

From: [Kempe, Norm L FLNR:EX](#)
To: [Casavant, Bryce FLNR:EX](#)
Cc: [Morris, Rhonda M FLNR:EX](#); [Cotton, Ron FLNR:EX](#); [Silver, Pam FLNR:EX](#); ["Pilling, Glen FPB:EX"](#)
Subject: File # DCR-37250 (BCTS response to Compliance Notice re: Nahmint SMZ 13)
Date: Monday, August 13, 2018 2:39:06 PM
Attachments: [Nahmint_compliance_notice_response_final Ltr signed.pdf](#)
[Nahmint OGMA TEM Variant map.pdf](#)
[Protected Forest by BGC Variant Site Series For the Nahmint SMZ13.xlsx](#)
Importance: High

Hello Bryce

Please see attached correspondence from BC Timber Sales regarding Compliance Notice DCR – 37250_SMZ 13.

Thank you for the extension to the response time.

Can you please confirm receipt of the email with a confirmation that all attachments are opening correctly. I can upload the attachments to a FTP site if necessary.

Regards

Norm Kempe
Acting Timber Sales Manager
BCTS Strait of Georgia Business Area
Office: 250 286 9359

Distribution List:

Rhonda Morris (District Manager – South Island Natural Resource District)
Ron Cotton (Land Resource Specialist – Coast Area)
Pam Silver (Resource Initiatives Section Head – West Coast Region)
Glenn Pilling (Forest Practices Board)



File: FOR 18046-01

August 9, 2018

Via email: Bryce.Casavant@gov.bc.ca

Bryce Casavant
Senior Compliance and Enforcement Specialist
Natural Resource Officer
West Coast Region
Compliance and Enforcement Branch/FLNRORD

Dear Bryce Casavant:

RE: Compliance Notice-Inspection Findings (SMZ 13)

Reference is made to your June 18, 2018, Compliance Notice concerning Inspection Findings related to BC Timber Sales, Strait of Georgia Business Area (BCTS) activities in the Nahmint Valley – Special Management Zone 13 (SMZ 13).

Please accept this letter as BCTS's response to Compliance and Enforcement, West Coast Region's finding that there is "a high likelihood of government non-compliance" with Objective B.4 of the Vancouver Island Land Use Plan, Higher Level Plan Order (HLP).

Vancouver Island Land Use Plan – Higher Level Plan Order – Objective B.4

- B. for Special Management Zones 8 and 13 and parts of Special Management Zones 1, 3 and 11, which are located within landscape units with higher biodiversity emphasis....
- 4. Maintain late-successional habitat elements and attributes of biodiversity⁸ in forested ecosystems with emphasis on regionally rare and underrepresented ecosystems, by retaining old seral forest at the site series/surrogate level of representation⁹.
 - 8. *This includes, but is not limited to: large diameter (> 60 cm) live, decaying and dead standing trees (providing nest and cavity sites); downed wood, including large diameter pieces (50 to 150 cm); deciduous broad-leaved trees, both in riparian and upland areas*
 - 9. *The level of representation of old seral forest will be applied through landscape unit planning.*

BCTS views Compliance and Enforcement's (C&E) evaluation on matters of non-compliance with resolute concern. Responsibly managing government objectives within the context of forest

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

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Strait of Georgia Business Area

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Bryce Casavant
Senior Compliance and Enforcement Specialist

harvesting operations is a key objective for BCTS for the purposes of maintaining our social licence and achieving our SFI and EMS commitments.

The Compliance Notice requested the following:

1. *Further information pertaining to site series/surrogate levels of representation within Nahmint Landscape Planning, or in the alternative,*
2. *Identified corrective actions being taken to ensure compliance with government objectives.*

We believe our Landscape Planning Practices and Forest Stewardship Plan are consistent with the VILUP HLP Order Biodiversity Objective B.4. Our response will focus on addressing point (1) above in the following order:

- **BCTS Nahmint SMZ 13 Landscape Unit Planning Process**
- **Appendix 1 – Protected Forest Breakdown by Biogeoclimatic Variant and Site Series for the Nahmint SMZ #13.**
- **Appendix 2 - Supporting Information used by BCTS that provided direction to the Landscape Unit Planning Process.**
- **Appendix 3 – Summary of Steps for Land Use Planning for Nahmint**

BCTS Nahmint SMZ 13 Landscape Unit Planning Process

(Sustainable Resource Management plan for the Nahmint Landscape Unit)

Currently a suite of Draft Old Growth Management Areas (OGMA's) have been spatially established as described in the *Sustainable Resources Management Plan (SRMP)* for the Nahmint Landscape Unit (2012). These OGMA's meet targets set out in the ***Order Establishing Provincial Non Spatial Old Growth Objectives 2004 (Old Growth Order)***. The *Old Growth Order* provides *Objectives* for the amount and distribution of old seral forest retention required to meet the "High" *Biodiversity Emphasis (BE)* for SMZ 13.

Landscape Unit Planning in the Nahmint SMZ, including the selection of Draft OGMA's, has been ongoing for a decade – it is a work in progress that requires consideration of a range of values and working with First Nations and government. BCTS has worked with both the Tseshah and Hupacasath First Nations on this planning. Both Nations recently received provincial *Strategic Forestry Initiative* funding to assist them in attaining the necessary capacity to participate in the Nahmint LU planning process. Their involvement arises from the province's commitment in a *Mediated Agreement* to emphasize western red cedar conservation, to the extent possible, with the OGMA selection process in order to provide access for cultural use. Further work is needed to complete Landscape Unit Planning in the Nahmint, much of which will be led by government through the modernized Land Use Planning approach (steps for completing Landscape Unit Planning in Nahmint outlined in Appendix 3).

Consistent with the *Landscape Unit Planning Guidebook (1999)*, the 2012 Draft OGMA's were selected using the following preliminary base criteria: ***age class, forest type, and ecological classification*** which are considered as surrogates for site series as described below.

These base criteria are defined as:

- *Age Class 9* (which is 250 years or older) in Nahmint is old seral forest.
- *Forest Type* relates to tree and understory species composition and stand structure (horizontal and vertical) on a site (landform).
- *Ecological Classification* is based on the “*Biogeoclimatic Units of the Vancouver Forest Region*” as described in *Land Management Handbook Number 28*. The handbook describes Biogeoclimatic Ecological Classification (BEC) Units (Variants). Each BEC variant has similar recurring climatic, soil and physiographic properties and are classified based on their potential to produce similar Old Seral Forest plant communities. BEC variants are identified on available Biogeoclimatic spatial data sets.

Site Series within BEC variants refer to similar site conditions based on nutrient and moisture regimes present on a site. The approach to identifying site series requires determining the basic elements of site quality: Climate (inferred by BEC units), soil moisture regime (SMR) and soil nutrient regime (SNR). Determining site series requires a site assessment in the field that consists of gathering SMR, SNR and indicator plant species. This information is then synthesized using *Handbook Number 28* to identify the site series (ecosystem) according to the BEC system. Site series are a detailed classification level, normally only determined during operational field work.

Surrogate classification organizes ecosystems according to the principle of ecological equivalence. This principle implies that sites with the same or equivalent physical properties have the same vegetative potential, and underlies site classification according BEC. They are intended to characterize the major forest types (ecosystems) within a biogeoclimatic unit. Surrogates are typically categorized using information from resource inventory maps and aerial photography – as opposed to site information collected in the field. Surrogates aid in predicting locations and occurrences of likely site series or groups of similar site associations in a landscape. They are useful in the Landscape Unit Planning process where detailed information is lacking across many thousands of hectares. Factors considered in surrogate classification rely on landform characteristics (depression, floodplain, bench (H, M, and L), middle slope, upper slope and ridge crest), Forest Type and riparian inventories. Surrogates are a generalized classification level.

Classification of forested ecosystems requires use of either site series or some form of surrogate to be used in order to analyze ecosystem representativeness across a landscape. To address variability within and across *Old Seral Forest* BEC variants, a **surrogate** ecosystem classification approach was used to attain forested ecosystem representativeness. This approach was used because accurate site series information was not available across the Nahmint SMZ. Although *Terrestrial Ecosystem Mapping* (TEM) inventories were available, field verification identified misclassifications, making the TEM inventory unsuitable for planning purposes.

The current suite of Draft OGMA’s located in Nahmint SMZ 13 are situated across the non-contributing, constrained and timber harvesting landbase. The full *Old Seral Forest* representation targets were met for the Nahmint LU under the 2012 planning process. OGMA’s were selected for structural old growth attributes inherent to varied old forested ecosystems across the range of surrogate ecosystems (landform characteristics, forest cover composition and existing riparian network) present in Nahmint SMZ 13. The current suite of Draft OGMA’s in the 2012 *Sustainable Resource Management Plan for the Nahmint Landscape Unit* includes *Old Seral Forest* surrogate representativeness along an elevational gradient stretching from rich fluvial valley bottoms to higher

elevation, low “*site-index*” sites. The use of surrogates was a practical approach across a landscape 20,000 ha in size where acquiring accurate spatial ecosystem data sets is challenging and with limited detailed site series field information.

Government has not yet established targets for site series/surrogate distribution in *VILUP HLP Order, Objective B.4* or the *Old Growth Order* for Landscape Units. The absence of hard targets for site series or surrogate scale ecosystems is intended to provide planning flexibility to consider other old forested ecosystem attributes in the Landscape Unit planning process. This flexibility was exercised in the development of the Draft SMZ 13 Landscape Unit plan. Other values and forested ecosystem attributes considered in the 2012 Draft OGMA selection process include wildlife, cultural values, rare & underrepresented ecosystems, connectivity, protection of ‘interior forest’, distribution across the LU, and operational factors such as future harvest opportunity for surrounding areas.

At the operational planning (cut-block) level, BCTS is managing rare and underrepresented forested ecosystems by site series. BCTS’ protocols for managing sites at this level are consistent with the Provincial *Wildlife Tree Retention Area (WTRA)* guidance. This entails a fine-filtered approach whereby discovered occurrences of rare and Red Listed plant communities in old forest are protected to the extent practicable and set aside in WTRA’s. This is also the planning level where the biodiversity criteria in Objective B.4 (footnote 8) are specifically addressed. WTRA’s two hectares or larger can be considered as reserves for the purposes of Landscape Unit Planning.

In summary, due to the lack of detailed information on site series at the landscape level (site series can only be confirmed through field sampling), and the lack of clear targets at the site series level, a surrogate was used for draft OGMA planning. This approach at the Landscape Unit scale is bolstered by BCTS’s site-level approach for identifying and protecting rare sites series.

BCTS’s approach to biodiversity planning in Nahmint SMZ 13 is generally consistent with direction provided in both in the *Landscape Unit Planning Guidebook* (1999) and the *Old Growth Order* Objectives. The 2012 Draft *Sustainable Resource Management Plan* balances a variety of resource values while achieving legal biodiversity objectives across the range of BEC variants (including rare forested ecosystems) distributed throughout the SMZ.

BCTS reviewed Draft OGMA selections in the Nahmint SMZ as part of our response to the June 18th Compliance Notice. The review entailed GIS analysis of the extent the current Draft OGMA’s meet legal biodiversity variant retention targets and the distribution of finer scale TEM spatial data. For the purposes of this analysis, we applied the *Old Growth Order* variant targets to the cross section of site series represented in the LU for this assessment.

Our analysis (*Refer to Appendix 1 “Protected Forest Breakdown by Biogeoclimatic Variant and Site Series for the Nahmint SMZ #13”*) confirms that the ranges of TEM site series that appear across SMZ 13 are well represented in the Draft OGMA’s, confirming that the surrogate process used was effective.

The analysis also confirmed that rare forested ecosystems (site series or surrogates that make up less than 2% of an LU) are represented in the current Draft OGMA’s, within the Nahmint Special Management Zone (SMZ) #13. This analysis confirms that the coarse filter planning approach to OGMA planning in 2007, and later carried forward into the 2012 OGMA selection process, was successful at meeting VILUP Objective B.4.

Bryce Casavant
Senior Compliance and Enforcement Specialist

OGMA planning in the Nahmint LU is ongoing; BCTS is working with First Nations, District and Regional staff with a goal of having OGMA's legalized by spring 2019. BCTS will use best available information including TEM and new VRI data to evaluate site series representation to ensure the final legal OGMA's represent the correct balance of values and continue to achieve VILUP HLP Objective B.4.

To summarize, BCTS has provided information pertaining to point 1 in the Compliance Notice and is confident that our approach to biodiversity planning in the Nahmint SMZ is not in material conflict with the intent of VILUP HLP Order Objective B.4. Appendix 2 (*"Planning Framework for Landscape Unit Planning"*) provides additional context regarding direction to licensees concerning biodiversity objectives and the Landscape Unit planning process. We used a surrogate level of representation at the Landscape Unit planning scale, due to lack of site-level information accurately mapping site series, and bolstered this through a site-level strategy to capture rare site series when encountered. As demonstrated in the analysis in Appendix 1, this has resulted in a representative distribution of OGMA's across site series at the Landscape Unit level and within the SMZ. We continue to work with government and First Nations to complete the Land Use Planning process in the Nahmint and as part of this process may further refine our management at the site series level through the adoption of specific targets, such as using the BEC variant targets from the *Old Growth Order*.

BCTS manages its program in the context of continuous improvement. As new information or direction is provided by government, BCTS will adapt its program to meet higher level government objectives including training staff and multiphase contractors to ensure they are aware and address new information or direction.

If C&E has any questions regarding our response, please contact Norm Kempe, Operations Manager, Strait of Georgia Business Area.

Yours truly,



Norman Kempe
Acting Timber Sales Manager

cc: Rhonda.Morris@gov.bc.ca – District Manager, Regional Operations Division
Ron.Cotton@gov.bc.ca - Land and Resource Specialist, Regional Operations Division

Attachments: Nahmint SMZ13 TEM Variant and Site Series Map
Biogeoclimactic Variant and Site Series Spreadsheet Analysis

Appendix 1

Protected Forest Breakdown by Biogeoclimatic Variant and Site Series for the Nahmint SMZ #13 (*Spreadsheet and Map*)

Appendix 2

Planning Framework for Landscape Unit Planning

Forest development planning in Nahmint SMZ 13 is subject to three levels of plans:

1. Strategic Land Use Plans that set out broad objectives for land use - *Vancouver Island Land Use Plan, Higher Level Plan Order (December 1, 2000)*
2. Landscape Unit Plans that translate these broad objectives into clear and measurable targets and strategies to manage and conserve forest resources - *Order Establishing Provincial Non-Spatial Old Growth Objectives (June 30, 2004)*
3. Forest Stewardship Plans that set out specific timber harvesting results and strategies aimed at achieving government objectives.

Historical Context

On December 1, 2000, the VILUP HLP was put into effect. The VILUP HLP established Resource Management Zones and detailed a number of objectives that pertain to operational planning and landscape unit planning. It was noted at the time that some of the objectives were too broad in scope to give specific guidance to operational planning and that there was a need for Landscape-Level Plans (also referred to as “*Landscape Unit Plans*” or “*Sustainable Resource Management Plans*”) which provide more specific guidance for measuring consistency of an operational plan with the objectives of higher level plans such as the VILUP HLP.

Under the scheme of the *Forest Practices Code of British Columbia Act 1995* (the Code), Landscape Level Plans were intended to bridge HLP’s and Operational Plans. Landscape Level Plans manage biodiversity objectives such as VILUP HLP Objective B.4 through the implementation of the ***Order Establishing Provincial Non Spatial Old Growth Objectives (Old Growth Order)***.

Under the Code, the Chief Forester provided policy direction¹ regarding the relationship between approved HLP objectives and the development of Landscape Unit Plan objectives – such as the *Old Growth Order*. The direction required LU objectives to be consistent with existing Cabinet or Minister approved HLP such as the VILUP HLP. Accordingly, the 2004 *Old Growth Order* objectives are considered consistent with and complimentary to the 2000 VILUP HLP biodiversity objectives – specifically Objective B.4.

Recently Landscape Level plans, such as the Nahmint SMZ, have been broadened in scope to manage for a wider range of forest resources and values in order to provide meaningful guidance to operational plans and capture new societal values in forest management. In addition to forested ecosystem representation, habitat for species at risk and cultural values may be considered in the Landscape Level Planning process.

¹ Province of British Columbia: Higher Level Plans: Policy and Procedures – Chapter 5 Revisions (December 1996)

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With respect to *VILUP HLP Objective B4*, both the HLP and the January 25, 2001 *South Island Forest District VILUP HLP Implementation Guidance Memo*² to Licensees stated that *Objective B4* is expected to be achieved through Landscape Unit Planning, referring to the Landscape Unit Planning Guide (1999).

The guidance in the January 25, 2001 Memo stated:

“Objectives 4 and 5: of the HLP require the retention of old seral forest at the site series level of representation and in patches of variable size in the Nahmint SMZ (SMZ 13). The SDM,s expect that these objectives will be achieved through landscape Unit Planning. Licensees and agencies should note that this objective is linked to the transitional provisions of the HLP (objectives 17 and 18)”

The transitional provisions were put in place because it was recognized that specific VILUP HLP objectives such as B4 were too broad in scope, lacking targets and vague in terms of providing guidance for their practical application. It was recognized in a Forest Practices Board (the board) special report (FPB/SR/34) that *“The clarity of objectives strongly influences how effectively they can be translated into practices on the ground”*³. The board concluded in their report that *“early SLUP’s (Strategic Land Use Plans) in particular were deliberately written to provide broad strategic direction, with the intent it would be refined or operationalized in lower level plans.”* This was the situation with VILUP HLP B4 and the reason this objective was subject to transitional provisions of the HLP.

HLP Objective 17 was a transitional objective that did not require several VILUP HLP objectives to be immediately implemented, including B.4, until landscape units and objectives had been established for applicable resource management zones...essentially this was a “phase-in” provision.

HLP Objective 18 provided a two year window for **Objective 17** to be in effect. On December 1st 2002, the transitional objectives that did not require forest development plan consistency with HLP Objectives were no longer optional but fully in effect.

It was not until June 30, 2004 with the establishment of the *Old Growth Order* that biodiversity emphasis and old growth retention targets for the Nahmint were made known to assist with the implementation of VILUP HLP Objective B4 though the Landscape Unit (LU) Planning process.

In addition to providing old forest retention targets for SMZ 13, the *Old Growth Order* also provided direction to Licensees in terms of its implementation. The direction in the Old Growth Order was, *“licensees must maintain old forest by **biogeoclimatic variant** within each landscape unit according to the age of old forest and the percentage of old forest retention that is specified in Tables 1 through 4...”* This direction was approved by the Regional director of MSRM in a companion Implementation Policy.

The Old Growth Order was implemented through the Landscape-Unit Planning Guidebook (1999). A stated directive by the Chief Forester with respect to implementation was that landscape unit biodiversity objectives would not impact timber supply by more than 4.3% (1999)⁴. This pre-mandated limit on timber supply would be achieved by way of adherence with earlier direction from the Chief

² Letter from Cindy Stern , District Manager South Island Forest District (January 25, 2001) (Re: VILUP HLP Implementation, South Island Forest District).

³ FPB Provincial Land Use Planning, Which way from here, (November 2008).

⁴ Memorandum from Larry Peterson, Chief Forester, Ministry of Forests (March 17, 1999) Re: Release and Implementation of the Landscape Unit Planning Guide.

Forester which specifically addressed representativeness when developing landscape unit objectives for old seral requirements (1998). The direction was not to consider representativeness at a scale finer than the Biogeoclimatic Ecosystem Classification (BEC) variant level when establishing Landscape unit objectives⁵.

The Chief Forester's 1998 memo expressed concern "*that applying representativeness requirements on a scale finer than the BEC variant represents a high risk that the Ministry of Forests will not be able to manage the Province's forest resources having regard to the immediate and long term economic benefits they may confer on British Columbia, as is required by section 4(b) of the Ministry of Forests Act R.S.B.C 1996, c.300*"⁶.

The release of the Old Growth Order in 2004 subsequently established Landscape Units and Old-Growth Landscape Unit Objectives consistent with the earlier Chief Forester policy directives. And, the Chief Forester direction to maintain old forest representativeness by BEC variant was affirmed again in the Old Growth Order itself.

Where a forest or planning practice is established as part of a higher level plan objective, they must be consistently followed in operational planning. Accordingly, VILUP HLP Objective B.4 must be addressed in SMZ 13 Land Use Planning. Objective B.4 is not prescriptive in nature (no targets) and therefore, is intended to provide flexibility in the OGMA selection process. Targets in higher level plans were typically only applied if it was generally accepted as necessary to attain a very specific outcome for an objective. Objective B.4 directs Landscape Unit Planning to consider the full spectrum of old seral forests (analysed at the site series or surrogate level) occurring within a variant, and attempt to balance their representation in OGMAs, with particular regard (or emphasis) to protecting rare and underrepresented ecosystems at an appropriate spatial scale.

It was this direction that guided BCTS's 2007 and 2012 Nahmint SMZ 13 Landscape Unit Planning process.

The *Old Growth Order* translates strategic level objectives and directions in the VILUP HLP such as Objective B4, into achievable and measurable legal requirements, through a Landscape Unit Planning Process, that provides a means of integrating and achieving the intent of the Objective B4 into a Forest Stewardship Plan.

The legal Realm – Forest Stewardship Plans

Under the Code, certain old growth objectives under VILUP were made legally binding as Higher-Level Plan Orders. When the Code was replaced with the *Forest and Range Practices Act 2004* (FRPA), existing Orders were continued under the *Land Act*. Legally, government objectives for old growth established under Code or FRPA orders become enforceable through a two-step process⁷.

1. *Forest tenure holders and timber sale managers are required to submit a forest stewardship plan (FSP). A FSP must specify results or strategies that are consistent with objectives set by*

⁵ Memorandum from Larry Peterson, Chief Forester, Ministry of Forests (May 25, 1998) Re: Chief Forester Direction Landscape Unit Objectives.

⁶ Memorandum from Larry Peterson, Chief Forester, Ministry of Forests (May 25, 1998) Re: Chief Forester Direction Landscape Unit Objectives.

⁷ Environmental Law Center and Clinic, *An Old Growth Protection Act for British Columbia* (Spring 2013)

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government – (this includes objectives for old-growth retention contained in Code-era or Land Act orders). Approval of the FSP indicates that a Statutory Decision Maker is satisfied the Results and Strategies are compliant with legislation and higher level plans.

2. *Commitments (results and strategies) made in forest stewardship plans are legally binding on holders of such plans.*

This implies that Orders established under the Land Act or those established under the Code, and subsequently grandfathered, are enforceable only through a forest stewardship plan.

Accordingly, under the results-based framework of FRPA, a holder of a Forest Stewardship Plan (FSP) may be in non-compliance with an approved FSP result and strategy and reasonably subject to compliance and enforcement, but not with a government objective.

BCTS currently has an approved forest stewardship plan (#638 -approved on April 19, 2017) that addresses VILUP Objective B4 under section 7.2.5. of the FSP.

Appendix 3 Summary of steps for Land Use Planning in Nahmint

The Ministry of Forests, Lands, Natural Resource Operations and Rural Development is committed to establishing legal Old Growth Management Areas (OGMAs) in the Nahmint Landscape Unit. These will be established through a Land Use Order under Section 93.4 of the *Land Act*, as part of a modernized Land Use Planning process that considers a range of values and is completed in partnership with First Nations.

Overview of steps to achieve legal OGMAs	Target timeline
Work with Regional Planning staff to develop project team, define roles and responsibilities, and confirm scope of Land Use Planning for Nahmint Landscape Unit.	Currently underway – to be completed by Oct 2018
Engage early with First Nations and include stakeholders in Land Use Planning process. Currently working with BCTS and Hupacasath First Nation, will engage with Tseshaht First Nation and Interfor in near future.	Currently underway – to be completed by Oct 2018
Update and expand Nahmint draft Landscape Unit Plan to include all relevant values for Landscape Unit Planning. This includes OGMA planning considerations (aspatial targets by variant, targets by site series, configuration and size), in addition to a range of other Land Use Planning goals (e.g. overlap with cultural cedar, wildlife habitat areas and ungulate winter range). The province is currently reviewing options for site series targets, has confirmed cultural cedar overlap, and is considering overlap with species at risk (marbled murrelet, northern goshawk).	Currently underway – to be completed by Nov 2018
Draft a version of the Land Use Order to be established under Section 93.4 of the <i>Land Act</i>	To be completed by Nov 2018
Initiate formal First Nation consultation, continue engagement as needed.	Start by Dec 2018
Complete 60 day public review process and summarize responses.	January-March 2019
Bring final package to decision maker to establish Land Use Order.	April 2019
Post final order in BC Gazette and on Land Use Planning website in order to come into effect.	April 2019



Nahmint SMZ 13
Protected Areas
TEM Variant & Site Series

NAH Mint SMZ 13	AT Variant TEM	Water Features
AT	CO Variant TEM	Shoals
Priority Area	CO Variant TEM	Wetlands
Private Land	CO Variant TEM	Watercourses
OSMA	CO Variant TEM	Waterbodies
LOM	AT Variant TEM	Ocean
WMA	No TEM Data	Bank



Protected Forest Breakdown By Biogeoclimatic Variant And Site Series For The Nahmint SMZ13

BEC Variant	Site Series	Crown Forest Landbase (ha)	Target %	2018 Analysis (ha)	Total OGMA (ha) =H+L+P	Total Other Protected - WHA,UWR (ha) = I+M+Q	Old Growth - Age Class 9 in OGMA (ha)	Old Growth - Age Class 9 in Other Protected - WHA,UWR (ha)	Remaining Old Growth - Age Class 9 in THLB (ha)	Remaining Old Growth - Age Class 9 in Non Contributing (ha)	Mature - Age Class 5 to 8 in OGMA (ha)	Mature - Age Class 5 to 8 in Other Protected (ha)	Remaining Mature - Age Class 5 to 8 in THLB (ha)	Remaining Mature - Age Class 5 to 8 in Non Contributing (ha)	Immature - Age Class 1 to 4 in OGMA (ha)	Immature - Age Class 1 to 4 in Other Protected (ha)	Remaining Immature - Age Class 1 to 4 in THLB (ha)	Remaining Immature - Age Class 1 to 4 in Non Contributing (ha)	Remaining Mature to Old in THLB (ha) = J+N	Remaining Mature to Old in Non Contributing (ha) = K+O
AT	00	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	No Site Series	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AT Total		7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CWHvm1	00	142.5	19.0	27.1	18.9	3.3	14.6	3.1	4.4	23.7	2.2	0.0	5.7	25.4	2.2	0.3	17.9	43.1	10.1	49.1
	01	2246.7	19.0	426.9	234.8	23.6	160.8	16.2	301.8	87.5	69.3	2.6	339.3	178.2	4.7	4.8	1048.4	33.1	641.1	265.7
	02	24.6	19.0	4.7	2.3	0.0	1.5	0.0	0.2	0.0	0.8	0.0	2.4	11.5	0.0	0.0	8.3	0.0	2.6	11.5
	03	1064.6	19.0	202.3	183.9	16.7	79.1	9.2	161.4	48.6	103.5	6.3	168.1	151.8	1.2	1.3	299.4	34.5	329.5	200.5
	04	1309.9	19.0	248.9	156.8	4.3	64.6	0.1	315.2	47.8	90.1	0.3	166.9	134.5	2.2	3.8	463.3	21.1	482.1	182.3
	05	1637.0	19.0	311.0	368.3	45.3	282.1	32.5	286.4	222.0	56.8	4.4	109.0	67.7	29.4	8.4	529.0	9.3	395.4	289.7
	06	470.1	19.0	89.3	98.2	7.6	81.1	3.8	76.6	56.3	9.2	0.0	49.9	36.5	7.9	3.8	135.6	9.4	126.5	92.8
	07	424.9	19.0	80.7	118.2	4.1	84.7	3.0	45.2	56.4	15.3	0.2	22.3	36.1	18.3	0.9	78.4	64.2	67.5	92.5
	08	120.8	19.0	23.0	60.1	1.3	59.2	1.3	8.5	12.2	0.1	0.0	0.0	9.1	0.8	0.0	12.3	17.2	8.6	21.3
	09	115.5	19.0	21.9	50.0	41.9	40.8	3.6	1.8	0.0	0.4	0.3	0.0	0.0	8.8	38.0	21.8	0.0	1.8	0.0
	10	48.7	19.0	9.3	36.9	7.4	27.2	3.1	0.4	0.6	8.3	1.6	0.0	0.1	1.4	2.6	1.8	1.5	0.4	0.7
	11	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14	7.2	19.0	1.4	0.4	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.1	0.0
CWHvm1 Total		7612.6		1446.4	1329.0	155.7	896.1	76.0	1201.9	555.0	355.8	15.8	863.7	650.9	77.1	64.0	2622.8	233.6		
CWHvm2	00	164.5	19.0	31.3	3.5	0.0	2.2	0.0	7.6	28.8	0.8	0.0	9.1	40.1	0.5	0.0	24.8	50.7	16.7	68.9
	01	1517.2	19.0	288.3	239.2	3.2	67.8	1.2	106.2	129.4	167.1	1.1	367.6	204.9	4.3	0.8	429.3	37.5	473.8	334.3
	02	52.9	19.0	10.0	12.3	0.3	1.0	0.0	0.8	0.0	11.1	0.3	5.5	29.1	0.1	0.0	4.5	0.4	6.3	29.1
	03	1114.6	19.0	211.8	133.6	4.5	36.4	0.0	61.7	83.2	95.7	4.5	185.7	408.0	1.4	0.0	232.6	5.4	247.4	491.1
	04	1016.7	19.0	193.2	126.3	0.0	34.4	0.0	129.7	137.0	91.0	0.0	216.2	250.4	0.9	0.0	152.3	4.8	345.9	387.4

Protected Forest Breakdown By Biogeoclimatic Variant And Site Series For The Nahmint SMZ13

05		939.2	19.0	178.4	246.9	5.4	95.4	1.6	140.0	107.6	148.7	2.1	102.9	216.0	2.9	1.7	98.0	22.4	242.9	323.6
06		438.0	19.0	83.2	80.1	0.0	10.1	0.0	47.5	107.6	70.0	0.0	87.5	91.6	0.0	0.0	13.7	10.0	135.0	199.2
07		351.0	19.0	66.7	74.7	2.9	35.7	0.7	12.3	47.8	36.4	2.2	12.9	105.2	2.6	0.1	64.9	30.3	25.2	152.9
08		67.3	19.0	12.8	13.0	0.0	12.6	0.0	8.7	10.5	0.2	0.0	2.3	10.6	0.2	0.0	5.3	17.0	11.0	21.1
09		52.0	19.0	9.9	10.4	0.0	0.0	0.0	0.9	10.6	10.4	0.0	1.3	7.9	0.0	0.0	0.9	19.9	2.2	18.6
CWHvm2 Total		5713.5		1085.6	939.8	16.3	295.5	3.4	515.4	662.4	631.3	10.3	990.9	1363.8	13.0	2.6	1026.2	198.5		
CWHxm2 00		1.8	13.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0
01		13.9	13.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	9.8	0.0	1.8	0.0
04		4.4	13.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.7	0.0	0.0	0.3	0.0	2.4	1.7
CWHxm2 Total		20.1		2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	1.7	0.0	0.0	11.9	0.0		
MHm1 00		226.9	28.0	63.5	3.4	0.0	0.0	0.0	1.3	25.6	3.4	0.0	3.3	96.1	0.0	0.0	17.8	79.5	4.6	121.7
01		323.5	28.0	90.6	84.4	0.0	14.2	0.0	17.0	43.0	70.1	0.0	23.8	138.6	0.0	0.0	4.4	12.3	40.8	181.6
02		529.8	28.0	148.3	57.0	1.2	18.7	0.0	27.3	72.3	38.2	1.2	19.5	287.1	0.1	0.0	3.9	61.7	46.8	359.3
03		216.2	28.0	60.5	14.1	0.0	3.0	0.0	2.0	28.4	10.7	0.0	6.1	103.0	0.3	0.0	7.2	55.5	8.1	131.3
04		75.4	28.0	21.1	35.9	0.0	1.2	0.0	7.9	7.4	34.6	0.0	3.3	12.3	0.0	0.0	8.7	0.0	11.2	19.7
05		69.7	28.0	19.5	3.3	0.0	3.2	0.0	0.2	11.6	0.1	0.0	0.6	54.1	0.0	0.0	0.0	0.0	0.8	65.7
06		68.4	28.0	19.1	5.9	0.0	1.1	0.0	0.0	12.5	4.8	0.0	0.0	38.4	0.0	0.0	2.6	9.0	0.0	51.0
09		0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MHm1 Total		1510.0		422.8	203.8	1.2	41.4	0.0	55.6	200.8	162.0	1.2	56.7	729.5	0.5	0.0	44.6	217.9		
No TEM Data No Site Series		189.7	0.0	0.0	11.4	0.0	5.2	0.0	23.3	61.8	6.1	0.0	33.1	47.2	0.1	0.0	10.4	2.5		
No TEM Data Total		189.7	0.0	0.0	11.4	0.0	5.2	0.0	23.3	61.8	6.1	0.0	33.1	47.2	0.1	0.0	10.4	2.5		
Grand Totals		15033.4		2954.7	2484.0	173.2	1238.1	79.4	1796.2	1480.0	1155.2	27.2	1944.4	2791.4	90.7	66.6	3704.0	652.4		

Site Series Representation < 2% of the Crown Productive Forest - Shown in Red

Data Used

BCGW Layers(June 28, 2018):

WHSE_TERRESTRIAL_ECOLOGY.STE_TEM_20K_POLYS_SVW
 WHSE_FOREST_VEGETATION.VEG_COMP_LYR_R1_POLY
 WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_SP
 WHSE_WILDLIFE_MANAGEMENT.WCP_WILDLIFE_HABITAT_AREA_POLY
 WHSE_LAND_USE_PLANNING.RMP_PLAN_LEGAL_POLY_SVW

BCTS Layers:

Draft OGMA's

Note: 4.8% of the Crown Forest Landbase has no TEM data (Where Site Series = 00 or where there is No TEM data)

From: [Casavant, Bryce FLNR:EX](#)
To: [Casavant, Bryce FLNR:EX](#)
Subject: FW: Report of Natural Resource Violation
Date: Tuesday, June 26, 2018 1:51:35 PM
Attachments: [attach2.pdf](#)
[attach3.jpg](#)
[attach4.jpg](#)
[attach5.jpg](#)
[attach6.jpg](#)
[attach7.jpg](#)

-----Original Message-----

From: mailer@a100.gov.bc.ca [<mailto:mailer@a100.gov.bc.ca>]
Sent: Tuesday, June 5, 2018 3:18 PM
To: FLNR Compliance and Enforcement Contact Centre FLNR:EX
Subject: Report of Natural Resource Violation

Below is the result of your feedback form. It was submitted on Tuesday, June 05, 2018 at 15:18:29.

referer: <https://www.for.gov.bc.ca/hen/nrv/report.htm>
remote address: 70.71.173.102

ReportDate: 05/31/2018

ReportTime: 15:38

LastName: Inness

FirstName: Andrea

EmailAddress: andrea@ancientforestalliance.org

DaytimePhone: 7789535983

MailingAddress: Ancient Forest Alliance Victoria Main PO, PO Box 8459 Victoria, BC, V8W 3S1

PropertyAddress: Unit 306, 620 View Street, Victoria, BC

Location: Nahmint Valley, west of Port Alberni on Vancouver Island. Special Management Zone 13.

attach1: Nahmint - 11x17.pdf

attach2: Nahmint Cutblocks - 11x17.pdf

attach3: Nahmint-Valley-9th-widest-Douglas-fir1.jpg

attach4: Nahmint-Valley-9th-widest-Douglas-fir2.jpg

attach5: Nahmint-Valley-9th-widest-Douglas-fir3.jpg

attach6: Nahmint-Valley-Clearcut-with-large-redcedar.jpg

attach7: Nahmint-Valley-Large-Redcedar.jpg

ViolatorAddress: BC Timber Sales

ViolationDate_Start: 05/06/2018

ViolationHour_Start: 00

ViolationMinute_Start: 00

ViolationHour_End: 00

ViolationMinute_End: 00

InProgress: yes

NatureOfViolation: This is a complaint from the Ancient Forest Alliance about a potential natural resource violation by the Ministry of FLNRO regarding forest practices and recent BC Timber Sales cutblocks in the Nahmint Valley - Special Management Zone 13 on Vancouver Island.

After walking through various recent cutblocks planned by BC Timber Sales in the Nahmint Valley, we believe BC Timber Sales' Forest Stewardship Plan (FSP #638) fails to meet the results and strategies set out in the Vancouver Island Land Use Plan Higher Level Plan Order that rare and underrepresented site series and surrogates be represented and protected (p. 2, objective B4).

After walking many of these cutblocks, typically found at lower- and mid-elevations, we believe several of the western redcedar, Douglas-fir, western hemlock, and amabilis fir-associated site series may be considered rare and underrepresented plant associations that should not be logged.

We also have noted that BCTS "Best Management Practices for Coastal Legacy Trees" policy states that the minimum size for retention of Douglas-fir is 2.1 meters. The largest Douglas-fir that we noted that was logged was 3.0 metres a clear violation of BCTS policy. See attached photos of the tree. We believe that other western redcedars and Douglas-firs in the BCTS-issued cutblocks also exceeded the minimum threshold size for retention.

Furthermore, we also note that, in the Vancouver Island Summary Land Use Plan, one of the primary land use objectives for the Nahmint Valley (Special Management Zone 13) includes the retention of a high proportion of old forest, including large, old seral Douglas-fir trees (p. 70). The Douglas-fir described above was clearly one of the largest and oldest Douglas-firs in the province (and was wider than the 9th-widest Douglas-fir tree listed in the BC Big Tree Registry).

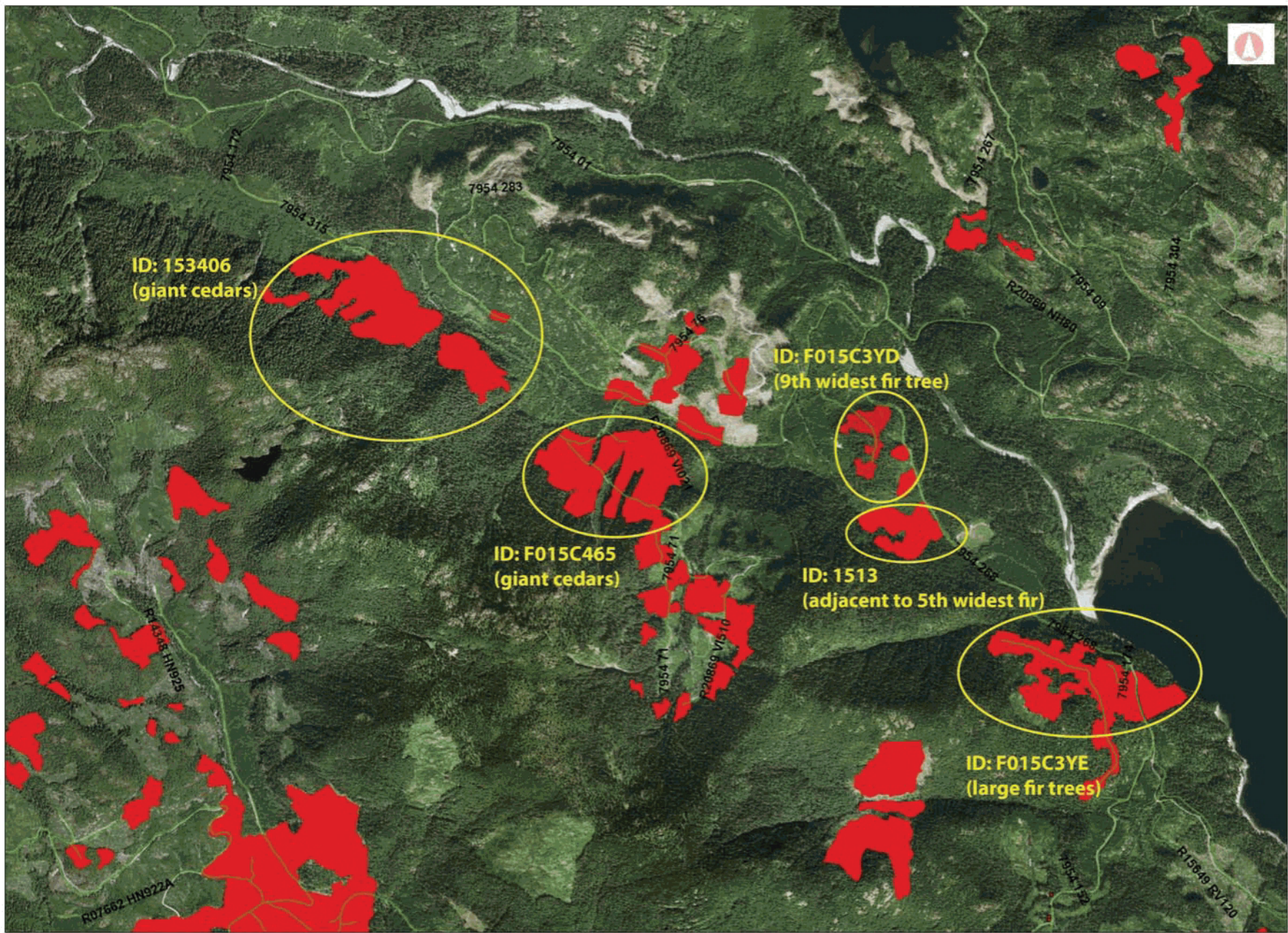
We request that an investigation be commenced to look into this matter. If you need more information, please contact us at info@ancientforestalliance.org.

AffectFromViolation: We are deeply concerned about the violation, given the abundant ecological, tourism and recreational, and cultural values of the area in question and possible negative and long-term impacts on these values. We photo documented the areas and have alerted the public as to what is happening through news and social media channels.

AgenciesNotified: Minister of Forests, Lands, Natural Resource Operations and Rural Development

ReasonForUrgency: We consider this matter to be urgent, given the scale and fast pace of current logging operations in the Nahmint Valley, which are targeting the rarest, highest-productivity stands with the biggest trees.

Hazards: Fallen trees.



Nahmint Valley

Legend

- Active Forest Road Sections
- Active Licence To Cut - FTE
- Active Forest Cut Blocks - F Themed
- Active Forest Harvest Autho Colour Themed



1:36,112

Copyright/Disclaimer

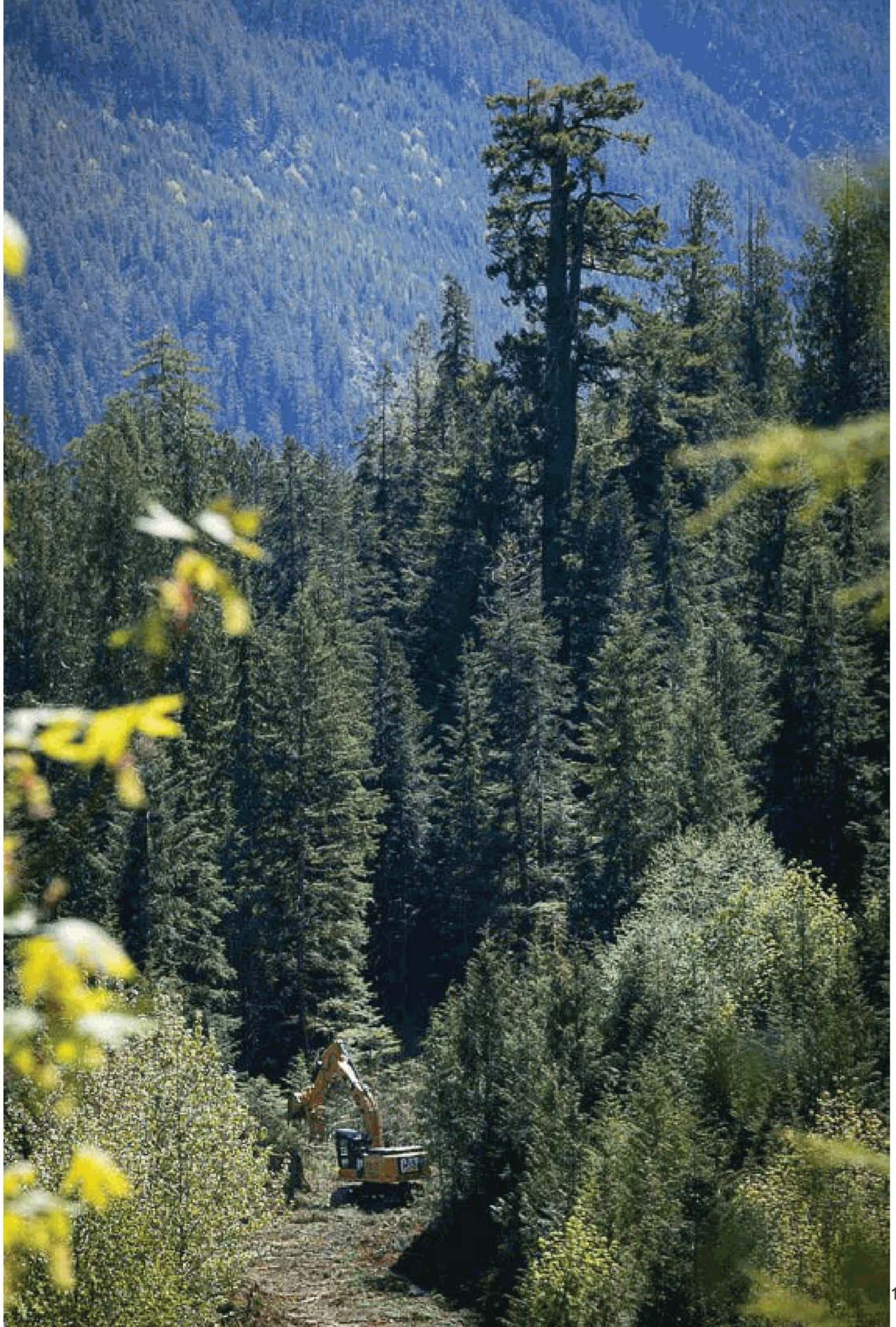
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Datum: NAD83
 Projection: WGS_1984_Web_Mercator_Auxiliary_Sp here

Key Map of British Columbia







s.22



§.22

§.22

§.22



S.22



S.22

From: [Casavant, Bryce FLNR:EX](#)
To: [Hudson, Don A FLNR:EX](#)
Cc: [Bastarache, Paul FLNR:EX](#); [Morris, Rhonda M FLNR:EX](#); [Cotton, Ron FLNR:EX](#); [Norlock, Jim D FLNR:EX](#)
Subject: Nahmint Findings - SMZ 13 Compliance Notice
Date: Monday, June 18, 2018 2:56:39 PM
Attachments: [image001.jpg](#)
[Lt 2018 June 18 DCR 37250 Nahmint Findings BCTS.pdf](#)
Importance: High

Dear Mr. Hudson,

Please see attached correspondence of today's date.

I wish to take this time and thank your staff for their co-operation and transparency during this compliance inspection.

Sincerely,



NRO Bryce Casavant, DSocSci (ABD), MA, CMAS

Senior Compliance and Enforcement Specialist

Natural Resource Officer

West Coast Region

Compliance and Enforcement Branch | FLNRORD

Office: 250-230-1319 (cell)

To report a Natural Resource Violation:

Telephone: 1-877-952-7277 (RAPP) or #7277 on cellphones

Webpage: <https://www.for.gov.bc.ca/hen/nrv/report.htm>



File # DCR-37250

Don Hudson
B.C. Timber Sales Manager
Campbell River District Office
370 S Dogwood Street
Campbell River, B.C.
V9W-6Y7

VIA e-mail
don.hudson@gov.bc.ca

June 18th 2018

Re: Compliance Notice – Inspection Findings (SMZ 13)

Ref: Vancouver Island Land Use Order (Higher level Order); Vancouver Island Land Use Summary Plan; Nahmint Watershed Review (1991); Forest Stewardship Plan #638 (2018); West Coast Forest Stewardship Plan, BCTS – Major (2013).

Dear Mr. Hudson,

Please be advised that Natural Resource Officers conducted a records inspection pursuant to Section 61 (2) of the *Forest and Range Practices Act* in order to determine the level of compliance of timber harvesting operations in SMZ 13 (Nahmint). Please be advised that our inspection findings have resulted in reasonable grounds to believe that there is a high likelihood of a government non-compliance pertaining to your operations in this area. This letter will describe the issue, the overall findings, the details of the inspection conducted, and issues pertaining to interpretation of current ministerial orders. Finally, the actions taken by the inspecting officers will be outlined for you and an opportunity to respond within a specified timeline will be provided.

Issue: This Compliance Notice pertains to an Inspection conducted by Natural Resource Officers following public media attention regarding timber harvesting operations in the Nahmint Valley. A formal public complaint was also received by Natural Resource Officers.

Findings: The inspection found that there is a high likelihood of government non-compliance with the *Vancouver Island Land Use Plan – Higher Level Order Objective B4*.



Details of inspection: The Inspection found that the *Vancouver Island Land Use Plan* (“VILUP”) is a formal ministerial order that established portions of the Nahmint Valley as a Special Management Zone (identified as “SMZ 13”). This order is still in effect. The order contains a background document titled *The Vancouver Island Summary Land Use Plan*. On page 70, this plan establishes SMZ 13 and sets out specific government objectives and rationales pertaining to SMZ 13 (old growth protection objectives and intent is described in detail). While not a legal order itself, *The Vancouver Island Summary Land Use Plan*, coupled with the *Nahmint Watershed Review* (1991), assists in understanding the government’s intentions in producing the VILUP higher level order. The objectives of VILUP contain a requirement to manage SMZ 13 at a site series / surrogate level of representation (VILUP Objective B4) for the purpose of meeting ministerial intentions pertaining to SMZ 13. This ministerial order requirement for land use planning is identified in the current Forest Stewardship Plan (FSP) #638. Specifically, VILUP states:

- VILUP Objective # B4 – “Maintain ... elements of biodiversity in forested ecosystems ..., by retaining old seral forests at the site series / surrogate level of representation”. Special consideration is also to be given to rare and underrepresented ecosystems.
- VILUP Objective # B4 – Biodiversity retention, “This includes, but is not limited to: large diameter (>60cm) live, decaying and dead standing trees (providing nest and cavity sites); downed wood, including large diameter pieces (>50-150sm); deciduous broad-level trees, both in riparian and upland areas”.
- VILUP Objective # B4 – “The level of representation of old seral forest (at the site series / surrogate level) will be applied through landscape unit planning”.

In reviewing BCTS landscape planning documents from 2007 and 2012, the Inspection found that site series / surrogate level of representation in landscape planning was never implemented. Specifically, *The Nahmint Landscape Unit Plan* (2007, pg 13), states, “Although site series mapping was available it was not used to select OGMA delineation and final selection ...” Furthermore, the *Sustainable Resource Management Plan for the Nahmint Landscape Unit* (2012), appears to have adopted the 2007 methodologies and does not address site series / surrogate levels of representation in landscape planning. Therefore, it was found that:

1. Landscape unit planning, using site series / surrogate levels of representation, appears to have never been implemented.
2. As a result, there are reasonable grounds to believe historic and current harvesting in SMZ 13 is not in accordance with VILUP, BCTS FSP – Major (2013), and the current FSP #638.

VILUP Interpretation: The Inspection found that confusion appears to exist pertaining to VILUP Objective B4. It is noted that BCTS staff interpret this objective as only pertaining to identified “rare” or “underrepresented ecosystems” and that site series / surrogate levels of representation are not required in landscape planning due to data issues. However, in discussion with land use planning specialists and other staff, Natural Resource Officers interpret Objective B4 as applying to all of SMZ 13 at the landscape planning phase. This understanding of site series / surrogate levels of representation at the landscape level is consistent with the plain words of the order and the context of the background documents which formed the intent of the order.



Opportunity to respond: Please produce to the undersigned, within 30 days of the date of this Notice, the following:

1. Further information pertaining to site series / surrogate levels of representation within Nahmint Landscape Planning; or in the alternative,
2. Identified corrective actions being taken to ensure compliance with government objectives.

Actions taken:

- I conducted a file review and Compliance Inspection pertaining to SMZ 13.
- I reviewed all orders, FSP results and strategies, land use planning documents, and applicable legislation (300 + pgs).
- I spoke with land use specialists in Nanaimo and legislation and site series monitoring staff.
- I spoke with BCTS personnel on 3 occasions and reviewed cut block and site plans.
- I presented preliminary concerns to the FSP approving authority, district manager, and other staff on May 31st 2018.
- I presented preliminary findings during conference call proceedings on June 14th 2018.
- I determined there are reasonable grounds to believe that a high likelihood of historic and current government non-compliance in SMZ 13 exists, as a result of potential failures to implement site series / surrogate levels of representation in the landscape planning phases.

Submitted for your action,



NRO Bryce Casavant, DSocSci (ABD), MA, CMAS

Senior Compliance and Enforcement Specialist

Natural Resource Officer

West Coast Region

Compliance and Enforcement Branch | FLNRORD

Office: 250-230-1319 (cell)

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Webpage: <https://www.for.gov.bc.ca/hen/nrv/report.htm>

Distribution List:

Paul Bastarache (Regional Manager – C&E West Coast)

Jim Norlock (Field Unit Supervisor – C&E Port Alberni)

Rhonda Morris (District Manager – Alberni)

Ron Cotton (Land Resource Specialist – Coast Area)

From: [Chessor, Laura FLNR:EX](#)
To: [Casavant, Bryce FLNR:EX](#)
Subject: Nahmint OGMA ss tables
Date: Wednesday, June 13, 2018 4:05:31 PM
Attachments: [N OGMA's SSeries.xls](#)
[Nahmint_SMZ_Red_Blue_Lists.xlsx](#)

Hi Bryce,

Attached are the tables showing site series breakdowns for the draft OGMA's. The first one is from the 2007 analysis forwarded to me by Ron Cotton.

Thanks,

Laura

Laura Chessor, RPF
A/ Planning Officer
BCTS Strait of Georgia
(250) 286-9431

OBJECTC	Shape	OBJECTC	BCOGS	PSHMET	ECP	ECP_ID	ECP_NB	POLY	NB_FOOD	PROJ_ID	SOURCE	SDEC_1	SITE_S1	SITEMC_S1	SITE_M1A	SITE_M1B	STRUCT_S	SDEC_2	SITEMC_S1	SITE_M2A	SITE_M2B	SITEMC_S1	SITE_S3	SITEMC_S1	SITE_M3	SITE_M3	STRUCT_S	S_SHAPE_1	Shape	Sh Shape	Area	
19		39522		0	1235.23	6076	833321	44205023	2316	W225001	442025	10		0 AB	k	s	7	0	0	0	0	0	0	0	0	0	0	1235.217	902.1745	1723.65026		
20		103113		0	1107.493	6057	833322	44205023	2316	W225001	442025	10		0 MM	k	v	7	0	0	0	0	0	0	0	0	0	0	0	1107.471	525.5588	6232.753521	
29		101140		0	985.8543	5975	833323	44205022	2293	W225001	442025	10		0 MB	k	s	7	0	0	0	0	0	0	0	0	0	0	0	985.8729	51.38684	83.52471388	
30		87647		0	1213.009	5961	833324	44205022	2289	W225001	442025	10		0 MB	k	v	7	0	0	0	0	0	0	0	0	0	0	0	1213.006	474.9406	13954.373434	
37		20559		0	20559.59	5847	833325	44205022	2285	W225001	442025	10		0 AB	k	s	7	0	0	0	0	0	0	0	0	0	0	0	20559.492	38.2949	584.8104631	
41		112447		0	2475.857	5805	833319	44205022	2254	W225001	442025	6		0 MB	k	s	7	4	0	MM	k	v	7	0	0	0	0	0	2475.828	1382.521	52012.24678	
57		58703		0	1968.94	5388	255046	44305004	472	W225001	443005	6		0 AB	s	w	6	3	0	AB	k	s	6	3	0	AB	k	s	6	1968.927	1617.306	46335.16815
84		05794		0	1368.982	5222	254492	44305004	461	W225001	443005	10		0 TA	c	n	0	0	0	0	0	0	0	0	0	0	0	0	1368.962	809.822	4649.839453	
102		2889		0	2889.859	3338	63906	44101700	70026	W225001	441011	7		0 AB	s	w	7	3	3	AB	w	7	0	0	0	0	0	0	2889.704	8.884227	0.1034539023	
110		14645		0	1803.3093	3442	63906	44101700	70026	W225001	441011	10		0 HS	v	w	7	2	3	RO	w	7	1	0	0	0	0	0	1803.307	3891.117	4260.087904	
112		102783		0	27201.54	5148	254267	44305004	438	W225001	443005	10		0 RI			0	0	0	0	0	0	0	0	0	0	0	0	27201.55	1427.955	3533.600429	
115		6804		0	1212.719	5140	254267	44305004	435	W225001	443005	10		0 LA			0	0	0	0	0	0	0	0	0	0	0	0	1212.718	267.9956	560.040576	
118		44637		0	2889.859	3338	63906	44101700	70026	W225001	441011	7		0 AB	s	w	7	3	3	AB	w	7	0	0	0	0	0	0	2889.704	959.1281	29194.29194	
105		42937		0	387.2582	4825	253475	44305004	45	W225001	443005	10		0 TA			0	0	0	0	0	0	0	0	0	0	0	0	387.2873	867.2878	8362.308892	
237		91568		0	1105.108	4390	343379	444010071	785	W225001	444011	0		0			0	0	0	0	0	0	0	0	0	0	0	0	1105.138	321.7366	6328.801819	
256		14969		0	711.7822	4283	163365	44304005	527	W225001	443004	0		0 WE	p		3	0	0	0	0	0	0	0	0	0	0	0	711.7876	253.1587	1125.686435	
320		100238		0	2685.61	4056	165273	44304004	478	W225001	443004	5		0 SA	c		3	5	7	AS	k	7	0	0	0	0	0	0	2685.618	497.8499	11166.81477	
336		54481		0	2526.827	3929	250811	4410350021	281	W225001	443005	8		0 HS	r		6	2	0	RO		1	0	0	0	0	0	0	2526.811	1289.632	44545.50813	
339		32929		0	861.205	3945	165216	44304004	443	W225001	443004	10		0 RO	r		0	0	0	0	0	0	0	0	0	0	0	0	861.207	521.7054	3309.658663	
340		86847		0	635.8314	3942	165214	44304004	442	W225001	443004	10		0 SA	g	c	3	0	0	0	0	0	0	0	0	0	0	0	0	635.8262	278.2698	1242.519367
344		31194		0	1110.432	3927	165203	44304004	433	W225001	443004	10		0 MB	s	c	7	0	0	0	0	0	0	0	0	0	0	0	1110.432	224.6373	629.8437637	
351		82294		0	2861.199	3884	250725	44305002	279	W225001	443005	6		0 HS	w		6	4	0	AB	w	6	0	0	0	0	0	0	2861.216	210.733	2043.581443	
358		96320		0	1119.371	3862	165172	44304004	410	W225001	443004	10		0 TA			0	0	0	0	0	0	0	0	0	0	0	0	1119.368	308.2203	1837.055769	
359		67367		0	3839.854	1079	62712	44303012	1227	W225001	443003	7		0 RO	w		1	3	0	MM	v	7	0	0	0	0	0	0	3839.865	138.227	1283.23842	
370		99037		0	620.684	3845	165148	44304003	387	W225001	443004	10		0 TA			0	0	0	0	0	0	0	0	0	0	0	0	0	620.6808	16.95262	2.378631107
373		23452		0	1098.511	3841	165144	44304003	383	W225001	443004	7		0 SA	w		3	3	0	RO		0	0	0	0	0	0	0	1098.514	701.1693	4304.482917	
374		45863		0	1074.29	3839	165142	44304003	382	W225001	443004	10		0 SA	w		3	0	0	0	0	0	0	0	0	0	0	0	1074.285	412.151	8591.39357	
382		99901		0	1571.574	3792	165117	44304003	358	W225001	443004	10		0 TA			0	0	0	0	0	0	0	0	0	0	0	0	0	1571.564	75.80753	197.0649944
385		92027		0	2596.835	3788	165113	44304003	354	W225001	443004	10		0 SA	c		3	0	0	0	0	0	0	0	0	0	0	0	0	2596.837	1094.015	18659.1215
407		38633		0	1724.969	3715	165086	44304003	312	W225001	443004	6		0 SA	c		3	4	6	HD	c	7	0	0	0	0	0	0	1724.979	1073.281	15040.86014	
434		4863		0	2801.876	3598	164975	44304002	233	W225001	443004	10		0 SA	w		0	4	3	HS	s	7	0	0	0	0	0	0	2801.873	553.8707	1497.645996	
443		90045		0	2044.097	3580	164870	44304002	229	W225001	443004	7		0 SA	c	k	4	3	0	TA		0	0	0	0	0	0	0	2044.084	757.8074	9307.237039	
447		113665		0	592.2743	3548	164951	44304002	211	W225001	443004	10		0 SA	c	k	4	0	0	0	0	0	0	0	0	0	0	0	0	592.2748	172.3843	501.9328637
455		96421		0	3301.877	3515	164932	44304006	649	W225001	443004	10		0 LA			0	0	0	0	0	0	0	0	0	0	0	0	3301.886	612.7114	1085.832562	
464		11430		0	991.3029	3475	164912	44304001	177	W225001	443004	10		0 SA	c	n	4	0	0	0	0	0	0	0	0	0	0	0	0	991.2928	896.8954	7396.812552
467		119538		0	986.4121	3468	164905	44304001	174	W225001	443004	5		0 SA	c	w	3	5	0	TA		4	0	0	0	0	0	0	986.4033	4.474528	0.26786921	
470		101922		0	1662.467	3459	164899	44304001	165	W225001	443004	4		0 SA	c	k	3	4	3	RS	c	k	7	3	0	0	0	0	1662.472	285.3092	873.762103	
473		28369		0	1349.483	3452	164894	44304001	160	W225001	443004	10		0 SA	c	w	3	5	0	TA		0	0	0	0	0	0	0	1349.481	289.6403	1522.27659	
495		30329		0	596.2832	3382	164856	44304001	135	W225001	443004	10		0 TA			0	0	0	0	0	0	0	0	0	0	0	0	596.2898	147.9872	707.077854	
496		21907		0	464.274	3381	164855	44304001	134	W225001	443004	10		0 SA	c	w	3	4	3	HS	h	s	4	0	0	0	0	0	464.2718	37.63252	63.8499337	
505		81563		0	844.3923	3181	164748	44304000	52	W225001	443004	10		0 SA	c	k	3	0	0	0	0	0	0	0	0	0	0	0	0	844.4013	356.9575	1311.684224
507		63744		0	1067.45	3145	164725	44304000	35	W225001	443004	6		0 TA			0	4	3	HS	s	w	4	0	0	0	0	0	1067.458	1161.179	5202.777914	
508		10091		0	7213.736	3045	164675	44304005	579	W225001	443004	5		0 RO			0	4	2	MM	h	7	1	1	8	YS	p	0	7213.739	337.2275	2139.117275	
507		76903		0	731.8078	3017	164665	44304005	571	W225001	443004	10		0 TA			0	0	0	0	0	0	0	0	0	0	0	0	731.8067	25.88214	36.95442062	
618		83977		0	1704.133	2967	755771	44205021	2135	W225001	442025	10		0 RO			1	3	2	MM	v	w	7	0	0	0	0	0	1704.139	437.6668	2240.716952	
620		99685		0	6526.54	2803	755771	44205021	2128	W225001	442025	10		0 MM	v		7	4	0	RO		1	1	0	0	0	0	0	6526.52	1199.073	12478.483	
621		60359		0	2162.069	2832	755771	44205021	2130	W225001	442025	10		0 MM	v		7	3	0	RO		1	0	0	0	0	0	0	2162.073	135.3648	176.0058412	
624		70289		0	4197.40																											

OBJECTID	Shape	OBJECTID	BCOGS	BCOGS	PERMITS	ECIP	ECIP	MB	POLY	FOOD	PROJ_ID	SOURCE	SDEC_1	SITE_S1	SITEMC_S1	SITE_M1A	SITE_M1B	STRUCT_S	SDEC_2	SITEMC_S1	SITE_M2A	SITE_M2B	SITEMC_S1	SITE_S3	SITEMC_S1	SITE_M3	SITE_M3	STRUCT_S	S_SHAPE	S_SHAPE	Le	Shape	Area	
132	99239	0	1405	988	5065	253986	44305004	421	W252001	44305			5	1	AB	c	h	7	5	0	RO							0	406.017	1150.567	292	4.81		
134	93210	0	1140	537	5063	253982	44305004	561	W252001	44305			5	1	AB	c	h	7	5	0	RO							0	1140.455	178.7235	1778	15		
139	2441	0	4731	969	5020	253822	44305004	415	W252001	44305			7	1	AB	c	k	7	3	6	HD	c	k	7	0	0	0	0	4731.994	4092.954	349572	85		
140	97302	0	1677	589	5017	253808	44305001	53	W252001	44305			7	1	AB	c	k	7	3	6	HD	c	k	7	0	0	0	0	1677.595	149	1387	658	85	
141	92838	0	817	8116	5016	253807	44305001	459	W252001	44305			7	1	AB	c	k	7	3	6	HD	c	k	7	0	0	0	0	817.9176	142	1938	3194	17	
145	42264	0	3481	039	4930	253501	44305005	556	W252001	44305			10	1	MB	c	n	7	0	0	0						0	0	3481.056	711	7342	5688	38	
148	34957	0	2129	479	4988	253886	44305004	409	W252001	44305			10	1	AB	c	n	7	0	0	0						0	0	2129.488	2133	769	84358	72	
152	4674	0	1016	532	2951	2644	44101026	2644	W252001	44101	P		10	1	AB	s	k	7	0	0	0						0	0	1016.532	860	0693	37457	56	
159	47245	0	4910	893	2599	2656	44101026	2656	W252001	44101	P		10	1	AB	s	k	7	4	1	AB	k	k	7	0	0	0	0	4910.897	531	4428	200	55	
163	2484	0	3481	039	4930	253501	44305005	556	W252001	44305			10	1	MB	c	n	7	0	0	0						0	0	3481.056	132	4402	352	32	
169	113670	0	1404	498	4906	345026	44401008	862	W252001	44401			4	1	AB	c	k	7	4	6	HD						5	1404.697	650	1229	8016	08		
171	55248	0	2893	842	4878	253299	44305003	393	W252001	44305			10	1	AB	c	k	7	0	0	0						0	0	2893.852	3400	942	131856	20	
177	70733	0	3670	847	4842	253171	44305003	368	W252001	44305			5	1	AB	c	k	7	5	6	HD	c	k	7	0	0	0	0	3670.845	81	58911	101	26	
179	22085	0	2708	673	2504	548	44101056	548	W252001	44101			6	1	AB	s	k	7	4	1	AB	k	k	7	0	0	0	0	2708.669	402	0796	11547	73	
180	33032	0	5061	965	4820	253106	44305003	396	W252001	44305			7	1	AB	c	k	7	3	4	RS	c	k	7	0	0	0	0	5061.957	3556	195	176887	05	
187	55690	0	3298	241	4753	252887	44305003	374	W252001	44305			7	1	AB	c	k	7	3	0	RO						0	0	3298.259	79	0219	217	76	
188	52386	0	3761	241	4743	252953	44305003	372	W252001	44305			10	1	AB	c	k	7	0	0	0						0	0	3761.237	1557	927	76966	91	
192	24296	0	3880	064	4708	252727	44305001	29	W252001	44305			7	1	AB	c	k	7	3	4	RS	c	k	7	0	0	0	0	3880.077	2259	572	11547	73	
193	62652	0	488	5182	4693	252681	44305003	365	W252001	44305			10	1	AB	c	n	7	0	0	0						0	0	488.5123	462	1105	14061	79	
194	64736	0	4043	812	4658	252545	44305003	359	W252001	44305			10	1	AB	c	n	7	0	0	0						0	0	4043.8	2426	933	70291	89	
195	16346	0	9173	123	4655	252526	44305003	358	W252001	44305			10	1	AB	c	j	7	0	0	0						0	0	9173.133	1961	781	51488	57	
201	113782	0	732	8783	4608	252340	44305003	349	W252001	44305			7	0	1	AB	c	n	7	0	0	0					0	0	732.875	604	8381	19618	12	
203	109163	0	4391	355	4601	252323	44305003	347	W252001	44305			7	0	1	AB	c	n	7	3	4	RS	c	j	0	0	0	0	4391.351	3702	049	196328	69	
204	86232	0	4564	066	4596	252306	44305003	345	W252001	44305			10	1	AB	c	n	7	0	0	0						0	0	4564.028	1270	63	27432	69	
209	55247	0	2198	695	4547	252172	44305003	334	W252001	44305			7	1	AB	c	j	7	3	4	RS	c	j	7	0	0	0	0	2198.7	1427	877	68073	13	
211	23346	0	931	6157	4528	252106	44305003	329	W252001	44305			10	1	AB	c	n	7	0	0	0						0	0	931.6296	867	0936	44920	61	
212	1183	0	1783	498	4526	1184	44304007	777	W252001	44304			10	1	AB	c	n	7	7	7	7	7	7	7	0	0	0	0	1783.038	1154	69	42493	80	
213	99238	0	931	7788	4523	165413	44304007	776	W252001	44304			5	1	MB	d	h	7	9	Y	G	p	7	4	0	0	0	0	931.786	431	8195	5247	38	
214	91490	0	1267	365	4520	165412	44304007	775	W252001	44304			5	1	MB	d	h	7	8	Y	G	p	7	4	0	0	0	0	1267.365	269	2512	1671	06	
216	21413	0	3312	238	4511	252067	44305003	327	W252001	44305			10	1	AB	c	n	7	0	0	0						0	0	3312.203	1814	07	38511	08	
221	4051	0	4051	8661	4479	251976	44305003	318	W252001	44305			10	1	MB	d	h	7	4	2	MM	c	k	7	0	0	0	0	4051.395	560	211	46263	03	
241	16005	0	1950	156	4307	165384	44304005	537	W252001	44304			5	1	AB	k	k	7	5	3	HS	k					0	0	1950.162	448	1469	3717	01	
243	30657	0	784	7085	4350	165383	44304007	753	W252001	44304			10	1	MB	d	h	7	0	0	0						0	0	784.7154	83	07977	233	45	
247	59199	0	1393	794	4329	165377	44304005	534	W252001	44304			5	1	AB	k	k	7	5	3	AF	k					7	0	1393.772	567	6327	6302	58	
251	3241	0	630	281	4310	165373	44304005	532	W252001	44304			10	1	AB	d	k	7	0	0	0						0	0	630.2774	155	9102	200	59	
252	47602	0	2365	823	4305	165371	44304005	531	W252001	44304			5	1	AB	k	k	7	5	5	AF	k					0	0	2365.837	706	9411	8485	29	
255	12499	0	1859	787	4288	165367	44304007	747	W252001	44304			6	1	AB	n	n	7	4	5	AF	n					3	0	1859.78	1697	591	38471	28	
258	76550	0	2229	005	4278	165364	44304007	745	W252001	44304			7	1	MB	k	s	7	2	2	MM	c	s	7	0	0	0	0	2229.002	745	7784	18566	27	
264	3194	0	1314	252	4253	165355	44304007	738	W252001	44304			4	1	AB	k	g	7	4	5	AF	k	g	7	2	7	AS	k	g	1314	269	584	2052	14
266	107066	0	1947	277	4249	251452	44305003	304	W252001	44305			10	1	MB	k	j	7	0	0	0						0	0	1947.271	1011	358	24822	34	
267	15189	0	1233	929	4247	165353	44304007	736	W252001	44304			5	1	AB	k	j	7	5	5	AF	k					0	0	1233.941	1135	757	5232	21	
269	76437	0	2380	295	4243	251443	44305003	303	W252001	44305			6	1	AB	c	j	7	3	3	HS	c	h	7	1	0	RO	0	2380	295	39	39425	47	
270	113667	0	1060	889	4242	165351	44304007	734	W252001	44304			5	1	MB	k	h	7	5	5	AB	k	h	7	0	0	0	0	1060.885	592	9223	8897	61	
294	73799	0	4196	021	4140	251206	44305002	294	W252001	44305			7	0	1	AB	c	w	7	0	0	0					0	0	4196.02	3487	978	11491	54	
296	63230	0	1062	537	4130	251186	44305002	293	W252001	44305			10	1	AB	c	w	7	0	0	0						0	0	1062.547	166	2859	1363	49	
307	45513	0	1259	4108	251137	44305002	291	W252001	44305			6	1	MB	w	w	7	0	4	0	MM						7	0	1259.005	1221	708	31207	49	
310	41926	0	852	074	1334	486	44101004	466	W252001	44101			7	1	AB	k	j	7	7	7	AS	g	k	3	0	0	0	0	852.095	762	1184	23694	28	
318	73695	0	5812	577	4096	251120	44305002	290	W252001	44305			10	1	AB	j	g	7	3	0	0						0	0	5812.584	330	1949			

OBJECTID	Shape	OBJECTID	BCOGS	PERM	NET	ECP	IP	MB	POLY	NB	FOODE	PROJ_ID	SOURCE	SDEC_1	SITE_S1	SITEMC_S1	SITE_M1A	SITE_M1B	STRUCT	S_SDEC_2	S1SITEMC_SITE_M2A	SITE_M2B	STISDEC_3	SITE_S3	SITEMC_1	SITE_M3	SITE_M3E	STRUCT_3	SHAPE_L	Shape	Lo Shape	Area										
510	11104	0	1841.088	3341	164835	44304001	118	W252001	44304	10	1 AB	h	c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1841.087	172.0215	1482.211						
519	96313	0	1761.098	3314	164820	44304001	107	W252001	44304	5	1 AB	w	c	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1761.111	257.3323	269.07					
598	105783	0	3241.311	3018	164686	44304005	572	W252001	44304	6	1 AB	w	c	7	2	7 AS	w																	3	3241.316	1241.373	58500.88					
599	33834	0	2970.465	3016	164684	44304000	3	W252001	44304	6	1 AB	w	c	7	3	7 AS	w																		7	2970.48	882.2877	16983.66				
601	168226	0	168226	3007	168226	44304005	569	W252001	44304	5	1 AB	w	c	7	4	3 MO	w																		0	1670.508	1672.701	126241.77				
605	32126	0	1053.011	3000	164657	44304005	565	W252001	44304	5	1 MB	k	c	5	7	3 2 MM	k	s																	7	1053.000	882.3028	11232.71				
611	62545	0	3001.942	2856	164650	44304005	558	W252001	44304	5	1 MB	c	j	7	7	3 2 MM	c	s																	7	3001.956	506.191	157318.80				
616	11102	0	1893.951	2943	164648	44304005	556	W252001	44304	5	1 MB	c	j	7	7	3 2 MM	k	s																	7	1693.974	1777.697	93728.89				
1 Total																																										
69	33964	0	1130.489	5298	254750	44305001	116	W252001	44305	5	2 LC	c	s	6	5	0 RO																			0	1130.489	81.87826	69.63				
76	45971	0	3439.169	5245	254582	44305000	96	W252001	44305	5	2 LC	c	s	6	5	0 RO																				0	3439.194	4705.391	111861.83			
113	97410	0	421.2497	3424	63930	44101700	70029	W252001	44101	7	2 LC	c	h	7	0	0																					0	421.246	421.246	10297.63		
166	107943	0	1684.009	4823	253469	44305003	399	W252001	44305	8	2 LC	c	z	7	2	0 RO																					0	1684.006	452.0843	5129.16		
196	49789	0	1046.665	4620	252048	44305003	354	W252001	44305	2	2 MM	c	z	7	0	0																					0	1046.573	651.6953	5814.24		
224	47040	0	1602.356	4453	165404	44304007	767	W252001	44304	2	2 MM	w	c	7	0	0																					0	1602.354	1575.936	76915.16		
225	69938	0	3654.385	4452	165403	44304007	766	W252001	44304	2	2 MM	s	h	7	4	0 RO																					0	3654.391	1044.021	4803.08		
227	92891	0	411.2229	4438	165400	44304005	554	W252001	44304	7	2 MM	s	g	7	3	0 RO																					0	411.235	306.7249	5319.38		
233	20769	0	1193.863	4394	165393	44304007	758	W252001	44304	8	2 MM	h	s	7	2	0 RO																					0	1193.867	851.3432	12541.54		
248	27574	0	3071.926	1617	516	44101005	516	W252001	44101	8	2 MM	k	v	7	2	0 RO																					0	3071.912	353.7819	3268.65		
250	81285	0	3582.636	4315	165375	44304007	749	W252001	44304	8	2 MM	s	h	7	4	0 RO																						0	3582.688	1392.045	16346.44	
253	39078	0	828.2948	1697	510	44101005	510	W252001	44101	10	2 MM	v	w	7	0	0																					0	828.2532	531.0172	7286.40		
254	45514	0	1465.877	4201	251584	44305003	308	W252001	44305	10	2 MM	g	k	7	0	0																					0	1465.892	703.2824	11856.92		
257	98232	0	1374.492	4282	251519	44305003	286	W252001	44305	10	2 MM	k	g	7	0	0																					0	1374.49	1386.114	43525.11		
309	58956	0	2402.423	4098	165291	44304007	710	W252001	44304	6	2 MM	h	w	7	3	3 MO	h																				3	2402.403	448.1267	11004.02		
352	74962	0	1829.863	1085	62651	44303006	613	W252001	44303	8	2 MM	w	c	7	2	0 RO																						1	0	1829.872	1020.425	59093.68
381	5623	0	3463.866	3794	165119	44304003	360	W252001	44304	6	2 MM	s	c	7	4	0 SA																					0	3463.872	256.5119	3462.61		
425	22211	0	2117.795	3407	145	44304001	145	W252001	44304	8	2 MM	h	w	7	0	0																					0	2117.768	380.314	43537.61		
489	79638	0	1390.98	3397	164865	44304001	141	W252001	44304	8	2 MM	s	c	7	2	0 RO																						0	1390.988	640.3058	15447.86	
502	437	0	4688.681	3367	164847	44304006	628	W252001	44304	5	2 MM	k	v	7	0	0																						0	4688.663	513.6614	7487.29	
539	67166	0	902.7962	3236	164774	44304006	611	W252001	44304	8	2 MM	w	c	7	1	3 MO	w																				0	902.7968	636.5026	16259.50		
556	3285368	0	3285368	3178	6546	44304006	654	W252001	44304	8	2 MM	s	h	7	2	1 MB	s	h																			0	3285368	651.0482	16421.45		
575	89970	0	746.3816	3126	164715	44304000	26	W252001	44304	10	2 MM	s	w	7	0	0																						0	740.3761	175.8478	1756.89	
578	9409	0	2712.647	3109	164707	44304005	596	W252001	44304	8	2 MM	s	w	7	2	0 CL																						0	2712.661	2196.57	86969.50	
579	31899	0	1552.452	3106	164705	44304005	594	W252001	44304	4	2 MM	s	c	7	4	1 MB	c																				7	1552.443	453.1486	7083.78		
622	27672	0	3032.795	2672	755785	44205021	2136	W252001	44205	8	2 MM	v	w	7	5	1 MB	s	w																			0	3032.773	1647.157	38082.72		
623	7017	0	2482.209	2920	755791	44205021	2151	W252001	44205	8	2 MM	k	v	7	0	0																						0	2482.202	1582.894	74602.27	
625	90820	0	752.4543	2898	755789	44205021	2144	W252001	44205	8	2 MM	v	w	7	5	1 MB	s	w																			0	752.4932	365.9959	6334.35		
281	104852	0	1164.793	4201	251355	44305002	299	W252001	44305	10	2 MM	k	v	7	0	0																					0	1164.792	1292.092	25661.21		
602	46639	0	676.2752	3006	164661	44304005	568	W252001	44304	5	2 MM	s	h	7	5	0 YC	p																				0	676.2818	411.768	1525.46		
603	4																																									

OBJECTID	Shape	OBJECTID	BCOGSDH	PERIMETER	ECP	ECP_ID	ECP_NB	POLY_NB	FOODE	PROJ_ID	SOURCE	SDEC_1	SITE_S1	SITEMC_S1	SITE_M1A	SITE_M1B	STRCT_S	SDEC_2	SITEMC_S1	SITE_M2A	SITE_M2B	STISDEC_3	SITE_S3	SITEMC_1	SITE_M3	SITE_M3	STRUCT	S_SHAPE	L_Shape	Le_Shape	Area
228	54287	0	2499.258	4436	165399	44304007	763	WZ25001	44304		5	5 AF	k					5 4 RS	k		g	7	0	0	0	0	0	2499.271	2027.897	10369.36	
232	83070	0	2586.003	4401	165394	44304007	759	WZ25001	44304		6	5 AF	k					5 4 RS	k		g	7	0	0	0	0	0	2586.116	2229.188	139722.27	
235	44312	0	2889.316	4389	165390	44304007	757	WZ25001	44304		8	5 AF	k					2 4 RS	k		g	7	0	0	0	0	0	2889.328	367.9146	4597.01	
236	107497	0	840.9621	4385	165389	44304005	539	WZ25001	44304		6	5 AF	k					4 7 AS	k		g	7	0	0	0	0	0	840.9653	507.634	4113.34	
244	98935	0	354.39412	4348	165381	44304005	536	WZ25001	44304		6	5 AF	k					4 7 AS	k		g	7	0	0	0	0	0	354.3941	463.8022	4281.87	
245	89966	0	6002.666	4340	165379	44304007	751	WZ25001	44304		6	5 AF	k					7 4 AS	k		g	7	0	0	0	0	0	6002.704	1953.354	81533.14	
246	14857	0	1014.807	4339	165378	44304007	750	WZ25001	44304		7	5 MT	k					2 0 SA	s		g	3	2	0	4 AB	s	g	7	1014.837	1148.673	35682.20
249	57706	0	1758.628	4321	165376	44304005	525	WZ25001	44304		5	5 AF	k					5 1 AB	k		g	7	0	0	0	0	0	1758.642	1084.931	56225.53	
252	73696	0	2224.196	4264	165358	44304005	552	WZ25001	44304		4	5 AF	k					3 1 AS	k		g	7	0	0	0	7 AS	g	7	2224.201	1518.292	47149.43
272	55022	0	1846.402	4234	165348	44304007	732	WZ25001	44304		6	5 AF	k					4 4 RS	k		g	7	0	0	0	0	0	1846.413	11897.943	91597.04	
293	17254	0	1672.24	4142	165314	44304005	503	WZ25001	44304		6	5 AF	k					4 1 AB	k		g	7	0	0	0	0	0	1672.214	1912.887	53441.78	
299	22335	0	2149.35	4124	165308	44304007	714	WZ25001	44304		6	5 AF	k					2 7 AS	k		g	7	0	0	0	0	0	2149.361	283.103	3563.61	
300	103657	0	3116.083	4121	165305	44304004	499	WZ25001	44304		8	5 AF	k					2 1 AB	k		g	7	0	0	0	0	0	3116.106	342.9019	8149.51	
301	23992	0	2839.214	4120	165304	44304004	498	WZ25001	44304		6	5 AF	k					2 1 AB	k		g	7	0	0	0	6 HD	g	7	2839.23	1097.829	48403.62
302	27581	0	1273.497	4115	165301	44304004	495	WZ25001	44304		8	5 AF	k					2 1 AB	k		g	7	0	0	0	0	0	1273.502	368.6367	1160.01	
304	5035	0	1566.503	4112	165299	44304007	712	WZ25001	44304		6	5 AF	k					4 4 RS	h		g	7	0	0	0	0	0	1566.519	504.0187	3442.85	
316	109476	0	736.715	4070	165280	44304004	482	WZ25001	44304		7	5 AF	t					3 7 AS	t		g	7	0	0	0	0	0	736.697	740.6156	22486.65	
317	11196	0	5574.457	4055	165276	44304007	702	WZ25001	44304		8	5 AF	k					2 7 AS	k		g	7	0	0	0	0	0	5574.492	2374.518	138650.00	
327	23102	0	1263.771	3992	165246	44304004	463	WZ25001	44304		5	5 AF	c					5 1 AS	c		k	7	0	0	0	0	0	1263.767	600.3162	8177.29	
328	11762	0	1902.863	3989	165243	44304004	461	WZ25001	44304		6	5 AF	c					2 1 AB	c		g	7	2	2	4 RS	g	7	1902.861	1763.379	132473.78	
331	57601	0	3349.439	3979	165234	44304004	456	WZ25001	44304		6	5 AF	c					3 7 AS	c		g	7	0	0	0	0	0	3349.444	1851.068	52514.94	
332	27130	0	3269.413	3973	165233	44304004	455	WZ25001	44304		6	5 AF	c					2 7 AS	c		w	7	2	2	4 RS	w	7	3269.409	1133.823	14698.03	
335	66020	0	3583.885	3959	165224	44304004	449	WZ25001	44304		6	5 AF	c					3 3 RS	c		g	3	2	2	6 HD	g	7	3583.71	198.9429	948.59	
337	17359	0	2003.841	3952	165221	44304006	681	WZ25001	44304		10	5 AF	s					0 0	s		g	0	0	0	0	0	0	2003.837	1868.357	77301.88	
341	1871	0	3822.026	3934	165208	44304006	678	WZ25001	44304		7	5 AF	k					3 7 AS	k		g	7	0	0	0	0	0	3822.044	765.8994	30043.12	
342	31658	0	2910.344	3935	165209	44304004	437	WZ25001	44304		5	5 AF	k					5 7 AS	k		g	7	0	0	0	0	0	2910.342	977.7972	32656.23	
345	600	9205	600.9205	3925	165202	44304004	432	WZ25001	44304		10	5 AF	k					0 0	k		g	0	0	0	0	0	0	600.938	1666.7991	15761.66	
347	5824	0	1107.567	3910	165192	44304004	425	WZ25001	44304		10	5 AF	n					4 0 SA	n		g	3	0	0	0	0	0	1107.566	466.4262	9226.46	
348	67379	0	1626.742	3909	165191	44304004	424	WZ25001	44304		6	5 AF	k					2 1 AB	k		g	7	2	2	7 AS	g	7	1626.764	1909.647	35559.31	
349	2964	0	3787.123	3898	165184	44304006	673	WZ25001	44304		4	5 AF	g					4 3 HS	g		g	7	2	2	7 AS	g	7	3787.126	2160.282	13969.81	
357	7232	0	2440.801	3895	165173	44304006	671	WZ25001	44304		4	5 AF	g					3 3 HS	g		g	7	2	2	7 AS	g	7	2440.598	705.5427	17215.61	
364	11644	0	615.1043	3861	165159	44304003	397	WZ25001	44304		4	5 AF	g					4 3 HS	g		g	7	2	2	7 AS	g	7	615.1048	613.1055	11433.88	
376	12620	0	3555.05	3828	165135	44304003	375	WZ25001	44304		4	5 AF	g					4 3 HS	g		g	7	2	2	7 AS	g	7	3555.053	1082.298	63302.24	
380	44834	0	3117.707	3796	165121	44304003	362	WZ25001	44304		8	5 AF	w					2 3 HS	w		g	7	0	0	0	0	0	3117.687	989.7143	28155.48	
383	84092	0	5809.73	3790	165115	44304003	358	WZ25001	44304		4	5 AF	g					4 3 HS	g		g	7	2	2	7 AS	g	7	5809.745	3957.068	17019.57	
387	49965	0	2642.837	3782	165110	44304003	351	WZ25001	44304		10	5 AF	d					0 0	d		g	0	0	0	0	0	0	2642.841	1540.876	29688.73	
388	72275	0	2208.499	3781	165109	44304003	350	WZ25001	44304		5	5 AF	h					3 5 AF	h		g	7	2	2	4 RS	h	7	2208.525	1634.237	52986.48	
390	104851	0	2519.889	3771	165102	44304003	343	WZ25001	44304		5	5 AF	j					5 7 AS	j		g	7	0	0	0	0	0	2519.884	2507.559	57199.03	
392	81175	0	2955.798	3765	165098	44304003	339	WZ25001	44304		8	5 AF	j					2 5 AF	j		g	7	0	0	0	0	0	2955.792	87.48328	371.10	
393	57493	0	1647.978	3763	165096	44304003	337	WZ25001	44304		3	5 AF	d					0 0	d		g	0	0	0	0	0	0	1647.993	189.9552	1901.98	
395	103109	0	3213.956	3759	165094	44304003	336	WZ25001	44304		8	5 AF	d					2 4 RS	d		j	7	0	0	0	0	0	3213.962	957.3062	18737.49	
396	109162	0	2521.376	3754	165090	44304003	332	WZ25001	44304		8	5 AF	j					2 1 AB	j		g	3	0	0	0	0	0	2521.375	77.97082	250.05	
398	69323	0	1445.721	3741	165084	44304003	328	WZ25001	44304		10	5 AF	d					0 0	d		g	0	0	0	0	0	0	1445.706	20.87393	4.86	
402	87754	0	2178.111	3727	165073	44304003	317	WZ25001	44304		5	5 AF	d					0 WE	d		g	7	2	2	1 AB	d	j	7	2178.115	2714.108	62456.33
405	62778	0	2469.424	3722	165070	44304003	314	WZ25001	44304		8	5 AF	d					2 5 AF	d		c	7	0	0	0	0	0	2469.418	116.9301	78.89	
409	34288	0	4939.497	3700	165057	44304003	308	WZ25001	44304		3	5 AF	d					2 4 RS	d		c	3	1	1	5 AF	d	h	4939.503	499.9511	12768.15	
411	11643	0	1382.665	3697	165054	44304003	305	WZ25001	44304		3	5 AF	w					6 HD	w		g	3	0	0	0	0	0	1382.673	55.26069	143.92	
412	112557	0	1487.717	3696	165053	44304003	304	WZ25001	44304		8	5 AF	w					2 7 AS	w		g	7	0	0	0	0	0	1487.719	1132.659	27179.26	
414	28647	0	4304.211	3692	165051	44304003	302	WZ25001	44304		7	5 AF	w					4 5 AF	w		g	7	0	0	0	0	0	4304.211	2033.209	14934.77	
415	43508	0	1053.926	3689	165049	44304003	300	WZ25001	44304		7	5 AF	d																		

OBJECTID	Shape	OBJECTID	BCOGS	PERIMET	ECP	ECP_ID	ECP_NB	POLY_NB	FOODE	PROJ_ID	SOURCE	SDEC_1	SITE_S1	SITEMC_S1	SITE_M1A	SITE_M1B	STRCT_S	SDEC_2	SITEMC_S1	SITE_M2A	SITE_M2B	STISDEC_3	SITE_S3	SITEMC_S3	SITE_M3	STRCT_S	S_SHAPE	L_Shape	Le_Shape	Area	
609	47481	0	4367.841	2988	164652	44304095	560	W252001	44304				6	5 Total					1	0 SA						7	4367.841	4445.438	230	80.85	
22	58201	0	3540.541	6025	256292	44305005	530	W252001	44305				10	6 HD	c	h		7	0	0						0	3540.488	839.1168		19075.25	
33	71593	0	1529.146	5911	256081	44305002	257	W252001	44305				10	6 HD	c	k		7	0	0						0	1529.143	1315.018		36759.37	
34	74731	0	1529.146	5911	256081	44305002	257	W252001	44305				10	6 HD	c	k		3	0	0						0	1529.146	1315.018		15597.47	
36	89615	0	2193.195	5881	256005	44305005	518	W252001	44305				10	6 HD	c	k		7	0	0						0	2193.192	751.6085		16347.21	
43	27419	0	3031.199	5785	255792	44305005	512	W252001	44305				8	6 HD	c	k		7	2	0 TA		c		k		4	3031.211	1151.073		48766.11	
44	28251	0	1174.876	5740	255721	44305005	505	W252001	44305				10	6 HD	c	g		7	0	0						0	1174.853	48.3603		74.53	
45	85657	0	1180.144	5737	255716	44305002	234	W252001	44305				10	6 HD	c	g		7	0	0						0	1180.145	852.1163		14718.92	
46	441	0	2810.81	5734	255712	44305005	503	W252001	44305				6	6 HD	c	k		7	2	0 TA		c		k		3	2810.814	821.6071		98655.70	
47	3007	0	1059.104	5703	255655	44305002	226	W252001	44305				10	6 HD	c	k		7	0	0						0	1059.101	356.8923		4944.60	
48	18144	0	2281.14	5687	255631	44305004	499	W252001	44305				10	6 HD	c	k		7	0	0						0	2281.171	2718.03		69174.66	
49	79873	0	2166.916	5683	255626	44305002	217	W252001	44305				10	6 HD	c	g		7	0	0						0	2166.92	592.8816		7655.69	
51	15679	0	2459.832	5651	255556	44305002	209	W252001	44305				10	6 HD	c	k		7	0	0						0	2459.835	2788.739		213441.46	
75	42631	0	2868.862	5249	254591	44305001	97	W252001	44305				10	6 HD	c	n		6	0	0						0	2868.878	1332.43		50232.47	
81	48800	0	5124.466	5164	345942	44401090	936	W252001	44401				4	6 HD	c			6	4	1 AB						6	5124.461	615.7265		5157.83	
97	82205	0	1380.529	5188	254395	44305000	81	W252001	44305				10	6 HD	c	t		5	0	0						0	1380.528	1360.288		71738.55	
99	78877	0	4228.056	5059	345896	44401098	901	W252001	44401				7	6 HD	c			6	3	1 AB						0	4228.055	21.74781		0.97	
147	41505	0	1115.032	4987	253688	44305000	49	W252001	44305				9	6 HD	c	k		7	1	0 SA		c		k		3	0	0	0	0	
150	106088	0	3025.869	4979	253653	44305005	558	W252001	44305				9	6 HD	c	k		7	1	0 SA		c		k		3	0	0	0	0	
172	81388	0	3076.428	4876	253295	44305003	392	W252001	44305				10	6 MD	c	h		7	0	0						0	3076.385	739.7655		23072.72	
174	84300	0	3778.887	4869	253276	44305000	39	W252001	44305				10	6 HD	c	h		7	0	0						0	3778.869	27.05296		29.56	
178	108828	0	2090.889	4835	253144	44305003	387	W252001	44305				10	6 HD	c	w		7	0	0						0	2290.894	2282.303		192224.68	
182	23103	0	793.1285	4801	253056	44305000	32	W252001	44305				10	6 HD	c	k		7	0	0						0	793.1388	345.7162		4122.07	
183	18143	0	4897.033	4794	253025	44305003	384	W252001	44305				10	6 HD	c	k		7	0	0						0	4897.025	678.1855		18864.87	
184	48031	0	2520.353	4783	252985	44305003	381	W252001	44305				10	6 HD	c	k		7	0	0						0	2520.358	1472.284		72854.77	
189	19555	0	2003.837	4732	252818	44305003	371	W252001	44305				10	6 HD	c	k		7	0	0						0	2005.833	1948.874		119844.74	
191	155599	0	4048.007	4707	252726	44305003	367	W252001	44305				10	6 HD	c	k		7	0	0						0	4048.044	968.6412		33915.10	
206	64735	0	3318.117	4579	252270	44305003	341	W252001	44305				10	6 HD	c	k		7	0	0						0	3318.109	1958.244		82382.36	
207	51569	0	3742.722	4570	252248	44305003	340	W252001	44305				10	6 HD	c	k		7	0	0						0	3742.699	3862.955		152838.33	
240	70827	0	721.8491	4370	163386	44304005	538	W252001	44304				6	6 MD	k	g		7	4	4 AB		k		g		7	721.857	517.766		9789.55	
242	52711	0	454.188	4349	163382	44304007	752	W252001	44304				8	6 MD	k	g		7	2	0 SA		k		g		4	0	0	0	0	
356	110517	0	670.3061	3886	165174	44304004	411	W252001	44304				6	6 HD	k	s		7	0	0						0	670.2932	570.1254		12419.31	
361	22212	0	687.0087	3875	165188	44304004	406	W252001	44304				10	6 HD	h	c		7	0	0						0	687.0208	665.4196		7295.98	
366	24625	0	2113.208	3859	165157	44304003	395	W252001	44304				10	6 MD	g	c		9	4	1 SA		g		c		3	0	0	0	0	
416	91251	0	982.27	3687	165047	44304002	298	W252001	44304				10	6 HD	w	c		7	0	0						0	982.2702	684.5392		10959.78	
417	31773	0	1168.492	3682	165043	44304002	295	W252001	44304				10	6 HD	c	d		7	0	0						0	1168.492	1205.443		48878.27	
421	72378	0	2331.352	3660	165027	44304002	280	W252001	44304				10	6 HD	w			7	4	4 RS		w				7	0	0	0	0	
422	32353	0	1982.08	3658	165025	44304002	278	W252001	44304				7	6 HD	j			7	3	4 RS		j				7	0	0	0	0	
425	42828	0	2877.08	3640	165012	44304002	267	W252001	44304				5	6 HD	d	c		7	5	7 AS		d		c		7	0	0	0	0	
436	103994	0	1241.359	3605	164987	44304002	244	W252001	44304				7	6 HD	c	n		7	5	0 SA		c	n		3	0	0	0	0	0	
478	95206	0	1757.683	3430	164881	44304001	151	W252001	44304				8	6 HD	w			7	2	1 AB						7	0	0	0	0	
498	18387	0	986.3255	3376	164852	44304001	133	W252001	44304				6	6 MD	k	g		7	4	4 AB		k		g		7	0	0	0	0	
501	85084	0	1646.052	3370	164849	44304001	130	W252001	44304				10	6 HD	d	h		7	0	0						0	1646.052	1598.205		64460.66	
555	86438	0	3982.215	3188	164751	44304001	94	W252001	44304				8	6 HD	g			7	2	1 AB		g				7	0	0	0	0	
517	16883	0	2496.895	3316	164822	44304001	109	W252001	44304				10	6 HD	d	c		7	0	0						0	2496.888	2811.51		70195.26	
														6 Total																	2171531.58
9	73688	0	1707.873	6302	788472	44200238	2368	W252001	44200	P			6																		

Biogeoclimatic Zone + Leading Site Series	Within OGMA	Outside of OGMA	Total Hectares	Percentage Within OGMA
AT			95.8	95.8
00		71.8	71.8	0.0%
(blank)		24.0	24.0	0.0%
CWHvm1 Totals	1346.4	8546.5	9892.9	
00	7.9	182.7	190.6	4.3%
01	229.5	3147.7	3377.2	7.3%
02	2.3	31.1	33.4	7.5%
03	196.5	1155.1	1351.5	17.0%
04	156.9	1488.3	1645.2	10.5%
05	369.3	1327.2	1696.5	27.8%
06	99.7	535.6	635.3	18.6%
07	124.4	345.4	469.8	36.0%
08	60.1	101.5	161.6	59.2%
09	60.1	110.7	170.8	54.3%
10	39.3	88.8	128.1	44.2%
11	0.0	25.6	25.6	0.0%
14	0.4	6.8	7.2	6.0%
CWHvm2 Totals	948.0	4976.3	5924.4	
00	3.4	235.3	238.7	1.4%
01	240.9	1286.2	1527.1	18.7%
02	12.3	43.9	56.2	27.9%
03	136.6	1011.3	1147.9	13.5%
04	128.8	915.6	1044.4	14.1%
05	246.8	716.1	962.9	34.5%
06	80.4	362.9	443.3	22.2%
07	75.4	300.8	376.2	25.1%
08	13.0	60.3	73.2	21.5%
09	10.4	44.1	54.5	23.7%
CWHxm2 Totals		20.1	20.1	
00		1.8	1.8	0.0%
01		13.9	13.9	0.0%
04		4.4	4.4	0.0%
MHm1 Totals	229.5	2406.7	2636.2	
00	7.2	900.7	907.9	0.8%
01	87.9	264.4	352.3	33.3%
02	74.2	793.4	867.6	9.4%
03	14.8	264.4	279.1	5.6%
04	35.9	42.6	78.5	84.1%
05	3.6	70.4	73.9	5.1%
06	5.9	70.7	76.6	8.3%
09		0.2	0.2	0.0%
MHmmp Totals		0.2	0.2	
00		0.2	0.2	0.0%
No Data	24.2	70.1	94.4	
(blank)	24.2	70.1	94.4	
Total Hectares	2548.2	16115.8	18663.9	

Biogeoclimatic Zone + Leading Site Series	Sum of Hectares	BC Focus List	Age Class
CWHxm2	20.1		
00	1.8	N/A	5
01	13.9	Red List	4
04	4.4	Blue Listed	5
Grand Total	20.1		

From: [Casavant, Bryce FLNR:EX](#)
To: [Hudson, Don A FLNR:EX](#)
Cc: [Kempe, Norm L FLNR:EX](#); [Morris, Rhonda M FLNR:EX](#); [Cotton, Ron FLNR:EX](#); [Smallacombe, Daniel K FLNR:EX](#); [Norlock, Jim D FLNR:EX](#); [Bastarache, Paul FLNR:EX](#)
Subject: Advisory Letter - Nahmint SMZ 13 - File CLOSED.
Date: Monday, October 22, 2018 9:11:00 AM
Attachments: [Lt 2018 Oct 22 DCR 37250 Nahmint SMZ 13 Advisory notice.pdf](#)
[Nahmint Review Oct 1 \(2\).pdf](#)
[Target assessment Nahmint SMZ13 RC calc.xlsx](#)
[image001.jpg](#)
Importance: High

To the Parties,

Please see attached correspondence of today's date with respect to an Advisory Notice regarding Nahmint SMZ 13.

The CEB inspection is now closed.

I remain available to answer any questions or address any concerns as they may arise.

I wish to thank everyone for their co-operation with this complex inspection and for their professionalism during the last few months.

Regards,



NRO Bryce Casavant, DSocSci (ABD), MA, CMAS

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Special Provincial Constable | Natural Resource Officer
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To report a Natural Resource Violation:

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Webpage: <https://www.for.gov.bc.ca/hen/nrv/report.htm>



File # DCR-37250

Don Hudson
B.C. Timber Sales Manager
Campbell River District Office
370 S Dogwood Street
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V9W-6Y7

VIA e-mail
don.hudson@gov.bc.ca

October 22nd 2018

Advisory Letter – Nahmint Special Management Zone (SMZ) 13

Encl: Consultant report titled *Nahmint SMZ 13: Consistency of Forest Stewardship with Management Intent and Legal Objectives* (attached as PDF); Secondary analysis of government data (attached excel spread sheet).

Good day,

Please be advised that the inspection results pertaining to timber harvesting within the Nahmint Valley (SMZ 13) are now concluded. It has been determined that Forest Stewardship Plan (the “FSP”) #638 is in non-compliance with S. 5 and S. 21 of the *Forest Range and Practices Act*. For this reason, it is recommended that BC Timber Sales (“BCTS”) submit an amendment to the current FSP, cease timber harvesting within SMZ 13 pending amendment approval, and place on hold current OGMA legalization and future timber harvesting tenures. Further details are provided within this Advisory Letter. This Advisory Letter will first provide an overview of the details leading to this referral decision followed by the independent review results, the results of the Compliance and Enforcement Branch (“CEB”) secondary analysis, an explanation of CEB’s position on legislative compliance, inspection determinations, historical context, outstanding concerns, CEB decision, and interim recommendations. Finally, closing remarks will be provided.

Overview: I am in receipt of the BCTS communication dated August 9th 2018 and titled *Re: Compliance Notice-Inspection Findings (SMZ 13)* (the “response letter”). The letter was in response to a CEB notice issued to BCTS on June 18th 2018 and titled *Compliance Notice – Inspection Findings (SMZ 13)* (the

Page 1 of 9

Ministry of Forests,
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“notice”). Briefly, the notice outlined a CEB records inspection which concluded that there was reasonable grounds to believe government non-compliance had occurred regarding timber harvesting operations within the Nahmint Valley (SMZ 13). Specifically, concerns were raised pertaining to the manner in which the current FSP was applying the Vancouver Island Land Use plan (“VILUP”) Objective B.4; namely, that the FSP only applied this government objective to rare and underrepresented ecosystems within the landscape when in actuality VILUP requires this objective to be applied to the entirety of the landscape. As a result, the overarching issue at play was the use of site series / surrogate levels of representative data at the landscape planning phase of timber harvesting operations. BCTS was provided an opportunity to respond to the CEB notice and did so respond on August 9th 2018.

In summary, the response letter received from BCTS maintained the following key points:

- Old Growth Management Areas (“OGMAS”) have been selected in consultation with First Nations.
- Established OGMAS have been delineated in accordance with applicable legislation (referenced in response) and best practices outlined within the land planning guidebook (referenced in response).
- Rare and underrepresented ecosystems within SMZ 13 are managed at the site series level.
- A surrogate (in place of site series data) was used for the remainder of landscape planning.
- Government has not set objectives for site series / surrogate distribution and this was to allow planning flexibility.
- There is an overall lack of site series data and lack of clear government targets for site series.
- The planning approach taken is “generally” consistent with best practices (referenced in response).
- GIS analysis using TEM site series data was used to verify current planning approaches and confirmed that BCTS landscape management is compliant.
- As the holder of an approved FSP BCTS could be found in non-compliance with results and strategies within the FSP but not in non-compliance with VILUP (i.e., objectives set by government) due to the legal application and workings of an FSP once approved.

Following the BCTS response letter, CEB engaged a private consultant to conduct a qualified professional third party blind review of the CEB notice and BCTS response letter. The parameters of the services were to, “verify the consistency of forest stewardship with management intent and legal objectives”. While this review was occurring, CEB conducted its own secondary data analysis of the BCTS site series data (which is provided as an enclosure to this letter) in conjunction with provincial government planning staff. This Advisory Letter is based on the results of these two reviews (described further below).

Blind review results: The independent review concluded the following in relation to BCTS timber harvesting operations within the Nahmint Valley (SMZ 13):

- Based on review of available documents and data, planning in the Nahmint seems inconsistent with the intent of the VILUP and with the legal objectives in the Higher Level Plan Order (“HLPO”).
- There is no evidence that planning in the Nahmint SMZ considered ecosystem representation by site series/surrogate as required by the HLPO.
- The BCTS response states that representation was assessed using a surrogate, but does not provide a systematic surrogate classification or provide evidence that analysis was completed as part of planning. Information exists to create surrogates from tree species and productivity as well as from landform and site series.
- Neither the draft Land Use Plan (“LUP”) nor draft Special Reserve Management Plan (“SRMP”) described surrogates nor mention assessment by site series or surrogate
- Our effectiveness assessment concludes that the current draft OGMA do not represent site series or surrogates—based on three different surrogate measures—equally.
- Douglas-fir ecosystems (CWHvm1/04, CWHvm2/04, F and HF moderate and high productivity) seem poorly represented, counter to the specific notation for retention in the VILUP.
- OGMA improved the representation of mesic, but not dry or wet MHmm1 ecosystems.
- The draft OGMA do not include target amounts of old forest (age class 8 + 9) by variant.
- The 2017 FSP does not include a result for a target level of mature seral forest (exclusive of old forest) as per the HLPO.
- There is no demonstration of equivalency of younger forest included in draft OGMA.
- The 2017 FSP only includes the HLPO old forest objective under rare ecosystems.
- Planning documents do not use best-available information.
- TEM site series data, representing best-available information, exist for 99% of the Nahmint, but were not assessed until the BCTS response. No valid rationale has been provided for why these data are worse than VRI.
- New estimates of disturbance return interval exist, but have not been incorporated.
- The legal objectives are unlikely to achieve the intent of the VILUP.
- Meeting representation objectives means that the minimum levels of retention need to be met or exceeded in all ecosystems.
- The natural disturbance return interval estimate is too low, so that the amount of old forest expected naturally—the basis for assessing risk to biodiversity and old forest values—is severely underestimated.
- Parks have been removed from the estimate of the amount of old forest needed, yet there are no parks in the Nahmint.
- Science is coming to consensus that maintaining low risk to biodiversity likely requires at least half of the total area retained.

- Natural disturbance will continue within OGMAs, so that the amount of old forest will be lower than the area retained (other constrained areas provide a little more).
- Landscape and stand-level retention is sometimes double-counted (e.g., riparian reserve zones).
- Planning for OGMAs seems to have been ad-hoc, based on existing constrained areas and aiming to achieve the bare minimum required legally rather than following good conservation design. Professional forester managers are responsible for filling the gap between legal objectives and intent. Our assessment suggests that the Nahmint demonstrates failure of professional reliance at maintaining publicly-agreed-upon values and priorities.

CEB internal secondary analysis: In conjunction with provincial land use planning staff, CEB conducted a secondary analysis of the BCTS provided data set and the BCTS response letter. This secondary analysis found the following:

1. There is a discrepancy between the plain and ordinary wording of VILUP regarding retention targets for mature seral forests and old forests, and the manner in which government has been interpreting VILUP retention targets in land use planning. Specifically, while the plain and ordinary wording of VILUP appears to direct a 25%-33% retention of mature seral forest across the landscape plus a minimum 19% old forest retention. In practice, however, this has been interpreted as 25%-33% overall retention of which 19% must be old and 6% may be old or mature seral forest. The retention difference between these two interpretations is significant.
2. Regardless of the above noted interpretation issues, if the BCTS data set is taken at face value as “true” the following additional concerns arise:
 - a. No mature seral forest retention target is identified.
 - b. No depletion targets are identified.
 - c. Multiple site series are not adequately represented within existing OGMA delineation and recruitment for many at risk site series needs to take place within the timber harvesting land base. Put another way, if only the OGMAs are used, there is a high probability of timber harvesting into deficit for both general retention targets and underrepresented ecosystems.
3. No site series data was used in initial landscape planning. Instead it is stated that a surrogate was used. However, the response letter lacks a clear definition of the surrogates, data, and retention target thresholds used in initial planning.
4. The FSP contains no clearly established retention values for mature seral forests or old forests, nor are depletion values over time explained for the FSP decision maker.
5. As noted in the previous CEB notice, the current FSP only references VILUP under the heading of rare and underrepresented ecosystems. This results in significant concerns regarding the application of VILUP and the adherence to government objectives across the land base.

CEB position on legislative compliance frameworks: BCTS has raised issue with the characterization of timber harvesting operations being in non-compliance with VILUP and objectives set by government. BCTS asserts this is not a possible enforcement conclusion as they are the holders of an approved FSP and therefore are held to results and strategies contained within the FSP and not the order more broadly speaking. **This BCTS position is not supported.**

Simply put, an FSP cannot be used as a shield to allow non-compliant activities to occur or purport to usurp or replace the legal orders and objectives set by government. Indeed, no such authority exists to contravene legislation, legal orders, or objectives set by government. While the legislative landscape may very well restrict the enforcement options available to CEB, nevertheless, the timber harvesting activities conducted must, by necessity, be in compliance with the overarching legislation, and both objectives set by government and the legal orders which establish said objectives. In situations where an FSP may be found to have inadvertently created circumstances by which timber harvesting has not met their legislated obligations, or failed to apply results and strategies that are measurable and verifiable, it is appropriate for CEB to note these concerns as non-compliances – regardless of the enforcement options available (if any). The legislative framework that applies to Nahmint SMZ 13 is as follows:

1. The *BC Land Act* S. 93.4 provides authority to establish the requisite ministerial orders under the *Forest and Range Practices Act* respecting Crown resources and confirms that such an order is an objective set by government.
2. The *BC Land Act* S. 93.8 provides confirmation that orders under S. 3 or 4 or the *BC Forest Practices Code* are continued as objectives set by government for the purposes of S. 93.4 of the *BC Land Act*.
3. The Vancouver Island Land Use Plan (High Level Order) was established pursuant to sections 3(1); 3(2); and 9.1 of the *BC Forest Practices Code* and is therefore continued as an objective set by government under the *BC Land Act* S.93.8; 93.4. VILUP therefore is legally in force.
4. Subject to the *Land Act*, the *BC Forest Act* S. 11 prohibits the government from harvesting Crown timber except in accordance with the *Forest Act*.
5. Subject to S. 12 of the *BC Forest Act*, the minister may grant rights to harvest timber through a timber sale licence.
6. Pursuant to S. 3 of the *Forest and Range Practices Act* an approved FSP is required for the holders of timber sale licences prior to timber harvesting.
7. Under S. 5 of the *Forest and Range Practices Act* an FSP must:
 - a. Specify intended results or strategies, each in relation to
 - (i) objectives set by government, and
 - (ii) other objectives that are established under this Act and that pertain to all or part of the area subject to the plan...
8. For greater certainty, and in accordance with the legal definitions provided within the *Forest and Range Practices Act*, “objectives set by government” are inclusive of objectives provided

under the *Land Act* and “other objectives set by government” are inclusive of regulations under the *Forest and Range Practices Act*.

9. Furthermore, subject to the definitions provided within the *Forest Planning and Practices Regulation*, a “result” means:
 - a. Measurable or verifiable outcomes in respect of a particular established objective, and
 - b. The situations or circumstances that determine where in a forest development unit those outcomes (above) will be applied.
10. In addition, “strategy” is defined as a description of:
 - a. Measurable or verifiable steps or practices that will be carried out in order to meet a particular established objective, and
 - b. The situations or circumstances that determine where in a forest development unit the steps or practices will be applied (emphasis added).
11. Subject to S. 21 of the *Forest and Range Practices Act*, holders of an FSP must ensure the intended results and strategies are carried out.
12. Pursuant to S. 12 of the *Forest Planning and Practices Regulation*, an exemption may be granted from showing a specified result and strategy under certain parameters but only if it is shown that there is a conflict with a land use objective. The regulation places a higher emphasis on compliance with land use objectives.

Inspection determinations: Based on a secondary analysis of the BCTS response letter and the data provided, coupled with a legislation review, CEB has determined the following:

1. For the reasons identified by the private consultant during their review, and based on the findings of CEB during an analysis of the BCTS response letter, the current FSP does not contain measurable or verifiable results and strategies pertaining to mature seral forests or old forests within SMZ 13, in contravention of S. 5 of the *Forest and Range Practices Act*. Other concerns pertaining to depletion values and overall landscape retention targets remain. Additional concerns pertaining to underrepresented and rare ecosystems as well as large tree retention still exist. As a result, the legal objectives established under VILUP have not been met.
Therefore, it is found that the current FSP is in non-compliance with S. 5 of the *Forest and Range Practices Act*.
2. Within the current FSP, and despite the above noted deficiency, it was found that certain site series for underrepresented ecosystems are not adequately represented across the landscape. Furthermore, current OGMA delineation does not retain the required targets. The overall results and strategies for underrepresented and rare ecosystems lack depletion values and clear targets / retention rationales. **Therefore, it is found that, even had the FSP been valid, the current timber harvesting within Nahmint SMZ 13 is in non-compliance with S. 21 of the *Forest and Range Practices Act*.**

Historical context: This inspection focused solely on the current FSP (#638) and current and planned timber harvesting operations within SMZ 13. However, this inspection did briefly review historical FSPs for general compliance over the last 18 years. Although out of scope for this inspection, at first glance, there appears to be legacy compliance issues with timber harvesting in the Nahmint Valley SMZ 13. There are therefore reasonable grounds to believe that serious cumulative impacts may occur on the land base over time should this matter remain unaddressed.

Outstanding matters: It is noted that there exists a discrepancy between the plain reading of VILUP, the retention values for mature seral forests, and the current government interpretation of VILUP retention thresholds for mature seral forests. This discrepancy is a serious concern. However, as mature targets and depletion values have simply not been identified, it is a non-determining factor in the above findings.

During the course of this inspection it was learned:

- That BCTS is moving to legalize the current established OGMA's. This is of great concern as the OGMA's do not adequately address the retention targets needed to maintain landscape biodiversity.
- That >400,000m³ is planned to go to public tender for harvesting. This is of significant concern to CEB as certain underrepresented site series are not adequately represented in the OGMA's and require recruitment from the timber harvesting land base. Without clearly identified recruitment planning for these site series overharvesting and irreparable harm is highly possible and would constitute further non-compliance with the FRPA and the FPPR.

CEB decision: CEB lacks the discretionary enforcement options that would otherwise be available if the holder of FSP #638 had been a company or non-government body. Therefore, CEB cannot adequately resolve the public complaint that has been made.

It has come to the attention of CEB that a public complaint has also been made to the Forest Practices Board. Please be advised that the Board has already been in contact with CEB regarding this matter and the status and outcome of the CEB inspection. CEB has been requested to notify the Board when the inspection has concluded.

Recommended interim measures: Based on the totality of circumstances identified, BCTS is hereby advised the following:

1. BCTS should voluntarily submit an amendment to FSP #638. This amendment should consider the points raised by the private consultant and address the additional concerns presented by CEB in this Advisory Letter; specifically, but not limited to, the interpretation of landscape retention targets for mature seral forests and old forests, the establishment of results and

strategies that are measurable and verifiable and that meet the objectives set by government. The amendment should also carefully consider the application of VILUP to the landscape within SMZ 13 (as legislatively required) versus the current restrictive application to only rare and underrepresented ecosystems.

2. Timber harvesting within Nahmint SMZ 13 should voluntarily cease pending amendments to the FSP regarding complete government objectives, the establishment of measurable and verifiable results and strategies, and any other matters that may be relevant.
3. The planned legalization of the current OGMAs should not be supported until the applicable FSP amendments adequately address and fully meet objectives set by government for SMZ 13, have included results and strategies that are measurable and verifiable, and are duly approved by the responsible District Manager.
4. Considering the above identified needs, future timber harvesting tenures should be placed on hold pending the above noted corrections and any matters determined relevant.

Concluding remarks: In making the above noted decisions I took the following actions:

- I conducted a review of all government files and records pertaining to SMZ 13.
- I reviewed all orders, legislation, FSPs, land use planning documents, and applicable legislation (400+ pgs).
- I engaged with government land use planning staff to review and verify data sets.
- I presented preliminary concerns to the FSP approving authority, district manager, and other personnel on May 31st 2018.
- I presented preliminary findings during conference call proceedings on June 14th 2018
- I issued a compliance notice on June 18th 2018 and provided an opportunity for the responsible individual to respond.
- On July 17th 2018 I issued a time extension to BCTS.
- I received a compliance notice response on August 9th 2018 which included a new data set containing site series information.
- I retained a private consultant to conduct a blind review of my compliance notice and the BCTS response letter.
- I conducted an internal CEB secondary analysis of the BCTS response information, legislation, and datasets.
- I again met with government land use planning staff to go over results and outstanding concerns.
- I received the independent review results on October 2nd 2018.
- I reviewed all results. I was then lead to believe that there were reasonable grounds to assert a government non-compliance had occurred and that the current FSP #638 was in non-compliance with legislation.

- I met with the FSP approving authority and district manager on October 5th 2018 and provided a preliminary assessment of the concerns regarding the FSP and current harvesting operations. A copy of the independent report was provided at this time.
- I conducted a final legislation review and noted that there were concerns regarding CEB's ability to take enforcement actions against a government body and properly address the inspection findings and public complaint that was made.
- I completed this Advisory Notice and associated documents.

In sum, it has been determined that FSP #638 is in non-compliance with S. 5 of the *Forest and Range and Practices Act*. It has also been determined that current harvesting operations are harvesting contrary to the plan and in contravention of S. 21 of the *Forest and Range and Practices Act*. As a result, it has been recommended that BCTS cease timber harvesting in SMZ 13, place a hold on current OGMA legalization, and hold future harvesting tenures.

Should you have any questions, comments, or concerns, please do not hesitate to contact me at: bryce.casavant@gov.bc.ca (1-250-230-1319).

Sincerely,



NRO Bryce Casavant, DSocSci (ABD), MA, CMAS

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Nahmint SMZ 13: Consistency of Forest Stewardship with Management Intent and Legal Objectives

Karen Price and Dave Daust

October 2, 2018

Report to Bryce Casavant, Senior Compliance and Enforcement Specialist, FLNRORD

Introduction

In response to a request from FLNRORD's Compliance and Enforcement Branch (CEB), this report assesses whether forest planning in the Nahmint Landscape Unit (SMZ #13) on Vancouver Island is consistent with legal objectives and with the intent of the Vancouver Island Land Use Plan (VILUP). Inconsistent management of publicly-agreed-upon values can result from excluded values, altered objectives or ineffective management strategies. We focus on the amount and representation of old forest in draft Old Growth Management Areas (OGMAs) to provide a second opinion on information provided to CEB by BC Timber Sales (BCTS). We assess both the process of determining OGMA amount and location (implementation of intent) as well as the likely effectiveness of the areas in achieving both legal objectives and policy intent as documented in the VILUP.

Caveats

- Data vary among sources. We have used existing public databases (except for OGMA location); they may not exactly match the databases used by BCTS.
- Time for review was limited. We have relied on easily-accessible documents.
- Literature cited is taken from our library rather than from a new literature review.

Methods

We assessed the implementation of direction by determining consistency of planned management with intent and legal objectives. We reviewed the following materials:

- Vancouver Island Summary Land Use Plan (2000); "VILUP"
- Vancouver Island Land Use Plan Higher Level Plan Order (2000); "HLPO"
- Nahmint Landscape Unit Plan (draft 2007); "draft LUP"
- Sustainable Resource Management Plan for the Nahmint Landscape Unit (draft 2012); "draft SRMP"
- *Forest Planning and Practice Regulation* (accessed September 17, 2018)
- Biodiversity Guidebook (1995)
- Landscape Unit Planning Guidebook (1999)
- *Order Establishing Provincial Non-Spatial Old Growth Objectives* (2004) and associated Implementation Policy; "Old Growth Order"
- CEB initial inspection findings (File # DCR-37250; June 18, 2018)
- BCTS response to compliance notice-inspection findings (File: FOR 18046-01; August 9, 2018)
- South Island Forest District TFL 44 Forest Stewardship Plan Background Information (BCTS; June 2008)
- 2017 West Coast Forest Stewardship Plan (BCTS, Strait of Georgia Business Area; SP #638; April 19, 2017); "2017 FSP"

We assessed the effectiveness of implementation by analysing ecosystem representation given planned management. We used the following data sources to analyse representation (Table 1).

Table 1. Spatial data sources used to assess representation.

Variable	GIS data file	Source
Landscape Unit	RMP_LU_SVW	Data_BC
Treaty Lands	FNT_TRT_LN_polygon	Data_BC
Ungulate Winter Range	WCP_UWR_SP_polygon	Data BC
Wildlife Habitat Area	WCP_WHAPLY_polygon	Data BC
OGMA	OGMA_Nahmint_Cous_May17_2010	FLNRO
Variant	Dist_Pkg_NonPEM_Coast.gdb	Province of BC *
Variant_v2	BEC_BIOGEOCLIMATIC_POLY (version 11, 2018)	Data BC
Site Series	Dist_Pkg_NonPEM_Coast.gdb	Province of BC *
Site Series Group	Dist_Pkg_NonPEM_Coast.gdb	Province of BC *
Cutblocks	CNS_CUT_BL_polygon	Data BC
Land Facets	facets_adjel10cl	AdaptWest**
Vegetation Resources Inventory	VEG_R1_PLY_polygon	Data BC
Site index class	Based in average SI for Ba, Cw, and Hw from sprod_38.gdb	Data BC
FMLB	Extracted from VRI	Data BC
Land1	Based on BC Land Classes 1 and 2 from VRI	Data BC
Land2	Based mainly on BC Land Class 4 from VRI	Data BC
Site Position	Extracted from VRI	Data BC
Logging Year	Extracted from VRI	Data BC
AgeClass	Extracted from VRI	Data BC
Tree species group	Based on species label, from VRI	Data BC

*<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/ecosystems/search-ecosystem-info>

**<https://adaptwest.databasin.org/pages/adaptwest-landfacets>

Further data analysis methods are included in the Effectiveness section below.

Broad Intent: VILUP Management Principles

Within the Vancouver Island Land Use Plan (VILUP), Special Management Zones are areas with regionally significant values that require management tailored to “*minimize development impacts*” (VILUP p. 35) to stated values. The intent is that management of forested SMZs should be based on the “*principles of sustainable forest ecosystem management*”, and should be monitored to ensure that strategies are effective at achieving stated objectives: “*Resource management within SMZ units will be accompanied by active monitoring and evaluation, consistent with the principles and concepts of adaptive management.*” (VILUP p. 35).

These principles—sustainability of stated values, and continual improvement—provide important context on broad intent and guidance for professionals planning management in the Nahmint.

Intent for Nahmint SMZ

Nahmint Special Management Zone (SMZ) #13 encompasses about 20,000 ha of the Nahmint River Watershed in southern Vancouver Island (reported area varies: 19,168 ha in the draft SRMP; 19,252 ha in the draft LUP; 20,438 ha in the DataBC landscape unit map; 24,900 ha in the VILUP). The SMZ and Nahmint Landscape Unit are congruent.

Values

The zone was created as part of the VILUP process to maintain significant primary values (VILUP p. 70) including

- Oldgrowth biodiversity and connectivity functions
- Fish and wildlife habitats and populations
- Visual quality for recreationists in the Nahmint Valley
- Linkage to possible high elevation Wilderness Area (Mt. Gibson, Klitsa Mountain)

Consistent with its listed oldgrowth biodiversity value, the Nahmint Landscape Unit was assigned a higher biodiversity emphasis option in the Old Growth Order as *“recommended for those areas where biodiversity conservation is a high management priority”* (Biodiversity Guidebook).

Objectives

Consistent with the Nahmint’s oldgrowth biodiversity value, overall management guidance is that *“emphasis should be on high biodiversity values, with high levels of old seral forest retention; ...”* (VILUP p. 70). Objectives incremental to forest management (referring to the Forest Practices Code at the time) include Special Biodiversity Conservation Management, Special Wildlife Management, Special Timber Management, Special Recreation Management and Special Visual Management. The VILUP also lists a specific strategy to *“maintain high proportion of old forest, including large Douglas fir in the Nahmint Old Growth Area”*.

Special Timber Resource Management objectives are intended to manage forests *“in keeping with the primary resource values identified”* (VILUP p. 38) with an objective to *“sustain forest ecosystem structure and function...”*; Special Biodiversity Conservation Management objectives are intended to maintain *“natural elements and attributes of biodiversity with emphasis on rare and underrepresented ecosystems”*; Special Wildlife Management objectives are intended to conserve habitat for identified wildlife species; Special Recreation Resource Management objectives are intended to maintain the integrity of identified recreation resources; and Special Visual Resource Management objectives are intended to maintain the integrity of visual resources.

The VILUP notes that SMZ plans will *“address the issues stakeholders and interests identified in the Planning Framework Statements identified in Appendix 3”* (6.5.2 VILUP). For the Nahmint (p. 53), planning issues raised by public interest groups include

- *“Concerns over the rate of forest harvest*
- *Concerns over lack of protection for fish, wildlife, old growth and biodiversity*
- *Propose creation of old growth reserves for Douglas fir in upper Nahmint”*

The special timber, biodiversity and visual management objectives included in the VILUP were subsequently legalized, with minor wording changes, within the HLPO. Wildlife and recreation objectives were excluded. The strategy to maintain a high proportion of old forest, including large Douglas-fir was dropped from the legal order.

The most relevant legal objectives, based on the Special Timber and Special Biodiversity Management regimes from the VILUP, include the following:

<p>A.1. Sustain forest ecosystem structure and function in SMZs, by:</p> <p>(a) creating or maintaining stand structures and forest attributes associated with mature¹ and old² forests, subject to the following:</p> <p>i. the target for mature seral forest should range between one quarter to one third of the forested area of each SMZ³; ...</p> <p>B.4. Maintain late-successional habitat elements and attributes of biodiversity⁸ in forested ecosystems with emphasis on regionally rare and underrepresented ecosystems, by retaining old seral forest at the site series/surrogate level of representation⁹.</p>
<p>¹ The mature seral forest is defined as generally 80 to 120 years old or older, depending on species and site conditions. The structure of mature seral forests generally includes canopies that vary vertically or horizontally, or both. The age and structure of the mature seral stage will vary significantly by forest type and from one biogeoclimatic zone to another.</p> <p>² The old seral forest is defined as generally greater than 250 years old, containing live and dead (downed and standing) trees of various sizes, including large diameter trees, and of various tree species, including broad-leaved trees. The structure of old seral forests varies significantly by forest type and from one biogeoclimatic zone to another.</p> <p>³ Mature seral targets will be established through landscape unit planning.</p> <p>⁸ This includes, but is not limited to: large diameter (> 60 cm) live, decaying and dead standing trees (providing nest and cavity sites); downed wood, including large diameter pieces (50 to 150 cm); deciduous broad-leaved trees, both in riparian and upland areas.</p> <p>⁹ The level of representation of old seral forest will be applied through landscape unit planning.</p>

The mature-forest objective A.1.(a)i. provides explicit targets for the amount of mature seral forest as 25 – 33% of forested area; the objective does not explicitly limit “mature” forest to younger than 250 years, but the definition of old as >250 years provides an implicit limit; in addition, the word “seral”, defines a bounded successional stage. The Biodiversity Guidebook is clear that the mature seral stage ends where the old seral stage begins. The similarity of the target to the recommended target for mature forest in the Biodiversity Guidebook further supports the definition of mature as 80 – 250 years or 120 – 250 years (Table 2). The mature-forest objective does not stipulate representation by site series—or even variant—for mature forest targets.

Table 2. Recommended % old and mature + old for major BEC variants in the Nahmint SMZ (high biodiversity emphasis option) from the Biodiversity Guidebook, with added columns showing calculated mature (difference between “mature + old” and “>250 years” and mature targets in HLPO.

BEC Variant	% >250 years recommended	% of mature + old recommended	% mature recommended*	% mature HLPO
CWHvm1	>19	>54	35	25 – 33
CWHvm2	>19	>54	35	25 – 33
MHmm1	>28	>54	26	25 – 33

* Calculated as {mature + old} minus old

The HLPO old-forest objective B.4. does not provide targets for the amount of old forest, but rather includes a footnote stating that “the level of representation of old seral forest will be applied through landscape unit planning” (HLPO p. 2). The objective and footnote are unclear in their usage of “level of

representation”: it refers to the unit of representation in the objective, but seems to refer to the target amount of representation in the footnote.

Consistency of Planned Management with Intent and Legal Objectives

Values

The draft Landscape Unit Plan (2007) and draft SRMP (2012) seem to move away from the values as described in the VILUP.

The draft LUP is consistent with the legal objectives (for Visual objectives described in the HLPO), but inconsistent with the intent of the VILUP. Although the draft LUP notes that VILUP assigns a Special Recreation Management regime, it ignores the objectives listed for that regime, instead relying entirely on managing visual quality.

The priority given to timber supply in the draft LUP is inconsistent with the intent of the VILUP. The draft LUP seems to manipulate the language around timber resources to misrepresent the intent of the VILUP. The VILUP assigns Special Timber Management regime to the Nahmint, with an overall goal to manage forests in keeping with primary values, and an objective *“to sustain forest ecosystem structure and function in SMZs by concentrating, within SMZs, the retention or recruitment of old growth forests required to meet landscape level biodiversity objectives”* (VILUP p. 38). The draft LUP, however, does not restate this objective; rather it states that the Nahmint was *“assigned a secondary level management regime for Timber under the VILUP SMZ13, which after considering the placement of OGMA’s to conserve primary management regime values, gave emphasis on minimizing timber supply impacts”*. Nowhere in the Nahmint SMZ13 description in the VILUP, or in the broad intent statements for SMZ, is there any mention of minimizing timber supply impacts.

The *Forest Planning and Practice Regulation* provides objectives for landscape-level biodiversity to harvest timber in a way that resembles patterns of natural disturbance in time and space, without *“unduly reducing the supply of timber”*.¹ The “unduly” clause, included in the *Government Action Regulation* that designates Wildlife Habitat Areas and Ungulate Winter Ranges constrains possibilities, but has no legal definition (although policy direction exists).² Old Growth Management Areas (OGMA’s), however, are established under the *Land Act* rather than the *Forest and Range Practices Act*, and are authorized by the *Land Use Objectives Regulation* where the test for designation, rather than not unduly reducing timber supply, is that benefits of OGMA’s must outweigh impacts to timber harvesting.³ No legal definition exists that allows comparison of costs and benefits amongst values, but the VILUP clearly intends that biodiversity is valued more highly than timber in the Nahmint SMZ by noting oldgrowth biodiversity as primary and timber as secondary.

The draft SRMP is inconsistent with the intent of the VILUP in excluding oldgrowth biodiversity and wildlife values. The draft SRMP ignores three of the four values listed in the VILUP (old growth biodiversity, wildlife, linkage to possible Wilderness Area), claiming that the *“primary objective is recreation”*. This is untrue and entirely inconsistent with both the VILUP and HLPO. Interestingly, the draft SRMP notes that HLPO objectives 1,2, 4, and 5 apply to SMZ 13 and ignores objective 6—visual quality—the one objective that the draft LUP notes as important to recreation. The 2017 FSP also seems to exclude HLPO objective 6.⁴

Mature targets

The mature target misrepresents the intent of the Biodiversity Guidebook and seems inconsistent with the legal objective mature seral forest target. HLPO Objective A.1.(a) refers to “*mature and old forests*”, while the sub-section A.1 (a)i. refers to “*mature seral forest*”. While the definition of “mature” in the footnote is unbounded at the upper end, the use of the term “seral”, and reference to the Biodiversity Guidebook, both clarify that the objective refers solely to mature forest, exclusive of old. The background information for the 2008 FSP for TFL 44, however, claims that “*mature*” is understood to mean “*mature plus old*” without providing any rationale, without noting that the HLPO amounts are similar to those for mature—without old—in the Biodiversity Guidebook (Table 2, above), and ignoring the accepted definition of “seral” as a bounded successional stage. The 2017 FSP continues with the misrepresentation, quoting the objective (7.2.1 Objective 1(a)i) as “*target for mature seral forest*”, but specifying under the result that “*no less than 25% of the forest area of SMZ 13 is retained as mature or old seral age classes*” (7.2.1.2.). This interpretation will likely considerably decrease the amount of mature and old forest over the landscape (e.g., from 54% recommended by the Biodiversity Guidebook to 25%).

Oldgrowth targets

The Biodiversity Guidebook (1995) provided the first estimates of the amount of mature and old forest to retain to improve the probability of maintaining biodiversity, with practices designed to “*reduce the impacts of forest management on biodiversity, within targeted social and economic constraints*” (p.1). Targets for the amount of mature and old forest vary by ecosystem according to the natural disturbance regime. The Biodiversity Guidebook states that targets represent “*the minimum requirements considered to have a good probability of maintain biodiversity within the landscape unit*” (p. 14).⁵ The approach was designed to be “*refined over time as new knowledge is obtained*” (p.2)—an intent that matches the broad intent of the VILUP.

Ecosystems within the Nahmint SMZ (except for very small areas of CWHxm2 and CWHmm1) fall within Natural Disturbance Type 1, with rare stand-initiating events and structure primarily driven by gap-phase dynamics. The biodiversity guidebook lists return interval for the CWHvm1 and vm2 as 250 years and the MHmm1 as 350 years (Table 3). It estimates the expected proportion of each age using a negative exponential method and calculates recommended proportions of the forested area to be mature + old (> 80 years for CWH; > 120 years for MH) and old (>250 years) based on the amount expected naturally. Hence, for CWHvm1, assuming a return interval of 250 years (and assuming disturbance independent of age), the Biodiversity Guidebook calculates that about 37% of the landscape would naturally be over 250 years old and nearly three-quarters (73%) would be mature or older. For the MHmm1, assuming a return interval of 350 years, nearly half (49%) would naturally be older than 250 years and 71% would be mature or older (Table 3).

Table 3. Estimates of stand-replacing disturbance, % expected old and recommended % old and mature + old for BEC variants in the Nahmint SMZ based on the high biodiversity emphasis option and Appendix 4 from the Biodiversity Guidebook (1995).

BEC Variant	Stand-replacing disturbance	% expected >250 years	% >250 years recommended	% of mature + old recommended
CWHvm1	250 year	37	>19*	>54
CWHvm2	250 year	37	>19	>54
CWHmm1	200 year	29	>13	>51
CWHxm2	200 year	29	>13	>51
MHmm1	350 year	49	>28	>54

* Calculation: (37% expected – 12% assumed to be in protected areas) x 0.75 = 19%

Target amounts of old forest are inconsistent with VILUP intent and with policy informing the Old Growth Order because they have not been updated to reflect best available knowledge. The Old Growth Order identifies how much old forest to retain based on landscape biodiversity emphasis. The targets for high biodiversity emphasis landscapes like the Nahmint match those provided in the Biodiversity Guidebook:⁶ 75% of the area that would be expected to be old naturally, with a 12% allowance for protected areas.¹ The Order stipulates review by 2007 to assess effectiveness at achieving sustainable management goals, and the Implementation Policy providing guidance for the Order notes that implementation “*should be informed by the best available technical and science-based information, with new information being utilized as soon as practicable*” (2.d).

Several lines of evidence demonstrate that mean disturbance intervals for CWHvm1 and 2 and MHmm1 variants were severely underestimated in the biodiversity guidebook.⁷ The lack of even-aged forests, soil charcoal and tree age all suggest that stand-replacing disturbance intervals in the CWHvm are 750 – 1,000 years or longer. Hence oldgrowth targets were calculated using outdated knowledge. Given the overarching principle for adaptive management in the VILUP, updated targets that reflect new information seem timely. Using best-available knowledge for stand-replacing disturbance interval and the calculations in the biodiversity guidebook raises the amount of old forest (>250 years) expected under historic condition to 72 – 78% or more.⁸ Using a similar calculation to that used in the Biodiversity Guidebook, the amount of old forest needed to have a reasonable probability of maintaining biodiversity increases from 19% in the CWHvm1 and 2 and from 28% in the MHmm1 to 45 – 50% (with 12% removed for protected areas).

The draft SRMP does not demonstrate equivalency when substituting younger stands for old forest and is thus inconsistent with the legal order. The draft SRMP notes that OGMA’s included younger stands “*where conservation value was assessed and determined to be equal or greater than that of the older stands*” (p. 8), but provides no description of the assessment; it is thus inconsistent with Old Growth Order Objective 6 stating that younger forests can be used “*where it can be demonstrated that equal or better conservation benefits would result*”.

¹ Appendix 4 of the Biodiversity Guidebook notes that the 12% adjustment could be replaced with actual percentage in the landscape. This stipulation is lost from the Landscape Unit Planning Guide and the Old Growth Order (indeed, the Landscape Unit Planning Guide states explicitly that protected areas should be removed from the OGMA target, thereby double-counting by subtracting area already removed in the targets). In the Nahmint, there are no protected areas; therefore, the target amounts of old forest are consistent with the legal order, but inconsistent with the intent of the Biodiversity Guidebook (which would return the 12% removed).

The objective and results for old seral representation included in the 2017 FSP are inconsistent with the legal objective of the HLPO and with the intent of the VILUP. The 2017 FSP includes the HLPO old growth objective under the heading “Rare ecosystems” (7.2.5 Objectives 4 and 5), whereas the HLPO targets are designed to apply to all ecosystems. Results applying to the strategy are limited to maintaining late successional habitat elements within stands (as wildlife tree patches or riparian management areas) rather than to retaining old forest; they do not mention rare ecosystems. While the FSP objective quotes the need for “*retaining old seral forest at the site series/surrogate level of representation*”, as per the HLPO objective, the results ignore both old forest retention and representation.

Old Forest Representation

Ecosystem representation is accepted as key to maintaining ecological integrity worldwide.⁹ Essentially, because we cannot understand ecosystems, the best practical approach retains enough of each natural ecosystem to allow ecological and evolutionary processes to continue.¹⁰ Effective representation must capture all different ecosystems. BC is fortunate to have an excellent ecosystem classification system: biogeoclimatic variants represent broad ecological variability due to climatic processes; within variants, a mosaic of distinct ecosystems—site series—vary with site conditions and soil processes.¹¹ Site series provide the best estimate of the potential of an area to support a particular ecosystem. Although ecosystems change with the climate, site series continue to integrate the environmental factors; for example, in a particular region, the wettest sites will continue to be the wettest sites even as aridity increases.

The Biodiversity Guidebook, representing the best available knowledge at the time, recommended representation of mature and old forest by site series: “*site series should generally be retained in proportion to their occurrence in the landscape unit*”; “*rare site series should be retained in greater proportion than they occur*”. The Biodiversity guidebook recommends that rare forest stand types covering <2% of area should be maintained over the rotation, and that the distribution of deciduous species and stands should be maintained within the natural range. Applying targets to finer-scaled units within BEC variants was intended to ensure that all ecosystems, including the productive ecosystems targeted by forestry, are sufficiently represented. Conservation scientists consider that one of the principle dangers of applying broad targets for old forest is that an uncritical focus on amount cannot account for non-random land-use processes, including biased modification of the most productive ecosystems.¹² This concern is particularly relevant in the highly incised watersheds of coastal BC, where it is possible to maintain more than 90% of a particular BEC variant while harvesting all of the productive valley-bottom ecosystems.¹³ The best available science agrees that consideration of ecosystem type, productivity and risk are crucial factors to include in representation planning.

Terrestrial Ecosystem Mapping (TEM), with aerial photo interpretation of site series verified with field assessment, provides the best-available information on ecosystem type. Where TEM exists, there is no need to use a surrogate for site series. Combining site series into groups of similar ecosystems can be beneficial to avoid slivers and decrease the number of units for planning purposes; however, grouping does not require a different classification system, but is based on existing TEM site series.

Recognising that coverage of TEM was incomplete, the Biodiversity Guidebook described an alternative methodology, using a surrogate based on leading species and productivity: “*where site series mapping is not available, a combination of forest cover and site productivity or site index information should be used*”

to determine representativeness” (Biodiversity Guidebook p. 18). This approach was used to design old forest representation in the Great Bear Rainforest.¹⁴ Using site series surrogates to design reserves intended to represent ecosystems brings challenges: there are concerns that using surrogates based on units defined for timber management (e.g., forest cover and productivity) may not match units based on ecology (i.e., site series) well; if surrogates do not correspond, non-random harvest can mean that productive ecosystems are harvested preferentially, leaving less productive ecosystems over-represented in reserves. An assessment in the Great Bear Rainforest determined that site series should be used preferentially when possible.¹⁵ Whenever site series are available, particularly based on field-checked TEM, they are the best units—potentially combined into site-series groups by edaphic grid or indicator species¹⁶—for planning and assessing representation.

The Biodiversity Guidebook suggestion for a surrogate that combines forest cover and site index is repeated in the VILUP (as a strategy under the Special Biodiversity Conservation Management Regime). The HLPO includes an objective for representation at the site series/surrogate level, but does not describe any particular surrogate.

Direction in the LUP Guidebook to plan representation by variant is irrelevant in the Nahmint. Diverging from the Biodiversity Guidebook, because of the potential impact to timber supply, the LUP Guidebook specifies that representation be calculated by variant (following the Chief Forester’s direction). Both LUP Guidebook and Chief Forester’s guidance note that finer detail can be used if an objective is established as a higher-level plan: “Representation may be pursued at a finer level of detail provided that an RMZ objective is established as a higher level plan and directs representation at a finer level of detail” (LUP Guidebook p. 28)—as it has clearly been in the HLPO. Indeed, the LUP Guidebook stipulates that HLPO direction “supersedes the Chief Forester’s direction” (p. 4).

The Chief Forester’s direction also calls for research into the impacts to biodiversity of representing ecosystems at the variant scale “Research Branch...is committed to reviewing the risk to biodiversity values of establishing OGMAs at the variant level of representation” (LUP Guidebook p. 34). We are unaware of any completed research projects into this issue that could provide an update on the best available science.

Potential Site series surrogates

- Forest cover plus productivity class or site index: suggested by the Biodiversity Guidebook and included as a VILUP strategy. The surrogate combines leading species with productivity (e.g., Hemlock-Cedar High) and was used for planning in the Great Bear Rainforest.¹⁷
- Site series groupings: similar site series combined based on vegetation community similarity or by position on the edaphic grid to facilitate planning.¹⁸
- Enduring features or landform: based on a topographic position index in combination with soil and climate variables. Landforms have been used widely in the US for conservation planning with climate change.¹⁹ Ongoing analyses suggest that site series include additional variability that is not well captured by topographic position.²⁰

Site series are available for the Nahmint, but were not used. The Planning Unit Statement for the Nahmint (VILUP, p. 53) notes the state of site series mapping under existing inventories: “vegetation site series mapping (one-half of area complete)”. Hence, in 2000, half of the area was complete. The draft LUP specifically notes that “Although site series mapping was available, it was not used to select

OGMAs...". Based on the BCTS response appendix, TEM site series mapping, including field assessment, is available for almost all (98.8%, all but 190ha) of the Nahmint watershed.²¹ Further work may be needed to ensure consistency over the entire area because two separate projects defined site series in the Nahmint watershed, and site series do not match exactly in adjacent areas. On cursory examination, the discrepancy appears small, with mismatches only a single site series (by moisture or richness) apart. Grouping similar site series (an accepted practice) could easily account for the inconsistency, with field checks improving data as appropriate.

The draft LUP provides a rationale for ignoring site series based on other factors: "*site series mapping...was not used...because the many other factors involved...were significant influences and the distribution of OGMAs across the Landscape Unit and through the range of sites appeared to be exceptionally good*". Factors considered, as described in the draft LUP include existing constrained areas with reduced or no harvest:

- Established WHAs (marbled murrelet and northern goshawk; on map 4)
- Established ungulate winter range (elk and deer; on map 4)
- Established Forest Ecosystem Networks (not on map²²)
- Hupacasath Cedar Strategy recommendations (on map 4)
- Nahmint Old Growth Reserve (not on map)
- Ecosystem complexes (e.g., slide track, riparian area, wetlands, rock outcrop, gullies—not on map).

Additional factors considered in the draft LUP are described to include

- Patch size: This is a reasonable consideration, but there is no evidence that it has been used. The large patches seem congruent with existing WHAs and UWRs; hence there was no additional consideration.
- Distribution throughout the landscape unit: This is a reasonable consideration to a point. Good conservation design will distribute retained areas by ecosystem with sufficient connectivity to allow movement across the landscape.
- Connectivity: There is a confusing statement in relation to connectivity that "*the inclusion of riparian reserve zones and other non-productive forest has increased the connectivity between lower and higher elevation OGMAs*" (p. 13). Ecologically, riparian zones are amongst the most productive forest. This definition of productivity seems to reflect a timber supply rather than biodiversity focus.
- Structural attributes: The draft LUP notes that "*structural attributes of the stand were used to determine its suitability as an OGMA rather than forest cover information*" (p. 13). Structural attributes can define oldgrowth, but do not address representation. The LUP does not describe how attributes are better than using site series/surrogate information.

The process of locating OGMAs as described in the draft LUP is unsupported by an analysis of representation at the site series/surrogate level and hence is inconsistent with the legal objective.

Most (90%) of WHAs and UWRs are included in the draft OGMAs as are some of the Hupacasath recommendations; nearly half of the OGMA area was already protected from harvest in WHAs and UWRs, with 77% of rich site series within the CWHvm1 already protected. This strategy is sensible as part of good conservation design; valuable ecosystems can form anchors for a complete OGMA network.

Fully constrained riparian reserve zones are also included, a reasonable strategy provided that the areas are sufficiently wide to maintain old growth attributes and not double-counted as in-stand retention. Further design is needed to ensure representation. The draft LUP does not provide an assessment of site series/surrogate representation in the draft OGMA's to support the statement that *"the range of sites appeared exceptionally good"*; nor does it state that such an assessment was completed. Neither does it mention any analysis of other factors (e.g., wildlife habitats represented). The existence of constrained areas for wildlife habitat conservation does not imply maintenance of oldgrowth biodiversity if they are not spread across the full diversity of ecosystems: assessment of representation by site series/surrogate is still required. Visual inspection of distribution (as implied by *"appeared to be..."*), while necessary, is not sufficient.

The process of locating OGMA's as described in the draft SRMP does not ensure representation by the site series/surrogate level and hence is inconsistent with the legal objective included in the HLPO. The draft SRMP quotes the HLPO objective to retain old seral forest at the site series/surrogate level, but then never even considers representation by site series/surrogates, simply stating that *"Old seral representation targets (which are the basis of OGMA's) are applied by BEC variant to ensure the OGMA's are distributed across each BEC variant thereby ensuring adequate protection of each variant."* (SRMP p. 4). The draft SRMP states that *"the full old growth representation targets were met for the Nahmint landscape unit"*, but does not provide any assessment of representation by site series/surrogate or mention that such an assessment was completed. Hence, there is no way of determining if legal targets were met. Inspection of each draft OGMA rationale (SRMP Appendix 1) shows that a single OGMA (out of nearly 80 listed) has a rationale that includes an ecosystem (OGMA #220: 8ha of *"old growth fir on ridge..."*); the remainder are either WHAs, marbled murrelet habitat, UWRs, gullies, riparian areas, or slide tracks. Of 16 OGMA's bigger than 50 ha, 14 are either UWRs, WHAs or both; of four OGMA's bigger than 100 ha, all are either UWRs, WHAs or both.

Addition of OGMA's to existing constrained areas was not in proportion to deficit. Good conservation design uses existing constrained areas to anchor an OGMA network, assesses how well these anchors represent ecosystems, and then adds area to under-represented ecosystems—adding the most area to the least-represented ecosystems to ensure that all ecosystems meet or exceed the target. This process does not appear to have been followed for the Nahmint (Figure 1). For example, wet, mesic and dry site series groups in the MHmm1 are very poorly represented in existing constrained areas (WHAs and UWRs), with 23 – 27% deficit (target is 28% retained for MHmm1). The draft OGMA's increased the representation of mesic MHmm1 ecosystems sufficiently to exceed the target, but added only 5 – 10% to dry and wet MHmm1 ecosystems that remain well below the target. Had a representation analysis been completed, the points on Figure 1 would show a one-to-one line, with added area matching deficit.

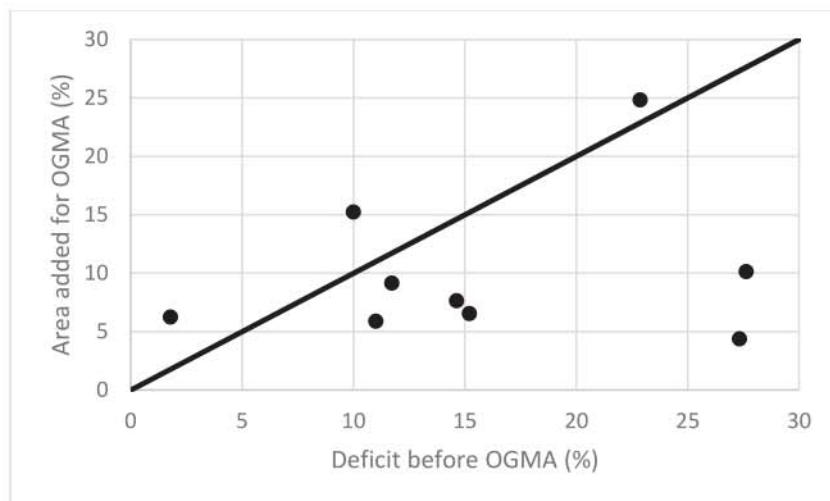


Figure 1. Relationship between the deficit faced by each ecosystem (here, site series groups within BEC Variant) and the amount added to existing constrained areas to create an OGMA network. All points above the solid line have met the targets; those below have not.

BCTS Response

This section offers comments ordered to match paragraphs of the BCTS response to CEB compliance notice.

The BCTS response “Re: Compliance Notice-Inspection Findings (SMZ13)” attempts to support the contention that the landscape planning practices and 2017 FSP are consistent with the HLPO. The response states “*Consistent with the Landscape Unit Planning Guidebook (1999), the 2012 Draft OGMA’s were selected using...age class, forest type and ecological classification which are considered as surrogates for site series*” (p.2). The three factors listed are those included in the LUP Guidebook, but are not surrogates for site series. The following definitions (BCTS p. 3) confirm standard usage, including that “*ecological classification*” refers to BEC variant and not to site series.

BCTS (para 2, p. 3) defines site series, but states that site series are “*normally only determined during operational field work*”. This statement is untrue; many projects across the province have determined site series through TEM or PEM (predictive ecosystem mapping). Regardless, the statement is irrelevant to the Nahmint as TEM site series have been defined.

The BCTS description of surrogate classification (para 3, p. 3) includes both inaccuracies and unclear language. The statement that site series surrogates “*are intended to characterize major forest types (ecosystems) within a biogeoclimatic unit*” would be better stated as “are intended to characterize ecosystems within a biogeoclimatic variant”: biogeoclimatic “unit” can refer to different levels of classification; surrogates include ecosystems beyond forest types (e.g., wetlands); surrogates do not necessarily represent only “major” types, but also rare types. The success of surrogates in “*predicting locations and occurrences of likely site series or groups*” is questionable for those surrogates based on resource inventories.²³ The statement that surrogates are “*useful in the Landscape Unit Planning process where detailed information is lacking across many thousands of hectares*” is true, but irrelevant for planning in the Nahmint, where TEM is lacking for < 200ha. The next sentence is unclear: “*Factors*