



Timber harvest planning and operating ground rules

Northeast Alberta Regional
Area-Specific Addendum

Alberta 

2022

Northeast – Alberta-Pacific Forest Industries Inc.

**FOREST MANAGEMENT AGREEMENT SPECIFIC
ADDENDUM-TIMBER HARVEST PLANNING AND
OPERATING GROUND RULES**

**Alberta-Pacific Forest
Industries Inc. (ALPAC)**

**ALBERTA
AGRICULTURE, FORESTRY
AND RURAL ECONOMIC
DEVELOPMENT**

ENDORSEMENTS

Alberta Pacific Forest Industries FMA Specific Addendum-Timber Harvest Planning and Operating Ground Rules, having been prepared in accordance with Section 11 (2) of FMA 9100029, and hereby endorsed this 17th day of May, 2022. The Executive Director of Forest Stewardship and Trade Branch has determined these ground rules will apply to all operations within FMA 9100029 as well as FMU’s A6, A10, A11, A12, LO1, L9, and SO1.

Alberta-Pacific Forest Industries Inc.

HER MAJESTY THE QUEEN in right of Alberta as represented by the Minister of Agriculture, Forestry and Rural Economic Development

Original Signed

Original Signed

Per:

Per:

_____ (print name)

Ken Greenway

_____ (print name)

_____ (title)

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>

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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 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 Act², Species at Risk Act³ and Migratory Birds

² <https://laws-lois.justice.gc.ca/eng/acts/f-14/>

³ <https://laws.justice.gc.ca/eng/acts/S-15.3/>

Convention Act, 1994⁴. 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.

Authorization of the Annual Operating Plan (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 Her 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 <https://laws-lois.justice.gc.ca/eng/acts/M-7.01/page-1.html>

4.1 Timber Harvest Planning Requirements

4.1.1 Planning Process {NEAB 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.

DISCUSSION

The planning process includes five main components:

1. Approved Forest Management Plan (FMP)
 - Spatial Harvest Sequence (SHS) for first two 10-year periods;
 - Proposed Long Term Road Network.
2. General Development Plan (GDP) - The GDP gives a comprehensive description of a timber disposition holder '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)
4. Forest Harvest Plan (FHP) – The FHP is a map and associated report describing the laid out harvest plan. (See section 4.1.3)
5. Annual Operating Plan (AOP) – The AOP describes operations in detail through a series of components that shall be submitted together at the same time, or as individual submissions on a schedule approved by Alberta (see section 4.1.4):
 - a) Operating Schedule and Timber Production;
 - b) Applicable Forest Harvest Plans;
 - c) General Development Plan;
 - d) Compartment Assessments as required;
 - e) Reforestation Program;
 - f) Road Plan.

4.1.2 General Development Plan (GDP) {NEAB 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;
- 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 AACs and cut control period for each of the operators within the planning area. This could be either a joint submission by all timber disposition holders or separate submissions containing consistent information between timber disposition holders.

In addition to outlining the projected wood supply forecast, the GDP shall also include details regarding road requirements and fish and wildlife issues within the planning area. It is expected that there will be substantial discussion on significant issues with Alberta before the GDP is submitted. 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.

GROUND RULES

- 4.1.2.1 The GDP submission date is June 1 of each year unless otherwise approved by Alberta. Alberta shall respond within 30 days. The GDP shall be approved subject to an appraisal by Alberta. {NEAB 3.3.1}

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>

- 4.1.2.2 Other forest companies affected by the GDP must agree in writing (e-mail notification acceptable) to the GDP before it will be approved (see section 4.2.14). {NEAB 3.3.2}
- 4.1.2.3 It is the responsibility of the timber disposition holder to ensure that they do not exceed the allowable quadrant cut level as specified in their tenure document. {NEAB 3.3.3}
- 4.1.2.4 When a major change in a timber disposition holders 's general development strategy is proposed after the GDP is approved, a revision may be requested by Alberta. The nature of the change may require additional or amended Indigenous Consultation. {NEAB 3.3.4}
- 4.1.2.5 The GDP consists of the following: {NEAB 3.3.5}
1. Schedules with the following information:
 - g) the areas to be harvested each year of the next five-year period;
 - h) timber production summary table for all dispositions (by year);
 - i) all planned DLO road developments as per 4.2.9;
 - j) all AOP roads that are to be monitored, and all outstanding and anticipated reclamation work related to these roads and their crossings as per 4.2.10 and 2.15 of Provincial OGR;
 - k) proposed and actual volumes in satellite yards as per Directive 2016-01;
 - l) structure retention summary by FMU as per 4.2.4.7 and 4.2.4.8; and
 - m) annual SHS variance summary.

 2. A map (of appropriate scale) that shows the following:
 - a) the mill site location;
 - b) satellite yard locations as per directive 2016-01;
 - c) the timber dispositions to be operated; and
 - d) Key Wildlife Biodiversity Zones and provincially defined caribou ranges.

4.1.3 Forest Harvest Plan (FHP) {NEAB 3.4}

PURPOSE

To describe the laid out harvest and road design.

DISCUSSION

The primary components of a Forest Harvest Plan (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.

FHP's are approved through acceptance and will be considered approved on the date Alberta acknowledges receipt of the work. The notification or approval 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.

GROUND RULES

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

- a) validated by a forest management professional;
- b) additions less than 20% of the area sequenced in the SHS by strata by compartment per decade;
- c) the harvest area (ha) does not exceed 100% of the total area in the SHS or strata description table 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)

Any deviations from the ground rules shall be listed and justification provided for Alberta review. Alberta shall respond within 30 days through written approval from the Delegated Authority

Where the FHP does not meet a, b, c or d above, the FHP shall undergo a review by Alberta of the variance detailed in a, b, c and d.

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. {NEAB 3.4.2}

4.1.3.3 All FHPs submitted by timber disposition holders s who harvest more than 30,000 m³ each year from crown land, must be validated by a forest management professional. Validation means that, the OGRs were followed, the SHS was followed or variances identified, and all affected timber disposition holders s have agreed to the design. (see section 4.2.14) {NEAB 3.4.3}

4.1.3.4 All block boundaries and inter-block roads shall be laid out before submission of the FHP. {NEAB 3.4.4}

4.1.3.5 There shall be discussion to resolve significant issues with Alberta before the FHP is submitted, preferably before harvest block layout has occurred. Topics to be discussed may include (but not be limited to) the following: {NEAB 3.4.5}

- Potential SHS variance
- Integration with other operators
- Watercourse concerns/Riparian Areas
- Wildlife concerns
- Trapper Concerns
- Land Use
- Access management
- Historical resources
- Visual resources
- Public/Recreational concerns
- Retention strategies
- Understorey protection
- Slope or other topographical concerns
- Forest Health concerns

4.1.3.6 Other timber disposition holders affected by the FHP must agree, in writing, with the FHP before it will be approved (see section 4.2.14). Affected means forest companies with timber dispositions operating within the same forest management unit (FMU). {NEAB 3.4.6}

Where agreed to by Alberta, the information required by 4.1.3.6, 4.1.3.7 and 4.1.3.8 may be submitted within any of those sections. The information requested in those three sections must be submitted in a format acceptable to Alberta.

4.1.3.7 Maps shall accurately show the following information: {NEAB 3.4.7}

- a) the approved forest inventory;
- b) approved SHS and variances from the SHS;
- c) all existing DLO roads within harvest areas and harvest area boundaries for all timber operators;
- d) all proposed AOP inter-block (access) roads;
- e) uniquely numbered planned crossing locations on inter-block (AOP) roads;
- f) current dispositions and reserves, e.g., Registered Trapline boundaries, Alberta permanent sample plot locations;
- g) identified watercourses, waterbodies, springs, water source and seepage areas;
- h) locations of access control measures (if required);
- i) company current information on previously harvested areas, existing trails, seismic lines, power lines, pipelines and access routes; and
- j) applicable wildlife zones.

4.1.3.8 In addition to the FHP map, the following information is required: {NEAB 3.4.8}

- a) area (ha), and coniferous and deciduous volume for each proposed harvest area;
- b) summary table of variances from the SHS by harvest area for each FHP (see Table 1);
- c) all Public Lands Act dispositions;
- d) digital shape files for all laid out harvest area boundaries, inter-block roads, and watercourse crossing locations;

- e) description of how the CA is addressed in the FHP, if applicable;
- f) list of uniquely numbered planned watercourse crossing locations and type;
- g) description of the access control methods employed if required;
- h) description of integration with other users and how their concerns may be addressed (see section 4.2.14);
- i) summary of harvest design considerations for identified non-timber values; and
- j) location of sensitive wildlife sites as per section 4.2.6.4.

4.1.3.9 Where applicable the following comments shall be mapped and/or described for each harvest area: {NEAB 3.4.9}

- a) block comments may be included on the individual block map;
- b) layout bordering and encompassing riparian management zones when different than the standards in section 2.1 of Provincial OGR;
- c) watercourse classification and protective buffer;
- d) layout bordering restricted areas, e.g. permanent sample plots (PSPs), private land;
- e) identification of white spruce conifer understorey (see section 4.2.3);
- f) harvest area-specific structure retention;
- 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 from DLO roads;
- j) important wildlife sites as defined in section 4.2.6.4;
- k) historical site considerations;
- l) soil protection measures when any of the following are present:
 - identified unstable areas, water-source areas, springs or seepages;
 - steep or sustained slopes or grades (>30%).

4.1.3.10 Detailed block plans (DBPs) are required when there is higher than average potential for environmental damage. Circumstances that merit DBPs are: {NEAB 3.4.10}

- a) areas of steep topography requiring specific road location and construction or specialized harvesting equipment;
- 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 areas;
- e) harvest areas requiring understorey protection using protection techniques (see section 4.2.3);
- f) harvest areas located near high-value recreation areas, tourism areas, and facilities;
- 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.

The DBPs shall include a map of appropriate scale to the issue(s) and describe how the concern will be addressed in operations. DBPs must be available to Alberta upon request.

4.1.4 Annual Operating Plan (AOP) {NEAB 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 include:

- a) Operating Schedule and Timber Production - appraised – Alberta has 30 days to respond
- b) Applicable Forest Harvest Plans - accepted
- c) Compartment Assessments (if applicable) - appraised
- d) Reforestation Program - accepted
- e) Road Plan - accepted
- f) General Development Plan - appraised

Alberta's approval does not transfer the accountability for the plan or its implementation from the organization or the submitting forest management professional to Alberta or its staff. Government forest management professionals who review submissions are accountable for their reviews and any direction provided to the Organization.

For timber permit operators and small quota holders who harvest less than 30,000 m³ annually, Alberta has alternate AOP submission requirements.⁹

GROUND RULES

- 4.1.4.1 The AOP submission date is May 1 of each year unless otherwise approved by Alberta. Alberta shall respond within 30 days. The AOP shall be appraised by Alberta in accordance to the AOP checklist, (see Appendix 1) with approval subject to the outcome of the appraisal. {NEAB 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, GDP and FHPs may be different. {NEAB 3.5.2}
- 4.1.4.3 Only harvest areas and roads with FHP approval shall be scheduled for operations in the AOP submission. {NEAB 3.5.3}
- 4.1.4.4 The Annual Operating Plan shall contain the following components: {NEAB 3.5.4}
 - a) If requested by Alberta, The map(s) referred to in 4.1.3.7 above including shape files of approved FHP harvest areas where not already submitted. Shape files or other digital format approved by Alberta will be submitted.
 - b) Administrative and Timber Production Information:

⁹ TM118 form

- 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);
- 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 resource user notifications, and date of notification (see Section 4.2.5, 4.2.7 and 2.7, 2.9 and 2.10 of Provincial OGR i.e. Trapper, grazing, public etc.);
- XI. annual update of the progress of each FHP.

c) Operating Schedule – a table which outlines:

- I. list of harvest areas proposed for harvest (including opening number, area and volume by deciduous and coniferous, with totals, and approval date of FHP blocks);
- II. lists of AOP roads proposed for construction and reclamation, except in-harvest area roads. It includes watercourse 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 disposal;
- V. identification of blocks within wildlife zones with recommended timing restrictions, including a strategy to mitigate impacts if these timelines are exceeded;
- VI. location(s) of any existing or proposed temporary camps as per Section 2.12 of Provincial OGR

d) Annual Reforestation Program (see section 4.2.8.2)

e) Road Plan (see section 4.2.9)

f) GDP and 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. {NEAB 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 have been made and rationale for the change has been provided (changes can be implemented prior to notification but must be reported bi-weekly unless otherwise stated). A company supervisor shall approve amendments prior to the change being carried out. Changes shall not adversely affect buffers established for the protection of riparian areas, wildlife sites, historical resources, or aesthetic values.

Any change to the approved AOP not listed in 4.1.4.5.1 shall be treated as a major 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:

	Minor Amendments (Reportable/Notification Required)	Major Amendments (Delegated Authority Approval)
a.	Additions to the approved AOP harvest area boundary where the final gross area does not vary from the area in the approved FHP by more than 5% for blocks greater than 10 ha, or more than .5 ha for blocks less than or equal to 10 ha.	For blocks >10 ha, final gross area varies $\geq 5\%$ from FHP; for blocks ≤ 10 ha, final gross area varies >0.5ha from FHP.
b.	Operational deletions that exceed 2 ha to the approved FHP harvest area boundary.	N/A
c.	Equipment access or exterior block roads moved to existing access or conventional seismic lines where re-growth is less than 3 m.	Equipment access or exterior block roads moved to existing access or conventional seismic lines where re-growth is greater than 3 m.
d.	Exterior block roads requiring the development of new right-of-way (ROW) clearing moved up to 150 m.	Exterior block roads requiring the development of new right-of-way (ROW) clearing moved more than 150 m.
e.	Added crossings on ephemeral or intermittent watercourses	Added crossings on watercourses with higher classification than intermittent
f.	Change in scheduled season of harvest for blocks and associated roads	Change in scheduled season of harvest for blocks and associated roads with wildlife timing restrictions
g.	Movement of work camp within an approved FHP block boundary.	Movement or addition of a work camp.

4.1.4.5.2 Any amendments resulting in variances from the approved SHS must be categorized and reported as per 4.1.6.1. This ground rule does not apply to Commercial Timber Permits. All additions to a harvest area must be within the company's disposition and landbase. {NEAB 3.5.5.2}

4.1.5 Salvage Planning {NEAB 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, industrial activity or other such unforeseen disturbances. Other requirements for Mountain Pine Beetle can be found in the Action Plan for Mountain Pine Beetle, the Interpretive Bulletin: Planning Mountain Pine Beetle Response Operations and the MPB Operating Ground Rules Addendum.

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. See Directive 2007-01 for further direction on Salvage Planning for natural disturbance.

GROUND RULES

- 4.1.5.1 Salvage planning is initiated on the natural disturbance when deemed appropriate by Alberta. {NEAB 3.6.1}
- 4.1.5.2 FHPs 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. {NEAB 3.6.1}

4.1.6 Stand Utilization {NEAB 4.1}

PURPOSE

Track variance from the approved Forest Management Plan (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);
- Make decisions around Forest Harvest Plan 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 operator 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 timber disposition holder 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) or to delay harvest outside the first 10 year period (deferral) Where deletions or deferred stands consist of entire AVI polygons, specific justification is required.

Variance shall be monitored and reported where:

- 1) **SHS 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 Rules 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 **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 current operational 10 year SHS (1-10) in the approved FMP. Additions will be divided into two categories: substantial and slivers.

Actual Harvested Area is the 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 1-10-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 1-10 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. Deletions can only be included as part of future productive landbase if rationale for each deletion has been provided to and approved by Alberta, during the relevant phase of the Forest Management Plan development.

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). **Note that there are only 9 yield stratum in the Alberta-Pacific FMA.**

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 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)

Compartment - Operational subunits of a Forest Management Unit (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 1-10year Spatial Harvest Sequence (SHS) in the approved Forest Management Plan (FMP). Variance is classified into one of these three categories: Additions, Deletions or Deferrals.

GROUND RULES

4.1.6.1 For the FHP submission, the timber disposition holder shall submit a map to show the comparison of the 1-10 year SHS to the laid out harvest areas. The map shall distinguish using symbology between: {NEAB 4.1.1}

- substantial deletions;
- substantial deferrals; and
- substantial additions.

4.1.6.2 Variance shall be reported by Alberta Base 10 stratum for each FHP. The table shall include the minimum information as per Table 1. A Forest Harvest Plan will be appraised when additions exceed 20% of planned SHS 1-10 year by compartment for the particular FHP. Table 1 shall include cumulative information from all previously approved FHP's in the compartment. {NEAB 4.1.2}

4.1.6.3 Variance from the SHS shall be monitored and reported by compartment. The cumulative as-built ("actual" or most up to date based on current harvest data) variance for all FHPs shall be compiled by compartment and reported annually in the GDP. The table shall include information as per Table 1 for all compartments operated within the current FMP effective period. {NEAB 4.1.3}

Total FHP variance shall be calculated using the following:

$$SHS \text{ Variance (Additions \%)} = \frac{\text{Area of Substantial Additions}}{\text{Area of Approved 10 yr SHS}} \times 100$$

4.1.6.4 Where stands are added for harvest, preference should be for stands in the 11-20 year period. 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. Stands shall not be added without evaluating why the stand is not within in the net landbase (e.g. Meeting wildlife VOIT). {NEAB 4.1.4}

4.1.6.5 All deletions and deferrals \geq 2 ha from the SHS must be coded and tracked spatially by company to allow for compartment level roll-up, and incorporation into the next Forest

Management Plan. Deletions will be removed from the harvestable landbase or addressed in the TSA. {NEAB 4.1.5}

4.1.6.6 All FHP stands must be harvested, or tracked as variance, within 20 years of first being listed in the SHS. {NEAB 4.1.6}

Table 1.SHS Assessment

SR SHS Tracking between 2015 and 2025 (timber year)
PD 1, Year 1-10

Harvest Profile	Planned for Harvest (ha)						Asbuilts				Combined As-Built & Planned							
	Harvested Area		Variance			Harvested (ha)		SHS Assessment (Excluding Silvers)		Variance		SHS Assessment (Excluding Silvers)						
			Substantial	Silvers				Substantial	SHS Assessment (Excluding Silvers)									
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	Contributing Landbase Outside SHS	Non-Contributing Landbase	Total	SHS Variance (Additions %)	Difference in Area (Subst. Add. - D&D)	Difference in Area Total Harvested - 10yr FMP SHS	Additions	Deletions	Deferrals	SHS Variance (Additions %)	Difference in Area (Subst. Add. - D&D)	Remaining Available Area (SHS & Non-SHS)
All	All									0.00%						0.00%		
Aw/AwU	1																	
AwS	3																	
Saw	4/6																	
PjMx	2/5																	
Sw	7																	
Pj	8																	
Sb	9																	
SbFM	9A																	
**NP_c	XC																	
**NP_d	XD																	

Note: * Deletions and Deferrals to be provided in shapefile format for next FMP

**NP_c and NP_d refer to Non-Productive Conifer and Deciduous Landbase respectively. Through a "pre-blocking" exercise, some landbase that was historically classified as non-productive, was selected as part of the SHS. In many cases additions also fall under the non-productive classification.

4.2 Operational Ground Rules

4.2.1 Harvest Area Design {NEAB 7.1}

GROUND RULE

- 4.2.1.1 Converging watersheds of small permanent watercourses shall have buffers of 100m around the converging point to enhance wildlife corridors. {NEAB 7.1.1}

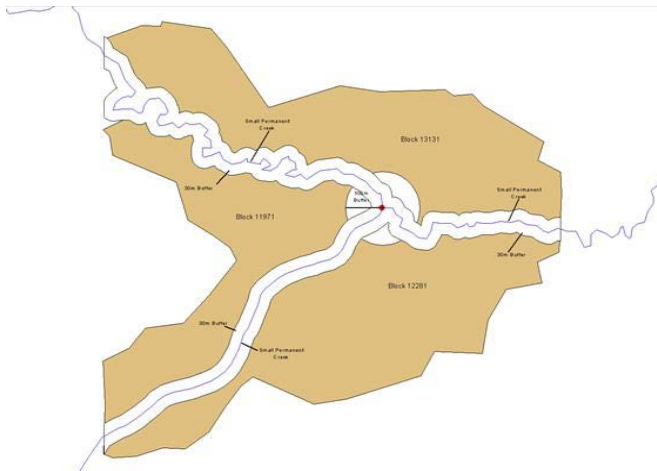


Figure 1. Wildlife Corridor Diagram

4.2.2 Visual Impacts {NEAB 5.5}

GROUND RULE

- 4.3.2.1 Highly Sensitive areas shall be assessed and tactics shall be employed in the FHP to mitigate the impacts of harvesting and reforestation on visual quality. {NEAB 5.5.1}

4.2.3 Understory Management {NEAB 7.5}

DISCUSSION

The main objective of this ground rule is to protect coniferous understories (understory) that may contribute to future forest values. Understory management must be practiced in all stand types containing white spruce understory, and balsam fir where approved by Alberta. Techniques will vary depending on stems per hectare (sph) of pre-harvest acceptable stems.

Two understory management techniques will be utilized:

- Avoidance Method – Used in deciduous harvesting containing 400 – 599 sph of pre-harvest acceptable stems or harvesting that contain greater than or equal to 600 sph of pre-harvest acceptable stems or in coniferous harvesting containing understory. Wind buffering tactics and pre-planning not specifically required. The objective is to identify and retain understories through either non-harvesting areas with understory, or harvesting of the overstory with protection from direct harvest impact of the understories at the harvest, skidding and reforestation phases.
- Protection Method (High Effort Understory Protection)– Used in deciduous harvesting containing patches greater than or equal to 600 sph of pre-harvest acceptable stems that are in blocks 10 hectares or larger. Wind buffering tactics utilizing structure retention, pre-planned strip harvest/skid trails.

High stumps may be left around clumps of understory or along skid trails as rub stumps to protect the understory during operations. Merchantable understory (15 metres or greater in height) may be harvested and treated as incidental volume or left on site within stand structure.

The “protection method” will retain at least 50% of the pre-harvest acceptable stems in the understory without harvest damage (see 4.2.3.1) when the opening will be declared post-harvest to Coniferous/Deciduous, CD. When the opening will be declared post - harvest to Deciduous/Coniferous, DC, the “protection method” will retain at least 30% but less than 50% of the pre-harvest acceptable stems in the understory without harvest damage. “Protection method” will be performed in the areas where a pre-harvest survey has verified that it contains the acceptable stems of understory and density. A monitoring program sampling a portion of stands harvested using understory protection will be done to provide information on the success. Success of understory protection will be reviewed for the stewardship report to verify that TSA assumptions in the FMP are being achieved.

Photo interpretation of all FHP harvest areas using imagery will specify which deciduous openings are targeted for understory protection. This method will only be used where acceptable imagery exists. Otherwise, the SHS will specify which deciduous openings are targeted for understory protection and confirmed through ground survey plots. Deciduous openings identified through the Alberta Vegetation Inventory (AVI) and photo interpretation processes as containing understories sufficient for “protection methods” are assumed based on area to transition post-harvest to; 15 percent to CD, 15 percent to DC and 70 percent to Deciduous, D. This is a Timber Supply Analysis (TSA) assumption.

Post-harvest acceptable stems have 50% or more live crown and less than 25% of the crown lost due to top breakage, bole scars (bark removed to the cambium) less than 10 cm (vertical length) and less than 20% of the bole circumference, and are white spruce.

The following factors shall be considered when planning for protection of white spruce understories:

1. Landbase Assignment From Approved FMP – coniferous or deciduous
2. Understory Characteristics - density and height, distribution, the health and vigour of the understory, the size and wind permeability of the crown, height-diameter ratio (slenderness coefficient)
3. Site Conditions – soil conditions that may limit rooting (e.g., depth to water table), topographic features that may enhance or diminish wind-firmness or hamper effectiveness of operations, adjacent stand features and impacts on understory wind firmness.
4. Harvest Design – harvest block size and shape that may limit ability to operate, road design and decking space limitations.

GROUND RULES

- 4.2.3.1 Sw Understory stands (≥ 600 sph) discovered in the field, but not previously identified in the SHS shall be protected as per 4.2.3.2 and 4.2.3.3. {NEAB 7.5.2}
- 4.2.3.2 Avoidance methods' shall be used to protect the white spruce understory in deciduous harvesting containing 400 to 599 stems per hectare (sph) of pre-harvest acceptable stems or where they contain greater than or equal to 600 sph of pre-harvest acceptable stems but the blocks are less than 10 hectares in size; or of an irregular shape where roads and processing areas or topography and/or soil conditions do not allow sufficient area to use High Effort Understory Protection; or in coniferous blocks containing understory. {NEAB 7.5.3}
- 4.2.3.3 Unless approved by Alberta, deciduous blocks 10 hectares or larger in size containing patches greater than 2ha with at least 600 sph of pre-harvest acceptable stems, shall utilize 'protection methods' to protect the white spruce understory. {NEAB 7.5.4}
- 4.2.3.4 The FHP shall specify harvest areas that require a detailed block plan for coniferous understory as per 4.1.3.10. {NEAB 7.5.5}

4.2.4 Structure Retention {NEAB 7.4}

PURPOSE

- To create temporary refuges for forest biota to re-colonize harvest areas.
- To maintain snags and live residual trees in harvested areas for biota that depend on these structures following natural disturbances.
- To provide wildlife thermal and hiding cover within harvest areas throughout the rotation.
- To provide wildlife travel corridors within large harvest areas and compartments.

DISCUSSION

Although many types of natural disturbance (fire, floods, avalanches, wind events, insects and disease infestations, and slumps) occur within Alberta's forests, fire is the most common. Virtually all trees within intense fires are killed, but following low and moderate-intensity fires many scattered live trees are present. In addition, within all fire types, fire "skips" or "islands" result in residual patches of live trees remaining within larger burned areas. Following other types of natural disturbances, even higher densities of live trees, and patches of live trees, are present. Approximately 30% of the birds and mammals living in Alberta's forests nest, forage or find shelter within live trees that have a basal diameter greater than 20 cm. Many of these species are able to use single large live trees and residual patches of large live trees that remain after natural disturbances.

The retention of single trees and patches of large live trees in harvest areas makes the harvested areas more similar to burned areas. In addition, residual live trees may create some old forest attributes in young regenerating harvest areas. Many of the birds, mammals, insects, beetles, fungi and nonvascular plant species that live in recently disturbed forests require large snags for food and shelter. This unique biotic community changes rapidly as the snags fall and the downed logs are incorporated into the forest floor. Some biota become rare within ten years following a fire, and many of the early colonizing species have disappeared by the time the stand is twenty years old.

Retaining some large snags within harvest areas creates habitat for some biota associated with naturally disturbed habitat. Additional large snags may be created, by retaining large live trees, as some of these trees will die throughout the rotation. To a large extent, however, it will be necessary to rely on natural disturbances to create abundant large snags for biota that depend on this dead woody material.

Where larger harvest areas are created, it is important to retain a number of individual trees, snags and residual tree patches distributed across the harvest area. These residual tree patches shall be located such that natural features, riparian areas, wildlife features, stand structure and composition, and proximity to standing forests are taken into account to maximize their utility or usefulness by the biotic community.

These ground rules describe the average number of patches per hectare of residual material that will be left within harvested areas of a landscape unit for those where this is not defined in an FMP. There may be zero patches of residual structure in any particular harvest area as long as the amount identified in the TSA is met across the landscape over time.

Current information suggests that ecological benefits are directly proportional to the amount of structure retention; ecological benefits increase with greater levels of structure retention. Larger patches of residual structure generally have more benefits than smaller patches (lower blowdown probability, interior forest characteristics, hiding and thermal cover) and patches generally have more benefit than individual stems.

GROUND RULES

- 4.2.4.1 For Alberta-Pacific and Commercial Timber Permits, an average of 5% representative of all harvested area at the FMU level by stewardship reporting period will be retained. A harvest area may have zero structure but the FMU average shall be 5%. Non merchantable structure is not to be tracked as part of the 5%. {NEAB 7.4.1}
- 4.2.4.2 Each company will have a standard operating procedure for structure retention that has been provided for information purposes. {NEAB 7.4.2}

Coniferous Quota Holders

- 4.2.4.3 For Quota Holders, an average of 3% representative of all harvested area at the FMU level by stewardship reporting period will be retained. A harvest area may have zero structure but the FMU average shall be 3%. Non merchantable structure is not to be tracked as part of the 3%. {NEAB 7.4.3}
- 4.2.4.4 High stumps created within the harvested area to distinguish harvest area boundaries or for use as rub posts (as per 2.4 of Provincial OGR) do not count towards the overall retention target. {NEAB 7.4.4}
- 4.2.4.5 Stand structure shall not be retained in harvest areas where forest health issues warrant eradication of all affected mature tree species to combat infestations and diseases (e.g., pine beetle and mistletoe). {NEAB 7.4.5}

Stand Structure Monitoring and Analysis

- 4.2.4.6 Each company shall have a monitoring program acceptable to Alberta for determining the area retained within blocks. {NEAB 7.4.6}

Stand Structure Reporting

- 4.2.4.7 Stand structure monitoring results will be reported annually by FMU in the forest companies' GDP and/or AOP, effective as of the Forest Management Plan approval date (May 17, 2018). Alberta is responsible for CTP monitoring through their AOPs. {NEAB 7.4.7}
- 4.2.4.8 Each company and the CTP program will independently report their annual results. {NEAB 7.4.8}

4.2.5 Fur Management {NEAB 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 FHP (within the RFMA). 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 may be integrated into the plan. The forest operator shall provide the trapper with a copy of the approved FHP map. {NEAB 5.3.1}

4.2.6 Species of Special Management Concern {NEAB 7.7}

Access management within Woodland Caribou and Key Wildlife and Biodiversity Zones:

GROUND RULE

- 4.2.6.1 As agreed to between the company and Alberta, effective forms of public access control for highway vehicles shall be maintained. Control of highway vehicle use of any open temporary or permanent access route may be required. All “non-traditional” (define in glossary) access routes that are open must have measures in place to prevent highway vehicle traffic. Options for access management on “traditional” routes must be considered during the CA or FHP. The need for options to manage off highway vehicle traffic must be considered in the CA or FHP. (see section 4.2.11 for more detail on Access Management) {NEAB 7.7.1.5}

Woodland Caribou

GROUND RULES

- 4.2.6.2 Areas of concentrated terrestrial lichen growth (where terrestrial lichens are the predominant ground cover) within proposed harvest areas must be delineated in the FHP. DHAPs which identify protection measures must be provided to the operator for these areas. Structure retention in harvest areas within the Caribou range should focus on these lichen areas. {NEAB 7.7.2.4}

Key Wildlife and Biodiversity Zone

BEST MANAGEMENT PRACTICES

- 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. {NEAB 7.7.4.5}
- Unless otherwise agreed to in the AOP, timber operations within Key Wildlife and Biodiversity Zones should be conducted outside of the period Jan. 15 to April 30. No activity timing restrictions apply to upland ungulate habitat designated as Special Access Zones. Operations that are approved in an AOP are not subject to this timing restriction. {NEAB 7.7.4.6}

Other Species

GROUND RULES

- 4.2.6.3 Sensitive sites listed in Table 2 of 2.8.9 of Provincial OGR shall be protected by retention of an undisturbed, forested buffer (or other management technique) from the edge of the opening associated with these sites, or from the centre of sites without openings. Both Alberta and the forest operator shall make a reasonable effort to identify sensitive sites in the FHP. Sites discovered in the field shall receive the same buffer as those sites previously identified in planning. Buffer widths and duration shall be agreed to in the FHP. {NEAB 7.7.5.1}
- 4.2.6.4 In the event that a sensitive site not previously identified during layout and is found during harvest activities it shall be identified on the self-reporting form and buffered as appropriate and feasible. {NEAB 7.7.5.2}

4.2.7 Recreation {NEAB 5.2}

GROUND RULE

- 4.2.7.1 Operational tactics to mitigate impacts on recreation and tourism shall be described in the FHP. {NEAB 5.2.1}

4.2.8 Reforestation/ Silviculture {NEAB 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 Annual Operating Plan 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 and, in conjunction with all data sources (including permanent sample plot information), the regeneration standards and post-harvest growth and yield assumptions.

4.2.8.1 Planning {NEAB 8.1}

GROUND RULES

- 4.2.8.1.1 Harvest layouts bordering previously harvested areas should avoid damaging regeneration, including reopening of reforested access. {NEAB 8.1.1}
- 4.2.8.1.2 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 from Alberta, or from a company representative pursuant to a self-inspection agreement between the company and Alberta. {NEAB 8.1.2}
- 4.2.8.1.3 Reforestation prescriptions shall be based on site assessments (pre or post-harvest) that include considerations specific to the site (e.g. Ecosite field guide for Alberta). These assessments must subsequently align with the silviculture matrix in the FMP. {NEAB 8.1.3}

4.2.8.1.4 The 'Alberta Forest Genetics Resource Management and Conservation Standards' (FGRMS) shall be adhered to in all silviculture planning and operations. The standards specify rules for seed and vegetative material collection, registration, storage, handling, and improved stock testing. {NEAB 8.1.4}

4.2.8.1.5 Notification shall be provided on the AOP checklist that FGRMS section 11.2 has been met. {NEAB 8.1.5}

4.2.8.2 Reforestation Program

GROUND RULES

4.2.8.2.1 The reforestation program shall be submitted: {NEAB 8.2.1}

- a) before March 1, if the reforestation is to commence between the following May 1 and October 31, or
- b) before September 1, if the reforestation is to commence between the following November 1 and April 30.

4.2.8.2.2 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. {NEAB 8.2.2}

4.2.8.2.3 The reforestation program shall include the following components and information: {NEAB 8.2.3}

- 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 Matrix 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, density range, and notification if outside approved seed zone
- III. Seeding – species and notification if outside approved seed zone

- IV. Leave for Natural –
- 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
- IX. Regeneration Surveys – establishment and performance
- X. Cone/cuttings Collection – (if unknown, Alberta shall be notified regarding collections as per the 'Standards for Tree Improvement in Alberta)
- 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 ARIS reporting.

If a harvest area is declared sensitive, the forest operator shall provide additional information beyond the strategic and tactical levels (see section 4.1.3.10). 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
5051002412A	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 to be constructed or 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 TM Reg 141.61(1) and harvest areas where re-treatment is proposed (per TM Reg 141.6(2).)

- 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.

4.2.8.3 Silviculture Operations

GROUND RULES

- 4.2.8.3.1 Herbicide, pesticide and fungicide use shall be performed in accordance with Alberta requirements. {NEAB 8.3.2}
- 4.2.8.3.2 Site preparation equipment shall be cleaned and free of restricted and noxious weed seed or plant parts before entry into the working area or before mobilizing between projects according to Directive 2001-06. {NEAB 8.3.3}
- 4.2.8.3.3 Site preparation creating linear disturbance patterns shall be oriented to minimize channelling of water downslope and to ensure sediment is not directly entering watercourses. {NEAB 8.3.5}

4.2.9 Road Classification, Planning And Design {NEAB 11.2}

GROUND RULES

Road Planning

4.2.9.1 Forest operators shall annually submit a proposed road development plan, with a proposed construction schedule, in the GDP. Proposed variances from the FMP long-term corridor plan require Alberta's approval. The minimum scope of the road construction schedule shall be a five-year forecast with the content requirements being: {NEAB 11.2.1}

Map showing:

- existing forest operator roads by class including un-reclaimed AOP roads;
- other existing roads if the digital information is available;
- proposed forest operator corridors;
- access control points – See section 4.2.11 Access Management.

4.2.9.2 Temporary Roads: {NEAB 11.2.2}

4.2.9.2.1 These roads shall be built as per the approved AOP. Only roads with FHP approvals shall be included in the AOP submission. Any road exceeding the timeline in 2.14 of Provincial OGR shall be put under DLO or reclaimed during that timber year. {NEAB 11.2.2.1}

4.2.9.2.2 The forest company shall submit a table or report tracking the status of all their AOP roads over two years old. These roads shall be reclaimed as soon as timber operations are complete or within three years of construction. This may be submitted as part of the Road Plan in the AOP. {NEAB 11.2.2.2 }

4.2.10 Road Construction, Maintenance, And Reclamation {NEAB 11.3}

GROUND RULE

4.2.10.1 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. {NEAB 11.3.1.1}

4.2.11 Access Management {NEAB 11.5}

GROUND RULE

4.2.11.1 Where access control has been identified as an objective in strategic land use plans, Alberta shall consult with the forest operator to determine an access control strategy. In the event that a strategic land use plan has not been developed, the FHP shall describe specific access control measures identified in the GDP or FMP (see section 4.1.3). {NEAB 11.5.1}

4.2.12 Water Crossings {NEAB 11.4}

GROUND RULE

4.2.12.1 The company shall require approval for any crossing structure not listed in Tables 9 and 10 of Provincial OGR for the appropriate watercourse type as well as described in 4.2.12.1.1.
{NEAB 11.4.1}

4.2.12.1.1 Low profile crossings are used where bank protection is achieved through simple freezing in during frozen conditions or levelling the road in non-frozen conditions. These crossings may be used on Ephemerals and Intermittents in frozen conditions as well as Ephemerals in non-frozen conditions.

4.2.13 Surface Mineable Area (SMA) {NEAB 12.0}

PURPOSE

To identify modifications to the Northeast Operating Ground Rules (NE OGR's) which are applicable within the land area where the Surface Mineable Area overlaps with any Alberta Pacific Forest Management Units (FMU).

DISCUSSION

The Surface Mineable Area (SMA) is defined by the Alberta Energy Regulator (AER) as that area where the primary oil sands resource recovery method will be surface mining rather than in-situ techniques. The SMA intersects a large area of Forest Management Unit (FMU) A16 within the Alberta-Pacific FMA 9100029 (approximately 389,000 ha).

Surface Mineable Area Planning and Guidelines are treated separately from other areas of the approved 2015 Forest Management Plan under Section 4.1.5. This is because the development of oil sands resources is a discrete land use which has led to the decision to liquidate the merchantable timber within the SMA over twenty years.

Modifications to the NE OGR's within the SMA are intended to address operational differences associated with the liquidation of the timber resource to accommodate the intended land use (mining).

Alignment to the Northeast Alberta Operating Ground Rules for the Surface Mineable Area (SMA)

As per point 8 under the Proposed SMA Operating Guidelines (Section 3.6, Chapter 7 AI-Pac FMA Forest Management Plan):

GROUND RULES

For all areas within the SMA

4.2.13.1 Reforestation program (4.2.8) not required in SMA {NEAB 12.0.1}

4.2.13.2 Understory management (4.2.3) not required in SMA. {NEAB 12.0.2}

4.2.13.3 Section 4.1 (Operational Planning) applies within the SMA. A Forest Harvest Plan (FHP) must be submitted and any planned activity within the SMA is to be included in the annual General Development Plan (GDP) and Annual Operating Plan (AOP). It is recognised that a Spatial Harvest Sequence (SHS) has not been developed for the SMA, and Section 4.1 is modified accordingly. {NEAB 12.0.3}

For areas within the SMA for which Mine Plans have been submitted

If an Oil Sands Operator has submitted Mine Plans as defined in Section 30(1) of the Oil Sands Conservation Rules to the Alberta Energy Regulator (AER) for an area of land within the SMA, then:

- 4.2.13.4 Tables 6 and 7 of Provincial OGR (Standards and Guidelines for Operating beside Watercourses/Waterbodies) are modified for that area of land such that: {NEAB 12.0.4}
- a) Timber may be harvested up to the high water mark for any Watercourse Classification. All buffers of brush and lesser vegetation specified in Tables 6 and 7 of Provincial OGR must be maintained.
 - b) A machine free zone (MFZ) of at least 5 metres from the high water mark must be maintained for all Watercourse Classifications. Wider machine free zones should be maintained where it is not necessary to come within 5 metres of the high water mark to access merchantable timber.
 - c) If an Oil Sands Operator desires that the Standards and Guidelines for Operating beside Watercourses/Waterbodies (Tables 6 and 7 of Provincial OGR) are to be followed as they would be outside of the SMA for the area (or portion thereof) within their Mine Plans, then that is their prerogative.
- 4.2.13.5 Section 4.2.2 (Visual Impacts) does not apply. {NEAB 12.0.5}
- 4.2.13.6 Section 4.2.6 (Habitat Management) does not apply. {NEAB 12.0.6}
- 4.2.13.7 Section 4.2.4 (Structure Retention) is modified for that area of land such that no retention (0%) is required. Any area for which Mine Plans have been submitted shall not be included in calculating the average structure retention for the FMU (A15) as otherwise required under Sections 4.2.4.1 and 4.2.4.4 of the NE OGRs. {NEAB 12.0.7}
- 4.2.13.7 Subsections 2.15.9 (Reclamation of AOP Roads), and 2.15.12 (Total Reclamation) of Section 2.15 (Reclamation) in Provincial OGR does not apply. {NEAB 12.0.8}

4.2.14 Deciduous/Coniferous Integration {NEAB 5.1}

GROUND RULES

For all areas within the FMA

- 4.2.14.1 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 GoA Senior Forester for discussion 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 Forester, they may appeal the decision to the Forest Area Manager. {NEAB 5.1.1}

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 effect 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.

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.

¹⁰

<https://www.qp.alberta.ca/1266.cfm?page=p42>

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

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/marketing of both harvest area boundaries and roads on the ground. Examples of delineation/marketing 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 and AOP Checklists

Forest Harvest Plan Checklist			
Area _____ Company _____ Submission Date _____	Disposition Number _____ Date Disposition Issued _____ Date Disposition Expires _____		
APPROVAL ITEM	Y/N/NA (Company)	INITIALS/DATE (SRT)	
1) Has the FHP been validated by an EFP?			
2) Does the FHP delete less than 20% of the area requested in the SHS by compartment per decade?			
3) Is the harvest area less than 100% of the total area in the SHS or strata description table by compartment per decade?			
4) Is a Compartment Assessment required?			
5) Does the FHP adhere to all Ground Rules?			
A. Administrative Considerations			
<ul style="list-style-type: none"> - Has a copy of the FHP been provided to: <ul style="list-style-type: none"> - Senior Forester? - Forest Officer? - 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? <ul style="list-style-type: none"> - maps as per 3.4.5 - additional information as per 3.4.6 and 3.4.8 - detailed harvest area plans where requested 			
B. Utilization			
<ul style="list-style-type: none"> - Has the SHS variance been reported and summarized for the FHP? - Does the utilization standard match tenure documents? - 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			
<ul style="list-style-type: none"> - 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			
<ul style="list-style-type: none"> - Have all operators agreed to the FHP? - Has the recipient of incidental values and chargeability been identified? - Have all the affected trappers been identified and contacted? - Have known trapper cabins, trails and other improvements been identified and integrated into the plan? - Have known recreational groups been identified and contacted where issues have been observed? - Has a GTA been completed and grazing disposition holders been contacted (Directive 2006-01)? - 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? - Have potential land use conflicts been documented and mitigated (PNT, CNT, road use agreements, etc.)? 			
E. Access Management (temporary access only)			
<ul style="list-style-type: none"> - Have access management measures been described and identified (location, timing, signage, etc)? 			
F. Sensitive Sites			
<ul style="list-style-type: none"> - Have aesthetic/recreation concerns been addressed? - Have water source areas been identified and potential impacts mitigated? 			
G. Road Design			
<ul style="list-style-type: none"> - Have the location, design and width of temporary road corridors been identified? - Has a list of watercourse crossings including watercourse classification been provided? - Have any crossings not exempt under the Water Act been identified? - Have existing access/DLOs which have been integrated into the plan been identified on the map? 			
H. Wildlife			
<ul style="list-style-type: none"> - Have wildlife zones within the planning area been identified and incorporated into the plan as per 7.7? - Have all known sensitive wildlife sites been addressed (mammal tracks, raptor nests, den sites, etc)? 			
I. Insect, Disease & Fire			
<ul style="list-style-type: none"> - Does the FHP comply with direction provided in Community Firewood Plans? - Have known insect and disease infestations been identified and described? - Have mitigation strategies for infestations, diseases or endangered timber been described? - Have debris disposal methods been identified? 			
J. Silviculture			
<ul style="list-style-type: none"> - Have any watercourse crossings that will be maintained for silviculture purposes been identified? - Has a pre-harvest strata declaration been included for each opening? <p style="font-size: small; margin-top: 5px;"> -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 deems the FHP is inaccurate or deficient in content. </p>			
Company Validation			
Submitting RFP Validation _____	Company _____	Date _____	
GOA 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																																																																																																																																																																														
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Company Sign Off		
_____	_____	_____
Submitting RFP Validation	Company	Date

GOA Sign Off	
_____	_____
Revisiting RFP Validation	Date

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