNRF. 2022. Independent Forest Audit Process and Protocol, Toronto. Queen's Printer for Ontario. 222pp.*
[2] *Order in Council O.C. 1158/2001. May 2021. Gordon Cosens Forest Sustainable Forest License.*
[3] *Crown Forest Sustainability Act, 1994, S.O. 1994, c. 25*

The procedures and criteria for the delivery of the IFA are specified in the 2022 IFAPP. The audit assesses the licence holder and MNRF (the auditees) compliance with the approved forest management plans, the Forest Management Planning Manual (FMPM) and the CFSA in conducting forest management planning, operations, monitoring and reporting activities. The audit assesses the effectiveness of forest management activities in meeting the management objectives in the applicable forest management plan. The field audit assesses whether actual results are comparable with planned results, whether approved prescriptions were followed and whether forest operations were accurately reported.

The audit report finds non-conformances as well as best management practices. Findings of non-conformances are observations by the audit team of not fully meeting requirements or the identification of significant lack of effectiveness in forest management activities. Best management practices are recognized when auditees actions go beyond the legal requirements and result in positive outcomes for the forest and communities. IFA findings are addressed by the auditees in an action plan and the progress towards the completion of these actions will be reported in the Annual Reports (ARs) of the SFL.

Details on the audit processes are provided in Appendix 4.

Caliber Forestry Services conducted the field audit in September 2023, utilizing a three-person on-site team. Profiles of the audit team members, their qualifications and responsibilities are provided in Appendix 6.

3.2 Management Unit Description

The GCF is located in MNRF Northeast Region. The boundary of the GCF overlaps three MNRF district boundaries including Chapleau-Wawa, Hearst Cochrane Kapuskasing and Timmins Kirkland Lake. The Kapuskasing work center is the lead in administering the GCF.

There are a number of communities located within the management unit including Strickland, Fauquier, Moonbeam, Kapuskasing, Val Rita-Harty, Opasatika and Mattice. There are no Indigenous communities within the boundaries of the management unit. Flying Post First Nation reserve is adjacent to the management unit, but there are no members living on this reserve.

The following Indigenous and Métis Communities have traditional territories that are overlapping or adjacent to the GCF:

- Moose Cree First Nation
- Brunswick House First Nation
- Constance Lake First Nation
- Missanabie Cree First Nation
- Chapleau Cree First Nation
- Taykwa Tagamou Nation
- Matachewan First Nation
- Flying Post First Nation
- Mattagami First Nation
- Métis Nation of Ontario – Region 3

There are several companies that have commitments to harvest or utilize timber produced from the GCF. These companies include GreenFirst Forest Products (Kapuskasing Pulp and Paper and Sawmill complex), GreenFirst Forest Products (Hearst Sawmill, Cochrane Sawmill and Chapleau Sawmill), Lecours Lumber Co. Limited (Calstock), Columbia Forest Products–- Levesque Division (Hearst), White Cedar Products (Kapuskasing), Synco Timber Limited (Kapuskasing), Lachance Saw and Planner (Mattice-Val Coté) and Rockshield Engineered Wood Products ULC. (Cochrane). Synco Timber Limited and Lecours Lumber Company Limited are overlapping licence holders. The Sustainable Forestry Licensee (licence # 550039 as revised Jul 29, 2016) and primary user of wood fiber on the GCF is GreenFirst Forest Products.

The Kapuskasing Local Citizens Committee is the only LCC associated with the Forest with representation on the committee from many of the nearby communities.

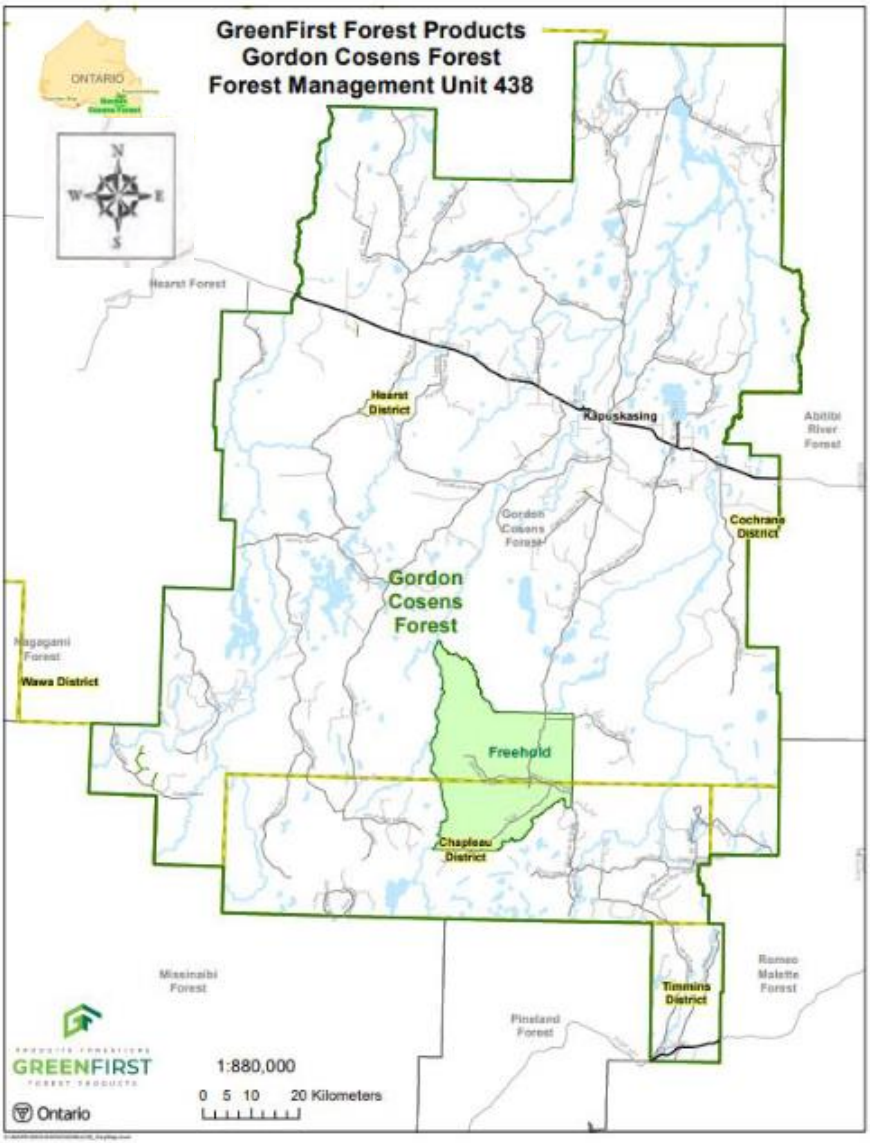

Figure 1 Gordon Cosens Forest Map

Credit: 2021/2022 Annual Report for Gordon Cosens Forest

The GCF is located north and south of Highway 11, the Canadian National Railway and the Ontario Northland Railway corridors which bisect the forest. Settlements have been established along Highway 11 since the early 1900s. The forest is located in the boreal forest region with a significant portion of the forest within the very fertile Great Clay Belt tract with finer soils and a shallow water table. The forest is very productive. The forest has reasonably good access and high public use.

The forest composition is mixed spruce, pine, and hardwood with almost half of the area classed as lowland.

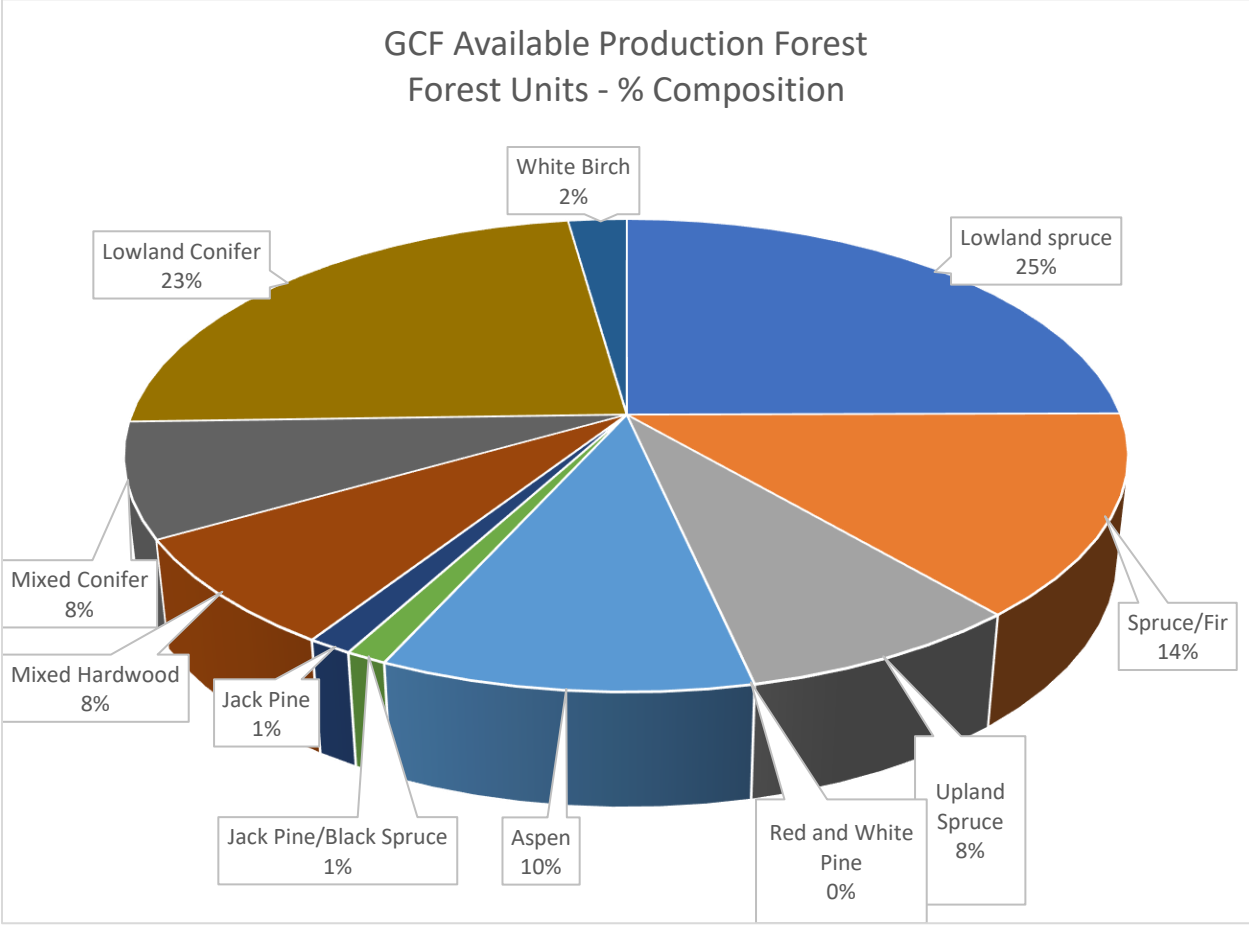

Figure 2 Forest units on the Gordon Cosens Forest

The GCF is currently a younger forest with more than 60% of the stands in the immature, sapling or presapling development stages. Figure 3 illustrates the age class distribution on the forest.

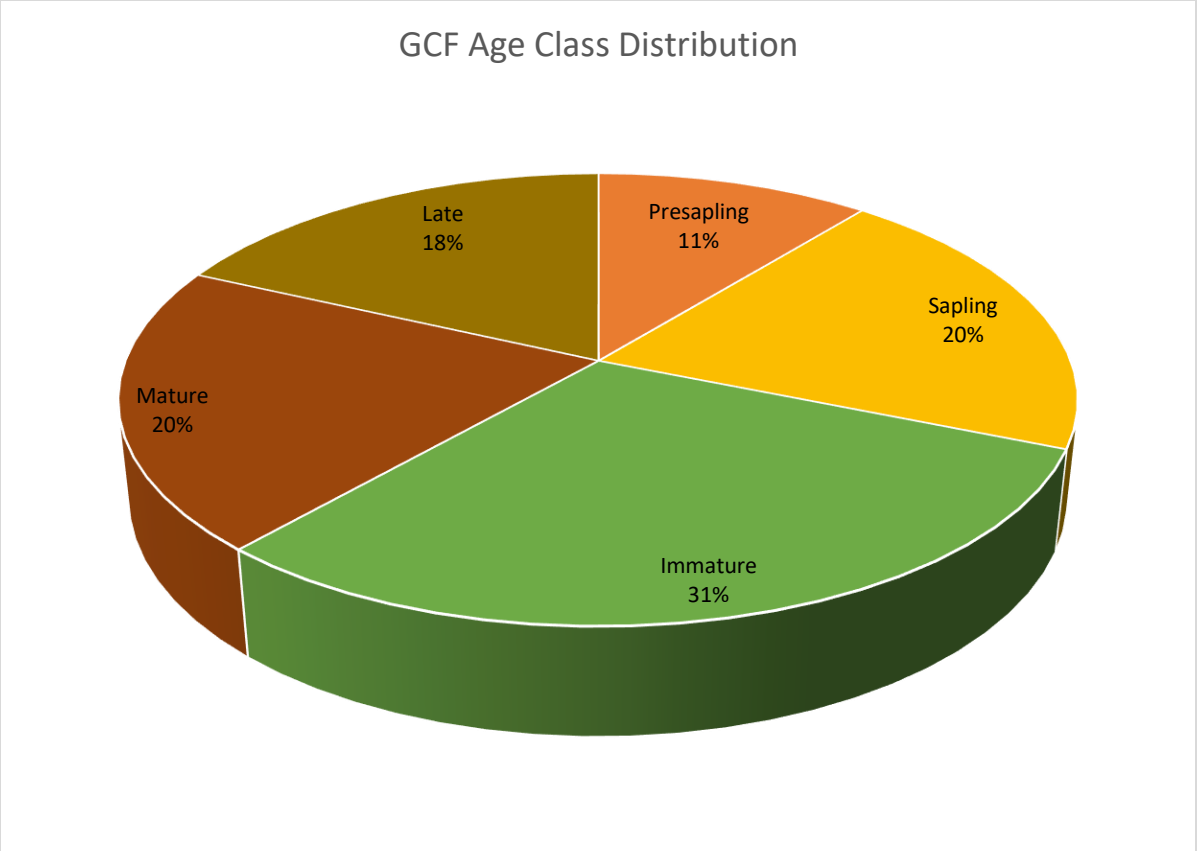

Figure 3 Age class distribution of stands on the Gordon Cosens Forest.

The forest is third party certified to Forest Stewardship Council©©(FSC©) National Forest Stewardship Standard of Canada.

4.0 Audit Findings

4.1 Commitment

The 2022 IFAPP commitment principle validates that an organization's commitment is reflected in the auditee's vision, mission, and policy statements and in their adherence to legislation and policies.

GreenFirst Forest Products (QC) Inc. met the 2022 IFAPP Commitment Principal criterion through its certification to Forest Stewardship Council's©(FSC©) National Forest Stewardship Standard of Canada.

The MNRF's commitment to sustainable forest management, as assessed though IFAPP, is demonstrated through the adherence to and implementation of Ontario's Forest management policy framework, consistent with the requirements of the CFSA. These policies are communicated to the resource users and the public through public consultation and engagement processes undertaken by MNRF. MNRF vision and mission statements are widely distributed on its websites https://www.ontario.ca/page/forestry and posting at its various District Offices. It is our assessment that MNRF met the requirements of the IFAPP commitment principle.

4.2 Public Consultation and First Nations and Métis Community Involvement and Consultation

The public consultation process for the plan and amendments met the requirements of the Forest Management Planning Manual (FMPM). Several opportunities for stakeholders to consult with MNRF were provided as per the FMPM and the public consultation records in the 2020-2030 FMP indicated an interest from a variety of community groups. A desired forest and benefits meeting with the Local Citizens' Committee provided a long list of forest values and support for economic and social opportunities.

The Indigenous and Métis communities were invited to participate in the forest management planning process for 2020-2030 FMP development. The level of participation varied by community. The desired forest and benefits meeting was attended by members of Brunswick House First Nation and Kapuskasing Cree. The results of the meeting centered on communication, trapping values, and herbicide reduction.

The 2010-2020 FMP and the 2020-2030 FMP development followed the public consultation process outlined in the FMPM in effect at the time.

The Kapuskasing LCC was given frequent plan development updates by the plan author and two LCC members were on the planning team. The issue resolution process, requests for individual environmental assessments, and public review of annual operations were identified as optional audit principles. Despite the numerous open houses and invitations to participate in the development of the 2020-2030 FMP, one Issue Resolution and two Individual Environmental Assessment (IEA) requests went forward to the Ministry of Environment, Conservation and

Parks (MECP). Concerns regarding herbicide applications and the development of a customized consultation approach were received. Both requests were denied without conditions on May 15, 2020. The MECP concluded that the FMP issue resolution process was not the appropriate avenue to change MNRF policy or guidelines regarding herbicide application. In addition, a request for a customized consultation approach was received in the last stage of plan development and could not be achieved through an IEA, but MECP encouraged ongoing communication regarding operations and the planning process. The auditors concluded the FMPM requirements to resolve public and Indigenous concerns were met. The SFL and the MNRF worked respectfully and diligently to address issues brought forward during the plan development.

Since the 2020-2030 FMP approval, annual consultation with the public and Indigenous communities follows the requirements in the 2020 FMPM. The LCC and MNRF staff commented that the SFL staff is approachable and pragmatic in solving conflicts with the public.

4.3 Forest Management Planning

The 2020-2030 FMP was prepared in accordance with the 2017 Forest Management Planning Manual (FMPM)[4], the 2017 Forest Information Manual (FIM)[5] and relevant policies and obligations. There were a few delays and changes in the schedule but that is not unusual given the magnitude of the project. The plan was not published until May 20, 2020 and operations were slightly delayed.

The risk assessment identified that the forest resource inventory provided for forest management planning was a possible cause of the plan delay. The 2016 Forest Resources Inventory (FRI) used for the development of the 2020-2030 GCF Management Plan was based on aerial imagery captured in 2007 and 2008, and delivered in November of 2016. The interpretation was completed over eight years by 3 different firms. The three different forest inventory firms each with a dozen or more interpreters resulted in increased levels of variability across the GCF FRI for certain attributes (species composition, age, stocking, etc.).

The FRI description was audited as an optional procedure identified in the risk assessment. The extensive application of 2-tier stands as part of the GCF FRI resulted in additional workload and delays during the development of forest units and FMP Planning Inventory. Although blending of 2-tier stands was strongly considered, ultimately the modeling and analysis task team decided not to proceed with this approach after much deliberation due to the negligible strategic implications it would have, according to separate analyses completed by the SFL and the MNRF

Finding #1 An accurate and current forest resource inventory was not delivered to the planning team.

[4] *OMNRF. March 2017. Forest Management Planning Manual, Toronto. Queen's Printer for Ontario. 462 pp*
[5] *OMNRF. March 2017. Forest Information Manual, Toronto. Queen's Printer for Ontario. 93 pp*

There were also issues with land ownership layers being shifted in unpredictable directions, and water layers not fitting with forest polygons. The Planning Team also identified additional potential Provincial Park areas that were not yet designated, still identified as Crown Forest available for harvesting.

The FMP included a description of fish and wildlife inventories, and other resource inventories and information. This was audited as an optional procedure. There are numerous species at risk (SAR) identified as being or having the potential to be present on the SFL. The plan provided a robust list of species and area of concern prescriptions for fish and wildlife including SAR. However, the location to apply the prescriptions were not validated with current information.

An interview with the SFL identified concerns with species at risk, and fish & wildlife inventories. The SFL indicated there is a lack of information regarding wildlife population habitat-use information for the last decade. As woodland caribou ranges span large areas of the managed forest and far north, the responsibility for monitoring does not lie with any one managed forest or district but with the government of Ontario. Ontario's current approach to protecting species at risk is through the General Habitat Description which defines critical habitat as high use areas that currently exhibit repeated use by Caribou, including Nursery Areas, Winter Use Areas and Travel Corridors. Nursery Areas are typically defined as lakes and wetland complexes dominated by fens and bogs interspersed with islands and peninsulas where female caribou were found during last parturition, gave birth and raised their calves. These areas are given the largest area of concern (AOC) with the highest protection. However, the evidence of actual use of these areas at the planning stage was sparse and dated.

The identification of values and their location prior to forest management planning is critical to ensure protection of these values. The question is whether the most current data provided to Planning Teams is sufficient to provide adequate protection for Caribou Nursery/Calving areas.

Finding #2
Current and accurate caribou habitat use data was not provided for the protection of critical habitat.

The local MNRF biologist has taken a pragmatic approach to the lack of current information. The water classification is a prime example. Local information of fish occurrence informs fisheries sensitivity awareness and triggers further screening in higher sensitive potential townships. MNRF has initiated a camera trap network to inform (AOC) prescription application with current caribou habitat use. The SFL has joined the effort by funding the purchase of some cameras also.

Best Management Practice #1
The MNRF District has taken a unique and pragmatic approach to gathering fish and wildlife values to inform AOC prescription application and inform plan strategies in the FMP. (Cold water identification and camera traps to validate caribou use areas) The initiative by the MNRF district and support by the SFL is noteworthy.

The plan followed the process in the FMPM (2017) to arrive at the long-term management direction (LTMD). A spatial model was used and forest unit definitions were modified to relate to the regional forest units. The LTMD was only 2 months behind schedule which is commendable considering the changed direction, new information and implementation of landscape direction. The development of the LTMD considered many trade offs and compromises.

The analysis package and supplemental documentation contain all the required components plus some local strategic documents such as the Pre-industrial Forest Condition Report, Integrated Pest Management Strategy, Slash Management Strategy, GCF Caribou Strategy and GCF Moose Habitat Strategy. The Northeast Region Creating Forest Operations Opportunities in Low Market Conditions Strategy once approved was amended into the plan in August 2020.

The planned harvest volume was only 80% of the LTMD. Lowland conifer and black spruce forest units were not fully allocated as many were not considered merchantable. Other planned harvest volume reduction contributing factors were listed as land base differences arising from the new eFRI, historical management activities, revised model inputs (yield, succession), policy implementation, and loss of land to alternate land use, forest management, and certification.

The allocation of harvest area (115,225 ha) was consistent with the approved model run with an exception for lowland conifer (LC1) and black spruce forest units (SB1) considered to have undersized wood. Contingency area of 6,639 hectares or less than one year's annual harvest area (AHA) was identified.

To allow continued operations from one plan to another Bridging blocks are identified. These areas are considered depleted in the previous plan. Bridging areas of 2,917 hectares or 94% of the FMPM allowance of 3-month harvest was identified and these were to be harvested by March 31, 2021. The 2020-21 Annual Report states 2,350 hectares (80.5%) of these bridging blocks were harvested. No second pass harvest areas were identified. While no salvage operations were identified in the plan, amendment #9 added 587 hectares of salvage in spruce budworm infested areas.

The area of concern prescriptions planning is complete in the FMP. The prescriptions follow the direction of the Forest Management Guide for Conserving Biodiversity at the of Stand and Site Scales (Stand and Site Guide)[6], the Forest Management Guide for Boreal Landscapes (Boreal Landscape Guide)[7], and values identified by the planning team or during public consultation. Silviculture ground rules, conditions on regular operations and conditions on roads, landings and forestry aggregate pits were developed. The prescriptions are certified by Registered Professional Foresters (R.P.F.s) with signatures on the 2020-2030 Forest Management Plan, Annual Work Schedules (AWS), and Annual Reports (ARs). No exceptions to forest management guides were identified.

Prescriptions were developed for remote based tourism concerns. There were 29 tourism operators identified as having an interest in the GCF, and 17 tourism operators participated in

[6] OMNR. 2010. Forest Management Guide for the Conservation of Biodiversity at the Stand and Site Scales. Toronto: Queen's Printer for Ontario. 211 pp.

[7] OMNR. March 2014. Forest Management Guide for Boreal Landscapes. Toronto: Queen's Printer for Ontario. 104 pp.

discussions. All were provided opportunities, through the Resource Stewardship Agreement process, to take part in the FMP development process but no agreements were developed.

Renewal, tending, protection and support were well documented in the FMP. Forest management on the GCF relies heavily on natural regeneration. Artificially regenerated sites receive limited mechanical site preparation. Mechanical site preparation in the past was witnessed to result in increase grass competition and/or frost heaving, especially in the Great Clay Belt. Chemical site preparation is used where sites are anticipated to have heavy competition. The tree planting is done promptly after harvest to take advantage of the delay in competition development. Most sites are planted to white or black spruce with a minor amount of jack pine being planted. Aerial seeding of black spruce is done on specific sites where additional seed is deemed advantageous. Access on the Great Clay Belt limits tree planting opportunities.

Slash management has been a long-standing issue on the forest. It was identified in the 2010 IFA as a finding. FMP modeling has factored in a 4.4% loss of productive land for roads and landings, which was generally believed to be accurate. Slash alignment has been conducted in several areas to create windrows of slash; however, much of the reclaimed areas are not planted due to potential of frost heaving and drying of the fine soils. The SFL continues to work towards reducing the impact of area occupied by slash on the forest. Studies are being conducted on the time it takes for slash to breakdown and regeneration of old slash piles, slash pile burning, and various mechanical slash techniques. There is an effort to find a market or use for more of the unmarketable fibre left on-site.

Aerial application of glyphosate is the prime tending treatment planned for the forest to keep the conifer species composition. The application is guided by a dated directive, Aerial Spraying for Forest Management (MNR, June 1991) or the MNRF/MOE Buffer Zone Guidelines for Aerial Application of Pesticides in Crown Forests of Ontario (per email from former MNRF Vegetation Management Specialist Michael Irvine, Dec 2, 2000). These guidelines are outdated and do not consider the improvements to aerial spraying equipment and techniques, refer to Finding 3 for more details.

GreenFirst is an active member of the Northeast Seed Management Association (NeSMA). NeSMA guides the management of the Edward Bonner Tree Improvement Centre (EBTIC) seed orchards and the production of improved seed for the forest. They are working with experts to identify opportunities to mitigate the effect of climate change on tree growth by anticipating future best genetic fit seed sources. The GCF has an abundant inventory of white and black spruce seed with some jack pine seed, a small amount of white pine seed but no red pine seed. The red pine and white pine seed shortage is a concern to the GCF and the SFL are seeking out supplies suitable for the renewal program.

The plan follows the FMPM requirements for road planning and documentation. Roads within the continuous caribou ranges are planned to be more temporal in nature which is consistent with the GCF caribou strategy developed for the plan.

The monitoring programs proposed in the FMP are consistent with past plans. Establishment surveys are all done using aerial reconnaissance. This is appropriate given the renewal standards and access limitations in some areas. The SFL compliance plan follows the requirements.

The 2016 IFA action plan updates are summarized in the ARs as required. The 2016 IFA findings are referenced as a source for management considerations in FMP text section 3.2. The results of the FTG assessments and SEM data informed the modeling post renewal responses. The IFA action plan as reported in the ARs are being implemented.

During the audit scope 24 amendments were made. Six in scope amendments to the 2010-2020 FMP and 18 amendments to the 2020-2030 FMP. Most of the 2020-2030 FMP amendments were cleanup items from the final review of the plan and were classified as administrative. Six included updates, application, or corrections to AOCs. Amendment 4 and amendment 9 to the 2020- 2030 FMP were classified as minor. Amendment 4 added harvest area and changed access routes. Amendment 9 substituted harvest areas affected by spruce budworm for other planned harvest areas of the same forest unit thereby mitigating the impact of the infestation.

The Annual Work Schedules (AWS) were consistent with the applicable FMP and requirements of the FMPM and FIM. Forest operations prescriptions were certified through the certification of the AWS by foresters registered and in good standing with the Ontario Professional Foresters Association (OPFA) up until the implementation of the 2020 Forest Management Planning Manual where certification is not required. The 2020-21 AWS was slightly delayed due to the delay in plan approval. This delay of the FMP had only minor impacts on operations in the spring of 2020. No harvesting operations typically occur during April and May as harvesting on the GCF typically starts in July. The tree plant and road construction activities started a week or so later than normal in 2020 to coincide with FMP implementation.

4.4 Plan Assessment and Implementation

Field verification indicated that the forest description of geology, soils, sites and forest condition is accurate. The forest unit species definitions are broad and forest units are defined by surface drainage. The FRI updates appear to be accurate. The FRI stand descriptions were modified with local knowledge to make the descriptions usable in the FMP. Local knowledge was used to modify fisheries values. Annually, wildlife inventories are supplemented with reconnaissance of areas to be harvested to identify nest values and wildlife values found during operations or block layout. The silviculture ground rules (SGRs) are consistent with the assumptions in the FMP and are suitable for the sites witnessed in the field audit. Localized information used in the development of the FMP seems reasonable.

Area of Concern (AOC) Management: Overall, the prescriptions that were implemented and results of the operations were consistent with the location and operational prescription for the AOC in the FMP, AWS and the actual site conditions. AOC prescriptions were implemented well and appear to be effective. There was only one AOC violation during the audit period, which consisted of the harvesting within two Growth and Yield research plot AOCs in a harvest block.

Harvest and Slash Management: Harvest operations were generally conducted in compliance with all laws and regulations including the CFSA and approved activities of the FMP including SGRs, AWS and FOPs. The majority of the harvesting is done by GreenFirst with only a minor amount being done by 2 overlapping licencees.

Year	Actual Volume	Planned Volume	Percent of Planned Volume	Regular Area	Bridging area	Planned area	Percent of Planned Area
2021	646,593	1,261,148		6,806		11,523	
2020	587,460	1,261,148		4,259	2,350	11,523	
2020 FMP	**1,234,053**	**2,522,297**	**49%**	**11,065**	**2,350**	**23,045**	**58%**
2019	749,057	802,716		7,870		10,335	
2018	527,087	802,716		5,630		10,335	
2017	850,087	802,716		10,815		10,335	
2016	505,208	802,716		5,436		10,335	
2010 FMP	**2,631,439**	**3,210,864**	**82%**	**29,751**		**41,340**	**72%**

Figure 4 Planned harvest area and volume compared to Actual volume and area harvested.

Harvest levels were lower than planned for a number of market related reasons. The lack of a market for non-veneer quality hardwood was the main contributor. For the 2020 -2030 FMP, the volume per hectare planned was 109 m3/ha. where the actual yield was 92 m3/ha. This can be attributed to the sites harvested and the merchantable non-marketable hardwood remaining on site after harvest.

The FMPM allows for ongoing harvest of approved areas from one plan to another. These areas must be identified in the plan and harvested within a defined time. In the 2020-2030 FMP, 2,917 ha. were identified for bridging with harvest being only allowed in the first year of the FMP. GreenFirst harvested 2,350 ha. (80.5%) during that period. Second pass harvest operations for hardwood veneer are typically completed within a year of the first pass harvest for conifer.

Auditors observed numerous areas where there was loss of productive land due to untreated hardwood slash. During the audit term, GreenFirst treated on average over 2,100 ha. per year which exceeded the target of 1800 ha. per year. The amount of slash is more than anticipated due to aspen merchandising for veneer. Typically, conifer is harvested first then the veneer quality hardwood is harvested. The conifer slash is aligned or windrowed before the hardwood is harvested. This amount of loss of productive land is consistent with the 4.4% in roads and slash accounted for in the FMP modeling. During discussions GreenFirst indicated they were conducting slash alignment effectiveness monitoring to continuously improve the effectiveness of slash treatment.

The SFL indicated that in the past, slash was piled and burnt. The SFL slash pile burning was completed by SFL staff using the SFL's own helicopter, making it cost-effective and resulting in an acceptable outcome. The program was later discontinued by the SFL when the treatment became cost-prohibitive and the restrictions on the program significantly impacted the treatment outcome. The SFL feels that MNRF Fire Management have set slash burning requirements (i.e., indices, timing) are too high to allow for cost effective burning. No slash pile burns have occurred for several years on the GCF.

Site Preparation: The prime site preparation technique employed was aerial chemical site preparation using glyphosate. It was very effective in knocking back competition on areas intended for tree planting. A minor amount of mechanical shear blade site preparation was observed on the field audit. This mechanical site preparation aligned slash to increase area to plant.

Renewal: The audit field sample of renewed areas revealed that the operations are consistent with the SGRs in the applicable FMP. The plantations were well-stocked and the natural regeneration was developing as planned.

Year	Actual Planted (ha)	Planned Planting (ha)	Actual Seeded (ha)	Planned Seeding (ha)	Actual Natural Regeneration (ha)	Planned Natural Regeneration (ha)
2021	2,111	2,500	148	250	7,971	6,866
2020	2,091	2,500	0	250	6,503	6,866
2020 FMP Total	**4,202**	**5,000**	**148**	**500**	**14,474**	**13,732**
2019	1,796	2,250	0	500	6,547	7,585
2018	1,811	2,250	252	500	2,681	7,585
2017	2,229	2,250	0	500	17,171	7,585
2016	2,181	2,250	708	500	172	7,585
2010 FMP Total	**8,017**	**9,000**	**960**	**2,000**	**26,571**	**30,340**

Figure 5 Renew–l Summary 2016 - 2021

The 2016 IFA identified a concern with plantation failure or poor survival of planted seedlings. The SFL responded with a comprehensive monitoring and treatment program. GreenFirst initiated a survey of all areas planted between 2012 and 2016. All areas with poor stocking were replanted and a cause of poor stocking was identified. The ground survey using a systematic georeferenced grid in addition to periodic post planting checks continues to be used to ensure areas planted are surviving. This has helped the SFL refine treatments on difficult sites and ensure the renewal investment is protected. This is not a regulated survey and is considered a best management practice.

Best Management Practice #2

The SFL has developed an effective monitoring system to ensure planted sites are fully stocked and well-tended. These are not regulated surveys and continuing to carry out the surveys exhibits a dedication over and above normal practice.

Renewal Monitoring: Renewal monitoring is done using aerial ocular assessment. All areas are monitored 11 years after harvest. From 2016 – 2021 (6 years), 48,552 hectares were surveyed. These surveys would have included the 49,404 hectares harvested from 2005 – 2010. This corresponds to a survey rate of 98% providing many of the areas are not surveyed twice. Considering 4.4% of harvested areas are modeled to be land out of production for roads, landings and aggregate pits, the monitoring appears to be on target.

Renewal Support: Renewal support activities (tree seed collection, nursery stock production, tree improvement activities) are conducted in compliance with all laws and regulations. Seed source was tracked by SFL and records are maintained. Current knowledge of seed supply is evident. The Edward Bonner Tree Improvement Center is the site of the tree improvement program managed day to day by the Northeastern Seed Management Association (NeSMA).

GreenFirst is an active member of NeSMA and new orchards are being established to replace old orchards. Spruce and jack pine seed supply is sufficient for activities.

Seedling supply and quality have been problems in the past. Nurseries have had production issues and have delivered seedlings that do not meet standards. GreenFirst is working with the local nursery and the main supply nursery to grow seedlings that would be able to withstand competitive sites with less reliance on tending. GreenFirst is also involved in research into mycorrhizal inoculated seedlings for increased growth, survival and as a way to reduce the need for tending.

Tending: Through field observations and a review of documentation, the auditors concluded that the tending and protection operations were conducted in compliance with all laws and regulations including the CFSA. The application of herbicide is an approved activity in the FMP and was documented in the Annual Work Schedule (AWS) and Forest Operations Prescriptions (FOP). GreenFirst completed internal Efficacy Reports of all the tended areas during the audit period.

Almost all artificially regenerated sites appear to receive an aerial chemical tending treatment. From 2016 to 2021, 13,327 hectares were artificially regenerated by planting or seeding and in the same period 19,409 hectares were tended with an aerial application of herbicide. While the treatments appeared to be very effective, there are areas within the blocks that are missed due to aerial spray buffer widths. There were examples seen where harvest AOC reserves were less than the applied herbicide buffers (60m, 120m) allowing competing species to impact the renewal efforts applied (Block G055). The excessive herbicide buffers will affect the ability of the site to achieve the intended SGR.

The applications follow guidelines for buffer widths from Aerial Spraying for Forest Management (MNR, June 1991)[8] and the Ontario Ministry of Environment and Energy Buffer Zone Guidelines for Aerial Application of Pesticides in Crown Forests of Ontario[9] (February 1992) The buffer widths have not been reviewed even with advances in the application of herbicides including application using helicopters, nozzle and drop size refinement, and Ag Nav navigation. The buffers exceed those used in other provincial jurisdictions[10]

[8] OMNR. June 1991. Aerial Spraying for Forest Management, Toronto. Queen's Printer for Ontario. 307pp

[9] OMEE. February 1992. Buffer Zone Guidelines for Aerial Application of Pesticides in Crown Forests of Ontario, Toronto

[10] Thompson, D.G.; D.G. Pitt. 2011. Frequently Asked Questions (FAQs) On the Use of Herbicides in Canadian Forestry. Canadian Forest Service, Great Lakes Forestry Centre, Sault Ste. Marie, Ontario. Technical Note No.112 7 p.

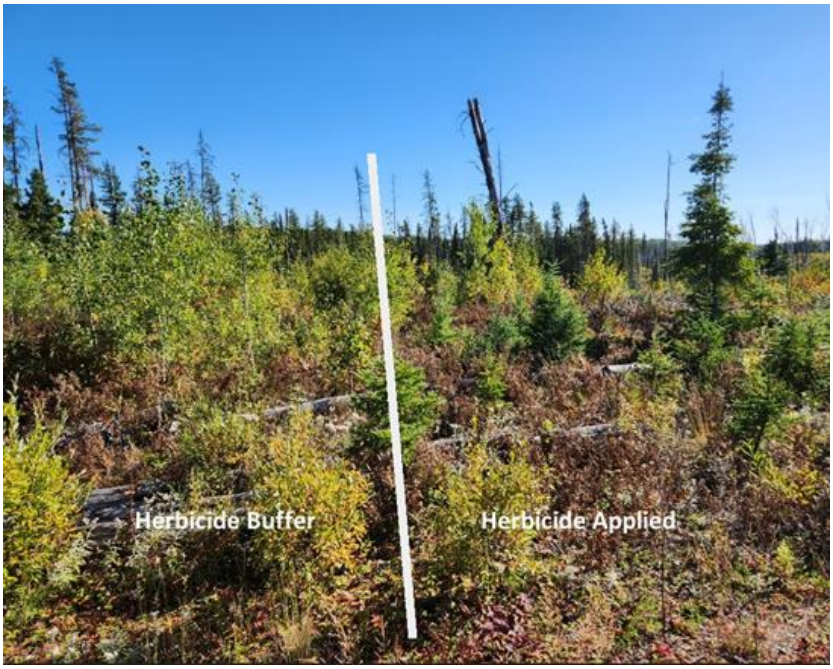

Figure 6 An example of a herbicide buffer preventing full treatment of a renewed area.

While the aerial tending buffers could be treated with a ground herbicide applications or manual brush saw it would very costly and, in the case of manual brush saw, not as effective. The main challenge to revisiting the herbicide guideline may be public pressure to reduce herbicide use, but it will also be an opportunity to review the treatment and confirm that it is a viable tool.

Finding # 3
The guidelines for the application of aerial herbicides in forestry in Ontario are outdated.

Protection: Insect infestations have had an impact on the forest. The present spruce budworm outbreak was first reported in 2017. The current moderate to severe infestation was reported as affecting 115,393 hectares in 2019, 118,630 hectares in 2020, and 123,432 hectares in 2021. The majority of the damage is in the south eastern and south-central portions of the forest. The MNRF initiated a *Bacillus thuringiensis* (*Bt)* spray program in 2021 to protect spruce and prevent high mortality. The province sprayed 10,966 hectares in 2021 and 17,733 hectares in 2022. The SFL is involved in a working group to address and target spray areas.

Other insects that have had a presence on the forest are the forest tent caterpillar, aspen tortrix, ink spot on aspen and Septoria leaf spot.

Abiotic events have not had a significant impact on the forest. Wind events blew down 53 hectares of forest between 2016 and 2021 and the only forest fires reported consumed 3.1 hectares in 2019.

Access Management: The field audit included sampling of road construction and decommissioning, water crossing installations, road maintenance and forestry aggregate pits. Sampling revealed one forestry aggregate pit that had a minor issue related to safety as a small portion of the protective berm had eroded. Overall, the forestry aggregate pits sampled were,

operated in compliance with attention to sloping, removing trees with 5 meters of excavation and no excavation within 15 meters of the roadway.

Road maintenance was well done as was crossing installations. The bridges examined were generally in compliance, however, there was a minor amount of debris on the bridges that could have been cleared off. One bridge did not have all the signage that was required.

Figure 7. An example of a bridge without proper signage and showing minor erosion.

4.5 Systems Support

GreenFirst met the 2022 IFAPP Human Resources and Information Management requirements through its FSC certification.

Interviews with field staff of the MNRF indicated that essential field training is not happening as it was previously. A follow up interview with the Program Development Services Section of MNRF indicated that the MNRF have emerged from the pandemic paralysis. In 2022 some virtual training has resumed with more face to face and infield training planned.

The auditors noted an abundance of job vacancy and personnel in acting assignments throughout the northeast region.

4.6 Monitoring

Compliance Monitoring: The 2020-2030 FMP contained a 10-year Compliance Plan as required by the FMPM and in accordance with the Forest Compliance Handbook[11].

The risk assessment identified that compliance monitoring by both the SFL and MNRF might be an area to examine closely. This was based on the 2016 IFA findings.

[11] *OMNR. 2014. Forest Compliance Handbook, Toronto. 222pp*

The MNRF Annual Compliance Operations Plan (ACOP) and the Forest Operations Information Program (FOIP) reports submitted were reviewed in relation to the standards. During the first 4 years of the audit period the MNRF prepared Annual Compliance Operation Plans (ACOP) and met their forestry inspection targets. However, in 2020/21 the MNRF did not set targets for "inspect every pit identified in the previous year having reached the end of its' 10-year lifespan", which should have been nine according to GCF 2019-20 AWS and no inspections took place. In addition, it appears that in 2021/22 and 2022/23 no ACOP was completed and only two inspections were completed on forestry operations on the GCF. This shortcoming was also identified in the 2016 IFA and an action plan was developed. It appears to be an ongoing challenge.

Finding # 4
The District Ministry of Natural Resources and Forestry did not complete a compliance monitoring program in accordance with Ministry of Natural Resources and Forestry manuals, policies and procedures.

FMP Compliance Plan and Annual Compliance Plans and FOIP reports submitted by the SFL were reviewed. Annual Compliance Plans were relevant and addressed issues that had come up during the previous year. However, in five out of the seven years of the IFA no Renewal or Maintenance FOIP reports were submitted although these activities were occurring. In addition, two of the water crossings that the IFA audit team inspected did not have FOIP reports submitted.

There are two levels of inspections as per the Crown Land Bridge Guidelines[12]. The first level of inspection is undertaken by a competent person, who may identify any deficiencies to an engineer who will then decide if a more detailed second level inspections is required. GreenFirst has an extensive review checklist for the first level inspection of bridges, however, it is unclear how the inspector is able to identify changes from previous inspections. Currently, pictures of deficiencies are taken to allow for future monitoring; however, the initial determination of change, i.e. stringer shifting or crib movement, is difficult to identify without prior photos.

A sample of water crossing inspections revealed some steeper than normal angles; however, erosion controls and bank stabilization work appears to be effective. The SFL is not consistently submitting FOIP reports for renewal and maintenance activities and the bridge inspection reports when submitted do not consistently include enough information to identify issues when the bridge is next inspected.

Finding #5
The Sustainable Forest Licensee's Annual Compliance Plan has not been implemented to consistently assess the compliance of water crossing installations, silviculture activities and aerial tending with the FMP, AWS, and related legislation.

Regeneration Monitoring:

[12] *OMNR. February 2008. Crown Land Bridge Management Guidelines, Toronto. 38pp*

An assessment of the silviculture standards and assessment program was done. Analyzing the silviculture practices against the modeled silviculture is complex. FMPs do not explicitly state the silviculture intent from the forest estate models nor do they have explicit targets in the plan to hold SFLs accountable.

Regeneration monitoring was done and reported most years. A tragic helicopter crash in 2012 halted the collection of information for a couple of seasons. GreenFirst is now current with monitoring. The assessment methodology in the FMP is documented as aerial ocular at 11 years post treatment or harvest for natural regeneration. The audit field assessment of reported monitoring results agrees with the information reported.

Stand performance measures have not yet been established by the MNRF therefore they were not included in the SGR table. The plan text indicates that when the standards have been established, they will be amended into the plan documentation.

The 2016 IFA identified a finding that the MNRF and the SFL did not have consistent renewal monitoring results. Actions were completed to compare results each year. The MNRF ground evaluation was used to calibrate the SFL aerial surveys.

Silviculture Effectiveness Monitoring (SEM) by the District MNRF was not completed for the 2020, 2021 and 2022 field seasons due to COVID and lack of manpower. However, prior to 2020, good effort was shown in completing SEM in 2016, 2017, 2018, and 2019. Survey results are well summarized.

The 2016 IFA contained 2 findings in relation to renewal monitoring. The findings dealt with the differences in the field sampling protocol and data compilation between the SFL and MNRF. The differing processes led to very different results. The assessment of action plan implementation in the 2019/20 Annual Report did not quite satisfy the finding. It is not clear from the summary if the MNRF reviewed its field sampling protocol or data compilation procedures to provide more consistent and comparable results. However there has been an annual sharing of data and comparison of the assessment results. The results of the renewal monitoring by both the MNRF and the SFL were used in the development of the post - renewal succession rule set for the 2020-2030 FMP.

4.7 Achievement of Management Objectives & Forest Sustainability

The audit team's assessment of the achievement of the 2010-2020 FMP objectives and indicators along with the 2020-2030 FMP objectives that were assessed in FMP development is summarized in Appendix 2. Many of the objectives are measured and evaluated during the development of the plan and following the plan to ensure achievement. Other objectives are measured as the plan is implemented. The progress to achieving FMP objectives has been formally reported in the 5-year and 10-year Annual Reports. All enhanced annual reports were submitted with all the required elements on time and were reviewed by the MNRF District. The tables and text include an analysis of renewal and tending activities conducted during the plan term. A discussion of the operations to date included expenditures, silvicultural effectiveness, silviculture success (desired forest unit) and regeneration success (another forest unit)) and harvest/regeneration trends. The assessment includes justification where variance occurs. The

analysis and conclusions are logical, based on field evidence, records of information, models and analyses. Only objective C4 was not assessed. There is evidence that the analysis and conclusions were carried forward into the 2020-2030 FMP based on the use of the post renewal forest succession table and adjustments to the silviculture program including reduced mechanical site preparation, reduced seeding, and refinement of chemical tending.

FMPM 2009 and FMPM 2017 requirements were included in the objective tables of both the 2010-2020 FMP and 2020-2030 FMP, respectively.

Objectives that are consistent from plan to plan should be measured consistently or an explanation should be included that provides a transition. Some objectives were maintained but measured differently. For example, road density in the continuous caribou ranges was calculated differently between the 2010-2020 and 2020-2030 FMPs. The road density in the 2010-2020 FMP included primary, branch and operational roads whereas the 2020-2030 FMP only primary and branch roads were included in the calculation. The denominator or area of square kilometers is incorrect in the 2020-2030 FMP (642 km2) but correct in the 2010-2020 FMP (6408 km2). The change in definition of a road will make the plan-to-plan comparisons difficult but the goal of reducing roads is clear.

The first few years of the 2020-2030 FMP as reported in the 2020/21 Annual Report and 2021/22 Annual Report and described for 2022/23 activities are mostly on track for objective achievement. The objectives to increase red and white pine forest units, reduce road density and the target renewal success rate are a few objectives that are of concern.

Objective 2.7 aims to increase the area of red and white pine forest unit towards the preindustrial condition levels and remain above the1995 level. The target is to plant 34 hectares (approx. 60,000 seedlings) of red and white pine forest (PRW) unit restoration per 10-year period. Currently, there is insufficient seed in the seed inventory to produce seedlings for the achievement of this goal. To date 500 red pine seedlings were planted. The SFL has made an effort to obtain red and white pine seed from within their organization and within the Northeast Seed Management Association. Without seed or seedlings in production the earliest that a crop of seedling could be planted would be 2025.

Objective 7.1: Kilometers of all-season (drivable) road per square kilometer of Crown Forest

To provide the levels of access to adequately carry out forest operations on the GCF (maintain +-2% of plan start levels) 1.85 km/km² (based on 2,743 km of all-season roads across 1,482 km2)

- Annual Report for 2020/21 reported no roads decommissioned yet 14 km Primary and 67 km Branch were constructed,
- Annual Report for 2021/22 reported no roads decommissioned yet 210 km Primary and Branch were constructed.

For the first 2 years of the plan, 291 km were added which would exceed the objective however road decommissioning may be naturally occurring and not being reported. The objective can be attained by the end of the plan but requires continued monitoring and reporting. A correction to the formula is needed as the forest is 1,481,836 hectares of production forest which is 14,818 square km. FMP-18 indicated 2624.6 km of primary and branch roads but no indication of drivable roads or how it is calculated. The assessment method should be documented.

Objective 8.1: Percent of harvested forest area assessed as free-growing

A target of >90% of the area assessed declared as free growing (established)

- 2020/21 Annual Report summarized that 67% of surveyed areas were established
- 2021/22 Annual Report summarized that 86% of surveyed areas were established

Objective 8.3: Planned and actual percent of harvested area successfully regenerated to the projected forest unit, would not be achieved either as the target is 80% established to target forest unit. The SFL interview provided some explanation as some of the areas assessed as not yet reaching the regeneration standard are lowland areas that require more time to reach the standard height. Such areas will be surveyed again during the time frame of the plan.

In conclusion, the common objectives from plan to plan have remained consistent where possible. FMPM targets have been adjusted given a change in forest unit definition and objectives added for caribou habitat. The assessment of objectives from the 2010-2020 FMP in AR 10 did not have a clear definitive statement of 'Achieved', 'Partially Achieved', 'Not achieved but does not impact sustainability'. The Annual Report text did provide a statement of whether the objective should change or remain the same for the next forest management plan.

Progress toward the 2020-2030 FMP objective achievement is mostly on track with three exceptions:

- Red pine & white pine planting in the 2020-2030 FMP
- Road access targets
- Establishment success is lower than anticipated

Finding #6
For the current 2020-2030 Gordon Cosens Forest Management Plan, progress towards achieving management objectives 2.7, 7.1, 8.1, and 8.3 are not on track.

The determination of sustainability for the 10-year Annual Report was well written. Most of the 2016 IFA actions pertaining to the SFL and local MNRF have been actioned and the coordination of renewal monitoring information has informed the 2020-2030 FMP inputs.

The SFL/MNRF have submitted all the required information as required by the FMPM. The year 10 AR has demonstrated that the 2010-2020 FMP was followed. The conclusions in the AR are reasonable.

Objective achievement documented in the 2020-2030 FMP demonstrated that most objectives and indicators are projected to be maintained within desired level, have movement towards, are overachieving (above desired levels), or have rationale for not reaching the desired levels. There are a few objectives that are to be met during the implementation of the plan that will require action to achieve the desired level. Overall assessments made by the audit team are consistent with the assessments made by the planning team.

Despite some findings and based on document reviews, field observations, and interviews the audit team concludes that overall forest sustainability as assessed by IFAPP is not at risk.

4.8 Contractual Obligations

The audit team conclude that GreenFirst Forest Products is substantially in compliance with the terms and conditions of the SFL and their contractual agreements (Appendix 3).

The Renewal Trust Fund (FRT) has been maintained above the minimum balance, Forestry Futures Trust (FFT) dues are paid and the stumpage fees are not overdue for the SFL; only one small operator has a slight balance outstanding. The FRT balance has met required levels at March 31 of each year.

Through a review of Wood Supply Commitments, Annual Report of Wood Utilization and communication with Wood Supply Commitment Holders the auditors conclude that the SFL holder is upholding its Wood Supply Commitments. Lecours Lumber Co. Ltd. and Synco Timber Limited were issued overlapping licencees. GreenFirst is actively seeking markets for species without current markets.

The SFL demonstrates a thorough knowledge of the land base and stakeholders. They perform all the required surveys and have implemented a plantation monitoring system over and above the required monitoring. This has led to identification of crop failure and refill at a very early stage.

The SFL is an active participant in the MNRF local spruce budworm program when planning spray locations. They have submitted an amendment for accelerated harvest to recover and contain budworm spread. The SFL and MNRF are monitoring forest insect, disease and forest fire damage.

All action plans are in place and show significant progress. The progress on actions has been submitted with the annual reports as required.

The specified procedures review identified a few issues but nothing significant. The field audit included a robust sample of 2021/22 invoiced sites. The field audit confirmed that the areas were treated in accordance with the invoices.

A review of all of the annual Forest Renewal Charge Analysis during the audit period concluded that the analyses were reasonable and all approved by the MNRF on an annual basis.

The aerial reconnaissance confirmed the assessment by the SFL of renewal success and failures. Additionally, no issues were found in the field on the ground with the assessment results.

The SFL works well with Indigenous and Métis communities that are willing to engage on forest management and operations issues. They are providing substantial opportunities to a local First Nation contractor through harvest contracts, road construction and maintenance contracts, log unloading contracts as well as making available volumes of cedar, birch, larch and oversized SPF on an ongoing basis. The SFL has regular meetings with Indigenous representatives as part of Ontario's Customized Consultation Agreement (CCA) as well as their FSC requirements. They have developed long term relationships with the local engaged Indigenous and Métis communities.

4.9 Concluding Statement

There have been a few factors that have complicated the implementation of forest management during the scope of the audit. The COVID pandemic from 2019-2022 and the changing forest product markets are a few of the more notable elements.

The COVID pandemic MNRF protocols restricted travel into the field, limited training opportunities and disrupted projects. Many seasoned professionals chose to retire during this tumultuous time.

Responsibility for the forest inventory shifted from the forest industry to the Crown in 2005 with the goal of having an inventory update cycle of every 10 years. This turned out to be too ambitious and led to large amount of imagery being acquired with not enough capacity to interpret it. The production of the GCF 2020-2030 FMP was affected by a late and complicated inventory.

The forest products markets are cyclical. The 2006 closure of hardwood processing facilities in the north east has led to an under utilization of hardwood. A regional utilization strategy was updated in 2020 to consider strategies to limit the long-term impact of partial stand utilization.

The SFL holder GreenFirst Forest Products and the MNRF work well together. They are focused on common goals and listen to the input of stakeholders and Indigenous Peoples.

Overall, the audit team concludes that management of the GCF was in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by GreenFirst Forest Products (QC) Inc. under Sustainable Forest Licence # 550039. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

Appendix 1

Findings and Best Practices

Independent Forest Audit – Record of Finding

Finding # 1

Principle 3: Forest Management Planning
Audit Criterion 3.3.2: Forest Resource Inventory for the Forest Management Plan (Planning Inventory/Planning Composite Inventory)
Procedure(s): To review the appropriateness of the forest resource inventory used in the 2020-2030 Forest Management Plan management unit description and how it was used in plan preparation.

Background Information and Summary of Evidence:

The 2016 Forest Resources Inventory used for the development of the 2020 Gordon Cosens Forest Management Plan was based on aerial imagery captured in 2007 & 2008, interpreted by 3 different firms. Although polygons seem to be fairly accurate, having three different forest inventory firms complete the GFC forest resources inventory interpretation, each with a dozen or more interpreters resulted in increased levels of variability across the Gordon Cosens Forest for certain attributes (species composition, age, stocking, etc.).

Although not part of the forest resource inventory, there were also issues with land ownership layers being shifted in unpredictable directions, and water layers not fitting with forest polygons. The Planning Team identified additional potential Provincial Park areas that were not yet designated, still identified as Crown Forest available for harvesting.

The interpretation of 2-tier stands as part of the GFC forest resource inventory resulted in complication and additional workload and delays during the development of forest units The interpretation of the information created difficulty in validation and causing further delays in preparing the Forest Management Plan Planning Inventory.

<u>Data:</u>

- 110 records where the over-story was younger than the under-story
- 268 records where the over-story height was less than 3m taller than the under-story
- The Forest Management Plan Checker flagged errors that were not really errors (Planning Team Minutes #2, #3, Analysis Package pg. 12)
- Checkpoint #1 (Planning Inventory) endorsed Dec 15, 2017
- Checkpoint #2 (Current Forest Conditions) endorsed May 4, 2018
- Checkpoint #3 (Base Model Inventory) endorsed Oct 15, 2018
- Checkpoint #4 (Management Objectives) endorsed Feb 12, 2019
- Checkpoint #5 Long Term Management Direction endorsed Feb 12, 2019
    - Production Schedule (Planning Team minutes #2) indicated Checkpoint #1 to be completed in October 2017 with Checkpoint #5 completed by August 2018; identifying a 2–6-month delay in achieving checkpoints.

Discussion and Conclusion:
The forest resource inventory attributes provided with the 2016 inventory caused additional workloads in determining appropriate forest units, and with validation; both impacting the Forest Management Plan development schedule and costs in obtaining appropriate Checkpoints.

Finding #1:
An accurate and current forest resource inventory was not delivered to the planning team.

Independent Forest Audit – Record of Finding

Finding # 2

Principle 3: Forest Management Planning
Audit Criterion 3.3.4: Forest management plan description of fish and wildlife inventories, and other resource inventories and information
Procedure(s): The management unit description must include descriptions of fish and wildlife inventories, and other resource inventories and information that will contribute to the update of values information and the development of management objectives for the forest.

Background Information and Summary of Evidence:

There has been a lot of work conducted related to Caribou range management and development of the dynamic caribou habitat schedule however, there was little direction given to the Planning Team regarding the identification of geographic areas to apply area of concerns prescriptions for Caribou point values (e.g., calving, nursery areas). Limited data from the latest collaring, which was over a decade ago, was used to estimates the location of values. The location of these values require validation to justify the area of concern prescription.

As a result, the Ministry of Natural Resources and Forestry, District (Kapuskasing Work Centre) and GreenFirst have embarked on a best management practice of using camera traps in areas of identified caribou habitat to determine calving and nursery sites (i.e., observations between May 1 to September 15).

Discussion and Conclusion:

Ontario's current approach through the General Habitat Description defines Category 1 – Red habitat as high use areas that currently exhibit repeated use by Caribou, including nursery areas, winter use areas and travel corridors. Where nursery areas are defined, they are as typically lakes and wetland complexes dominated by fens and bogs interspersed with islands and peninsulas where female caribou are found during last parturition, gave birth and raised their calves. The evidence of use of these areas was sparse and dated.

The identification of values and their location prior to forest management planning is critical to ensure protection of these values. The most current data needs to be provided to Planning Teams sufficient to provide adequate protection for caribou nursery and calving areas.

Finding #2:
Current and accurate caribou habitat use data was not provided for the protection of critical habitat.

Independent Forest Audit – Record of Finding

Finding # 3

Principle 3: Forest Management Planning
Audit Criterion 3.5.8: FMP renewal, tending, protection and renewal support
Procedure(s): Consider the Forest Management Planning Manual direction and Forest Management Plan documentation related to comparison of proposed operations to the management strategy.

Background Information and Summary of Evidence:

There were examples in the field where spray buffers impeded the tending treatment leaving large areas not tended and with no likelihood of reaching a projected Silviculture Ground Rule. The cause is the harvest area of concern reserves were 30 meters from a water feature while the applied herbicide buffers were much larger (60m-120m). This will result in a strip where competing species will impact the renewal efforts applied and expected.

Harvest Block G055

Discussion and Conclusion:

The advancements in herbicides such as the application with helicopters, AG-Nav navigation, Accuflow nozzles, increased droplet size, and more recent research conducted on spray drift and the movement of contaminated soil particles should be considered in updates to the Aerial Spraying for Forest Management (MNR, June 1991) or the MNRF/MOE Buffer Zone Guidelines for Aerial Application of Pesticides in Crown Forests of Ontario.

It should be noted, there are other common ways to protect renewal efforts in the larger aerial spray buffer by applying other types of ground-based vegetation management treatment to the unsprayed area; such as, ground-based spraying (e.g., backpack) or the use of brush saws but the operations are cost prohibitive.

It is recognized that updates to these guidelines may be challenging in terms of public perception

given the increasing opposition and public scrutiny of aerial spraying. However, the review of guidelines may also support the education of the public and demonstrate the support of aerial spraying as a treatment.

Finding # 3:
The guidelines for the application of aerial herbicides in forestry in Ontario are outdated.

Independent Forest Audit – Record of Finding

Finding # 4

Principle 6:
Audit Criterion 6.1: District compliance planning and associated monitoring
Procedure(s): To review and assess whether a Ministry of Natural Resources and Forestry compliance program has been developed and implemented to effectively monitor program compliance in accordance with Ministry of Natural Resources and Forestry manuals, policies and procedures**.**

Background Information and Summary of Evidence:

The Ministry of Natural Resources and Forestry District Annual Compliance Operations Plan and the Forest Operations Information Program reports submitted were reviewed in relation to the standards.

The District Ministry of Natural Resources and Forestry Annual Compliance Operations Plan and the Forest Operations Information Program reports submitted were reviewed in relation to the standards. During the first 4 years of the audit period the Ministry of Natural Resources and Forestry prepared Annual Compliance Operation Plans and met their forestry inspection targets. However, in 2020-2021 the Ministry of Natural Resources and Forestry did not set targets for “inspect every pit identified in the previous year having reached the end of its’ 10-year lifespan”, which should have been nine according to Gordon Cosens Forest 2019-20 Annual Work Schedule and no inspections took place. In addition, it appears that in 2021-22 and 2022-23 no Annual Compliance Operations Plan was completed and only two inspections were completed on forestry operations on the Gordon Cosens Forest. This shortcoming was also identified in the 2016 Independent Forest Audit and an action plan was developed. It appears to be an ongoing challenge.

Discussion and Conclusion:
The Ministry of Natural Resources and Forestry District is not consistently preparing an Annual Compliance Operations Plan or completing Forest Operations Information Program reports.

Finding #4:
The District Ministry of Natural Resources and Forestry did not complete a compliance monitoring program in accordance with Ministry of Natural Resources and Forestry manuals, policies and procedures.

Independent Forest Audit – Record of Finding

Finding # 5

Principle 6:
Audit Criterion 6.2.1: Sustainable Forest Licence holder compliance planning and monitoring
Procedure(s): To review and assess whether a Sustainable Forest Licence compliance plan has been developed and implemented to effectively monitor program compliance and effectiveness in accordance with the conditions of the Sustainable Forest Licence, the Forest Management Planning Manual and Forest Information Manual, including standards established by the Minister.

Background Information and Summary of Evidence:

The auditors reviewed the Forest Management Plan Compliance Plan and Annual Compliance Plans, Forest Operations Information Program reports. Annual Compliance Plans were relevant and addressed issues that had come up during the previous year. However, 5 out of the 7 years of the Independent Forest Audit no renewal or stand tending Forest Operations Information Program reports were submitted although these activities were occurring. In addition, two of the water crossings that the audit team inspected did not have Forest Operations Information Program reports submitted.

Review of bridge inspections as per the *Crown Land Bridge Guideline* show the Sustainable Forest Licence has a more extensive review checklist; however, several required items were not included as per the Guide. Inspections were missing the 11 required photos, water crossing number relating to geographic maps, bridge type, bridge dimension, high water mark, etc. Inspection of water crossings revealed a steeper than normal angle. However, erosion control and bank stabilization work appear to be effective.

Discussion and Conclusion:
The Sustainable Forest Licensee is not consistently submitting compliance reports for renewal and maintenance activities, water crossing installations and the bridge reports when submitted do not consistently include all of the required information.

Finding #5:
The Sustainable Forest Licensee's Annual Compliance Plan has not been implemented to consistently assess the compliance of water crossing installations, silviculture activities and aerial tending with the FMP, AWS, and related legislation.

Bridge with no signage and some minor erosion.

Independent Forest Audit – Record of Finding

Finding # 6

Principle 7
Audit Criterion 7.2: Assessment of objective achievement
Procedure: Review and assess additional annual report requirements for the assessment of objective achievement as required for the latest relevant annual reports, comparing planned targets for each Forest Management Plan objective (in text and the required table format) against the actual level of the target achieved. Review the applicable Forest Management Planning Manual for detailed requirements.

The current Forest Management Plan must also be assessed for progress towards achieving management objectives.

Background Information and Summary of Evidence:

Forest Management Planning Manual basic requirements were included in the objective tables of both the 2010-2020 Forest Management Plan and 2020-2030 Forest Management Plan. The 2010-2020 Forest Management Plan Objectives Table assessment of objective achievement were all documented except objective C4 which was deferred until the new inventory was received.

Objectives that are consistent from plan to plan should be measured consistently or an explanation should be included that provides a transition. Some objectives were maintained but measured differently. For example, road density in the continuous caribou ranges was calculated differently between the 2010-2020 and 2020-2030 Forest Management Plans. The road density in the 2010-2020 Forest Management Plan included primary, branch and operational roads where in the 2020-2030 Forest Management Plan only included primary and branch roads in the calculation. The denominator or area of square kilometers is incorrect in the 2020-2030 Forest Management Plan (642 km^2) but correct in the 2010-2020 Forest Management Plan (6408 km^2). The change in definition of a road will make the plan-to-plan comparisons difficult but the goal of reducing roads is clear.

The first few years of the 2020-2030 Forest Management Plan as reported in the 2020/21 Annual Report and the 2021/22 Annual Report are mostly on track for objective achievement. There are a few objectives that are of concern.

<u>Objective 2.7 Area of the PRW forest unit (all ages)</u>
The objective is to increase the forest unit towards the preindustrial condition levels and remain above the 1995 amount by conducting approx. 34 hectares (approx. 60,000 seedlings) of PRW restoration per 10-year period. There is no seed available to produce seedlings for the achievement of this goal. To date 500 red pine seedlings were planted when delivered in error. The Sustainable Forest Licensee has made an effort to obtain red and white pine seed from within their organization and within the Northeast Seed Management Association. Without seed or seedlings in production the earliest that a crop of seedlings could be planted is 2025.

<u>Objective 7.1 Kilometres of all-season (drivable) road per square kilometre of Crown Forest</u>
To provide the levels of access to adequately carry out forest operations on the Gordon Cosens Forest (maintain +-2% of plan start levels) 1.85 km/km² (based on 2,743 km of all-season roads across 1,482 km2)

- 2020/21 Annual Report reported no roads decommissioned yet 14 km Primary and 67 km Branch were constructed,

- 2021/22 Annual Report reported no roads decommissioned yet 210 km Primary and Branch were constructed.

For the first 2 years of the plan, 291 km were added which would exceed the objective however road decommissioning may be naturally occurring and not being reported. The objective can be attained by the end of the plan but requires continued monitoring and reporting. A correction to the formula is needed as the forest is 1,481,836 hectares of production forest which is 14,818 square km. FMP-18 indicated 2624.6 km of primary and branch roads but no indication of drivable roads or how it is calculated. The assessment method should be documented.

Objective 8.1 Percent of harvested forest area assessed as free-growing
A target of >90% of the area assessed declared as free growing (established)

- 2020/21 Annual report summarized that 67% of surveyed areas were established
- 2021/22 Annual report summarized that 86% of surveyed areas were established

Objective 8.3 would not be achieved either as the target is 80% established to target forest unit. The SFL interview provided some explanation as some of the areas assessed as not yet reaching the regeneration standard are lowland areas that require more time to reach the standard height. Such areas will be surveyed again during the time frame of the plan.
These objectives will be assessed at year 5 and 10 and documented in the annual reports.

Discussion and Conclusion:
The common objectives from plan to plan have remained consistent where possible. Forest Management Plan Manual targets have been adjusted given a change in forest unit definition and objectives added for caribou habitat. The assessment of objectives from the 2010-2020 Forest Management Plan in Annual Report 10 did assess the progress towards targets and where targets were not achieved, why, and whether sustainability was being impacted, with the exception of objective C4. Objective C4 assessment was to be done when the next inventory could be analyzed. The annual report text did provide a statement of whether the objective should change or remain the same for the next forest management plan.

Progress toward the 2020-2030 Forest Management Plan objective achievement is mostly on track with 3 exceptions -

- Red pine & white pine planting in the 2020-30 Forest Management Plan is not on track,
- Road access targets
- Establishment success is lower than anticipated,

Finding #6: For the current 2020-2030 Gordon Cosens Forest Management Plan, progress towards achieving management objectives 2.7, 7.1, 8.1, and 8.3 are not on track.

Independent Forest Audit – Concluding Statement

There have been a few factors that have complicated the implementation of forest management during the scope of the audit. The COVID pandemic from 2020 – 2022, delivery of a suitable forest resources inventories and the changing forest product markets are a few of the more notable elements.

The COVID pandemic protocols restricted travel into the field, limited training opportunities and disrupted projects. Many seasoned professionals chose to retire during this tumultuous time.

Responsibility for the forest inventory shifted from the forest industry to the crown in 2005 with the goal of having an inventory update cycle of every 10 years. This turned out to be too ambitious and led to large amount of imagery being acquired with not enough capacity to interpret. The production of the Gordon Cosens Forest 2020-2030 Forest Management Plan was affected by a late and complicated inventory.

The forest products markets are cyclical. The closure of hardwood processing facilities in the north east has led to an under utilization of hardwood. A regional utilization strategy was updated in 2020 to consider strategies to limit the long-term impact of partial stand utilization.

The Sustainable Forest Licence holder GreenFirst Forest Products and the Ministry of Natural Resources and Forestry work well together. They are focused on common goals and listen to the input of stakeholders, Métis communities and Indigenous Peoples.

Overall, the audit team concludes that the management of the Gordon Cosens Forest was in compliance with the legislation, regulations and policies that were in effect during the period covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence (SFL # 550039) held by GreenFirst Forest Products (QC) Inc. The forest is being managed consistent with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

Appendix 2

Management Objectives Table

Management Objective/Assessment	Auditors Assessment	Auditor Comments
2010-2020 FMP Objectives and Assessment from 2019/20 Annual Report		
A1. To maintain all major boreal forest types and an overall forest age class structure in a manner similar to the pre-industrial condition. • Area by forest type and age • Amount and Distribution of old forest (hectares) • Amount and Distribution of Mature Forest (hectares)	Partially Achieved	Forest type over time met the simulated range of natural variation (SRNV). The old and mature levels deviated from the SRNV by slightly more than target for a few forest types. Since the deviation was very slight there are no concerns regarding this trend.
A2. To ensure that harvest patches emulate, as close as possible, natural wildfire events in terms of size, number, shape, forest composition, orientation, and connectivity, as well as contain representative post disturbance structural elements including leave areas. • Number of forest disturbances by size class. • Area of forest disturbances by size class.	Partially Achieved	The objective was not fully achieved, but some of the size class targets were met or showed movement toward the target and desired levels. The smallest patch sizes were found lacking. Since the deviation was very slight there are no concerns regarding this trend.
A3. To account for and provide core habitat for marten. • Proportion of capable marten habitat in suitable condition within cores (10-20% of capable in a suitable • Spatial distribution of marten cores.	Achieved	The quantity and distribution of Marten habitat was evaluated. To meet the desired distribution of habitat a few cores were created in the middle of the forest. The plan target was fully achieved. Maintaining marten habitat is no longer required as single species are considered to be provided for with landscape planning.
A4. To maintain a continuous supply of suitable and mature caribou habitat distributed both geographically and temporally across the landscape in such a manner to provide for permanent range occupancy. • Incorporate a Dynamic Caribou Habitat Schedule • Maintain mature conifer and winter suitable caribou habitat within the inter-quartile range (IQR) of the Simulated Range of Natural Variation for the portion	Achieved	All caribou planning elements were included in the plan. DCHS was developed and the winter suitable and mature conifer habitat were identified. The time slice map visually indicated connectivity. Implementing a DCHS on an operating forest is not simple, it is fortunate that the area in the continuous caribou range was not fully operated. This objective was achieved.

Management Objective/Assessment	Auditors Assessment	Auditor Comments
of the forest within the continuous caribou range • Provide for a spatial and temporal arrangement of tracts to provide connectivity.		
B1. To maintain habitat for the selected featured species within the bounds of the natural benchmark run. • Area of habitat for forest-dependent provincially and locally featured species (ha)	Partially Achieved	The habitat levels were not attained for all species. Black backed wood pecker habitat fell short in the medium and long term and the black bear breeding habitat was slightly less than target in the long term. Since the deviation to target is small there is not a concern.
B2. To provide for the protection of identified area-of-concerns through the maintenance of adequate forest cover. • Compliance with prescriptions developed for the protection of water quality and fish habitat • Compliance with prescriptions for the protection of natural resource features, land uses or values dependent on forest cover • Compliance with prescriptions developed to provide protection to species identified within RYAM's High Conservation Value Report • Percent of inspections in compliance during the 10-year term of the plan (%)	Achieved	The compliance monitoring achieved 97% compliance against a target of >95%. All targets were achieved.
B3. To conduct timber management activities in a manner which minimizes and mitigates the impacts on environmental quality. • Compliance with management practices that prevent, minimize or mitigate site disturbance • Percent of inspections in compliance during the 10-year term of the plan (%)	Achieved	A few instances of non-compliance but overall, the target was met. Achieved at 97% compliance against a target of >95% compliance.
C1. To employ cost-effective renewal and tending treatments that will provide for a new, free-growing forest that meets all desired benefits. • Sufficient levels of silviculture funding available to maintain a	Partially Achieved	Plan target was achieved at LTMD with modeled silviculture expenditures and at year 10 with 97.5% of areas assessed declared free to grow. While the assessment level fell short, it will not

Management Objective/Assessment	Auditors Assessment	Auditor Comments
silviculture program consistent with the silviculture treatment levels / intensities prescribed by the LTMD • Percent of harvested forest area assessed as free-growing during the 10-year term of the plan (%). • Area assessed annually as part of the free-to-grow program (ha).		compromise sustainability and is justified.
C2. To maintain or enhance future timber yields through intensive silviculture techniques. 2% of the annual summer (i.e., upland) harvest area modeled as renewed using Intensive or Elite treatments.	Partially Achieved	At LTMD, a model constraint of implementing at least 2% intensive renewal treatments was achieved. However, this could have been validated at year 10. The model achieved it but it is unclear whether renewal was completed.
C3. To address existing forest health concerns on the forest, such as balsam fir, aspen decline areas, areas impacted by blowdown, and loss of productive lands due to slash piles, roads and site disturbance. • Percent of area treated for slash as outlined within RYAM's regional slash management strategy (%) • Number of Forestry Future Funding applications submitted annually for review during 10-year term of the plan. • Number of hectares treated using Forestry Future Funding (ha).	Partially Achieved	The amount of slash treated fell short of the 80% target at 76%. The number of FFT applications fell short as there were few natural disturbances to be addressed. The amount rehabilitated with FFT funding was also less than target due to the reduced natural disturbance. The number of applications submitted and the area treated depended on the natural disturbance. This was a poor target as amount of natural disturbance is not in the control of the SFL. and slash treatment was not relative to harvest level. While the targets fell short this will not affect sustainability.
C4. To employ cost-effective silviculture treatments within the "Area of Application" outlined in OMNR's Ontario Woodland Caribou Conservation Plan (CCP), which will provide for future woodland caribou habitat. • To ensure harvested areas are successfully regenerated such that the conifer forest unit composition is maintained or	Not assessed	Assessment was deferred until the eFRI is delivered. It has been delivered yet no assessment was done for the 10-year annual report. This target is not measurable in the timeframe of the plan. The target is to maintain or increase conifer forest unit composition within harvested areas by preferred forest unit grouping (i.e., conifer

Management Objective/Assessment	Auditors Assessment	Auditor Comments
increased within the continuous caribou range for the Forest. • To ensure harvested areas are successfully regenerated such that the spruce and/or pine composition within the pure conifer forest units is maintained or increased within the continuous caribou range on the Forest.		grouping = SB1 + PJ1 + SP1) at or above the 2010 levels (%). Plan Start: (15,119 ha of conifer forest units / 20,115 ha all forest units) or 75% for 2010-2015 harvest areas. No assessment was provided.
D1. To provide for a continuous and predictable supply of wood resources, at a competitive cost, to the forest industry now and into the future. • Long-term projected available harvest area and volume by species group. • Available harvest volume by species group (m3) per period. Target volumes for all species groups are based on the achievement of 70% of the Patchworks MaxVol100 • Forecast and actual harvest area by forest unit (ha). • Forecast harvest area by forest unit as per the Strategic LTMD (ha). • Available and actual harvest volume by species group (m3/yr). • Percent of planned volume utilized by mill (%). • Area of productive, managed Crown Forest available for timber production (ha). • Kilometers of road construction per year, projected over time. • Road maintenance costs over time.	Partially Achieved.	Available volume was met for some of the species at LTMD and the level was deemed acceptable to the planning team. Actual Planned area was deemed to be met. The actual harvest area was well below plan due to forest products market weakness and the unavailability of markets. The poor market conditions are not within the control of the planning team. An estimate of area lost to roads, landings and slash was calculated by evaluating the Sulman road area in 2016. The result was that 2.98% was in roads and landings against a target of less than 4%. The productive forest area from the 2010-2020 plan start was compared to the 2020-2030 plan start. An on the ground evaluation is a good method for validating loss of productive land. The inventory level is irrelevant as inventories shift. The target to minimize road construction and reduce road maintenance costs consisted of model constraints to construct less than 200 km of road per year and spend a maximum in maintenance. These were model targets assessed at LTMD and set to reduce costs and group harvest areas. They were met at LTMD.
D2. To provide the public and local entrepreneurs with opportunities to	Achieved	Annualized fuelwood volume harvested exceeded the target volume in the objective.

Management Objective/Assessment	Auditors Assessment	Auditor Comments
harvest fuelwood and other forest resources. • Harvest volume of species traditionally used for fuelwood. • Number of MoAs signed with local entrepreneurs for non-traditional harvest volumes. • Area of productive, managed Crown Forest available for fuelwood collection (ha). • Number of personal use fuelwood permits issued for designated and non-designated fuelwood areas.		A target of 1 MoA per year for local entrepreneurs for non-traditional harvest volumes was met as 36 MoUs were signed. A fuel wood area was made available in addition to 100% of the areas harvested. A target of 90 fuelwood permits was exceeded as 111 permits were issued on average from April 2010 to March 2020. All targets were met.
D3. To support the emerging bioeconomy sector by providing, when possible, opportunities to utilize wood resources. • Number of bioeconomy projects supported by RYAM. • Percent of annual harvest volume utilized for non-traditional purposes	Partially achieved	The target was to support 10 projects during the term of the FMP and have 2% of the volume utilized for non-traditional purposes. Targets were partially met as 8 projects were given support by the SFL and the volume utilized was 1.7%. The MNRF and GreenFirst made an effort to entice and support non-traditional fibre markets.
D4. To provide opportunities to local First Nations for input, consultation, participation, and education during the development and implementation of the forest management plan. • Opportunities for involvement in plan development provided to, and involvement of First Nations communities interested in the GCF. • Annual opportunities for First Nations communities interested in the GCF to provide input in the implementation of the forest management plan.	Achieved	The SFL offered Involvement in the plan development and an annual review of operations to all the communities. Efforts are documented. This objective was achieved. The SFL and MNRF sincerely and consistently sought plan input.
D5. To provide due consideration to other forest users (I.e., hunter and angler associations, snowmobile associations, bear management areas, and commercial bait fishermen) when planning and implementing forest operations.	Achieved	The LCC satisfaction survey surpassed the target satisfaction level. The SFL and MNRF provided 137 opportunities for input into the implementation of the FMP. The SFL and MNRF sincerely and consistently sought plan input.

Management Objective/Assessment	Auditors Assessment	Auditor Comments
• Local citizen's committee's self-evaluation of its effectiveness in plan development. • Annual opportunities for other forest users to provide input in the implementation of the forest management plan.		
D6. To protect all known, potential and newly discovered cultural heritage values on the GCF. • Compliance with prescriptions designed to protect cultural heritage values (% of inspections in compliance) • Percent of inspections in compliance during the 10-year term of the plan (%)	Achieved	No non-compliances involved culture heritage values and 97% of inspections were in compliance. This was achieved. The plan, as implemented, protected culture and heritage values.
D7. To respectfully incorporate available First Nations values to mitigate impacts of forest operations. • Area of concerns planned for all known Aboriginal values identified during the forest management process. • Compliance with prescriptions designed to protect identified First Nations values (% of inspections in compliance) • Percent of inspections in compliance during 10-year term of the plan (%)	Achieved	AOCs were developed. All prescriptions for known First Nations values were in compliance. The overall compliance was 97% The targets were achieved. The plan, as implemented, protected First Nations values.
D8. To plan and manage forest access in a manner that achieves an appropriate balance between accessed areas for those who want access to the Forest, and remote roadless and/or functionally roadless areas for those who value this attribute of the Forest. • Kilometers of all-season road per square kilometer of Crown Forest (i.e., road density). • The ratio of all-season roads (kms) with access restrictions to all-season roads (kms) without access restrictions. • Annual meeting per year with the Kapuskasing LCC to review	Achieved	The road density was met as was the ratio of roads open to the public and restricted. The LCC was given a review of roads for abandonment or reclamation at the Annual Work Schedule meeting each year. The road strategy balanced the needs and wants of the forest users.

Management Objective/Assessment	Auditors Assessment	Auditor Comments
proposals for the physical abandonment of SFL roads.		
D9. To minimize significant increases in road density within the continuous caribou range on the Forest. • Road densities (includes primary, branch and operational roads): Kilometers of road per square kilometer of Crown Forest within the continuous caribou range (Industry and SFL roads).	Achieved	At year 10 road density in the continuous caribou range was significantly reduced by identifying roads that no longer had the physical characteristic of a road. The reassessment of roads reduced the density significantly. The objective assessment does not cite any physical abandonment or treatment. No intentional operations were done to decommission.
D10. To maintain opportunities for forest-dependent industries (I.e., trapping and remote-based tourism) whose operations may be affected by forest management activities. • Compliance with prescriptions for the protection of resource-based tourism values (% of inspections in compliance) • Percent of inspections in compliance during the 10-year term of the plan (%) • Compliance with prescriptions for the protection of trapline values (% of inspections in compliance) • Percent of inspections in compliance during the 10-year term of the plan (%) • Annual opportunity for forest-dependent industries to provide input on forest management activities that may impact their operation.	Achieved	The target of more than 95% in-compliance inspections was reached. No remote-based prescriptions were out of compliance but 1 trapper value prescription was out of compliance. Overall, the objective was met. Prescriptions for the protection of values were followed. Forest dependent industries were represented on the planning team and LCC. Discussions were documented with 9 entities.
D11. To conduct forest operations in a sustainable and socially acceptable manner. • Non-compliance in forest operations inspections (% of inspections in non-compliance, by category (minor, moderate and significant, as determined by OMNR)	Achieved	The target of more than 95% in-compliance inspections was reached. Overall, the objective was met. Compliance record was good during this time frame. Many objectives were measured by compliance reporting.
2020-2030 FMP Objectives and Assessment from table FMP-10		

Management Objective/Assessment	Auditors Assessment	Auditor Comments
1.1 Area of winter suitable caribou habitat (ha) within the continuous caribou zone	Achieved	The area of suitable caribou winter habitat was maintained in the short and medium term. It was slightly lower in the long term but recovered in the very long term (150 years).
1.2 Area of mature conifer caribou habitat (ha) within the continuous caribou zone	Not Achieved	This objective was in conflict with the goal of fully implementing a Dynamic Caribou Habitat Schedule. The target was met in the short term but not in the medium and long term. There are no concerns regarding this trend.
1.3 Texture of caribou winter suitable habitat within the continuous caribou zone - 6,000 ha hexagon frequency distribution (>=75% texture class)	Partially Achieved	At this time the forest falls short of the goal with only 8.8 texture class. During the development of the LTMD, a movement towards the target was achieved in the long term but not in the short or medium term. This indicator will take time to reach. There are no concerns regarding this trend.
1.4 Texture of caribou winter suitable habitat within the continuous caribou zone - 30,000 ha hexagon frequency distribution (>=75% texture class)	Partially Achieved	During the development of the LTMD, a movement towards the target was achieved in the long term but not in the short or medium term. This indicator will take time to reach. There are no concerns regarding this trend.
1.5 Texture of caribou mature conifer habitat within the continuous caribou zone - 6,000 ha hexagon frequency distribution (>=28% texture class)	Partially Achieved	Fragmentation of the GCF in the continuous caribou range is hampering the achievement of the texture objectives. It will take at least a century to develop into prescribed texture classes. There are no concerns regarding this trend.
1.6 Texture of caribou mature conifer habitat within the continuous caribou zone - 30,000 ha hexagon frequency distribution (>=28% texture class)	Partially Achieved	This objective was in conflict with the goal of fully implementing a Dynamic Caribou Habitat Schedule. The target was met in the short term but not in the medium and long term. There are no concerns regarding this trend.
1.7 Percentage of the areas within the continuous caribou distribution considered to be "on-line" (i.e. within the DCHS block with an area-weighted average stand age of 70 years or older)	Partially Achieved	The desired level is to maintain at least 33.3% (188,040 hectares) of the areas within the continuous caribou distribution as on-line DCHS blocks that have an area-

Management Objective/Assessment	Auditors Assessment	Auditor Comments
		weighted average age of at least 70 years. This level was maintained for 4 of 5 time periods. One time period it fell slightly below the desired level at 181,301 ha (32.1%) in year 2090 (D period). There are no concerns regarding this trend.
1.11 A Road management/ Decommissioning strategy for areas within the continuous caribou zone on the Gordon Cosens Forest	Achieved	A road management and decommissioning strategy was included in the Gordon Cosens Caribou Strategy document included in the supplemental documentation.
2.1 Area of immature and older pine	Partially Achieved	There is movement towards the target amount of immature and older pine in the short and medium term but movement away in the long term. There is a tradeoff between landscape targets this objective. There are no concerns regarding this trend.
2.2 Area of mature and older upland conifer	Partially Achieved	There was movement away from the target in the short and medium term with movement towards the target in the long term. The objective conflicted with wood supply. Tradeoffs were modeled and the best solution was selected. There are no concerns regarding this trend.
2.3 Area of immature and older hardwood and immature mixed wood	Achieved	The amount was maintained within the target range. There are no concerns with this achievement.
2.4 Area of mature and older mixed wood	Achieved	There was movement towards the target in the short, medium and long terms. The modeling was adjusted to achieve the target in 150 years rather than 100 years to balance objectives. There are no concerns regarding this trend.
2.5 Area of mature and older lowland conifer	Partially Achieved	The level of mature and older lowland conifer was maintained within the desired levels for the short and long term. In the medium term the area was slightly lower than desired. There are no concerns regarding this trend.

Management Objective/Assessment	Auditors Assessment	Auditor Comments
2.6 Total old growth area	Achieved	The target to increase old growth was achieved in the short, medium and long term. In the long term it met the lower inter quartile range.
2.8 Area of conifer forest units (all ages) Conifer (SB1, LC1, SP1, SF1,PJ1, PJ2)	Partially Achieved	The amount of conifer forest units was maintained in the short, and medium term but fell slightly below in the long term. This is not a concern as the long term was within 1% of target.
2.9 Area of conifer forest units (all ages) Pine Conifer (PJ1, PJ2)	Not Achieved	The plan start level of pine forest units was below the inter quartile range and continued to trend lower in the short, medium and long term. This is a small forest unit on the forest. While the planning team accepted this shortfall, it is felt that this could have been improved by at least maintaining the amount of jack pine on the landscape through pine directed renewal.
2.10 Area of conifer forest units (all ages) Upland Conifer (SF1, SP1)	Achieved	The inter quartile range was maintained in the short, medium and long term.
2.11 Area of conifer forest units (all ages) Lowland Conifer (SB1, LC1)	Partially Achieved	The amount of lowland conifer forest units was maintained in the short, and medium term but fell slightly below in the long term. There are no concerns regarding this trend.
2.12 Area of young forest (< 36 years)	Partially Achieved	The amount of area that is in the young age class greatly exceeds the interquartile range at plan start. In the short and medium-term the area is reduced but in the long term it increases. The long-term amount is less than plan start. This is a direct tradeoff with wood supply. This is considered acceptable.
3.1 Texture of mature and old forest - 500 ha hexagon frequency distribution	Partially Achieved	There is movement towards the texture proportions in 3 of 5 classes in the medium-term. This is considered acceptable.
3.2 Texture of mature and old forest - 5,000 ha hexagon frequency distribution	Partially Achieved	The texture pattern moves away more than it moves towards achievement however there is a strategy to consolidate harvesting

Management Objective/Assessment	Auditors Assessment	Auditor Comments
		and improve the texture. This is considered acceptable.
3.3 Young forest patch size - patch size frequency	Partially Achieved	The texture pattern moves towards more than it moves away from achievement. This is considered acceptable.
5.1 Long-term projected available harvest volume by species group	Partially Achieved	The target of maintaining current harvest volume by species group was within 95% of the 2010 FMP levels. This is considered acceptable.
5.2 Planned harvest area by forest unit as per the LTMD	Not Achieved	The planned harvest area is 86% of the LTMD which falls short of the target of 100%. The lower planned harvest level will improve the achievement of mature and old forest types. An under allocation of planned harvest is considered acceptable.
5.3 Planned harvest volume by species group as per LTMD	Not Achieved	The planned harvest volume follows the planned harvest area trend. An under allocation of planned harvest is considered acceptable.
6.1 Consultation Plans developed for all interested Indigenous Communities on the GCF	Achieved	At the time of evaluation, no Indigenous community had come forward requesting a customized consultation approach.
6.2 Kapuskasing Local Citizens Committee's self-evaluation of its effectiveness in plan development	Achieved	The self-evaluation taken by the LCC on December 4, 2019 indicated that the LCC felt they had been effective in providing input for the development of the FMP.
7.2 Review of proposed access restrictions and/or decommissioning plans (i.e., transfer of SFL roads to the MNRF) with the Kapuskasing LCC and local Indigenous communities	Achieved	Opportunities were given to the public and Indigenous communities at two open houses. The LCC was given an additional opportunity to review the access strategy at a LCC meeting.
13.1 Areas of concern planned for all known Aboriginal values identified during the forest management planning process	Achieved	No aboriginal values were identified during the plan development. To ensure protection should a value come forth, an AOC prescription was developed and included in the plan.

Appendix 3

Compliance with Contractual Obligations

Licence Condition	Licence Holder Performance
Payment of Forestry Futures and Ontario Crown charges	All Forestry Futures Trust charges and Ontario Crown charges have been paid
Wood supply commitments, MOAs, sharing arrangements, special conditions	The SFL contains wood commitments to Columbia Forest Products, RockShield Engineered Wood Products, White Cedar Products, Lachance Saw and Planer, Synco Timber Ltd, and Lecours Lumber Co. LTD. The SFL has had MOAs with Columbia Forest Products, Longlac Wood Industries, Rickards Cedar, Grant Forest Products, and Rockshield Engineered Wood Products. The SFL works diligently to find markets for the under-utilized species. The SFL has met its commitments.
Preparation of FMP, AWS and reports; abiding by the FMP and all other requirements of the FMPM and CFSA	The SFL prepared all required plans and reports to the required standards.
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with the FIM.	The SFL conducted the required surveys and submitted all the data consistent with FIM requirements.
Wasteful practices not to be committed	The SFL does not have a market for non-veneer hardwood. There was observed merchantable, but unmarketable hardwood being left at roadside. The Northeast Region Low Market Condition Strategy (2020) and the previous Northeast Operations Guide for Marketability Issues (2013) allows for the waste of merchantable fibre when there is no market, however under the condition that it must not result in a loss of site productivity. The SFL did plan for the lost productivity in the strategic spatial modeling.
Natural disturbance and salvage SFL conditions must be followed	Not audited following risk assessment
Protection of the licence area from pest damage, participation in pest control programs	The SFL has an integrated pest management plan and assisted in the preparation of a budworm spray program led by the MNRF.
Withdrawals from licence area	Not audited following risk assessment
Action plan and progress towards the completion of actions as reported in annual reports or status reports prepared under previous versions of the IFAPP	Action plans were prepared by SFL and MNRF in accordance with contractual obligations. The actions were reported as required and the actions were observed to be implemented by the audit team.
Payment of forest renewal charges to the FRT	All Forest Renewal Charges have been paid.

Licence Condition	Licence Holder Performance
FRT eligible silviculture work	Field audit verified that payments from the FRT were for eligible silviculture work in accordance with planned specifications and funding eligibility requirements.
FRT forest renewal charge analysis	The FRT charge analysis was completed to specifications on an annual basis.
FRT account minimum balance	The requirements for meeting minimum balance were met each year. The requirements to assess and set renewal rate each year was completed.
Silviculture standards and assessment program	Silviculture assessments were done most years. A tragic accident in 2011 put the program on hold for a couple of years but the assessments have resumed and are on track. Each year some stands are identified as needing more time to reach standards. These are tracked in GIS and scheduled for assessment in a future year. These are usually lowland areas that have slower growth. GreenFirst has implemented an intensive survey of artificially regenerated areas. This monitoring has been identified as a best management practice, for more information see section 4.4.
First Nations and Métis opportunities	First Nations and Métis were actively engaged in the preparation of the FMP and annual operations are shared with local First Nations. There is ongoing concern with the aerial herbicide application. The SFL is working with First Nations and Métis to mitigate the impact of the spray program.
Preparation of compliance plan	The SFL completes a compliance plan annually and the FMP included a detailed compliance strategy for the 2020-2030 FMP.
Internal compliance prevention/education program	The SFL has a detailed compliance program which includes a continual improvement. The SFL is third party certified to FSC. Contractors and their employees are trained to an Environmental Management System covering standard operating procedures for harvest, utilization, crossings, etc.
Compliance inspections and reporting; compliance with compliance plan	Compliance inspections and reporting have been done on most activities. Silviculture reporting and crossing inspections are not being done consistently. The auditors found that GreenFirst did not report on silviculture activities and crossing installations as required by the Compliance Plan. A discussion is provided in section 4.6.

Licence Condition	Licence Holder Performance
SFL forestry operations on mining claims	There are 135 or more mining claims on the forest. The claim markings are considered a value when performing forestry operations.

Appendix 4

Audit Process

The Crown Forest Sustainability Act (CFSA), through Ontario Regulation 319/20, requires that each management unit in Ontario be audited at least once every ten to twelve years. The audits are conducted by independent audit firms selected through a competitive bidding process. Both the Forest manager and the MNRF is audited. The Independent Forest Audit Process and Protocol (IFAPP) provides guidance in meeting the requirements of Ontario Regulation 319/20 made under the CFSA.

The IFA consisted of the following elements:

Risk Assessment: A risk assessment was completed in June 2023 to determine which IFAPP optional procedures would be audited. The Risk assessment report was submitted to the Forestry Futures Trust and MNRF Divisional Support Branch for review and approval.

Table 1 Risk Assessment Optional Procedures

Principle	Optional-Applicable	Optional Selected	Optional - % Audited	Mandatory – Audited #	Comments / IFAPP Procedure #
1. Commitment	2	0	0%	2	GreenFirst are FSC certified, MNRF was audited
2. Public consultation and First Nations and Métis involvement	5	3	60%	2	2.3, 2.4, 2.6
3. Forest management planning	16	7	43%	20	3.1.2, 3.3.2, 3.3.3, 3.3.4, 3.5.6, 3.5.7, 3.5.11
4. Plan assessment and implementation	2	0	0%	7	
5. System support	2	0	100%	2	GreenFirst are FSC certified, MNRF were audited 5.1, 5.2
6. Monitoring	5	3	60%	9	6.1, 6.4, 6.5
7. Achievement of management objectives and forest sustainability	0	0	0	5	

8. Contractual obligations	5	2	40%	15	8.1.7, 8.1.16

There were 3 findings based on optional procedures 3.3.2, 3.3.4, and 6.1.

Audit Plan: An audit plan describing the objectives to be audited, the schedule of audit activities, audit team members, audit participants and the auditing methods was prepared and submitted to GreenFirst, MNRF Kapuskasing Work Center, MNRF Northeast Region Office, the MNRF Divisional Support Branch, the Forestry Futures Trust Committee and the LCC in July 2023. The audit plan was presented to the auditees, LCC, and Forestry Futures Committee.

Public Notices: Public input was solicited through print notices in Timmins Times and Le Nord (Timmins). On-line notices were placed on the Kapuskasing Local Citizens Committee Facebook page and the websites of the Timmins Times and Le Nord. No public comments were received.

All Indigenous communities with an interest in the GCF were contacted by mail and invited to participate or provide input in the audit. No community replied to the invitation or provided input with respect to the Forest or its management during the audit period. In April, the lead auditor provided a presentation to the Kapuskasing LCC announcing the audit and process. They were also given a presentation by the MNRF prior to the field audit. Three LCC members were involved in the field audit and were interviewed. The LCC gave feedback on the forest management planning and operations process, the communication with the auditees and their perceived impact. The LCC were also given a confidential presentation of the draft audit findings in November,

All recipients of wood from the GCF were contacted by email and where no emails were found they were called by phone. No responses were received from the wood recipients.

Field Site Selection: GreenFirst provided digital information on the activities within the scope of the audit period. The lead auditor used a 3rd party contractor to select randomly a 12% sample of each activity and regeneration surveys reported to the MNRF. Sites were selected in accordance with the guidance provided in IFAAP. The field sample was reviewed by the SFL and MNRF district during a virtual meeting in June.

Site Audit: The site audit was conducted the week of September 18, 2023. The auditors were divided into 2 teams for the truck audit for 2.5 days and one team member doing the aerial reconnaissance of silviculture surveys and inaccessible sites for 2 days with a representative from the SFL. The field audit achieved a minimum of 10% sample of activities that occurred during the audit period and the silvicultural surveys submitted. A sample of the areas invoiced in the Forest Renewal Trust Specified Procedures Report was included to verify work was performed.

ITable 2 IFA Field Sampling Intensity on the Gordon Cosens Forest

Activity	Total Area in the Scope of the Audit (Ha)	Sample Selected Ha	Actual Sample Ha	Actual Sampling Intensity %
Harvest – Clearcut, CLAAG	51,471	5,868	7372	14%
Site Prep mechanical	359	59	59	16%
Site Prep chemical	1770	210	527	30%

Activity	Total Area in the Scope of the Audit (Ha)	Sample Selected Ha	Actual Sample Ha	Actual Sampling Intensity %
Tree Planting	13,712	1,848	1725	12%
Seeding	631	114	114	18%
Natural Regeneration	33,009	3,648	3634	11%
Chemical Tending	22,093	2,679	2650	12%
Regeneration assessment (FTG)	48,515	5,892	5864	12%
Specified Procedure	8,397	2405	2363	28%
	Total # or KM	Sample # or KM	Actual Sample	Actual Sampling Intensity
Road construction	253 km	Sulman, Hayward and Cargil	Sulman rd. (41.25 km) Hayward rd. (20 km) Cargil rd. (14 km)	30%
Water Crossings	233	28	25	11%
Road decommissioning	202 km	21	21	10%
Forestry Aggregate Pits open	15 pits	2	2	13%
Forestry Aggregate Pits-closed	56 pits	6	7	12%

The closing meeting was held on September 29, 2023.

The field audit covered a random sample of operations during the audit period as visiting all operations is not practical. Individual sites are selected to represent an activity but all associated activities that occurred on the site are assessed and reported in the sample table above. The audit team inspected the area of concern prescription application, forestry aggregate pits, bridges, water crossing installations and water crossing removals.

Summary of Opinions and Input to the Audit Team

Public Stakeholders

No public comments were received.

MNRF

MNRF staff comments expressed to the audit team were concerns with:

- Lack of field training – stream classification
- Staff turnover concerned with continuity of knowledge and capacity to fill roles
- Workload with vacancies
- Lack of provincial data on species at risk for plan initiation

First Nations and Métis Communities

No community representatives provided any comments with respect to the Forest or its management.

LCC

- Excellent relationship and clear lines of communication with the MNRF and GreenFirst
- They feel they provide value to the District
- The meetings are informative and information is being disseminated to interest groups
- The SFL is very accommodating to stakeholder concerns
- The SFL and MNRF work hard to address Indigenous and Métis concerns
- Roads are kept in good shape and forest users are satisfied with communication

OLA/OLL Holders

Lecours Lumber Co. Ltd. and Synco Timber Limited responded with no concerns with respect to the Forest or its management.

GreenFirst

- 2016 eFRI delivery delays and quality/variability of the interpretation
- New imagery will not be delivered by MNRF as part of the T2 inventory on the GCF to accompany the LiDAR.
- Prescribed burning is not available as a renewal tool. GreenFirst found it difficult to execute a high complexity burn on an area affected by wind damage. Blowdowns cannot be rehabilitated with high complexity PBs. MNRF Fire Management does not appear to be willing to manage risk.
- Lack of caribou data to apply AOCs in the FMP. With no monitoring of populations and habitat use prescriptions cannot be effective. Industry, Indigenous peoples and stakeholders should be more involved.
- Issues with some model inputs for the 2020-2030 FMP. Bfolds (OLT) used a different inventory than the FMP modeling. Also, there is a concern over the ability of MNRF to provide adequate support for available FMP tools.
- Concern over the lack of meaningful support from the province for herbicide application as a silviculture tool.
- The guidance for herbicide application is dated (1992) and does not reflect the current science and technological changes to the industry.
- More support for seed movement beyond current zonal boundaries considering climate change.
- Obtaining the active engagement of some Indigenous communities continues to be a meaningful challenge for the SFL and MNRF.
- Going forward, the hope is the Forestry Futures will provide more widespread opportunities to submit FFT projects related to stand improvement.

Appendix 5

List of Acronyms

AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
ARA	Aggregate Resources Act
AWS	Annual Work Schedule
B.Sc.F.	Bachelor of Science in Forestry
Bfolds	Boreal Forest Landscape Dynamics Simulator
BNV	Bounds of Natural Variation
Bt	Bacillus thuringiensis (a biological insecticide)
CFSA	Crown Forest Sustainability Act
CMU	Crown Management Units
CRO	Conditions on Regular Operations
CSIP	Chemical Site Preparation
ESA	Endangered Species Act
eFRI	enhanced Forest Resource Inventory
FAP	Forest Aggregate Pit
FFC	Forestry Futures Committee
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FN	First Nation
FOIP	Forest Operations Information Program
FOP	Forest Operations Prescription
FRT	Forest Renewal Trust
FSC	Forest Stewardship Council
FTG	Free-to-grow
FU	Forest Unit
GCF	Gordon Cosens Forest
Ha	Hectare
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
KM	Kilometer
LCC	Local Citizens Committee
LTMD	Long -Term Management Direction
MEA	Moose Emphasis Area
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MNRF	Ministry of Natural Resources and Forestry
M^3	Cubic Meters
M.Sc.F.	Master of Science in Forestry
NeSMA	Northeast Seed Management Association
OLT	Ontario Landscape Tool
OPFA	Ontario Professional Foresters Association
PB	Prescribed Burn
QC	Quebec

R.P.F.	Registered Professional Forester
SAR	Species at Risk
SEM	Silviculture Effectiveness Monitoring
SFL	Sustainable Forest Licence
SGR	Silvicultural Ground Rule
SIP	Site Preparation
SPR	Specified Procedures Report
SRNV	Simulated Range of Natural Variation
VS	Versus

Appendix 6

Audit Team Members and Qualifications

Name	Role	Responsibility	Credentials
Janet Lane, R.P.F.	Lead Auditor Public Participation including First Nations & LCC Participation in Forest Management Planning. Field Audit Harvest, Access and Renewal Assessment of Achievement of Forest Management Objectives	Audit Management and Coordination Liaison with SFL, MNRF & FFTC. Review documentation and practices related to forest management Planning and public participation. Review the function of the LCC. Review and inspect harvest and silviculture practises Determination of Objective Achievement Determination of Sustainability	B.Sc.F.
Dave Legg	Forest Management Planning Harvest and Silviculture Auditor	Review Forest Management Plan production and review and inspect harvest and silviculture practices Review of operational compliance to AOC implementation Determination of Sustainability	B.Sc.F.
Jack Harrison, R.P.F.	Forest Compliance Monitoring Harvest and Silviculture Auditor	Review and inspect the documentation related to contractual compliance. Review and inspect AOC documentation and practices Review of operational compliance to AOC implementation Review of the planning and delivery of the operational compliance program Review and inspect harvest and silviculture practises Aerial sampling of renewal success Determination of Sustainability	B.Sc.F.
Laird Van Damme, R.P.F.	Overall audit structure and reports.	Audit Team Mentoring	M.Sc. F.