

**BRITISH COLUMBIA  
MINISTRY OF FORESTS, LANDS,  
NATURAL RESOURCE OPERATIONS  
AND RURAL DEVELOPMENT**

# **Tree Farm Licence 61**

held by

**Pacheedaht Andersen Timber  
Holdings Limited Partnership**

**Rationale for  
Allowable Annual Cut (AAC)  
Determination**

**Effective October 31, 2019**

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**Table of Contents**

Objective of this document ..... 3

Acknowledgement..... 3

Statutory framework..... 3

Description of the Tree Farm Licence..... 3

History of the AAC ..... 4

New AAC determination..... 4

Role and limitations of the technical information used..... 4

Guiding principles for AAC determinations ..... 4

The role of the base case ..... 8

Base case for TFL 61 ..... 9

Consideration of factors as required by Section 8 of the *Forest Act*..... 10

    Land base contributing to timber harvesting ..... 11

        - general comments ..... 11

        - forest inventory..... 12

        - low site productivity ..... 13

        - operability classification..... 13

        - existing and future roads, trails and landings..... 13

        - riparian management areas ..... 14

        - wildlife habitat areas and ungulate winter ranges..... 14

        - recreation resources ..... 15

        - cultural heritage resources ..... 16

        - research sites..... 16

        - dead potential volume..... 17

        - genetic gain..... 17

        - stand establishment..... 18

        - silviculture systems..... 18

    Integrated resource management objectives ..... 19

        - higher level plan ..... 19

        - landscape-level biodiversity ..... 20

        - scenic areas and visual resources..... 20

        - cumulative effects..... 21

        - climate change ..... 22

Other information .....	23
- First Nations .....	23
- First Nations Treaty Settlement Lands .....	24
- public comments.....	25
Alternative rates of harvesting.....	25
- harvest rules and priority .....	25
- harvest performance .....	25
Economic and social objectives.....	25
- Minister’s letter .....	25
Reasons for Decision.....	27
Determination.....	28
Implementation .....	29
Appendix 1: Section 8 of the <i>Forest Act</i> .....	30
Appendix 2: Section 4 of the <i>Ministry of Forests and Range Act</i> .....	33
Appendix 3: Minister’s letter of October 30, 2017 .....	34
Appendix 4: Information sources used in the AAC determination.....	37

**List of Tables**

Table 1. List of factors accepted as modelled.....	11
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## **Objective of this document**

This document provides an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 61. This document also identifies where new or better information is needed for incorporation in future determinations.

## **Acknowledgement**

For preparation of the information I have considered in this determination, I thank licensee staff, and staff of the British Columbia (BC) Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the “Ministry”) in the South Island Natural Resource District and the Forest Analysis and Inventory Branch. I am also grateful to First Nations, the public and staff from Pacheedaht Andersen Timber Holdings (PATH) Limited Partnership (LP) who have taken the time to make me aware of the issues unique to this TFL.

## **Statutory framework**

Section 8 of the *Forest Act* requires the chief forester to consider a number of specified factors in determining AACs for Timber Supply Areas (TSAs) and TFLs. Section 8 of the *Forest Act* is reproduced in full as Appendix 1 of this document. For the purposes of this AAC determination in accordance with Section 23(3) of the *Interpretation Act* the deputy chief forester is expressly authorized to carry out the functions of the chief forester (including those required under Section 8 of the *Forest Act*).

## **Description of the Tree Farm Licence**

TFL 61 is located on southern Vancouver Island near the communities of Port Renfrew, Jordan River, and Sooke. The total area of TFL 61 is 20 240 hectares. Elevation across the TFL ranges from sea level to 1100 metres. The TFL is administered by the South Island Natural Resource District; the District office is in Port Alberni, BC.

The primary biogeoclimatic ecosystem classification (BEC) zone, comprising about 97 percent of TFL 61, is the Coastal Western Hemlock (CWH) zone, within which there are six subzone variants: mm1, mm2, vh1, vm1, vm2 and xm2. Higher elevations of the TFL include the mm1 subzone variant of the Mountain Hemlock (MH) zone that represents about three percent of the TFL.

The Crown forest land base of TFL 61 is dominated by western hemlock (38 percent), Douglas-fir (23 percent), yellow-cedar (17 percent), western redcedar (14 percent) and balsam (six percent). Less common stand types such as Sitka spruce and deciduous make up the remaining one percent of the land base.

About 30 percent (6151 hectares) of TFL 61’s Crown forest land base consists of old forests (240+ years of age). The area of old forests is relatively evenly distributed between the timber harvesting land base (THLB) with 2902 hectares, and the non-THLB with 3249 hectares. Old forests represent about 20 percent of the THLB, and nearly 80 percent of the non-THLB. Within old forests, the most common stand types are western hemlock (51 percent), yellow-cedar (23 percent), and western redcedar (22 percent).

TFL 61 was created in May 2010. Prior to that, the TFL was Block 1 of TFL 25, which was established in 1958. In 2007, all private lands were removed from Block 1 of TFL 25. Pacheedaht Andersen Timber Holdings (PATH) Limited Partnership (LP) acquired TFL 61 in 2011. PATH is a partnership between Pacheedaht First Nation and Andersen Timber that was formed in 2010. The TFL is managed by Queesto Community Forest Ltd.

The *Forest Act's* Tree Farm Licence Management Plan Regulation requires the completion of a Management Plan and AAC determination for TFL 61 by May 2020.

### **History of the AAC**

The 2008 AAC determination for TFL 25 specified an AAC partition of 108 500 cubic metres for Block 1. This accounted for the 2007 decision by the Minister to remove of all private land from TFL 25 Block 1.

The current AAC established in May 2010 for TFL 61 is 108 500 cubic metres – the same as determined for TFL 25 Block 1.

The AAC is currently apportioned as follows: PATH with 101 103 cubic metres and a replaceable Forest Licence of 7397 cubic metres issued to Pacheedaht Forestry Limited.

### **New AAC determination**

Effective October 31, 2019, the new AAC for TFL 61 is 121 000 cubic metres. The AAC is about 11.5 percent higher than the AAC in place prior to this determination.

This AAC will remain in effect until a new AAC is determined, which must take place within 10 years of this determination. If additional significant new information is made available to me, or major changes occur in management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

### **Role and limitations of the technical information used**

Section 8 of the *Forest Act* requires the chief forester, in determining AACs, to consider biophysical, social and economic information. Most of the technical information used in determinations is in the form of a timber supply analysis and its inputs related to inventory, growth and yield, and management. The factors used as inputs to timber supply analysis have differing levels of uncertainty associated with them, due in part to variation in physical, biological and social conditions.

Computer models cannot incorporate all the social, cultural and economic factors that are relevant when making forest management decisions. Technical information and analysis, therefore, do not necessarily provide the complete answers or solutions to forest management issues that must be considered when making decisions such as AAC determinations. Such information does provide valuable insight into potential impacts of different uncertainties about or changes to resource information and management practices, and thus forms an important component of the information I must consider in AAC determinations.

In determining this AAC, I have considered the technical information provided, including any known limitations.

### **Guiding principles for AAC determinations**

Given the large number of periodic AAC determinations required for British Columbia's many forest management units, administrative fairness requires a reasonable degree of consistency of approach in addressing relevant factors associated with AAC determinations. In order to make my approach in these matters explicit, I have considered and adopted the following body of guiding principles, which have been developed over time by BC's chief foresters and deputy chief foresters. However, in any specific circumstance in a determination where I consider it necessary to deviate from these principles, I will explain my reasoning in detail.

When considering the factors required under Section 8, I am also aware of my obligation as a steward of the forests of British Columbia, of the mandate of the Ministry of Forests, Lands,

Natural Resource Operations and Rural Development (“the Ministry”) as set out in Section 4 of the *Ministry of Forests and Range Act*, and of my responsibilities under the *Forest Act*, *Forest and Range Practices Act (FRPA)*, and *Forester’s Act*.

AAC determinations should not be construed as limiting the Crown’s obligations under court decisions in any way, and in this respect, it should be noted that AAC determinations do not prescribe a particular plan of harvesting activity within the management units. They are also independent of any decisions by the Minister of Forests, Lands, Natural Resource Operations and Rural Development with respect to subsequent allocation of wood supply.

These guiding principles focus on: responding to uncertainties; incorporating information related to First Nations’ rights, titles and interests; and considering information related to integrated decision making, cumulative effects, and climate change.

#### Information uncertainty

Given the complex and dynamic nature of forest ecosystems coupled with changes in resource use patterns and social priorities there is always a degree of uncertainty in the information used in AAC determinations.

Two important ways of dealing with this uncertainty are:

- (i) managing risks by evaluating the significance of specific uncertainties associated with the current information and assessing the potential current and future social, economic, and environmental risks associated with a range of possible AACs; and
- (ii) re-determining AACs regularly to ensure they incorporate current information and knowledge, and greater frequency in cases where projections of short-term timber supply are not stable and/or substantial changes in information and management are occurring.

In considering the various factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, it is important to reflect those factors, as closely as possible, that are a reasonable extrapolation of current practices. It is not appropriate to base decisions on proposed or potential practices that could affect the timber supply but are not consistent with legislative requirements and not substantiated by demonstrated performance.

It is not appropriate to speculate on timber supply impacts that may eventually result from land-use designations not yet finalized by government. Where specific protected areas, conservancies, or similar areas have been designated by legislation or by order in council that prohibit timber harvesting, these areas are deducted from the THLB and are not considered to contribute any harvestable volume to the timber supply in AAC determinations, although they may contribute indirectly by providing forest cover that helps meet resource management objectives such as biodiversity.

In some cases, even when government has made a formal land-use decision, it is not necessarily possible to fully analyse and immediately account for the consequent timber supply impacts in an AAC determination. Many government land-use decisions must be followed by detailed implementation decisions requiring, for instance, further detailed planning or legislated designations such as those provided for under the *Land Act* and FRPA. In cases where government has been clear about the manner in which it intends land use decisions to be implemented, but the implementation details have yet to be finalized, I will consider information that is relevant to the decision in a manner that is appropriate to the circumstance. The requirement for regular AAC reviews will ensure that future determinations address on-going plan implementation decisions.

Where appropriate, information will be considered regarding the types and extent of planned and implemented silviculture practices as well as relevant scientific, empirical and analytical evidence on the likely magnitude and timing of their timber supply effects.

I acknowledge the perspective that alternate strategies for dealing with information uncertainty may be to delay AAC determinations or to generally reduce AACs in the interest of caution. However, given that there will always be uncertainty in information, and due to the significant impacts that AAC determinations can have on communities, I believe that no responsible AAC determination can be made solely on the basis of a precautionary response to uncertainty with respect to a single value.

Nevertheless, in making a determination, allowances may need to be made to address risks that arise because of uncertainty by applying judgment as to how the available information is used. Where appropriate, the social and economic interests of the government, as articulated by the Minister of Forests, Lands, Natural Resource Operations and Rural Development, can assist in evaluating this uncertainty.

### First Nations

The BC government has committed to true, lasting reconciliation with Indigenous peoples, including fully adopting and implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Reconciliation and implementation of UNDRIP will likely require changes to policies, programs and legislation, which will take time and involve engagement with Indigenous peoples. While this work is undertaken, BC is committed to fulfilling its legal obligations to consult and accommodate Aboriginal Interests consistent with the Constitution, case law, and relevant agreements between First Nations and the government of BC. Aboriginal Interests refers to Aboriginal rights and/or title or treaty rights.

Where First Nations and the Province are engaged in collaborative land and resource planning, the Province may make general commitments regarding stewardship and other aspects of resource management. Where such commitments have been made, I will consider them when determining AACs, within the scope of my statutory authority.

As is the case for land use and management planning in general, where land use zones or management objectives resulting from collaborative planning between First Nations and the Province have not been finalized, it is beyond the statutory authority of the chief forester to speculate on final outcomes. If the timber supply implications of final designations are substantial, application of the Allowable Annual Cut Administration Regulation to reduce a management unit AAC between Section 8 determinations, or a new AAC determination prior to the legislated deadline may be warranted.

Where the nature, scope and geographic extent of Aboriginal rights and title have not been established, the Crown has a constitutional obligation to consult with First Nations regarding their Aboriginal Interests in a manner proportional to the strength of those Interests and the degree to which they may be affected by the decision. The manner of consultation must also be consistent with commitments made in any agreements between First Nations and the Province. In this regard, full consideration will be given to:

- (i) the information provided to First Nations to explain the timber supply review process and analysis results;
- (ii) any information brought forward through consultation or engagement processes or generated during collaboration with First Nations with respect to Treaty rights or Aboriginal Interests, including how these rights or interests may be impacted;

- (iii) any operational plans and/or other information that describe how First Nations' Treaty rights or Aboriginal Interests are addressed through specific actions and forest practices; and,
- (iv) existing relevant agreements and policies between First Nations and the BC Government.

Treaty rights or Aboriginal Interests that may be impacted by AAC decisions will be addressed consistent with the scope of authority granted to the chief forester under Section 8 of the *Forest Act*. When information is brought forward that is outside of the chief forester's scope of statutory authority, this information will be forwarded to the appropriate decision makers for their consideration. Specific considerations identified by First Nations in relation to their Aboriginal Interests that could have implications for the AAC determination are addressed in the various sections of this rationale where it is within the statutory scope of the determination.

Established Aboriginal title lands (meaning declared by a court or defined under an agreement) and other areas, such as Treaty Settlement Lands or Indian Reserves, are not provincial Crown land. Consequently, the timber on these lands does not contribute to the AAC of the timber supply area or tree farm licence with which they overlap. Prior to establishment of Aboriginal title, it is not appropriate for the chief forester to speculate on how potential establishment of Aboriginal title in an area, either by court declaration or by agreement, could affect timber supply, given uncertainties about the scope, nature and geographic extent of title. Until land has been established as Aboriginal title land, it remains as provincial land managed by the Province, and will contribute to timber supply.

#### Integrated decision making and cumulative effects

One of the responsibilities of the Ministry is to plan the use of forest and range resources such that the various natural resource values are coordinated and integrated. In addressing the factors outlined in Section 8 of the *Forest Act*, I will consider relevant available information on timber and non-timber resources in the management unit, including information on the interactions among those resources and the implication for timber supply.

With respect to cumulative effects, I must interpret related information according to my statutory authority. As emphasized above, the chief forester is authorized only to make decisions on allowable harvest levels, not to change or institute new management regimes for which other statutory decision makers have specific authority. However, cumulative effects information can highlight important issues and uncertainties in need of resolution through land use planning, which I can note and pass to those responsible for such planning. Information on cumulative effects can also support considerations related to Aboriginal Interests.

#### Climate change

One key area of uncertainty relates to climate change. There is substantial scientific agreement that climate is changing and that the changes will affect forest ecosystems. Forest management practices will need to be adapted to the changes, and can contribute to climate change mitigation by promoting carbon uptake and storage. Nevertheless, the potential rate and specific characteristics of climate change in different parts of the Province are uncertain. This uncertainty means that it is not possible to confidently predict the specific, quantitative impacts on timber supply.

When determining AACs, I consider available information on climate trends, potential impacts to forest ecosystems and communities that depend on forests and related values, and potential management responses. As research provides more definitive information on climate change and its effects, I will incorporate the new information in future AAC determinations. Where forest practices are implemented to mitigate or adapt to the potential effects of climate change on forest



resources, or where monitoring information indicates definite trends in forest growth and other dynamics, I will consider that information in my determinations.

I note, however, that even with better information on climate change, in many cases there will be a range of reasonable management responses. For example, it is not clear if either increases or decreases to current harvest levels would be appropriate in addressing potential future increases in natural disturbance due to climate change, which appear to be likely in some areas. Hypothetically, focused harvests in at-risk forests could forestall losses of timber and allow for planting of stands better adapted to future conditions. Conversely, lower harvest levels could provide buffers against uncertainty. The appropriate mix of timber supply management approaches is ultimately a social decision.

Deciding on the preferred management approach will involve consideration of established climate change strategies, and available adaptation and mitigation options together with social, economic, cultural, and environmental objectives. Analysis will be useful for exploring options and trade-offs. Any management decisions about the appropriate approach and associated practices will be incorporated into future AAC determinations. In general, the requirement for regular AAC reviews will allow for the incorporation of new information on climate change, on its effects on forests and timber supply, and on social decisions about appropriate responses as it emerges.

### **The role of the base case**

In considering the factors required under Section 8 of the *Forest Act* to be addressed in AAC determinations, I am assisted by timber supply projections provided to me through the work of the Timber Supply Review Program for TSAs and TFLs.

For most AAC determinations, a timber supply analysis is carried out using an information package including data and information from three categories: land base inventory, timber growth and yield, and management practices. Using this set of data and a computer model, a series of timber supply forecasts can be produced to reflect different starting harvest levels, rates of decline or increase, and potential trade-offs between short- and long-term harvest levels.

From a range of possible harvest projections, one is chosen in which an attempt is made to avoid both excessive changes from decade to decade and significant timber shortages in the future, while ensuring the long-term productivity of forest lands. This is known as the base case forecast and it forms the basis for comparison when assessing the effects of uncertainty on timber supply. The base case is designed to reflect current management practices.

Because it represents only one in a number of theoretical forecasts, and because it incorporates information about which there may be some uncertainty, the base case forecast for a TFL is not an AAC recommendation. Rather, it is one possible forecast of timber supply, whose validity - as with all the other forecasts provided - depends on the validity of the data and assumptions incorporated into the computer simulation used to generate it.

Therefore, much of what follows in the considerations outlined below is an examination of the degree to which all of the assumptions made in generating the base case are realistic and current, and the degree to which any adjustments to its predictions of timber supply must be made, if necessary, to more properly reflect the current situation.

These adjustments are made based on informed judgment using currently available information about forest management, and that information may well have changed since the original information package was assembled. Forest management data are particularly subject to change during periods of legislative or regulatory change, or during the implementation of new policies, procedures, guidelines or plans.

Thus, in reviewing the considerations that lead to the AAC determination, it is important to remember that the AAC determination itself is not simply a calculation. Even though the timber supply analyses I am provided are integral to those considerations, the AAC determination is a synthesis of judgment and analysis in which numerous risks and uncertainties are weighed. Depending upon the outcome of these considerations, the AAC determined may or may not coincide with the base case. Judgments that in part may be based on uncertain information are essentially qualitative in nature and, as such, are subject to an element of risk. Consequently, once an AAC has been determined, no additional precision or validation would be gained by attempting a computer analysis of the combined considerations.

### **Base case for TFL 61**

The timber supply analysis for TFL 61 was prepared for the licensee, PATH, by Forsite Consultants Ltd. using the modelling software Patchworks™ which has been approved by Forest Analysis and Inventory Branch (FAIB) for use in timber supply review. Patchworks is a spatially explicit forest estate model used to project timber harvesting activities following current management practices including objectives for non-timber values such as biodiversity, wildlife habitat, cultural heritage resources, recreation, and visual quality. Based on the review by Ministry staff, as well as my own experience reviewing results from similar models, I am satisfied that Patchworks is capable of providing an appropriate projection of timber supply.

Harvest flow objectives in the base case are to maximize long-term timber supply while maintaining or increasing short-term timber supply subject to maintaining non-timber objectives.

Other harvest flow objectives in the base case conform to the following provincial policy:

- avoid large or abrupt distributions (>10% per 10-year period) in timber supply during the transition from short- to medium- to long-term harvest levels;
- avoid deep mid-term harvest reductions; and,
- achieve the highest harvest level while maintaining a stable inventory of growing stock.

In the base case, a harvest projection of 124 320 cubic metres per year is maintained throughout the 300-year analysis horizon. The base case harvest projection is about 14.5 percent higher than the existing AAC level of 108 500 cubic metres.

The most significant changes in the timber supply analysis for TFL 61 since the last 2008 AAC determination include:

- the Provincial Site Productivity Layer (PSPL) was used for managed stands that represent about 80 percent of the THLB; and,
- the Vegetation Resource Inventory (VRI) used in the previous analysis was updated including the use of Light Detection and Ranging (LiDAR) remote sensing to update stocking, basal area and stand height.

Other changes include use of: a spatially explicit forest estate model (Patchworks); updated growth and yield models for natural and managed stand yields; improved stream classification; updated operability mapping; use of silvicultural eras for managed stands and regeneration delay; and legal orders for wildlife habitat areas, ungulate winter ranges, old growth and visual quality.

Although there are several differences between the timber supply analysis that supported the base case relative to the last timber supply review, the main difference causing a higher harvest projection relative to the existing AAC is the use of the of the PSPL for managed stands, which resulted in higher growth and yield. In the previous timber supply review, lower site index estimates from the VRI were used for managed stands for TFL 25 Block 1.

In my determination, I have also considered several sensitivity analyses. A sensitivity analysis examines how changes in base case assumptions impact timber supply. These analyses have been helpful as I made specific considerations and reasoning in my determination as documented in the following sections. I am satisfied that the base case, and the other analyses as noted and described, represent the best information available to me respecting various aspects of the current projection of the timber supply in this TFL, and that as such they are suitable for reference in my considerations in this determination.

### **Consideration of factors as required by Section 8 of the *Forest Act***

I have reviewed the information for all the factors required to be considered under Section 8 of the *Forest Act*. Where I have concluded that the modelling of a factor in the base case is a reasonable reflection of current legal requirements, demonstrated forest management and the best available information, and uncertainties about the factor have little influence on the timber supply projected in the base case, no discussion is included in this rationale. These factors are listed in Table 1.

For other factors, where more uncertainty exists, or where public or First Nations' input indicates contention regarding the information used, modelling, or some other aspect under consideration, this rationale incorporates an explanation of how I considered the essential issues raised and the reasoning that led to my conclusions.

Table 1. List of factors accepted as modelled

<b>Forest Act section and description</b>	<b>Factors accepted as modelled</b>
8(8)(a)(i) Composition of the forest and its expected rate of growth	Non-Forest and Non-Productive Problem Forest Types Land Ownership Terrain Stability Site Productivity Assignments Natural Stand Yields Managed Stand Yields Operational Adjustment Factors for Managed Stands Minimum Harvestable Criteria Backlog and Current Non-Stocked Areas
8(8)(a)(iv) Standard of timber utilization and allowance for decay, waste, and breakage	Decay, Waste and Breakage Timber Utilization
8(8)(a)(v) Constraints on the amount of timber produced by use of the area for purposes other than timber production	Stand-Level Biodiversity Adjacent Cutblocks and Green-Up Community Watersheds Fisheries Sensitive Watersheds
8(8)(a)(vi) Any other information that, the the chief forester's opinion, relates to the capability of the area to produce timber	Unharvested Volume Carry Forward
8(8)(b) The short and long term implications to British Columbia of alternative rates of timber harvesting from the area	Alternative Rates of Harvest
8(8)(e) Abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area	Non-recoverable Losses

**Forest Act Section 8 (8)**

**In determining an allowable annual cut under this section the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider**

**(a) the rate of timber production that may be sustained on the area, taking into account**

**(i) the composition of the forest and its expected rate of growth on the area**

Land base contributing to timber harvesting

*- general comments*

The total area of TFL 61 is approximately 20 240 hectares. Of the total TFL area, about 18 545 hectares (92 percent) is considered Crown forest management land base.

The timber harvesting land base (THLB) is an estimate of the land where timber harvesting is considered both available and economically feasible, given the objectives for all relevant forest values, existing timber quality, market values and applicable technology. It is a strategic-level estimate developed specifically for the timber supply analysis and, as such, could include some areas that may never be harvested or could exclude some areas that may be harvested. As part of the process used to define the THLB, a series of deductions were made from the Crown forest

management land base. These deductions account for economic, ecological or cultural factors that reduce the forest area available for harvesting. For TFL 61, the current THLB used in the base case was 14 477 hectares. The current THLB represents about 71.5 percent of total TFL area, and about 78 percent of the Crown forest management land base.

For this determination, I accept that the approach used to determine the THLB for the base case was appropriate.

As noted under '*Role and limitations of the technical information used*', several of the factors considered influence the size of the THLB. Where I have concluded that there was an overestimate or underestimate in the land base available for harvesting, I have described my reasoning and conclusion in the sections below.

*- forest inventory*

The TFL Vegetation Resource Inventory (VRI) Phase I photo-interpretation was completed in 1998, Phase II ground sampling was completed in 1999, and Net Volume Adjustment Factor (NVAF) sampling and analysis was completed in 2010. The NVAF analysis concluded that the VRI overestimated volumes of second-growth stands and underestimated volumes of old growth stands.

As part of PATH's timber supply analysis, the TFL's VRI was updated using a combination of the NVAF analysis to update volumes; LiDAR to update stocking, basal area and stand height; and the Reporting Silviculture Updates and Land Status Tracking System (RESULTS) silviculture history records to update stand age and to reflect harvesting to January 2017. Forest cover polygon boundary adjustments were manually completed by a certified VRI interpreter based on LiDAR heights, and stand age. The updated VRI was then used to generate Variable Density Yield Prediction (VDYP) yield curves for each forest cover polygon.

Subsequent to initiating PATH's timber supply analysis, the Ministry completed a new VRI Phase I for the South Island Natural Resource District ('DSI-VRI') that includes TFL 61. No DSI-VRI Phase II ground sampling, NVAF sampling, or statistical adjustments have been completed for the new DSI-VRI as this time. The average size of the new DSI-VRI polygons is about 12.9 hectares whereas the average size of the updated TFL VRI is 6.3 hectares.

FAIB and PATH discussed use of the updated TFL VRI *versus* the use of the new DSI-VRI Phase I, and agreed that the updated TFL VRI is the best inventory to use for this timber supply analysis. Although the DSI-VRI Phase I is more current, the polygons are coarser and DSI-VRI Phase I photo-interpreted inventory has not yet been supported Phase II or NVAF ground sampling to assess its accuracy and to adjust attributes as needed. Consequently, the updated TFL VRI is likely more accurate at this time.

THLB inventory volumes for the updated TFL VRI are higher than those estimated from the DSI-VRI Phase I and are lower than those estimated from the original unadjusted Phase I TFL VRI inventory completed in 1999.

There is some indication that the updated TFL VRI underestimates timber volume in the TFL. Inventory projected volumes use VDYP for both natural and managed stands whereas the timber supply analysis models the growth and yield of managed stands using the Table Interpolation Program for Stand Yields (TIPSY). Modelled volumes for managed stands are on average 47 percent higher than inventory projected volumes for managed stands.

In discussing this factor with Ministry staff, I agree that the updated TFL VRI represents the best available information for use in support of this AAC determination. The DSI-VRI Phase I photo-interpreted inventory, although newer, is: (i) coarser than the updated TFL VRI; and (ii) has not yet been supported with Phase II ground sampling.

*- low site productivity*

Low productivity sites are areas that are unsuitable for timber harvesting due to their low growth potential or low stocking. The timber supply analysis defined low site productivity as those sites unable to achieve a harvestable volume of 350 cubic metres per hectare at 250 years of age for coniferous stands, and those sites unable to achieve a harvestable volume of 200 cubic metres per hectare at 250 years of age for deciduous stands. There is a total of 3112 hectares of low productivity sites that were deducted from the THLB in the analysis.

Information from the *Provincial Timber Management Goals, Objectives and Targets – Management Unit Targets for TFL 61* (September 2018) report indicates that the minimum volume criteria used in the analysis corresponds with actual harvest performance over the last five years. I therefore conclude that the best available information was used to classify low site productivity areas in the analysis.

*- operability classification*

As part of the timber supply analysis, PATH completed a physical operability assessment with three operability classes delineated over the TFL: operable (conventional), operable (helicopter), and inoperable. The assessment involved modifying the operability mapping applied in the previous timber supply review for TFL 25 Block 1 based on the expertise of TFL 61 management staff guided by field reconnaissance and operational planning information. The assessment estimated 18 894 hectares of operable (conventional), 812 hectares of operable (helicopter), and 534 hectares of inoperable areas. The inoperable areas were deducted from the THLB.

The inoperable area removed from the THLB in this timber supply analysis is significantly smaller than the inoperable area removed from the THLB in the last timber supply review for TFL 25 Block 1. The TFL 25 Block 1 inoperable area was 2456 hectares but this included private land - about one-third of the total area of TFL Block 1 – before private lands were removed from the TFL in 2007. As a rough estimate, a 1637 hectares inoperable area can be expected on the Crown land portion of TFL 25 Block 1 from the last timber supply review based on proportionally removing the one-third area of private lands.

FAIB asked PATH to provide a map overlaying inoperable areas from the previous timber supply review with those from the current timber supply analysis. FAIB staff note that many areas of the map that indicate a change from inoperable to operable were excluded from the THLB likely as low productivity sites or potentially unstable terrain. FAIB staff conclude that the combination of inoperable areas, low site productivity, and unstable terrain in the current timber supply analysis appear comparable to that from the previous timber supply review.

In conclusion, I note that the operability assessment applied in the base case reflects the TFL holder's recent strategic-level assessment of the operating potential from TFL 61. And that uncertainty in this factor relative to the last timber supply review should not be a concern given FAIB staff findings that the combined reductions for inoperable areas, low site productivity and unstable terrain appear comparable between this timber supply analysis and the previous timber supply review. I therefore accept this factor as modelled.

*- existing and future roads, trails and landings*

PATH maintains a dataset of existing roads within TFL 61 by road class. Existing road widths by road class were adopted from the timber supply analysis conducted for the Arrowsmith TSA for use in the analysis for TFL 61 with the road width area removed from the THLB for highway, main, branch and spur roads. The analysis assumed that 50 percent of the 120 hectares of abandoned roads would return to productive coniferous forest land.

The analysis assumed that areas within 200 metres from existing roads could be accessed without additional road infrastructure, and that areas beyond 200 metres would require additional road infrastructure. It was also assumed that operable (helicopter) areas would not need additional roads. To account for future roads, a ratio of existing road area to harvest area was calculated with this ratio applied as a reduction to future yield curves. There is currently a total of 9980 hectares harvested and reforested since 1958; within that area there are 531 hectares of road. Therefore, a 5.3 percent reduction was applied to future yield curves to account for future roads resulting in a net reduction of 767 hectares to the future THLB.

In the base case as noted above, it was assumed that 50 percent of the 120 hectares of abandoned roads would return to productive conifer forests. As no evidence was provided for this in the data package, there is uncertainty that this in fact will occur. I therefore recognize in my '**Reasons for Decision**' a negligible downward pressure on timber supply due to this factor.

Under '**Implementation**', I request the TFL holder to provide information before the next timber supply review regarding: (i) the extent to which abandoned roads are being reforested with commercially usable trees; and (ii) an actual measurement of the land base lost due to existing roads as the use of road widths for the Arrowsmith TSA may or may not be applicable to TFL 61.

*- riparian management areas*

PATH maintains an on-going stream, wetland and lake classification inventory that includes information on fish presence and riparian classification. PATH used its operational experience to reclassify some of the streams in less developed areas. Out of 1038 kilometres of streams, about 275 kilometres were reclassified from non-classified to S6 (which are non-fish bearing streams), and about 55 kilometres were reclassified from S5-S6 (non-fish bearing streams) to S3 or S4 (fish streams).

The riparian reserve zone (RRZ) and riparian management zone (RMZ) applied in the timber supply analysis are based on FRPA's Forest Planning and Practices Regulation (FPPR). To address partial harvesting in an RMZ, an Effective Riparian Management Area (ERMA) was calculated based on the RMZ width and percent retention (e.g., 40 metre RMZ width times 10 percent retention equals four metre effective retention width area). Both the RRZ and ERMA widths were summed to get a gross riparian retention width for use in the analysis. The retained area was deducted from the THLB.

As a comparison to these assumptions, data from the Forest and Range Evaluation Program (FREP) were reviewed; the FREP data suggest higher retention levels than assumed in the analysis. However, FREP sampling was minimal for TFL 61 with only five sites examined.

In reviewing this factor with Ministry staff, I conclude that the base case modelled legal requirements under the regulation but there is anecdotal FREP data that indicates actual retention levels may be higher than those requirements. Under '**Implementation**', I request that PATH: (i) use TFL specific data to verify or update stream classifications; and (ii) monitor and report actual harvest performance in RMZs for streams, wetlands, and lakes so that this can be factored into the next timber supply review.

*- wildlife habitat areas and ungulate winter ranges*

Identified wildlife refers two categories of wildlife under FRPA: Species at Risk and Regionally Important Wildlife. Through legislation and under the Identified Wildlife Management Strategy, which provides direction, policy, procedures and guidelines for managing identified wildlife, wildlife habitat areas (WHAs) and general wildlife measures have been established to minimize the effects of forest and range practices on identified wildlife. Another tool used to manage identified wildlife are designated ungulate winter ranges (UWRs) and objectives.

Ten WHAs have been established in TFL 61: four for Marbled Murrelets and six for Red-legged Frogs. The total area for the 10 WHAs is about 490 hectares, and this area was removed from the THLB as they are no harvest areas. Two UWRs have also been established in the TFL, totalling 154 hectares, that were also removed from the THLB as they are also no harvest areas.

In addition, a FPPR Section 7 Species at Risk Notice for the South Island Natural Resource District, which includes TFL 61, still applies for Marbled Murrelet. The Section 7 notice activates the objective set by government for wildlife as provided in FPPR Section 7. A forest licensee preparing a Forest Stewardship Plan (FSP) is required to address this objective consistent with the Section 7 Notice. The FPPR Section 7 Notice was not modelled in the timber supply analysis as the total amount of habitat to be retained was not specified. The FSP specifies that the Section 7 Notice that triggers the objective set by government for Marbled Murrelet will be adhered to via the four existing WHAs for Marbled Murrelet, draft old growth management areas (OGMAs), the non-THLB, and current management practices in the THLB.

With the federal *Species at Risk Act*, the management of species at risk is a shared responsibility between Canada and the Province of BC. Northern Goshawk and Marbled Murrelet currently have recovery strategies, management plans, and implementation plans in place. Additional WHAs for Northern Goshawk and Marbled Murrelet are expected in the future within TFL 61 to further address these species at risk.

In conclusion, I recognize and accept that: (i) legally established WHAs and UWRs were appropriately considered in the base case as these no harvest areas were removed from the THLB; (ii) Section 7 Notice was not modelled in the analysis and this represents a very small downward pressure on timber supply relative to the base case which I address under my '**Reasons for Decision**'; and (iii) additional impacts on timber supply are likely to occur based on future decisions to protect Northern Goshawk and Marbled Murrelet. Consistent with my '*Guiding principles for AAC determinations*', I will not account in my AAC determination for land use decisions to protect Northern Goshawk and Marbled Murrelet that have not yet been made. When those decisions are made, I can re-determine the AAC, if necessary, without a full new timber supply review.

- *recreation resources*

The Juan de Fuca Marine Trail is part of Juan de Fuca Marine Park that runs between the coastline and the TFL boundary. The park is not part of TFL 61 and does not contribute to timber supply. PATH management considerations to help protect the park boundary from the impacts of forestry operations within the TFL include: (i) wind throw hazard assessments when planning operations; (ii) riparian assessments along streams; and (iii) visual assessments where sections of the trail are located close to the boundary of the TFL.

There was public comment that the existing park size is not sufficient to protect the values of the Juan de Fuca Marine Trail; and that the area between the park and Highway 14 not be harvested as it can provide more eco-tourism and associated economic benefits to local communities. In addition to those comments, there is also Treaty Settlement Land interest within portions of the area between the park and Highway 14 (discussed later under '*First Nations Treaty Settlement Lands*'). That said, cutblocks have been harvested between the park and the highway in the past.

I recognize the importance of the Juan de Fuca Marine Trail and Park, and the measures applied by PATH to help protect the integrity of the trail. I have considered the potential for Treaty Settlement Lands between the park and the highway, and public comments regarding that area. Consistent with my '*Guiding principles for AAC determinations*', I will not account for possible future land use decisions in this determination. If a future land use decision is made, I can re-visit my AAC determination sooner than the 10 years required under the *Forest Act*. For this



determination, I conclude that the base case adequately accounts for the existing park and current management practices near the park boundary and trail.

The Kludahk Trail was established under Order as a resource feature under FRPA's Government Actions Regulation. This trail runs along the San Juan Ridge between the communities of Port Renfrew and Jordan River. The Order requires the licence holder to ensure the feature is not damaged or rendered ineffective. The Vancouver Island Land Use Plan Higher Level Plan Order established the San Juan Ridge as a Special Management Zone (SMZ) while providing objectives for mature seral retention, cutblock size, and visual quality. The mature seral retention requirements within the SMZ were modelled in the base case. I accept that this SMZ was appropriately accounted for in the base case.

*- cultural heritage resources*

A cultural heritage resource (CHR) is defined under the *Forest Act* as "an object, site or location of a traditional societal practice that is of historical, cultural or archaeological significance to the Province, a community, or an aboriginal people". CHRs include, but are not limited to, archaeological sites and traditional use sites.

PATH is working with the Pacheedaht First Nation to identify and manage sites for the supply of monumental cedar (cedar trees suitable for constructing large dugouts, large poles, spilt beams and planks). Three monumental cedar reserves, totalling 35 hectares, were deferred from harvesting for 100 years in the base case. Operationally, monumental cedar may also occur within various retention areas as such as wildlife tree patches (WTPs) and riparian reserves that may be available to the First Nation community.

Areas within TFL 61 with high archaeological potential are field surveyed by an archaeologist whose report includes management recommendations. Archaeological sites found in previous surveys total 4.1 hectares and these sites were removed from the THLB in the base case.

FAIB staff note that no incremental THLB reduction was made for undiscovered or unregistered archaeological sites or contemporary cultural heritage features such as plant gathering areas and traditional use sites.

The base case did not account for unregistered and not yet discovered archaeological sites and contemporary heritage resources in TFL 61. It is expected that a small portion of the THLB will be excluded from harvest as new archaeological sites are registered and protected. For this reason, the base case overestimates the timber supply in the short- and long-term by an unknown, though likely small, amount, and I have accounted for this in my '**Reasons for Decision**'.

*- research sites*

There are 29 active research sites, totalling 81 hectares, within TFL 61. It was assumed in the base case that most of these sites can be encompassed into other reserves such as WTPs, RRZ, RMZ, and WHAs. Based on this assumption, the research sites were not removed from the THLB.

FAIB staff note that there is potential that 12 of the larger research sites that are greater than 2.5 hectares each, and total 60 hectares, are too large to completely overlap with site level retention areas such as WTPs and RRZs.

The objectives of the research sites vary, with some designed to measure changes and implications following harvesting, and others are designed to compare unharvested areas with harvested forests. District staff cannot deny issuing cutting permits over research sites that are not formally protected.

I recognize that research sites cannot be completely protected using existing retention areas such as WTPs. Under **'Implementation'**, I request that the licensee work with the Ministry to manage existing research sites in a manner that allows research to continue at the sites for the time needed to complete the research.

*- dead potential volume*

Inventory information and yield projections do not account for the volume of dead trees that could potentially be used as sawlogs. The base case does not include any assumed contribution from the dead potential volume.

Possible sources of data about merchantable dead potential volume include inventory audit plots, VRI Phase II ground samples, permanent sample plots, and temporary sample plots. These data sources were compiled to derive estimates of dead potential volume in a 2006 Ministry report, *Summary of Dead Potential Volume Estimates for Management Units within the Coast Forest Region*. The average dead potential volume for all coastal TSAs and TFLs is 8.6 percent. Data from audit samples, and permanent and temporary sample plots were not available for TFL 61.

District staff note that the coastal average dead potential volumes may not be indicative of TFL 61 as the TFL has a higher proportion of second growth than most coastal management units. FAIB staff indicated that the coastal average values likely represent the maximum amount of volume from dead timber that could be harvested, and that there is no estimate of the amount of dead volume actually being harvested in the TFL.

I conclude that dead but potentially useable timber volume is not captured in natural stand volume estimates and was not accounted for in the base case. Ministry staff advise that a portion of the dead volume in some stands is likely economical to harvest and is being utilized. For this reason, the base case underestimates the timber supply in the short term by an unknown, but likely small, amount and I have accounted for this in my **'Reasons for Decision'**.

*- genetic gain*

Genetic gain is the percentage increase in certain traits (e.g., stem volume, pest resistance) of trees grown from select seed over those grown from wild-stand seed. The genetic gains from the use of select seed have increased over time through the Ministry's tree improvement program with the support of the Forest Genetics Council of BC. The licensee plants seedlings derived from genetically improved select seed following timber harvesting and plans to continue this practice in the future.

In the timber supply analysis, the genetic gains accounted for the base case varied by era and by tree species. For example, genetic gains from Douglas-fir select seed increased from 6.0 percent for 2001 to 2011, to 12.3 percent from 2012 to 2016. The genetic gains assumed in the base case were reviewed by Ministry tree improvement staff. For western hemlock, a 3.0 percent genetic gain was assumed in the base case for use of select seed between 2001 and 2016. The staff comment indicated that seed orchards are currently producing seed with gains of between 10 to 17 percent for western hemlock – and that the assumed gain may underestimate timber supply.

FAIB staff noted that TIPSYS-based yield estimates for managed stands do not account for natural ingress of hemlock that occurs in many planted areas. This ingress likely reduces the realized genetic gains from the use of select seed.

Based on this information, I request under **'Implementation'** that, before the next AAC determination, the licensee: (i) verify and use the genetic gains associated with Class A seed use for western hemlock; and, (ii) estimate the impact of ingress on stand development and actual realized genetic gains.

**Section 8 (8) (a) (ii) the expected time that it will take the forest to become re-established on the area following denudation**

**Section 8 (8) (a) (iii) silvicultural treatments to be applied to the area**

*- stand establishment*

In the timber supply analysis, silviculture practices were generalized for each analysis unit (AU) based on leading species, site index class, and stand history (Era). The AU stand history categories included:

- ‘mature’ for stands greater than 120 years of age;
- ‘Era 1’ for natural stands established prior to 1960 that are less than 120 years of age;
- ‘Era 2’ for managed stands established between 1960 and 2000;
- ‘Era 3’ for managed stands with genetic gain established between 2001 and 2016;
- ‘Era 4’ for future managed stands established after 2016.

The analysis assumed a two-year regeneration delay for Era 1 stands, a two-year delay for Era 2 stands, and a one-year delay for Era 3 and 4 stands; and that all existing Era 2 and 3 managed stands were 100 percent planted, and future Era 4 managed stands would be 90 percent planted with 10 percent of the stand consisting of natural regeneration.

Information in the previous Management Plan for TFL 25 indicate that 78 percent of the managed Era 2 stands were planted with 22 percent consisting of natural regeneration (i.e., not all the stands were planted as assumed in the base case). FAIB staff have advised me that the magnitude of the overestimation of timber supply in the base case due to this consideration is likely to be between 0.5 and one percent.

RESULTS data shows an average regeneration delay of 1.7 years for planted stands between 2001 and 2016 – not one year as assumed in the base case for Era 3. A sensitivity analysis examined the impact of increasing assumed regeneration delay by two years (e.g., from a one to a three-year delay for Era 3 stands); this resulted in a 2.2 percent decrease in timber supply. If a delay by 0.7 years had a proportional impact, this would result in about a 0.8 percent impact on timber supply.

There was a public comment expressing concern about climate change, survival of regeneration, and that harvested areas are not being reforested. PATH responded that on TFL 61 they plant between 900 to 1000 stems per hectare within the same year of harvesting.

In reviewing this factor with Ministry staff, I conclude as follows. In the base, it was assumed: (i) that all harvested areas between 1960 and 2000 were planted when in fact natural regeneration occurred for some stands; and, (ii) that all harvested areas between 2001 and 2016, and all future harvested areas that are planted would be regenerated in one year when in fact the average regeneration delay reported in RESULTS between 2001 and 2016 is 1.7 years. I discussed the potential impacts this would have on timber supply with Ministry staff. I have concluded in my ‘**Reasons for Decision**’ that these two considerations, in aggregate, represent about a 1.5 percent overestimation of timber supply in the long-term relative to the base case.

Under ‘**Implementation**’ I request that the licensee monitor and report regeneration delay and reliance on natural regeneration associated with future harvested areas so this information on actual performance can be factored into the next timber supply review.

*- silviculture systems*

The primary silviculture system used in the TFL is clearcut with retention. The licensee indicates a portion of the TFL is classified as ‘helicopter single-stem’ but none of these areas are shown

within the THLB. District staff note that there have been no harvest permits issued within the TFL that allow for single-stem harvesting by helicopter, and that the current FSP does not include an approved stocking standard for single stem harvesting.

Given this information, under ‘**Implementation**’, I request that the licensee monitor and report actual uses of ‘helicopter single-stem’ systems in TFL 61 so this can be considered in the next timber supply analysis.

**Section 8 (8) (a) (v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production**

Integrated resource management objectives

The Ministry is required, under the *Ministry of Forests and Range Act* (see Appendix 2), to manage, protect and conserve the forest and range resources of the Crown; and to plan the use of these resources so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated. The *Forest and Range Practices Act* (FRPA) and other legislation provide for, or enable, the legal protection and conservation of timber and non-timber values. Accordingly, the extent to which integrated resource management objectives for various forest resources and values affect timber supply must be considered in AAC determinations.

*- higher level plan*

In addition to FRPA and regulations, the primary source of direction for forest management for most of Vancouver Island, including TFL 61, is the 2000 Vancouver Island Land Use Plan (VILUP) and associated Higher Level Plan Order (HLPO).

Most of the TFL’s THLB (93 percent) consists of Resource Management Zone (RMZ) 47 – an Enhanced Forestry Zone that covers Loss Creek and lower Jordan River watersheds. The legal requirements for RMZ 47 are:

- allowance for larger cutblocks if other resources are not impacted;
- reduced green-up requirements (1.3 metres *versus* 3 metres);
- allowance for single species regeneration.

Reduced green-up requirements were modelled in support of the base case, but the other considerations were not modelled.

TFL 61 also includes the San Juan Ridge Special Management Zone (SMZ 22) that represents about three percent of the THLB. The legal requirements for SMZ 22 are:

- retain 25 to 33 percent of the forested area as mature seral forest;
- the maximum cutblock size is five hectares (clearcut) and 40 hectares (shelterwood, selection, retention);
- maintain visual quality of known scenic areas in accordance with objectives.

The model used to develop the base case assumed 25 percent mature seral forests will be retained, and accordance with visual quality objectives but did not model maximum cutblock size for the SMZ.

It is important that the HLPO legal requirements are adhered to and appropriately modelled in support of timber supply review. Under ‘**Implementation**’, I therefore request that the licensee monitor and report actual performance relative to the requirements in the Vancouver Island Land Use Plan Higher Level Plan Order prior to the next AAC determination.

*- landscape-level biodiversity*

Landscape-level biodiversity is conserved by maintaining forests with a variety of patch sizes and seral stages across a variety of ecosystems and landscapes. Given other forest management provisions that provide for a diversity of forest stand conditions, old forest retention is a key landscape-level biodiversity consideration and is a requirement under FRPA.

The 2004 Order Establishing Provincial Non-Spatial Old Growth Objectives applies to TFL 61 since there are no legally established spatial Old Growth Management Areas (OGMAs) in the TFL. The base case modelled the Provincial Non-Spatial Old Growth Order for TFL 61 including the Order's allowance for up to a two-thirds reduction of the old-seral retention target for landscape units with a low biodiversity emphasis (only one-third of the full old forest target in these landscape units needed to be met at the onset of the forecast - the full target needed to be met over three rotations). However, the Order's allowance for the reduced retention target is predicated on the need to not cause timber supply impacts. The base case harvest level projection is 14.5% greater than the existing AAC so it is questionable whether the reduced targets should have been applied in the base case.

A sensitivity analysis that examined the impact of achieving the full old-seral retention targets in the 2004 Order (i.e., by not reducing the retention target to one-third in low biodiversity emphasis landscapes) reduced timber supply by 1.4 percent relative to the base case.

Achieving the non-spatial old-seral retention targets in the Order includes contributions from old forests not in the THLB. The model supporting the base case did not disturb areas outside of the THLB yet in fact some disturbances such as from wildfires do occur. A sensitivity analysis that modelled disturbance in forests not in the THLB and achievement of the full old-seral retention targets in the Order found a 3.1 percent reduction in timber supply relative to the base case.

The licensee's current practice is to avoid harvesting in draft OGMAs that have been spatially identified for TFL 61. The licensee's FSP refers to the draft OGMAs as guidance for future harvesting. Ministry staff indicate that the draft OGMAs achieve the intent for landscape-level biodiversity for the retention of mature and old seral forests. A sensitivity analysis that retained the draft OGMAs from harvesting resulted in a 0.7 percent reduction of short-term timber supply relative to the base case. OGMAs that are legally established are generally not changed following natural disturbances.

There was public comment asking for the preservation of old growth groves in the TFL; and comment asking for an expansion of some draft OGMAs to protect old growth values.

I accept the 0.7 percent overestimation of timber supply to account for draft OGMAs in my '**Reasons for Decision**' since this best reflects current practice. Consistent with my '*Guiding principles for AAC determinations*', I will not speculate on any possible future decisions regarding the location of legally established OGMAs. These decisions, if made, can be accounted for in the next AAC determination.

*- scenic areas and visual resources*

Scenic areas and visual quality objectives (VQOs) were legally established for the South Island Natural Resource District, including TFL 61, through an Order under FRPA's Government Actions Regulation. The timber supply analysis that supported the base case applied forest cover objectives consistent with established VQOs. The forest cover objectives identify the maximum allowable disturbance area within each VQO to achieve five metre green-up depending on visual absorption capacity (VAC). For example, up to 15 percent disturbance (stands less than

five metre green-up height) is modelled for Partial Retention VQO with a moderate to high VAC, while up to 10 percent disturbance is modelled for Partial Retention VQO with a low VAC.

FAIB staff note that that VAC classes were often lumped together (e.g., moderate to high VAC) with a VQO to define maximum allowable disturbance, and that high end of maximum allowable disturbance was used in the timber supply analysis for the lower VAC class (e.g., high VAC used instead of moderate VAC).

In discussing this factor with Ministry staff, I conclude that the VQOs within scenic areas were adequately modelled in the base case. I also note that for some VQOs, the highest range of percent disturbance was used in the analysis. Under '**Implementation**', I request that, before the next AAC determination, the licensee monitor and report actual performance in scenic areas with VQOs relative to how they were modelled in the base case.

*- cumulative effects*

Cumulative effects are changes to social, economic and environmental conditions caused by the combined impact of past, present and potential human activities or natural events. The Government of British Columbia supports the phased implementation of the Cumulative Effects Framework (CEF) that aims to provide relevant information and supporting policy. The framework will ultimately provide information related to a number of environmental, social and economic factors including biodiversity, riparian conditions, water quality, air quality, fish and wildlife impacts, cultural and heritage concerns, community needs and economic development opportunities. The CEF provides resource managers with procedures and tools to inform decisions that support sustainable management and the needs of many different users.

The provincial cumulative effects team is focusing on implementing cumulative effects assessments within pilot areas across the province, building assessment procedures for values, and developing policies and procedures. A cumulative effects pilot has not been established for the West Coast including TFL 61.

Many of the current objectives and management approaches applied in TFL 61 may be mitigating the negative effects of forest development activities. Such objectives that are reflected in the timber supply analysis include: Vancouver Island Land Use Plan Higher Level Plan Order objectives for Resource Management Zones (RMZs); *Forest and Range Practices Act* (FRPA) objectives; Non-Spatial Old Growth Order objectives; visual quality objectives (VQOs); cutblock adjacency objectives; stand-level retention objectives such as for wildlife tree retention; wildlife habitat areas (WHAs); ungulate winter range (UWR) objectives; riparian reserve and management zones; reductions to the THLB to account for values such as cultural heritage resources or to reflect areas with unstable terrain.

I have considered the information on cumulative effects and I must interpret related information according to my statutory authority and my '*Guiding principles for AAC determinations*'. I note that cumulative effects pilot has not been established for the West Coast Natural Resource Region that includes TFL 61. However, work is ongoing elsewhere in the province that will improve our understanding on cumulative effects. Based on discussions with staff, I believe that at this time many of the management approaches in the TFL are thought to mitigate the negative impacts of forest development activities. A cumulative effects assessment that includes analysis of potential future condition and coordinated response across natural resource sectors is not warranted at this time. I conclude that the base case reflects current management, the current status of the effects of past and present industrial activity on the land base, and the legal objectives established by government for various non-timber resources. Based on this information, I will make no additional adjustments to the base case to account for cumulative effects. Changes in

management as the implications of cumulative effects are more directly considered, can be addressed in future AAC determinations.

*- climate change*

Climate change predictions suggest that forest ecosystems will be impacted in a number of different ways as a result of increased temperatures, altered precipitation patterns, and increased frequency and severity of disturbances. Although research is ongoing, it is difficult to determine the magnitude of the climate changes and the implications for forests as a significant amount of uncertainty still exists.

Projections for the mid-century suggest we will continue to see increased spring precipitation, reduced winter snowpack, and earlier snowpack melt; these factors influence growing season length, streamflow, and water supply to trees. In general terms, a longer growing season may benefit many tree species. However, this benefit will likely be offset by increased summertime drought conditions, which appear as a result of generally lower summer precipitation and lower winter snowpack. The stand impacts of forest pests, such as dwarf mistletoe, is also predicted to increase as altered precipitation levels stress and weaken stands established under previously existing climatic conditions.

Models suggest that there will be a reduction in the amount of area with the current climate of Alpine and Mountain Hemlock biogeoclimatic zone and an increase in the area with a climate of the Coastal Western Hemlock biogeoclimatic zone.

At the species level, Douglas-fir is expected to continue growing well under warmer temperatures even with increased summertime drought stress conditions. Western hemlock, western redcedar, and grand fir are likely to show increasing levels of drought stress, particularly on mesic to drier sites, resulting in slower growth with significant pulses of mortality when climate cycles generate a series of hot, dry years. Suitable trees at any given point in time may become maladapted by rotation age, creating additional uncertainty and complexity for management. For example, yellow-cedars from Alaska to Seymour Inlet are dying as snowpack declines due to the warmer winters allowing frost to damage roots.

There is a large amount of uncertainty surrounding the short- and long-term impacts from climate change but it is important to encourage dialogue to develop climate change mitigation and adaptation strategies through stakeholder engagement forums (e.g., Coast Operational Issues Forum, Forest Management Leadership Teams).

To assist forest managers develop future forests that are better adapted to climate change, the Ministry has developed Climate Based Seed Transfer (CBST). CBST promotes healthy, resilient and productive forests and ecosystems through the matching of seed sources (seedlots) to climatically suitable planting sites. CBST is currently an option that can be used for seed use; it is expected to be the Chief Forester's Standard for Seed Use by 2021. The Ministry is also developing the Climate Change Informed Species Selection (CCISS) tool that will be linked to CBST. The tool will assist forest managers decide on the best species to plant given various climate change projections.

While projected climate change will likely affect forest productivity and growth, the dynamics of natural disturbances, forest pests and hydrological balances (e.g., drought stress), the mean, magnitude, extent and timing of these impacts is uncertain. I accept that the best approach in the short term is to monitor for changes to enable timely adaptive responses and to undertake analysis to increase our understanding over time. In general, the requirement for regular AAC reviews will allow for the incorporation of new information on climate change and its effects on forests and timber. On-going observations, data collection, analysis and discussions through various collaborative teams will play a critical role in ensuring we are able to respond to predicted

implications for timber supply. The use of CBST and CCISS should help forest managers develop future forests to better adapt to a changing climate.

**Section 8 (8) (a) (vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber**

Other information

*- First Nations*

The Crown maintains a duty to consult with and accommodate, as necessary, those First Nations for whom it has knowledge of claimed Aboriginal Interests that may be impacted by a proposed decision, including strategic-level decisions such as AAC determinations. The AAC determination as a strategic decision sets the stage for other decisions such as AAC apportionment and disposition, leading to issuance of cutting authorities. AAC determinations do not determine particular harvesting areas or patterns, and as a result do not relate directly to the manner in which timber is utilized or managed on the ground. The relationship to claims of Aboriginal title is not a direct one. The AAC considers the sustainable harvest level from a geographic area which may include lands claimed as Aboriginal title lands but not yet declared by a court to be such. While under claim, such lands remain Crown lands and are part of the harvestable land base. Whether timber is ultimately harvested from those lands is an issue that is subject to allocation decisions, and the AAC determination does not determine that matter.

The AAC can affect various resource values and therefore the ability of Aboriginal peoples to meaningfully exercise their Aboriginal rights. Information gained through consultation with potentially affected First Nations about Aboriginal Interests has been considered in the development of this determination.

Two First Nations have traditional territories that overlap with TFL 61: the Pacheedaht First Nation, and the T'Souke First Nation. The Pacheedaht First Nation's traditional territories include nearly all of TFL 61. The T'Souke First Nation's traditional territories include the eastern portion of TFL 61.

T'Souke First Nations are part of the Douglas Treaty signed in 1850 with treaty rights to hunt over unoccupied lands and carry out fisheries within their traditional territories that include a portion of TFL 61. Both First Nations are negotiating at Stage 5 (Negotiation to Finalize a Treaty) in the BC Treaty Commission Process.

Engagement with both First Nations regarding the timber supply review for TFL 61 was conducted in accordance with the Forest Consultation and Revenue Sharing Agreement (FCRSA) signed by each First Nation. The Pacheedaht First Nation also has a First Nation Strategic Forestry Initiative Agreement signed in 2018.

District staff led the consultation process for TFL 61 Draft Management Plan and the timber supply review supporting this AAC determination. Consultations began on December 16, 2016 with an overview letter sent to both First Nations explaining the timber supply review process.

Consultation on the Information Package was initiated by e-mail to both First Nations on August 29, 2017 with a request for a response within 60 days. Consultation on the draft Management Plan began by e-mail with both First Nations on February 7, 2019 with a request for a response within 60 days. A reminder e-mail was sent to both First Nations on March 8, 2019.

In the correspondence with First Nations, District staff: (i) provided a summary of the initial review of available information regarding First Nations interests, and an initial assessment of the potential impact the Management Plan and subsequent AAC determination for TFL 61 may have on the First Nations' interests; and (ii) included the suggested level of consultation deemed



appropriate for each First Nation given the initial review of available information and the consultation process specified in the FCRSAs.

On June 27, 2019 an e-mail was sent to both First Nations communicating errors discovered in the timber supply analysis work documented in the draft Management Plan sent February 7, 2019. The e-mail included the corrected timber supply analysis. Correcting the errors resulted in a higher (4.5 percent) short-term harvest projection and a lower (16.5 percent) long-term harvest projection. The e-mail requested that any comments or concerns related to the updated reports be provided by July 11, 2019. No concerns or further information were identified through First Nation consultation.

In summary, both First Nations were consulted at the Information Package stage of the timber supply review, and on the draft Management Plan that included the timber supply analysis for TFL 61. The only response from First Nations was from the T'Souke First Nations on October 31, 2017 asking if the Management Plan was available for review.

As noted above, District staff did an initial assessment of the potential impact on First Nations' interests from the TFL 61 Management Plan approval and the AAC determination. District staff concluded that the impact from these decisions on the T'Souke First Nation Douglas Treaty rights to hunt and fish would be minor. The FCRSA with the T'Souke First Nation provides accommodation for potential impacts to their Douglas Treaty rights resulting from forestry activities in their asserted traditional territory.

District staff concluded that a decision to approve the Management Plan and an AAC determination would have no adverse impact to Pacheedaht First Nation's asserted Aboriginal rights and a minor impact to their asserted Aboriginal title. Pacheedaht First Nation is a partial owner of PATH – the licensee for TFL 61. The Pacheedaht First Nations would benefit from ongoing forestry activities occurring within TFL 61, and as part-owner they have the ability to influence operational activities including the location and timing of harvesting.

In reviewing the First Nations consultation process with District staff, I conclude that both First Nations were consulted in accordance with current provincial guidance and applicable case law. I am satisfied that consultation have been carried out in good faith and the Crown's process of seeking to understand potentially outstanding issues and impacts was reasonable.

District staff believe any adverse impacts on Aboriginal Interests stemming from forest development activities that occur subsequent to the AAC determination, can be appropriately mitigated or minimized through existing legislation, planning documents, and meaningful engagement at the operational level. I concur with that view. I also note that both First Nations have a FCRSA that provides an accommodation for potential impacts to Aboriginal Interests resulting from forestry activities in their traditional territories.

*- First Nations Treaty Settlement Lands*

On June 28, 2019, the Ditidaht and Pacheedaht First Nations signed an Agreement in Principle (AIP) for a treaty with the Government of Canada and the Government of British Columbia. The AIP lays out the elements that will be included in a separate treaty agreement with each of the two First Nations. These elements include ownership and co-operative management of land and resources, self-government, and jurisdiction over a range of subject matters, harvesting rights, cultural and heritage protection, economic development opportunities and capital transfer. The AIP suggests some Crown lands will be transferred to Pacheedaht First Nations on the effective date of the treaty. Some of this land, about 234 hectares, is in TFL 61. In keeping with my '*Guiding principles for AAC determinations*', until provincial forest land has been established as Aboriginal title land, it remains land managed by the Province, and will contribute to timber supply.

*- public comments*

The public was provided an opportunity to comment on the draft Information Package, and the draft Management Plan including the timber supply analysis for TFL 61. I address the comments received under the appropriate factors as noted in this rationale. I am satisfied that suitable opportunities were provided to the public to comment on the timber supply review for TFL 61, and that the comments that were provided were appropriately considered in support of my decision.

**Section 8 (8) (b) the short and long-term implications to British Columbia of alternative rates of timber harvesting from the area**

Alternative rates of harvesting

*- harvest rules and priority*

The Patchworks model used in the timber supply analysis selected stands for harvest to best meet the multiple objectives established in the model. An ‘oldest first’ harvest rule, which prioritized the harvest of the oldest available stands, was not applied in the base case. Nevertheless, the harvest flow objective, which was to maximize long-term timber supply while maintaining or increasing short-term timber supply, meant that most stands older than 200 years of age were harvested in the first decade of the base case forecast.

Recent practice by the licensee over the last five years is to harvest about 50 percent from old stands and about 50 percent from stands younger than 120 years of age. This mix is often driven by economics. A sensitivity analysis that capped the harvest of old growth to 40 percent did not impact the harvest level projection in the base case. I believe this alternative harvest rule not only better reflects current practice but is more desirable from a stewardship perspective than the harvest rules used in the base case that effectively liquidates old forests in the THLB as quickly as possible. Given the above, under ‘**Implementation**’, I request that the licensee monitor and report on harvest levels in second-growth and old-growth forests in support of the next timber supply review.

*- harvest performance*

The Ministry’s *Provincial Timber Management Goals, Objectives & Targets* document indicates that the harvested volumes by species should be reflective of the inventory profile in the THLB. Western redcedar represents about 25 percent of harvested volumes between 2010 and 2017, yet only about 16 percent of the inventory profile greater than 60 years of age in the THLB. Given this disparity, under ‘**Implementation**’, I request that the licensee harvest western redcedar at a level that better matches the inventory profile before the next timber supply review.

**Section 8 (8) (c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities**

This section of the *Forest Act* has been repealed [2003-31-2 (B.C. Reg. 401/2003)]

**Section 8 (8) (d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia**

Economic and social objectives

*- Minister’s letter*

The Minister of Forests, Lands, Natural Resource Operations and Rural Development (and the former Minister of Forests, Lands and Natural Resource Operations) have expressed the economic and social objectives of the Crown for the Province, in letters dated October 30, 2017,

and April 12, 2013. The April 12, 2013 letter is focused on the Nanwakolas Reconciliation Protocol that is not specific to TFL 61.

In the letter dated October 30, 2017 (Appendix 3), the Minister emphasizes the BC government's commitment to building a strong, sustainable innovative economy and creating well-paid jobs in the Province. The letter identifies government's three objectives for the management of BC's forests and Crown lands that are relevant to AAC determinations. These are:

- modernizing land-use planning to effectively and sustainably manage BC's ecosystems, rivers, lakes, watersheds, forests and old growth forests;
- expanding investments in reforestation; and,
- collaborating to develop strategies to manage wildlife resources and habitat.

The October 30, 2017 letter also asks the chief forester to do the following when making an AAC determination:

- ensure that the Ministry's approved strategies for delivering its forestry objectives are integrated into the timber supply review process;
- ensure AAC determinations take into consideration relevant agreements between First Nations and the Government of BC, and court decisions that define Aboriginal title and rights; and in addition, support government's commitment to moving forward on reviewing policies, programs and legislation to determine how to bring the principles of the United Nations Declaration on the Rights of Indigenous Peoples into action for AAC determinations;
- consider traditional knowledge and other input from BC First Nation communities and organizations as they pertain to the AAC determination;
- consider how AAC determinations can support government's objective to focus on planning and sustainable resource management in a way that supports robust forest recovery and timely and effective responses to emerging threats from factors such as insect infestations and wildfire while promoting forest health and values;
- ensure the timber supply review process incorporates the best available information on climate change and the cumulative effects of multiple activities on the land base and explores management options that align with established climate change strategies, adaptation and mitigation practices;
- where the cumulative effects of timber harvesting and other land-based activities indicate a risk to natural resource values, ensure the timber supply review identifies those risks for consideration in land-use planning;
- consider the environmental, social and economic needs of local communities as expressed by the public during the timber supply review processes, including strategies that contribute to community economic stability, and the jobs that the forest sector creates in communities, where these are consistent with government's broader objectives; and,
- when faced with necessary reductions in AACs, that those reductions be no larger than necessary to avoid significant longer-term impacts.

During my consideration of the factors required under Section 8 of the *Forest Act*, I have been mindful of the Section 8 (8) (d) objectives articulated in the Minister's October 30, 2017 letter. I have reviewed the District's consultation process with First Nations, and the public review process and am satisfied that they were appropriately conducted. I have considered the feedback

received in the applicable factors in this determination. I have addressed the considerations noted above that the Minister has asked to take into account such as climate change and cumulative effects. On this basis, I am satisfied that this determination accords with the objectives of government as expressed by the Minister.

### **Section 8 (8) (e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area**

As noted in Table 1, I accept ‘non-recoverable losses’ as modelled in the base case; this factor addresses this section of the *Forest Act*.

### **Reasons for Decision**

In reaching my AAC determination for TFL 61, I have considered all the factors required under Section 8 of the *Forest Act* and I have reasoned as follows.

The base case harvest forecast shows that an initial harvest projection of 124 320 cubic metres per year can be maintained throughout the 300-year harvest forecast.

I am satisfied that the assumptions applied in the base case forecast, for most of the factors applicable to TFL 61, were appropriate including those detailed in Table 1 or as described in my considerations as previously discussed in this rationale. However, I have identified some factors, which, considered separately, indicate that the timber supply may be either greater or less than that projected in the base case. Some of these factors can be readily quantified and their impact on harvest projections assessed with reliability. Others may influence timber supply by adding an element of risk or uncertainty to the decision but cannot be reliably quantified at this time.

I have identified the following factor that indicates a potential underestimation in the base case timber supply:

- *Dead Potential Volume*: Dead but potentially useable timber volume is not captured in natural stand volume estimates and was not accounted for in the base case. Ministry staff have advised me that a portion of the dead volume in some stands is likely economical to harvest and is being utilized. For this reason, the base case underestimates the timber supply in the short term by an unknown, but likely small, amount.

Factors that I have identified that indicate that timber supply may be overestimated in the base case are:

- *Existing and Future Roads, Trails and Landings* – In the base case, it was assumed that half of the 120 hectares of abandoned roads would return to productive conifer forests. As no evidence was provided, there is uncertainty that this in fact will occur. I therefore recognize a negligible downward pressure on timber supply due to this factor.
- *Wildlife Habitat Areas* – An existing species at risk notice under Section 7 of the Forest Planning and Practices Regulation for Marbled Murrelet in the South Island Natural Resource District, which includes TFL 61, was not modelled in the base case. This represents a very small downward pressure on timber supply relative to the base case.
- *Cultural Heritage Resources* – The base case did not account for unregistered and not yet discovered archaeological sites and contemporary cultural heritage resources in TFL 61. It is expected that a small portion of the THLB will be excluded from harvest as new archaeological sites are registered and protected. For this reason, the base case overestimates the timber supply in the short- and long-term by an unknown, though likely small, amount.

- *Stand Establishment* - In the base, it was assumed: (i) that all harvested areas between 1960 and 2000 were planted when in fact natural regeneration was used for some stands; and (ii) that all harvested areas between 2001 and 2016, and all future harvested areas, would be planted in one year when in fact the average regeneration delay reported in RESULTS between 2001 and 2016 is 1.7 years. I discussed this factor with Ministry staff, and I have concluded that these two considerations represent about a 1.5 percent overestimation of timber supply in the long-term relative to the base case.
- *Landscape-level Biodiversity* – The base case modelled the Provincial Non-Spatial Old Growth Order for TFL 61 including the Order’s allowance for up to a two-third reduction of the old-seral retention target for landscape units with a low biodiversity emphasis. However, the Order’s allowance for the reduced retention target is predicated on the need to not cause timber supply impacts. The base case harvest level projection is 14.5 percent greater than the existing AAC so it is questionable whether the reduced targets should have been assumed in the base case. The licensee’s current practice is to avoid harvesting spatially located draft old growth management areas (OGMAs). Ministry staff indicate that the draft OGMAs achieve the intent for landscape-level biodiversity for the retention of mature and old seral forests. A sensitivity analysis modelled retention of the draft OGMAs resulted in a 0.7 percent reduction of short-term timber supply relative to the base case. I accept this overestimation of timber supply in my determination.

When reviewing the factors that underestimate and overestimate harvest projections in the base case, I conclude that short- to long-term timber supply is overestimated by just under three percent.

I want to thank Angus Hope with PATH for hosting a helicopter tour of TFL 61 on October 9th. It is apparent to me that the TFL is located on a part of Vancouver Island with tremendous growth and yield potential and is being managed to take advantage of the second-growth profile that makes up so much of the THLB. I am confident that this AAC can be maintained with PATH’s continued efforts to manage their timber supply in a sustainable manner, in partnership with the Pacheedaht First Nation and focusing on the unique landscape that is enjoyed by tourists and the general public from around the world. I look forward to reviewing the implementation commitments when I revisit this determination in the future.

## **Determination**

I have considered and reviewed all the factors as documented above, including the risks and uncertainties of the information provided. It is my determination that a timber harvest level that accommodates objectives for all forest resources during the next 10 years and that reflects current management practices as well as the socio-economic objectives of the Crown, can be best achieved in TFL 61 by establishing an AAC of 121 000 cubic metres. This is about three percent (2.7%) less than the base case, and 11.5 percent more than the existing AAC of 108 500 cubic metres.

This determination is effective October 31, 2019, and will remain in effect until a new AAC is determined, which must take place within 10 years of the effective date of this determination.

If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

## Implementation

In the period following this decision and leading to a subsequent determination, information or actions are needed from the licensee on the following factors in order to help reduce the risk and uncertainty associated with factors that affect the timber supply in TFL 61:

1. *Existing and Future Roads, Trails and Landings*: Report on (i) the extent to which abandoned roads are being reforested with commercially usable trees; and provide (ii) an actual measurement of the land base lost due to existing roads.
2. *Riparian Management Areas*: Use TFL specific data to: (i) verify or update stream classifications; and (ii) report on actual harvest performance within riparian management zones.
3. *Research Sites*: The licensee should work with the Ministry to manage existing research sites in a manner that allows research to continue at the sites for the time needed to complete the research.
4. *Genetic Gain*: (i) Verify and use the genetic gains associated with Class A seed use for western hemlock; and (ii) estimate the impact of ingress on stand development and actual realized genetic gains.
5. *Stand Establishment*: Monitor and report actual regeneration delay associated with future harvested areas.
6. *Silviculture Systems*: Monitor and report actual use of ‘helicopter single-stem’ systems in TFL 61.
7. *Higher Level Plan*: Monitor and report actual performance relative to the requirements in the Vancouver Island Land Use Plan Higher Level Plan Order.
8. *Scenic Areas and Visual Resources*: Monitor and report actual performance in scenic areas with visual quality objectives relative to how they were modelled in the base case.
9. *Harvest Rules and Priority*: Monitor and report on harvest levels in second-growth and old-growth forests.
10. *Harvest Performance*: During the term of this AAC, harvest western redcedar at a level that better matches the inventory profile available with the tree farm licence.



Shane Berg, RPF  
Deputy Chief Forester

October 31, 2019

## Appendix 1: Section 8 of the *Forest Act*

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, c. 157, (current to October 23, 2019), reads as follows:

### Allowable annual cut

8 (1) The chief forester must determine an allowable annual cut at least once every 10 years after the date of the last determination, for

- (a) the Crown land in each timber supply area, excluding tree farm licence areas, community forest agreement areas and woodlot licence areas, and
- (b) each tree farm licence area.

(2) If the minister

- (a) makes an order under section 7 (b) respecting a timber supply area, or
- (b) amends or enters into a tree farm licence to accomplish a result set out under section 39 (2) or (3),

the chief forester must make an allowable annual cut determination under subsection (1) for the timber supply area or tree farm licence area

- (c) within 10 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and
- (d) after the determination under paragraph (c), at least once every 10 years after the date of the last determination.

(3) If

- (a) the allowable annual cut for the tree farm licence area is reduced under section 9 (3), and
- (b) the chief forester subsequently determines, under subsection (1) of this section, the allowable annual cut for the tree farm licence area,

the chief forester must determine an allowable annual cut at least once every 10 years from the date the allowable annual cut under subsection (1) of this section is effective under section 9 (6).

(3.1) If, in respect of the allowable annual cut for a timber supply area or tree farm licence area, the chief forester considers that the allowable annual cut that was determined under subsection (1) is not likely to be changed significantly with a new determination, then, despite subsections (1) to (3), the chief forester

- (a) by written order may postpone the next determination under subsection (1) to a date that is up to 15 years after the date of the relevant last determination, and
- (b) must give written reasons for the postponement.

(3.2) If the chief forester, having made an order under subsection (3.1), considers that because of changed circumstances the allowable annual cut that was determined under subsection (1) for a timber supply area or tree farm licence area is likely to be changed significantly with a new determination, he or she

- (a) by written order may rescind the order made under subsection (3.1) and set an earlier date for the next determination under subsection (1), and
- (b) must give written reasons for setting the earlier date.

(4) If the allowable annual cut for the tree farm licence area is reduced under section 9 (3), the chief forester is not required to make the determination under

subsection (1) of this section at the times set out in subsection (1) or (2) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 9 (2).

(5) In determining an allowable annual cut under subsection (1) the chief forester may specify that portions of the allowable annual cut are attributable to one or more of the following:

(a) different types of timber or terrain in different parts of Crown land within a timber supply area or tree farm licence area;

(a.1) different areas of Crown land within a timber supply area or tree farm licence area;

(b) different types of timber or terrain in different parts of private land within a tree farm licence area.

(c) [Repealed 1999-10-1.]

(6) The regional manager or district manager must determine an allowable annual cut for each woodlot licence area, according to the licence.

(7) The regional manager or the regional manager's designate must determine an allowable annual cut for each community forest agreement area, in accordance with

(a) the community forest agreement, and

(b) any directions of the chief forester.

(8) In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area,

(ii) the expected time that it will take the forest to become re-established on the area following denudation,

(iii) silviculture treatments to be applied to the area,

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and

(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,

(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,

(c) [Repealed 2003-31-2.]

(d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.



(9) Subsections (1) to (4) of this section do not apply in respect of the management area, as defined in section 1 (1) of the **Haida Gwaii Reconciliation Act**.

(10) Within one year after the chief forester receives notice under section 5 (4) (a) of the **Haida Gwaii Reconciliation Act**, the chief forester must determine, in accordance with this section, the allowable annual cut for

(a) the Crown land in each timber supply area, except the areas excluded under subsection (1) (a) of this section, and

(b) each tree farm licence area

in the management area, as defined in section 1 (1) of the **Haida Gwaii Reconciliation Act**.

(11) The aggregate of the allowable annual cuts determined under subsections (6), (7) and (10) that apply in the management area, as defined in section 1 (1) of the **Haida Gwaii Reconciliation Act**, must not exceed the amount set out in a notice to the chief forester under section 5 (4) (a) of that Act.

## **Appendix 2: Section 4 of the *Ministry of Forests and Range Act***

Section 4 of the *Ministry of Forests and Range Act* (current to October 23, 2019) reads as follows:

### **Purposes and functions of Ministry**

4 The purposes and functions of the Ministry are, under the direction of the minister, to do the following:

(a) encourage maximum productivity of the forest and range resources in British Columbia;

(b) manage, protect and conserve the forest and range resources of the government, having regard to the immediate and long term economic and social benefits they may confer on British Columbia;

(c) plan the use of the forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the government and with the private sector;

(d) encourage a vigorous, efficient and world competitive

(i) timber processing industry, and

(ii) ranching sector

in British Columbia;

(e) assert the financial interest of the government in its forest and range resources in a systematic and equitable manner.

### Appendix 3: Minister's letter of October 30, 2017



Reference: 230810

October 30, 2017

Diane Nicholls, Chief Forester and Assistant Deputy Minister  
Ministry of Forests, Lands, Natural Resource Operations  
and Rural Development  
Victoria, British Columbia  
V8W 2H1

*Dear Diane*

The British Columbia *Forest Act* conveys the responsibility to determine an Allowable Annual Cut (AAC) to the Chief Forester of the Province of BC for each timber supply area and tree farm licence in the province. It also specifies considerations that must be brought to bear during the course of such determinations including, among others, the economic and social objectives of the government.

This letter is intended to provide you with guidance regarding the objectives of the British Columbia (BC) government that require your consideration when determining an AAC.

Your office implements a rigorous Timber Supply Review Process to help ensure that each AAC you determine responds to a broad array of objectives and aligns with land use and management decisions established by provincial statutes and regulations. The objectives identified below are to be considered and as part of the review process to ensure that AAC determinations, and the timber harvest rates they enable, continue to support government goals.

This letter replaces two letters previously issued by the Minister of Forests and Range to the chief forester, dated July 4, 2006 and October 27, 2010. It is intended to be used in concert with direction provided by the Minister of Forests, Lands and Natural Resource Operations to the chief forester in a letter dated April 12, 2013, concerning objectives outlined in the Shared Decision Making Process pursuant to the Nanwakolas Reconciliation Protocol.

The BC government has committed to building a strong, sustainable, innovative economy and creating well paid jobs in the province. The health of the forest sector, and its ability to respond to an array of short and long term social, economic and environmental interests, is a key to delivering on this commitment. As such, Government has identified specific objectives for the management of BC's forests and Crown lands. Those relevant to AAC determinations include:

Page 1 of 3

Ministry of Forests, Lands,  
Natural Resource Operations  
and Rural Development

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Diane Nicholls, Chief Forester and Assistant Deputy Minister

- modernizing land-use planning to effectively and sustainably manage BC's ecosystems, rivers, lakes, watersheds, forests and old growth forests
- expanding investments in reforestation; and
- collaborating to develop strategies to manage wildlife resources and habitat

Strategies for delivering on these objectives will be developed in collaboration with the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, relevant Natural Resource Ministries, indigenous partners and industry. Once approved by government, I ask that you ensure such strategies are integrated into the Timber Supply Review Process to support AAC determinations.

The BC government has committed to full and lasting reconciliation with Indigenous peoples. As chief forester, your responsibility includes continuing to ensure that AAC determinations take into consideration relevant agreements between First Nations and the Government of BC, court decisions that define Aboriginal title and rights as well as moving forward on reviewing policies, programs, and legislation to determine how to bring the principles of the United Nations Declaration on the Rights of Indigenous Peoples into action for AAC determinations. You also have a responsibility to continue to carefully consider traditional knowledge and other input from BC First Nation communities and organizations in the course of AAC determinations as they pertain to the AAC determination.

The *Forest Act* requires that the chief forester consider a range of forest health issues as part of AAC determinations, including the impacts of circumstances such as infestations, devastations and salvage programs. This is particularly relevant as BC's forest sector emerges from a period of significant, compounding challenges. The infestation of the Mountain Pine Beetle that peaked in the late 2000s has largely subsided but with continuing effects to the size and composition of the forest inventory. Currently, the north area is experiencing Spruce Beetle infestations which also pose impacts. Recently, the Province has experienced record levels of wildfires that have impacted timber supply, community stability and multiple forest values.

In response to these challenges, it is a government objective to focus on planning and sustainable resource management in a way that supports robust forest recovery and timely and effective responses to emerging threats. Please consider how your AAC determinations can support these objectives while promoting forest health and values. In some cases AAC determinations may encourage management practices that avert another infestation in the province's forests. In certain regions, they will need to reflect the reality of a lower timber supply. Some regions will require expanded investment in reforestation and/or an increased focus on timber utilization and recovery. In the wake of extensive natural disasters, the extent of damage in certain areas may also warrant re-determining AACs earlier than scheduled.

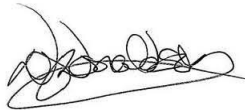
In order to ensure that AAC determinations align with government objectives to modernize land-use planning and sustainably manage B.C.'s ecosystems, rivers, lakes, watersheds, forests and old growth forests, the Timber Supply Review process should incorporate the best available information on climate change and the cumulative effects of multiple activities on the land base. Management options that align with established climate change strategies, adaptation and mitigation practices should be explored. Where the cumulative effects of timber harvesting and other land based activities indicate a risk to natural resource values, the process should identify those risks for consideration in land-use planning.

Diane Nicholls, Chief Forester and Assistant Deputy Minister

This government recognises that the forest sector is of critical importance to BC. The needs of rural communities and forest based industries are evolving in response to a number of the factors mentioned above. To support BC's forest-dependent communities, I ask that your AAC determinations consider the environmental, social and economic needs of local communities as expressed by the public during Timber Supply Review processes, including strategies that contribute to community economic stability, and the jobs that the forest sector creates in communities, where these are consistent with the government's broader objectives. I also ask that when faced with necessary reductions in AAC's, that those reductions be no larger than necessary to avoid significant longer term impacts.

Thank you Diane, for your continued service and considerable efforts in these regards.

Sincerely,

A handwritten signature in black ink, appearing to read 'Doug Donaldson', with a horizontal line underneath.

Doug Donaldson  
Minister

#### **Appendix 4: Information sources used in the AAC determination**

The information sources considered in determining the AAC for TFL 61 include the following:

##### *Legislation*

- *Forest Act* and regulations, BC Government, current to October 23, 2019;
- *Ministry of Forests and Range Act*, BC Government, current to October 23, 2019;
- *Forest and Range Practices Act* and regulations and amendments, BC Government, current to October 23, 2019;
- *Forest Practices Code of British Columbia Act*, BC Government, current to October 23, 2019, and regulations and amendments;
- Tree Farm Licence Management Plan Regulation, current to October 22, 2019;
- *Land Act*, BC Government, current to October 23, 2019;
- *Environment and Land Use Act*, BC Government, current to October 23, 2019;
- *Parks and Protected Areas Statutes Amendment Act*, BC Government, current to October 23, 2019;
- *Protected Areas of British Columbia Act*, BC Government, current to October 23, 2019;
- *Species at Risk Act*, Government of Canada (S.C 2002, c29), current to July 29, 2019;
- *Forestry Revitalization Act*, BC Government, current to October 23, 2019;
- *Heritage Conservation Act*, BC Government, current to October 23, 2019;
- *Interpretation Act*, BC Government, current to October 23, 2019;
- *Wildlife Act*, BC Government, current to October 23, 2019.

##### *Licensee Plans and Timber Supply Review Documents*

- *Tree Farm Licence 25, Proposed Management Plan 10*. Vancouver, BC. Western Forest Products Limited. 2003;
- *Tree Farm Licence 61 Proposed Management Plan #1*, including Information Package and Timber Supply Analysis, Pacheedaht Andersen Timber Holdings Limited Partnership. July 8, 2019;
- *Tree Farm Licence 25 Rationale for Allowable Annual Cut (AAC) Determination*, Ministry of Forests and Range. February 1, 2008;
- Letter from the Minister of Forests, Lands, Natural Resource Operations and Rural Development to the chief forester stating the economic and social objectives of the Crown. October 30, 2017;
- AAC Determination Binder for TFL 61- including input received from First Nations and others through the consultation process and comprehensive discussions with Ministry staff, including the AAC determination meeting held in Port Alberni, BC on August 20<sup>th</sup>, 2019;
- Western Forest Strategy, A Program for Conserving Biodiversity on Company Tenures, Western Forest Products Inc. September 2007;
- *Procedures for Factoring Visual Resources into Timber Supply Analysis*; BC Ministry of Forests. March 1998;
- *Arrowsmith Timber Supply Area, Timber Supply Review, Updated Data Package*, Victoria, BC, BC Ministry of Forests, Lands and Natural Resource Operations, November 2016;

- *Economic Operability Assessment for Arrowsmith TSA*, Forest Ecosystem Solutions Ltd., 2014, for BC Ministry of Forests, Lands, and Natural Resource Operations.

*Land Use, Forest Practices and other Documents*

- Vancouver Island Land Use Plan Higher Level Plan Order, effective December 1, 2000, pursuant to Sections 3(1) and 3(2) as well as Section 9.1 of the *Forest Practices Code of British Columbia Act*, BC Government, current to October 23, 2019;
- Identified Wildlife Management Strategy–Accounts and Measures for Managing Identified Wildlife Coast Forest Region Version 2004;
- Government Actions Regulation (GAR) Orders applicable to TFL 61;
  - o Ungulate Winter Range #U-1-012 (Black-tailed Deer/Roosevelt Elk) effective 25/11/2004;
  - o Order Establishing Visual Quality Objectives for the South Island Natural Resource District, December 1, 2005;
  - o Order to Amend Visual Quality Objectives for the South Island Natural Resource District, December 30, 2011;
  - o Order to Identify Recreation Sites, Trails and Interpretive Forest Sites as Resource Features for the South Island Forest District, December 1, 2005;
- *Biodiversity Guidebook*, Ministry of Forests and BC Ministry of Environment, Lands and Parks, 1995. BC Ministry of Forests, Lands and Natural Resource Operations.
- Draft and established old growth management areas, BC Ministry of Forests, Lands and Natural Resource Operations, current to March 1, 2017;
- Order Establishing Provincial Non-Spatial Old Growth Objectives, Ministry of Sustainable Resource Management, June 30, 2004;
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