

**White River Forest
Independent Forest Audit
2014 – 2019**

Arbex Forest Resource Consultants Ltd.

August, 2019

TABLE OF CONTENTS

1.0	Executive Summary.....	i
2.0	Table of Findings.....	iv
	Table 1 Findings.....	iv
3.0	Introduction	1
3.1	Audit Process.....	1
3.2	Management Unit Description.....	2
4.0	Audit Findings.....	5
4.1	Commitment	5
4.2	Public Consultation and First Nations and Métis Community Involvement and Consultation.....	6
4.3	Forest Management Planning.....	7
4.4	Plan Assessment and Implementation.....	9
4.5	Systems Support	15
4.6	Monitoring.....	15
4.7	Achievement of Management Objectives & Forest Sustainability.....	20
4.8	Contractual Obligations	21
4.9	Concluding Statement	21

List of Tables

Table 1	Findings.....	iv
Table 2	Area of Crown Managed Land by Land Type (Ha).....	4
Table 3	Actual vs. Planned Harvest Area by Forest Unit (2014-2019).....	10
Table 4	Area (Ha) of Actual vs. Planned Site Preparation (2014-2019).....	12
Table 5	Area (Ha) of Actual vs. Planned Renewal Treatments (2014-2019).....	13
Table 6	Area (Ha) of Actual vs. Planned Tending Treatments (2014-2019).....	14

List of Figures

Figure 1	Location of the White River Forest.....	3
Figure 2	Proportional Area Managed Productive Forest by Forest Unit.....	5

List of Appendices

Appendix 1	- Findings
Appendix 2	- Management Objectives Table
Appendix 3	- Compliance with Contractual Obligations

Appendix 4 - Audit Process

Appendix 5 - List of Acronyms Used

Appendix 6 - Audit Team Members and Qualifications

1.0 Executive Summary

This report presents the findings of an Independent Forest Audit of the White River Forest (Forest) (Sustainable Forest Licence # 550399) conducted by Arbex Forest Resource Consultants Ltd. The audit utilized a risk-based approach based on the 2019 Independent Forest Audit Process and Protocol. The term of the Independent Forest Audit is April 1, 2014 to March 31, 2019. The audit scope included the implementation (Years 7, 8, 9 & 10) of the 2008-2018 Phase II Forest Management Plan, the development of Phase I of the 2018-2028 FMP and the implementation of Year 1 of the 2018-2028 Forest Management Plan. Procedures and criteria for the audit are specified in the 2019 Independent Forest Audit Process and Protocol. The audit field site investigations were completed by helicopter and truck in June 2019.

The Sustainable Forest Licence was transferred to Nawiiginokiima Forest Management Corporation in January 2018. Nawiiginokiima Forest Management Corporation is the first Local Forest Management Corporation to be established pursuant to the Ontario Forest Tenure Modernization Act (2011). The Forest is administered by the Wawa District and the Northeast Region of the Ministry of Natural Resources and Forestry. Prior to the transfer of the licence to Nawiiginokiima Forest Management Corporation, the Sustainable Forest Licence was held by White River Forest Products Ltd. In 2016, White River Forest Products Ltd. was re-organized and the Sustainable Forest Licence was transferred to White River Forest Products LP. Jackfish River Management Ltd. functioned as the forest management service provider until March 1, 2019.

The Sustainable Forest Licence transfers and assumption of management and field operations responsibility to Nawiiginokiima, just over a year ago, resulted in a requirement that Nawiiginokiima establish systems and processes to determine and/or verify its operational and silviculture liabilities (e.g. water crossings, roads, aggregate pits, status of depletions), monitoring/inspection requirements and data/knowledge gaps for the management and administration of the Forest. This process is on-going and will require time to be fully operational and functional.

Poor market conditions and the related curtailments and closures of mills receiving fibre from the Forest significantly challenged the implementation of forest management activities during the audit term. Harvest levels achieved approximately 31% of the planned five-year target. The inability to achieve planned harvest levels over successive planning terms has negative implications with respect to achieving the desired future forest condition, plan objectives (e.g. supply of wildlife habitat for certain species, movement towards desired forest disturbance size class frequencies), and the Long-Term Management Direction.

It is our assessment that the Wawa District, Nawiiginokiima Forest Management Corporation, White River Forest Products LP, and White River Forest Products Ltd. did a credible job managing the Forest during a period of upheaval characterized by weak to non-existent markets for some tree species and forest products, the transformation process at the Wawa District, and forest industry staff changes and turnovers associated with the transfers of the Sustainable Forest Licence.

The White River Area Co-Management Committee is a well-functioning and effective Local Citizens Committee which meets the requirements and intent of the Forest Management Planning Manual.

The audit identified a requirement for Nawiiginokiima to increase its oversight and training to address a problematic compliance record associated with the operations of Maygwayyawk Forestry Services (Finding # 1). There are a significant number of Compliance Reporting Areas where operations occurred, and where inspections have not been completed, or Forest Operations Information Program reports have not been finalized (Finding #2).

The Ministry of Natural Resources and Forestry largely met its administrative and forest management obligations with two exceptions. The Wawa District had a backlog of Forest Operations Information Program operational issues in the “Pending” designation which, at the time of the audit, was in the process of being addressed (Finding # 3).

The District also did not consistently meet the direction of the Silviculture Effectiveness Monitoring program (sampling intensity and reporting requirements) (Finding # 4). The lack of reporting of Free to Grow area by the Licencee and staffing issues associated with the transformation process within the Wawa District were contributing factors.

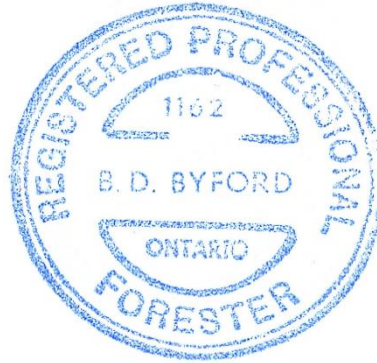
In spite of the challenges associated with the audit term (e.g. economic downturn, Sustainable Forest Licence transfers, government transformation process), the Licence holders and the Wawa District delivered an effective forest management program. White River Forest Products LP met all the legal and regulatory requirements for the preparation of 2018 Phase I Forest Management Plan. The silviculture program is effectively renewing the forest, benefits from forest management are accruing to the local population and there were no observed instances of significant environmental damage arising from forestry operations.

The audit team concludes that the management of the White River Forest was generally 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 # 550399 held by Nawiiginokiima Forest Management Corporation.

The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

Bruce Byford

Bruce Byford R.P.F.
Lead Auditor



2.0 Table of Findings

Table 1 Findings

Concluding Statement:
<p>The audit team concludes that the management of the White River Forest was generally 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 # 550399 held by Nawiiginokiima Forest Management Corporation. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.</p>
Findings:
<p>Finding # 1: Enhanced oversight and training initiatives have not resolved compliance issues associated with Maygwayawk Forestry Services.</p> <p>Finding # 2: During the audit term there was a backlog of Forest Operations Information Program Operational Issues assigned a Pending designation.</p> <p>Finding # 3: Forest Operations Information Program documentation is incomplete, or has not been submitted, for a number of forest management activities.</p> <p>Finding # 4: The Ministry of Natural Resources and Forestry (Wawa District) did not fully meet the Silviculture Effectiveness Monitoring program direction on the White River Forest.</p>

3.0 Introduction

This report presents the findings of an Independent Forest Audit (IFA) of the White River Forest (WRF or the Forest) conducted by Arbex Forest Resource Consultants Ltd. for the period of April 1, 2014 to March 31, 2019. The audit utilized a risk-based approach based on the 2019 Independent Forest Audit Process and Protocol (IFAPP). The term of the IFA is April 1, 2014 to March 31, 2019. The audit scope is the implementation (Years 7, 8, 9 and 10) of the 2008-2018 Phase II Forest Management Plan (FMP), and the development and implementation (Year 1) of the 2018-2028 FMP. The Forest is Forest Stewardship Council (FSC) certified so the IFAPP Commitment Principle and the human resources criteria of the System Support Principle are considered to be met¹.

Sustainable Forest Licence (SFL) # 550399 was transferred to Nawiiginokiima Forest Management Corporation (NFMC) in January 2018. Nawiiginokiima Forest Management Corporation is the first Local Forest Management Corporation to be established pursuant to the Ontario Forest Tenure Modernization Act (2011). The Forest is administered by the Wawa District Office of the Ministry of Natural Resources and Forestry (MNR). Prior to the transfer of the licence to NFMC the SFL was held by White River Forest Products Ltd. (WRFP). In 2016, WRFP re-organized and the SFL was transferred to WRFP LP (2016). Jackfish River Management Ltd. (JRML) functioned as the forest management service provider until March 1, 2019. The Forest is located within the Wawa District of the Northeast Region of the MNR.

The previous IFA (2014) was conducted by Craig Howard and Associates. The audit resulted in seven recommendations/findings. The auditors found that the SFL holder is in compliance with the terms and conditions of the SFL and recommended that the SFL be extended. The past audit recommendations have been appropriately addressed, with the exception that, in the opinion of the audit team, the Wawa District SEM program delivery did not fully meet the intent of Recommendation # 7. We have provided a finding to address this concern (Finding # 4).

3.1 Audit Process

The Crown Forest Sustainability Act (CFSA) requires that all Sustainable Forest Licences (SFLs) and Crown Management Units (CMUs) be audited every five to seven years by an independent auditor. The 2019 Independent Forest Audit Process and Protocol (IFAPP) provides guidance in meeting the requirements of Ontario Regulation 160/04 made under the CFSA and further required in the Conditions of MNR's Environmental Assessment Requirements for Forest Management on Crown Lands in Ontario (MNR-75). The scope of the audit is determined by the MNR in specifying mandatory audit criteria (Appendix A of the IFAPP). The audit scope is finalized by the auditors in conducting a management unit risk assessment by identifying optional audit

¹ Date of Certification 19/05/2014 – Certificate Number CA003147/1

criteria from Appendix A to be included in the audit. The final audit scope is accepted by the Forestry Futures Trust Committee (FFTC) with any subsequent changes to the audit scope requiring agreement between the FFTC, MNRF and the Lead Auditor.

The procedures and criteria for the delivery of the IFA are specified in the 2019 IFAPP. The audit generally assesses licence holder and MNRF compliance with the Forest Management Planning Manual (FMPM) and the CFSA in conducting forest management planning, operations, monitoring and reporting activities. The audit also assesses the effectiveness of forest management activities in meeting the objectives set out in the Forest Management Plan (FMP). The audit further reviews whether actual results in the field are comparable with planned results and determines if the results were accurately reported. The results of each audit procedure are not reported on separately, but collectively provide the basis for reporting the outcome of the audit. The audit provides the opportunity to improve Crown forest management in Ontario through adaptive management. Findings of “*non-conformance*” are reported. A “*Best Practice*” is reported when the audit team finds the forest manager has implemented a highly effective and novel approach to forest management or when established forest management practices achieve remarkable success.

Details on the audit processes are provided in Appendix 4. Arbex Forest Resource Consultants Ltd. conducted the IFA in June 2019, utilizing a three-person team. Profiles of the audit team members, their qualifications and responsibilities are provided in Appendix 6.

3.2 Management Unit Description

The White River Forest (WRF) is located within the Wawa District of the Northeast Region of the Ministry of Natural Resources and Forestry (MNRF). The Forest is situated along the Highway 17 corridor with the town of White River being centrally located within its boundary. The Forest shares a common boundary with Pukaskwa National Park in the southwestern corner of the unit (Figure 1). Crown managed land encompasses an area of approximately 579,468 hectares (Table 2). Patent land and Indigenous Reserves make up less than 1% of the land area.

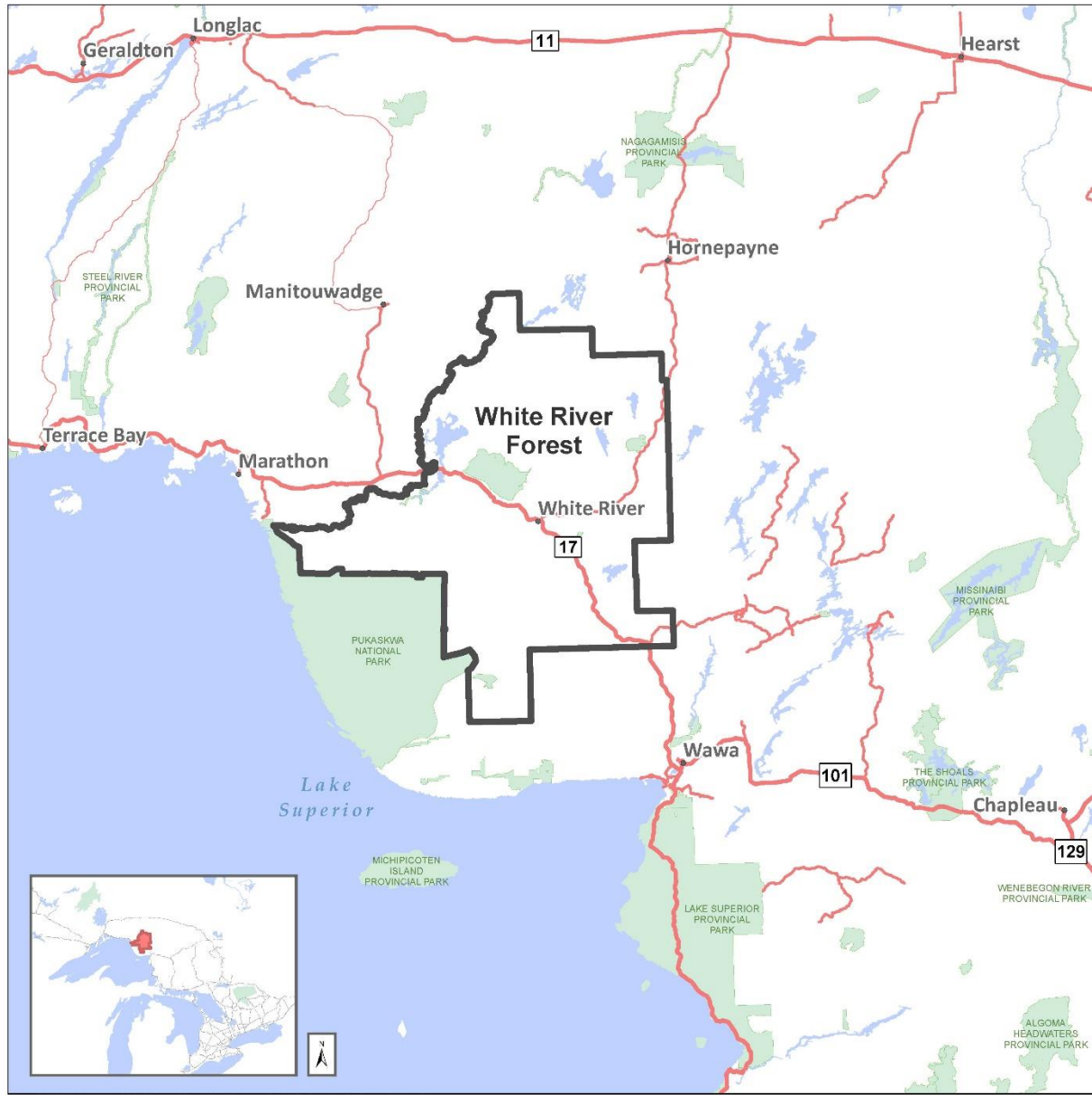


Figure 1 Location of the White River Forest.

The WRF is located entirely within the Boreal Forest Region and is dominated by black and white spruce, jack pine, poplar and mixedwood associations of hardwoods and conifers. Figure 2 presents the area of managed productive forest by forest unit. Site types range from shallow mineral soil over bedrock to areas with deep organic soils. The age class structure is skewed towards mature and older age classes.

Wood markets for fibre include AV Terrace Bay Inc. (pulp and paper), Rayonier Chapleau (lumber) and Levesque Plywood Ltd (veneer). Biomass is marketed to Hornpayne Power Inc., Atlantic Power Corp. In addition to forestry, recreation (remote

tourism, angling and hunting), mining and hydro power generation are all significant contributors to the local economy.

One Local Citizens Committee (LCC) is associated with the Forest (White River Area Co-Management Committee).

Table 2 Area of Crown Managed Land by Land Type (Ha)

Managed Crown Land Type	Area (Ha)
Non-Forested	55,349.9
Non-Productive Forest	24,070.4
Protection Forest ²	2,476.1
Production Forest ³	497,572.0
Forest Stands	432,857.0
Recent Disturbance	47,679.7
Below Regeneration Standards ⁴	17,035.2
Total Productive Forest	500,048.0
Total Forested:	524,118.5
Total Crown Managed:	579,468.4

Source: FMP 1 2018 FMP

There are four First Nations (FN) and a Métis Association with an interest in the WRF: the Pic Mobert FN, the Biigtigong Nishnaabeg (Ojibways of Pic River) FN, the Michipicoten FN, the Missanabie Cree FN and the Red Sky Métis Association.

The Forest supports a diversity of wildlife species common to the Boreal Forest Region. Several Species at Risk (SAR) are associated with the WRF including the: peregrine falcon, golden eagle, eastern cougar, bald eagle, whip-poor-will and the woodland caribou. The 2018 FMP addresses the requirements of the Caribou Conservation Plan (CCP) on a small area of the Forest that intersects the Lake Superior Coastal Caribou

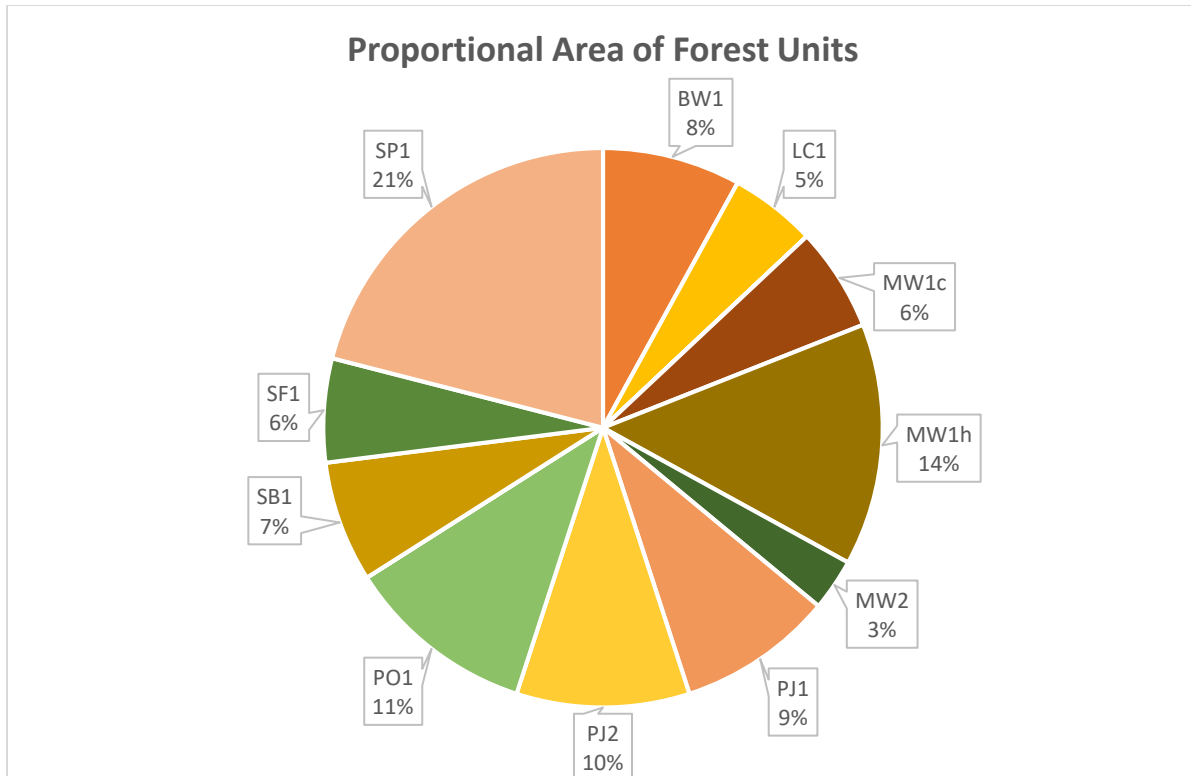
² Protection forest land is land on which forest management activities cannot normally be practiced without incurring deleterious environmental effects because of obvious physical limitations such as steep slopes and shallow soils over bedrock.

³ Production forest is land at various stages of growth, with no obvious physical limitations on the ability to practice forest management.

⁴ Below Regeneration Standards refers to the area where regeneration treatments have been applied but the new forest stands have yet to meet free-to-grow standards.

Range. The majority of the land base is situated within the discontinuous⁵ caribou range.

Figure 2 Proportional Area Managed Productive Forest by Forest Unit⁶



Source: FMP 3 – 2018 FMP – Updated to 14/11/2016

4.0 Audit Findings

4.1 Commitment

The Commitment Principle is deemed to be met since the Forest is certified under the Forest Stewardship Council (FSC).

⁵ Discontinuous range is not managed broadly for caribou habitat to support self-sustaining populations. Instead it is managed with a focus on specific landscapes that may support temporary caribou occupancy or movement between the continuous range and Lake Superior.

⁶ Forest Units are as follows: BW1=White Birch Dominated, LC1= Black Spruce/Cedar/Larch MW1=Jack Pine/Birch/Aspen MW2= Black Spruce/Aspen PJ1= Jack Pine, PJ2= Jack Pine/Black Spruce PO1=Poplar SP1=Black Spruce Lowland, SF1= Spruce/Fir/Cedar SP1=Spruce/Jack Pine.

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

First Nations and Métis Communities

There are four First Nation (FN) communities associated with the White River Forest. These include the Michipicoten FN, Missanabie Cree FN, Pic Moberg FN and the Biigtigon Nishnaabeg FN (formerly Ojibways of Pic River). The Red Sky Independent Métis are also associated with the Forest and the Métis Nation of Ontario (Toronto and Thunder Bay) are included in the MNRF contact list.

Our sample of documents indicated that for the development of the 2018 Phase 1 FMP the MNRF met all FMPM requirements for notices and invitations to the involved communities to participate in the process. Offers were made for information sessions and community meetings. All the FN communities participated, at different extents, in the planning process. We note that the Missanabie Cree FN has been negotiating a customized consultation process with the MNRF Regional Office to better address the community's concerns. Aboriginal Background Information and updated values information was available for the planning process.

The 2014 IFA included a recommendation with respect to Crown stumpage issues associated with the PIC Moberg FN. That recommendation was addressed, and the issue was resolved. Direct FN involvement in the WRF is evident in that White River Forest Products Limited (WRF LP) is co-owned by the Pic Moberg Sawmill Corporation and Maywayyawk Forest Services (MFS) an aboriginal-owned logging company is currently harvesting on the Forest.

Our interviews and document review indicated that the previous SFL holders (WRFP, WFRP LP and NFMC) and MNRF met FMPM requirements with respect to FN and Métis involvement in forest management planning and implementation during the audit term.

Local Citizens Advisory Committee

There is one Local Citizens Committee (LCC) associated with the Forest called the White River Area Co-Management Committee (WRACC). This is a standing committee with members appointed by the MNRF District Manager. The membership represents a range of community interests including FN representation. The 2014 IFA included a recommendation that the Committee review its Terms of Reference and update its operating practices. That work was completed. However, during the audit some members had left the Committee which resulted in the loss of representation for some community interests. A number of initiatives (e.g. posters, individual contacts, and solicitation letters) have been taken over the years to attract new members with limited success.

Interviews with members indicate there is a good working relationship with both the MNRF and NFMC as well as the previous SFL holders. Meeting minutes document a

full range of natural resource topics (e.g. fisheries, wildlife) as well as forest planning and implementation (e.g. FMP development, Annual Work Schedules). There is an updated Terms of Reference (2018) and a review of the meeting minutes indicated there was normally a quorum. A self-evaluation survey completed by WRACC members (2018) indicated an average 8.1 satisfaction rate out of a possible 10.

The LCC statement in the 2018 FMP indicated “...*White River Area Co-Management Committee has been kept informed ... and is in general agreement with the WRF 2018-2028 Forest Management Plan.*”

Our assessment is that this is a well-functioning LCC that fully meets the requirements and intent of the FMPM.

4.3 Forest Management Planning

The 2018-2028 Phase I FMP was prepared by a service provider (Jackfish River Management Ltd. (JRML)) under contract with WRF supported by a multidisciplinary team of representatives from the SFL holder and the MNRF. We found the planning for the 2018 FMP met FMPM requirements. Representatives from all the First Nations participated (to various extents) on the FMP Planning Team and the LCC was engaged and provided input into the planning process. Planning milestones and consultation requirements for the development of the plan were met.

We conclude that the LTMD appropriately achieved a satisfactory balance of all objectives and indicators, was consistent with legislation and policy, appropriately considered direction in the forest management guides and provides for forest sustainability. There were no requests for Issue Resolution during the 2018 FMP planning process.

The Strategic Forest Management Model (SFMM) was utilized as the primary modelling platform with additional analysis support provided by geographic information system analysis (e.g. assessment of landscape patterns). Inputs and assumptions used to develop modelling inputs for forest dynamics, landscape targets and silvicultural options were reasonable and based on the best information available. Base assumptions and constraints for management were detailed in the FMP and supplementary documentation.

An enhanced Forest Resource Inventory (eFRI) updated to 2017 was available for the development of the FMP Planning Inventory. For the development of the Long-Term Management Direction (LTMD), the Forest was portioned into two strategic management zones (east and west). Plan objectives, indicators, desirable levels and targets for harvest and wildlife were developed by the Planning Team with input from the LCC and MNRF advisors. Information sources for the development of the plan included the 2008 FMP, MNRF guides and planning directions, Annual Reports and the 2014 IFA. Operational prescriptions for Areas of Concern (AOC) were consistent with the *Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales* (Stand and Site Guide). Silviculture Ground Rules (SGRs) were developed by a

Registered Professional Forester with support from the Planning Team, Plan Advisors and other experienced local resource personnel.

As required by the FMPM, all progress checkpoints (e.g. planning inventory, management objectives checkpoint, LTMD checkpoint) were confirmed and documented in the Analysis Package. Planned operations met the intent of the LTMD.

FMPM requirements for the determination of available harvest volumes were met in accordance with the MNR Forest Resources Assessment Policy (FRAP). It is noteworthy that there is a projected decline in poplar harvest and that previous FMPs supported higher levels of poplar harvest than the Forest can now support. This projected decline results from a reduction in the forest inventory in poplar volume and the mandate to manage the landscape class areas within their simulated range of natural variation to achieve long-term sustainability. We concur with the planning team approach to maximize the poplar harvest (first 10 years of plan term) within a strategy that balanced the planned cut with other social, economic and environmental objectives.

Operational planning considered the most current values information, relevant guidelines (e.g. Ontario's Woodland Caribou Conservation Plan (CCP), Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales) and public input. Species at Risk (SAR) were appropriately considered during planning. Habitat descriptions, the application of guidelines and operational prescriptions are provided in the FMP text and supplementary documentation. Woodland Caribou is listed as a threatened species under the Endangered Species Act (ESA) (2007) and managed under the Forest Management Guidelines for the Conservation of Woodland Caribou: A Landscape Approach (MNR 1999), as well as the Ontario's Woodland Caribou Conservation Plan (CCP). Although the majority of WRF is within a discontinuous caribou range a small portion of the Forest (western most edge) is situated within the Lake Superior Coastal Caribou Range. Guidance provided in the CCP for the Lake Superior Coastal Zone requires that the caribou population be managed for security and persistence. Due to the small area and alternate habitat requirements, the Planning Team determined that the use of standard habitat indicators with standard habitat classification models was not appropriate and elected to manage the area for defragmentation based on strategies which included the creation and or maintenance of conifer habitats, the harvest of continuous tracts, and avoidance of conversions to mixedwoods. The audit team determined that the strategies adopted are appropriate given the relatively small area affected and prevailing site and topographic conditions.

Values maps were updated during the planning process and MNR staff indicated that there was adequate funding to collect values information. Public input with respect to values protection was also documented, verified and where appropriate added to values maps. Area of Concern (AOC) prescriptions conformed to MNR direction and prescription documentation included a section for an analysis of alternatives to protect the value should that be required.

Road access planning was in accordance with the requirements of the FMPM. An

environmental analysis of the advantages and disadvantages of alternative road corridors, the road use management strategies and costs of construction and maintenance are provided in the Supplementary Documentation.

All resource-based tourism operators were contacted by WRFP to determine if there was an interest in negotiating a Resource Stewardship Agreement (RSA) but no agreements were in effect during the audit term. Tourism values were protected through the application of the Management Guideline for Forestry and Resource-Based Tourism and the development and implementation of area of concern (AOC) prescriptions.

Eighteen FMP amendments (17 administrative, 1 minor) and related revisions were approved during the audit period. All amendments were consistent with FMPM direction, FMP objectives, and were appropriately documented.

The content of Annual Work Schedules (AWS) conformed to FMPM requirements and the proposed forest management activities were consistent with those outlined in the FMP.

4.4 Plan Assessment and Implementation

Poor market conditions and the related curtailments and closures of mills receiving fibre from the WRF significantly challenged the implementation of forest management activities during the audit term.

Harvest

Due principally to the economic downturn in the forestry sector the actual harvest levels were considerably below planned (~ 69%) (Table 3). All harvest operations utilized the clearcut silvicultural system. Conifer utilization significantly exceeded hardwood utilization reflecting available markets during the audit term. The lower than planned harvest levels resulted in the underachievement of planned targets for post-harvest silvicultural treatments.

During our field investigations all the inspected harvest blocks were approved for operations in the AWSs. No salvage harvest operations were undertaken during the audit term.

During the field inspections we did note a few instances where residual tree retention within the block could be improved to better reflect the size distribution and species composition of the original stand (e.g. Block 18421). The issues associated with residual tree retention could be characterized as localized and infrequent. Poplar utilization proved challenging for the forest manager as veneer recovery approximated 8-15% and markets for hardwood material were poor to non-existent. As a result of these circumstances most of the harvest blocks inspected contained poplar piled at the

roadside. All operations were consistent with the MNRF's Northeast Regional Operations Guide for Marketability Issues. We also noted some utilization issues related to large hardwood pieces in slash piles. The issue was attributed to problems utilizing the hardwood resource and occurred intermittently. MNRF and the SFL holder were aware of the issue and had addressed the problem with the implicated harvest contractor. Since the issue was not widespread, we have not issued a finding.

Table 3 Actual vs. Planned Harvest Area by Forest Unit (2014-2019)

Forest Unit ⁷	Planned Harvest (Ha)	Actual Harvest (Ha)	Actual vs Planned %
BW1	6,365	845	13
LC1	730	98	13
MW1	2,368	823	35
MW2	5,464	1,014	19
PJ1	9,636	4,406	46
PJ2	5,359	2,739	51
PO1	11,137	2,372	21
SB1	3,061	912	30
SF1	1,467	304	21
SP1	3,434	1,537	45
Total	49,021	15,050	31

Source: Year 10 Annual Report

We concluded that, on balance, harvest operations were properly implemented. All inspected harvest blocks were approved for operations in the AWSs. Harvest prescriptions were implemented in accordance with the Silvicultural Ground Rules (SGRs). There was little evidence of site or environmental damage. AOC prescriptions were properly implemented.

⁷ Forest Units are as follows: BW1=White Birch Dominated, LC1= Black Spruce/Cedar/Larch MW1=Jack Pine/Birch/Aspen MW2= Black Spruce/Aspen PJ1= Jack Pine, PJ2= Jack Pine/Black Spruce PO1=Poplar SP1=Black Spruce Lowland, SF1= Spruce/Fir/Cedar SP1=Spruce/Jack Pine.

Slash Management

The Year 10 Annual Report (AR) indicates that slash pile burning was planned on 1,000 ha and 81 ha were treated (Table 5). Slash burning is not a requirement under the FMP, however, NFMC encourages all operators to pile slash and implements a slash pile burning program when economies of scale and weather conditions permit. During our field inspection we observed both unburned piled slash and areas where it had been effectively burned.

Given the area harvested, the small scale of the slash management program and the opportunity to augment the burn program during subsequent operating years, the audit team concluded that the failure to meet planned slash management targets did not adversely influence the achievement of forest sustainability.

Area of Concern Management

Our sampling of AOC prescriptions (25) in the Annual Work Schedules (AWSs) confirmed that the prescriptions conformed to current MNRF direction and that they were appropriate for the protection and/or maintenance of the identified values. We note that AOC prescriptions were reviewed by MNRF prior to approval of each AWS.

The 2014 IFA recommended that the SFL holder develop an AOC for ground nesting raptors (e.g. northern harrier), create a clearer AOC prescription for shoreline harvesting and identify more shorelines as candidates for shoreline harvests. AOC prescriptions for ground nesting raptors and cut-to-shore harvesting were developed. During the audit term, economically viable opportunities for cut-to-shore harvesting were not available and no operations were planned or conducted. It is our assessment that the recommendations were adequately addressed.

In 2015-16 and 2016-17 there were six Not in Compliance (NICs) associated with AOC's. To address this issue the SFL holder and the MNRF increased inspections and the SFL holder held additional training sessions with its harvesting contractors. There were no AOCs NICs reported in the 2018 - 2019 FOIPs.

Our field inspections revealed that AOCs were established in accordance with the FMP and documented in the AWSs. We conclude that identified values were adequately protected, and that past compliance issues associated with AOCs were appropriately addressed in a timely manner.

Site Preparation (SIP)

During the audit term, SIP treatments achieved only 8% of the planned FMP targets principally due to the lower than planned harvest level (Table 4). Mechanical site preparation treatments comprised 82% of the SIP treatments but achieved only 12% of the planned FMP target.

Table 4 Area (Ha) of Actual vs. Planned Site Preparation (2014-2019)

Site Preparation Treatments	Planned 5 Year Ha	Actual Ha	Actual vs Planned %
Mechanical SIP	13,442	1,552	12
Chemical SIP	8,962	257	3
Slash Pile Burn	1,000	81	8
SIP Total	23,404	1,890	8

Source: Year 10 AR

SIP operations were by passive disc trenching or VHS Moulder. The inspected sites exhibited good mineral soil exposure. The treatments facilitated an appropriate spacing for planted trees. There was no evidence of significant environmental damage arising from the operations.

Chemical site preparation treatments were well below FMP targets (8,962 ha planned vs 257 ha actual). Chemical treatments are typically applied to achieve early competition control prior to artificial renewal. The treatment appeared to be effective in achieving early competition control on the sites we inspected. During our field assessment we visited a few harvest blocks (i.e. Block 111) where a chemical site preparation treatment would have been beneficial for the control of site competition. A finding is not provided as, on balance, we concluded that the program targeted appropriate sites and was effective.

Renewal

The Phase II FMP forecast an area of 31,121 ha of natural regeneration and 15,232 ha of artificial renewal (Table 5). FMP renewal targets were not achieved due to the lower than planned harvest.

The reported area renewed lags behind (59%) the area harvested⁸ largely reflecting a delay in the reporting of natural regeneration. All renewal treatments observed in the field were consistent with the SGRs.

Natural renewal treatments were implemented on approximately 11% of the harvest area and were typically prescribed for hardwood dominated forest or areas of lowland black spruce. Our inspections of harvest blocks managed for natural renewal found the blocks were typically well stocked to the desired tree species.

Artificial renewal was the most frequently renewal method utilized during the audit term. Treatments were most commonly implemented on conifer or conifer-dominated mixedwood harvest blocks. Although well below the plan forecast level (45%), tree planting was the most frequently adopted artificial renewal technique. Our site

⁸ 14,974 ha were harvested, and 8,887 ha were renewed at the end of 2019.

inspections found some issues related to the planting program; there were instances where trees had been planted next to slash piles and destroyed when the piles were burned, some gaps within planted areas were observed and there were instances of poor planting site selections (i.e. too close to naturals, too near slash piles and unskidded timber). We attributed most of the observed shortcomings to inadequate planter training or supervision. NFMC has initiated a planting quality control program which should alleviate future quality issues. In spite of the foregoing, we concluded that on balance an effective tree artificial renewal program was implemented, and that the majority of planting sites were well planted with good initial densities and high survival rates. As such, we do not issue a finding related to planting quality observed at some sites.

Seeding treatments were applied on only 3% of the harvested area. Our site inspection of the treated site found the treatment was effective.

Renewal Support

NFMC obtains seed through the Northeast Seed Management Association (NESMA). There is an active cone collection program during the audit term and other renewal support activities (i.e. planting stock production) was sufficient to meet the renewal program requirements.

Table 5 Area (Ha) of Actual vs. Planned Renewal Treatments (2014-2019)

Renewal Treatments	Planned 5 Year (Ha)	Actual (Ha)	Actual vs Planned %
Natural Renewal	31,121	1,585	5
Artificial Renewal – Plant	15,232	6,834	45
Artificial Renewal – Seed	7,173	468	7
Total Renewal	53,526	8,887	17

Source: 2014-2018 Annual Reports

Tending

Aerial herbicide tending treatments were implemented on 4,278 ha (Table 6). The majority of sites inspected exhibited good competition control. NFMC monitors site competition and tending efficacy on an annual basis.

Table 6 Area (Ha) of Actual vs. Planned Tending Treatments (2014-2019)

Tending Treatments	Planned 5 Year (Ha)	Actual (Ha)	Actual vs Planned %
Aerial Herbicide Tending	15,232	4,278	28
Pre-Commercial Thinning	3,193	145	5
Total Tending	18,425	4,423	24

Source: 2014-2018 Annual Reports

Pre-commercial thinning occurred on 145 ha (5 % of the planned area). The forest manager attributed the lower than planned achievement of thinning to a lack of suitable areas resulting from the lack of harvest and silviculture work completed in previous plan terms. Our field assessment was that the operation was effective in reducing stand density.

Protection

No protection programs other than monitoring functions were implemented during the audit term.

Access Management

Road access was planned and constructed in accordance with the FMPs, AWSs and relevant forest management guidelines. Road construction and maintenance responsibilities are assigned to the harvest contractors. During the audit term, road construction was lower than planned due to the low level of harvest with no primary road construction and 12.5 kilometers of branch road constructed. In general, primary access roads were well maintained. Surface conditions on secondary roads were somewhat more variable reflecting the lack of operations in some of the inspected areas and/or a reduction in maintenance due to economic conditions

Decommissioning of 87.7 kms of operational roads was undertaken to reduce the loss of productive land and prevent public access into protected areas. Decommissioning activities included signage, ditching and berm construction. Our interviews with MNR staff and company representatives indicated that the decommissioning efforts were generally successful in preventing vehicle traffic.

Thirteen water crossings were constructed, and 39 crossings were replaced. Our field inspections found that, on balance, culvert installations were well-constructed. We did encounter some localized issues with respect to culvert installations situated in areas where the bedrock was at or near ground level. At these sites, typically less than ten percent of the pipe diameter was below the natural stream bed. Following discussions with the MNR and a review of FOIP reports, we concluded that these installations were not having an adverse effect on fishery values or fish movement.

During the field audit, we visited a sample of five operational aggregate pits and one pit that had been rehabilitated. FMP operational standards for forestry aggregate pits were typically met and there were few operational issues. We note that NFMC (with MNRF assistance) had delivered training to contractors with respect to aggregate pit use and maintenance. We also determined that aggregate pits were part of NFMCs systematic effort to verify and update data transferred from the two other SFL holders during the audit term.

4.5. Systems Support

The 2019 IFAPP Human Resources Principle criterion were met through the FSC certification.

4.6 Monitoring

NFMC, and previous SFL holders, prepared Compliance Plans as required by the FMPM and in accordance with the Guidelines for Industry Compliance Planning. Based on the ARs completed over the audit term, industry and the MNRF completed 239 FOIPs with 18 Not In Compliances (NIC) resulting in a 75% compliance rate. This is a relatively low compliance rate. We concluded that the low rate was largely attributable to Maygwayyawk Forestry Services (MFS) which was responsible for twelve of the 18 NICs (66%) reported (Finding # 1).

The SFLs completed approximately 82 percent of the inspections and the MNRF completed 18 percent. The number of inspections generally reflected directions in the company and MNRF Compliance Plans, responding to identified issues from the previous year, the number of contractors on the Forest and the level of harvest. Our assessment is that the balance of inspections between the SFL and MNRF properly reflected directions and priorities in the respective Compliance Plans.

The MNRF did encounter a backlog with respect to taking action on a number of FOIPs assigned a Pending designation. Prior to the field audit the MNRF placed a high priority on addressing the backlog and did provide the auditors with evidence that the backlog had been addressed (62 issues). We still provide a Finding (Finding #2) due to the fact that a number of the backlog issues were resolved outside of the period in the audit scope.

Throughout the audit term the SFL and MNRF compliance priorities and targets were responsive to identified issues (e.g. trespass, aggregate pits, etc.) and our evidence indicates that follow-up communications and training had taken place.

The 2014 IFA provided a recommendation that the MNRF Annual Compliance Plan be expanded to include the licensee's forecasted activities and detail how MNRF staff effort was to be allocated. We note that a MNRF Compliance Plan was not produced in 2015-2016 as a result of the MNRF transformation process (staff vacancies, recruitment and subsequent training). Despite the lack of a formal plan, the MNRF still completed

approximately 13 percent of the total inspections that year. Since 2016, plans were produced with formats and content that addressed the 2014 IFA recommendation.

Our assessment is that both the NFMC and MNRF compliance programs have been responsive to the activities on the WRF with respect to compliance targets, problem identification, and cooperative training initiatives. In spite of the organizational and operational challenges during the audit term our assessment is that the compliance program met the requirements of the FMPM, 2014 Forest Compliance Handbook and FMP targets and the 2014 IFA recommendation.

Monitoring of Silvicultural Activities

Silviculture assessments and other monitoring functions are summarized in the FMPs. Monitoring activities included Forest Operations Inspections, Assessments of Regeneration Success (Free to Grow (FTG), planting quality), post-tending assessments and monitoring programs for roads and water crossings.

Free to Grow Survey (FTG)

FMP-21 in the 2008 FMP forecasted that 57,583 ha would require survey for FTG. Over the FMP term 5,936 ha were surveyed with 98% of the surveyed area being declared FTG. The Year 10 AR reports that *“photo interpretation work for the development of the planning inventory provided stand descriptors and facilitated the entry and classification of old depletion areas in the forest inventory and resolved the FTG area backlog issue”*. Interviews with NFMC and WRF LP staff confirmed that the photo interpretation work had addressed the backlog in area requiring a FTG survey.

During the audit term, FTG surveys took place only in 2014 and 2015 (approximately 300 ha). We were initially concerned with the limited area surveyed since data derived from FTG surveys is used to inform the forest management planning process through the verification of SFMM modelling inputs (e.g., post-harvest successional pathways, regeneration delay periods and SGRs). FTG surveys also provide the forest managers with an understanding of the effectiveness of the renewal strategies and the quality of the regeneration.

The 2014 audit identified technical deficiencies associated with FTG assessments conducted on behalf of the SFL holder and a recommendation was provided. Action was taken to address this concern.

Assessment of Past Silviculture Performance

AR-10 in the Year 7 AR indicates that at the time of the report preparation 5,024 ha had been harvested and 5,310 ha had been surveyed for regeneration success. Ninety-eight percent of the area surveyed was deemed successfully regenerated (5,206 ha).

Direction in the 2017 Forest Operations and Silviculture Manual (FOSM) requires that two assessments of regeneration be undertaken: 1) the assessment of establishment and 2) the assessment of performance. Tables in the Year 10 AR reflect this

requirement. The assessment of silviculture performance proved challenging as the reporting format required by the 2017 FMPM (for the completion of AR-12, AR-13 and AR-14) requires that the area declared FTG be used as surrogate for the establishment area. Tables in the Year 10 AR reflect this circumstance and suggest that all forest units are progressing towards the LTMD silviculture objectives (i.e. forest units, yield).

In order to improve the assessment of silviculture performance and silviculture modelling in the LTMD, the Report Author recommends that forest unit classifications be refined and that forest managers create a tracking system to assist in the determination of post renewal successional pathways. The audit team concurs with these recommendations.

Silviculture Effectiveness Monitoring

The 2014 IFA recommended that the Wawa District implement a SEM program on the Forest (Recommendation # 7). MNRF did not implement Core Task 1⁹ Silviculture Effectiveness Monitoring (SEM) during all years in the audit term⁹ due to the lack of FTG surveys conducted by the SFL holder, and staffing issues associated with the MNRF transformation process.

The minimum Core Task 1 data collection target prescribed in the SEM direction is 10% of the area declared FTG in the most recent Annual Report. The 2014-2015 SEM survey assessed only 2% of the declared FTG area. The relatively small sample area associated with the Core Task 1 data collection targets on the WRF raises a concern with respect to SEM survey conclusions regarding the effectiveness and quality of regeneration. The misinterpretation of FTG data and survey results can have significant implications for forest modelling inputs (e.g., post-harvest successional pathways, regeneration delay periods SGRs (e.g., development information, successional pathways)).

MNRF Regional direction for Core Task 1 requires the District to document and analyze results, as well as discuss sampling procedures and areas requiring further investigation. SEM surveys were only conducted in 2014 and 2015 and the 2015 report only consisted of an Excel table (Finding 4).

Other SEM Core Tasks¹⁰ (i.e. 2, 3 and 4) were not undertaken as the District assigned a priority to the completion of Core Task 1 on the Forests¹¹ it administers. Core Tasks 2, 3 and 4 are instrumental in the determination of the effectiveness of the SFL holder silviculture program, conformance of silviculture activities with the FMP and forest

⁹ SEM surveys were conducted in 2015 and 2014.

¹⁰ Core Task 2: Conduct formal field surveys on a minimum 5% of the area declared FTG five years previously. Core Task 3: Conduct field visits to view silvicultural activities either listed in a recent AR and/or being currently implemented. Core Task 4: Participate in a project to assess a forest unit or silviculture activity requiring attention or investigation.

¹¹ During the audit term the Wawa District administered the following Forests; White River Forest, Magpie Forest, Big Pic Forest and Pic River Forest

sustainability. We are concerned with the limited scope and the singular focus of the SEM program delivered (Finding # 4).

Exceptions Monitoring

The 2008 FMP Phase II FMP required that eight exceptions to the silviculture guides be monitored for regeneration success (e.g. seeding of jack pine on ecosite 6a, planting of jack pine on Ecosite 8-13, etc.). Monitoring was to occur through post-harvest surveys, post treatment renewal surveys and Free-to-Grow surveys and reported on in the Year 3, 7 and 10 ARs. Changes to the SGRs removed the monitoring requirement in the 2008 Phase II FMP and the 2018 FMP. None of the planned operational prescriptions or SGRs under the 2018 FMP are exceptions to the approved forest management guides and exceptions monitoring is not required.

Forest Renewal Trust Specified Procedures Report

The Forest Renewal Trust (FRT) provides dedicated funding (reimbursement of silviculture expenses) to renew the forest according to the standards specified in the FMP. We inspected 31% of the area invoiced in the “*Forest Renewal Trust Specified Procedures Report*” (SPR) and confirm that FRT payments were for eligible silviculture work.

Monitoring of Roads and Water Crossings

Roads and water crossings are monitored by both the SFL holder and MNRF with inspections documented in FOIP. All roads with harvesting operations received active road maintenance and all other road networks were monitored on a rotation basis. Both the MNRF and NFMC conduct additional inspections as part of their respective compliance planning targets. Informal checks of roads and water crossings are conducted on an ongoing basis as part of the delivery of the forest management program. The FMP (Supplementary Documentation 6.1.7) provides direction on Primary, Branch and Operational roads that includes an environmental analysis of alternate corridors, use management strategies and access provision /restrictions. Road network identifiers and maps are included. The AWSs (Table 6) provide summaries of access road construction and maintenance.

Both NFMC inspections and MNRF compliance planning and monitoring placed a focus on water crossings. A review of ARs (2014- 2018) indicates there were issues associated with water crossings (3 NICs) and a number of Operational Issues that were resolved with corrective action. To address this issue, NFMC included a focus on water crossing standards in its 2018 annual contractor training session. As well, water crossings are part of NFMC’s systematic effort to verify and update data transferred from the two other SFL holders during the audit term. We note that the 2018-2019 MNRF Compliance Plan lists water crossing monitoring as a priority.

All water crossing calculations, installations and replacements are documented in the applicable AWS as outlined in the 2009 FMPM. The MNRF utilized the AWSs to

confirm, approve and monitor water crossings. MNRF inspections of water-crossing installations, repairs and removals conformed to its 2017 water crossing protocol¹²

Bridges on active haul routes are inspected once a year. Roads not used for timber operations are monitored on the basis of a risk assessment with emphasis on values that could be impacted (e.g. fish habitat) and public safety concerns.

During our field sample we inspected six bridges. The inspected bridges were in accordance with standards for construction and safety. In our travel between audit sites we did encounter a bridge where there were safety (e.g. signage) and environmental issues (e.g. gravel on the deck). Our discussions with NFMFC indicated data on bridges was being collected as part of its process to assess its liabilities on the Forest. We confirmed that a bridge inspection program is being implemented and understand that the bridge at issue had not yet received an inspection. NFMFC committed to undertake remedial actions to address the identified issues/concerns on a priority basis. A finding is not provided with respect to bridges as, on the basis of our sampling, the issues encountered at the site were an anomaly.

A review of the NFMFC developing inventory system did reveal that a number of ice bridges had not been recorded in the FOIP system (Finding # 3).

Our sampling of the invoices submitted to the Forest Roads and Maintenance Agreement (FRMA) indicated that they were complete and accurate.

Aggregate Pits

In the 2017-2018 MNRF Compliance plan forestry aggregate pits (FAP) were a priority focus due to reported safety issues. NFMFC also included pit safety, construction and maintenance as part of the annual training program provided to contractors. Aggregate pit FOIP inspections during the audit period did record some Operational Issues that were resolved through warnings and corrective actions. There were no recorded NICs. Our field inspections included five active aggregate pits and one decommissioned pit. These pits generally met FMP standards.

We note that NFMFC has enacted processes to document and assess its silviculture liabilities, update records on infrastructure (e.g. roads, water crossings and aggregate pits) and establish formalized monitoring schedules. This process includes the development and implementation of a computer-based program to manage information on the status and inspection results for aggregate pits. The approach is designed to ensure that pit operating standards are met, and that pits are rehabilitated by their closure date.

Annual Reports

ARs were available for each year in the audit scope except for the 2018-2019 AR, which is not required until November 15, 2019. Schedules for the submission and review of

¹² MNRF and Forestry/Fisheries and Oceans Canada Protocol for the Review and Approval of Forestry Water Crossings, 2017.)

the ARs were met. The content of the reports generally met the requirements of the 2009 and 2017 FMPMs. We did note some errors with the AR texts and tables (i.e. references to a 2011 FMP, typographical errors). The ARs were presented to the LCC as directed by the FMPM.

4.7 Achievement of Management Objectives & Forest Sustainability

FMP objectives are monitored annually and formally reported on in the Year 5 and Final Year Annual Reports. The lower than forecast level of harvest negatively affected the achievement of FMP objectives related to forest cover, forest diversity and those related to the economic benefits derived from forest management. Appendix 2 provides more details on our assessment of plan objective achievement.

The following trends identified in the Year 10 AR are significant:

- Planned harvest levels (area and volume) have not been achieved resulting in the underachievement of plan targets for silviculture activities and economic benefits.
- FMP objectives were largely met or there is movement towards FMP desirable levels.
- Conifer utilization was significantly higher than hardwood utilization.

The Year 10 AR Report Author concludes that forest sustainability is not at risk from the implementation of forest management activities and that planning objectives are meeting or are within an acceptable tolerance of desired levels in order to maintain progress towards sustainability.

In our assessment of forest sustainability, we examined factors such as the achievement of plan objectives, progress towards the desired future forest condition, and the level of benefits derived from the implementation of the Forest Management Plan. Our field site visits, document and record reviews and interviews also informed our sustainability conclusion. In spite of the low level of harvest, we concluded that the achievement of long-term forest sustainability as assessed by the IFAPP, is not at risk. Our conclusion is premised on the following:

- Forest management was planned and implemented in accordance with the Crown Forest Sustainability Act (CFSA) and FMP targets are consistent with the achievement of plan objectives and forest sustainability.
- Forest management modelling demonstrated that the planned operations met the intent of the LTMD.

- Despite the harvest area being lower than planned, the majority of FMP objectives and targets are being achieved or progress is being made towards their achievement.
- Silvicultural Ground Rules (SGRs) and Forest Operations Prescriptions (FOPs) were appropriate for the forest cover types and site conditions observed in the field.
- Regeneration efforts are aligned with the level of harvest and an effective program is being implemented as observed during the field audit.
- NFMC and MNRF compliance programs have been responsive to the activities on the WRF with respect to compliance targets, problem identification, and cooperative training initiatives.
- Recommendations and actions resulting from past IFAs were generally addressed (the auditors had a concern with the limited scope of the SEM program).

4.8 Contractual Obligations

We concluded that NFMC and its predecessor WRF LP were substantially in compliance with the terms and conditions of the licence agreements (See Appendix 3).

The IFAPP requires auditors to assess the effectiveness of the actions developed to address the recommendations of the previous audit. The recommendations had been appropriately addressed, with the exception that, in the opinion of the audit team, the Wawa District SEM program delivery did not fully meet the intent of Recommendation # 7 in the previous IFA (Finding # 4). The 2014 IFA also made a recommendation (Recommendation # 5) that “Regional MNRF must ensure Wawa District maintains a staffing level that enables fulfillment of their operational and regulatory mandate”. The corporate MNRF transformation process involved a major reassessment of workloads, and priorities followed by reassignments of staff across the entire organization. We concluded that the transformation process within MNRF addressed the recommendation.

4.9 Concluding Statement

It is our assessment that the MNRF, NFMC and WRF LP did a credible job managing the Forest during a period of upheaval characterized by weak to non-existent markets (for some tree species and forest products), the transformation process at the MNRF, and forest industry staff changes and turnovers associated with the transfers of the SFL. The SFL transfers and resultant assumption of management and field operations responsibility to NFMC resulted in a requirement that NFMC establish systems and processes to determine and/or verify its operational and silviculture liabilities,

monitoring/inspection requirements and data/knowledge gaps for the management and administration of the WRF. This process is on-going and will require time to be fully operational and functional.

The forest management planning process for the development of Phase I 2018 FMP met all legal and regulatory requirements which resulted in the production of a quality FMP and the implementation of an effective silviculture program with a good compliance record.

The audit team did identify some shortcomings, some which we elevated to the status of a finding while others we have included as observations in this report. Our findings are as follows:

- There is a requirement that NFMC continue its priority compliance focus on the operations of Maygwayawk Forestry Services (Finding # 1)
- A backlog of FOIP Operational Issues assigned a Pending designation remains outstanding (Finding # 2).
- NFMC must ensure that FOIP documentation is complete and submitted to the FOIP portal (Finding # 3).
- The District did not consistently meet the direction for SEM monitoring (Finding # 4).

The audit team concludes that the management of the White River Forest was generally 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 (SFL) # 550399 held by Nawiiginokiima Forest Management Corporation. 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

Independent Forest Audit – Record of Finding

Finding # 1

Principle 6: Monitoring

To determine whether these monitoring and reporting programs, as implemented, were sufficient to monitor and report on the effectiveness of forest operations in meeting FMP objectives

Purpose of 6.1: District compliance planning and associated monitoring

...review and assess whether an MNR compliance program has been developed and implemented to effectively monitor program compliance in accordance with MNR manuals, policies and procedures.

Procedure(s):

...assess whether the actual level of the overall monitoring program was in accordance with the FMP/plans and whether it was appropriate based on evidence gathered through analysis of related criteria, including field audits.

Purpose of 6.2.1: SFL holder compliance planning and monitoring

...review and assess whether an SFL compliance plan has been developed and implemented to effectively monitor program compliance and effectiveness in accordance with the conditions of the SFL..., the FMP and FIM...

Criterion 6.2.1

...the SFL company... shall prepare and implement a forest compliance plan... to ensure compliance with all applicable legislation, regulations, manuals, guides, FMP and AWS;

Procedure(s):

... the SFL has continued to maintain their overall forest management oversight role related to development and maintenance of the compliance plan and its implementation ...

Background Information and Summary of Evidence:

During the Audit term there were 18 inspections reported in FOIP that were assigned 'Not in Compliance'. Sixty-six percent of those (12) were attributed to Maywayyawk Forestry Services (MFS) operations.

The 2018-2019 MNRF Compliance Plan states: “Based on *Operational Issues reported in FOIP...MNRF will closely monitor MFS operations activities and will ensure WRF is kept up-to-date on operations and discovery of new issues.*” The 2017-2018 MNRF Compliance Plan reports “...that 70% of the operational issues reported were found in MFS operations.”

Discussion:

The MNRF Compliance Plans and priorities targeted issues associated with MFS performance. NFMC initiated training programs with MFS as a priority.

In spite of these efforts, our investigations indicated that MFS performance continues to be of concern for MNRF and NFMC. MFS has been responsible for 66% of the Not in Compliance findings on the WRF.

Finding # 1: Enhanced oversight and training initiatives have not resolved compliance issues associated with Maywayyawk Forestry Services.

Independent Forest Audit – Record of Finding

Finding # 2

Principle 6: Monitoring

To determine whether these monitoring and reporting programs, as implemented, were sufficient to monitor and report on the effectiveness of forest operations in meeting FMP objectives

Purpose of 6.1: District compliance planning and associated monitoring

...review and assess whether an MNRF compliance program has been developed and implemented to effectively monitor program compliance in accordance with MNRF manuals, policies and procedures.

Procedure(s):

...assess whether the actual level of the overall monitoring program was ...appropriate based on evidence gathered through analysis of related criteria, including field audits.

Background Information and Summary of Evidence:

During the audit term a backlog of FOIP reports identifying Pending Operational Issues (62) had developed.

MNRF Directive FOR 07 03 05 requires that *“identified Operational Issues are logged into FOIP, approved and then assigned a compliance status of Pending. MNRF inspectors verify all Operational Issues”*. The verification process may reject the Operational Issue and record it in FOIP as a Non-Issue or it may confirm the Issue as having the potential to be non-compliant with the legislation, licence, FMP or AWS. If it is confirmed as “non-compliant” then the MNRF, with industry involvement, will determine if corrective actions are required and the Issue remains designated in FOIP as Pending. When the correction occurs MNRF closes the FOIP. If it cannot be resolved, then a Not in Compliance is assigned.

The Directive does not assign a time limit to resolve a Pending Issue. However, the MNRF Annual Compliance Plans indicate some FOIPs with Pending status are several years old (e.g. Inspection 675945 (April, 2016); Inspection 676348 (October 2016); Inspection 676528 (November 2016); Inspection 684797 (September, 2017); Inspection 684788 (August, 2017)).

The extended time for the resolution of some Pending FOIPs indicates a backlog in addressing Issues. The April 2017 District Compliance Plan states: “A number of reports were in the system with operational issues pending MNRF verification and created backlog.”

The MNRF 2017- 2018 and 2018-19 Compliance Plans indicate a priority to “...clean up the old issues...” and “verification of operational issues” is listed as the highest priority.

At the field audit (June, 2019) the MNRF provided evidence that 62 Pending issues had been resolved and the backlog had been removed. A number of the pending issues were resolved outside of the audit scope (e.g. # 279392, # 279395).

Discussion:

During the five-year audit period there were three SFL holders. The licence transfers resulted in staff changes, record transfers and changing corporate cultures. The MNRF went through a major transformation process which resulted in staff vacancies, new compliance staff with associated training requirements. The compliance staff also had to establish new relationships with changing SFL staff.

Our experience in previous IFAs has been that restructuring results in uncertainty, work delays and work backlogs develop. The MNRF District has assigned a high priority to addressing the system backlog. At the time of the field audit we were provided with evidence that indicated the outstanding Operational Issues had either been resolved, or had Corrective Actions assigned by MNRF. Nevertheless, the backlog of a considerable number of FOIPs with a Pending designation did exist over the audit term.

Finding # 2: During the audit term there was a backlog of Forest Operations Information Program Operational Issues assigned a Pending designation.

Independent Forest Audit – Record of Finding

Finding # 3

Principle 6: Monitoring

To determine whether ... monitoring and reporting programs, as implemented, were sufficient to monitor and report on the effectiveness of forest operations in meeting FMP objectives

Purpose of 6.2.1: SFL holder compliance planning and monitoring

...review and assess whether an SFL compliance plan has been developed and implemented... in accordance with the conditions of the SFL..., the FMPM and FIM...

Criterion 6.2.1

...the SFL company... shall ... ensure compliance with all applicable legislation, regulations, manuals, guides, FMP and AWS;

Procedure(s):

... the SFL has continued to maintain their overall forest management oversight role related to development and maintenance of the compliance plan and its implementation ...

Background Information and Summary of Evidence:

A review of NFMC records and FOIP submissions indicates that FOIP documentation has not been submitted for a number of forest management activities. These are;

- 5 culvert installations (e.g. #1207, #1226, # 1100)
- 11 ice bridge installations/removals (e.g. #1292, #1295, # 1296)
- over 40 Compliance Reporting Areas (CRA's) where operations occurred, and inspections have not been completed, or FOIP reports have not been finalized (e.g. Block 346, CRA 346-1, FOIP #67646800).

It is a requirement of the CFSA and the Compliance Handbook that FOIP reports be submitted and approved.

Discussion:

During the audit term there were three SFL holders. Our experience, in conducting audits where SFL transfers have taken place, is that there are some gaps in information/knowledge occur. There follows a period where those gaps are identified, and plan/actions are put in place to deal with those issues. NFMC has systematically identified problem areas and is developing appropriate responses.

Finding # 3: Forest Operations Information Program documentation is incomplete, or has not been submitted, for a number of forest management activities.

Independent Forest Audit – Record of Finding

Finding # 4

Principle 6: Monitoring

Criterion: 6.3 Silvicultural Standards Assessment Program

Procedure(s): Assess whether the management unit assessment program (SFL and MNR District) is sufficient and is being used to provide the required silviculture effectiveness monitoring.

Background Information and Summary of Evidence:

MNR District did not implement Silviculture Effectiveness Monitoring (SEM) during all years of the audit term due to *“the lack of FTG surveys conducted by the SFL holder, and District staffing issues associated with the MNR District transformation process where many technical positions were unfilled”*.

The minimum Core Task 1 data collection target prescribed in the SEM direction is for the MNR District to assess 10% of the area declared FTG in the most recent Annual Report. The 2014-2015 SEM survey assessed only 2% of the declared FTG area. Other SEM Core Tasks (i.e. 2, 3 and 4) were not undertaken since the District assigned a priority to Core Task 1 to other Forests it administers.

SEM reporting was also not consistent. SEM reports require documentation of Core Task 1 results, sampling procedures, summarized findings and trends, the rationale for the findings and areas requiring further investigation. In 2015, only an Excel table was produced to report the survey findings.

Discussion:

A key principle of Ontario’s forest sustainability framework is to ensure that regeneration efforts are achieving the standards in the Forest Management Plan. The effectiveness of forest operations prescriptions in achieving the desired forest unit must be understood to facilitate reporting on forest sustainability and to provide reliable information for forest management planning (e.g. development of SGRs, SFMM inputs, FMP objectives). Information collected through the SEM Core Tasks assist in the determination/assessment of the extent to which regeneration efforts meet the regeneration standard. The information also aids in the assessment (over time) of the effectiveness of the SFL holder silviculture program, conformance of silviculture activities with the FMP, and forest sustainability.

The relatively small sample area associated with the MNR District Core Task 1 data collection targets raises concerns with respect to SEM survey conclusions regarding the effectiveness and quality of regeneration. The interpretation of FTG data and

survey results has significant implications for forest modelling inputs and the development of silviculture ground rules (SGRs).

SEM Core Tasks 2, 3 and 4 were not addressed on the WRF.

Finding # 4:

The Wawa District did not fully meet Silviculture Effectiveness Monitoring program direction on the White River Forest.

Appendix 2
Management Objectives Table

2008 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET,)	AUDITORS COMMENTS
		at risk and selected wildlife remain relatively unchanged. Habitats for provincially and locally featured species were protected by AOC prescriptions.
2.3: Maintain 10-20% of the forest which has the capability to produce marten habitat in suitable conditions in core areas.	MET	The target for suitable marten core habitat was met.
2.4: To provide early successional shoreline forest habitat similar to what would be created during natural disturbance events.	PARTIALLY MET	No shoreline areas were planned for harvesting or harvested. An AOC was developed.
2.5: To maintain wildlife habitat for species at risk with known occurrences in the forest.	MET	Met for 2008/18 plan. Since 2014, it is tracked through the Boreal Landscape Guide Indicators. However, habitat trends for species at risk and selected wildlife remain relatively unchanged. All AOC prescriptions (that were implemented) were in compliance with the FMP.
Objective 3: Social and Economic: 3.1: Ensure that enough roads are in place to allow for effective and efficient forest operations while also limiting company and	MET	Road construction and maintenance were sufficient for operations. Due to low harvest levels, road construction and

2008 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET,)	AUDITORS COMMENTS
ministry liability for roads that are no longer required.		maintenance was lower than planned.
3.2: Implement forest operations in a manner that minimizes conflicts with non-timber resource users, protects non-timber values, in order to provide the opportunity to benefit from the forest.	MET	AOC prescriptions were appropriate to protect and maintain values. Resource-based tourism values were protected by AOCs as no RSA were signed.
3.3: Provide a continuous, predictable and economic supply of quality timber products required by wood processing facilities that receive wood from the forest.	MET	Wood supply targets were met in SFMM with the exception of poplar. Due to poor market conditions during the audit term harvest targets (volume and area) were not achieved. Wood commitments were met to the extent possible given the prevailing market conditions.
3.4: To minimize the impact of forest operations on cultural heritage values.	MET	There were no reported instances of forest management activities impacting identified cultural heritage sites.
3.5: To undertake all forest operations using sound environmental practices such that any negative environmental impacts are avoided or minimized	MET	No incidences of environmental damage arising from forestry operations were observed.

2008 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET,)	AUDITORS COMMENTS
3.6: To ensure the maintenance of riparian areas, water quality and habitat for fisheries resources adjacent to water bodies where forest management activities occur.	MET	No incidences of environmental damage to riparian areas or water were observed.
3.7: Maintain the area of managed available for timber production at the highest level possible by minimizing the conversion of Crown forest area to non-forested area.	MET	A slash management program is implemented on the Forest. An effective renewal program is being implemented.
3.8: To provide First Nations involvement in Forest Management Planning Activities.	MET	All FNs were invited to participate on the Planning Team. Approximately 50% of planning team meetings were attended by FN communities.
3.9: To encourage and support the participation of the LCC development of the FMP.	MET	An LCC member was on the planning team and the committee was appraised of activities throughout the planning process. The LCC rating through self - evaluation for the 2018 FMP was 8.1 out of a possible 10.

2008 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET,)	AUDITORS COMMENTS
3.10: To improve forest operations compliance on the WRF.	PARTIALLY MET	<p>There were different harvest levels with corresponding different compliance priorities and targets over the period. No direct comparison can be made.</p> <p>However, during the 2014-2019 period, with the exceptions noted in this report (Findings 1 and 3) we determined the SFL holders implemented an effective compliance program on the Forest.</p>
Objective 4: Silviculture: 4.1: Ensure successful renewal of harvested stands	MET	Our site inspections found that an effective renewal program was implemented.
4.2: To reduce the use of pesticides while maintaining forest productivity	MET	The FSC certification requires a reduction in the use of herbicides. Areas are assessed for the requirement to treat competition with herbicides.

Appendix 3
Compliance with Contractual Obligations

Licence Condition	SFL Holder Performance
Payment of Forestry Futures and Ontario Crown charges.	Forest Futures and Crown charges were paid.
Wood supply commitments, MOAs, sharing arrangements, special conditions.	Commitments were met to the extent possible as constrained by market conditions during the audit term.
Preparation of FMP, AWS and reports; abiding by the FMP, and all other requirements of the FMPM and CFSA.	Phase 2 of FMP was completed and approved as required by the FMPM and CFSA. The 2018 FMP was prepared in accordance with the relevant FMPM. AWS and ARs were prepared and approved as required.
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM.	Inventories and surveys were completed. Information was collected and provided in accordance with the FIM. FTG surveys were not completed annually but a backlog in the area requiring survey does not exist.
Wasteful practices not to be committed.	There were no reported incidences of wasteful practices and none were observed during the audit term with the exception of some large material in slash piles. These incidences were localized, and action was taken to address the issue.
Natural disturbance and salvage SFL conditions must be followed.	There were no salvage operations during the audit term.
Protection of the licence area from pest damage, participation in pest control programs.	No pest management programs were conducted during the audit term.
Withdrawals from licence area.	There were no withdrawals from the license area.
Audit Action Plan and Action Plan Status Report prepared.	The audit Action Plan and Action Plan Status Report were prepared and submitted.

Payment of forest renewal charges to Forest Renewal Trust (FRT).	Renewal Charges were paid as required and there was no outstanding debt to the Crown.
Forest Renewal Trust eligible silviculture work.	The field audit verified that payments from the FRT were for eligible silviculture work.
Forest Renewal Trust forest renewal charge analysis.	A FRT charge analysis was completed on an annual basis.
Forest Renewal Trust account minimum balance.	The Minimum balance of \$1,694,800 was maintained in each year of the Audit term. As of April, 2019 there was a surplus in the account.
Silviculture standards and assessment program.	Silviculture assessments were completed on an annual basis with the exception of FTG surveys. No backlog in FTG survey work exists.
First Nations and Métis opportunities.	Opportunities were provided. A First Nations logging company is active on the unit (MFS). WRFP is partially owned by the Pic Moberg First Nation.
Preparation of a compliance plan.	Compliance plans were prepared as required.
Internal compliance prevention/education program.	The Company conducts annual education and training programs for contractors.
Compliance inspections and reporting; compliance with compliance plan.	Compliance inspections were completed with the exceptions reported in Findings # 1 and Finding # 3.

Appendix 4

Audit Process

Appendix 4

Audit Process

The IFA consisted of the following elements:

Risk Assessment: A risk assessment was completed in April 2019 to determine which IFAPP optional procedures would be audited. The risk assessment report was submitted to the Forestry Futures Trust Committee and the MNRF Integration Branch for endorsement and approval on April 9, 2019.

Audit Plan: An audit plan describing the schedule of audit activities, audit team members, audit participants and the auditing methods was prepared and submitted to the NFMCC, MNRF Wawa District, Northeastern Region MNRF Office, Forestry Futures Trust Committee and the LCC Chair in April 2019.

Public Notices: Public participation in the audit was solicited through the placement of notices at various public locations in the town of White River and a random mailing to 100 individuals/organizations listed on the FMP mailing list. All Indigenous communities with an interest in the Forest were contacted by mail and invited to participate and/or express their views. Indigenous community leaders/forestry staff received several follow-up calls and/or e-mails.

All LCC members received an email explaining the audit process with an invitation to participate in the audit process. A sample of LCC members received follow-up telephone calls and interviews. Harvest contractors were invited by letter to participate in the field audit and/or provide comments to the audit firm.

Field Site Selection: Field sample sites were selected randomly by the Lead Auditor in April 2019. Sites were selected in accordance with the guidance provided in the IFAPP (e.g. operating year, contractor, geography, forest management activity, species treated or renewed, and access) using GIS shapefiles provided by the NFMCC. The sample site selections were reviewed by NFMCC, Jackfish River Forest Management staff and MNRF District staff during a teleconference call (Zoom Meeting) on May 16, 2019.

Site Audit: The audit team spent 5 days on the WRF in June conducting the field audit, completing document and record reviews and interviews. The field audit achieved a minimum 10% sample of the forest management activities that occurred during the audit term (see the IFA Field Sampling Intensity on the WRF below). A sample of the areas invoiced in the “*Forest Renewal Trust Specified Procedures Report*” (SPR) was also inspected to verify conformity between invoiced and actual activities¹³. The field inspection included site-specific (intensive) and landscape-scale (extensive helicopter) examinations. The Closing Meeting was held on June 28.

¹³ Fiscal year 2017-2018.

Not every hectare of the area sampled is surveyed, as this is not feasible. Individual sites are selected to represent a primary activity (e.g. harvesting, site preparation) but all associated activities that occurred on the site are assessed and reported in the sample table. The audit team also inspected the application of Areas of Concern prescriptions, aggregate pit management, and rehabilitation and water crossing installations.

Report: This report provides a description of the audit process and a discussion of audit findings and conclusions.

Procedures Audited by Risk Category

Principle	Optional – Applicable (#)	Optional – Selected (#)	Optional - % Audited	Mandatory Audited (#) (100% Audited)	Comments
1. Commitment	N/A	N/A	N/A	N/A	The FSC certification met IFAPP Principle 1 criterion.
2. Public Consultation and FN/Metis Community Involvement & Consultation	5	0	0	2	
3. Forest Management Planning	27	1	4	31	3.5 - The previous audit identified issues related to compliance planning.
4. Plan Assessment & Implementation	4	0	0	8	
5. System Support	2	2	100	N/A	5.1./5.2 were audited as NFMC only assumed the SFL in 2018.
6. Monitoring	10	4	40	9	6.2.1./6.2.2 There are a significant number of FRLs requiring that an effective compliance program be planned and implemented. The previous audit identified issues related to compliance planning.

					6.5 The previous audit identified issues related to silvicultural monitoring. 6.4 Findings support auditor conclusion.
7. Achievement of Management Objectives and Forest Sustainability	0	0	0	12	
8. Contractual Obligations	5	0	0	23	

IFA Field Sampling Intensity on the White River Forest

Activity	Total Area (Ha) / Number	Planned Sample Area (Ha)	Actual Area (Ha) Sampled	Number of Sites Visited	Percent Sampled
Harvest	14,974	1,497	2,278	57	15
Renewal (Artificial & Natural)	8,419	841	1,673	38	20
Seeding	468	46	45	1	10
Site Preparation	1,890	189	587	13	31
Pre-commercial Thinning	145	14	34	1	23
FTG	300	161	161	2	54
Water Crossings (# of Crossings)	117	12	16	16	14
Aggregate Pits (# of Pits)	56	6	6	6	11
SPA Activities	3,817	381	1,202	22	31

Source: NFMF Forestry Shapefiles

Summary of Consultation and Input to the Audit

Public Stakeholders

Public participation in the audit was solicited through public notices in White River. The notice invited interested individuals to contact the audit firm with comments and/or complete a survey questionnaire on forest management during the audit term on the Arbex website.

One hundred individuals/organizations on the FMP mailing list received a letter and the survey questionnaire. Two responses were received.

An additional sample of stakeholders (6) was contacted directly by telephone. Comments were received from resource-based tourism operators and anglers and hunters. All respondents indicated that they had been made aware of FMP processes and opportunities to engage in the planning process. Some specific concerns/comments expressed to the audit team included:

- Protection of trapline trails.
- Generally satisfied with efforts of the MRF and SFL holder to keep them informed.
- Concern about wood left at roadside.

MNRF

MNRF District and Regional staff who attended the field audit and/or had responsibilities on the WRF were interviewed. General comments and concerns expressed by staff to the auditors were:

- Concern with respect to lack of available markets for forest products.
- Concern with the lack of FTG survey work completed during the audit term.
- Concern with respect to the compliance record of one harvest contractor.

NFMC

NFMC staff were interviewed and participated the field audit. General comments made to the audit team included:

- A concern with weak forest products markets.
- A concern about the accuracy and/or completeness of documentation received during the SFL transfer process.
- Pleased with the positive relationship with MNRF staff.

LCC Members

Individual members of LCC received a letter inviting their participation in the audit and several LCC members (6) were interviewed. The LCC chairperson participated in the field audit. General comments to the audit team included:

- Pleased with the relationship with NFMC and MNRF.
- Concern with respect to hauling operations including radio communications and truck speeds.
- Concern about wood left at roadside.

First Nations

All Indigenous and Métis communities with an identified interest in the Forest were contacted by mail, telephone and/or email and asked to express their views on forest management during the audit term and/or participate in the field audit. Comments expressed to the audit team included:

- Desire for greater participation and sharing of forest management benefits.
- Concern about herbicide spraying.
- A desire for greater involvement in forestry.
- A desire to create/expand buffer zones on culturally significant water bodies.
- A concern that road decommissioning limits access to traditional territories.
- A spokesperson for the Missanabie Cree FN indicated that the existing forest management consultation process does not provide meaningful community input.

Harvest Contractors

Contractors were sent a letter inviting their participation in the audit and inviting comment on forest management activities during the audit term. No responses were received

Appendix 5
List of Acronyms Used

List of Acronyms Used

AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
B.Sc.F.	Bachelor of Science in Forestry
CCP	Caribou Conservation Plan
CFSA	Crown Forest Sustainability Act
CRAs	Compliance Reporting Areas
DCHS	Dynamic Caribou Habitat Schedule
eFRI	Enhanced Forest Resource Inventory
ESA	Endangered Species Act
FAP	Forestry Aggregate Pit
FFTC	Forestry Futures Trust Committee
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FN	First Nation
FOIP	Forest Operations Information Program
FOP	Forest Operations Prescription
FOSM	Forest Operations and Silviculture Manual
FRT	Forest Renewal Trust
FRMA	Forest Roads and Maintenance Agreement
FSC	Forest Stewardship Council
FTG	Free-to-Grow
FU	Forest Unit

Ha	Hectares
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
JRML	Jackfish River Management Ltd.
KM	Kilometer
LCC	Local Citizens Committee
LTMD	Long-Term Management Direction
m ³	Cubic Metres
MFS	Maywayyawk Forest Services
MNRF	Ministry of Natural Resources and Forestry
NESMA	Northeast Seed Management Association
NFMC	Nawiiginokiima Forest Management Corporation
NIC	Not in Compliance
R.P.F.	Registered Professional Forester
RSA	Resource Stewardship Agreement
SAR	Species at Risk
SEM	Silviculture Effectiveness Monitoring
SFL	Sustainable Forestry Licence
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rule
SIP	Site Preparation
SPR	Specified Procedures Report
VS	Versus
WRF	White River Forest
WRFP	White River Forest Products
WRACC	White River Area Co-Management Committee

Appendix 6
Audit Team Members and Qualifications

Appendix 6

Audit Team Members and Qualifications

Name	Role	Responsibilities	Credentials
Mr. Bruce Byford R.P.F. President Arbex Forest Resource Consultants Ltd.	Lead Auditor Forest Management Planning Harvest & Silviculture Auditor	Audit Management & coordination Liaison with MNRF and FFTC Review documentation related to forest management planning and review and inspect silviculture practices Determination of the sustainability component.	B.Sc.F. ISO 14001 Lead Auditor Training. FSC Assessor Training. 39 years of consulting experience in Ontario in forest management planning, operations and resource inventory. Previous work on 41 IFA audits with lead auditor responsibility on all IFAs. 27 FSC certification assessments with lead audit responsibilities on 7.
Mr. Al Stewart Arbex Senior Associate	Public Participation including First Nations & LCC Participation in Forest Management Process Forest Compliance Road Construction and Maintenance Forestry Aggregate Pits	Review documentation and practices related to forest management planning & public participation/consultation processes. Review & inspect AOC documentation & practices. Review of operational compliance. Determination of the sustainability component.	B.Sc. (Agr) ISO 14001 Lead Auditor Training. FSC assessor training. 48 years of experience in natural resource management planning, field operations, policy development, auditing and working with First Nation communities. Previous work experience on 41 IFA audits.
Riet Verheggen R.P.F. Arbex Associate	Harvest and Silviculture Contractual Compliance Assessment of Achievement of Forest Management Objectives	Determination of the sustainability component. Review and inspect silvicultural practices and related documentation. Review and inspect documents related to contractual compliance.	B.Sc.F. 25 years of experience in natural resource management, policy development and auditing.