# Timber harvest planning and operating ground rules

Spray Lake Sawmills Ltd. (1980)
FMU B12 and FMU C05
Area-Specific Addendum

Alberta

2022

## Spray Lake Sawmills Ltd. (1980) FMU B12 and FMU C05

# AREA SPECIFIC ADDENDUM-TIMBER HARVEST PLANNING AND OPERATING GROUND RULES

**Spray Lake Sawmills (1980) LTD.**

ALBERTA
**Forestry, Parks and Tourism**

ENDORSEMENTS

**The Spray Lake Sawmills (1980) Timber Harvest Planning and Operating Ground Rules, having been prepared in accordance with Section 16 (2) of FMA 0100038, and hereby endorsed this 21st day of October, 2022. The Executive Director of Forest Stewardship and Trade Branch has determined these ground rules will apply to all operations within the aforementioned FMA as well as FMU C04 (Green Area), C02 (White Area), C01 (White Area), FMU C05 (Green Area), B01, B02 (White Area) and B12 (Green Area).**

Spray Lake Sawmills (1980) Ltd.

Original Signed

Per: _____

_____
(print name)

_____
(title)

HIS MAJESTY THE KING in right of Alberta as represented by the Minister of Forestry, Parks and Tourism

Original Signed

Per: _____

Ken Greenway_____
(print name)

Executive Director
_____
(title)

# Preamble

The *Forests Act*[1] provides for and defines the powers of the Lieutenant Governor and Minister with respect to establishing regulations related to forestry in Alberta. The *Forests Act* provides for the establishment of forest management units as a mechanism for allocation and disposal of timber and specifies the method of disposal of Crown timber through forest management agreements, quota certificates and timber permits. The *Forests Act* was proclaimed in 1973 and was most recently amended on May 1, 2021. The *Forests Act* gives authority for the regulation of the management of all forest-based values, while providing for the sustainability of Alberta's forests. Alberta defines sustainability as "management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations."

The Timber Harvest Planning and Operating Ground Rules – FMA Specific Addendum (the "Addendum") is a reference manual that provides regulatory guidance and direction to be used by timber harvest planners, forest operators and other forestry professionals involved in implementing forest management plans (FMP). Items within the Addendum are required for implementation of unique or specific strategies within the FMP and/or are specific to an individual FMA. The Addendum will work in concert with the standardized Provincial Timber Harvest Planning and Operating Ground Rules (Provincial OGR). The Addendum is Section 4 to Sections 1, 2 and 3 in the Provincial OGR. Rules found in the Addendum will supersede those found in the Provincial OGR when they address the same objective.

[1] https://open.alberta.ca/publications/f22

# Contents

# List of Tables



# List of Figures

# List of Acronyms

| | |
|---|---|
| **AAC** | Annual Allowable Cut |
| **AFMPS** | Alberta Forest Management Planning Standard |
| **ALSA** | Alberta Land Stewardship Act |
| **AOP** | Annual Operating Plan |
| **ARIS** | Alberta Regeneration Information System |
| **ATV** | All-Terrain Vehicle |
| **AVI** | Alberta Vegetation Inventory |
| **AWCS** | Alberta Wetland Classification System |
| **CA** | Compartment Assessment |
| **DBH** | Diameter at Breast Height |
| **DFA** | Defined Forest Area |
| **DLO** | Department License of Occupation |
| **FGR** | FMP-specific Ground Rule |
| **FMA** | Forest Management Agreement |
| **FMP** | Forest Management Plan |
| **FMU** | Forest Management Unit |
| **FMWSI** | Forest Management Wetland Stewardship Initiative |
| **FWIMT** | Fish and Wildlife Internet Mapping Tool |
| **FOMP** | Forest Operations Monitoring Program |
| **GDP** | General Development Plan |
| **GPS** | Global Positioning System |
| **GRS** | Geotextile Reinforced Structure |
| **GTA** | Grazing Timber Agreement |
| **ID** | Identification |
| **KWBZ** | Key Wildlife Biodiversity Zone |
| **LOC** | License of Occupation |
| **OGR** | Operating Ground Rule |
| **PGR** | Provincial Ground Rule |
| **PSP** | Permanent Sample Plot |
| **RFMA** | Registered Fur Management Area |
| **ROW** | Right-of-Way |
| **RPF** | Registered Professional Forester |
| **RPFT** | Registered Professional Forest Technologist |
| **RSA** | Reforestation Standard of Alberta |
| **SFM** | Sustainable Forest Management |
| **SHS** | Spatial Harvest Sequence |
| **SSR** | Stand Structure Retention |
| **TFA** | Temporary Field Authorization |
| **THPS** | Timber Harvest Planning Standards |
| **TMR** | Timber Management Regulation |
| **VOIT** | Values, Objectives, Indicators and Targets |

# Introduction

Ground rules are the standards used in planning, conducting and monitoring forest management activities and include:

- timber harvest planning requirements – requirements for the development of operational plans;
- operating ground rules – rules that govern timber operations and road work; and
- reporting requirements – requirements for monitoring and reporting to Alberta the progress, results and effects of forest management activities.

The Timber Harvest Planning and Operating Ground Rules found in the Provincial OGR and the Addendum define the practices used in planning and conducting timber harvest operations that constitute the methods used to implement decisions made in the Forest Management Plan (FMP) and any applicable *Alberta* Land Stewardship Act (ALSA) regional plans. In the event that these strategic plans do not exist, the ground rules shall establish practices that are followed relative to forest management operations and activities. While adherence to the listed Ground Rules is an expectation, there are any number of circumstances where a deviation from a rule may be deemed necessary by a timber disposition holder while planning or conducting operations. As such, requests to deviate from any of the listed Ground Rules may be possible but these requests are subject to a review and an approval decision by Alberta to ensure that the likely outcomes do not compromise our sustainability objectives.

Provincial and Addendum OGR's provide a minimum standard that applies to all timber disposition holders operating on Crown land in Alberta. These rules ensure that timber disposition holders are meeting the same expectations for common components of FMPs.

It is acknowledged that all FMUs in the province are somewhat dissimilar in both physical and non-physical attributes and as such, a standardized approach is not applicable or possible. Alberta recognizes that timber disposition holders must be able to implement customized strategies that are unique to their specific Forest Management Agreement (FMA) or approved in the FMP. FMP-specific addendums are supplemental to the OGRs and have been negotiated with the applicable Forest Management Agreement (FMA) Holder where additional ground rules are needed to address specific strategies in an FMP or unique physical or non-physical landscape attributes. These are meant to be a small list related to specific FMP requirements and not a preferred deviation or exceptions from the Provincial OGRs.

These Addendum OGRs replace existing ground rules regardless of where the timber disposition holder is in the FMP planning cycle and will supersede rules in the Provincial OGR where there are rules addressing the same objective.

# Authorizations and Legislation

Approval of operational plans by Alberta, specifically by Forestry Division or as amended from time to time, does not imply authorization under other provincial legislation and policy. It is the responsibility of the timber disposition holder to understand the regulatory requirements of other applicable legislation, seek advice from the appropriate regulatory agency and obtain any other necessary approvals or permits.

Approval of operational plans by Alberta does not imply authorization under federal legislation and policy which include, but not limited to, the federal *Fisheries Act*[2], *Species at Risk Act*[3] and *Migratory Birds Convention Act, 1994*[4]. It is the responsibility of the timber disposition holder to understand the regulatory requirements of federal legislation, seek advice from the appropriate federal agencies (e.g. Department of Fisheries and Oceans, Environment Canada) and obtain any other necessary approvals or permits.

[2] https://laws-lois.justice.gc.ca/eng/acts/f-14/
[3] https://laws.justice.gc.ca/eng/acts/S-15.3/
[4] https://laws-lois.justice.gc.ca/eng/acts/M-7.01/page-1.html

Authorization of the AOP does not constitute waiver or exemption from the OGRs, nor is authorization of the AOP verification of compliance with the OGRs.

This Agreement inures to the benefit of and is binding upon the Crown and His heirs, successors and assigns, and the Company and its successors and assigns.

# Validation

Alberta relies on the competence and professionalism of forest management professionals to apply sound forestry principles and practices. Alberta requires submissions to be validated by a forest management professional as described in Annex 2 of the Alberta Forest Management Planning Standard.

# Organization of this Manual

Ground rules are separated into topics and all ground rules are presented in the same format which includes the following parts:

**Purpose** – a statement of what the topic is designed to accomplish.

**Discussion** –background information, research knowledge and reasons for the identified topic. The discussion shall focus on why a ground rules is necessary. (Alternative actions or solutions could also be discussed here.)

**Best Management Practices** – proactive and voluntary practical methods or practices used during forest management to achieve results related to sustainable forest management. Best management practices are provided to identify good planning techniques and procedures that will reduce undesirable impacts of forest management activities on Crown land and its competing resources.

**Ground Rules** – the regulatory requirements presented as definitive statements of the results to be achieved and a clear indication of what is expected. Ground rules as much as possible are:

- relevant;
- practical;
- based on scientific evidence, traditional knowledge and collective experience;
- flexible and applicable in a variety of ecological conditions;
- measureable;
- clearly presented for consistent interpretation and application;
- supported by technical terminology and definitions; and
- achievable.

# 4.1 Timber Harvest Planning Requirements
# 4.1.1 Planning Process {SLS 3.1}

**PURPOSE**

The operational planning process is designed to expedite the implementation of the FMP. Where management direction has not been established through an approved FMP, then required decisions shall be made during this operational planning process.

The planning process includes the following:

1. Approved Forest Management Plan (FMP)
   - Spatial Harvest Sequence (SHS) for first two 10-year periods;
   - Approved Long Term Road Network.

2. General Development Plan (GDP) - The GDP gives a comprehensive description of a forest operator's proposed harvest strategy, road building plans, and reclamation operations for a five-year period, and includes all licenses and permits. The GDP is used to guide integration of activities (see section 4.1.2).

3. Forest Harvest Plan (FHP) – The FHP is a map and associated report describing the laid out harvest plan (see section 4.1.3).

4. Annual Operating Plan (AOP) – The AOP describes operations in detail through a series of components that can be submitted together at the same time, or as individual submissions on a schedule approved by Alberta:

   a) Operating Schedule and Timber Production;

   b) Applicable Forest Harvest Plans;

   c) Compartment Assessments as required;

   d) Reforestation Program;

   e) Road Plan.

   (see section 4.1.4)

## 4.1.2 General Development Plan (GDP) {SLS 3.3}

### PURPOSE

To provide a projection of activities for the next five years to:

- guide the integration of activities;
- schedule timber disposition administration activities;
- predict cut control status; and
- co-ordinate the development and reclamation of roads.

### DISCUSSION

The primary components of the GDP include a forecast of the areas scheduled for harvest for a five year period and a summary of variance from the SHS for existing FHPs or long-term road plans outlined in the FMP. The GDP must also include the current status and forecast of the respective annual allowable cuts (AACs) and cut control period for each of the timber disposition holders within the planning area where overlapping operations exist. This could be either a joint submission by all timber disposition holders or separate submissions containing consistent information between them.

In addition to outlining the projected wood supply forecast, the GDP shall also include details regarding but not limited to road requirements, fish and wildlife, recreation, grazing, access management, aesthetics, FireSmart and forest health issues within the planning area. Fish and Wildlife will annually provide FWMIS information for years 2 through 5 of the GDP, to timber disposition holders for use in FHP development to ensure protection of known sensitive sites.

The General Development Plan is the stage in operational planning in which Indigenous Consultation is conducted. Indigenous Consultation shall follow existing Government policy identified in:

- The Government of Alberta's Policy on Consultation with First Nations on Land and Natural Resource Management, 2013[5].
- The Government of Alberta's Guidelines on Consultation with First Nations on Land and Natural Resources Management, 2014[6].
- The Government of Alberta's Policy on Consultation with Metis Settlements on Land and Natural Resource Management, 2015[7].
- The Government of Alberta's Guidelines on Consultation with Metis Settlements on Land and Natural Resource Management, 2016[8].

These documents provide direction on the Indigenous consultation processes.

[5] https://open.alberta.ca/publications/6713979
[6] https://open.alberta.ca/publications/3775118-2014
[7] https://open.alberta.ca/publications/policy-on-consultation-with-metis-settlements-2015
[8] https://open.alberta.ca/publications/guidelines-on-consultation-with-metis-settlements-2016

## GROUND RULES

4.1.2.1 The GDP submission date is the first work day 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. {SLS 3.3.1}

4.1.2.2 The GDP shall contain a summary of any proposed variances from the spatial harvest sequence. {SLS 3.3.2}

4.1.2.3 The GDP shall describe volume supply (by area), road standards and construction schedule, and reclamation activities. The plan is a notification to Alberta of proposed activities and exceptions (see 4.1.2.2) to guide future regulatory activities. Other timber disposition holders affected by the GDP must agree in writing to the GDP before it will be approved. It is the responsibility of the timber disposition holder to ensure that an over-cut exceeding that allowed in their tenure document is not exceeded. (see section 4.1.6) {SLS 3.3.3}

4.1.2.3.1 The company and Alberta shall meet prior to layout of the area identified in the GDP to clarify issues such as: start date of field recon, reviewing licence boundary in relation to CTP program, public interest in the area, new resource data, and any other factors that could affect harvest planning and scheduling. 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. {SLS 3.3.3.1}

4.1.2.4 When a change in a timber disposition holder's general development strategy is proposed after the GDP is received, or after a GDP is approved by Alberta a revision shall be submitted to Alberta. {SLS 3.3.4}

4.1.2.5 The GDP consists of the following: {SLS 3.3.5}

1. Schedules with the following information:

    a) the areas to be harvested each year of the next five-year period;
    b) timber production summary table for all dispositions (by year);
    c) DLO road developments showing planning and construction time lines, access management and the status of Department License of Occupation (DLO) applications;
    d) DLO roads are to be monitored, and all outstanding and anticipated reclamation work related to DLO road and crossings, may be submitted under separate cover at a future date agreed to by Alberta as a component of the road use and reclamation plan – submitted for information purposes only;
    e) a brief description of potential issues arising from the proposed harvest activities that have been identified through discussions with Alberta or other known resource users;
    f) a commitment that rare ecosites have been addressed as per the FMP. Alberta may request to meet with the company to validate this commitment;
    g) a description of variances (as per 4.1.2.2) from the SHS and five year access plan.

2. A map (of appropriate scale) that shows the following:

    a) the mill site location;
    b) proposed haul routes (differentiating existing roads from roads to be constructed) and primary routes to be used for reforestation access;
    c) satellite storage yard locations;

d) the C05 FMU timber dispositions and FMU B12 compartments showing the operating period within the 5 years;
e) other important forest resource areas or facilities that could be directly affected by logging; and
f) the general location of routes, dispositions and facilities where reclamation work is scheduled and where roads and crossings are reclaimed.

## 4.1.3 Forest Harvest Plan (FHP) {SLS 3.4}

### PURPOSE

To describe the laid out harvest and road design.

### DISCUSSION

The primary components of an FHP are a map and report that clearly show and document the harvest area boundaries, roads and water crossings for the compartment. The design shall be valid for five years from the time of approval, unless issues deemed significant by Alberta arise during this period. Any significant issues identified through the GDP shall be addressed in the FHP. Prior to layout, the timber disposition holder and Alberta will have a discussion of proposed activities/issues that could affect harvest planning and scheduling, see 4.1.2.3.1.

### GROUND RULES

4.1.3.1 An FHP shall be approved by acceptance if: {SLS 3.4.1}

a) validated by a forest management professional;
b) variances of less than 20% of the area sequenced in the SHS by compartment per decade;
c) the harvest area (ha) does not exceed 100% of the total area in the SHS by compartment per decade as tracked in the GDP; and
d) it adheres to all ground rules as per the FHP checklist. (see Appendix 1)

Alberta shall notify the timber disposition holder by acknowledging receipt within 5 working days of submission. The notification date will be documented by Alberta as the date on which the FHP is approved. Where the FHP does not meet one or more of the above standards, the FHP shall undergo a review by Alberta. Alberta shall respond with approval or conditions to approval within 30 calendar days. Variances from the SHS shall be reported in the FHP in a format acceptable to Alberta (see section 4.1.6)

4.1.3.2 If a CA was completed, the FHP shall undergo a full Alberta referral and review to ensure the direction in the CA has been implemented. Alberta shall respond within 30 calendar days. {SLS 3.4.2}

4.1.3.3 All FHPs submitted by timber disposition holders who harvest more than 30,000 $m^3$ each year from crown land, must be validated by a forest management professional. Validation means that the OGRs were followed and the SHS was followed or variances identified. {SLS 3.4.3}

4.1.3.4 Other forest timber disposition holders affected by the FHP must agree, in writing, with the FHP before it will be approved. (see section 4.2.15) {SLS 3.4.4}

4.1.3.5 Maps shall accurately show the following information: {SLS 3.4.5}

a) the approved forest inventory at a minimum 1:20,000 scale;
b) approved SHS and variances to the SHS and compartment boundary; (see 4.1.6.1)
c) all DLO roads accessing harvest areas and harvest area boundaries for all timber operators;
d) all inter block (access) AOP roads and all crossings except for ephemeral crossings shall be laid out and shown;
e) current dispositions and reserves (e.g., registered trapline boundaries, permanent sample plot locations);
f) watercourses, waterbodies, their classifications and protective buffers;
g) springs, water source and seepage areas;
h) road corridors and DLO numbers and classes for both existing and proposed roads. Locations of access control measures existing and proposed;
i) boundary and opening number on previously harvested areas (until performance survey); and
j) designated recreation infrastructure, seismic lines, power lines, pipelines and access routes.

4.1.3.6 In addition to the FHP map, the following information is required: {SLS 3.4.6}

a) area (ha), and volume for each proposed harvest area;
b) summary table of variances from the SHS; (see section 4.1.6)
c) regeneration stratum for each harvest area (based on dominant or largest area of pre-harvest stratum within the harvest area, or stratum conversion if known; (see Directive 2005-01 for further details);
d) summary table of block and road specific ground rule deviation requests and justification;
e) potentially affected dispositions (e.g. FGL, DRS, other timber dispositions) and notations (e.g. PNT, CNT);
f) for C05 FMU the GLIMPS info will be provided with the issuance of a timber license;
g) for C05 FMU, identified areas of rare plants shall be addressed, (abundance will be used to determine the appropriate management strategy);
h) description of how the CA is addressed in the FHP;
i) identification of crossing locations for intermittent or higher watercourses;
j) access control methods proposed;
k) table showing status of AOP roads (see section 4.2.10.2) if status isn't designated on the map. This may be submitted as part of the road use and reclamation plan;
l) description of integration with other users, which may include designated recreation infrastructure (see section 4.2.4, 4.2.6 and 4.2.7 of Addendum and 2.7, 2.9 and 2.10 of Provincial OGR).

4.1.3.7 The company shall follow FMP integrated land management (ILM) strategies or access development strategies when developing roads. Alberta may approve amendment requests that differ from these strategies after discussions with the company. {SLS 3.4.7}

4.1.3.8 The company shall offer to meet with Alberta on an as needed basis to review the preliminary FHP design. This meeting will review potential issues (e.g. aesthetics, recreational values etc.) for the specific area and the possible mitigation measures.

4.1.3.9 Where applicable the following comments shall be described for each harvest area: {SLS 3.4.8}

a) block comments may be included on the individual block map;
b) watercourse classification and protective buffer;
c) rationale for roads crossing grasslands (applicable in C05 FMU and Rough Fescue PNT);

d) layout bordering restricted areas (e.g., permanent sample plots (PSPs), private land);
e) identification of understorey if applicable;
f) harvest area-specific structure retention and woody debris management strategies;
g) tactics to address forest health issues;
h) protection of roadside vegetation - applicable or not, and how to be done;
i) strategies to address sight distance concerns with an attempt to maintain sight distance of 400 m or less;
j) proposed spur roads and crossings location;
k) important wildlife sites and mitigation measures as defined in section 2.8.9 of Provincial OGR (this information shall be made available for resource planning purposes only through FWMIS);
l) historical site considerations;
m) associated strategies to address potential impact on designated recreation infrastructure including reclamation or restoration;
n) soil protection measures when any of the following are present:

i. identified unstable areas, water-source areas, springs or seepages;
ii. steep or sustained slopes or grades (>30%);
iii. unfrozen operating conditions.

4.1.3.10 All amendments to Forest Harvest Plans must be justified and submitted to Alberta in writing (e-mail is acceptable). Forest management professional validation of all amendments is required. Any changes must be incorporated into the as-built plan. {SLS 3.4.9}.

4.1.3.10.1 Changes to block or road design (including crossings) where the criteria in 4.1.3.1 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. {SLS 3.4.9.1}

4.1.3.10.2 Changes to the Forest Harvest Plan where the criteria in 4.1.3.1 b), c) or d) cannot be achieved would be considered major amendments and require Delegated Authority approval before operations can commence. {SLS 3.4.9.2}

4.1.3.11 Detailed harvest area plans (DHAP) are required when there is higher than average potential for environmental damage. Harvest areas that require a DHAP could be identified at a meeting held to develop the FHP. This doesn't preclude the company from developing additional DHAPs. Circumstances that merit DHAPs are: {SLS 3.4.10}

a) Detailed harvest area plans (DHAP) are required when there is higher than average potential for environmental damage. Harvest areas that require a DHAP could be identified at a meeting held to develop the FHP. This doesn't preclude the company from developing additional DHAPs. Circumstances that merit DHAPs are: {SLS 3.4.10}
b) unstable slopes are generally to be avoided but if this is not possible it is necessary to plan operations carefully to minimize impacts;
c) harvest areas with numerous water source areas, seepages, intermittent, or ephemeral watercourses;
d) harvest areas that contain or border sensitive wildlife or fisheries areas;
e) harvest areas requiring understory protection using protection techniques (see section 2.5 of Provincial OGR);
f) harvest areas located near high-value aesthetic (FMP) or high value designated recreation infrastructure;

g) partial harvests, excluding commercial thinning (CT) and pre-commercial thinning (PCT);
h) when harvesting is used as a tool to control insects and disease infestations;
i) planned harvest areas exceeding 80 ha in C05 FMU. Section 4.2.3 outlines requirements for structure retention in these larger harvest areas.

The DHAP shall include a map of appropriate scale to the issue(s) and describe how the concern will be addressed in operations. DHAPs are submitted to Alberta along with the FHP.

4.1.3.12 Where additional non SHS harvest areas are added adjacent to existing harvest areas, the total of the two harvest areas cannot exceed the maximum harvest area size specified in the FMP. When the existing harvest area regeneration reaches 30 years of age for C05 FMU, this no longer applies. {SLS 3.4.11}

# 4.1.4 Annual Operating Plan (AOP) {SLS 3.5}

## PURPOSE

To annually authorize all road, harvest and forest management activities for the operator.

## DISCUSSION

The AOP articulates in detail the activities proposed for the current year and must be approved by Alberta before timber operations shall commence. The AOP components can be submitted under separate cover and approved independently and include:

a) operating schedule and timber production
b) applicable FHPs
c) Compartment Assessments (if applicable)
d) reforestation program
e) Road Use and Reclamation Plan;

Individual components of the AOP may be approved without approval of the entire AOP, e.g., reclamation plan, reforestation program.

For timber permit operators and small quota holders who harvest less than 30,000 $m^3$ annually, Alberta has alternate AOP submission requirements.[9]

Where grazing timber agreements are required within the AOP area, the company can submit the GTA prior to or concurrently with the initial AOP.

## GROUND RULES

4.1.4.1 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. {SLS 3.5.1}

4.1.4.2 The Operating Schedule and Timber Production; Reforestation Program; Fire Control Plan; and Road Plan are submitted as in 4.1.4.1 above, unless otherwise agreed to by Alberta. The schedule for submitting any necessary CA and FHPs may be different. {SLS 3.5.2}

4.1.4.3 Only harvest areas and roads with FHP approval shall be scheduled for operations in the AOP submission. {SLS 3.5.3}

4.1.4.4 The AOP shall contain the following components: {SLS 3.5.4}

a) the map(s) referred to in 4.1.3.5 above including shape files of approved FHP harvest areas.
b) Administrative and timber production information:
    I. name of timber disposition holder(s);
    II. number of the timber disposition(s);
    III. date of submission and effective period;
    IV. location of mill where timber will be manufactured or processed, unless alternative reporting has been approved;
    V. where all volumes (deciduous and coniferous) will be charged (quota, deciduous timber allocation, FMA, Commercial Timber Permit);

[9] TM118 form

VI. proposed harvest volume to be harvested by timber disposition;
VII. Community Timber Program operators shall include all road use agreements;
VIII. scaling methodology (e.g., weigh scale, other arrangements) (not necessary if otherwise submitted);
IX. utilization standards;
X. declaration or list of land use notifications, and initial date of notification (see section 4.2.4, 4.2.6 and 4.2.7 of Addendum and 2.7, 2.9 and 2.10 of Provincial OGR).

c) Operating Schedule – a table which outlines:
I. list of harvest areas proposed for harvest (including area and volume with totals);
II. list of roads proposed for construction, maintenance and reclamation for AOP roads, except spur roads. It includes crossings to be built or installed or removed/maintained;
III. declaration of outstanding operational items, or an agreement with Alberta on reporting of outstanding operational items;
IV. debris management.

d) annual reforestation program (see section 4.2.8.2);
e) CA if applicable.

4.1.4.5 All amendments to harvest plans must be justified and submitted to Alberta in writing. Forest management professional validation of all amendments is required. Any changes must be incorporated into the as-built plan. {SLS 3.5.5}

4.1.4.5.1 Changes meeting the following criteria are considered 'Minor Amendments', and require only company forest management professional validation and notification to Alberta. Minor amendments don't require Alberta's approval, provided all appropriate background checks (e.g. GLIMPS) have been made and rationale for the change has been provided (changes can be implemented prior to notification but must be reported no later than seven working days after implementation). Changes shall not adversely affect buffers established for the protection of riparian areas, wildlife sites, historical resources, designated recreation trails or aesthetic values: {SLS 3.5.5.1}

a) Additions to the approved AOP harvest area boundary where the final area does not vary from the area in the approved FHP by more than five percent for blocks greater than 10 ha, or more than .5 ha for blocks less than or equal to 10 ha. Any additions to block areas must be approved by a company supervisor prior to the change being carried out. Any resulting variances from the approved SHS must be categorized and reported as per 4.1.6. This ground rule does not apply to CTPs and DTPs;

b) Deletions to the approved AOP harvest area boundary where the final area does not vary from the area in the approved FHP by more than ten percent for blocks greater than 10 ha, or more than 1.0 ha for blocks less than or equal to 10 ha. Any deletions to block areas must be approved by a company supervisor prior to the change being carried out and cannot exceed the variance tolerance in 4.1.3.1. Any resulting variances from the approved SHS must be categorized and reported as per 4.1.6. This ground rule does not apply to CTPs and DTPs;

c) Exterior block roads moved to existing access or conventional seismic lines where re-growth is less than 3 m and within 100 m of the approved AOP

access. A company supervisor shall approve this move prior to the change being carried out;

d) Exterior block roads requiring the development of new Right-of-Way (ROW) clearing (not detailed above) that are moved up to two ROW widths from the approved FHP road location. ROW is considered to be the maximum ROW allowed in Table 3 of Provincial OGR for the class of road proposed. A company supervisor shall approve this move prior to the change being carried out;

e) The inter-block road within the block boundary may be moved as required, provided that no additional crossings of a watercourse (excluding ephemerals) or known Designated Trail are required;

f) Added crossings on intermittent water courses shall be reported on a monthly basis;

g) Any change to the approved AOP not listed in 4.1.4.5.1 shall be treated as an AOP amendment and requires the approval of Alberta prior to implementation. Alberta will provide the company feedback and/or approval of the AOP amendment within 10 working days of the submission.

# 4.1.5 Salvage Planning {SLS 3.6}

## PURPOSE

Salvage planning shall be implemented when necessary to reduce the potential for loss of fibre.

## DISCUSSION

Under certain circumstances, planning shall be expedited to reduce the loss of fibre from fire; disease or insect infestation; blowdown; or other such unforeseen disturbances.

Salvage planning shall not be used when:

a) the disturbance regime is slow moving and can be accommodated under conventional planning timeframes and protocols;

b) the regime is not an imminent threat to green fibre;

c) fibre loss is deemed to be within an acceptable range.

Salvage planning does not confer rights to the planner to ignore other values, or the inherent value of a natural disturbance. It does allow for consideration of all values and for prompt, qualified, professional opinion to drive the process.

## GROUND RULE

4.1.5.1 Salvage planning is initiated on the natural disturbance when deemed appropriate by Alberta. The company can identify areas where salvage planning may be necessary. {SLS 3.6.1}

4.1.5.2 A FHP for the salvage area must be developed, and shall form part of the AOP. Modified timelines and content for the FHP shall be considered by Alberta. Detailed requirements may be published from time to time by Alberta. It is expected that there will be substantial discussion to resolve significant issues with Alberta before the FHP is submitted. {SLS 3.6.2}

# 4.1.6 Stand Utilization {SLS 4.1}

### PURPOSE

Track variance from the approved FMP SHS as well as total area harvested in order to:

- ensure a sustainable harvest level and future forest objectives are maintained through operations adhering to the FMP;
- improve information for the next FMP (e.g., landbase, yields); and
- make decisions around FHP acceptance.

### DISCUSSION

The *Alberta Forest Management Planning Standard, Annex 1, Section 6.0 Harvest Planning Standards* indicates scheduling of stands through the FMP - SHS is dependent upon the timber merchantability criteria allocated in the disposition holder's tenure document (e.g., FMA, quota certificate) and the management assumptions used in the timber supply analysis (TSA). Pertinent assumptions are comprised of deletions from the net landbase (e.g., subjective deletions, stream buffers, protected areas) and parameters that determine a stand's eligibility for harvest (e.g. earliest age of harvest). The SHS results from the analysis of these TSA inputs coupled with basic field reconnaissance. The SHS identifies spatially (subunit and location) and temporally (period) the queue of stands that will produce the sustainable timber harvest level (AAC) and desired future forest condition.

Adhering to the SHS is imperative to achieving the timber supply forecasts and the forest conditions expected. With increased levels of variance from the SHS, there is greater risk that the operational harvesting will not allow the FMP to realize its objectives and forecasted outcomes. Operational variance is unavoidable but must be effectively managed.

During the FHP planning process, an timber disposition holder will select an area over which to plan a series of harvest areas (blocks) for a period of up to 5 years. This is considered the FHP planning unit and is typically smaller than an FMA defined compartment or subunit. Within the FHP planning unit, the operator will address all the 1-10 year SHS assigned to that timber disposition holder, deciding on either a harvest prescription, or a decision to not harvest at all (deletion) to delay harvest outside the first 10 year period (deferral) or to delay harvest till later in the first period (bypassed stand). Where deletions, deferrals, or bypassed stands consist of entire AVI polygons, specific justification is required.

Variance shall be monitored and reported where:

1) Merchantable Stands scheduled in the first decade of the SHS are not harvested in that decade; and

2) Special Features not identified in the FMP net landbase are encountered during layout or harvesting and are deleted from the SHS.

Timber Harvest Planning and Operating Ground Rule require timber operators to protect special features through detailed harvest planning and careful operations. (e.g., riparian buffers, steep slopes, sensitive sites, cultural/heritage sites, areas with high aesthetic value shall be removed from the SHS.)

Disposition holders shall complete Variance Table 1 as they monitor the operational implementation of their plans against the SHS.

**DEFINITIONS**

**Additions –** Any area planned for harvest, or which has been harvested that is not part of the 10 year SHS in the approved FMP. Additions will be divided into two categories: substantial and slivers.

**Actual Harvested Area** is the total (includes slivers) as–built harvested area in the FHP.

**Approved FMP 10 Year SHS –** Is the total SHS area within the compartment for the first 10 years of the approved Spatial Harvest Sequence.

**Deferral –** any area included in the 10-year SHS that will not be harvested during the current FMP. Deferrals are not removed from the contributing landbase, as there is an expectation they will be harvested later in a future FMP. Deferrals will be divided into two categories: Substantial or Slivers. Deferrals are those stands or portions of which are operable, not isolated, and should be available under current technological and economic constraints for future harvest.

**Deletion -** Any area included in the 10-Year SHS that will never be harvested under current planning assumptions and technical constraints. This area shall be tracked spatially and removed from the contributing landbase in the subsequent FMP. Deletions are divided into two categories: Substantial or slivers.

**Planned Area For Harvest -** Is the total area of the SHS laid out in the FHP, and includes the information for all previously approved FHPs (either planned or as-built) information for the same compartment.

**Provincial Base 10 Yield Stratum-** One of ten Alberta yield stratum defined in the yield projection Interpretive Bulletin in the Alberta Forest Management Planning Standard (AFMPS)

**Slivers-** any polygon component of variance (addition, deferral or deletion) less than 2ha in size. Generally these are long, narrow features along the edge of a block. Slivers exclude stand-alone features (blocks not bordering of or not being adjacent to SHS polygons). Slivers do not contribute to variance calculations but shall be tracked and reported separately. Sliver deletions and sliver deferrals can be aggregated together (e.g. Sliver Deletions & Deferrals)

**Subunit or Compartment -** Operational subunits of an FMU delineated by environmental, operational or watershed characteristics.

**FHP Planning Unit:** Operational subunit of an FMU, delineated by environmental, operational, or watershed characteristics. An FHP is the operational plan for a planning unit, and may be a compartment, sub-unit or an area of a smaller scale. FHP Planning units are discrete, and FHPs for the same operator cannot overlap spatially with the exception of access routes.

**Substantial-** any polygon component of variance (addition, deferral or deletion) other than Slivers

**Variance –** any deviation from the 10-year Spatial Harvest Sequence (SHS) in the approved Detailed Forest Management Plan (DFMP). Variance is classified into one of these three categories: Additions, Deletions or Deferrals.

**GROUND RULES**

4.1.6.1 Companies shall submit a map to show the comparison of the SHS to the laid out FHP highlighting all substantial deletions, deferrals, and additions. {SLS 4.1.1}

4.1.6.2 Variance shall be reported by stratum/compartment for each FHP/GDP. The table shall include the minimum information as per Table 1. {SLS 4.1.2}

4.1.6.3 Total FHP/GDP variance shall be calculated using the following: {SLS 4.1.3}

$$SHS\ Variance\ (Additions\ \%) = \frac{Area\ of\ Substantial\ Additions}{Area\ of\ Approved\ 10\ yr\ SHS} x100$$

A FHP will be appraised when FHP variance exceeds 20%.

4.1.6.4 Area of Substantial Additions shall not exceed the sum of Area in Substantial Deletion and Substantial Deferrals. {SLS 4.1.4}

4.1.6.5 *Variance* from the SHS shall be monitored and reported by subunit or compartment. The cumulative variance for all FHPs shall be reported by subunit and reported annually in the GDP (or as-built report). The table shall include updated information as per Table 1. Where the planned compartment variance by decade is greater than 20%, Alberta will assess the need for a CA. {SLS 4.1.5}

4.1.6.6 Additions shall be monitored annually and summarized by stratum/compartment and reported as per the table above. Stands currently not part of the net landbase that are found to be productive merchantable landbase may be considered for addition with Alberta's approval (non-contributing landbase). {SLS 4.1.6}

4.1.6.7 Justification shall be provided in the FHP (block comments) in the following instances: {SLS 4.1.7}

i. entire deleted or deferred stands;
ii. entire stand additions (adjacent to planned SHS blocks) from outside the 11-20 yr. SHS;
iii. entire and partial stand additions (not adjacent to planned SHS blocks) from outside the 11-20 yr. SHS.

*Table 1.SHS Assessment (Variance Reporting)*

| Harvest Profile | | | | | As-Built | | | | | | | | | | | | Planned for Harvest (ha) | | | | | | Combined As-Built & Planned | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Harvested (ha) | | | | | | Variance | | | | SHS Assessment (Excluding Slivers) | | | | | | | | Variance | | | SHS Assessment (Excluding Slivers) | | |
| | | | | | | | | | | | Substantial | | | Slivers | | | | | | | | | | Substantial | | | | | |
| Compartment | Company Specific Yield Strata | Provincial Yield Strata | Approved DFA 10 Year SHS | Operator Approved FMP 10 Year SHS | SHS 1-10yr | SHS 11-20yr | SHS 21-70 yr | Contributing Landbase Outside SHS | Non-Contributing Landbase | Total | Additions | Deletions | Deferrals | Additions | Deletions & Deferrals | Total | Total Slivers (%) | SHS Variance (Additions %) | Difference in Area (Subst. Add. - D&D) | Difference in Area Total Harvested - 10yr FMP SHS | SHS 1-10yr | SHS 11-20yr | SHS 21-70 yr | Contributing Landbase Outside SHS | Non-Contributing Landbase | Total | Additions | Deletions | Deferrals | SHS Variance (Additions %) | Difference in Area (Subst. Add. - D&D) | Difference in Area Total Harvested & Planned - 10yr FMP SHS |
| 100 | All | All | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ##### | 0% | - | - | - | - | - | - | - | - | - | - | - | 0% | - | - |
| | 1A | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ##### | 0% | - | - | - | - | - | - | - | - | - | - | - | 0% | - | - |
| | 2A | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ##### | 0% | - | - | - | - | - | - | - | - | - | - | - | 0% | - | - |
| | 3A | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ##### | 0% | - | - | - | - | - | - | - | - | - | - | - | 0% | - | - |
| | ... | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ##### | 0% | - | - | - | - | - | - | - | - | - | - | - | 0% | - | - |

## 4.2 Operational Ground Rules

### 4.2.1 Harvest Area Design {SLS 7.2}

**GROUND RULE**

4.2.1.1 For meadows greater than 5 ha in size, at least 50% of the meadow's lineal edge shall have unharvested leave stands of at least 50 m wide. The unharvested leave stands may be in one continuous patch or in multiple smaller patches that together equal at least 50% of the perimeter. To achieve this, all deciduous shall be left and coniferous shall be deferred until the regeneration bordering the remainder of the meadow is 3 m tall. {SLS 7.2.8}

a) Meadows are defined on Alberta Vegetation Inventory (AVI) as HF (herbaceous - forbs), HG (herbaceous - grassland), SC (shrub closed) or SO (shrub open).
b) 50 m is a minimum width, however, the objective is to leave useable wildlife hiding/thermal cover adjacent to the meadow.
c) Structure retention should be used to maintain mature forest along portions of these meadows to provide variable habitat.

#### Uncommon Plant Communities

**C05 FMU and B12 FMU BEST MANAGEMENT PRACTICES**

- Alberta Conservation Information Management System (ACIMS) and other available rare eco-site data should be referenced during development of the FHP;

**C05 FMU and B12 FMU GROUND RULE**

4.2.1.2 When uncommon plant communities are identified, they shall be identified in the preharvest assessment (PHA).

### 4.2.2 Tree Utilization {SLS 4.2}

**GROUND RULE**

4.2.2.1 Areas with visual quality concerns raised through consultation shall be assessed and tactics shall be employed in the FHP to mitigate the impacts of harvesting and reforestation on visual quality. {SLR 5.5.1} The timber operator shall not be required to manufacture an unmerchantable tree. See the stump end of the tree for a buncher cut or a processor cut to determine if the piece is a merchantable piece or an unmerchantable tree. {SLS 4.2.6}
4.2.2.2 Company processing practices, mill specifications, or other non-Provincial direction cannot direct operators to make an unmerchantable piece from a merchantable tree. {SLS 4.2.7}

## 4.2.3 Visual Impacts {SLS 5.5}

### PURPOSE

To manage the visual impact of timber operations on the forest landscape.

### DISCUSSION

The objective is to mitigate the impact of timber operations on the visual quality of the forest landscape by identifying the location of forest landscapes and other areas of high visual and scenic value, and setting objectives for their management and by addressing visual quality issues in the FMP. Chapter 7 Section 4.9.2 and Page 84 of Appendix II provide details on the high sensitivity visual quality inventory process

### GROUND RULE

4.2.3.1 The potential visual impact of harvesting and reforestation activities within harvest areas containing 'high foreground' sensitivity as determined in the FMP process or areas of 'high mid-ground' and 'high background' sensitivity deemed visually sensitive after re-designation through operational planning and/or public consultation shall be considered during harvest planning and operations. Visual management practices shall be incorporated into the FHP to temper adverse visual impacts. This mitigation will include one or more of:

- modification of harvest boundaries
- utilization of topography
- application of various structure retention approaches
- modification of road locations
- use of visualization computer modeling to evaluate various layout options

## 4.2.4 Structure Retention {SLS 7.4}

### DISCUSSION

Structure retention targets will be achieved using the following objectives:

1. Safety is a primary concern when leaving structure retention standing in a harvest area.

2. Structure retention will include pre-harvest layout and or contractor selected.

3. Candidates for structure retention include merchantable and non-merchantable trees representative of the pre-harvest stand:

a. Green culls (rotten, broken tops, forked tops, dry sides, severe sweep and crook);

b. Snags (as safety permits);

c. Wolf trees (with heavy branching or poor form);

d. Deciduous trees and patches;

e. Sub-merchantable trees;

f. Advanced regeneration;

g. Whitebark pine, Limber pine and Alpine larch;

h. Tree patches within inoperable areas (inoperable areas cannot be reasonably operated due to environment and safety considerations such as rock outcrops, steep slopes, wet areas etc.);

i. Tree patches for source water areas, such as springs and ground water seepage areas, ephemeral or intermittent watercourses (can be considered peninsular patch);

j. Tree patches for cultural sites (e.g. cultural artifacts);

k. Tree patches for sensitive sites (e.g. bird nests, dens, concentrated grizzly rub trees, hibernacula, mineral licks);

l. Tree patches to screen important recreational view sheds;

m. Tree patches along permanent public roads (DLOs, LOCs, and numbered highways) to screen within block grizzly bear habitat or visual resources (see visual quality strategy

for details); and

4. Deciduous areas, areas with higher moisture content, areas of non-merchantable size and/or dead standing trees, or trees that appear to have survived multiple fire cycles are good examples of candidate structure retention.

5. Single stem retention is allowed provided an estimate of retention area is completed on the harvest area (see definition below). In the absence of natural or safe snags, as safety permits, top 2 to 6 green culls or dead trees per hectare, preferably 30 cm or greater DBH to 2-5 m tall.

6. The primary means of identifying structure retention levels will be through following the Spatial Data Directive, Final Cutblock Policy which depend on the *Disturbance Updates - Standards and Specifications for Timber Harvesting (2015).* Other means may be determined by Alberta. Minimum polygon size for leave areas (retention) has been dropped from 0.5 ha in the standard to 0.04 ha.

### DEFINITIONS

• Retention – Standing trees left after harvest (live and dead).

• Single Stem Retention – Individual trees left standing in a harvest area.

The following formula can be used to determine the equivalent area:

$$Area = (Number\ of\ standing\ trees \div Block\ Predicted\ Piece\ Size) \div Average\ gross\ volume\ per\ ha$$

e.g. if there are 100 live cull trees left behind, and the predicted piece size for the block was 3.7 trees/m3, and the average gross volume was 180 m3/ha, then:

(100 $trees$ ÷3.7 $trees/m3$) ÷ 180 $m3/ha$= 0.15 $ha$

- Interior Patches, Clumps, Islands – un-harvested groups of trees detached from the harvest boundary.
- Peninsular patch- un-harvested groups of trees protruding into the harvest area and attached to the harvest boundary. Peninsular patches can contribute to the retention target if the unharvested area has a 3:1, length to width ratio.
- Matrix Remnants- undisturbed trees and groups of trees both detached and attached from the disturbance event. Undisturbed means the retention is intact and left standing and are outside of the block. These areas are functional landscape retention however they do not count toward the 3% target as they are connected to but outside of a harvest area.

## GROUND RULES

4.2.4.1 All tenure holders' operations within the B12 FMU will plan and carry out operations to achieve an interior harvest area, structure retention target of 3% for harvest areas as specified below. A harvest area is defined as one opening with a corresponding opening number. The 3% structure retention requirement has been applied to the timber supply analysis.

4.2.4.2 Structure retention shall be internal to each harvest area, be representative of the pre-harvest stand composition and reported annually as a component of the Final Cutblock Digital Data Submission Spatial Data Directive requirement and in the 5-year Stewardship Reports.

4.2.4.3 On an individual harvest unit basis (i.e. opening number), peninsular patches can only contribute up to two thirds of the target (i.e. 2%).

4.2.4.4 Harvest areas larger than 10 ha in size shall have at least 3% area of structure retention as per 4.2.4.1, 4.2.4.2 and 4.2.4.3. Harvest area smaller than 10 ha in size may have less than 3% area of structure retention (including as low as 0%), due to operational realities (i.e. long narrow blocks).

4.2.4.5 The minimum target is 3% of the harvest area annually, but a wide range in variability in harvest area retention levels as long as 4.2.4.4 is met and the annual target is achieved or exceeded.

4.2.4.6 Structure retention is measured on an area basis. The 3% of the area target shall be achieved and reported by all tenure holders in B12 FMU as the amount of area harvested and the area left for structure retention for inclusion of the DFA level results in the 5-year Stewardship Report. Annual and landscape variation of retention are permitted, provided the 5-year target is achieved (refer to VOIT #10, 1.1.2.1a).

4.2.4.7 To be consistent with spatial data directive reporting requirements and cutover photography acquisition and interpretation, retention levels will be tracked annually, but be calculated by the end of the timber year, two years after the skid clearance date.

4.2.4.8 The spatially identified structure retention will be removed from the contributing landbase for the next FMP for the length of one rotation (typically 80 years).

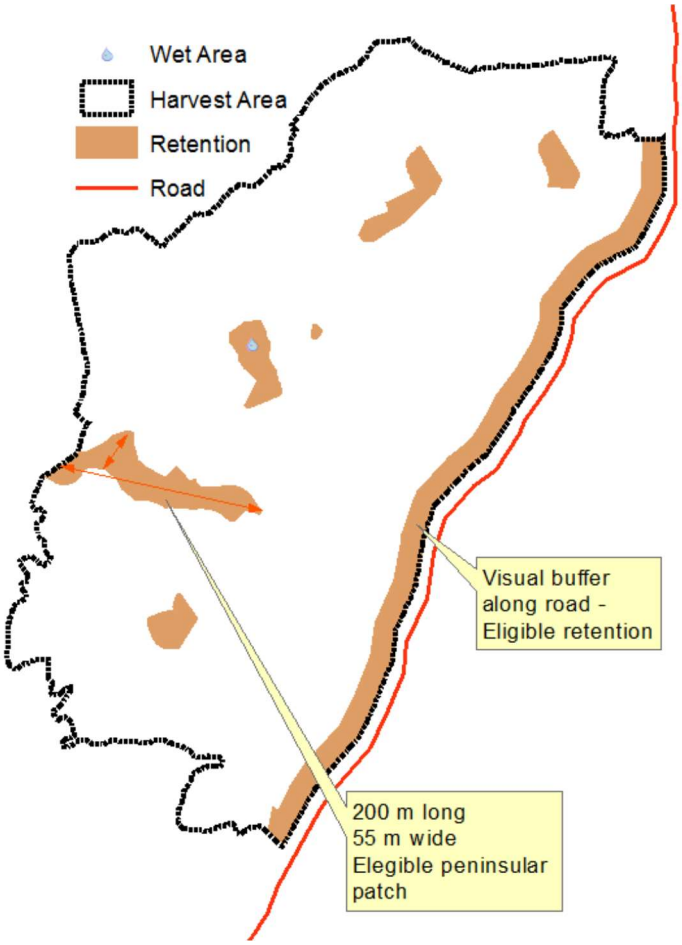



**Figure 1:** Example of structure retention

## C05 FMU STRUCTURE RETENTION

### DISCUSSION

The following principles will guide implementation of stand level procedures:

- Some form of vertical and horizontal structure will be retained in most harvested areas.
- It is acknowledged that amounts will vary within individual blocks with greater amounts of retention as harvest block size increases.
- Sensitive sites shall be protected.
- Opportunities for both current and short-term wildlife habitat purposes shall be enhanced.
- Loss of nutrients from the forest ecosystem shall be minimized.

Components of Stand Level Retention

- single-tree, small clump (less than 0.01 ha) retention;
- large clump (0.01 or greater up to 15 ha) retention;
- snag retention;

- unique site retention.

Strategies for Single Green Tree and Small Clump Retention

Single green tree retention is defined as single trees or groupings of up to five trees left standing in a harvest area. Small clump retention is defined as small groups of trees covering an area less than 0.01 ha in size, growing together, that are left standing undisturbed in the harvest area.

Good choices for single-tree retention include:

- dying trees that are safe to leave;
- subalpine fir and larch, Douglas fir and all deciduous species;
- wolf trees or trees with heavy branching or poor form;
- wildlife trees (e.g., with nests, cavities);
- single trees located in sensitive sites;
- all Limber pine and Whitebark pine encountered.

Strategies for Large Clump Retention

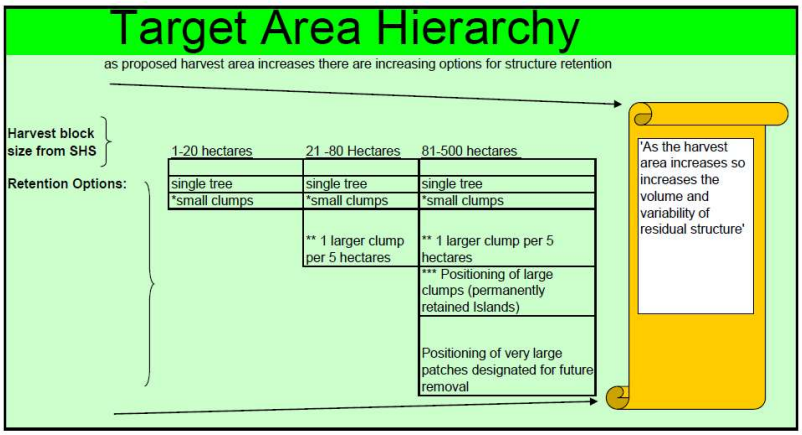
Large clump retention is defined as a group of trees that are left standing in the harvest block, and which take up greater than 0.01 ha (100 m2) of the area of a harvest block. The shape of clump retentions may vary widely.

Trees to consider for retention in large clumps include:

- understory trees that also contain mature merchantable and/or non-merchantable trees;
- merchantable conifer that are windfirm;
- areas containing shrubs, understory or unique sites;
- located around groupings of snags, wolf trees or wildlife trees;
- wet areas (i.e., ephemeral creeks, watersource areas, etc.) within the harvest block;
- inoperable areas within the harvest block (e.g., steep slopes pitches, sensitive soils).

General Strategies for Structure Retention

- Retention of clumps (small and large) is preferable to single trees. See FMU C05 table below.
- Stand retention will comprise merchantable stems representing all diameter classes found in the proposed harvest block, as well as non-merchantable standing and downed trees.
- Merchantable trees will be left based on site-specific objectives and general stand strata.
- Retention clumps will vary in size and shape, generally ranging from individual trees to clumps that are several hectares in size. The distribution patterns and size will depend on conditions in each block.
- Try to locate some larger retention clumps within 30-50 m from the edge of the harvest block to allow ease of access for wildlife (e.g. Grizzly Bears).
- Clump placements should represent the variety of topography found in harvest blocks (i.e., clumps need to be placed on flat ground as well as steep terrain).




* Small clumps are groups of trees taking up an area of less than 0.01 hectares (i.e. 100m2) and large clumps are groups of trees taking up an area of greater than 0.01 hectares.
** Large clumps can be located in blocks smaller than 21 hectares recognizing that variability within a range is desired.
*** Large clumps can be positioned together to form permanently retained islands. This combining of clumps process also can apply to harvest blocks smaller than 80 hectares based on local circumstance and the discretion of the forestry practitioner.
Pure, even-aged, conifer stands present fewer opportunities for leaving structure; however, retention will be designed such that some will be available for harvest in future passes during the rotation period. Blocks larger than 100 ha may be planned to have more than 5% retention where a strategy to return 30-90 years for C05. Where these stands can be left with minimal volume loss, they should be retained for a minimum of 60 years for C05 to provide mature habitat within a large harvest area. Upon final removal of these retention patches, the target is still to retain 3% in C05 of the standing merchantable trees over the rotation.

Strategies for Snag Retention

Snags are defined as a standing dead tree within the harvested area. The objective is to leave all snags standing recognizing safety considerations. Retention of full height snags within protected clumps is preferred; however, where safety is an issue, and snags are desired, live trees may be “safely topped off” around 6 m to create snags, bird perches and potential cavity nests. The primary target size for topped off trees is in tree diameter classes greater than 35 cm when measured at breast height. Safety is the first priority in determining whether a dead or dying snag should remain standing within a block.

Strategies for protection of Unique Ecological Sites in C05

Unique ecological sites are defined as sites that contain natural features of special value for wildlife and plant species and may include the following:

- Small clumps of old forest remnants from previous fires or old logging, clusters of large-diameter downed logs, small bogs and wetlands, wildlife trees, treed rocky outcrops, sites immediately surrounding dens, hibernacula, mineral licks, Whitebark or Limber pine.

Every effort should be made to identify all unique sites during planning and layout.

Strategies for Retention in Pine Focus Blocks Associated With Mountain Pine Beetle

As a priority, structure retention shall focus on non-pine species.

## C05 FMU GROUND RULES

4.2.4.9 The operator shall retain an average of 3% structure retention by landscape management unit with allowable variance from 0 – 5%. {SLS 7.4.1}

4.2.4.10 Blocks with more than 5% retention may include a strategy to return 30-90 years later for the larger patches. {SLS 7.4.2}

4.2.4.11 For harvest blocks over 20 ha in size, an average of 1 small clump per hectare and at least 1 additional large retention clump for every 5 ha harvested shall be retained. {SLS 7.4.3}

4.2.4.12 For stands in the Porcupine Hills, structure retention shall be in accordance with the Porcupine Hills Harvesting and Silviculture Strategies: Minimizing the Risk to Successful Regeneration of Cutovers January 2005. (FMB Document). {SLS 7.4.4}

4.2.4.13 In pure pine types the following applies: {SLS 7.4.5}

a) retain Douglas fir, Whitebark pine, Limber pine, Alpine fir, Alpine larch or any other species found as single trees or as clumps;
b) retain spruce where sheltered or protected in clumps by other species;
c) remove those merchantable spruce stems standing greater than 9 m in height that are not found within protected clumps;
d) retain all deciduous species;
e) pine as required to meet requirements.

4.2.4.14 Retention clumps will vary in size and shape, generally ranging from individual trees to clumps that are several hectares in size. {SLS 7.4.7}

4.2.4.15 Forest operators shall retain snags in the following manner: {SLS 7.4.8}

a) retention of full height snags is a priority;
b) leaning snags or trees of non-merchantable species that are greater than 6 m in height that create a safety hazard may be felled to create safe working conditions;
c) snags within 40 m of roads, camps, landings, fence lines, power lines and machine maintenance areas may be felled to create safe working conditions.

4.2.4.16 The following are guidelines for the spatial distribution of structure: {SLS 7.4.9}

a) retain structure near woody debris piles (and vice versa);
b) retain structure near the harvest area boundary to create a gradual ecotone between the harvest area and un-harvested forest;
c) retain structure in patterns and locations that minimize the potential for blowdown;
d) retain structure near ephemeral draws and intermittent streams.
e) retain structure around known wildlife features e.g. bear dens, clumps of bear rub trees etc.

## 4.2.5 Fur Management {SLS 5.3}

**GROUND RULE**

4.2.5.1 A representative of the forest operator shall personally contact, or send a registered letter to the senior partners of a RFMA during the preparation of the GDP and FHP. Information such as cabin locations, trails and other improvements, or concerns shall be noted at this stage. During the development of the FHP information and concerns shall be integrated into the plan. The forest operator shall provide the trapper the opportunity to review the approved FHP map. {SLS 5.3.1}

# 4.2.6 Species of Special Management Concern {SLS 7.7}

## Grizzly Bear

### DISCUSSION

The Grizzly Bear Recovery Plan has been approved by Alberta. Strategies from the recovery plan have been implemented provincially through Fish and Wildlife with respect to BearSmart principles. Access management strategies continue to be worked on at the provincial level Planning

In core and secondary areas, temporary roads used for timber operations are not considered to be open routes if harvest is during the winter months and if effective access control is used during non-frozen conditions. (see 4.2.12 of Addendum and 2.16 of Provincial OGR)

### BEST MANAGEMENT PRACTICES

- Pursuit of joint Road Use Agreements with energy sector companies and other forest users to reduce the overall access footprint;
- Reduction harvest block parallel road sightlines for permanently open roads;
- Reclamation of unused access.

## Key Wildlife and Biodiversity Zone

### BEST MANAGEMENT PRACTICES

- Agreed upon critical winter ungulate habitat in the B12 FMU (see 4.1.2.3.1) should have: {SLS 7.7.2.}
    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;
    b) maximize retention near these critical winter ranges where possible;
    c) see 4.2.1.1 for further requirements for C05 FMU.
- Temporary roads should 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. {SLS 7.7.2.2}
- The amount, tenure and class of new access roads should be minimized and consistent with the land use objectives in regionally defined key wildlife zones. Access development will strive to minimize new human infrastructure. {SLS 7.7.2.3}
- The alignment and standard of new long-term and permanent access roads must be identified and agreed upon within the five year access plan. {SLS 7.7.2.4}
- Any proposed new crossings of rivers and creeks must be identified and agreed upon with Alberta; new permanent crossings will require justification. {SLS 7.7.2.5}

- Use of existing access roads must be described in the FHP, with particular reference to public access management, any proposed road improvements and ongoing maintenance. Potential opportunities for partial or complete route closure and/or reclamation following planned harvesting and silviculture shall be discussed. {SLS 7.7.2.7}
- Mechanical thinning and selective use of herbicides as approved by Alberta may occur within this zone. {SLS 7.7.2.9}
- Existing lesser vegetation, or where agreed to, treed buffers comprising the visual screening along permanent roads bordering shrub meadows should be maintained to limit line of sight across meadows. {SLS 7.7.2.12}
- The following silviculture and access roading requirements should be met: {SLS 7.7.2.16}

  a) where possible, reforestation treatments should be planned as soon after harvest as possible;
  b) while considering safety, position bends in the roads at junctions to minimize line of sight.

**GROUND RULES**

4.2.6.1 Star Creek shall be managed in a shelterwood/partial cut regime to ensure other values are recognized and elk habitat is favoured (part of an FM activity in objective 30 of C05 FMP) {SLS 7.7.2.13}

4.2.6.2 Timber harvesting shall be managed to provide hiding cover for wildlife and facilitate wildlife movement in the following corridors: {SLS 7.7.2.14}

a) within a strip 1,600 m (1 legal mile) in width bordering the Rocky Mountain Forest Reserve boundary within the Crowsnest Corridor;
b) along the Highway 22 corridor—where the highway bisects the Rocky Mountains Forest Reserve.

## Fine Filter and other Species

**DISCUSSION**

Additional habitats of selected wildlife species require maintenance of undisturbed habitats (e.g., breeding or denning locations). These species require specific sites in order to complete all or part of their life cycles.

Pure strain West slope Cutthroat Trout has been listed under the federal *Species at Risk Act and* provincially under Alberta's *Wildlife Act* Regulations as a threatened species. The Alberta Westslope Cutthroat Trout Recovery Plan was approved in March 2013 and provides direction on the management of this species.

Southern Headwaters At Risk Project, (SHARP) identifies a number of focal species whose spatial and compositional requirements for habitat are most representative of those of a large number of species. This focus ensures their persistence and that of multiple species at risk in the southern headwaters area.

SHARP species that are found in or near the C05 FMU include: Wolverine, Harlequin Duck, Long-toed Salamander, Western Toad, Pileated Woodpecker and Clark's Nutcracker.

## Wolverine:

### C05 FMU GROUND RULES

4.2.6.3 No timber harvesting shall occur in or near cirque basins, talus slopes, boulder fields, and avalanche paths in the sub-alpine forest. A minimum 60 m treed buffer shall be left where harvesting occurs near these areas. {SLS 7.7.3.1}

4.2.6.4 Leave downed trees and wood debris in identified wolverine habitat. {SLS 7.7.3.1}

## Harlequin Duck

### C05 FMU GROUND RULE

4.2.6.5 Seventy one ha of identified Harlequin Duck nesting areas have been removed from the net harvestable landbase to ensure protection of this habitat. Harvest planning along the Livingstone River should consult with the TSA theme map for Harlequin Ducks. Maintenance of ground rule buffers on the remainder of the watercourses will protect habitat for this species. (see Alberta Species at Risk Report #105) {SLS 7.7.3.3}

## Pileated Woodpecker:

Potential cavity trees include dead trees more than seven meters tall with broken trunks or live trees where decay has softened the wood. Decay is strongly associated with the presence of conks, dead branches, branch stubs, trunk cracks, and swelling.

### C05 FMU GROUND RULES

4.2.6.6 Retain all, current and some potential cavity trees, as well as some future cavity trees. {SLS 7.7.3.5}

4.2.6.7 Retain large (greater than 30 cm) live or dead deciduous or dead coniferous trees where deciduous is absent, that have rectangular nesting holes on the trunk. {SLS 7.7.3.6}

## Clark's Nutcracker:

### C05 FMU GROUND RULE

4.2.6.8 Where Clark's Nutcrackers are found, the company shall leave scattered conifers on the outskirt of openings, preferably on south-facing slopes and on sites protected from the wind. {SLS 7.7.3.7}

## Whitebark and Limber Pine

Whitebark and Limber Pine are widespread throughout the C05 FMU and also present, but much less prevalent, in B12 FMU. Whitebark and Limber pine are in decline throughout Alberta due to an alien invasive fungus, white pine blister rust. In addition, both species are under threat from MPB and long standing fire suppression that has affected successional processes. Both species are listed as "Endangered" under Alberta's Wildlife Act and a provincial recovery strategy has been created.

### C05 FMU GROUND RULE

4.2.6.9 Whitebark pine and limber pine conservation targets identified in Forest Management Plan shall be met through GDP and AOP planning and operational avoidance.

### B12 FMU BEST MANAGEMENT PRACTICES

- Protect and retain mature, healthy individuals and small groups as encountered during harvest operations that fall outside of spatially identified protective retention areas.

### B12 FMU GROUND RULES

4.2.6.10 Establish spatially identified protective retention areas on the ground, as most Whitebark pine and Limber pine tend to grow along ridge tops and rock outcrops.

4.2.6.11 Identify protective retention areas within the FHP.

## Barred Owl

### BEST MANAGEMENT PRACTICES

- Avoid the harvest of aspen and poplar trees;
- From March 14 to July 15, harvest operations within 500m of known nesting sites should be avoided.
- Adhere to the structure retention strategy

## Songbirds

### BEST MANAGEMENT PRACTICES

In addition, in order to reduce any potential impacts to Varied Thrush populations, SLS will:

- Adhere to the structure retention strategy
- Minimize temporary road densities

## 4.2.7 Recreation {SLS 5.2}

**PURPOSE**
To manage the implications of forest management activities on forest recreation values and experiences.

**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 improve or relocate existing trails through normal timber operations.
Within C05 FMU, some areas adjacent to designated random recreation sites have not been included in the net landbase and therefore are not part of the SHS.
Many methods of engaging the public during the forest planning process are used by forest operators.

**GROUND RULES**

4.2.7.1 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. {SLS 5.2.1}

4.2.7.2 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. {SLS 5.2.2}

4.2.7.3 The 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. {SLS 5.2.2}

4.2.7.3.1 If the designated trails were approved for access under an AOP, then erosion control and deactivation methods as per 2.15 of Provincial OGR will need to be considered.

4.2.7.4 The 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. {SLS 5.2.4}

## 4.2.8 Grazing and Timber Integration{SLS 5.4}

**GROUND RULES**

4.2.8.1 Natural meadows and other non-forested rangeland areas > .4 ha not identified by AVI but discovered during operations, shall be treated according to 2.10.1 of Provincial OGR and External Information Letter 2010-02 Fescue Grassland Information Letter – Principles for Minimizing Surface Disturbance. {SLS 5.4.2}

4.2.8.2 The company shall not perform any silviculture treatments on natural meadows and other non-forested rangeland areas occurring within cutblocks. {SLS 5.4.3}

4.2.8.3 The company shall not deck timber within natural meadows or other non-forested rangeland areas. {SLS 5.4.4}

## 4.2.9 Reforestation/Silviculture {SLR 8.0}

**PURPOSE**

To plan and implement silviculture practices that result in reforested stands that meet approved regeneration standards.

**DISCUSSION**

A reforestation program is required by Alberta under TMR 143.1. The reforestation program is a component of the AOP and contains reforestation prescriptions by strata, and a schedule of treatments for the upcoming year. The proposed reforestation program provides a link between reforestation operations and the FMP. The reforestation program must be based on the most current knowledge of treatments (by strata) which lead to reforestation success in terms of reforestation standards. Reforestation prescriptions are a critical point in the sustainable forest management planning system where growth and yield strata targets from the FMP are delivered through well-planned silviculture treatments. Knowledge of how sites respond to different treatments result in better treatments, and greater probability of success in meeting growth and yield strata targets, for height, stocking, density and ultimately, strata volumes.

An acceptable silviculture process includes:

- site assessment (pre- or post- harvest) based on ecosite classification;
- a table or 'matrix' of silviculture treatments or tactics for specific strata;
- developing regeneration standards based on yield curve strata targets;
- an annual treatment schedule of activities;
- an assessment/survey system, and feedback mechanisms to ensure regeneration data is used to refine the prescription matrix.

### 4.2.9.1 Planning {SLR 8.1}

**GROUND RULES**

4.2.9.1.1 The conditions outlined by Alberta must be met prior to planning reforestation of balsam fir or alpine fir as an acceptable species. See Directive 2001-01 or successors. {SLS 8.1.1}

4.2.9.1.2 Harvest layouts bordering previously harvested areas shall avoid damaging regeneration. {SLS 8.1.2}

4.2.9.1.3 Reforestation timelines prescribed by Alberta shall begin at the start of the timber year following the end of the timber year when the harvest area has received skid clearance, or from a company representative pursuant to a self-inspection agreement between the company and Alberta. {SLS 8.1.3}

4.2.9.1.4 Where requested by Alberta, the company shall submit a map or shape files showing where genetically improved stock is deployed. {SLS 8.1.4}

### 4.2.9.2 Reforestation Program {SLR 8.2}

**GROUND RULES**

4.2.9.2.1 The reforestation program shall be submitted by April 1 or as otherwise specified in a FMA, or at a time agreed to by Alberta;{SLS 8.2.1}

4.2.9.2.2 Harvest areas (openings) shall be clearly identified (e.g., maps, spatial files, or delineation on the ground through visual markings). Where stumps are left to delineate areas (e.g., harvest areas) they shall be approximately 30 m apart and no higher than 2 m. {SLS 8.2.2}

4.2.9.2.3 The reforestation program shall include the following components and information: {SLS8.2.3}

a) silviculture prescription;
b) proposed silviculture treatment schedule;
c) maps as requested by Alberta; and
d) proposed blocks for declaration in lieu of survey and re-treatment.

## a) Silviculture Prescription

The Forest Management Plan contains a Silviculture Strategy table for prescriptions specific to different forest stratum. Changes to the approved strategy in the FMP are outlined in the AOP.

Proposals for herbicide application shall be submitted for approval in accordance with approved vegetation management strategies and Alberta requirements (see Herbicide Reference Manual). Herbicide proposals are a component of the reforestation program in the AOP, but may be submitted separately from the AOP.

Commercial thinning proposals shall be submitted for approval as part of the AOP unless otherwise agreed by Alberta, in accordance with Alberta's requirements.

## b) Proposed Silviculture Treatment Schedule

The Silviculture Treatment Schedule shall contain the following information:

- opening number;
- a list of harvest areas and the estimated area (ha) to be treated;
- the reforestation strata standard for each harvest area (see below for more detail);
- season or date of activity – summer vs. winter.

The following proposed reforestation activities for each harvest area (or stand) shall be listed:

I. Site Preparation – mechanical or chemical treatment
II. Planting – primary species, trees/block, and notification if outside approved seed zone
III. Seeding –species and notification if outside approved seed zone
IV. Leave for Natural – species
V. Manual Tending – type (cleaning vs spacing or combination)
VI. Fertilization – type of fertilizer
VII. Herbicide/Insecticide application – type of chemical and method (ground vs. aerial) and target species for insecticide
VIII. Commercial Thinning (CT)
IX. Regeneration Surveys – establishment and performance
X. Cone/cuttings Collection – (if unknown, Alberta shall be notified regarding collections as per the '**Alberta Forest Genetics Resource Management Standards (FGRMS)** )
XI. Let it grow as a retreatment strategy.

Should the proposed reforestation activities for a harvest area change after AOP approval, the following items require an amendment to the AOP:

- changing to a treatment not approved in the silviculture strategy table for the specific strata;
- additional harvest areas to be treated by any means of treatment;
- the remaining changes require notification to Alberta through Alberta Regeneration Information System (ARIS) reporting.

If a harvest area is declared sensitive, the forest operator shall provide additional information beyond the strategic and tactical levels (see section 4.1.3.11). This information shall include the actual techniques (e.g., type of site preparation machine) and their expected impact on the harvest area attribute(s) that make it a sensitive site (e.g., providing frequent furrow trenching breaks on downhill run to reduce erosion).

Note that proposals to deploy seed or vegetative material outside the seed zone or breeding region require prior approval of the Provincial Seed Officer at the Alberta Tree Improvement and Seed Centre.

Sample Silviculture Treatment Schedule

| Opening Number (ARIS) | Harvest Area (ha) | Preliminary Strata Declaration | Activity | Activity Area (ha) | Season | Comment |
|---|---|---|---|---|---|---|
| 4251120144 | 10 | C | Mounding | 4 | Winter | |

**c) Map**

As part of the reforestation program, a map may be requested (at Alberta's discretion, the FHP map may be used) that identifies:

I. all harvest areas to be treated, and all roads and stream crossings used (designating their season of use);
II. the reforestation map shall include all harvest areas from integrated operations.

**d) A listing of harvest areas where a declaration is proposed in lieu of a survey for areas not likely to meet regeneration standards (per TMR 141.9) and harvest areas where re-treatment is proposed (per TMR 142.1.)**

I. blocks where 'let it grow' is the retreatment strategy will require survey information supporting re-treatment rationale;
II. may be submitted for review and approval at any time throughout the year for approval to ensure timeliness of treatments.

# 4.2.9.3 Silviculture Operations {SLS 8.3}

## GROUND RULES

4.2.9.3.1 Site preparation shall ensure that nutrients and logging debris are left on site and not moved down slope. {SLS 8.3.2}

## 4.2.10 Soils {SLS 9.0}

**DISCUSSION**

SLS conducts its forest harvesting and site preparation operations during frozen or dry ground conditions. Avoidance of wet conditions reduces the risk of compaction and rutting from equipment. In-block roads and landings are subjected to repeated machine traffic and are more likely to be compacted compared to other areas of the harvest block.

**GROUND RULE**

4.2.10.1 Temporary in-block (harvest) roads and landing areas with soil compaction shall undergo soil decompaction in order to retain full stand productivity and enable reforestation.

## 4.2.11 Road Classification, Planning and Design {SLS 11.2}

**GROUND RULES**

Temporary Roads: {SLS 11.2.3}

4.2.11.1 Proposed loop roads will be discussed prior to FHP approval. {SLS 11.2.3.2}
4.2.11.2 In the road use and reclamation plan, the forest operator shall submit a table tracking the status of all AOP roads over two years old. These roads shall be reclaimed as soon as timber operations are complete or within three years of construction as measured from the start of the timber year following the timber year in which the Annual Operating plan was approved. {SLS 11.2.3.3}

## 4.2.12 Road Construction, Maintenance and Reclamation {SLS 11.3}

**GROUND RULE**

4.2.11.1 Road ROWs shall be cleared according to standards established in Table 3 of Provincial OGR, road comments, and any additional conditions approved in the FHP. {SLS 11.3.1.2}
4.2.12.2 Unless otherwise approved by Alberta, roads and landings shall avoid: {SLS 11.3.1.4}
a) Rough Fescue native grassland; and
b) natural meadows.
4.2.12.3 Once initial silviculture treatment activity is complete, the company shall reclaim AOP roads. (Reclamation will not allow for future quad access even for the company unless the need for future silviculture treatment or growth and yield plots is demonstrated) (see 2.15 of Provincial OGR) {SLS 11.3.4.1}

## 4.2.13 Access Management {SLS 11.5}

**GROUND RULE**

4.2.13.1 To address agreed upon critical habitat (e.g., elk calving grounds) conditions of approval for AOP roads will address access control, signage, road closure and any public notification requirements. {SLS 11.5.3}

4.2.13.2 In a Public Land Use Zone (PLUZ) new access roads must be integrated with PLUZ road networks. {SLS 11.5.4}

4.2.13.3 After hauling is complete, initial access points shall have physical barriers and signage to discourage use by on highway vehicles. These would be put up by the company with monitoring as agreed to with Alberta. The signage is provided by Alberta. {SLS 11.5.5}

## 4.2.14 Aquatic And Riparian Area Protection {SLS 6.0}

**GROUND RULES**

4.2.14.1 Channels on slopes greater than 20% which only flow during runoff events shall be protected as intermittent watercourses as per Table 6 in Provincial OGR.

4.2.14.2 Applicable to B12 FMU only: Equivalent Clearcut Area (ECA) analysis shall be recalculated during FHP development for any watersheds having the potential to exceed 30% ECA from of the SHS as determined in the FMP development process.

4.2.14.2.1 The resulting ECA shall not exceed 50% (high risk).

4.2.14.2.2 For any watershed determined in the re-analysis to be 31-49% ECA, there shall be an assessment by a qualified professionals (third party) to adequately determine risk and potential mitigation options.

- The FHP shall identify the results of the analysis, the qualified professional assessment and the mitigative options proposed for the watershed and/or compartment. The mitigative options proposed will be evaluated by the department.

4.2.14.3 Watercourse classifications shall be as per 2.17- Table 4 of Provincial OGR with the following exceptions:.

- Small permanent watercourses will share the classification attributes of Table 4 with exception that minimum channel width will be 1.0m.
- Transitional watercourses will share the classification attributes of Table 4 with exception that minimum channel width will be 0.5m.
- Intermittent watercourses will share the classification attributes of Table 4 with exception that channel width will be less than 0.5m.

## 4.2.15 Water Crossings {SLS 11.4}

**GROUND RULE**

4.2.15.1 The company shall require approval for any crossing structure not listed in tables 9 and 10 of Provincial OGR for the appropriate watercourse type. {SLS 11.4.1}

4.3.15.2 Each operator shall establish a monitoring program acceptable to Alberta, for their watercourse crossings. Documentation as to current condition, repair requirements, or removal dates of the crossing structures must be maintained and made available to Alberta upon request. {SLS 11.4.25}

4.3.15.2.1 The company shall conduct inspections during timber operations ensuring proper functioning of watercourse crossing structures. Results shall be reported on the monthly inspection report. {SLS 11.4.25.1}

## 4.2.16 Deciduous/Coniferous Integration {SLS 5.1}

**GROUND RULE**

4.2.16.1 All operators with timber dispositions in an area covered by an FHP/GDP must agree to the FHP and GDP before approval is granted. If agreement cannot be reached after all meaningful consultation has taken place, the following dispute resolution process can be implemented. Areas of disagreement will be documented and forwarded to the Senior Area Forester for review with the reviewing Forester. Depending on the exact nature of the disagreement, Alberta will either: 1) facilitate a dispute resolution process; or 2) direct the operators on areas of disagreement through conditions of approval. If either proponent disagrees with the determination of the Senior Area Forester, they may appeal the decision to the Program Manager. {SLS 5.1.1}

4.2.16.2 All roading, harvesting and silviculture operations shall be completed at a time and in a manner that enables effective reforestation and minimizes road access. {SLS 5.1.2}

4.2.16.3 SLS shall follow their referral process with the energy sector to minimize the industrial footprint. {SLS 5.1.3}

# 4.2.17 Debris Management and Wildfire Protection{SLS 7.3}

## C05 FMU Only

### DISCUSSION

Coarse woody debris (CWD) is defined as wood (logs or pieces) lying at an angle of less than 45 degrees from the ground and with a diameter greater than 7.5 cm. It includes the following:

- clusters of large-diameter downed logs;
- naturally occurring, non-merchantable downed logs scattered through the harvest area;
- small unburned brush piles;
- single green trees that are dying and/or snags subject to blowdown (ultimately becoming CWD);
- other slash.

### C05 FMU GROUND RULE

4.2.17.1 No wildlife piles are allowed within the 10 km zone of FireSmart plans and Crowsnest Community Zone plan. Strategies for retention/recruitment for CWD outside the 10 km FireSmart zones that should be considered include:

- windthrown trees contribute to CWD; therefore, not all windthrow areas have to be salvaged;
- single tree retention for future recruitment of large piece sizes;
- stump-side processing, tree tops and breakage;
- hazard trees that have to be cut down, should be retained on site;
- piles should contain coarse wood (log diameter greater than 7.5 cm) and limbs.

### C05 FMU and B12 FMU GROUND RULE

4.2.17.2 The FHP will identify Community Fire Smart Zones (CFZ) and shall comply with direction provided in Fire Smart Community Plans. {SLS 7.3.5}

# Glossary

**Acceptable species**
List of tree species contributing to approved AACs, identified in the FMP approval decision.

**Access roads**
Access roads are those roads that are between harvest areas and have a lifespan of less than three years. The timeline shall begin at the start of the timber year following the end of the timber year when the harvest area has been declared as skid cleared by the timber disposition holder.

**Adverse effects**
Impairment of or damage to the environment, human health or safety, or property;

**Adverse ground conditions**
Situations where active operations or activities result in environmental damage to the land such as but not limited to, erosion, soil compaction or soil rutting.

**Annual allowable cut (AAC)**
The volume of timber that can be harvested under sustained-yield management in any one year, as stipulated in the pertinent approved forest management plan. In Alberta it is the quadrant cut divided by the number of years in that quadrant, usually five.

**Annual operating plan (AOP)**
A plan prepared and submitted by the timber disposition holder each year, which provides the authorization to harvest. An AOP is a requirement of the Timber Management Regulation.

**Approval**
Issued by Alberta. The approval decision is prepared outlining significant items considered in plan approval and outlining conditions to be met within specified time periods by the timber disposition holder or a decision made by Alberta on an AOP.

**As built**
An opening number accompanied by a spatial depiction of the harvest area generated either from cutover photography or from GPS technology capable of 3 m or better accuracy

**Audit**
An official examination and verification of records, activities, accounts, actions, operations, etc., against stated standards of performance and compliance.

**Bared soil**
Any soil where the organic layers and vegetation have been removed.

**Biological diversity (biodiversity)**
The variety, distribution and abundance of different plants, animals and microorganisms, the ecological functions and processes they perform, and the genetic diversity they contain at local, regional or landscape levels of analysis. Biodiversity has five principal components:

- Genetic diversity (the genetic complement of all living things)
- Taxonomic diversity (the variety of organisms)
- Ecosystem diversity (the three-dimensional structures on the earth's surface, including the organisms themselves)
- Functions or ecological services (what organisms and ecosystems do for each other, their immediate surroundings and for the ecosphere as a whole, i.e. processes and connectedness through time and space)

The abiotic matrix within which the above exists, with each being interdependent on the continued existence of the other. [Dunster]

**Borrow pit**
A small quarry or excavation, which provides material for use in the construction project. [Revised from Dunster]

**Buck**
To cut a felled or downed tree into shorter lengths.

**Buffer**
1. In protecting critical nesting habitat areas, the buffer is an area of forest land that reduces the impacts of adjacent activities on the critical area. The dangers associated with adjacent disturbances might include wind-throw or wind damage to nest trees and young birds in the nest, increased predation and loss of interior forest conditions.

2. A strip of land between two areas under different management regimes. Pesticide buffer zones are used to limit the possible drift, run-off or leachate of pesticide from a site into other areas, such as waterbodies or creeks. Streamside buffers are used to limit the effects of logging on creeks, such as siltation, loss of shading, loss of nutrient inputs from trees and degradation of riparian zones. The size and composition of the buffer zone depends on its intended function.

3. An area maintained around a sample or experimental plot to ensure that the latter is not affected by any treatment applied to the area beyond the buffer.

4. In GIS work, a new polygon computed on distance from a point, line or existing polygon.

5. In managing biosphere reserves, an area or edge of a protected area. Examples of compatible activities might include tourism, forestry, agroforestry, etc. The objective of the buffer zone is to provide added protection for the core reserve area. [Dunster]

**College/Association**
The Alberta Association of Forest Management Professionals (AAFMP). Formerly the College of Alberta Professional Foresters (CAPF) and the College of Alberta Professional Forest Technologists (CAPFT).

**Commercial thinning**
A partial cut where trees of a merchantable size and value are removed to provide an interim harvest while maintaining a high rate of growth on the remaining, well-spaced, final crop trees. Used to capture volume likely to succumb to competition pressures and be lost to forest health damaging agents.

**Commercial timber permit (CTP)**
A timber disposition issued under Section 22 of the *Forests Act* authorizing the permittee to harvest public timber.

**Compaction**
A transfer of wheel pressure to soils causing collapse of large air-filled pores, a type of disturbance when tire imprint is often invisible under the duff layer. Soil susceptibility to compaction is maximal when soil is at field capacity, which can be detected by stability of hand cast. Most of soil compaction occurs during the first passes of equipment because soil gains strength with each additional pass.

**Compartment**
Subset of the FMU used for tracking and reporting SHS variance. Also referred to as stewardship reporting compartment.

**Connectivity**
A measure of how well different areas (patches or a landscape are connected by linkages, such as habitat patches, single or multiple corridors, or “stepping stones” of like vegetation. The extent to which conditions among late successional/climax forest areas provide habitat for breeding, feeding, dispersal and movement of late successional - or climax-dependent wildlife or fish species. Natural landscapes often tend to be better connected than those that have been heavily influenced and disturbed by human activities. Consequently,

there is a body of opinion that the best way to avoid fragmentation of landscapes is to maintain, or re-establish, a network of landscape linkages. At a landscape level, the connectivity of ecosystem functions and processes is of equal importance to the connectivity of habitats. [Dunster]

**Corrective actions**
May include one or more of the following:

- Direct that the work be corrected and re-submitted.
- Carry-out an appropriate enforcement response.
- For regulated forestry professionals, file a formal complaint with the Association of Alberta Forest Management Professionals.

**Corridor**
1. A physical linkage connecting two areas of habitat and differing from the habitat on either side. Corridors are used by organisms to move around without having to leave the preferred habitat. A linear habitat patch through which a species must travel to reach habitat more suitable for reproduction and other life sustaining needs. Many corridors, linking several patches of habitat, form a network of habitats. The functional effectiveness of corridors depends on the type of species, the type of movement, the strength of the edge effects and its shape.

2. An area of uniform width bordering both or one side of a lineal feature, such as a stream or route. [Dunster]

**Cross-drainage structures**
Culverts or other drainage structures that permit water to move from one side of a road to the other, normally under the road grade.

**Deactivation**
Taking a road out of active use through implementation of erosion control measures, road blocks and/or other methods.

**Deciduous timber allocation (DTA)**
A timber disposition issued under Section 22 of the *Forests Act* authorizing the permittee to harvest public deciduous timber.

**Delegated authority**
The Government of Alberta personnel located at the regional or area level charged with supervision of all forest management activities in a defined region or area. It can also mean someone who is authorized to approve an AOP.

**Deleterious material**
Any substance that, (a) if added to water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water. [Section 34(1) of the *Fisheries Act*]

**Department License of Occupation (DLO)**
A disposition issued by Alberta under the *Public Lands Act* authorizing occupation of a linear corridor, often for an access road.

**Designated Trail**
A Designated Trail means a trail designated under section 4(1)(a) or (b) of the *Trails Act* (which will take affect May 1, 2022).

**Displaced soil**
Mixed mineral, surface and sub-surface horizons that have been deposited off the road or disturbed surface to a depth of 15 cm or greater.

**Disturbance patterns**
The spatial and temporal arrangement of disturbances.

**Ditch blocks**
Barriers constructed across ditches to retard water flow, to redirect water from the ditch or to form a small catch basin.

**Drought**
Extended period of below average precipitation causing a lowering of the water table. Generally occurs over several years but locally may happen seasonally. Signs would be lowering of lake levels and drying of streams that would normally flow all year.

**Due diligence**
May include one or more of the following:

- Taking and documenting steps to ensure that the desired outcome is achieved or that the chances of a negative consequence or outcome is minimized.
- Ensuring completeness, correctness, consistency and repeatability.
- Demonstrating how conclusions were reached.
- Using mechanisms, such as but not limited to checklists and standard operating procedures, to demonstrate that appropriate procedures were followed and to ensure that no relevant steps or considerations were missed.
- Keeping and maintaining appropriate files and filing systems as well as document retention policies and practices.

**Duff layer**
The organic horizons of the soil profile (LFH). Commonly referred to as the forest floor.

**Ecological integrity**
The quality of a natural, unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species and ecosystem diversity assured for the future. [Dunster]

**Features**
The features represented on a map which describe the physical aspects of the harvest design e.g. harvest area boundaries, roads, buffers, wildlife habitat.

**Fish passage**
Free transit of fish, upstream and downstream, associated with migration or localized movements that are necessary to complete their life cycle. Depending on the context, fish passage is also a route for fish to move between habitat types.

**Forest Area Manager**
The senior Alberta manager located at a forest area charged with supervision of all forest management activities in a forest area. It may also mean someone else who is authorized to approve an AOP.

**Forest health**
A condition of the forest; a forest is considered healthy if it can sustain itself to meet the specific forest land management objectives of today or in the future.

**Forest health damaging agents**
Biological, physiological and environmental agents that have an adverse effect on the health of the forest. These agents include insects, nematodes, micro-organisms (viruses, bacteria, fungi), parasitic plants, mammals, birds, and non-infectious disorders caused by climate, soil, applied chemicals, air pollutants and other physiographic conditions. Previously referred to as insects and diseases.

**Forest management activities**
Includes all aspects of operational planning, timber operations, road work, monitoring and reporting of timber operations. Essentially all activities during FMP implementation.

**Forest management agreement (FMA)**
A contract between the province of Alberta and the FMA holder whereby the province provides an area-based Crown timber supply. In return, the FMA holder commits to the following:

- Managing the timber resource on a perpetual sustained yield basis.

- Taking into consideration a broad range of forest values in determining forest management practices.
- Meeting defined economic objectives, including capital investment and job creation.
- Seeking out new business opportunities that provide measurable economic benefits for both the province and the FMA holder.

The FMA gives the FMA holder the right to access Crown fibre. In return, the FMA holder commits to forest management responsibilities, which may change from time to time.

**Forest management professional**
A regulated member of the Association of Alberta Forest Management Professionals on one of the following registers:

- Registered Professional Forester (RPF)
- Registered Professional Forest Technologist (RPFT)
- Registered Professional Forester Conditional (RPF-C)
- Registered Professional Forest Technologist Conditional (RPFT-C) [AAFMP]

**Forest management plan (FMP)**
A long-term plan used to outline higher-level management objectives, sustainability and timber production assumptions for a forest management agreement (FMA).

**Forest management unit (FMU)**
An administrative unit of forest land designated by the Minister, as authorized under Section 14(1) of the *Forests Act*.

**Forest officer**
An employee of Alberta appointed in accordance with the *Public Service Act*[10] who represents the Minister in the administration of the *Forests Act*, the *Timber Management Regulation*, the *Public Lands Act*, and the Forest and Prairie Protection Act and Regulations on public forested lands.

***Forests Act***
The legislative statute that authorizes the Minister to administer and manage the forested lands of Alberta.

**Full review**
An evaluation of the acceptability for approval of a submitted document involving referrals to government departments, independent experts or others as appropriate, and a risk analysis prior to Alberta granting approval to the submitting timber disposition holder.

**Ground rules**
Standards for operational planning and field practices that must be measurable and auditable and based forest management plan objectives.

**Guideline**
A preferred or advisable course of action respecting land and resource management. Guidelines imply a degree of flexibility, based on administrative judgment or feasibility of applying the guideline, and are consequently not normally enforceable through legal means.

**Harvest area**
Treed areas harvested, usually in one season, for the purpose of obtaining wood for the production of various wood products such as lumber and pulp. A specified land area with defined boundaries where timber harvesting is scheduled, or has occurred. Also referred to as a block, cutblock or opening.

**Hiding cover**
See “sight distance.”

**High water mark**
Stream course water levels corresponding to the top of the unvegetated channel or lakeshore.

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10 https://www.qp.alberta.ca/1266.cfm?page=p42.cfm&leg_type=Acts&isbncln=9780779828074&display=html

**Harvest area design**
The stands identified for harvest that meet forest management objectives in the absence of a SHS.

**Harvest level**
A volume or area of timber determined through timber supply analysis available for harvest on an annual sustainable basis within a DFA. A harvest level is not an AAC unless approved by the Minister.

**Harvest roads**
Temporary roads located within a harvest area. Formerly referred to as in-block roads.

**Inoperable**
Classification of a forest site based on the potential to harvest timber on that site, as affected by physiographic characteristics, moisture regime and harvesting equipment/technology.

**Integrated resource management (IRM)**
IRM is an interdisciplinary and comprehensive approach to decision making for the management of natural resources. IRM integrates decisions, legislation, policies, programs and activities across sectors to gain the best overall long-term benefits for society and to minimize conflicts. This approach recognizes that the use of a resource for one purpose can affect both the use of a resource for other purposes and the management and use of other resources. IRM is based on:

Co-operation, communication, co-ordination and the comprehensive consideration of all resource values. This philosophy is centered on the belief that efforts to manage natural resources will be more successful if they are co-ordinated at all levels within government; and

Appropriate consultation before action. Those who are significantly affected by a decision should have the opportunity to participate in the decision-making process.

**Integrated resource plan**
A regional plan developed by provincial government agencies in consultation with the public and local government bodies. It provides strategic policy direction for the use of public land and its resources within the prescribed planning area. It is used as a guide for resource planners, industry and publics with responsibilities or interests in the area.

**Interests**
The wants, needs, concerns and desires of each party that provide motivation to be concerned about an issue or topic.

**Issue**
The topic to be discussed. The problem to be solved. The theme of the discussion.

**Laid out**
Field assessment of harvest areas and roads (on the ground) required prior to submission of AOP; also includes the delineation/marking of both harvest area boundaries and roads on the ground. Examples of delineation/marking include but are not limited to: ribbon, paint or other means approved by Alberta.

**Landing**
Any area where logs are gathered for processing or further transport to a mill site.

**Landscape**
A landscape (or LMU) is a heterogeneous area in which the pattern of the mosaic of local ecosystems or land uses is repeated in similar form throughout kilometres wide area (after Forman 1986). Landscapes may coincide with a climatic, physiographic or ecological boundary; however, landscapes are not strictly ecologically based and include human use and modification of the area.

**Large residual tree**
A residual tree with a diameter measured at breast height (DBH) greater than the approximate average merchantable tree DBH of the harvest area.

**Logfill**
Water crossings constructed with logs placed in a channel, bed or on landscape parallel to the flow of the water.

**Mass-wasting**
Movement of large masses of land, soil or regolith (i.e., slumping, landslides, rock slides and massive undercut erosion).

**Mature stands**
Stands that have reached rotation age or have a decreasing growth rate.

**Natural variation of the landscape**
For the purpose of harvest planning, is the range of stand polygon sizes prior to harvest within the compartment boundary.

**Operational plan**
Any of GDP, AOP, or reforestation program.

**Pattern**
The arrangement of forest stands or harvest units.

**Permanent roads**
Roads that will be in use for more than three years issued under a *Public Lands Act* disposition (LOC or DLO).

**Pre-commercial thinning**
A silvicultural treatment to reduce tree density in young stands, carried out before the stems reach merchantable size. The intent is to concentrate the site's growth potential on fewer trees thereby accelerating stand development and reducing the time to final harvest, retaining more live crown, creating opportunities for future commercial thinning activities and improving stand operability.

**Provincial Base 10 strata**
An Alberta-wide standardized classification of forested stands with ten categories based on tree species composition. Also referred to as minimum strata. Assignment rules provided in the Yield Projection Interpretive Bulletin of the Alberta Forest Management Planning Standard.

**Quota**
The timber quota is a share of the allowable cut of coniferous timber within a forest management unit.

**Reclamation**
Permanent removal of water crossings; re-contouring of road crown and ditches; reseeding or planting of the former ROW.

**Recreation site**
Includes areas designated by Alberta as ecological reserves, wilderness areas, wildland parks, provincial parks, heritage rangelands, natural areas and recreation areas.

**Reforestation**
Any operation involving seed management; seedling production; site preparation; tree planting; seeding; regeneration or reforestation surveying; stand cleaning; stand tending; stand thinning; tree improvement; fertilization; drainage; pruning or site analysis that is carried out in the course of forest renewal.

**Reforestation strategy table**
For each managed stand yield stratum plus each operational stratum identified in an FMP, outlines the desired future forest condition and the series of harvest, reforestation and maintenance treatments expected to be followed in order to attain the desired outcome. Details the typical silviculture prescriptions to be implemented operationally in order to meet reforestation standards and create the desired future forest, and identifies strategies for minimizing the effects of site and climatic limitations on survival and productivity of seedlings. Previously referred to as the silviculture matrix.

**Regeneration**
The renewal of a tree crop by natural or artificial means. It may also refer to the young crop itself.

**Reserve**
In its strictest sense, an area of land designated as being off-limits to any exploitive activities that might change the nature of the area. Not all reserves are so tightly controlled. [Dunster]

**Residual structure**
Standing structure that is taller than 2 m, within a harvested area. Areas buffered for sensitive ecological or wildlife habitat may be included for residuals. Required buffers for lakes and small and large permanent streams are not included. This includes non-merchantable trees and shrubs, live merchantable trees, snags and stubs.

**Residual tree**
A live canopy tree that is spatially within a harvested area. Areas buffered for sensitive ecological or wildlife habitat may be included for residuals. Required buffers for lakes, small and large permanent streams are not included.

**Resources**
Physical and intrinsic features of the land, including but not limited to timber, wildlife, water and soil.

**Review**
Acceptance or appraisal conducted by Alberta.

**Right-of-way (ROW)**
A cleared area, usually linear, containing a road and its associated features such as shoulders, ditches, cut and fill slopes, or the area cleared for the passage of utility corridors containing power lines or over- or under-ground pipelines. Typically, the right-of-way is a specially designated area of land having very specific rights of usage attached. Rights-of-way may be owned by someone else. [Dunster]

**Riparian area or management zone**
1. Riparian areas on public land are the vegetation zones next to flowing and standing water bodies (e.g., rivers, lakes, sloughs). They are found in all natural regions of the province, from the prairies and foothills to the boreal mixed wood region. [GOA, 1997]

2. Terrestrial areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables and soils that exhibit some wetness characteristics. Normally used to refer to the zone within which plants grow rooted in the water table of these rivers, streams, lakes, ponds, reservoirs, springs, marshes, seeps, bogs and wet meadows. The riparian zone is influenced by, and exerts an influence on, the associated aquatic ecosystem. [Dunster]

**Road work**
All aspects of road planning, design, construction, maintenance and reclamation.

**Rotation**
The period of years required to establish and grow even-aged timber crops to a specified condition of maturity.

**Ruts**
Machine depressions in the soil which are determined by depth and length:

Depth - where the depth of the organic dark humus material is greater than 30 cm, a rut is a depression that shears the organic layer of soil (a sheared organic will expose a vertical face greater than 20 cm of the organic layer).Where the depth of the organic material is less than 30 cm, a rut is a depression exceeding 10 cm into the mineral soil.

Length - An impacted area meeting the rut depth criteria that is greater than 4 m long. A continuous track with a rut less than 4 m because of stumps, logs or rocks lifting the vehicle will still count as a rut if the total length of the smaller holes is greater than 4 m.

**Rutting/puddling**
A paste-like behavior of wet soil when most of the soil pores are filled with water and soil literally flows from underneath the wheel to the sides and upward forming visible tire imprint into the mineral soil. Intensity/depth of rutting is directly related to the number of equipment passes. Soil is considered susceptible to rutting when it forms a stable hand cast.

**Sensitive soil site**
Any site that may be prone to soil movement, soil erosion, mass wasting or siltation due to steep slopes, wet ground, seepage areas, springs, fine textured soils or soils prone to mass wasting.

**Sight distance**
The distance at which 90 per cent or more of an adult big game animal is hidden from the view of a human. This distance may vary from one stand to another.

**Silt fence**
Permeable fabric barriers installed along the contour to filter surface water runoff and trap sediment from sheet or overland flow and prevent it from entering streams.

**Silviculture activities**
Planting, seeding, site preparation, vegetation management, fertilization and all other activities undertaken to establish and grow forests to achieve specified management objectives, needs and values.

**Silvicultural systems**
Systems that follow accepted silvicultural principles, whereby the tree crops are tended, harvested and replaced to produce a crop of a desired form. This includes even-aged (i.e. clearcutting, shelterwood or seed tree cutting) or uneven-aged (i.e., selection cutting) systems. A planned program of silviculture treatments over the life of a stand, it includes the harvesting and the follow-up tending to the next rotation. [Smith, 1986]

**Silviculture**
The theory and practice of controlling the establishment, composition, health, structure and growth of forests in order to achieve specified management objectives.

**Site preparation**
Any action taken in conjunction with a reforestation effort (natural or artificial) to create an environment favourable for survival of suitable trees during the first growing season. This environment can be created by altering the ground cover, soil or microsite conditions; using biological, mechanical or manual clearing; prescribed burning; herbicides or a combination of methods. [Dunster]

**Skid trail**
An unimproved temporary forest trail suitable for use by equipment such as bulldozers and skidders in bringing trees or logs to a landing or road.

**Small patch of residual trees**
A patch of less than 0.2 hectares of undisturbed canopy forest surrounded by harvested area. The patch must be composed of at least four canopy trees. At least two of the trees in the patch should be large residual trees.

**Snag**
A standing dead tree that is taller than 2 metres.

**Soil displacement**
A loss of nutrient-rich organic layers, and top mineral soil as a result of harvesting activities. Bare mineral soil is susceptible to raindrop impact causing soil crusting, increased surface runoff, and erosion.

**Soil disturbance**
In the context of the five per cent maximum allowable area within a harvest area, includes bared landing areas, temporary roads, displaced soils or ruts. Includes: forest floor layers missing; evidence of surface soil removal, gouging and piling surface soil displaced; surface soil may be mixed with subsoil; and/or subsoil partially or totally exposed.

**Soil productivity**
The capacity of a soil to provide for growth.

**Spatial Harvest Sequence (SHS)**
The areas scheduled for timber harvesting for the first 20 years. Provided in the FMP.

**Species at risk**
Any species known to be “at risk” after formal detailed status assessment and designation as “Endangered” or “Threatened” in Alberta. The list of species at risk is maintained by Alberta.

**Species group**
Conifer or deciduous.

**Species of management concern**
Species within the forest management planning area that have an identified value (social, economic, ecological) and are managed to ensure their continued protection and/or use. This includes species that are hunted or trapped, as well as those that are endangered or threatened.

**Stand**
A community of trees sufficiently uniform in species, age, arrangement or condition as to be distinguishable as a group in the forest or other growth in the area. A stand may also be that polygon as defined in the AVI or Phase III inventory.

**Stub tree**
A large residual tree that has been "topped off" at approximately 6 m (may be less) to create an artificial snag.

**Sustainable forest management (SFM)**
Management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations.

**Temporary field authorization (TFA)**
An authority issued under Section 19 of the *Public Lands Act* by an Alberta officer to grant short-term land use activities on public land in the White Area or Green Area. The TFA may or may not be related to an existing disposition that has also been issued under the *Public Lands Act*. The concept is to provide field-level service to an applicant, with access to public land for a specific purpose/use/activity, for a term of less than or equal to one year.

**Temporary road**
Roads that are part of a harvest area or that connect harvest areas, and are built, used and reclaimed before expiry of the Annual Operating Plan (AOP) or reclaimed within three years of construction.

**Temporary planting camp**
Camp established to facilitate planting activities. Lifespan of the camp is less than 12 months.

**Thermal cover**
Generally, an area of at least 10 ha having a coniferous canopy at least 10 m in height, with at least 70 per cent crown closure and a minimum width of 200 m. This cover is used by animals to assist in their temperature regulation during extreme weather conditions.

**Timber disposition**
Harvesting rights in Alberta are granted through one of three forest tenure systems: forest management agreement, timber quota and Timber permit.

**Timber disposition holder**
Refers to the company that has a timber disposition.

***Timber Management Regulation***
The legislative statute that describes the mechanism and regulations by which the forested lands of Alberta are managed. The Regulation is associated with the *Forests Act*.

**Timber operation**
Any kind of activity involved in cutting, removing, harvesting, manufacturing, transporting or marketing timber or primary timber products, or reforestation.

**Trapper**
The Senior License Holder of a trapline in a Registered Fur Management Area.

**Understory**
The trees and other woody species growing under the canopies of larger adjacent trees and other woody growth. [Dunster]

**Unstable slope**
Slopes of loose or poorly consolidated materials beyond the angle of repose, geological features

having a high probability of failure, or soils that will not support loads.

**Water regime**
Timing of water flow.

**Water source area**
That portion of a watershed where soils are water-saturated and/or surface flow occurs and contributes directly to streamflow. The area of saturated interflow associated with a stream.

**Waterbody**
The bed, bank or shore of a lake, pond or other natural body of standing water, whether it contains or conveys water continuously or intermittently.

**Watercourse**
The bed, bank or shore of a river, stream, creek or other natural body of flowing water, whether it contains or conveys water continuously or intermittently.

**Watershed**
An area of land, which may or may not be under forest cover, which drains water, organic matter, dissolved nutrients and sediments into a lake or stream. The topographic boundary, usually a height of land, that marks the dividing line from which surface streams flow in two different directions. [Dunster]

**Wetland**
Land saturated with water long enough to promote wetland or aquatic processes as indicated by the poorly drained soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to a wet environment. According to the Alberta Wetland Policy, wetlands are classified as one of marsh, bog, fen, swamp or open water wetland.

**Wildlife**
Any species of amphibian, bird, fish, mammal and reptile found in the wild, living unrestrained or free roaming and not domesticated. Some definitions include plants, fungi, algae and bacteria. [Dunster]

**Wildlife corridor**
A strip of forest with a minimum width of 100 m or a series of forest retention patches that connect two forested areas. These may include merchantable or unmerchantable stems.

**Wildlife zone**
As defined on Alberta's Wildlife Sensitivity maps.

**Windfirm boundaries**
Harvest area boundaries established at locations that are stable and that minimize the potential for timber losses from wind.

**Sources**
AAFMP – Association of Alberta Forest Management Professionals

Dunster, J. and K. Dunster, 1996. Dictionary of natural resource management. UBC Press, Vancouver, B.C.

GOA – Government of Alberta, 1997. About public lands. Managing Riparian Areas.

Smith, D.M. 1986. The practice of silviculture. John Wiley and Sons. New York, N.Y., pp. 329-

# Appendix 1 FHP/AOP Template Checklists

## Forest Harvest Plan Checklist - Revised January 2016

Area _____ Disposition Number _____
Company _____ Date Disposition Issued _____
Submission Date _____ Date Disposition Expires _____

| APPROVAL ITEM | Yes/No (Company) | INITIAL/DATE (Agriculture and Forestry (AAF)) |
|---|---|---|
| 1) Has the FHP been validated by an RFP? | | |
| 2) Is the Planned SHS Variance <20% compartment/decade? | | |
| 3) Is the sum of proposed area to harvest and previously harvested area (since SHS approval) less than or equal to 100% of the SHS area? | | |
| 4) Is a Compartment Assessment required? | | |
| 5) Does the FHP adhere to all Ground Rules? | | |

| | Company (Y,N,N/A) | Company Comments (optional) | AAF (Y,N,N/A) | AAF Comments (optional) |
|---|---|---|---|---|
| **A. Administrative Considerations** | | | | |
| • Has a copy of the FHP been provided to: | | | | |
| - Area Forester? | | | | |
| - Forest Officer? | | | | |
| - Fish & Wildlife? | | | | |
| - Other? _____ | | | | |
| • Is the FHP consistent with approved higher order plans (DFMP, SHS, GDP)? | | | | |
| • Has the required disposition been issued and is active? | | | | |
| • Is the FHP complete and legible? | | | | |
| - maps | | | | |
| - block tables | | | | |
| - detailed harvest area plans (DHAP)where requested or required | | | | |
| - contingency plans | | | | |
| **B. Utilization** | | | | |
| • Has the SHS variance been reported and summarized for the FHP? | | | | |
| • Does the utilization standard match tenure document? | | | | |
| • Are the deviations from utilization standards identified, explained and justified (rub posts, high stumps, retention, etc)? If there are no deviations, enter N/A. | | | | |
| **C. Ground Rule Deviations - Complete if answered "NO" to Approval Item #5 (top of page), otherwise enter N/A** | | | | |
| • Have all the blocks containing ground rule deviations been identified? | | | | |
| • Has an explanation and justification been provided for all ground rule deviations? | | | | |
| **D. Integration with Other Users.** | | | | |
| • If the plan is not integrated, has an explanation and justification been provided? | N/A | There are no other timber disposition holders | | |
| • Has the recipient of incidental volumes and chargeability been identified? If there are none, enter N/A. | | | | |
| • Have all the effected trappers been identified and contacted? If there are none, enter N/A. | | | | |
| • Have known trapper cabins, trails and other improvements been identified and integrated into the plan? If there are none, enter N/A. | | | | |
| • Have known recreational groups been identified and contacted where issues have been observed? If there are none, enter N/A. | | | | |
| • Has a GTA been completed and grazing disposition holders been contacted (Directive SD 2011-03)? If there are none, enter N/A. | | | | |
| • Have the required historical resource assessments been completed and, if necessary, integrated into the plan? | | | | |
| • Have all issues raised by other users or the public regarding this plan been documented? If there are none, enter N/A. | | | | |
| • Have potential land use conflicts been documented and mitigated (PNT, CNT, road use agreements, etc,)? If there are none, enter N/A. | | | | |
| **E. Access Management (temporary access only)** | | | | |
| • Have access management measures been described and identified (location, timing, signage, etc)? If there are none, enter N/A. | | | | |

| | | | | |
|---|---|---|---|---|
| **F. Sensitive Sites** | | | | |
| • Have aesthetic/recreation concerns been addressed? If there are none, enter N/A. | | | | |
| • Have water source areas been identified and potential impacts mitigated? If there are none, enter N/A. | | | | |
| **G. Road Design** | | | | |
| • Have the location, design and width of temporary road corridors been identified? If there are none, enter N/A. | | | | |
| • Has a list of watercourse crossings including watercourse classification been provided? If there are none, enter N/A. | | | | |
| • Have any crossings not exempt under the *Water Act* been identified? If they are all exempt, enter N/A. | | | | |
| • Have existing access/DLOs which have been integrated into the plan been identified on the map? If there are none, enter N/A. | | | | |
| **H. Wildlife** | | | | |
| • Have wildlife zones within the planning area been identified and incorporated into the plan (as per OGR Section 7.7)? If there are none, enter N/A. | | | | |
| • Have blocks with timing restrictions been identified? If there are none, enter N/A. | | | | |
| • Have all known sensitive wildlife sites been addressed (mineral licks, raptor nests, den sites, etc)? If there are none, enter N/A. | | | | |
| **I. Insect, Disease & Fire** | | | | |
| • Does the FHP comply with direction provided in Community Firesmart Plans? If there are no plans, enter N/A. | | | | |
| • Have known insect and disease infestations been identified and described? If there are none, enter N/A. | | | | |
| • Have mitigation strategies for infestation, diseases or endangered timber been described? If there are none, enter N/A. | | | | |
| • Have debris disposal methods been identified? | | | | |
| **J. Silviculture** | | | | |
| • Have any watercourse crossings that will be maintained for silviculture purposes been identified? If there are none, enter N/A. | | | | |
| • Has a pre-harvest strata declaration been included for each opening? | | | | |

**-FHP's are approved through acceptance and will be considered approved on the date Alberta acknowledges receipt of the work.**
**-Alberta shall notify the organization by acknowledging receipt within 5 working days of submission.**
**-The notification date will be documented by Alberta as the start date for FHP approval.**
**-Alberta shall periodically check the work and supporting documentation to verify its accuracy.**
**-At any time, approval can be revoked where Alberta learns the FHP is inaccurate or deficient in content.**

## Company Validation

| Submitting RFP Validation | Company | Date |
|---|---|---|
| | | |

## AAF Validation

| Reviewing RFP Validation | Date |
|---|---|
| | |

**Note: This Checklist should reflect regional or FMA Operating Ground Rules - this is a template.**
**Note: Appraisal of the FHP is required if "No" has been indicated on any of the above Approval Items.**

## Annual Operating Plan (AOP) Checklist - Rev. January 2016

Area _____
Company _____
Disposition Number _____
Date Disposition Issued _____
Date Disposition Expires _____
Submission Date _____

| Volume Summary (m3) | Conifer | Deciduous |
|---|---|---|
| Quadrant Allowable Cut | | |
| Quadrant Production to date | | |
| Quadrant Volume Remaining | | |
| Proposed Production (AOP year) | | |

| APPROVAL ITEM | YES/NO (Company) | INITIAL/DATE (Agriculture and Forestry (AAF)) |
|---|---|---|
| Validated by RFP | | |
| AOP has an approved FHP(s) | | |

| | Company (Y,N,N/A) | Company Comments (optional) | AAF (Y,N,N/A) | AAF Comments (optional) |
|---|---|---|---|---|
| **Administration** | | | | |
| · Have digital copies of AOP been provided to: | | | | |
| - Area Forester | | | | |
| - Forest Officer | | | | |
| - other | | | | |
| · Have any FHP conditions been addressed? If there are none, entre N/A. | | | | |
| · Is the Company requesting dues relief with an explanation and justification? | | | | |
| · Has an Opening update verification been submitted - all blocks logged in the previous year cross referenced against the ARIS report? | | | | |
| · Have any amendments to AOP components been submitted and justified (reforestation program, GDP, FHP) | | | | |
| **Operating Schedule (as per section 3.5.4 c)** | | | | |
| · Has a table been submitted for all blocks scheduled for harvest including area & volume by species with totals? | | | | |
| · Has a list of temporary roads proposed for construction, maintenance & reclamation including watercourse crossings to be built or installed or removed/maintained been provided? | | | | |
| · Has a declaration of outstanding operational items, or an agreement with Alberta on reporting of outstanding operational items been provided? | | | | |
| · Have outstanding operations been identified (debris disposal, hauling, clean-up, reclamation, etc)? | | | | |
| · Are requested amendments to any AOP components explained (reforestation program, road plan, etc)? | | | | |
| **Applicable Forest Harvest Plans (as per section 3.4)** | | | | |
| · Do all blocks included in the AOP have FHP approval? | | | | |
| **Reforestation Program (as per section 8.2)** | | | | |
| · Is the proposed silviculture treatment schedule provided? | | | | |
| · Are summaries of stratum declarations, stratum changes, final stratum, QAC adjustments provided? | | | | |
| · Proposed blocks are listed for declaration in lieu of survey & re-treatment | | | | |
| · Are seed inventories sufficient as per FGRMS manual section 11.2 or otherwise approved by AAF? | | | | |
| **Wildfire Protection (as per section 7.3)** | | | | |
| · Is the Forest Protection Supplement complete and provided? | | | | |
| **Road Plan (as per section 11.2)** | | | | |
| · Are all roads scheduled to be built under authority of the AOP planned to have a lifespan of <= 3 years? | | | | |
| · Is a table tracking the status of all non DLO roads over two years old submitted? | | | | |
| · Are all required watercourse crossings documented in the monitoring program as per section 11.4.26? | | | | |
| **General Development Plan (as per section 3.3)** | | | | |
| · Has a summary of variance as per section 4.1 been provided? | | | | |
| · Has a summary of volume supply by area been provided? | | | | |
| · Has an DLO road construction and reclamation schedule been provided? | | | | |
| · Has a GDP schedule & map as per section 3.3.5 been provided? | | | | |
| · Have consultation activities been completed as per the First Nations Consultation Guidelines? | | | | |

**Company Sign Off**

Submitting RFP Validation _____ Company _____ Date _____

**AAF Sign Off**

Reviewing RFP Validation _____ Date _____

**Note: The AOP shall be appraised by Alberta in accordance to the AOP checklist, with approval subject to the outcome of the appraisal.**