SPRAY LAKE SAWMILLS

Chapter 4 – Summary of Previous DFMP

2021 Forest Management Plan

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Prepared By: FORCORP

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One	Executive Summary		
	Chapter	1	Corporate Overview and Forest Management Approach
	Chapter	2	FMP Development
	Chapter	3	Forest Landscape Assessment
	Chapter	**4**	**Summary of Previous DFMP**
	Chapter	5	VOITS – Values, Objectives, Indicators and Targets
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Two	Annex	I	FMA – Forest Management Agreement
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	Annex	VII	SHS – Spatial Harvest Sequence
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1. Introduction

Commitments associated with the 2006 Detailed Forest Management Plan have been arranged in the following categories and serve as an implementation metric, measuring the performance of Spray Lakes Sawmills towards implementation:

- Approval conditions;
- Previous DFMP reporting commitments;
- Harvesting and regeneration metrics; and
- Lessons learned from the previous DFMP and significant events.

1.1 DFMP Development History

Spray Lake Sawmills (1980) Ltd. received a Forest Management Agreement (FMA) on September 4, 2001. A condition of the agreement was that Spray Lakes Sawmills (SLS) must develop and submit a Detailed Forest Management Plan (DFMP) within five years of the commencement of the FMA. SLS first prepared a Preliminary Forest Management Plan (PFMP) which included the Terms of Reference for the DFMP, the Management Objectives and Strategies and the Public Involvement Plan. The PFMP was submitted on September 5, 2002. The DFMP was prepared in the subsequent years, and the completed version was submitted on December 15, 2006. Government approval of the DFMP was received on June 30, 2007, and the effective date of the DFMP was May 1, 2007.

1.2 About this Chapter

The basis of this chapter is to compare the objectives of the Resource Management Objectives and Strategies chapter of the 2001–2026 DFMP to the achievements from the effective date of the previous DFMP (May 1, 2007) to the effective date of the net landbase of this FMP (May 1, 2018). When possible, analysis is included up to the end of the 2019/2020 timber year (identified as 2019) and inputs for calculation use the most current data (i.e. ARIS reconciled blocks) and captures Quota holder/CCTP activity. This chapter focusses on the monitoring and reporting guidelines outlined in Chapter 10 (of the previous DFMP (Implementation and Monitoring).

2. Status of Past DFMP

This section provides a general description of the Spray Lakes Sawmills (SLS) 2006 Detailed Forest Management Plan (DFMP), as well as a summary of the Government of Alberta's (GoA) approval conditions and actions taken by SLS to address them. It also includes a review of the monitoring and measuring items identified in the 2006 management plan, presented in a similar format as the 2013 stewardship report. Additionally, in keeping with an adaptive management approach, this section further discusses the experiences gained and lessons learned from the implementation from the 2006 DFMP and what will be carried forward into the 2021 Forest Management Plan (FMP).

2.1 Contents of the 2006 DFMP

The 2001-2026 DFMP included seven chapters:

1. Introduction;
2. Landscape Assessment;
3. Long Term Road Strategy;
4. Public Involvement;
5. Resource Management Objectives and Strategies;
6. Net Land Base Technical Report;
7. Growth and Yield;
8. Timber Supply Analysis;
9. Growth and Yield Program; and
10. Implementation and Monitoring.

The SLS 2006 Detailed Forest Management Plan can be found at:
*https://www.alberta.ca/forest-management-plans.aspx*Performance of the Past DFMP

2.2 Approval Conditions

The GoA's approval of the Spray Lakes Sawmills (SLS) 2006 Detailed Forest Management Plan (DFMP) was contingent on twenty five conditions, which are listed, along with due dates and current status in Table 2-1. Section 2.3 describes the condition and action in further details.

Table 2-1. Summary of 2006 DFMP approval conditions

Condition	Requirement	Due Date	Status
	Public and First Nations Consultation		
Approval Condition 6.1 (i)	Renew consultation efforts of First Nations in Treaty 7	April 30, 2008	Complete
Approval Condition 6.1 (ii)	Assess and complete FN potential adverse effects report	September 30, 2008	Complete
Approval Condition 6.1 (iii)	Written documents of FN issues and comments	Annually	Completed Annually
	Timber Supply Analysis		
Approval Condition 7.1 (i)	Provide polygon shapefile for 75 years of forecasted harvest	September 1, 2007	Complete
Approval Condition 7.1 (ii)	Assessment and report of approved SHS on long-term timber supply	October 1, 2007	Undetermined (see details below)
	Net Land Base		
Approval Condition 8.1 (i)	Revise NLB prior to completing MPB Pine Strategy Plan	Prior to May 1, 2009 submission of MPB strategy plan	Undetermined (see details below)
Approval Condition 8.1 (ii)	Monitor and report variances from SHS	Annually	Completed Annually
	Forest Health		
Approval Condition 11.1 (i)	Complete an approved MPB Pine Strategy Plan	May 1, 2009	Complete
	FireSmart Community Zones		
Approval Condition 13.1 (i)	Participation and cooperation in FireSmart planning process	-	Complete
Approval Condition 13.1 (ii)	Amend SHS revision for FireSmart plans	-	Complete
Approval Condition 13.1 (iii)	Work and revisions acceptable	-	Complete

Condition	Requirement	Due Date	Status
	Future Forest Habitat Supply		
Approval Condition 14.1 (i)	Complete a grizzly bear habitat assessment on PFMS	November 1, 2007	Complete
Approval Condition 14.1 (ii)	Adjust VOITs, where necessary, to meet habitat requirements of grizzly bear	-	Undetermined (see details below)
Approval Condition 14.1 (iii)	Refine permanent road network	-	Complete
	Spatial Harvest Sequence		
Approval Condition 15.1 (i)	Follow mapped 15 year SHS	Annually	Completed Annually
Approval Condition 15.1 (ii)	SHS variance	Annually	Completed Annually
Approval Condition 15.1 (ii)a	Preferences of stands for SHS variance	Annually	Completed Annually
Approval Condition 15.1 (iii)	Impact of variance	Annually	Completed Annually
Approval Condition 15.1 (iv)	SHS variance reporting	Annually & 5-year Stewardship Report	Completed Annually
Approval Condition 15.1 (v)	SHS modification	-	Undetermined (see details below)
	Resource Management Objectives and Strategies		
Approval Condition 17.1 (i)a	Develop acceptable measurable objectives and strategies	November 1, 2007	Complete
Approval Condition 17.1 (i)b	Develop acceptable monitoring and stewardship reporting system	November 1, 2007	Complete
	Forest Inventory		
Approval Condition 21.1 (i)	Submit annual updates of disturbance layer	Annually	Completed Annually
	Performance Monitoring and Reporting		
Approval Condition 22.1 (i)	Submit Annual Reports and Stewardship Reports	Annually, 5 years	Complete
Approval Condition 22.1 (ii)	Acceptable Stewardship Report	September 1, 2012	Complete

2.3 Approval Condition Details

2.3.1 Approval Condition 6.1 – Public and First Nations Consultation

i. SLS shall renew its consultation efforts with the First Nations in Treaty 7 (Kainaiwa (Blood), Piikani, Siksika, Tsuu T'ina, Stoney) and follow the Alberta First Nations Consultation Guidelines on Land Management and Resource Development. The FMP consultation shall begin immediately and be completed by April 30, 2008 to the satisfaction of the Executive Director of Forest Management Branch.

Status: On May 26th 2008, GoA advised that the FMP Approval Condition 6.1 was satisfied.

ii. By September 30, 2007, SLS shall assess and complete a summary report for the FMP identifying potential adverse impacts to First Nations treaty rights and traditional uses. The report will be used to focus and guide the consultation discussions with the First Nations. Copies of the report shall be provided to the First Nations, Southern Rockies Area Manager, and the Senior Manager, Forest Planning Section.

Status: The potential adverse impacts report was submitted on January 11th 2008. A GoA approval Letter was received on January 11, 2008.

iii. SLS shall keep written documentation of all issues and comments provided to SLS by each First Nation. SLS will provide regular updates to the Area Manager and the Senior Manager, Forest Planning Section of the issues and its actions to address them.

Status: Annually, consultation is recorded and submitted to GoA as outlined in the Provincial Guidelines.

2.3.2 Approval Condition 7.1 – Timber Supply Analysis

i. By September 1, 2007, SLS will provide the polygon/shape file (spatial file) for 75 years of forecasted harvest that reflects the tabular summary provided, and describe in detail the relationships and linkages between this file and the net land base file. The information shall be acceptable to the Senior Manager, Forest Planning Section.

Status: On August 22, 2007, the shapefile Information was provided to the GoA. On September 12nd 2007, GoA acknowledged receipt of the shapefile information in a letter.

ii. By October 1, 2007, SLS shall complete an analysis and report that assesses the impact of the approved spatial harvest sequence on the long-term timber supply. The analysis and report shall be acceptable to the Senior Manager, Forest Planning Section.

Status: The originally submitted and approved SHS was conducted as per the Long Run Sustainable Yield calculations outlined in Chapter 8. There were no significant changes made to the originally submitted SHS to warrant a re-analysis.

2.3.3 Approval Condition 8.1 – Net Land Base

i. Prior to completing an FMP amendment for MPB Pine Strategy Planning, SLS shall revise its net land base to ensure accuracy of information and compliance with department standards.

Status: The approved strategy did not include a significant deviation from the original net landbase. SLS was in communication with Karl Peck at AAF and indicated there was no significant deviation from the originally submitted preferred forest management strategy as a result of the MPB strategy.

ii. SLS shall monitor and report variances from the SHS consistent with its ground rules (to be developed) and department standards.

Status: Variances are reported annually in the General Development Plan as per the Timber Harvest and Operating Ground Rules.

2.3.4 Approval Condition 11.1 - Forest Health

i. By May 1, 2009, SLS shall have an approved MPB Pine Strategy Plan that meets the requirements of the Mountain Pine Beetle Action Plan for Alberta and the Interpretive Bulletin - Planning Mountain Pine Beetle Response Operations.

Status: The MPB Strategy was submitted to GoA on April 9, 2009 and received approval on May 26, 2009.

2.3.5 Approval Condition 13.1 – FireSmart Community Zones

i. SLS shall participate in the FireSmart planning process and cooperate with the Southern Rockies Area to ensure successful completion and implementation of the Waiparous Village and West Bragg Creek FireSmart plans.

Status: On March 11th 2011, a request to proceed with developing a FireSmart Forest Harvest Plan for the Greater Bragg Creek was granted. The FireSmart FHP for West Bragg Creek was prioritized over Waiparous as GoA indicated there was limited funding for the Waiparous FireSmart Community Zone.

ii. SLS shall amend its SHS to incorporate the revisions necessary to implement the completed FireSmart plans.

Status: SLS participated on the Greater Bragg Creek FireSmart Plan and adjusted the SHS accordingly.

iii. The work and revisions (i and ii) shall be acceptable to the Area Manager, Southern Rockies Area and the Senior Manager, Forest Planning Section.

Status: Two Bragg Creek FireSmart zone FHPs were approved and completed in 2012/13 & 2013/14.

2.3.6 Approval Condition 14.1 - Future Forest Habitat Supply

i. *By November 1, 2007, SLS shall complete a grizzly bear habitat assessment on the preferred forest management scenario using the RSF projection model from the Foothills Model Forest Grizzly Bear Project*.

Status: On April 9th, 2008, the "Grizzly bear modeling within the SLS FMA using the Foothills Model Forest Phase 6 Models" was submitted. The GoA acknowledged receipt & did not respond with any concerns.

ii. *SLS shall adjust where necessary any objectives, strategies, indicators and targets to meet the habitat requirements of this species*.

Status: The original Grizzly Bear Objectives, Strategies, Indicators and Targets were sufficient to meet

habitat requirements (complete).

iii. *SLS shall refine the work completed on the permanent road network to determine separately the density of forestry roads, and all roads, to serve as indicators of access density. Current densities shall be reported and, when available, the thresholds determined by the Grizzly Bear Recovery Plan shall be used as targets to be achieved*.

Status: The Road Density Index Reassessment by John Kansas was submitted to GoA on approximately March 28, 2008. There was no GoA acknowledgment of its receipt.

2.3.7 Approval Condition 15.1 – Spatial Harvest Sequence

i. SLS must follow the mapped 15-year harvest sequence (2001 – 2016) as presented in the FMP (subject to revisions addressing FireSmart and MPB strategies).

Status: The spatial harvest sequence has been followed and the variance is reported annually in the General Development Plan.

ii. To address operational planning concerns, all timber disposition holders are authorized to modify the SHS by deleting no more than 20% of the total sequenced area in each compartment by decade, while harvesting no more than 100% of the total area within the SHS by compartment, by decade.

a. Preference should be given to selecting stands from the second 10-year period of the SHS (years 2017- 2026) when replacing deleted stands (from ii above). Where this is not feasible, replacements may be from any other stands identified in the approved net land base of the FMP, with priority to pine stands that are ranked highly susceptible to MPB infestations.

Status: The spatial harvest sequence has been followed and the compartment variance is reported annually in the General Development Plan. Harvest block are reported annually, in the Annual Operating Plan.

iii. Where timber operators exceed the variance described in (ii), the Area Manager, may require the completion of a compartment assessment and the Senior Manager, Forest Planning Section may recommend the adjustment of the approved annual allowable cut (AAC) to reflect the impact of the variance.

Status: Variance for some compartments has exceeded 20% (see Section 3.1). The GoA has not required a compartment assessment.

iv. *The department requires the variance from the SHS to be reported annually, and the 5-year Stewardship Report to analyze the variance from the SHS*.

Status: Variance is reported annually in the General Development Plan. Harvest bocks are reported annually, in the Annual Operating Plan. The 5-year Stewardship report was submitted to Robert Stokes on March 15, 2013. On September 6, 2013 the AAF concluded that the Stewardship Report provided reasonable evidence supporting the implementation of the 2006 DFMP.

v. *Following the achievement of Approval Conditions 11.0 and 13.0 (MPB Plans and FireSmart), the department will generally not request a modification of the approved harvest sequence for the first 15 years of the planning period unless required by a change in legislation or a policy approved by the Minister*.

Status: The original SHS was not modified as a result of MPB and FireSmart Plans (complete).

2.3.8 Approval Condition 17.1 – Resource Management Objectives and Strategies

i. By November 1, 2007, SLS shall develop acceptable to the Senior Manager, Forest Planning Section;
- *a. measurable objectives and strategies, and*
- *b. a monitoring and stewardship reporting system*

Status: The Resource Management Objectives and Strategies Matrix including the Monitoring and Stewardship Reporting System (that comprised DFMP chapter 10) was emailed to Dave Coish on April 19, 2007; to and Robert Stokes on July 31, 2007 and to Erin Fraser on March 10, 2008.

2.3.9 Approval Condition 21.1 - Forest Inventory

ii. *SLS shall submit annual updates of the disturbance layer (FMA land areas that were harvested during the previous year) for the management area in a format acceptable to the Senior Manager, Forest Planning Section*.

Status: Annually the Company's harvest areas, roads and crossings were submitted to the Calgary Forest Area. With implementation of the Spatial Data Directive (May 2016), submission of disturbance layers is now submitted to Forest Management Branch as per the requirements.

2.3.10 Approval Condition 22.1 – Performance Monitoring and Reporting

i. SLS shall submit Annual Reports and Stewardship Reports that document the operational performance of the Company's activities in implementing the FMP. Where variances from the planned outcomes exist, an analysis shall discuss the reason for the variance and the Company's corrective action taken or proposed.

Status: Annual reporting has been completed as part of the General Development Plan, Annual Operating Plan and Final Harvest Plans. The 5-year Stewardship report was submitted to Robert Stokes on March 15, 2013. In Fall of 2017 Spray Lake Sawmills requested an extension of the FMP to September 30th of 2020 because of delays with completion of the forest inventory required for the FMP. In December of 2017 the Forest Management Branch approved the request subject to the Public Participation Program and First Nations Consultation Plan being updated. The two plans were updated and received approval in April and February of 2018. As a result, a second stewardship report covering the 2012-2017 was not submitted. Stewardship reporting for the 2012-2019 period is provided in Section 2.4 and Section 3 of this chapter.

ii. A Stewardship Report, acceptable to the Senior Manager, Forest Planning Section shall be submitted by September 1, 2012.

Status: On September 6, 2013 the AAF concluded that the Stewardship Report provided reasonable evidence supporting the implementation of the 2006 DFMP.

2.4 Previous DFMP reporting commitments for Resource Management Objectives and Strategies (VOITs)

Table 2-2. Items identified for monitoring in the 2006 DFMP

Issue/Value	Monitoring
Access	• List and map of access controls. • Km of road (class iv temporary and higher) constructed by SLS. • Km of road (class iv temporary and higher) reclaimed by SLS. • Road density assessment – compare to baseline 2004.
Adaptive management and research	• Documentation of new information to be addressed in next DFMP. • Documentation of DFMP and ground rule changes. • Documentation of research projects SLS involved in.
Aesthetics	• Post harvest field assessments where mitigation specified to validate field delivery against plan.
Vegetation biodiversity	• Seral/cover group assessment against baseline (2001) and modeled projections. • Update ANHIC data for FMA. • Merchantable volume and area of block level structural retention. • AVI update activities.
Wildlife biodiversity	• Listing of sensitive wildlife sites – SRD and SLS identified. • Wildlife habitat suitability assessment against baseline (2001) and modeled projections. • Fragmentation assessment against baseline (2001) and modeled projections.
Community Timber Program	• Volume and area of CTP timber harvested.
Soil conservation	• Interior block road/landing percentages.
Forest health (pest management)	• Document Dwarf Mistletoe management activities. • Document MPB management activities. • Document significant insect and disease infestations • Document invasive plant control activities.
Forest land base	• Afforestation opportunity assessment and activities. • Summary of land use dispositions. • Summary of disposition issuance and cancellations. • Summary of other (government) land base deletions or additions.
Forest protection (fire)	• Documentation of fire smart initiatives on the FMA. • Burned area summaries and salvage and reforestation activities. • Holding and protection offset projects.
Historical resources and unique areas	• Listing of historical resource finds. • Listing of historical resource protection activities. • Listing of unique area (rare ecosite) finds. • Listing of unique area (rare ecosite) protection activities.
Integration	• Documentation of integration activities with government, commercial and non-commercial interests.
Public involvement and safety	• Documentation of public and stakeholder communication processes used. • Summary of incidents
Reforestation	• Update Silvicultural Strategy Summary in terms of post harvest treatments by strata. • Regeneration survey results. • Assess regeneration lag. • Regeneration performance on interior block roads and landing.[i] • Regeneration damage summaries including grazing damage.

Issue/Value	Monitoring
Sustainable timber supply	• Harvested volumes and areas by strata and compartment. • Assess variance between volume harvested and volume projections from the TSA. • Assess the variance between compartment harvest design and the DFMP spatial harvest sequence. • Growth and yield program plot establishment and measurement. • Inventory update activities. (e.g. AVI, Land Use Activity, Harvest Activity) • Monitor and adjust the AAC level against the factors contributing to the 7.5% AAC deduction in the TSA. • Assess cull level for the next DFMP by assesses scaling records.
Water quality/quantity and fisheries resource	• Documentation of water quality monitoring for indicators in selected areas. • Re-assessment of ECA values base on refined data inputs. • Documentation of riparian management activities.

2.4.1 Access Management

Objective 5.1 "*Minimize the impact of access development on the environment and other land uses*."

Most roads constructed by SLS are for temporary use only and are fully reclaimed when operations are complete. After new roads are constructed, at the direction of the GoA, SLS may close the road with gates to protect wildlife and the environment. There were 37 gates installed or used for access control in the DFA during the reporting period (Table 2-3).

Reclamation strategies include ripping subgrades, replacing the fill slope to match natural contours and replacing topsoil and placing course woody debris and vegetation on the reclaimed surface. Table 2-4. shows the annual distance of road construction versus road reclamation. Overall, the distance of reclaimed road during the reporting period is 83% of the total distance of road built. Road reclamation is generally three to five years after construction and if new road construction were to stop road reclamation would catch construction.

Table 2-3. Access control gates installed by compartment

Compartment	Number of Gates
Atkinson Creek	7
B9 Quota	6
Burnt Timber Creek	1
Coalcamp Creek	2
Grease Creek	6
Highwood River	2
Jumpingpound Creek	6
McLean Creek	7
Total	**37**

Table 2-4. Road construction and reclamation by timber year

Timber Year	Road Construction (km)	Road Reclamation (km)	Construction vs. Reclamation (%)
2007	68.96	22.41	32%
2008	79.96	43.66	55%
2009	42.69	47.45	111%
2010	53.06	31.47	59%
2011	30.91	42.14	136%
2012	58.96	38.64	66%
2013	69.94	47.91	69%
2014	64	76.21	119%
2015	66.89	75.32	113%
2016	54.92	33.38	61%
2017	52.09	69.26	133%
2018	66.38	55.27	83%
2019	86.01	76.42	89%
Total	**794.77**	**659.54**	**83%**

Table 2-5 compares the total and open road density by compartment in 2006, 2012, and 2019, and Table 2-6 compares the density of SLS operational roads in those three years.

Table 2-5. Total DFA road density in km/km^2 compared to 2006 baseline

		Total Road Density (km/km^2)			Open Road Density (km/km^2)		
DFA	Compartment	2006	2012	2020	2006	2012	2020
North	Atkinson Creek	0.60	0.81	0.39	0.36	0.15	0.15
	B12 Quota	0.98	0.61	0.44	0.73	0.24	0.23
	Burnt Timber Creek	0.62	0.89	0.36	0.09	0.18	0.32
	Ghost River	0.85	0.70	0.15	0.85	0.70	0.13
	Grease Creek	0.95	1.07	0.38	0.60	0.19	0.29
South	Coalcamp Creek	1.10	1.06	0.57	1.10	0.38	0.35
	Highwood River	0.49	0.53	0.22	0.15	0.14	0.14
	Jumpingpound Creek	0.56	0.43	0.42	0.22	0.24	0.23
	McLean Creek	0.27	1.40	0.36	0.10	1.40	0.18
	Sullivan Creek	0.26	0.12	0.17	0.01	0.07	0.01

Table 2-6. SLS operations road density in km/km^2 compared to 2006 baseline

		SLS Operations Road Density (km/km^2)			Deficit	
DFA	Compartment	2006	2012	2020	2006 to 2012	2012 to 2020
North	Atkinson Creek	0.08	0.01	0.00	-0.07	-0.01
	B12 Quota	0.00	0.30	0.00	0.30	-0.30
	Burnt Timber Creek	0.03	0.02	0.16	-0.01	0.14
	Ghost River	0.00	0.00	0.00	0.00	0.00
	Grease Creek	0.11	0.06	0.11	-0.05	0.05
South	Coalcamp Creek	0.04	0.11	0.00	0.07	-0.11
	Highwood River	0.07	0.04	0.00	-0.03	-0.04
	Jumpingpound Creek	0.00	0.02	0.09	0.02	0.07
	McLean Creek	0.06	0.06	0.11	0.00	0.05
	Sullivan Creek	0.00	0.00	0.10	0.00	0.10

2.4.2 Adaptive Management and Research

Objectives 5.2

"*Incorporate adaptive management philosophy into the management strategy for the DFMP*."

"*Continue to support research as a commitment to adaptive management and environmental protection*."

SLS is committed to utilizing management strategies and practices based on new research and monitoring results. SLS employs a number of funding mechanisms, both direct and indirect through organizations such as the Forest Resource Improvement Association of Alberta (FRIAA), Forest Growth Organization of Western Canada (FGRoW), Foothills Pine Project Team, fRI Research, and FPInovations (FERIC and FORINTEK). Research and committee participation is highlighted in Table 2-7 through Table 2-9 below.

Table 2-7. SLS FRIAA projects

Project
Baseline Terrestrial Ecosystem Management
High Conservation Value Forest Assessment
Pre-Industrial Forest Condition Assessment
Winter Wildlife Use of Riparian Buffers
Etherington Creek Aquatic Ecosystem Baseline Study
McLean Creek Aquatic Ecosystem Monitoring Study
Fire History/Regime Study – Kananaskis District
Fire History/Regime Study – B9 FMU
Inventory of fire refugia island remnants
McLean Creek Monitoring Program
Forest Value and Condition Assessments
Avifaunal Re-colonization - Effects of Timber Harvest on Breeding Birds
LiDAR-Based Forest Inventory Pilot Project
Etherington/Wilkinson Creek Ecosystem Management Project
East Slope Grizzly Bear Project contribution
Historical Resource Predictive Modeling
Improving understanding of Post-harvest logging debris sources
Protected Area Representation Gap Analysis
Protected Area Representation Gap Analysis Blue Rock/Sheep River Fine Scale Assessment
Mountain Forest Management for Water

Table 2-8. SLS cooperative research

Project
Southwest Alberta Montane Elk Study
Foothills Model Forest - Grizzly Bear Research Program
Foothills Growth and Yield Association, (now Foothills Pine Project Team) – Lodgepole Pine Regeneration Trial, Comparison of Pre-harvest and Post-harvest Stand Development, Cooperative Management of Historic Research Trials, Enhanced Management of Lodgepole Pine, Regeneration Management in a MPB Environment, Regional Yield Estimators
Foothills Model Forest - Managing Disturbance in Riparian Zones Study
Grizzly Bear Monitoring in BMA 5 - Alberta Conservation Association –
Grizzly Bear Monitoring in BMA 4 and fRI grizzly bear program wrap-up - fRI Research –
Outland Youth Employment Sponsorship
Inside Education Sponsorship
Ecosystem Based Management Cooperative – fRI Research Healthy Landscapes

Table 2-9. SLS committee participation

Project
Special Places 2000 Committee
The Advisory Board for the U of C Biogeosciences Institute
West Slope Cutthroat Trout Recovery Planning Team
Alberta's Landuse Framework Committee
Various Mountain Pine Beetle Committees
The Forestry Grazing Integration Committee
The Bow River Basin Council
The Regional Advisory Council for the South Saskatchewan Regional Landuse Plan
Forest Growth Organization of Western Canada (FGRoW)
Foothills Pine Project Team

2.4.3 Aesthetic Values

Objective 5.3 "*Mitigate the impact of our operations on visual resources.*"

Table 2-10 shows the breakdown of harvesting activities over the reporting period by scenic value strata. Visually sensitive areas were assessed for harvest suitability in the field and tactics were employed to mitigate the impact of operations on visual resources. The Visual Sensitivity ratings for the 2021 FMP have been updated from the 2006 DFMP. *Chapter 7 – Plan Implementation and Monitoring* Appendix II contains more details regarding the process used for the new visual resource inventory.

Table 2-10. Area and number of blocks harvested by scenic value strata in each timber year

Timber Year	Scenic Value Strata					
	Low		Medium		High	
	Number of Blocks	Area (ha)	Number of Blocks	Area (ha)	Number of Blocks	Area (ha)
2007	16	415	22	410	22	672
2008	4	164	19	331	7	97
2009	-	-	20	825	2	37
2010	-	-	30	1,105	1	78
2011	3	64	14	393	10	300
2012	28	604	8	193	25	612
2013	37	1,010	-	-	16	266
2014	17	532	15	623	11	217
2015	4	147	27	649	10	633
2016	35	871	4	102	37	587
2017	24	549	26	791	1	35
2018	1	23	26	799	14	623
2019	13	516	19	972	8	504
Total	**182**	**4,895**	**230**	**7,194**	**164**	**4,662**

In some cases, visual mitigation is balanced against competing objectives. In 2007, areas with a high threat of mountain pine beetle infestation were identified and targeted for harvesting. Visual mitigation tactics were balanced in consideration of potential large scale MPB losses. Table 2-11 notes some mitigation tactics used for blocks with high scenic value.

Table 2-11. Assessment and mitigation actions taken for blocks harvested in areas of high visual quality

Timber Year	Number of Blocks	Changes of Note
2007	22	Majority of the block were in an area that was identified as high probability for mountain pine beetle and structure retention was used accordingly. Three of the blocks for this year had visual simulations done for reviewing with stakeholders, which lead to a modified harvest design.
2008	7	Of the seven blocks located in the high visual area, two were designated as high mountain pine beetle infestation, three had structure retention present and one had a modified harvest design.
2009	2	-
2010	1	There was only one block in a high visual area. Structure retention was used within the block.
2011	10	Of the ten blocks located in high visual sensitivity zone, all of them had structure retention present and two were in high mountain pine beetle zone.
2012	25	Of the 25 blocks located in the high visual sensitivity zone, all of them had structure retention and 9 were associated with the Bragg Creek FireSmart harvesting
2013	16	Of the 16 blocks located in the high visual sensitivity zone, all of them had structure retention and 12 were associated with the Bragg Creek FireSmart harvesting
2014	11	Of the 11 blocks located in the high visual sensitivity zone, all of them had structure retention and some of the blocks were west of Bragg Creek and 5 were Alberta CTP blocks
2015	10	Of the 10 blocks located in the high visual sensitivity zone, all of them had structure retention. 6 blocks received extensive consultation in south B9 area, and several changes were made prior to and after harvesting to alleviate visual concerns. Other areas included increased signage and alteration of harvesting and haul schedules.
2016	37	Of the 37 blocks located in the high visual sensitivity zone, all of them had structure retention. 33 blocks received extensive consultation in south B9 area, and several changes were made prior to and after harvesting to alleviate visual concerns. Other areas included increased signage and alteration of harvesting and haul schedules. The operations along HWY 940 occurred after seasonal access closure, visual quality was considered when determining approach, skidding and decking locations. Severe topography aiding in breaking up visual continuity.
2017	1	There was only one block in a high visual area. Structure retention was used within the block.
2018	14	Of the 14 block located in the high visual sensitivity area, all of them has structure retention and well exceed DFMP targets on average. Two blocks in the cobble flats area received extensive consultation specifically regarding aesthetic values and several changes were made to the block and considerations to the in-block hiking trails. SLS and Alberta AAF reviewed aesthetic modifications in the field prior to harvest. Remaining 12 blocks are partially visible from Powderface Trail; block design incorporates steep topography, and watercourse/watersource buffers to aid in breaking up visual continuity.

2.4.4 Biodiversity and Wildlife Habitat Supply

Vegetation

Objectives 5.4.1

"*Gain an understanding of the vegetative diversity across the FMA*."

"*Maintain the natural vegetation range of variability across the landscape at key points in time*."

"*Protect rare ecosections and ecosites.*"

Table 2-12 and Table 2-13 compare the expected distribution of strata and seral stages in 2016 from the previous DFMP's SHS against the actual distribution in the 2018 landbase. Less area is in the regenerating seral stage and more area is in the old growth stage than expected, which can be explained by the reduced harvesting over the previous DFMP compared to the SHS (see Section 3.1) and yield recovery factor (see section 0).

Table 2-12. Predicted 2016 distribution of seral stages on the gross forested landbase by broad cover group and stratum

BCG	Yield strata	Regen		Young		Mature		Old growth		Total	
		(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
C	Pine	31,820	11	5,356	2	103,409	35	46,477	16	187,063	63
C	Spruce	10,931	4	1,339	0	12,145	4	34,686	12	59,101	20
C	Larch	0	0	0	0	100	0	180	0	280	0
C	Composite	4,613	2	4,411	1	0	0	0	0	9,023	3
CD	Mixedwood	1,859	1	233	0	4,809	2	2,940	1	9,841	3
DC	Mixedwood	1,541	1	244	0	5,261	2	2,111	1	9,157	3
D	Deciduous	2,645	1	396	0	12,763	4	5,073	2	20,877	7
Total		**53,410**	**17**	**11,979**	**4**	**138,487**	**45**	**91,467**	**30**	**295,343**	**100**

Table 2-13. Actual 2018 distribution of seral stages on the gross forested landbase by broad cover group and stratum

BCG	Yield strata	Regen		Young		Mature		Old growth		Total	
		(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
C	Pine	22,051	7	13,513	4	82,605	27	60,056	20	178,225	59
C	Spruce	2,110	1	2,128	1	23,059	8	59,856	20	87,152	29
C	Larch	0	0	0	0	36	0	263	0	299	0
C	Composite[1]	-	-	-	-	-	-	-	-	-	-
CD	Mixedwood	851	0	1,297	0	4,825	2	2,709	1	9,682	3
DC	Mixedwood	1,174	0	850	0	6,050	2	1,836	1	9,910	3
D	Deciduous	303	0	763	0	14,134	5	3,839	1	19,038	6
Total		**26,488**	**9**	**18,550**	**6**	**130,709**	**43**	**128,559**	**42**	**304,306**	**100**

[1] Area of composite stratum cannot be taken from current landbase.

Structure Retention

Objective 5.4.1 "*Retain structural attributes within harvested areas and fire salvage areas*."

Identifying and maintaining structural components at the landscape and at the stand level is an important part of ecosystem-based management. The dynamic arrangement of living and dead trees and other vegetation has the potential to contribute the necessary habitat elements for a variety of species over space and time.

Structural retention is linked to several of the previous DFMP objectives including biodiversity, aesthetic resources and integration of other values and non-commercial uses. The landscape within and surrounding the FMA contributes to the overall landscape level structural retention objectives. SLS also retains individual trees, snags, groups of trees and woody debris to promote habitat opportunities, microsite variability and potential for biodiversity within the cut blocks.

Table 2-14 and Table 2-15 describe post-harvest, in-block patch area retained on the land base. Additionally, single stem retention within openings is a component of SLS' operating ground rules and the majority of openings have single stem retention post-harvest. However, at this time, a survey to determine in-block single stem retention has not been completed and single stem retention levels are not reported.

SLS' targets for retention are as follows: individual tree and small patch retention of 1% by volume for blocks <100 ha and large patch retention of 4 ha for blocks greater than 100 ha. Average retention area per block is 2.89% in blocks less than 100 hectares in area (Table 2-14) and 6.57% in blocks greater or equal to 100 hectares (Table 2-15). Amongst the 11 blocks over 100 ha in area, 7 of these have a single retention patch greater than 4 hectares in area.

Table 2-14. Structure retention by timber year for blocks < 100 ha in area

Timber Year	Total Cutblock Area (ha)	Average Block Size (ha)	Average in Block Patch Retention (From Photography) (ha)	Average Percent of Block Area Retained (From Photography)
2007	1,246	21	0.45	2.11
2008	592	20	0.24	1.19
2009	425	22	0.08	0.36
2010	1,026	34	1.69	4.93
2011	758	28	0.87	3.12
2012	1,409	23	0.63	2.73
2013	1,276	24	1.00	4.14
2014	1,229	29	1.15	3.95
2015	1,216	31	0.70	2.24
2016	1,439	19	0.47	2.46
2017	1,258	25	0.64	2.56
2018[1]	46	46	0.87	1.90
Total	**11,920**	**25**	**0.71**	**2.89**

[1] Only one block in 2018 had retention data available

Table 2-15. Structure retention by timber year for blocks >= 100 ha in area

Timber Year	Total Cutblock Area (ha)	Average Block Size (ha)	Average in Block Patch Retention (from photography) (ha)	Average Percent of Block Area Retained (from photography)
2007	251	126	2.43	1.94
2009	436	145	8.73	6.00
2010	157	157	17.32	11.03
2014	143	143	18.56	12.96
2015	212	106	5.78	5.44
2016	140	140	9.75	6.98
2017	117	117	7.50	6.39
Total	**1,457**	**132**	**8.70**	**6.57**

Genetics

Objective 5.4.1 "*Retain tree species genetic diversity across the landscape.*"

SLS retains tree species diversity by using natural regeneration and planting native tree species to meet reforestation objectives. Seed for growing planted trees originate from natural stands of identical seed zone and seed collection protocols follow the Alberta Forest Genetics Resource Management and Conservation Standards (refer to seed supply table in *Chapter 7 – Plan Implementation and Monitoring* Section 5.2.1). Trees grown from certified seed orchards are not being used by SLS.

Forest genetics are also protected through the designation of approximately 30% of the FMA as passive landbase, an area of mostly continuous forested retention. The forested retention within the passive land base is widely distributed across the FMA and mostly includes primary protection zones, steep slopes, and watercourse buffers. The passive landbase is connected to the active landbase.

The SLS seed reserves as of January 2020 are shown in *Chapter 7 – Plan Implementation and Monitoring* Section 5.2. As described in *Chapter 5 – Values, Objectives, Indicators, and Targets (VOITs)* Section 3.1.15, SLS will coordinate work with the GoA to identify the number of required in-situ gene conservation areas, some of which may not necessarily be within the DFA, with priority given to protected areas and the passive landbase. At this time, SLS does not have any ex-situ conservation sites.

Wildlife

Objective 5.4.2

"*Develop a landscape level understanding of wildlife habitat needs both spatially and temporally*."

"*Maintain habitat for key species over time at the landscape level.*"

"*Incorporate wildlife habitat needs in operational planning.*"

In 2006, SLS completed an FMA and landscape assessment, which has been updated as part of the 2021 FMP. SLS also established Habitat Suitability Models for key indicator species and habitat types as part of the 2006 FMP, which was replaced by VOITs, as identified through the Alberta Forest Management Planning Standards. Current and future projections of habitat suitability for indicator species are provided in *Chapter 5 – Values, Objectives, Indicators, and Targets (VOITs).*

SLS' forest retention strategy contributes to managing wildlife habitat on the FMA. The passive landbase was designed to meet a variety of resource objectives, including benefits to wildlife. The passive landbase includes areas such as primary protection zones, and watercourse buffers that are important to wildlife.

Forest operation considerations have also been designated within the active landbase. These areas include rare & unique ecosites, when verified in the field, critical wildlife areas and connective corridors (key wildlife and biodiversity zones).

Within openings, SLS retains individual trees, snags, groups of trees and woody debris to promote habitat opportunities, microsite variability and potential for biodiversity. SLS evaluates its harvest blocks for sensitive sites, such as species of concern, or wildlife nesting or denning areas while completing pre-harvest assessments and laying out blocks. SLS contractors are trained to stop work if they encounter species of concern, or any wildlife nesting or denning areas. Table 2-16 documents the sensitive sites identified by SLS. Key ungulate ranges have also been mapped and are integrated in operations planning to avoid seasonal disturbances and maintain their long-term integrity and productivity.

Table 2-16. Sensitive sites discovered in the FMA and mitigation actions taken

	Ecosites		Unique Areas	
Timber Year	Number Identified	Mitigation Measures	Number Identified	Mitigation Measures
2007	3	Areas withdrawn	1	Forested Buffer
			1	Area withdrawn
2008	0	N/A	1	Area withdrawn
2009	0	N/A	1	Area withdrawn
			1	Forested buffer
2010	0	N/A	2	Areas withdrawn
2011	1	Area withdrawn	1	Area withdrawn
2012	1	Area withdrawn	0	N/A
2013	1	Forested buffer	0	N/A
2014	0	N/A	0	N/A
2015	0	N/A	0	N/A
2016	1	Area withdrawn	0	N/A
	1	Forested buffer		
2017	0	N/A	0	N/A
2018	0	N/A	1	Area Withdrawn
2019	0	N/A	0	N/A

Objective 5.4.2

"*Minimize the impacts of SLS activities on riparian areas.*"

"*Evaluate riparian management opportunities.*"

SLS classifies all watercourses encountered during preliminary assessment as per Section 6.0 of the Operational Ground Rules (OGR). All stream buffers are designated, on the ground, to comply with the watercourse specified, forested buffers and equipment exclusion zones required in the OGR.

OGR buffers are also included in the Timber Supply Analysis based on available spatial data, and areas within the OGR buffers are in the passive landbase. Updates to TSA buffering for the new FMP resulted in 418 hectares of area that was within the previous DFMP 20-yr SHS changing to the passive landbase.

In terms of forest management and SLS's operations, riparian management activities refer to the removal of some timber within the designated riparian protected area (i.e. the buffer) while demonstrating that the aquatic and terrestrial objectives are met. Any such proposal for activities of this nature requires a full review by the GoA. Over the course of the 2007 DFMP SLS did not implement any additional riparian management opportunities within the DFA. SLS has been relying on the rules and strategies outlined in the Operating Ground Rules (OGRs) for conducting activities in proximity to riparian areas.

2.4.5 Community Timber Program

Objective 5.5 "*Recognize and honor the fixed volume commitments contained in the FMA.*"

The Forest Management Agreement (FMA) outlines the volume commitments and sequencing requirements of the fixed volume allocations for the Community Timber Program (CTP). The Community Timber Program activity is provided in Table 2-17.

Table 2-17. Annual volume harvested by the Community Timber Program

Quadrant	North CTP program (formally B9)		South CTP program (formally B10)	
	Quadrant Allowable Cut	Production Volume (TPRS)	Quadrant Allowable Cut	Production Volume (TPRS)
2 (2006 – 2011)	17,500	-	23,950	930
3 (2011 – 2016)	17,500	-	23,950	-
4 (2016 – 2021) [1]	17,500	9,036	23,950	17,117
Total	**52,500**	**9,036**	**71,850**	**18,047**

[1] Note – TPRS report was completed before the end of quadrant 4 (Feb 2020)

2.4.6 Soil Conservation

Objectives 5.6

"*Minimize the impact of our activities on soil productivity.*"

"*Minimize soil erosion from our operations*."

SLS promotes harvest operations where tree processing (removal of limbs and tops) is conducted at the stump wherever possible. This approach to harvesting has many benefits for soil productivity. By processing the trees at the stump, treetops and branches are evenly distributed throughout the block. Important nutrients are retained to leach back into the soil, providing for soil nutrition and development. Soil moisture holding capacity is also enhanced and organic matter is incorporated into the soil which helps maintain soil productivity. The retention of coarse woody debris, needles and twigs also provides protection from erosion and creates microsites for seedlings and wildlife habitat.

SLS planners minimize road building by optimizing economical skidding distances, planning the most direct access routes, utilizing existing roads and planning joint use corridors. Planned temporary roads, bared landing areas and displaced soils must not exceed 5% of the area, unless justified by SLS and accepted by the GoA during the AOP approval process. Average block soil disturbance over the reporting period was

roughly 2.6% (Table 2-18). Calculations were based on a 6m road width, using the latest as-built road data, as well as ARIS reconciled block boundaries.

When soil conditions are wet, SLS ceases its operations to reduce the risk of rutting. Annually, SLS provides contractor training. Operators are trained to utilize management practices that protect forest soils and minimize soil disturbance and compaction. On the FMA/ B12 quota area, there have been no significant soil slumping incidents of note over the course of the last plan.

Table 2-18. Average block soil disturbance

Timber Year	Number of Blocks	Area Harvested (ha)	Average Disturbance (%)
2007	57	1,447	2.67
2008	30	592	2.42
2009	22	862	3.08
2010	31	1,183	2.85
2011	23	658	2.41
2012	60	1,401	2.49
2013	50	1,214	2.75
2014	33	1,200	2.54
2015	38	1,380	2.43
2016	70	1,403	2.88
2017	43	1,232	2.32
2018	37	1,476	2.62
2019	30	1,641	2.10
Total	**524**	**15,691**	**2.57**

2.4.7 Forest Health (forest pest management)

Spray Lake Sawmills' goal in the 2007 DFMP was to assist Sustainable Resource Development (SRD) in assessing the status and control of insect and disease concerns. Concerns identified were:

- Dwarf Mistletoe and Mountain Pine Beetle (MPB). Increase forest health awareness among staff and contractors.
- Reduce the spread of insect species that can kill trees within 1 year of infestation.
- Reduce the impact of insects and diseases that cause reduced growth, tree deformities or mortality.
- Assist in the prevention, detection and control of restricted and noxious invasive plants.

Blowdown and Dwarf Mistletoe Salvage

Areas affected by blowdown and dwarf mistletoe were incorporated into harvest block design as a harvest plan was developed for an area. The harvesting of blowdown and selective removal of trees infected by dwarf mistletoe leads to the quicker recovery of the stand to a productive forest. Over the course of the last management plan there were no specific salvage forest harvest plans for forest blowdown or dwarf mistletoe.

Dwarf Mistletoe Management Strategy

The objective of dwarf mistletoe control is to reduce losses through economically and environmentally sound forest management practices. Government surveys only discovered 4 hectares of forest damaged

by dwarf mistletoe during the reporting period (see *Chapter 3 – Forest Landscape Assessment* Section 5.2.7). Due to the limited area affected, no management strategies have been used for dwarf mistletoe during the reporting period.

Mountain Pine Beetle

The landbase of the previous DFMP ranked MPB risk into three categories based on the stand rating of susceptible pine, the climate factor, and the compartment risk as described in the GOA Interpretive Bulletin on Planning Mountain Pine Beetle Operations (Government of Alberta, 2007). The TSA prioritized harvesting in rank 1 and 2 MPB stands in order to reduce the risk of spread and damage by the beetle on the DFA. Table 2-19 compares area in the previous landbase potentially available for harvest (active landbase, >= 80 years old) and the area sequenced for harvest in periods 2, 3 and 4 (2006 to 2020) of the SHS against the actual area harvested from 2007 to 2019 in each of the MPB ranking categories. Harvesting in Rank 1 and Rank 2 stands represented the highest percentage of area harvested, approximately 76% of the overall harvest. The approved SHS has been followed, which included the re-sequencing of the two MPB priority areas to target MPB Rank 1 and Rank 2 stands. A total of 45 blocks and 1,654 ha were harvested in these areas. Rank 3 and N/A stands were harvested for operational consideration for managing a sawmill. The highest percentage of area harvested was in the rank 1 MPB stands (77%).

Table 2-19. Area harvested by mountain pine beetle risk ranking compared to the SHS and landbase

MPB Rank	Landbase available for harvest (ha)	15-year SHS area (ha)	Area harvested (ha)	Percentage of SHS area harvested	Percentage of total area harvested
Rank 1	8,968	3,811	2,932	77	33
Rank 2	97,314	14,926	9,777	66	10
Rank 3	27,495	2,552	1,905	75	7
N/A	22,623	6,152	2,173	35	10
Total	**156,400**	**27,442**	**16,788**	**61**	**11**

2.4.8 Forest Landbase

Objectives 5.8

"*Identify opportunities for offsetting the impact of other industrial users on the productive forest land base within the FMA*."

"*Minimize the loss of productive forest land base*."

SLS has an aggressive road reclamation (see Section 2.4.1) and reforestation program (see Section 2.4.15), and roads are generally reclaimed soon after operations are completed.

Withdrawal of commercial dispositions from other users contributed to loss of the productive forest landbase. During the period of the previous DFMP, 110 commercial dispositions were withdrawn from the DFA, which removed 194 hectares from the productive forest landbase (Table 2-20). During that same time, 36 dispositions in the DFA were cancelled, which returned 104 hectares of previously unavailable land to the productive landbase (Table 2-21).

Table 2-20. Commercial dispositions withdrawn from the FMA from 2007 to 2019

Disposition type	Number of dispositions	Area (ha)
DLO	7	3
DML	5	33
DPI	1	0
EZE	7	14
LOC	18	20
MLL	1	1
MSL	13	23
PEZ	3	1
PIL	8	1
PLA	47	100
Total	**110**	**194**

Table 2-21. Commercial dispositions cancelled in the DFA from 2007 to 2019

Disposition type	Number of dispositions	Area (ha)
EZE	1	0
LOC	14	42
MLP	2	0
MSL	12	27
PLA	6	14
SML	1	21
Total	**36**	**104**

Table 2-22 documents the changes in area of active or passive landbase between the previous and the current DFMP. For the area that the two landbases overlap, 82% of the areas had no change in status. The previous DFMP had 28,916 hectares of active landbase that is now passive in the new landbase. The most significant reasons for the change from active to passive landbase are slope (2% of the landbase), timber productivity rating (2%), hydrology features and buffers (1%) and operational deletions (1%). Improved analysis capabilities and using remote sensing technologies have facilitated improved landbase definition and classifications.

Table 2-22. A comparison of the landbase status for the old and new landbase and the reason for deletions where the landbase status changed

Previous Landbase status	New Landbase Status	Deletion Reason (Old or New Landbase)	Area (ha)	% of Landbase
Active	Active		194,288	58
Passive	Passive		78,353	23
Active	Passive	Anthropogenic	353	0
		AVI species deletions (Fd, Lt, Pa, Pf, Sb)	709	0
		Blocks with no ARIS record	5	0
		Dispositions	1,450	0
		DRS	245	0
		Eastern slopes land use zones	47	0
		Flooded area	5	0
		Government PSP	34	0
		Historic area deletions	9	0
		Hydrology and buffers	2,391	1
		Low density stands	634	0
		Low timber productivity rating	6,843	2
		Moisture deletion	538	0
		Natural non-forested or non-vegetated	1,969	1
		No strata assigned	17	0
		Operational	4,446	1
		Private land	304	0
		Protected areas	404	0
		Road	1,096	0
		Slope	7,391	2
		Subjective Deletion	7	0
		Wildfire	19	0
		Subtotal	*28,916*	*9*
Passive	Active	AVI Subjective Deletions	20,686	6
		Horizontal Stands Reductions	74	0
		Hydrology and buffers	293	0
		IRP Zones	865	0
		Non-forested land	6,504	2
		Permanent Sample Plots	47	0
		Pipelines	5	0
		Recreation Areas	108	0
		Roads	55	0
		Slope	2,163	1
		SLS Deletion	364	0
		Trails/Cutlines/Seismic	1,525	0
		Subtotal	*32,688*	*10*
Total			**334,245**	**100**

2.4.9 Forest Protection (fire)

Objective 5.9 "*Support the Government of Alberta's forest fire protection activities.*"

The Alberta FireSmart program helps protect homes and communities from the threat of wildfire. FireSmart uses preventative measures to reduce wildfire threat to Albertans and their communities while balancing the benefits of wildfire on the landscape. SLS partners with the FireSmart program by prioritizing its forest management operations within the AESRD designated Community FireSmart boundaries.

Wildfires burn regardless of boundaries and both prescribed fire and FireSmart programs can reduce the likelihood of large, uncontrollable wildfires that can threaten Albertans and their communities.

SLS has digitized the Community FireSmart areas on the FMA, identified as a 10-kilometer radius buffer around communities, as outlined by the GoA. The Community FireSmart boundaries for West Bragg Creek and Waiparous were provided by the GoA in July of 2005. SLS completed FireSmart harvesting in the Bragg Creek zone in the 2012 timber year. The number of blocks and area harvested are shown in Table 2-23.

The number of wildfires in the DFA during from 2007 to 2019 is shown in Table 2-24.

Table 2-23. Number of cutblocks and area harvested in FireSmart FHPs

Timber year	FireSmart zone	Number of blocks	Area harvested (ha)
2012	WestBragg	12	356

Table 2-24. Number and size of wildfires within the DFA

Year	Total Wildfire Starts	Number of Wildfires (Spatial)	Total Wildfire Area (ha)	Within the DFA			
				Area Burned (ha)	Average Wildfire Size (ha)	Maximum Wildfire Size (ha)	Wildfire in DFA (%)
2007	95	1	28	28	28	28	100
2008	76	0					
2009	92	2	9	9	5	5	100
2010	144	0					
2011	107	1	6	6	6	6	100
2012	221	3	18	18	6	15	100
2013	166	0					
2014	146	0					
2015	85	2	73	39	20	37	54
2016	98	5	40	40	8	17	100
2017	140	1	4	4	4	4	100
2018	72	1	30	30	30	30	100
2019[1]		1	3	3	3	3	100
Total	**1,442**	**17**	**211**	**177**	**10**	**37**	**84**

[1] Total number of wildfire starts for 2019 was not available at the time of this report

2.4.10 Historical Resources and Unique Areas

Objective 5.10 "*Protect historical resources across the FMA*."

SLS developed a Historical Resource Predictive Model to assist with harvest planning and the management of historical resources for the FMA. The model highlights the location of all previously recorded archaeological sites and stratifies the FMA into high, moderate and low potential for locating and protecting potential sites. SLS submits all of it candidate cut blocks to Golder Associates, a company on the Government's list of approved archaeologists, for historical resource review prior to harvest. Golder Associates provides a comprehensive report for all of the blocks submitted by SLS annually.

All known archeological sites have been deferred from harvesting. Table 2-25 highlights SLS activities for locating and protecting historical sites using the model. SLS harvesting contractors are also trained to stop work and report any potential archeological sites encountered.

Table 2-25. Blocks assessed for historical resource value potential and outcome

Timber Year	Number of Blocks	Evaluations Completed	Shovel Tests	Result
2007	58	10	103	1 Site Protected
2008	47	12	159	None
2009	37	8	14	None
2010	33	12	82	None
2011	59	27	597	1 Site Protected
2012	29	13	130	None
2013	92	26	341	None
2014	83	22	211	3 Sites Protected
2015	54	12	225	2 Sites Protected
2016	104	19	474	7 Sites Protected
2017	55	9	208	2 Sites Protected
2018	35	11	204	None
2019	13	0	0	None

Objectives 5.10

"*Identify and protect unique areas.*"

"*Identify and protect rare ecosites within the FMA.*"

Pre-harvest field assessments are completed to check for unique areas and validate mapped rare/scarce ecosites. SLS consults with important stakeholder groups familiar with the FMA prior to harvest. The assessments are designed to focus on ecosite type and operational considerations respectively.

The Alberta Conservation Information Management System (ACIMS) (formally ANHIC) is also screened to identify the presence of rare ecosites. SLS harvesting contractors are also trained to identify rare plants and to stop work and report unique areas if encountered. Table 2-26 is a summary of the unique areas and ecosites SLS identified for the reporting period.

Table 2-26. Identification of rare ecosites or unique areas and mitigation action taken

Timber Year	Ecosites		Unique Areas	
	Number Identified	Mitigation Measures	Number Identified	Mitigation Measures
2007	3	Area withdrawn	1	Forested Buffer
			1	Area withdrawn
2008	0	N/A	1	Area withdrawn
2009	0	N/A	1	Area withdrawn
			1	Forested buffer
2010	0	N/A	2	Area withdrawn
2011	1	Area withdrawn	1	Area withdrawn
2012	1	Area withdrawn	0	N/A
2013	1	Forested buffer	0	N/A
2014	0	N/A	0	N/A
2015	0	N/A	0	N/A
2016	1	Area withdrawn	0	N/A
	1	Forested buffer		
2017	0	N/A	0	N/A
2018	0	N/A	1	Area Withdrawn
2019	0	N/A	0	N/A
2019	0	N/A	0	N/A

2.4.11 Integration of Other Values and Non-Commercial Users

Objectives 5.11

"*Minimize the impact of our activities on other values and users.*"

"*Recognize existing designated recreation facilities and mapped trails in our operational planning.*"

"*Recognize other designated non-commercial sites and non-commercial disposition holders.*"

"*Recognize future tourism opportunities.*"

For integration with recreation and other values, SLS removed approximately 2,489 ha of the FMA area for parks and protected areas during landbase development and 408 ha of disposition reservation (DRS). These areas are deemed as non-contributing in the net landbase.

Generally, designated recreation trails are also recorded in the SLS GIS database. SLS maintains linkages in the existing trail system, through the harvest planning process and subsequent company activities. SLS also works with known stakeholders through a referral process at the preliminary planning stages to identify other values and non-commercial uses.

Some examples of integration actions by SLS include trail restoration, trail construction, modified harvest design, adjusted timing of operations, and granting road use agreements and consents to other organizations such as outfitters, camps, a gun range and trail use groups. Table 2-27 outlines the parties and issues identified for the reporting period.

Table 2-27. Summary of integration efforts with non-commercial users and values

Timber Year	Non-Commercial Interests Consulted	Issues Identified	Mitigation Measures
2007	Olds Snowmobile and other off highway vehicle (OHV) Clubs	Snowmobile trails	Integrating trail use with operations
	Historical Preservation Group	Preserving telegraph lines	Provided GPS and mapping support.
	Trail Users	Trail Use	Provided trail maps at trail head kiosks
	Kananaskis Community Development	Trail Use	Solicited comments and provided maps; reclaimed roads to meet community development specifications; Installed signs for public safety and adjusted operation timing to accommodate trail users.
	Tim Horton's Children's Camp	Roads, safety and timing of operations	Road Use Agreement
2008	Alberta Trail Net	Protection of trails and building new trails.	Adjusted timing of operations and closed reclaimed roads to maintain trails, and constructed a new trail segment.
	Tourism Parks and Recreation	Protection of Provincial recreation areas (PRA).	Conducted consultation, provided maps and operating plans, Adjusted timing of operations.
	Tim Horton Children's Camp	Roads, safety and timing of operations.	Road Use Agreement, Donation to the camp on behalf of Spray lakes sawmills. Helped improving camps Emergency Response Plan (GPSd trails and provided maps and data to camp. Re-seeded camps activity field with Top Spray Seed mixture.
	Stoney Nakoda	Conducted field tour and discussed special sites.	Discussed AOP and traditional sites management.
2009	First Nations	Interest in acquiring Tee Pee Poles and firewood.	Obtained permits and acquired and delivered tee pee poles and firewood.
	Whispering Pines Bible Camp	Road maintenance, preventing road damage, new road construction and reclamation.	Road Use Agreement.
	GAMP OHV Trails Group	Trail protection.	Mapped, signed and restored trails.
	Alberta Trail Net	Signage needed	Collaborated with trail groups and reviewed/edited interpretive signs.
2010	The Alberta Provincial Rifle Association	Selecting an appropriate shooting range to meet the needs of the association.	Located and prepared a site in conjunction with harvest operations.
	Whispering Pines Bible Camp	Road maintenance, preventing road damage, new road construction and reclamation.	Road Use Agreement
	Single track Trail Users	Protect portions of single track trail.	SLS protects designated AESRD trails. This trail was not designated.

Timber Year	Non-Commercial Interests Consulted	Issues Identified	Mitigation Measures
	Greater Bragg Creek Trails Association & Bragg Creek FireSmart Committee	Protection of trails and retention of forest along trails/within FireSmart Protection Zone.	Started process of modified harvest blocks, remapped harvest blocks, modified road and landing locations, logging system, harvest schedule and reduced harvest levels (operation occurred in the 2012/13 harvest season)
2011	Alberta Fish and Wildlife, Tourism, Parks and Recreation and Community Cultural Spirit.	Protection of PRAs, wildlife management, road closures and cultural resources.	Conducted consultation and shared roads and trails, restored roads and trails to prior condition. Adjusted timing of operations and closed and reclaimed roads.
	Rocky Mountain Dirt Riders, Calgary ATV Riders Association, Second Gear Club, Bow Cycle, Calgary Foothill Wonders, Olds Snowmobile Club, Extreme ATV Adventures, and the Canada Toyota 4WD Association.	Protection, maintenance and use of OHV Trails.	SLS to leave trails as found and schedule operations in the fall after the main trail season. Completed trail repair for Rocky Mountain Dirt Riders.
	MM Ranch	Protection, maintenance and use of horse Trails.	SLS to leave trails as found and schedule operations in the fall after the main trail season.
	Single Tree Ranch	Protection, maintenance and use of horse Trails.	SLS to leave trails as found and schedule operations in the fall after the main trail season.
	Kananaskis Trails Advisory Group	Trails and recreational management concerns-multiple trail types, users and camping sites.	Discuss issues and identify management strategies to protect resources.
2012	Kananaskis Trails Advisory Group	Trails and recreational management concerns-multiple trail types, users and camping sites.	Continued discussion of issues identified and management strategies to protect resources
2013	Greater Bragg Creek Trails Association	Protection of trails and retention of forest along trails	Modified harvest blocks and laid out additional buffers in proximity to trails, modified logging system for firesmart, altered harvest schedule
	Calgary Mountain Bike Association	Protection of trails, integration with operations and enhancement of current trails	Identified trails before block design and incorporated into plan, could not develop new trails for the group
2014	Greater Bragg Creek Trails Association	Protection of trails,	Protected trails adjacent to harvest areas, improved trial network in specific spot, addressed potential impact on rec trails during scarification

Timber Year	Non-Commercial Interests Consulted	Issues Identified	Mitigation Measures
	Kananaskis Trails Advisory Group	Trails and recreational management concerns- multiple trail types, users and camping sites	Continued discussion of issues identified and management strategies to protect resources
	Kananaskis Country Trail Guide	Integration with trails	Communication on proximity of harvest and timing
2015	Enviros Base Camp, Ghost River Rediscovery	Proximity of logging	Forward a map along with timing of harvests
	Calgary Snowmobile Club	Sled trails and Blocks/Roads overlap	Developed a plan to improve the trails where possible (issues post flood). We agreed to close sections of trails down during loghaul as a safety precaution
	Saddle Peak Trails	Protection of trails for trail riding operations	Developed options to avoid trails as possible and specific sites
	Mary Wallace and Successors	Access	Established road use agreement to allow access
2016	Kananaskis Trails Advisory Group	Trails and recreational management concerns- multiple trail types, users and camping sites	Continued discussion of issues identified and management strategies to protect resources
2017	Blue Brona Outfitting	Access	Controlling access on lost creek road
2018	Kananaskis Country Trail Guide	Integration with trails	Communication on proximity of harvest and timing
	Moose Mountain Horse Adventures	Integration with trails	Communication on proximity of harvest and timing
	Whispering Pines Bible Camp	Integration with camp use, road access	Communication on proximity of harvest and timing, road use agreement, harvest design
	Kananaskis Trails Advisory Group	Trails and recreational management concerns- multiple trail types, users and camping sites	Continued discussion of issues identified and management strategies to protect resources
2019	Square Butte Ranch	Concerns about logging adjacency	Identified areas of use for trail protections, considered placement of retention patches, altered timing
	Rocky Mountain Dirk Riders, Second Gear Club	Trails and recreational management concerns	Communication on proximity, overlap, and harvest timing and design
	Kananaskis Trails Advisory Group	Trails and recreational management concerns- multiple trail types, users and camping sites.	Continued discussion of issues identified and management strategies to protect resources
	Whispering Pines Bible Camp	Integration with camp use, road access	Communication on proximity of harvest and timing, road use agreement, harvest design

2.4.12 Integration with Other Commercial Users

Objectives 5.12

"*Minimize our impact on the environment to reduce the collective footprint.*"

"*Work with other commercial users to minimize the impact of activities on each other's interests*."

SLS coordinates its plans and operations with other commercial interests to minimize its industrial footprint and to integrate activities with other commercial operators. SLS has frequent contact and integration of its plans with grazing, energy and recreational companies who also operate on the FMA. Table 2-28 lists the integration activities with other commercial users SLS has engaged in during the reporting period.

Table 2-28. Integration activities with other commercial users on the DFA

Timber Year	Commercial Interests Contacted	Action
2007	BP, Petro Canada & Trans Alta, Fortis, Atlas, Alberta, West Fraser, Alberta Infrastructure and transportation.	Road use agreements for 14 Energy Company LOC's and 3 Alberta Infrastructure and transportation permits, 1 forestry company road permit and 1 power line crossing agreement.
	7 Trap line holders	Contacted for consultation.
	18 Grazing operators	Approximately 4 GTA's
	Commercial trail rider disposition holder	Contacted for consultation
2008	Petro-Canada, BP Canada, Imperial Oil, Kananaskis Improvement District and Alberta Infrastructure and Transportation.	9 Road use agreements with Energy Company LOC's and 2 road permits from Kananaskis Improvement District and 5 road permits with Alberta Infrastructure and transportation.
	8 Trap line Holders	Contacted for consultation.
	7 Grazing operators	5 GTA's
2009	Husky Oil, Shell Canada, MD Bighorn, Alberta Infrastructure and Transportation.	Road crossing agreements, reciprocal road access agreements, 3 Alberta Infrastructure and Transportation roads use permits.
	1 Grazing operators	1GTA
	Red Rock Sawmills/ Waiparous PRA	PRA yard rental agreement
	3 Trap line holders	Contacted for consultation.
2010	Shell Canada, Husky Oil, Nuvista and CNRL	Road use agreements for 4 Energy Company LOC's and 2 Alberta Infrastructure and Transportation- road and gravel pit permits.
	5 trappers	Contacted for consultation.
	8 Grazing operators	3 GTA's
2011	Shell Canada, Imperial Oil, Husky Oil, Fortis, Alberta Infrastructure & Transportation, Kananaskis Improvement District	Road use agreements for 3 Energy Company LOC's and 2 Alberta Infrastructure and Transportation road permits and one power line crossing agreement.
	5 Trap line holders	Contacted for consultation.
	2 Grazing Allotment Holders	3 GTA's
2012	Direct Energy Marketing Limited, Taqa North, Forties Alberta, Shell Canada, Manitok Energy	Various landuse activities with work to minimize damage on regenerating harvest areas.
	2 Trap Line Holders	Contacted for consultation

Timber Year	Commercial Interests Contacted	Action
2013	Direct Energy Marketing Limited, Taqa North Ltd. Huskey Oil Operations Limited	Land withdrawal for 2 pipelines, TFA for wellsite extension.
	1 Grazing Allotment Holders	1 GTA's
2014	Huskey Oil, Fortis Alberta, Direct Energy Marketing Limited	Pipeline development, TFA for powerline repair, wellsite development
	2 Trap Line Holders	Contacted for consultation
	1 Grazing Allotment Holders	1 GTA's
2015	ColasCanada Inc, Huskey Oil Operations, Sutton Energy, Apache Canada, Shell Canada,	Test sites for gravel development, various landuse activities and work to minimize damage to existing harvest areas and use non forested clearing when possible.
	2 Trap Line Holders	Contacted for consultation
	11 Grazing Allotment Holders	11 GTA's
2016	Centrica Energy / Direct energy, Cochrane Lake Gas Co-op, Telus	1 Master Land Withdrawal Agreement, integration of operations
	3 Trap Line Holders	Contacted for consultation
	3 Grazing Allotment Holders	3 GTA's
2017	Environment Canada / National Hydrological Services, Devon Canada, Shell Canada, Fortis Alberta	TFA for geotechnical testing, widening Roads, TFA for temporary access and water sampling.
	Altalink, Alberta Transportation, Direct Energy, Fortis Alberta, Shell, Transalta, Virginia Hills Oil Corp	Access, road use agreements, proximity notification
	Hunter Valley Adventures	Proximity Notification, Harvest and haul schedule adjustments
	Sundre Forest Products, Centrica, Nuvista Energy	Access, road use agreements, proximity notification
	7 Trap Line Holders	Contacted for consultation
	3 Grazing Allotment Holders	3 GTA's
2018	Lazy H Trail Company,	1 Master Land Withdrawal Agreement,
	1 Grazing Allotment Holder	1 GTA
2019	Shell Canada, E Construction, Taqa, Husky, Lightstream Resources, CNRL	Access road integration, test sits for gravel development, road use cooperation
	1 Grazing Allotment Holder	1 GTA
2020	Brewster's Mountain Pack Trails, Environmental, Huskey Oil.	2 Master Land Withdrawal Agreement, 1 Master road use agreements, 2 Temporary field authorizations.

2.4.13 Public Involvement

Objective 5.13 "*Continue to provide for public involvement in the development of company plans.*"

SLS operates on Crown lands and people have the right to be involved in decisions affecting them. Interested and affected members of the public have local knowledge and expertise that can improve how our operations are conducted.

Our intent to stakeholders is to keep them informed, listen to and acknowledge concerns and aspirations and provide feedback on how public input influenced decisions. SLS's public involvement policy is to carefully consider feedback and then respond to stakeholders by addressing their concerns. Changes to a plan or operation as a result of public input are recorded by SLS and communicated to the stakeholder.

Countless hours have been invested by SLS staff in communicating its plans to the public and giving consideration to stakeholder issues and concerns to achieve the goal of facilitating meaningful public participation.

The public are invited to provide input at annual open houses, held every May, for the General Development Plan (GDP) and the Annual Operating Plan (AOP). Additionally, stakeholders are invited to attend a collaborative planning session held before a Forest Harvest Plan (FHP) is developed. Advertisements are submitted to local papers as needed to invite people to the various events.

SLS maintains an active website that presents information about the company, location of upcoming logging operations and a means of providing input options.

Input items often include access strategies for: environmentally sensitive areas, class of road, other user needs, road closure, reclamation, safety, timing and season of use, other resource values, unique finds and scarce resources, historic resources and joint use options. A list of current stakeholders is maintained, and copies of stakeholder lists are readily available to Woodlands staff through Outlook. SLS's public involvement activities are listed in Table 2-29 and Table 2-30.

Table 2-29. Public involvement activities during the reporting period

Timber Year	Annual Open House with approved plans on website	First Nations Consultation (informal and through ACO)	Additional Public Consultation Events (see below)
2007	✔	-	✔
2008	✔	-	✔
2009	✔	✔	✔
2010	✔	✔	✔
2011	✔	✔	✔
2012	✔	✔	✔
2013	✔	✔	✔
2014	✔	✔	✔
2015	✔	✔	✔
2016	✔	✔	✔
2017	✔	✔	✔
2018	✔	✔	✔
2019	✔	✔	✔

Table 2-30. Additional public involvement activities during the reporting period

Timber Year	Public and Stakeholders Outreach and Consultation
2007	Developed communication plan to address SLS and the AESRD, MPB, management strategy and AOP.
	Contacted MLA's, municipalities, local businesses, ranchers, media and environmental groups regarding GDP/FHP/AOP.
	Met with community development to discuss GDP/FHP/AOP integration needs. Initiated a news release regarding the MPB strategy.
	Advertised the annual AOP open house in the local newspapers.
	Conducted AOP open house (May 2, 2007), shared plans and collected feedback.
	Met with Public Advisory Committee quarterly.
	Completed visual analysis with public to address visual resource concerns and produced a series of newspaper articles providing information and solicited feedback.
2008	Contacted MLA's, municipalities, local businesses, ranchers, media and environmental groups regarding the GDP/FHP/AOP.
	Met with community development to discuss GDP/FHP/AOP integration needs.
	Advertised the annual AOP/FHP open house in the local newspapers.
	Conducted FHP/AOP meetings with Elbow River Watershed partnership & Ghost Watershed Alliance.
	Advertised the annual open house in the local newspapers and conducted its annual FHP and AOP open house on May 7.
	Met with the Public Advisory Committee biannually.
2009	Consulted on the GDP with the 5 First Nations groups.
	Contacted MLA's, municipalities, local businesses, ranchers, media and environmental groups regarding the FHP/AOP.
	Consulted with Municipal District of Bighorn No. 8. And met with the community development to FHP/AOP integration needs.
	Posted the 09/10 GDP on the company website.
	Advertised the annual FHP/AOP open house in the local newspapers and conducted open house on May 5th.
	Scheduled meetings and met with public advisory group for three information sharing sessions.
	Conducted a FHP/AOP meeting with the Ghost Watershed Alliance.
2010	Contacted MLA's, municipalities, local businesses, ranchers, media and environmental groups regarding the FHP/AOP.
	Met with community development to discuss integration needs of the FHP/AOP.
	Consulted with the 5 First Nations groups showing interest in the GDP.
	Met with Bragg Creek trails group regarding FHP/AOP.
	Advertised the annual FHP/AOP open house in the local newspapers
	Held the annual FHP/AOP open house, on May 5.
	Conducted meetings with Ghost Watershed Alliance, Panther River Adventures, Alberta Wilderness Association, Action for Agriculture and the Castle Coalition regarding the GDP/FHP/AOP.
	Conducted public consultation/open houses for High Conservation Value Forest Assessments plan
	Held 2 Public Advisory Committee meetings.
2011	Contacted MLA's, municipalities, local businesses, ranchers, media and environmental groups concerning the GDP/FHP/AOP.
	Met with community development to discuss FHP/AOP integration needs.
	Consulted with the 5 First Nations groups showing interest in the GDP.
	Advertised the annual FHP/AOP open house in the local newspapers.
	Conducted FHP/AOP open house on May 4th.
	Held annual FHP/AOP meeting with the Ghost Watershed Alliance.
	Attended meeting as a member of the Ghost Stewardship Monitoring Group.
	Facilitated the Bragg Creek FHP/AOP open house

Timber Year	Public and Stakeholders Outreach and Consultation
	Held 2 Public Advisory Committee meetings.
2012	Contacted MLA's, municipalities, local businesses, ranchers, media and environmental groups regarding the FMP.
	Met with community development to discuss FHP/AOP integration needs.
	Consulted with the 5 First Nations groups showing interest in the GDP.
	Advertised the annual FHP/AOP open house in the local newspapers.
	Held the FHP/AOP open house in May.
2013	Held FHP Collaborative planning session for the Ghost River and McLean Creek Planning area.
	Invited Metis association, ranchers and environmental groups, and interested party contacts to FSC workshops.
	Held FSC workshops for Protected Areas Gap Analysis and High Conservation Value Forest Assessment
	Attended meeting as a member of the Ghost Stewardship Monitoring Group, Kananaskis Trails Advisory Group and Bow River Basin Council.
	Met with a new trails group wanting to start a single track system in the Atkinson area where it currently isn't allowed, differed item to the GoA.
	Worked with Mount Royal College students on a watershed class project using SLS as a communication case study.
	Held meeting and mill tour with new minister of ESRD.
	Held AOP open house at Beaupre haul specific to FHPs in in the South B9 and Atkinson areas.
2014	FMP Workshop in Turner Valley, Water Valley & Cochrane regarding Values and Objectives, contacts, ranchers, environmental groups and industry representatives were in attendance.
	Conducted mill tour and field trip with the Public Advisory Committee and other interested participants.
	Had 80 separate communications with people / groups to addressed multiple concerns about FHP harvest area design in South B9 quota area.
	Met with the Greater Bragg Creek Trails association about scarification and potential impact on rec trails.
	Developed and released series of video about forest management on SLS's website.
	Met with concerned citizens and future MLA around concerns in the Ghost area FHP and SLS's response.
	Held three Public Advisory Committee meetings.
	Held three FHP collaborative planning sessions.
2015	Additional FMP Workshop held at Beaupre haul based on specific request.
	Held three Public Advisory Committee meetings.
	Held two FHP collaborative planning sessions.
	Visited via door to door with the residents of Jamieson and Richards Road about upcoming AOP log haul and harvesting activity.
	Held FHP/AOP field trips with concerned residents reviewing harvest area in South B9 quota area.
2016	Held three Public Advisory Committee meetings.
	Held two FHP collaborative planning sessions.
	Held workshop in Cochrane regarding FMP development and opportunities for involvement, invitations sent out to stakeholders as well as advertised in papers.
2017	Presentation to the Town of Cochrane Council about forest management and the upcoming forest management plan.
	Held one Public Advisory Committee Meeting.
	Took MLA on tour of Ghost tree planting operations.
	Held Ghost specific meeting with Stop Ghost environmental group around GDP and AOP for upcoming year.

Timber Year	Public and Stakeholders Outreach and Consultation
	Started quarterly updates to stakeholders and first nations on forest management plan activities.
2018	FMP VOIT workshop held at Beaupre Hall and Black Diamond.
	Held 2 Public Advisory Committee meetings.
	Met with Metis Association of Alberta regarding FMP VOITs.
	Held field meeting with concerned groups around specific harvest block in the Elbow River area.
	Advertised May FHP/AOP open house and the collaborative planning session in the local papers.
	Provided quarterly updates to stakeholders and first nation on forest management plan activities.
	Sent out questionnaire on values and objectives for forest management.
2019	Held 3 Public Advisory Committee meetings.
	Held one FHP collaborative planning session.
	Held one open house to review FMP VOITs and contributing and non-contributing landbase.
	Held website open house for preliminary sequence with linkage to VOITs.
	Provided quarterly updates to stakeholders and first nations on forest management plan activities.

2.4.14 Public Safety

Objective 5.14 "*Manage our log haul, timber harvesting and other woodlands activities with due consideration for public safety*."

SLS is committed to conducting its operations in accordance with Government of Alberta Workplace Health & Safety Regulations and being a responsible corporate citizen. SLS maintains a proactive Health and Safety Program, maximizing employee participation and utilizing a partnership approach with Alberta Forest Products Association.

SLS is now in its second decade of membership in the Partnerships Program. This is a program designed to enhance and standardize safety programs throughout the province.

Through these industry programs, input from our employees, contractors and contact with others in the industry, we have provided our employees and community with a safe operation that manufactures top quality products. These programs are further implemented through the use of a number of SLS policies that direct how individual employees and contractors conduct their daily jobs.

Policies, however, can't substitute for safe work practices, consideration for others and the environment, and respect for the company.

The primary goal of the program is to operate safely and reduce or eliminate all incidents by respecting the laws and other users of public roadways. SLS tracks and maintains records and statistics that are used to continually improve health and safety. Table 2-31 summarizes the public safety incidents recorded by SLS.

Table 2-31. Reported safety incidents and near misses during the reporting period

Year	Number of Issues
2007-2010	0
2011	2
2012	1
2013	2
2014	1
2015	6
2016	3
2017	17
2018	20
2019	18
Total	**70**

Table 2-32. Reported safety incidents by category

Year	Log Haul/Driving	Forest Harvesting (including equipment vandalism)	Wildfire
2011	2	-	-
2012	-	-	1
2013	2	-	-
2014	1	-	-
2015	3	3	-
2016	2	1	-
2017	15	1	1
2018	14	4	2
2019	16	1	1
Total	**55**	**10**	**5**

Over the last number of years, SLS has improved its safety incident tracking system by moving the management of safety incidents into a database system. This has led to improved incident tracking, management and corrective actions. Incidents are also reviewed monthly during SLS and contractor health and safety meetings to discuss trends and corrective actions.

As can be seen in Table 2-32, the majority of the public safety incidents or near misses relate to driving/log haul. There was an increase in recorded incidents over the past few years as a result of the more robust safety reporting systems. Health and safety improvements resulting from our systems include: use of dash cams; use of on-board GPS for monitoring trucks activity (including speed); modification of road right of ways to improve line of sight; improved signage on radio controlled roads; road access closures and coordination with other industrial users.

Incidents and corrective actions are also reviewed and signed off by senior SLS management. The safety programs systems are both internally and externally audited by safety professionals are to continually improve SLS's health and safety program.

Annually, SLS holds a woodlands contractor training. One of the purposes of this training is to raise the awareness and knowledge of SLS's contractors and employees regarding public safety.

Table 2-33. Topics covered in annual spring contractor training

Topics Covered
General Public & Access Control
Emergency Response Plan
Environment Part 1 – regulations, spills and waist management
Environment Part 2 – Watershed Buffers, Soil Protection, Compaction and rutting avoidance
Environment Part 3 – Weeds and Historical Resources
Environment Part 4 – High Conservation Value Forests, Species at Risk, Rare Plants and Plant Communities, Sustainable Forestry Initiative
Operations Part 1 – Protecting Watercourses and Soils, Preventative Maintenance and Risk Management around Water
Operations Part 2 – Slash Management and Stand Retention
Wildfire Operations - Fire Awareness, Behavior and Readiness

2.4.15 Reforestation

Objectives 5.15

"*Meet our obligations in reforesting all harvested areas.*"

"*Identify areas where alternate reforestation strategies may be necessary and where alternate reforestation standards need to be developed.*"

In order to meet reforestation obligations, all openings are treated within two years of harvest. Over 22 million seedlings were planted in the DFA during the period of the last DFMP, 66% of which were pine seedlings and 34% of which were spruce seedlings (Table 2-34). In addition, 10,780 hectares of area was site prepared during the reporting period (Table 2-35).

Table 2-34. Annual planting activity in the DFA

	Pine		Spruce		Total	
Timber Year	Area (ha)	# of Trees	Area (ha)	# of Trees	Area (ha)	# of Trees
2007	1,233	1,875,606	571	724,440	1,804	2,600,046
2008	1,132	1,719,919	355	526,830	1,486	2,246,749
2009	347	527,513	285	428,902	632	956,415
2010	849	1,240,179	375	474,845	1,223	1,715,024
2011	599	823,150	241	269,860	840	1,093,010
2012	950	1,259,955	516	497,520	1,466	1,757,475
2013	802	1,257,240	394	430,320	1,195	1,687,560
2014	787	1,069,455	833	944,410	1,621	2,013,865
2015	692	871,126	598	737,603	1,290	1,608,729
2016	1,074	1,501,305	583	769,330	1,657	2,270,635
2017	803	1,244,470	595	874,128	1,398	2,118,598
2018	818	1,197,740	528	806,361	1,346	2,004,101
Total	**10,085**	**14,587,658**	**5,874**	**7,484,549**	**15,959**	**22,072,207**

Table 2-35. Silviculture site preparation area (ha) by year

	Site Preparation Method				
Timber year	Disc Trench	Drag Scarification	Teeth Scarification	Other	Total
2007	0	774	661	13	1,449
2008	220	663	412	0	1,296
2009	0	310	162	0	472
2010	0	372	0	0	372
2011	0	261	509	0	770
2012	0	188	291	0	479
2013	45	859	34	0	938
2014	79	857	0	0	936
2015	45	1,044	94	0	1,182
2016	49	584	236	0	869
2017	141	809	80	16	1,045
2018	0	378	596	0	974
Total	**579**	**7,097**	**3,075**	**29**	**10,780**

SLS abides by the Reforestation Standard of Alberta and completes establishment surveys between 5 and 8 years after a cutblock is harvested. The following terms are used to describe regeneration performance for establishment surveys:

- SR – Block is satisfactorily restocked. Appropriate trees are present and desired stocking level is achieved.
- NSR – Not satisfactorily restocked. Appropriate trees are not present and/or minimum height is not met. An opening is considered NSR if the stocking is below the 80% threshold.
- LIG – Let it grow. The opening (or block) is not satisfactorily restocked with acceptable trees and may be in a 'satisfactory restocked like condition' when under height trees are considered and left to grow to meet the minimum height requirements.

Overall, 92% of the area and 91% of the blocks assessed during the reporting period were declared to be satisfactorily re-stocked or suitable for let it grow designation (Table 2-38). A total of 60 blocks were declared not satisfactorily restocked, and these blocks either were or will be re-treated in order to meet the government's acceptable standard of reforestation.

Table 2-36. Wild seed availability and projected usage – PL

Seed Zone	KGs	Seedlings	Hectares
LF2.3	126	9,576,602	69,362
M4.3	6	487,557	406
M4.4	31	2,379,743	1,983
M5.3	14	1,083,460	903
M5.4	33	2,517,497	2,098
SA3.1	1	46,434	39
SA3.2	95	8,512,724	6,794
SA4.2	7	1,065,045	888
UF1.5	8	620,822	518
UF2.5	1	47,984	126,186

Table 2-37. Wild seed availability and projected usage – SW

Seed Zone	KGs	Seedlings	Hectares
LF2.3	70	8,286,691	6,906
M4.3	36	4,214,880	3,512
M4.4	20	2,365,200	1,971
M5.3	39	4,677,923	3,898
M5.4	44	11,810,075	2,387
SA3.1	0	23,746	20
SA3.2	16	1,892,659	1,577
SA4.2	14	4,858,927	4,049
UF1.5	15	1,734,987	1,445
UF2.5	10	1,163,544	970

SLS is planning on collecting seed in SA 3.1 & UF 1.5, for both spruce and pine to align with the planned harvest in these areas. For the other seed zones, there is adequate seed availability. SLS intend to collect the seed required to ensure there is adequate supply in both the seed zones where there is a deficit as well as seed zones with a lower current inventory. Canfor also has a deficit of M5.4 and M4.4, however they are very small.

Conversion to seedlings are based on greenhouse averages. 118,729 seedlings / 1 kg of spruce seed; 1.45 hL Sw = 1 kg of seed. 77,390 seedlings / 1 kg of pine seed; 3.5 hl PL = 1 kg of seed. Canfor used their own conversion numbers.

Table 2-38. Number and area of establishment surveys by year

Timber year	Completed surveys	Blocks - SR	Blocks - LIG	Blocks - NSR	Area surveyed (ha)	SR - Area (ha)	LIG - Area (ha)	NSR - Area (ha)	% of blocks SR/LIG	% of area SR/LIG
2007	112	107	3	2	1,782	1,707	41	35	98	98
2008	56	45	7	4	1,178	1,047	85	46	93	96
2009	121	97	17	7	2,317	1,845	388	85	94	96
2010	67	56	10	1	1,709	1,548	146	15	99	99
2011	53	47	6	0	1,259	1,024	235	0	100	100
2012	47	34	12	1	958	791	166	1	98	100
2013	39	17	6	16	1,304	830	154	320	59	75
2014	56	30	12	14	1,379	800	229	350	75	75
2015	59	43	10	6	1,531	916	440	175	90	89
2016	30	25	3	2	598	528	29	41	93	93
2017	25	15	8	2	913	597	303	12	92	99
2018	31	23	3	5	1,146	846	121	180	84	84
Total	**696**	**539**	**97**	**60**	**16,075**	**12,480**	**2,336**	**1,259**	**91**	**92**

In addition to establishment surveys, 676 performance surveys were completed during the reporting period (Table 2-39). Since performance surveys are no longer assessed on a pass-fail basis, the compilation of the performance surveys is slightly different than the establishment survey compilation.

Table 2-39. Number and area of performance surveys completed by year

Timber year	Completed surveys	Area surveyed (ha)
2007	1	11
2009	17	246
2010	242	3,213
2011	14	169
2012	30	330
2013	198	4,105
2014	1	10
2015	172	3,953
2017	1	1
Total	**676**	**12,037**

2.4.16 Sustainable Timber Supply

SLS' goal is to manage the forest landbase within the FMA and the B12 Quota area on a sustained yield basis based on a balance of ecological, economic and social values.

SLS completed a new Alberta Vegetation Inventory (AVI) for use in the 2021 FMP. A dataset audit was completed by the Government of Alberta that approved the AVI for use in forest management and operational planning in January 2019. The AVI dataset meets and exceeds the current requirements of the AVI standards 2.1.1 and includes additional fields: Density, Crown Closure, Moisture Regime, Nutrient Regime, Mapcode/Ecosite, and Canopy Pattern. Creation of the AVI dataset included photo interpretation of the imagery (all imagery flown fall of 2017) as well as a field program for field calibration and validation. Following the completion of the AVI dataset, audits were conducted by a field program, the interpreter, as well as the client and the GoA. This data was then integrated with other geographic information layers to generate the Net Landbase (*Annex V – Net Landbase Development*). Cull levels were assessed for the new FMP as part of the yield curves (*Annex IV – Yield Curve Development*), along with the collection of temporary sample plots (*Annex IV – Yield Curve Development*). For between plan recalculation and adjustments refer to Section 4.9 Changes in the Timber Supply Analysis and *Annex VI – Timber Supply Analysis*.

2.4.17 Water Quality/Quantity and Fisheries Resources

Objectives 5.17

"*Maintain water quality and quantity by minimizing the effects of SLS activities on watercourses*."

"*Protect fish and fish habitat*."

SLS' goal is to maintain water quality and quantity by minimizing the effects of SLS activities on watercourses. Spray Lake Sawmills works proactively to address any watercourse items as they are identified either through internal monitoring or through AAF forest operations monitoring. In terms of forest management and SLS' operations, riparian management activities refer to selective timber harvest within the designated riparian protected area (i.e. the buffer) while demonstrating that the aquatic and terrestrial objectives are met. SLS has not proposed any harvesting within riparian buffers within the DFA for the 2021 FMP.

The Equivalent Clear-Cut (ECA) hydrological model was used to predict the effect of harvest operations on water yield in the DFA. Table 2-40 shows the actual ECA areas and percentages, and Table 2-41 shows the projected ECA values from the 2006 DFMP. ECA areas and percentages were lower that projected due to the reduced harvesting during the monitoring period compared to the SHS.

Table 2-40. Actual ECA area in years 2006, 2012 and 2016

Compartment	2006			2012			2016		
	Area Harvested (ha)	ECA (ha)	ECA (%)	Area Harvested (ha)	ECA (ha)	ECA (%)	Area Harvested (ha)	ECA (ha)	ECA (%)
Atkinson Creek	508	504	2.87	519	490	2.79	1,683	1,620	9.22
B9 Quota	1,158	1,150	2.77	1,495	1,435	3.46	2,278	2,151	5.18
Burnt Timber Creek	223	222	0.87	975	961	3.77	975	936	3.67
Coalcamp Creek	1,064	1,062	5.95	2,439	2,387	13.38	3,281	3,142	17.61
Ghost River	0	0	0.00	969	962	5.30	1,561	1,529	8.42
Grease Creek	2,216	2,205	7.25	2,495	2,399	7.88	2,495	2,280	7.49
Highwood River	1,062	1,058	2.80	1,074	1,040	2.75	1,346	1,272	3.37
Jumpingpound Creek	0	0	0.00	1,579	1,571	3.36	2,528	2,483	5.30
McLean Creek	744	739	1.91	1,868	1,823	4.72	2,722	2,614	6.77
Sullivan Creek	29	29	0.14	29	27	0.13	29	25	0.12
Total	**7,005**	**6,968**	**2.36**	**13,441**	**13,095**	**4.43**	**18,898**	**18,052**	**6.11**

Table 2-41. Projected ECA from the 2006 DFMP in years 2006, 2012, 2016

Compartment	2006			2012			2016		
	Area Harvested (ha)	ECA (ha)	ECA (%)	Area Harvested (ha)	ECA (ha)	ECA (%)	Area Harvested (ha)	ECA (ha)	ECA (%)
Atkinson Creek	647	647	3.59	1,677	1,601	8.90	1,980	1,708	9.49
B9 Quota	1,679	1,679	3.63	2,749	2,552	5.51	3,883	3,366	7.27
Burnt Timber Creek	228	228	0.92	643	616	2.48	2,464	2,362	9.49
Coalcamp Creek	1,346	1,346	7.48	3,474	3,316	18.42	4,027	3,463	19.24
Ghost River	53	53	0.27	895	889	4.54	1,982	1,871	9.56
Grease Creek	2,233	2,233	7.09	2,717	2,455	7.80	2,900	2,322	7.37
Highwood River	2,265	2,265	5.79	2,780	2,514	6.42	3,643	3,054	7.80
Jumpingpound Creek	370	370	0.77	3,210	3,167	6.55	4,832	4,413	9.13
McLean Creek	682	682	1.73	1,686	1,606	4.07	3,800	3,523	8.94
Sullivan Creek	28	28	0.12	28	25	0.11	301	295	1.30
Total	**9,531**	**9,531**	**3.10**	**19,859**	**18,741**	**6.09**	**29,812**	**26,376**	**8.57**

3. Harvesting and Regeneration Metrics

3.1 Spatial Harvest Sequence Variance

Though the effective date of the previous DFMP was May 1, 2007, the SHS was backdated to 2001 with the periods being managed as period 1 (2001 – 2016) and period 2 (2016 - 2031). In addition, the extension of this FMP resulted in SLS utilizing the second period of the SHS (2016-2031).

Table 3-1 lists the variance by compartment and yield curve strata on the first period of SHS against harvesting from 2001 to 2015, and Table 3-2 lists the variance by compartment and yield curve strata for the second period of SHS against harvesting from 2016 up to the end of the 2019 timber year. This includes all known harvesting on the DFA, including SLS and other operators. Quota holders were contacted (August of 2019) to provide deletions and deferrals information; however, none were received, most likely because some of the current owners had recently purchased the certificates. The total area harvested was 64% of the approved SHS in the first period (2001-2015), and 35% in the second period (2016-2019). This is due to reduced harvest levels during the economic downturn of 2008-2013, and only harvesting for 3 years of period 2. Overall, variance across the DFA was 13% in the first period, and 20% in the second period.

Parts of stands classified as deciduous that were harvested (Table 3-1, Table 3-2) are mainly due to inaccuracies with the old AVI information (i.e. slivers of deciduous stands), or inaccuracies in species composition (i.e. there was enough conifer content within the stand to justify harvest activities.

Some of the reasons for SHS variance include:

- Inaccuracies in vegetation inventories;
- Inaccuracies in spatial landbase/TSA deletion layers;
- Operational and economic considerations not identified in the TSA;

- Accessibility of the SHS polygon compared to the FHP area;
- TSA modeling capabilities of the time;
- Change in harvest due to stakeholder and GoA consideration outside of the approved SHS; and
- Operational considerations at time of harvest.

Table 3-1. Spatial harvest sequence variance by compartment and yield curve strata first 15-year of SHS (2001-2015) against harvesting from 2001 to 2015

SHS Profile			Harvested (ha)						Variance							SHS Assessment (Excluding Slivers)		
									Substantial			Slivers						
Compartment	Yield Curve Strata	Approved 15-yr SHS	SHS 1 - 15 yr	SHS 16 - 25 yr	SHS 26 - 75 yr	Non-SHS Active Landbase	Passive Landbase	Total	Add	Del	Def	Add	Del & Def	Total	Total (%)	Variance (Add %)	Area Difference (Add - D&D)	Area Difference (Harvested - Approved SHS)
Atkinson Creek	B9BPine	1,426	994	21	245	54	19	1,334	246	0	314	94	117	211	16	17	-68	-92
	B9BSpruce	209	118	8	48	6	3	184	52	0	53	14	38	51	28	25	-1	-25
	Composite	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0	0	0
	Deciduous	308	43	0	37	0	1	82	21	0	238	17	26	43	53	7	-217	-226
	MixedWood	113	42	0	31	11	1	84	28	0	54	14	18	32	38	24	-26	-30
	NonForested	0	0	0	0	0	10	10	0	0	0	10	0	10	100		0	10
	Atkinson Creek Subtotal	*2,056*	*1,197*	*30*	*361*	*71*	*33*	*1,693*	*347*	*0*	*660*	*149*	*199*	*348*	*21*	*17*	*-312*	*-362*
B9 Quota	B9BPine	2,241	1,204	112	128	150	20	1,613	328	0	695	81	192	273	17	15	-366	-628
	B9BSpruce	666	242	1	24	53	8	328	50	8	324	37	80	117	36	7	-282	-338
	Composite	7	5	0	3	26	1	33	0	0	0	29	2	31	93	0	0	26
	Deciduous	256	35	2	15	8	1	61	9	4	148	16	52	68	112	4	-143	-195
	MixedWood	492	104	53	41	38	7	243	113	8	206	25	74	100	41	23	-101	-250
	NonForested	0	0	0	0	0	11	11	2	0	0	9	0	9	78		2	11
	B9 Quota Subtotal	*3,662*	*1,588*	*168*	*211*	*274*	*47*	*2,289*	*503*	*19*	*1,373*	*197*	*400*	*597*	*26*	*14*	*-889*	*-1,373*
Burnt Timber Creek	B9BPine	610	305	64	113	11	235	728	358	13	167	66	51	117	16	59	177	119
	B9BSpruce	350	0	0	143	95	8	246	233	12	239	13	46	59	24	67	-17	-104
	Composite	0	0	0	0	0	0	0	0	0	0	0	0	0	100		0	0
	NonForested	0	0	0	0	0	3	3	0	0	0	3	0	3	100		0	3
	Burnt Timber Creek Subtotal	*960*	*305*	*64*	*256*	*106*	*247*	*978*	*591*	*25*	*406*	*82*	*97*	*179*	*18*	*62*	*160*	*18*
Coalcamp Creek	B9BLarch	0	0	0	0	0	0	0	0	0	0	0	0	0	100		0	0
	B9BPine	2,853	2,088	60	168	63	32	2,410	168	9	554	155	202	357	15	6	-395	-442
	B9BSpruce	657	474	3	34	1	27	539	20	0	84	45	99	145	27	3	-64	-118
	Composite	4	1	0	0	1	0	3	0	0	0	1	3	4	171	0	0	-2
	Deciduous	250	18	11	31	0	1	61	2	0	200	41	33	73	120	1	-197	-189
	MixedWood	495	220	1	40	5	2	268	21	0	207	27	67	94	35	4	-186	-226
	NonForested	0	0	0	0	0	11	11	0	0	0	11	0	11	100		0	11
	Coalcamp Creek Subtotal	*4,259*	*2,801*	*76*	*273*	*70*	*72*	*3,292*	*211*	*9*	*1,045*	*280*	*404*	*684*	*21*	*5*	*-842*	*-967*
Ghost River	B9BPine	1,962	1,096	26	270	41	13	1,445	301	0	752	49	114	163	11	15	-451	-517
	B9BSpruce	290	57	2	12	5	1	77	9	0	214	10	19	29	38	3	-204	-213
	Deciduous	122	0	0	15	0	0	15	9	0	110	6	12	18	117	8	-100	-106
	MixedWood	111	6	0	12	5	1	24	0	0	99	18	6	24	101	0	-99	-88
	NonForested	0	0	0	0	0	6	6	0	0	0	6	0	6	100		0	6
	Ghost River Subtotal	*2,484*	*1,159*	*27*	*309*	*51*	*21*	*1,567*	*320*	*0*	*1,174*	*88*	*151*	*240*	*15*	*13*	*-855*	*-918*
Grease Creek	B9BPine	2,453	1,999	26	143	111	31	2,310	153	4	219	158	131	289	13	6	-70	-144
	B9BSpruce	291	108	1	10	20	2	140	21	12	94	11	44	55	40	7	-85	-151
	Composite	8	5	0	0	0	0	6	0	0	0	0	3	4	65	0	0	-3
	Deciduous	3	1	0	0	0	0	1	0	0	0	0	2	3	227	0	0	-2
	MixedWood	31	18	1	1	0	0	20	0	0	5	2	8	10	49	0	-5	-11
	NonForested	0	0	0	0	0	4	4	0	0	0	4	0	4	100		0	4
	Grease Creek Subtotal	*2,787*	*2,131*	*28*	*154*	*131*	*37*	*2,481*	*173*	*15*	*318*	*177*	*188*	*365*	*15*	*6*	*-160*	*-306*
Highwood River	B10BPine	1,685	395	3	31	42	83	554	107	4	1,010	52	153	205	37	6	-907	-1,132
	B10BSpruce	1,994	568	49	80	32	58	789	154	16	1,122	66	214	280	35	8	-984	-1,206
	Composite	3	2	0	0	2	0	4	0	0	0	2	1	3	77	0	0	1

SHS Profile			Harvested (ha)						Variance: Substantial			Variance: Slivers				SHS Assessment (Excluding Slivers)		
Compartment	Yield Curve Strata	Approved 15-yr SHS	SHS 1 - 15 yr	SHS 16 - 25 yr	SHS 26 - 75 yr	Non-SHS Active Landbase	Passive Landbase	Total	Add	Del	Def	Add	Del & Def	Total	Total (%)	Variance (Add %)	Area Difference (Add - D&D)	Area Difference (Harvested - Approved SHS)
	MixedWood	7	0	0	0	0	0	0	0	0	4	0	3	3		0	-4	-7
	NonForested	0	0	0	0	0	2	2	0	0	0	2	0	2	100		0	2
	Highwood River Subtotal	*3,690*	*965*	*52*	*111*	*76*	*144*	*1,348*	*261*	*20*	*2,137*	*122*	*371*	*493*	*37*	*7*	*-1,895*	*-2,342*
Jumpingpound Creek	B10BPine	3,857	1,275	83	405	212	36	2,012	571	72	2,042	165	328	493	24	15	-1,542	-1,845
	B10BSpruce	1,185	269	4	64	91	22	451	138	18	711	44	179	222	49	12	-591	-734
	Composite	14	0	0	0	27	0	28	12	0	13	16	0	16	59	85	-2	14
	Deciduous	126	5	0	4	0	1	10	2	0	99	3	22	25	255	2	-97	-117
	MixedWood	136	4	0	5	1	18	28	20	2	87	4	39	43	154	14	-70	-109
	NonForested	0	0	0	0	0	5	5	0	0	0	5	0	5	100		0	5
	Jumpingpound Creek Subtotal	*5,318*	*1,554*	*88*	*478*	*331*	*83*	*2,533*	*743*	*93*	*2,952*	*237*	*568*	*805*	*32*	*14*	*-2,302*	*-2,785*
McLean Creek	B10BPine	2,769	1,463	122	246	255	109	2,196	538	32	1,041	194	214	408	19	19	-535	-574
	B10BSpruce	980	219	4	91	16	41	372	114	16	562	39	173	212	57	12	-464	-608
	Composite	4	1	0	0	0	0	1	0	0	0	0	3	3	296	0	0	-3
	Deciduous	166	44	1	11	0	1	57	2	0	89	11	33	44	77	1	-87	-109
	MixedWood	117	36	0	50	9	1	96	44	4	54	16	23	39	41	37	-15	-21
	NonForested	0	0	0	0	0	15	15	0	0	0	15	0	15	100		0	15
	McLean Creek Subtotal	*4,036*	*1,763*	*128*	*399*	*280*	*167*	*2,737*	*698*	*52*	*1,746*	*276*	*446*	*721*	*26*	*17*	*-1,100*	*-1,299*
Sullivan Creek	B10BPine	41	25	1	0	1	1	29	0	0	14	4	2	5	19	0	-14	-12
	B10BSpruce	30	0	0	0	0	0	0	0	0	29	0	1	1		0	-29	-30
	NonForested	0	0	0	0	0	0	0	0	0	0	0	0	0	100		0	0
	Sullivan Creek Subtotal	*71*	*25*	*1*	*0*	*1*	*2*	*29*	*0*	*0*	*43*	*4*	*3*	*7*	*23*	*0*	*-43*	*-42*
Total		**29,323**	**13,489**	**662**	**2,553**	**1,392**	**851**	**18,948**	**3,848**	**233**	**11,854**	**1,611**	**2,827**	**4,438**	**23**	**13**	**-8,239**	**-10,376**

Table 3-2. Spatial harvest sequence variance by yield curve strata for the second decade of SHS (2016-2025) against harvesting from 2016 to 2019

SHS Profile			Harvested (ha)						Variance: Substantial			Variance: Slivers				SHS Assessment (Excluding Slivers)		
Compartment	Yield Curve Strata	Approved 10-yr SHS (Years 16-25)	SHS 1-15 yr	SHS 16-25 yr	SHS 26-75 yr	Non-SHS Active Landbase	Passive Landbase	Total	Add	Del	Def	Add	Del & Def	Total	Total (%)	Variance (Add %)	Area Difference (Add - D&D)	Area Difference (Harvested - Approved SHS)
Atkinson Creek	B9BPine	403	0	0	0	0	0	0	0	0	365	0	17	17		0	-365	-403
	B9BSpruce	114	0	0	0	0	0	0	0	0	100	0	5	5		0	-100	-114
	Deciduous	13	0	0	0	0	0	0	0	0	11	0	1	1		0	-11	-13
	MixedWood	69	0	0	0	0	0	0	0	0	67	0	2	2		0	-67	-69
	Atkinson Creek Subtotal	*598*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*543*	*0*	*25*	*25*		*0*	*-543*	*-598*
B9 Quota	B9BPine	1,089	151	194	71	15	4	435	206	0	700	34	83	117	27	19	-494	-654
	B9BSpruce	392	12	74	36	1	3	128	45	3	262	8	50	59	46	12	-220	-264
	Composite	0	0	0	0	0	0	0	0	0	0	0	0	0	101	0	0	0
	Deciduous	235	17	9	11	3	0	40	17	0	201	15	23	38	93	7	-184	-194
	MixedWood	369	100	31	40	12	1	184	130	5	244	24	37	61	33	35	-119	-185
	NonForested	0	0	0	0	0	12	12	7	0	0	5	0	5	40		7	12
	B9 Quota Subtotal	*2,084*	*281*	*308*	*158*	*32*	*20*	*799*	*405*	*8*	*1,407*	*86*	*193*	*279*	*35*	*19*	*-1,010*	*-1,285*

SHS Profile			Harvested (ha)						Variance							SHS Assessment (Excluding Slivers)		
									Substantial			Slivers						
Compartment	Yield Curve Strata	Approved 10-yr SHS (Years 16-25)	SHS 1-15 yr	SHS 16-25 yr	SHS 26-75 yr	Non-SHS Active Landbase	Passive Landbase	Total	Add	Del	Def	Add	Del & Def	Total	Total (%)	Variance (Add %)	Area Difference (Add - D&D)	Area Difference (Harvested - Approved SHS)
Burnt Timber Creek	B9BPine	1,801	73	253	132	25	147	630	324	0	1,356	53	127	181	29	18	-1,032	-1,171
	B9BSpruce	229	54	22	141	45	19	281	234	0	195	25	12	37	13	102	40	52
	Composite	0	0	0	0	2	0	2	0	0	0	2	0	2	100		0	2
	NonForested	0	0	0	0	0	3	3	0	0	0	3	0	3	100		0	3
	Burnt Timber Creek Subtotal	*2,030*	*127*	*275*	*273*	*72*	*169*	*917*	*558*	*0*	*1,551*	*84*	*140*	*223*	*24*	*28*	*-993*	*-1,113*
Coalcamp Creek	B9BPine	820	0	0	0	0	0	0	0	0	640	0	121	121		0	-640	-820
	B9BSpruce	99	0	0	0	0	0	0	0	0	75	0	21	21		0	-75	-99
	Composite	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
	Deciduous	491	0	0	0	0	0	0	0	0	452	0	27	27		0	-452	-491
	MixedWood	227	0	0	0	0	0	0	0	0	202	0	23	23		0	-202	-227
	Coalcamp Creek Subtotal	*1,637*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1,370*	*0*	*192*	*192*		*0*	*-1,370*	*-1,637*
Ghost River	B9BPine	347	0	0	0	0	0	0	0	0	299	0	22	22		0	-299	-347
	B9BSpruce	79	0	0	0	0	0	0	0	0	68	0	9	9		0	-68	-79
	Ghost River Subtotal	*426*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*367*	*0*	*32*	*32*		*0*	*-367*	*-426*
Grease Creek	B9BPine	1,260	101	440	342	156	10	1,050	502	5	649	108	140	248	24	40	-153	-210
	B9BSpruce	144	33	29	33	10	2	106	50	0	98	28	16	44	41	35	-48	-38
	Composite	0	0	0	0	15	0	15	3	0	0	13	0	13	82		3	15
	Deciduous	34	0	1	5	1	0	7	3	0	27	3	6	8	114	10	-23	-27
	MixedWood	78	1	19	18	7	1	45	15	0	46	12	12	24	53	20	-31	-33
	NonForested	0	0	0	0	0	13	13	0	0	0	13	0	13	100		0	13
	Grease Creek Subtotal	*1,516*	*135*	*488*	*398*	*189*	*26*	*1,237*	*573*	*5*	*820*	*175*	*174*	*349*	*28*	*38*	*-252*	*-279*
Highwood River	B10BPine	355	123	0	13	0	35	172	151	4	313	21	35	56	33	42	-167	-184
	B10BSpruce	478	74	4	31	13	68	189	162	6	394	23	25	48	25	34	-239	-290
	Composite	2	0	0	0	0	0	0	0	0	0	0	2	2		0	0	-2
	MixedWood	15	0	0	0	0	0	1	0	0	13	1	2	3	504	0	-13	-15
	NonForested	0	0	0	0	0	1	1	0	0	0	1	0	1	100		0	1
	Highwood River Subtotal	*851*	*197*	*4*	*44*	*13*	*103*	*362*	*312*	*11*	*721*	*45*	*63*	*109*	*30*	*37*	*-419*	*-489*
Jumpingpound Creek	B10BPine	2,750	140	231	246	200	102	920	634	4	2,211	54	220	275	30	23	-1,580	-1,829
	B10BSpruce	126	8	0	59	8	0	75	67	0	100	8	23	31	41	53	-33	-51
	Composite	0	0	0	0	1	0	1	0	0	0	1	0	1	100		0	1
	Deciduous	78	0	0	0	0	0	0	0	0	72	0	7	7		0	-72	-78
	MixedWood	50	4	0	1	0	0	6	4	0	43	1	7	8	147	9	-39	-44
	NonForested	0	0	0	0	0	3	3	0	0	0	3	0	3	100		0	3
	Jumpingpound Creek Subtotal	*3,005*	*152*	*231*	*306*	*209*	*106*	*1,005*	*705*	*4*	*2,425*	*68*	*256*	*324*	*32*	*23*	*-1,724*	*-2,000*
McLean Creek	B10BPine	2,328	19	500	316	378	181	1,394	790	6	1,510	105	190	295	21	34	-726	-934
	B10BSpruce	766	9	25	9	28	29	101	51	0	667	25	69	93	92	7	-616	-664
	Composite	0	0	0	0	1	0	1	0	0	0	1	0	1	100		0	1
	Deciduous	547	0	2	21	8	1	32	12	2	508	19	33	52	162	2	-498	-514
	MixedWood	148	0	14	20	6	8	49	28	0	108	7	26	33	68	19	-80	-99
	NonForested	0	0	0	0	0	10	10	0	0	0	10	0	10	100		0	10
	McLean Creek Subtotal	*3,788*	*29*	*541*	*367*	*421*	*230*	*1,587*	*880*	*8*	*2,793*	*166*	*318*	*484*	*31*	*23*	*-1,921*	*-2,201*
Sullivan Creek	B10BPine	972	0	53	31	19	8	112	48	7	864	11	46	57	51	5	-824	-860
	B10BSpruce	683	0	187	106	25	4	321	124	0	433	10	62	72	22	18	-309	-362
	Composite	0	0	0	0	0	0	0	0	0	0	0	0	0	100		0	0
	Deciduous	309	0	0	42	0	1	43	25	0	296	18	13	31	71	8	-271	-266

SHS Profile			Harvested (ha)						Variance							SHS Assessment (Excluding Slivers)		
									Substantial			Slivers						
Compartment	Yield Curve Strata	Approved 10-yr SHS (Years 16-25)	SHS 1-15 yr	SHS 16-25 yr	SHS 26-75 yr	Non-SHS Active Landbase	Passive Landbase	Total	Add	Del	Def	Add	Del & Def	Total	Total (%)	Variance (Add %)	Area Difference (Add - D&D)	Area Difference (Harvested - Approved SHS)
	MixedWood	162	0	0	2	20	0	22	13	0	155	8	7	15	69	8	-141	-140
	NonForested	0	0	0	0	0	6	6	0	0	0	6	0	6	100		0	6
	Sullivan Creek Subtotal	*2,125*	*0*	*240*	*181*	*64*	*19*	*504*	*211*	*7*	*1,749*	*53*	*129*	*181*	*36*	*10*	*-1,545*	*-1,622*
Total		**18,061**	**921**	**2,088**	**1,728**	**1,000**	**673**	**6,410**	**3,645**	**43**	**13,746**	**677**	**1,522**	**2,199**	**34**	**20**	**-10,144**	**-11,650**

3.2 Yield Recovery

In order to assess the accuracy of the previous DFMP's yield predictions, the anticipated harvest volumes using the 2006 yield curves were compared against the actual volumes delivered. As shown in Table 3-3, harvested volumes were consistently higher than the predicted volumes from the yield curves (except for the 2019 timber year), meaning less area could be harvested to achieve the target AAC.

Table 3-3. The predicted and actual conifer harvest volumes (predicted is based on 2006 landbase and yield curves)

Timber year	Predicted conifer volume (m^3)	Delivered conifer volume (m^3)	Percent of predicted volume
2007	256,934	287,994	112
2008	108,892	175,400	161
2009	148,916	167,529	112
2010	232,462	243,053	105
2011	125,727	191,477	152
2012	251,349	265,322	106
2013	215,828	292,961	136
2014	214,117	232,139	108
2015	247,060	312,536	127
2016	248,170	327,617	132
2017	229,529	273,931	119
2018	272,490	314,250	115
2019	331,897	318,553	96
Total	**2,883,371**	**3,402,762**	**118**

Approximately 3,217m^3 of deciduous volume was produced from 2007 to 2019 (Table 3-4). Deciduous is harvested if it cannot be avoided (e.g. road right of way or operational cannot be avoided). Deciduous is used in construction of timber bridges to cross watercourses (if of adequate quality) and for corduroy when building roads. The production associated with 2007, 2008 & 2009 relate how deciduous stumpage fees were handled for industrial salvage (wellsite/pipeline etc.). In those years deciduous stumpage was reported by SLS and then billed back to the company who was withdrawing land from the FMA. Other industrial users are now responsible for paying their own stumpage to the Government of Alberta. Preferentially, the deciduous trees are left standing as retention.

Table 3-4. Deciduous volume production on the DFA

Timber year	Deciduous Production (m^3)
2007	1,904
2008	639
2009	481
2010	18
2011	90
2012	38
2013	30
2014	0
2015	0
2016	0
2017	0
2018	0
2019	17
Total	**3,217**

3.3 PSP and TSP Installed and Measured

With the approval of the 2006 DFMP, SLS began establishing Permanent Sample Plots (PSPs). In 2014, SLS joined the Provincial Growth and Yield Initiative (PGYI), with its own set of PSP requirements where PGYI distributes the responsibility for maintaining plots among participating tenure-holders. As a result, the 2006 DFMP establishment and re-measurement targets were not met; rather, an effort was focused on integrating the PGYI into future Growth and Yield plan requirements where appropriate. Table 3-5 shows the number of PSPs established and re-measured from 2007 to 2018 compared to the targets from the growth and yield plan. A new Growth and Yield Plan, accounting for the PGYI participation and SLS' growth and yield requirements is included in *Annex VIII – Growth and Yield Plan*.

Table 3-5. PSP establishment and re-measurement targets versus actual established and measured PSPs

SYU	Year	TSP Establishment - Natural Stands		PSP Establishment - Natural Stands		PSP Establishment - Managed Stands		PSP Re-measurement - Natural Stands		PSP Re-measurement - Managed Stands	
		T	A	T	A	T	A	T	A	T	A
B12	2006		-	8	-	3	-		-	-	-
	2007		-	9	17	4	9		-	-	-
	2008		250	8		4				-	
	2009		-	9		4				-	
	2010		-	8	*Defered*	4	*Defered*		*Defered*	-	*Defered*
	2011	800	-	9		3		*Not Specified in DFMP- natural stands are measured on a 10 year cycle*		3	
	2012		-	8		4				4	
	2013		-	9	1	4	9		3	4	4
	2014		-	8	6	4	3		5	4	5
	2015		-	8	3	4	6		2	4	-
	2016		-	-	2	-	5		7	-	-
	2017	-	-	-	7	-	5		-	-	-
	2018	-	350	-	-	-	-		-	-	8
	2019	-	-	-	-	-	-		-	-	-
	2020	-	-	-	-	-	-		-	-	12
Total		**800**	**600**	**84**	**36**	**38**	**37**	**0**	**17**	**19**	**29**

As noted above SLS also completed two temporary sample plot (TSP) programs in 2008 and 2018. The TSPs in 2008 were tied to a specific inventory program and were reviewed with GoA in preparation for FMP yield curve development. It was determined they were too old to be combined with the 2018 TSP data. The 2018 TSPs were completed in preparation for the 2021 FMP yield curve development. The sampling design and targets by strata were developed in conjunction with Alberta Agriculture and Forestry (AAF), with sampling design being approved prior to implementation. Table 3-6 shows the TSP measurement by yield strata. TSPs were only established in natural fire origin stands.

Table 3-6. TSPs installed in the DFA compared to the for the FMP development

Strata	Number of plots (target)	Number of plots (actual)
B9_PL	80	83
B10_PL	90	83
B9_SW	40	45
B10_SW	50	62
MIX_PL	30	26
MIX_Sx	30	9
FMA_D	30	35
Unassigned	-	7
Total	**350**	**350**

3.4 Responsibilities of Embedded Non-FMA Quota Holders

Pursuant to the timber disposition agreement, FMP embedded quota holders shall provide support of FMP assessment of their operations within the DAF. Quota holders are responsible for preparing summaries of their forest management activities as required by the Forest Management Planning Standard Interpretive Bulletin: Stewardship Reporting Requirements (Section 2.5). SLS and the quota holders have done their best recognizing the quota holders' circumstances and the release date of the stewardship reporting requirements. Majority of the current quota holders have recently purchased their certificates; Sundre Forest Products Inc in the summer of 2017, Precision Forest Industries in 2015 and 2018 and Canadian Forest Products Ltd. in 2018. The only quota holder who was present for the 2006 DFMP is J.H. Neilson Forest Products.

Approved SHS variance reporting: The Variance reporting in Section 3.1 includes all known harvesting on the DFA, including SLS and other operators. Quota holders were contacted (August of 2019) to provide deletions and deferrals information; however, none were received, most likely because some of the current owners had recently purchased the certificates

Annual Allowable Cut Review: Projected harvest levels compared to actual, by disposition, by quota number will be reported in the five-year stewardship report.

FGRMS: The Alberta Forest Genetics Resource Management and Conservation Standards (FGRMS) outlines requirements for stream 1 (wild) and stream 2 (seed orchard) reporting. Stream 2 has not been deployed and future stream 1 material, by reforestation responsibility, is reported on in chapter 7 section 5.2. The future stewardship reports will contain information on what is required in section 3.2.8.

Majority of the monitoring programs were completed by SLS and are outlined in section 2.4 of this chapter. Quota holder retention levels by block were not provide to SLS at the time of this report.

Company specific deficiencies: none are known to date. Items such as cut control are managed by the Forest Stewardship and Trade Branch and any over production is handled on a quadrant basis.

Spatial Representation of quota holders harvest blocks was a large part of the landbase and TSA process. Meeting were held with quota holders during landbase development (spring 2019) and during TSA development (winter 2020). This ensured that quota holder's previous harvesting locations (including retention) was correctly accounted for. Additionally, a lot of effort was made in the winter / spring of 2020 to ensure that planned activities for the beginning of the harvest sequence are correctly incorporated. This information is available in section 4.2 pf Annex VI – TSA Bridging Period.

4. Lessons Learned from the Previous DFMP and Significant Events

Spray Lake Sawmills last submitted a Forest Management Plan in 2006. This was SLS's first management plan, generally referred to as Detailed Forest Management Plan (2006 DFMP). The 2006 DFMP set the direction for how timber within the FMA and associated quota area B9 (now FMU B12) area would be managed. Outlined below are some of the highlights since the plan was submitted.

4.1 Alberta's Forest Management Planning Standard

This is the first forest management plan that SLS developed under the Government of Alberta's new Forest Management Planning Standard, which is based on the CSA-Z809 standard for sustainable forest management.

4.2 Forest Management Agreement Renewal

The Spray Lake Sawmills (1980) Ltd. Forest Management Agreement was renewed via legislative Order in Council 13/2015 on January 30, 2015, with an effective date of May 1st 2015.

4.3 Land Stewardship Act and South Saskatchewan Regional Plan

The Alberta government began an integrated land-use planning process known as the Land-use Framework (LUF), which was proclaimed by legislation through the Alberta Land Stewardship Act (ALSA)

in 2009. This framework divides the province into seven broad regions, based on watersheds and municipal boundaries and involves the creation of integrated land use plans for each region. The SLS DFA is located primarily within the South Saskatchewan region (92%).

The South Saskatchewan Regional 2014-2024 Plan was released in 2014 and was most recently amended in 2017. The Forests Act (2009) mandates that Forest Management Agreements and Forest Management Plans must be consistent with any ALSA regional plan.

4.4 Forest Certification

SLS' first 3rd party forest certification was in 1996, when the Company achieved the Alberta ForestCare certification. SLS was certified with Alberta Forest Care up to 2009. In 2013, SLS achieved international 3rd party forest certification through the Forest Stewardship Counsel (FSC), becoming the first sawmill in Alberta to achieve this certification. FSC is a voluntary program that is recognized worldwide as having a very rigorous environmental forest certification standard.

In 2015 SLS achieved certification through the Sustainable Forestry Initiative (SFI) and for about a year and a half, the company held two independent certifications. In June of 2016, SLS switched to only be certified by SFI. SFI promotes sustainable forest management through nine principles, 13 objectives, 34 performance measures and 102 indicators developed by professional foresters, conservationists, scientists and others. The standard addresses key environmental, social and economic forest values – from water quality to biodiversity, and all aspects of forestry operations, from consultation through harvesting and regeneration.

It is the only forest certification program in North America that requires participants to support research to improve forest health, conservation understanding, productivity and sustainable management of forest resources. SLS' forest and land management activities have been audited annually to confirm they conform to the SFI criteria. All audits have been successful, have identified very few areas for change, and have helped to improve SLS' forestry practices.

4.5 Forest Planning and Operations

A major component of implementation of the 2006 DFMP forest was protection of water resources. The 2006 DFMP was one of the first plans to employ the use of Equivalent Clearcut Area (ECA) modeling developed by Dr. Uldis Silins from the University of Alberta. SLS's implementation of the plan, focused on protecting water resources by focusing on planning the proper location of water course crossings, appropriately sized crossing structures and reclamation of forestry roads. As an example, SLS commonly uses native timber bridges (aka box cribs) when a culvert could be used. This protects the stream bed and banks by bridging the creek, rather than having to fill in around the banks. SLS intends to continue with the use of bridges, as well as precautionary road design, seasonal deactivation and reclamation as appropriate. The use of bridges has not only helped protect streams but has had an added benefit of protecting forest roads during flood events.

Chinook winds and summer droughts have led to seedling damage and mortality. Stump-side processing has been developed as a reliable method to mitigate seedling damage and mortality, as the tree tops provide microsites for seedlings and a natural seed source to supplement artificial reforestation.

The forest inventory available during development of the last FMP was very basic compared to the inventory generated for development of this FMP. Additionally, other LiDAR based remote sensing

products have aided in the creation of a wall to wall vegetation inventory for the B12 FMU. Wet areas mapping, canopy height models, slope shade and digital surface model have greatly enhanced the confidence in strategic and operation planning. The terrain features captured using LiDAR imaging allow for accurate and efficient road and harvest block planning. Though field verification of inventory data is still important, LiDAR has dramatically reduced the amount of field time required to verify road and block locations and allows planners to spend more time verifying and managing sensitive sites and unique habitats.

Spray Lake Sawmills proactively consults with First Nations within Treat 7 territory including the Montana First Nation. The company consults with First Nations on strategic and operational forest management plans in accordance with the government requirements.

4.6 Ecological Management

The natural disturbance regime for the FMA is dominated by fire. To better understand the role and influence of fire in shaping the forests on the FMA, SLS conducted an extensive fire history and fire regime analysis between 2003 and 2006 carried out by M-P Rogeau. In 2011, this body of work was compiled to evaluate the Pre-Industrial Forest Conditions (referred to as PIC). Among components relevant to forest management, the fire regime study documented the historical range of fire size, Mean-Fire-Return-Interval and fire cycle for each natural subregion within the FMA.

Multiple age-class distributions, extracted from computer simulated PIC fire origin maps, provided the range of variability expected to be found in a natural vegetation mosaic. The PIC age-class distributions by fuel type were compared with the seral age classes from the current timber supply analysis. Comparisons of the current extent are provided in *Chapter 3 – Forest Landscape Assessment* Section 5.5.4, and comparisons of the projected future extent are in *Chapter 6 – Preferred Forest Management Scenario* Section 4.7.1.

Learnings from this report have led to landscape management practices for harvest design. SLS is increasing the size of harvest blocks by adjoining blocks while leaving a patchwork of island remnants and preserving travel corridors and shelter for wildlife. SLS is also increasing the amount of patterning in a harvest block to make them more visually appealing, reminiscent of fire boundaries, and increasing edge habitat for a variety of species.

4.7 Public Consultation and Shared values

As identified in the 2006 DFMP, the concept of working with stakeholders and managing the forest sustainably is a guiding principle. The Spray Lake Sawmills Public Advisory Committee has been functioning through the 2006 DFMP implementation and during the development of the 2021 FMP, albeit that members have changed along the way. The committee continues to provide valuable advice to SLS throughout the 2021 FMP process.

In 2013, SLS started collaborative planning session for forest harvest plan development and design. The sessions are held before harvest plans are submitted and focus on balancing stakeholder values with operational requirements. Often this involves reviewing the spatial harvest sequence in the GIS system with the stakeholders who have come to the meeting and then as necessary meeting with stakeholders in the field. To date there have been over nine collaborative planning session held. Spray lake Sawmills

intends to continue collaborative planning session over the implementation of the 2021 forest management plan.

In 2006, the government of Alberta introduced a policy to direct the integration of timber harvesting and cattle grazing within forested areas on public lands. A grazing Timber Agreement (GTA) is an agreement between the grazing and timber disposition holders, which outlines how the two proponents will participate in their activities in an integrated fashion in advance of operations. This has become an integrated part of SLS planning as a majority of the DFA is covered by some form of grazing rights. From 2007 to 2019, there have been a total of thirty-seven grazing timber agreements established.

As part of the 2006 DFMP, community fire smart zones around Waiparous Village and West Bragg Creek were assigned the highest harvest priority availability in the 2006 preferred forest management scenario. Although, only one area operated under a formal Firesmart objective (with GoA initiating the planning process, see section 2.4.9), both areas saw harvesting activity and a reduction in community fire hazards.

The West Bragg Creek Firesmart guard saw numerous community meeting and significant buffering of recreations trails at the expense of the Firesmart objective. The block associated with the West Bragg Creek fire guard were left as natural (not receiving any post-harvest silvicultural activities) and places on a natural regeneration curve for the 2021 FMP timber supply analysis.

4.8 Mountain Pine Beetle

Mountain pine beetle (MPB) has become a major management issue throughout the province of Alberta. Starting in the northern foothills, around Grand Prairie, MPB has been progressing east and south across the province. In 2006, areas of high susceptibility and proximity to natural mountain passes were identified for priority harvest. Additionally, in 2007 the GoA suggested that SLS could increase its harvest levels based on the Alberta Mountain Pine Beetle Action Plan and the Interpretive Bulletin – Planning Mountain Pine Beetle Response Operations.

However, due to the limited presence of MPB within the DFA at the time of developing the 2006 DFMP, the healthy pine strategy was not employed. Currently, the MPB is not established within the FMA area, but over the course of the last 10 years MPB has become a larger threat east of the Rockies where it is attacking non-adapted (naive) pine. MPB has become a significant forest health event surrounding SLS DFA; with Jasper National Park, Hinton Forest products FMA and to a lesser extent Banff National Park seeing infestations. With the majority of the DFA area either containing pine dominant or pine co-dominant forests, the MPB situation will continue to be monitored closely.

4.9 Changes in the Timber Supply Analysis

A change from the 2006 DFMP is the amalgamation of the B09 and B10 forest management units (FMU). In 2018, these two FMUs were consolidated into one FMU – B12. The effective date of the amalgamation was May 1, 2018, allowing the timber supply analysis for the 2021 FMP to be run as one sustained yield unit. This FMU consolidation effort required consultation and cooperation with the embedded quota holders.

A major component of the 2006 DFMP was the timber supply analysis and the calculation of the Annual allowable cut (AAC). SLS proposed a harvest of 318,602 m^3 of coniferous timber for the first 25 years (2001 – 2025) and a step down to 289,815 m^3 for the remaining 180 year, based on a 15/11/30cm utilization. This was based on TSA run 4 / run 10. The harvest level was approved by the GoA in the July

2007 approval decision. There were no 'between plan' recalculations of AAC. The new timber supply analysis completed with the 2021 FMP is described in *Annex VI – Timber Supply Analysis* and predicts an AAC of 415,000 m^3 of coniferous timber for the 200-year planning horizon.

The notable differences between the two TSAs are the use of a regenerating pine yield curve, the replacement of green-up and adjacency with the VOITs, and the improvements in forest inventories. Monitoring and reporting on AAC deliverables will be a significant component of implementation of the 2021 management plan. Harvest sustainability levels will be closely monitored and reported on, as outlined in the growth and yield plan (*Annex VIII – Growth and Yield Plan*).

The deciduous community timber program has sequenced deciduous leading and deciduous dominant stands for harvest to help improve the economic viability of a program if it is initiated. In the 2006 DFMP, the deciduous requirements for the community timber program were expected to be generated from deciduous leading only, however a deciduous CTP program has not been advertised or sold to date.

5. References

Government of Alberta. (2007). *Interpretive Bulletin: Planning Mountain Pine Beetle Response Operations*. Retrieved from https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/formain15749/$FILE/MPB_InterpretiveBulletin2007.pdf

Appendix I – Documentation of DFMP and ground rule changes

Revisions from 2012 to 2016. For revisions from 2009-2011 refer to the 5 year stewardship report. Some edits were made outside of the joint review that included deletion of word(s), correction of spelling & grammar, changes to bolded text, etc. that did not change the intent, meaning or requirements of the OGRs, but rather to provide clarification. These changes are not documented in this table.

Ground Rule Number	2012 Version of the Ground Rule	2016 Version of the Ground Rule
3.2 Compartment Assessment (Discussion)	CAs are necessary when major new issues or information that have been identified since FMP approval make the SHS inappropriate.	CAs may be necessary when major new issues or information have been identified since FMP approval and make the SHS inconsistent with the objectives and strategies of the FMP.
3.2 Compartment Assessment (Discussion)	In completing the CA, forest disposition holder must consult in a meaningful way with stakeholders and strive to reach general agreement on issues. The CA provides an opportunity to reconsider management strategies at the time of operational planning if warranted.	In completing the CA, forest disposition holder must consult with stakeholders. The CA provides an opportunity to recommend alternative management strategies at the time of operational planning if warranted.
3.3.1	The GDP submission date is the first workday on or after April 1 of each year unless otherwise approved by Alberta. Alberta shall respond with approval or conditions to approval within 30 calendar days. The GDP shall be approved subject to an appraisal by Alberta. Two hard copies and one digital copy each for C05 and FMA operations shall be submitted to Alberta.	The GDP submission date is the first workday on or after April 1 of each year with the First Nations record of consultation submitted by September 1 unless otherwise approved by Alberta. Alberta shall respond with approval or conditions to approval by October 1 of the year of submission. The GDP shall be approved subject to an appraisal by Alberta and once approved it replaces the previously approved GDP. The AOP for the upcoming year/period is covered by the GDP submitted the previous year. Two hard copies and one digital copy each for C05 and FMA operations shall be submitted to Alberta.
3..6	d) summary table of block and road specific ground rule deviations and justification;	d) summary table of block and road specific ground rule amendment requests and justification;
3.4.9.1	e) The inter block road within the block boundary may be moved as required, provided the total disturbed area does not exceed 5% of the block area and no additional watercourse crossings are required;	e) The inter block road within the block boundary may be moved as required, provided the total disturbed area does not exceed the amount allowed in Section 9.3 and no additional watercourse crossings are required;
3.5.1	The AOP submission date is April 1 of each year unless otherwise approved by Alberta. Alberta shall respond with approval or conditions to approval within 30 calendar days. The AOP shall be appraised by Alberta in accordance to the AOP checklist (see appendix 5) with approval subject to the outcome of the appraisal. The AOP shall only be approved if there is an approved GDP covering the operating period or area for which the AOP approval is requested.	The AOP submission date is April 1 of each year unless otherwise approved by Alberta. Alberta shall respond with approval or conditions to approval within 30 calendar days. The AOP shall be appraised by Alberta in accordance to the AOP checklist (see appendix 5) with approval subject to the outcome of the appraisal.
4.1	Spatial Harvest Sequence (SHS) definitions updated	See Section 4.1 for details
4.1.1	Companies shall submit a map to show the comparison of the SHS to the laid-out FHP highlighting all deletions, deferrals, and additions >1 ha.	Companies shall submit a map to show the comparison of the SHS to the laid-out FHP highlighting all substantial deletions, deferrals, and additions.
4.1.2	Variance shall be reported by stratum for each FHP. The table shall include the minimum information as per Variance Table 1.	Variance shall be reported by stratum/compartment for each FHP/GDP. The table shall include the minimum information as per Table 1.

4.1.3	Variance calculation updated	See Section 4.1.3 for details
4.1.4	Added	Area of Substantial Additions shall not exceed the sum of Area in Substantial Deletion and Substantial Deferrals.
Table 1	Updated	See Section 4.1 for details
4.2.7	Added	Company processing practices cannot make an unmerchantable piece from a merchantable tree or merchantable piece.
5.2 (Discussion)	Potential exists for increased public awareness and for increased recreational opportunities through co-ordination with forest management practices.	Potential exists for increased public awareness and for increased recreational opportunities through co-ordination with forest management practices. Alberta and the company may explore opportunities to upgrade or relocate existing trails through normal timber operations.
5.2.1	Operational tactics to mitigate impacts on recreation and tourism shall be described in the GDP and FHP. This includes reclamation of recreational trails used during timber operations.	Operational tactics to mitigate impacts on recreation and tourism shall be described in the GDP and FHP. This may include reclamation/restoration of non-designated trails.
5.2.3	Operators shall restore designated recreational trails and their associated watercourse crossings that are affected by their operations. Alberta and the company shall explore opportunities to upgrading existing trails through normal timber operations.	Operators shall restore designated recreational trails and their associated watercourse crossings that are affected by their operations.
6.0.6	Unless otherwise approved in a FMP, variances from the standards in Table 2, must demonstrate that aquatic and terrestrial objectives are met. Any such proposals shall undergo a full review by Alberta as a component of the FHP review.	Unless otherwise approved in a FMP, proposed amendments to the standards in Table 3 must provide rationale that aquatic and terrestrial objectives are met. Any such proposals shall undergo a full review by Alberta as a component of the FHP review.
Table 3 Class 'A' Waterbodies	Not permitted within 100 m of high-water mark. Any existing roads may be maintained at present classification standards. Any proposed watercourse crossings within 2 km upstream must be approved in the AOP.	Not permitted within 100 m of high-water mark of mapped Class "A" watercourse unless approved by Alberta. Any existing roads may be maintained at present classification standards. Any proposed watercourse crossings within 2 km upstream of mapped Class "A" watercourse must be identified in the FHP and approved in the AOP.
Table 3 Class 'B' Waterbodies	Not permitted within 60 m of high-water mark. Any existing roads may be maintained at present classification standards. Any watercourse crossings within 500 m upstream must be approved in the AOP.	Not permitted within 60 m of high-water mark of mapped Class "B" watercourse unless approved by Alberta. Any existing roads may be maintained at present classification standards. Any watercourse crossings within 500 m upstream of mapped Class "B" watercourse must be identified in the FHP and approved in the AOP.
Table 3 Footnote (Class 'A' and 'B' definitions)	See Water Act for definitions of class A and B waterbodies.	Recommended buffers on Class "A" and "B" waterbodies are not a requirement of the Code of Practice for Watercourse Crossings. "Mapped" Class "A" and "B" watercourses refer to maps in Schedule 6 of the Code of Practice for Watercourse Crossings. Definitions of Class "A" and Class "B" as per the Code of Practice are not applicable where the appropriate Water Act exemption applies.
7.2.3	Irregular or natural boundaries shall be employed in the FHP harvest area design. New harvest designs in areas previously harvested shall create natural boundaries.	Irregular or natural boundaries shall be employed in the FHP harvest area design to minimize line of sight for wildlife or aesthetic purposes. New harvest designs in areas previously harvested shall create natural boundaries.
7.2.8	Meadows are defined on Alberta vegetation inventory (AVI) as HF, HG, SC or SO.	Meadows are defined on Alberta Vegetation Inventory (AVI) as HF (herbaceous - forbs), HG (herbaceous - grassland), SC (shrub closed) or SO (shrub open).
7.4.9	Structural retention shall be reported annually in a manner acceptable to Alberta for: a) the volume retained; and b) the area retained.	As per the targets in 7.4.6, structural retention shall be tracked annually in a manner acceptable to Alberta including: a) the total volume retained on blocks <100 ha; and

		b) the total area retained on blocks >100 ha. Cumulative totals shall be consistent with the values reported in the Stewardship Report and can be calculated as per methodology in the Detailed Forest Management Plan.
7.7.2	Agreed upon critical winter ungulate habitat in the SLS FMA (see 3.3.3.1) shall have: a) shrub areas (AVI veg classes HG, HF, SC and SO) require adjacent hiding/thermal cover to keep the effectiveness of these willow areas. These areas will be agreed to at the FHP;	Agreed upon critical winter ungulate habitat in the SLS FMA (see 3.3.3.1) shall have: a) Non-forested areas (AVI veg classes HG, HF, SC and SO) require adjacent hiding/thermal cover to maintain their effectiveness. These areas will be agreed to at the FHP;
7.7.3.8 – 7.7.3.10	Added	Locations of existing Bull Trout and pure strain Westslope Cutthroat Trout can be identified using the Fisheries and Wildlife Management Information System (FWMIS), the associated Fish and Wildlife Internet Mapping Tool (FWMIT) and consultation with Alberta. Within these identified areas: 7.7.3.9 Operational planning by the company should incorporate the use of Alberta's Wet Areas Mapping tool to identify areas that are sensitive to disturbance. Field confirmation of these sites including depth to water, potential disruption of groundwater flows, and areas at high risk of erosion in wet or riparian areas can be a useful tool in determining road and crossing location. 7.7.3.10 Detailed Harvest Area Plans (DHAP) for operations shall be submitted. 7.7.3.11 Watercourse(s) shall be treated as Class "A" as per Table 3.
9.3	The total area covered by temporary roads, rutting, bared landing areas, displaced soil, and debris piles created by timber harvesting operations shall not exceed five percent of each harvest area without prior approval of Alberta.	The total area covered by temporary roads, bared processing areas, and soil displaced during timber harvesting operations shall not exceed 5% of each harvest area without Alberta's approval. Blocks less than 7 ha or narrow blocks (averaging less than 100 metres from boundary to boundary) may exceed 5% with these blocks reported on the as-built.
11.1.2	All roads, regardless of class, with a lifespan of greater than five years shall be built under the authority of a LOC.	All roads, regardless of class, with a lifespan of greater than three years shall be built under the authority of a DLO.
11.2.3	Temporary Roads: Class III and Class IV (with a lifespan up to five years from start of construction).	Temporary Roads: Class III and Class IV (with a lifespan up to three years from start of construction).
11.3.1.3	Added	Temporary road construction activities that are required outside an approved ROW can be considered incidental to construction and will be approved as part of the AOP provided the following is met: a) Be immediately adjacent to AOP approved disposition (temporary road and associated ROW only); b) Be reclaimed or reforested in the same fashion as the adjacent AOP approved disposition (if applicable); c) Be without conflict of existing dispositions and/or adjacent land uses; AND d) Be an activity type and within the parameters as described below: Log Decks or Decking Areas: • ≤ 0.18 hectares in size; • Located on average ≥400 metres apart Bank Stabilization: • Related to hill cuts impacted during construction;

		Push Outs: • ≤0.04 hectares in size; • Located on average ≥800 metres apart. Where this distance is not feasible due to operational constraints, line of sight between push outs should be minimized.
11.3.1.4	Roads and landings shall be constructed to avoid: a) unstable soils, water source areas, springs and seepage areas; b) creating disturbed, compacted or bared soils that exceed the amount specified in section 9.3 – Soils; c) natural meadows unless approved by Alberta.	Unless otherwise approved by Alberta, roads and landings shall avoid: a) unstable soils, water source areas, springs and seepage areas; b) creating disturbed, compacted or bared soils that exceed the amount specified in section 9.3 – Soils; c) Rough Fescue native grassland; and d) natural meadows.
11.4.20	Crossing intermittent or ephemeral watercourses within harvest areas shall be avoided when possible. When the crossings are necessary, they shall be constructed at specified locations using appropriate watercourse crossing structures.	Crossing of intermittent or ephemeral watercourses not previously identified within harvest areas shall be avoided when possible. When the crossings are necessary, they shall be constructed at specified locations using appropriate watercourse crossing structures with notification provided to Alberta.
11.4.23 g)	The soil cap and separation layer are removed as soon as harvest and hauling is complete;	the structure is removed as soon as harvest, hauling and reforestation operations are completed unless a proposal to leave crossing structures in place is approved by Alberta and an acceptable monitoring program is in place.

Operating Ground Rule Revisions from 2016 to 2020. Some edits were made outside of the joint review that included deletion of word(s), correction of spelling & grammar, changes to bolded text, etc. that did not change the intent, meaning or requirements of the OGRs, but rather to provide clarification. These changes are not documented in this table.

Ground Rule Number	2016 Version of the Ground Rule	2020 Version of the Ground Rule
3.3.3.1	The intent is to identify known sites of specific interests, e.g. mineral lick, natural barriers, unique habitat feature, known long term random campsites and to proactively mitigate impacts on them. This is not to be used for re-evaluating or amending the SHS or FMP objectives.	The intent is to identify known sites of specific interests, e.g. mineral lick, unique habitat feature, known designated recreation infrastructure and to proactively mitigate impacts on them. This is not to be used for re-evaluating or amending the SHS or FMP objectives.
3.4.5 j)	available existing trails, designated trails, seismic lines, power lines, pipelines and access routes.	designated recreation infrastructure, seismic lines, power lines, pipelines and access routes.
3.4.6 j)	access control methods employed;	access control methods proposed;
3.4.6 l)	description of integration with other users (see section 5).	description of integration with other users, which may include known recreation infrastructure (see section 5).
3.4.8 m)	New	associated strategies to address potential impact on designated recreation infrastructure including reclamation or restoration;
3.4.9	New	All amendments to Forest Harvest Plans must be justified and submitted to Alberta in writing (e-mail is acceptable). RFP validation of all amendments is required. Any changes must be incorporated into the as-built plan.
3.4.9.1	New	Changes to block or road design (including watercourse crossings) where the criteria in 3.4.1 b), c) or d) are still met are considered minor amendments. Minor amendments do not require approval but do require notification to Alberta. Updated maps and associated information shall be provided prior to AOP approval, concurrent with the AOP submission, or as otherwise agreed to by Alberta.
3.4.9.2	New	Changes to the Forest Harvest Plan where the criteria in 3.4.1 b), c) or d) cannot be achieved would be considered major amendments and require Delegated Authority approval before operations can commence.
3.4.11 (was 3.4.10)	f) harvest areas located near high-value aesthetic (FMP), high value recreation areas, tourism areas, and facilities;	f) harvest areas located near high-value aesthetic (FMP) or high value designated recreation infrastructure;

3.5.1	The AOP submission date is April 1 of each year unless otherwise approved by Alberta. Alberta shall respond with approval or conditions to approval within 30 calendar days. The AOP shall be appraised by Alberta in accordance to the AOP checklist (see appendix 5) with approval subject to the outcome of the appraisal.	The AOP submission date is April 1 of each year unless otherwise approved by Alberta. Alberta shall respond within 30 days. The AOP shall be appraised by Alberta within 30 days with the approval subject to the outcome of the review.
3.5.2	The Operating Schedule and Timber Production; Reforestation Program; Forest Protection Supplement; and Road Plan are submitted as in 3.5.1 above, unless otherwise agreed to by Alberta. The schedule for submitting any necessary CA and FHPs may be different.	The Operating Schedule and Timber Production; Reforestation Program; Fire Control Plan; and Road Plan are submitted as in 3.5.1 above, unless otherwise agreed to by Alberta. The schedule for submitting any necessary CA and FHPs may be different.
3.5.4 b)	X. declaration or list of land use notifications, and date of notification (see section 5.0).	X. declaration or list of land use notifications, and initial date of notification (see section 5.0).
3.5.4 c)	IV. debris disposal;	IV. debris management.
3.5.5	AOP amendments moved from 3.4.9	AOP amendments moved from 3.4.9
3.5.5.1 (previously 3.4.9.1)	The in-block road within the block boundary may be moved as required, provided the total disturbed area does not exceed the amount allowed in Section 9.3 and no additional crossings of a watercourse	The in-block road within the block boundary may be moved as required, provided the total disturbed area does not exceed the amount allowed in Section 9.3 and no additional crossings of a watercourse (excluding ephemerals) or known designated trail are required;
4.1 STAND UTILIZATION Definitions	Actual Harvested Area is the as–built harvested area in the FHP.	Actual Harvested Area is the total (includes slivers) as–built harvested area in the FHP.
4.2 TREE UTILIZATION DISCUSSION	Tree utilization assumptions in the FMP must be followed so that sustainability is not affected.	Tree utilization assumptions in the FMP and adherence to the principles outlined in the Provincial Scaling Manual (authorized under Section 99 of the *Timber Management Regulation)* must be followed so that sustainability is not affected.
4.2.1	Merchantable Piece: one that is 2.44 m (plus 5 cm trim allowance) or longer, with an 11 cm (inside bark) small end, where rot content or form does not render it unusable.	Deleted
4.2.7	Company processing practices cannot make an unmerchantable piece from a merchantable tree or merchantable piece.	Company processing practices, mill specifications, or other non-Provincial direction cannot direct operators to make an unmerchantable piece from a merchantable tree.
5.2 DISCUSSION	Potential exists for increased public awareness and for increased recreational opportunities through co-ordination with forest management practices. Alberta and the company may explore opportunities to upgrade or relocate existing trails through normal timber operations.	Potential exists for increased public awareness and for increased recreational opportunities through co-ordination with forest management practices. Alberta and the company may explore opportunities to improve or relocate existing trails through normal timber operations.
5.2.1	Operational tactics to mitigate impacts on recreation and tourism shall be described in the GDP and FHP. This may include reclamation/restoration of non-designated trails.	Operational tactics that integrate (where reasonable) designated recreation infrastructure and tourism shall be described in the GDP and FHP. This may include reclamation/restoration of non-designated trails.
5.2.2	The forest operator shall work with groups that have raised concerns with the operator or have been identified by Alberta. When requested, the company shall provide a summary of stakeholder contact.	The forest operator shall work with Alberta and local stakeholder groups to address concerns that have been identified. When requested, the company shall provide a summary of stakeholder contact.
5.2.3	Operators shall restore designated recreational trails and their associated watercourse crossings that are affected by their operations.	Operators shall restore designated trails and their associated watercourse crossings that are affected by their operations. Acceptable restoration involves bringing the site back to the condition it was in prior to industrial use.
5.2.3.1	New	If the designated trails were approved for access under an AOP, then erosion control (11.3.3 and 11.3.4.5) and deactivation (11.3.4.6) methods will need to be considered.
5.2.4	Once planting activity is complete, the company shall reclaim AOP roads (reclamation will not allow for future quad access even for the company). This may be waived where the company and Alberta ensure the trail system is sustainable.	Deleted

5.2.4 (re-numbered from 5.2.5)	Alberta will provide the location of designated random camping areas to the company where recreational opportunities are limited. These shall be recognized in the FHP.	Alberta will provide the location of designated random camping areas (identified on approved PLUZ maps) to the company where recreational opportunities are limited. These shall be recognized in the FHP.
5.5 DISCUSSION	a) within, adjacent to or viewed from recreational sites and tourist developments;	a) within, adjacent to or viewed from designated recreational infrastructure and tourist developments;
5.5.1	Highly sensitive areas shall be assessed and tactics shall be employed in the FHP to mitigate the impacts of harvesting and reforestation on visual quality.	Highly sensitive areas identified by either the forest operator or Alberta shall be assessed and tactics shall be employed in the FHP to mitigate the impacts of harvesting and reforestation on visual quality.
5.5.2	The potential visual impact of harvesting and reforestation activities within harvest areas located in highly sensitive areas shall be considered during harvest planning and operations. Visual management practices shall be incorporated into the FHP to temper adverse visual impacts. This includes: • detailed block plans addressing block boundaries and road locations for areas rated high; • areas rated high require a more detailed analysis of aesthetics prior to harvest design;	The potential visual impact of harvesting and reforestation activities within harvest areas located in highly sensitive areas shall be considered during harvest planning and operations. Visual management practices shall be incorporated into the FHP to temper adverse visual impacts. This includes: • detailed block plans addressing block boundaries and road locations for areas rated high; • areas rated high require a more detailed analysis (this could include view shed modelling) of aesthetics prior to harvest design;
6.0.3	Measures must be implemented, including temporary and permanent erosion control measures, to minimize erosion and sedimentation into the watercourse or waterbody.	Measures must be implemented, including temporary and permanent erosion control measures, to prevent erosion and sedimentation into the watercourse or waterbody.
Table 2. Watercourse Classification	Class 'A' and 'B' waterbodies	Deleted
Table 3. Standards and Guidelines for Operating Beside Watercourses	Class 'A' and 'B' waterbodies	Deleted
Table 3. Standards and Guidelines for Operating Beside Watercourses	Equipment Operation (Ephemerals) Skidding shall only be during dry or frozen conditions. Temporary crossings to be removed on completion of operations. On Class "A" and "B" waterbody tributaries, special crossing structures that do not cause stream siltation may be required.	Equipment Operation (Ephemerals) Skidding shall only be during dry or frozen conditions (when soil condition is not susceptible to degradation). Any crossing required as per Table 5 shall be approved and reported as per 11.4. Equipment crossing ephemerals shall be minimized.
Table 3. Standards and Guidelines for Operating Beside Watercourses	Lakes (little or no recreation, waterfowl or sportfish potential	Lakes
Table 3. Standards and Guidelines for Operating Beside Watercourses	Watercourse Protection Areas (Lakes) On lakes exceeding 4 ha in area, no disturbance of timber within 100 m of high water mark except where specifically approved in FHP. Where approval is granted to remove timber within the 100 m zone, no timber shall be removed within 30 m of the high water mark.	Watercourse Protection Areas (Lakes) On lakes exceeding 4 ha in area, no disturbance of timber within 100 m of high water mark except where specifically approved in AOP. On lakes less than 4 ha, removal of timber prohibited within 30 m of the high-water mark and any removal within 100 m requires Alberta's approval.
Table 3. Standards and Guidelines for Operating Beside Watercourses	Equipment Operation (Lakes) If timber removal is approved, no machinery to operate within 40 m of the high water mark.	Equipment Operation (Lakes) Consideration must be given to aesthetics when harvesting adjacent to lakes with recreational potential.
7.3.5	The FHP shall comply with direction provided in Community Firesmart Plans.	The FHP will identify Community Fire Smart Zones (CFZ) and shall comply with direction provided in Fire Smart Community Plans.
7.3.6	New	A fire control plan, consistent with 'schedule A' of a company's Fire Control Agreement shall be submitted as part of the AOP. In the absence of a Fire Control Agreement, the company shall fill out and submit the TM118C Fire Control Supplement form.

7.3.7 (was 7.3.6)	The forest protection supplement of the AOP shall contain the following: a) duty roster; b) list of company woodlands personnel and their fire control training; c) key company contacts; d) heavy equipment resource list; e) small hand tool resource list and their location; f) company communication system and numbers and call-signs; g) fire prevention policies; h) fire prevention strategies; i) fire prevention priorities (high values at risk); j) fire operations schedule (i.e., harvesting and silviculture activities within the fire season); k) identification of barriers to fire spread.	The fire control plan (may be submitted as a requirement of Fire Control Agreement) of the AOP shall contain the following: a) duty roster; b) list of company woodlands personnel and their fire control training; c) key company contacts; d) heavy equipment resource list; e) required equipment for fire control and their location; f) company communication system and numbers and call-signs; g) fire prevention policies; h) fire prevention strategies; i) fire prevention priorities (high values at risk); j) fire operations schedule (i.e., harvesting and silviculture activities within the fire season); openings that require debris disposal
7.6.1	All waterbodies and permanent watercourses are presumed to be fish bearing or support fish-bearing habitat. However, The company may confirm the distribution of fish and fish habitat within the planning areas by:	All waterbodies and permanent watercourses are presumed to be fish bearing or support fish-bearing habitat. The company can gather information related to the distribution of fish and fish habitat within the planning areas by:
7.7.1.10	Where required by Alberta, effective forms of public access control for highway vehicles shall be maintained. Control of highway vehicle use of any open temporary or permanent access route may be required.	Where required by Alberta, forms of public access control for highway vehicles shall be maintained as per 11.5.5.
7.7.1.11	Reclamation techniques used on access roads shall prevent motorized vehicle use.	Reclamation techniques used on access roads to prevent motorized vehicle use.
7.7.2	Ground Rules	Best Management Practices
7.7.2.2	Temporary roads shall be built within one year of harvest operations. Temporary roads shall be re-contoured and reclaimed (and potentially reforested) within 18 months of completion of harvesting and hauling operations, unless otherwise agreed to in the operating schedule.	Temporary roads shall be re-contoured and reclaimed (and potentially reforested) within 18 months of completion of harvesting and hauling operations, unless otherwise agreed to in the operating schedule.
7.7.2.8	New	Unless otherwise agreed to in the AOP, timber operations within Key Wildlife and Biodiversity Zones should be conducted outside of the period Jan. 15 to April 30. Operations that are approved in an AOP are not subject to this timing restriction.
7.7.2.11	The FHP shall indicate that key ungulate and biodiversity zone maps have been consulted when changes to the spatial harvest pattern are being considered.	Deleted
7.7.2.14 (was 7.7.2.13)	Timber harvesting shall be managed to provide hiding cover for wildlife and facilitate wildlife movement in the following corridors: a) in a West Castle Wildlife corridor along a portion of the east side of the West Castle Road 774, as identified in Appendix 7 of the C05 FMP;	Timber harvesting shall be managed to provide hiding cover for wildlife and facilitate wildlife movement in the following corridors: a) Deleted
8.3.4	Site preparation equipment shall be cleaned and free of restricted and noxious weed seed or plant parts before entry into the working area or before mobilizing between projects (where risk of spread is high).	Site preparation equipment shall be cleaned and free of prohibited noxious weed seed or plant parts before entry into the working area or before mobilizing between projects according to Directive 2001-06.
9.1	Areas susceptible to rutting, puddling or compaction shall be harvested during dry or frozen conditions (e.g., harvest areas with predominantly imperfectly-poorly drained soils).	Areas susceptible to rutting, puddling or compaction shall be harvested during dry or frozen conditions (when soil condition is not susceptible to degradation e.g., harvest areas with predominantly imperfectly-poorly drained soils).
9.4	Operations shall not occur during heavy rainfall or when soil conditions are above field capacity (saturated).	Operations shall not occur when soil conditions are above field capacity (saturated).
10.2.2	All equipment used for timber operations shall be cleaned and free of noxious or prohibited noxious weed seed or plant parts before entry into the working area or before mobilizing between projects (where risk of spread is high).	All equipment used for timber operations shall be cleaned and free of noxious or prohibited noxious weed seed or plant parts before entry into the working area or before mobilizing between projects according to Directive 2001-06.

11.1.2	All roads, regardless of class, with a lifespan of greater than three years shall be built under the authority of a DLO.	All roads, regardless of class, with a lifespan of greater than three years require a DLO unless approved under AOP. Roads that are constructed and subsequently fully reclaimed within three years are built under the authority of the AOP as per 11.2.3.
11.3.1.3 d)	Push Outs:	Push Outs (including turnarounds on exterior roads):
11.3.2.1	Roads, skid trails and landings shall be placed in locations and constructed so that soil erosion, damage to streambeds and sedimentation of watercourses are minimized.	Roads, skid trails and landings shall be placed in locations and constructed to prevent soil erosion, damage to streambeds and banks, and sedimentation of watercourses and waterbodies.
11.3.2.8	Active long-term roads shall be properly maintained to reduce wheel or track ruts, and to minimize watercourse sedimentation from erosion and traffic during adverse weather.	Deleted
11.3.4.7	c) installing cross drainage structures, rolling back topsoil (including slash and logging debris) and re-vegetate erodible bared surface areas as per 11.3.4.2;	c) installing cross drainage features, rolling back topsoil (including slash and logging debris) and re-vegetate erodible bared surface areas as per 11.3.4.2;
11.4.1	Bridge includes native timber bridge, temporary bridge decks, geotextile reinforced structures (GRS) and ice bridges.	Bridge includes native timber bridge, temporary bridge decks, geotextile reinforced structures (GRS), open bottom culverts and ice bridges.
11.4.2	Intermittent and higher-order streams shall be classified in the FHP.	Deleted
11.4.3 (was 11.4.4)	Unless otherwise approved, watercourse crossings shall: a) maintain fish passage on fish bearing water; b) minimize erosion and sedimentation; c) have bridges that don't allow debris, soil or deleterious material to fall into watercourse; d) have stable approaches; e) be at right angles to the watercourse; f) be at locations where the channels are well defined, unobstructed and straight; g) be at a narrow point along the watercourse; h) allow room for direct gentle approaches; i) have no direct drainage from either the road surface or ditches; and j) have erosion control structures during construction.	Unless otherwise approved, watercourse crossings shall be designed to: a) maintain fish passage on fish bearing water; b) minimize erosion c) prevent sedimentation; d) have bridges that don't allow debris, soil or deleterious material to fall into watercourse; e) have stable approaches; f) be at right angles to the watercourse; g) be at locations where the channels are well defined, unobstructed and straight; h) be at a narrow point along the watercourse; i) allow room for direct gentle approaches; j) have no direct drainage from either the road surface or ditches; and k) have erosion control structures during construction.
11.4.25.1 (was 11.4.26.1)	The company shall conduct inspections during harvest operations ensuring proper functioning of watercourse crossing structures. Results shall be reported on the monthly inspection report.	The company shall conduct inspections during timber operations ensuring proper functioning of watercourse crossing structures. Results shall be reported on the monthly inspection report.
11.4.26 (was 11.4.27)	Watercourse crossings that are no longer required shall be reclaimed with the objective of minimizing any sediment from entering the watercourse. Their condition shall be monitored annually until they are satisfactorily stabilized meeting the following requirements:	Watercourse crossings that are no longer required shall be reclaimed with the objective of preventing any sediment from entering the watercourse. Their condition shall be monitored annually until they are satisfactorily stabilized meeting the following requirements:
11.5.4	New access roads must be integrated with forest land use zone road networks where PLUZs exist.	In a Public Land Use Zone (PLUZ) new access roads must be integrated with PLUZ road networks.
Glossary - Alberta	The Department of Sustainable Resource Development, including the Public Lands and Forests Division, Fish and Wildlife Division, and Forest Protection Division or as amended from time to time.	The Department of Agriculture and Forestry, or the respective Department delegated to regulate specific legislation; or as amended from time to time.
Glossary - Landing	Any area where logs are gathered for processing or further transport to a mill site.	A designated area with bared mineral soil where logs are gathered for processing or further transport to a mill site.
Glossary - Meadows	Meadows are defined on Alberta Vegetation Inventory (AVI) as HF (herbaceous - forbs), HG (herbaceous - grassland), SC (shrub closed) or SO (shrub open).	For the purposes of forest management planning and these Operating Ground Rules, meadows are defined as per the Alberta Vegetation Inventory (AVI) as HF (herbaceous - forbs), HG (herbaceous - grassland), SC (shrub closed) or SO (shrub open).
Glossary – Recreation Infrastructure	New	The entirety of all designated motorized trails, designated non-motorized trails, undesignated non-motorized trails,

		staging and day use areas, camping areas (zones, Public Land Recreation Areas, etc.) as well as any supporting infrastructure (such as water crossings and shelters) and amenities (such as information kiosks, and garbage facilities). (From the Livingstone-Porcupine Recreation Management Plan).
Glossary – Rub post	New	Often used to delineate an operational corner to facilitate effective turning of a skidder. These posts prevent the swinging of a skidded bunch across shrubs and features that may require additional protection, like understory e.g.
Glossary – Soil degradation	New	A reduction in soil quality caused by but not limited to the following conditions: rutting, compaction, puddling or soil displacement.

FORCORP - Project Number: P825

For additional information, please contact:
FORCORP Solutions Inc.
15015 123 Ave
Edmonton, AB
T5V 1J7
(780) 452-5878
www.forcorp.com