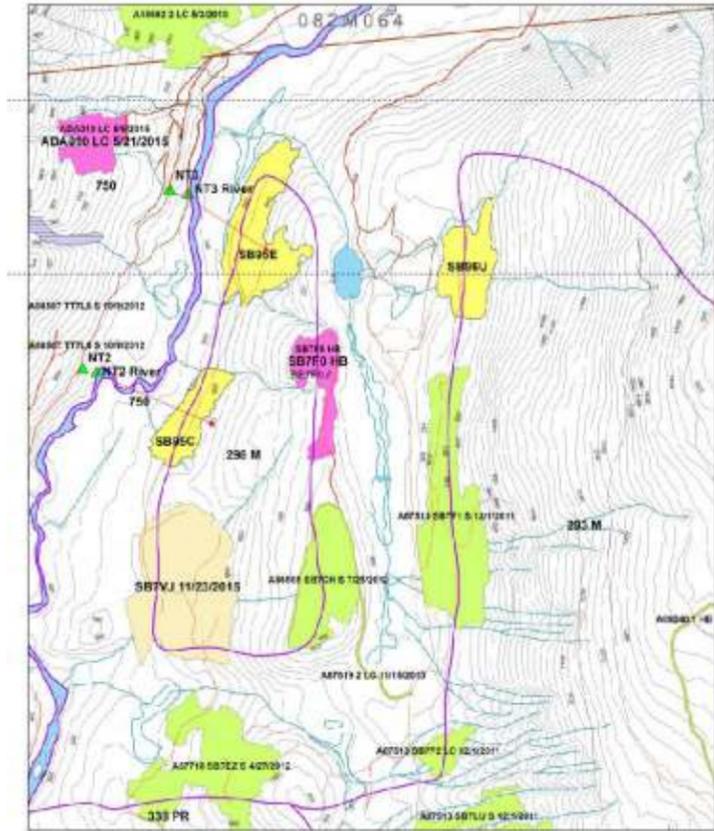


TSL A89160 Visual Assessment
RDI Resource Design Inc
 May 7, 2020
 Updated October 8, 2020
Legend

- A89160_Viewpoints
 - April_20_2020_Road
 - Road_Adams_River
 - 82M065_CTRClip
 - 82m064_CTR_Clip
 - TRIM_WATER_LINES
 - A89160_CTR_Clip
 - Roads
 - 1405692_2012
 - Main_River
 - Lakes
 - TA_PEP_SVW_polygon
 - Existing_Cutblocks
 - TRIM_EBM_WATERBODIES
 - April_9_2020_A89160_WTRA's
 - A89160_Block_Shapes
 - Existing_WTRA's_&_Road_PAS
 - TRIM_WATER_LINES
 - Roads_for_RDI_July_23_2013
 - TRIM_EBM_WATERBODIES
 - TRIM_EBM_WATERCOURSES
 - 20kbcgrid
- RC_VM_VLI**
- NVS
 - M
 - MM
 - P
 - PR
 - R
 - 082m084vri
 - RDI_trim_transportation
 - RDI_TRIM_watercourse
- Landform 1
 - Open View
 - Partially or Fully Screened View



Key Map from 2017 RDI Report

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9	Adams 0 (River) Viewpoint
10	Adams 0 (River) Viewpoint Percent Alteration
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12	Adams 2 Viewpoint
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Visual Assessment – Southwest Harbour Area – North Adams River

This report is the visual assessment for TSL A89160, cutblocks SB7LL (north and south openings), SB7LN, and SB7LP. Data used for this assessment was received from Ches Clem, RPF, Planning Forester, BCTS Kamloops Business Area on April 1, 2020. RDI also obtained directly the most recent forest VRI file update from the BC Data Catalogue for the 082M block. The data was used by RDI to create an ArcGIS project for map production and orientation, and a Visual Nature Studio model for visualization. The Forest VRI file was further refined by RDI with recent cutblocks provided by Ches. The North Adams River Provincial Park traverses all of the bottom land from below the main road across to the rise in terrain on the opposite side of the river (see key map). The park shapefile was obtained by RDI from IMap BC.

VSU 293 (Poly-No 1109) contains all of the proposed cutblocks and has an established VQO of Modification. This upper landform was designated as Landform 1 by RDI for purposes of this analysis. It is directly behind VSU 298, which is separated from the upper VSU by a 900m non-visually-sensitive gap (or swale) in the terrain. The landform rises 740m above the swale. The lower VSU also has a Modification eVQO, and contains the very large cutblock SB96E. That VSU was not considered part of the present analysis due to the physical separation. Landform 1 also touches on VSU 338 (PR) to the south, but is distinctly separated by creek topography. All new cutblocks and the three VSUs are located within Mapsheet 082M054, as are all of the potential viewing opportunities along the North Adams River Road, river viewpoints within the Provincial Park, and views from Mica Lake, also within the Park.

RDI gained familiarity with the north end of the area during its 2017 analysis of A94922: SB95C, SB95E, and A92915: SB96U, during which 3 viewpoints were assessed: NT2, NT2 River, and NT3 (see inset on Page 1). Photos were provided in Tyson Luedtke in 2017 for viewpoints NT2, NT3 (both fully screened, and NT2 (River) – partially screened. No coverage was obtained NT3 (River), deemed too steep by Tyson for access in the limited time available and was presumed to have greater screening than NT2 (River). These same viewpoints were assessed in the present analysis, along with 6 additional viewpoints determined by RDI through interactive testing with VNS. All new viewpoints were field tested in September, 2020 by Ches Clem on road and water. He successfully acquired photography from the three new Mica Lake viewpoints and by canoeing the river near the Adams 0 viewpoint. These four viewpoints proved to be highly informative as to the visibility of the cutblocks.

RDI made roadside clearings in the VNS model to provide generally open views from the Upper Adams River road (Adams 1, Adams 2, NT2 and NT3) for cutblock and landform identification purposes. RDI also produced simulations without the clearings to represent actual viewing conditions, as indicated by the VRI. More filtered views without clearings were produced from the riverside locations, NT2 (River). Bare land renderings were produced in VNS with Landform 1, emphasized in a purple colour, to provide a clearer understanding of the location and extent of the landform from each viewpoint.

RDI found that an existing opening - with FEAT_ID 1405692 in the Existing Cutblocks file provided by Ches, was prominent in Landform 1 when viewed from Mica Lake. RDI assigned a bright green colour to the opening in the bare-land renderings for ease of tracking. The stand height indicated in the VRI file for the polygon was 0.7m. Further investigation took place by Ches Clem, in discussion with Tyson Luedtke, who provided the following update from Tyson: *“The block was surveyed last year (SURG), and the inventory label is Fd30Ep20Ac20At10Cw10Pw10 with the leading species heights at 1.4m and 3.0m respectively. Generally, the conifers should achieve on average just under 2m in height by the end of this year certainly averaging 2m by auction date (2021, according to Ches), and the deciduous between 2 and 3m. Brushing will be scheduled for later this summer, so the deciduous should be reduced for future visual quality assessments”*. RDI included this opening for consideration in the current assessment. As VEG achievement is crucial to the development proceeding, RDI launched a detailed assessment of VEG principles and measurements, including VEG by slope class and Plan to Perspective ratios. The likely refinements presented on pages 16 and 17 have potential for significantly decreasing the mandated period to achieve satisfactory VEG, when coupled with on-the-ground growth performance and professional photo review by RDI following brushing.

Findings

Mica Lake and Adams 0 (River) Viewpoints

Mica Lake Viewpoints provide partially open and focal viewing opportunities towards all of the cutblocks and the 2012 logged opening (seen from Mica 2) within Landform 1, varying with position due to the intervening hill in front of the landform. These were documented by Ches Clem (see visibility chart).

Summary of Visibility by Viewpoint						
Viewpoint*	Percent Alteration	Cutblock / Opening				
		SB7LS	SB7LN	1405692-2012	SB7LL_S	SB7LL-N
Mica Lake 2*	28.00%	Partial	V-sliver	V-Focal	V-Focal Partial	NVS-Photo
Mica Lake 1*	9.48%	NVS	NVS	NVS	V-Focal	V-Focal
Mica Lake 3*	n/a	NVS	NVS	NVS	NVS - Photo	NVS - Photo
Adams 0 (River)*	14.61%	V-small	V-small	V-Focal	V-Focal	V-Focal
Adams 1	n/a	NVS	NVS	Screened	Screened	Screened
Adams 2	n/a	NVS	NVS	Screened	Screened	Screened
NT 2	n/a	NVS	NVS	Screened	Screened	Screened
NT 2 (River)	n/a	NVS	NVS	Screened	Screened	Screened
NT 3	n/a	NVS	NVS	Screened	Screened	Screened

*Photographic expedition by Ches Clem.

Mica 2 proved to have the most open viewing opportunity. From right to left (South to North) SB7LP is small, relates well with the major ridgeline, SB7LN is seen as a narrow sliver, if at all, SB7LL-S is narrow and elongated, following the ridge, and SB7LL-N is small, emulating the landform shape. SB7LL-N and a portion of SB7LL-S are not visible, A portion of SB7LS is also likely screened. Together, the cutblocks form a cohesive, subtle pattern, respectful of visual forces. The visual effect of the 2012 logging seen from Mica 2 is likely subdued although brushing scheduled for this summer is likely to create more ground exposure, causing the opening to potentially remain nonVEG. RDI tested the effects of ground slope within the 2012 opening seen from Mica 2. When topographic slope is taken into consideration, The procedures and results are discussed in the “Results by Slope” Section in these Findings, and presented in detail on pages 16 and 17.

Adams River Road Viewpoints Adams 0, Adams 1, Adams 2, NT2, NT3, plus NT2 (River)

Views towards A89160 are largely screened by roadside trees, as indicated in the chart above, and as confirmed in the Luedtke photos of 2017 (from NT2, NT2 (River) and NT3). SB7LL-S and SB7LL-N potentially come into focal view from the newly established RDI Viewpoint Adams 1. These 6 viewpoints were checked by Ches Clem. Only his river expedition near Adam 0 proved to locate a successful, very open view - Viewpoint Adams 0 - River (51 31 47.4 N, 199 20 30.5 W). All cutblocks and the 2012 opening are seen from this viewpoint, making it the primary viewpoint for evaluation.

Results by Slope Class

RDI adapted the “VEG Heights by Slope Class” measures found in the “Procedures for Factoring Visual Resources in Timber Supply Analyses” document by logically applying it to the same slope classes found within the 2012 opening. The results by Slope Class are provided on pages 15 and 16 found 2% in the 6-10% slope range (3.5m regen required), 26% in the 11-15% range (4m required), 50% in the 16-20% range (4.5m required), and 22% in the 21%-25% range (5.0m required). RDI’s test of the effects of ground slope on regrowth heights required to meet VEG indicated 1 metre less height by weighted average, across the opening (4.46m) would be sufficient to meet VEG as compared to the 50% VEG probability model (5.5m) generally currently being applied across the Province.

Continued on next page.....

Plan to Perspective (P2P) Results

Perspective percent varies by position on the landform, by the slope of the landform, and by aspect relative to the viewpoint (the viewer's location). The proportions and P2P ratios herein are specific to the 2012 polygon. Class 2 (6-10% slope) is insignificant in size but is associated with Class 3 areas. The Class 2 area has a 3m Greenup requirement to meet VEG, and a 1:1 P2P ratio. Class 3 displays the highest P2P ratio at over 2:1, meaning the area has 2 times less area in Perspective (12%) for each unit of Planimetric (26%). However, the lower slope and shorter required tree height (3.5m) make VEG more achievable earlier with this category, and might be the source of green-up needed to reduce the total nonVEG alteration by 10% of the perspective area of the opening, particularly in association with Class 2 areas. Class 4 (16-20% slope) has 51% of the total area and a 1:1 P2P relationship, meaning an equal relationship, while Class 5 is 35% of the area in Perspective, but has a 0.6:1 relationship meaning the smaller plan area shows almost twice as much in Perspective. The large extent of Class 4 indicates that the search for and achievement of VEG, when possible, will have the greatest influence overall, though requiring a taller growth height (4m) followed by Class 5 area (4.5m). These might be the most likely locations to survey for VEG to reduce the overall nonVEG condition if not found in Classes 2 and 3.

Viewpoint Coverage Comparison

Viewpoint Adams 0 - River, as photographically documented by Ches Clem, provides the most open viewing opportunity, and should be considered to the most important location for viewing and rating Landform 1 and the new cutblocks. It is predicted to have 14.61% alteration, within the Modification VQO limit of 18%. Mica Lake 2 provides the second most open view, being further along the line of sight from Adams 0 - River, but the extent of the landform is restricted by shoreline trees around Mica Lake. Due to the screening, percent alteration is higher at 28.19%. The large 2012 harvest block is responsible for most of the alteration in Adams 0 - River (64%) and Mica 2 (78%). Approximately 56% of the 2012 opening (10% of the landform) would have to achieve VEG to bring Mica 2 down to Modification limits of 18%.

Mica 1 meets the Modification VQO at 11.15% with screening, and Mica 3 reveals only the skyline due to screening as seen in the photos and is likely to remain unchanged (0% alt.). Neither are appropriate rating points. No additional viewpoints were found by Ches Clem to offer viewing opportunities.

Conclusions

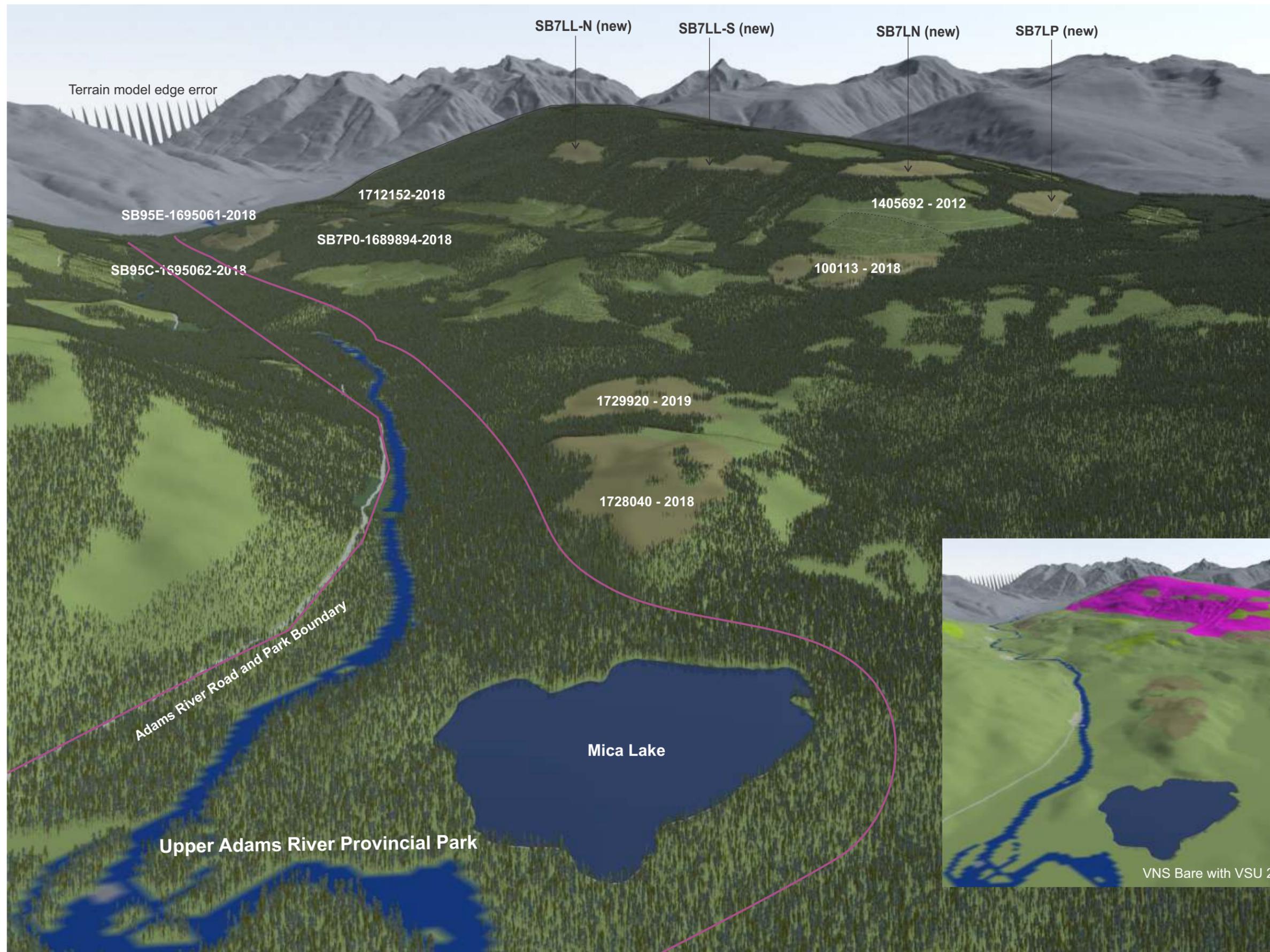
The proposed cutblocks, on their own, will introduce small, well-shaped openings, compatible in the landscape. The existing 2012 harvest opening dominates the landform. Brushing later this year may increase visibility and delay VEG. Professional pictorial assessment by RDI, following the brushing, is important to determine if the VEG definition has been achieved.

The slope maps and P2P results provide an innovative, strategic approach for finding the areas meeting VEG within the 2012 opening. The application of slope class for determination of VEG heights appears to be valid, and indeed, necessary. Further field surveys are desirable in the categories with the greatest opportunity for reduction of overall nonVEG.

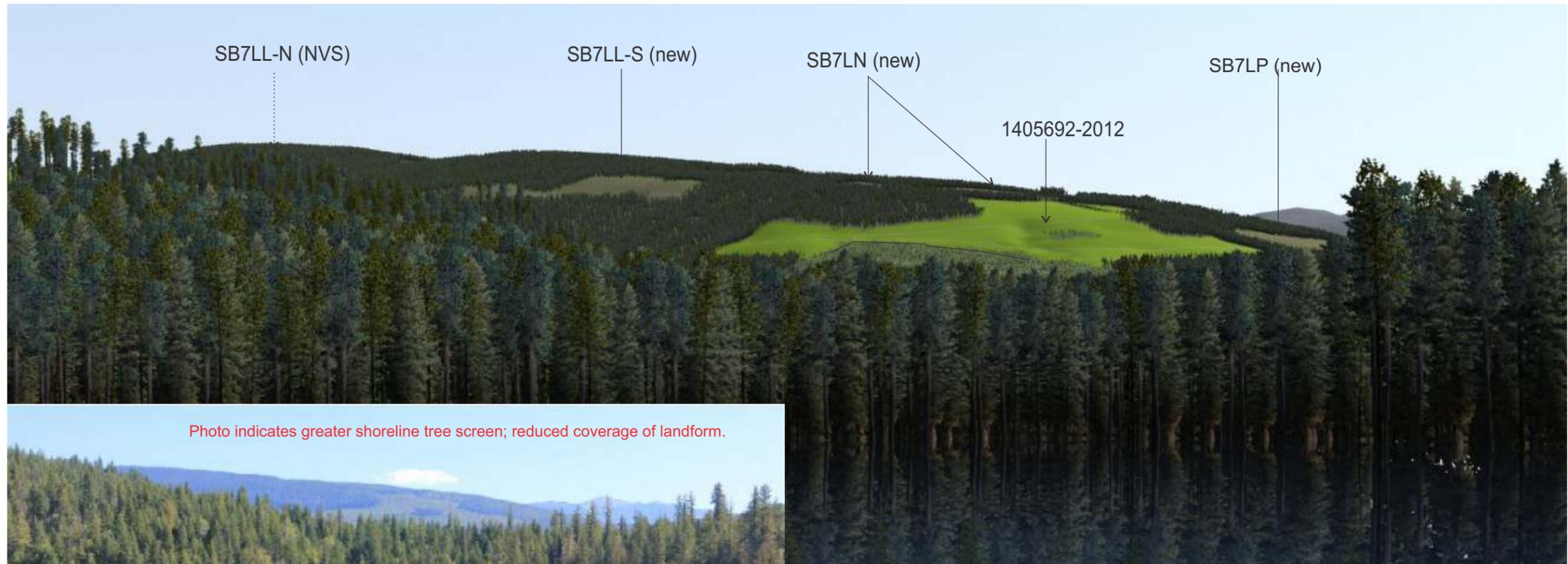
While not devaluing Mica 2's viewing significance, given the disparity in visible area between Adams 0 - River and Mica 2, and it may be appropriate for the Adams 0 - River viewpoint to take the lead in the determining if and when the VQO is met. Adams 0 - River is currently 14.6% alteration with the 2012 opening fully considered. The opening should be re-assessed following the brushing to determine if its contribution to the visual condition still meets the Modification VQO. Until VEG is assured (56% of the area with 4.5m VEG height as calculated by weighted average), the opening presently exceeds the limits by verbal definition of the Modification VQO (see poster on Page 18). The future dates for advanced sale and harvesting commencement work in favour of VEG being achieved by that time.



Ken B. Fairhurst, PhD, RPF
RDI Resource Design Inc
October 8, 2020

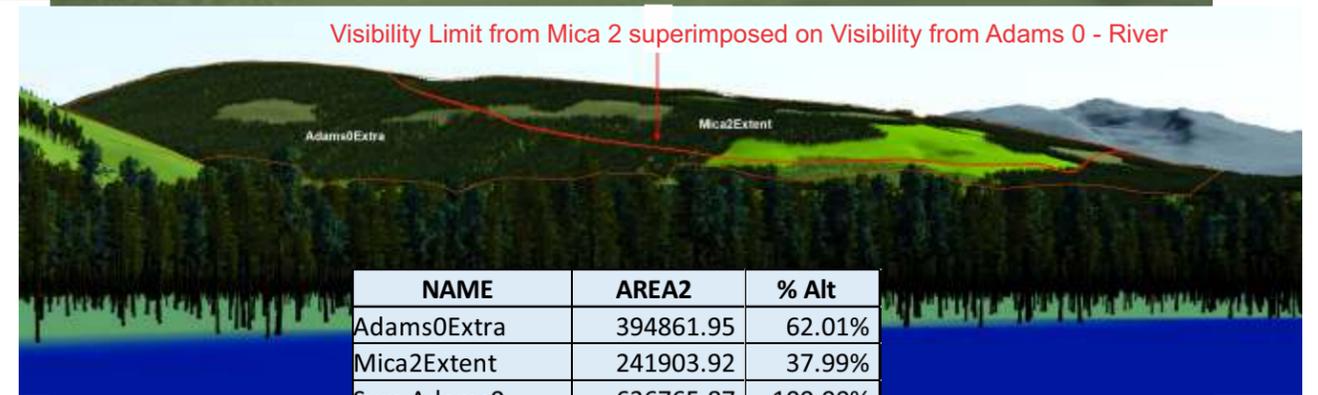
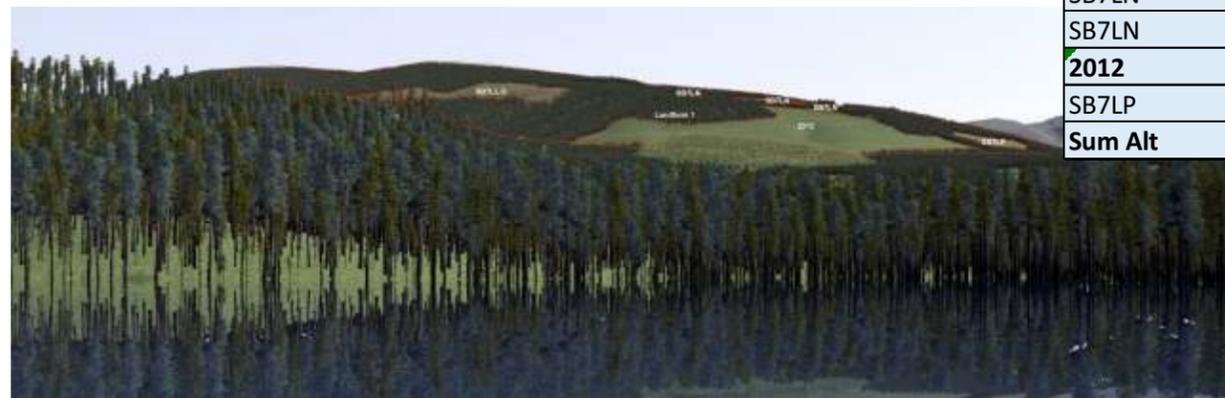
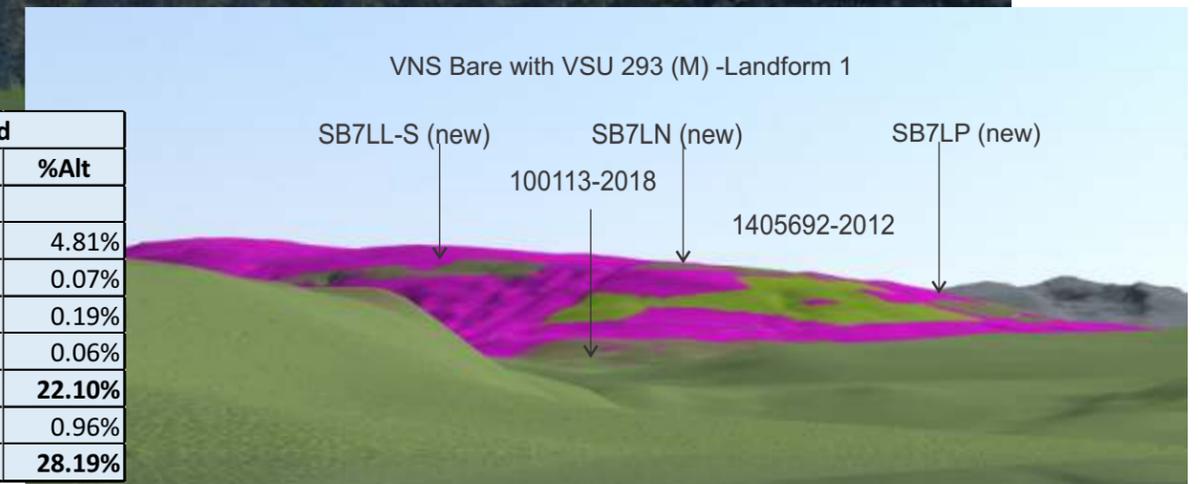


Overview from above Mica Lake



VNS revised to provide greater shoreline tree screen per Clem Photo

Percent Alteration Mica2 Revised		
NAME	AREA2	%Alt
Landform 1	152708.13720800000	
SB7LL-S	7347.53189357000	4.81%
SB7LN	104.38685240200	0.07%
SB7LN	284.15576138700	0.19%
SB7LN	89.40927769360	0.06%
2012	33752.31213600000	22.10%
SB7LP	1463.11406543000	0.96%
Sum Alt	43040.90998648260	28.19%

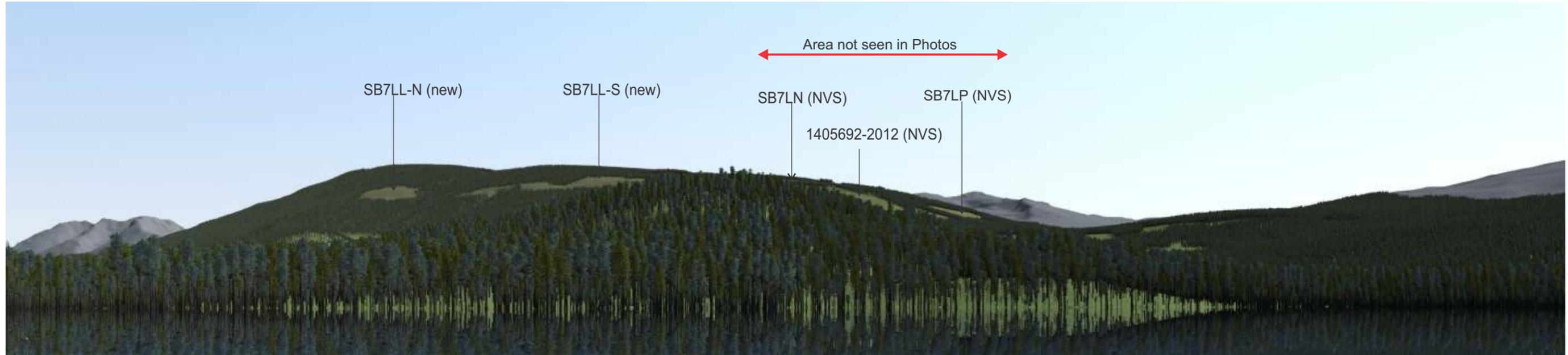


NAME	AREA2	% Alt
Adams0Extra	394861.95	62.01%
Mica2Extent	241903.92	37.99%
Sum Adams0	636765.87	100.00%

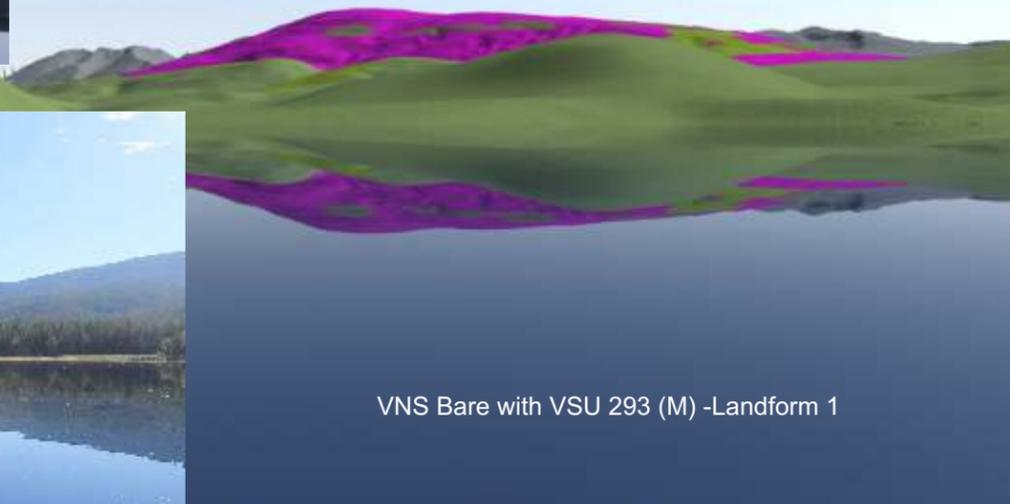
28% Alteration - exceeds Modification VQO by 10%, 16% of which is non-VEG 2012 opening.
 VEG in 2012 opening must be validated by heights and photos
 If/when opening is 55% VEG in perspective view, Landform 1 would meet VQO

See Slope Map for required VEG calculations within the 2012 Opening on pages 16 and 17

Viewpoint Mica Lake 2

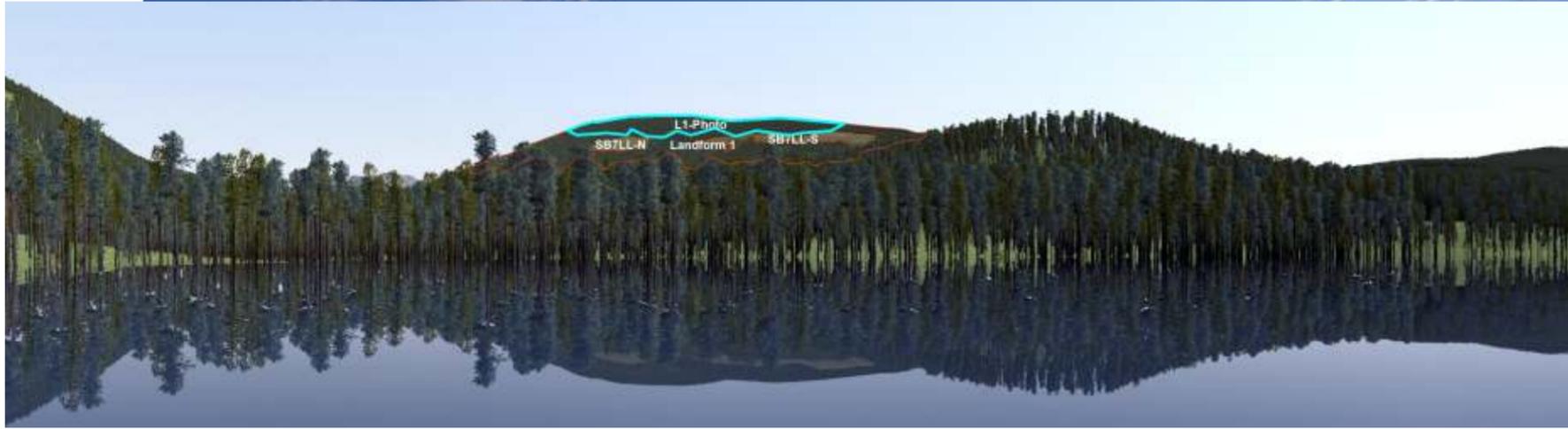
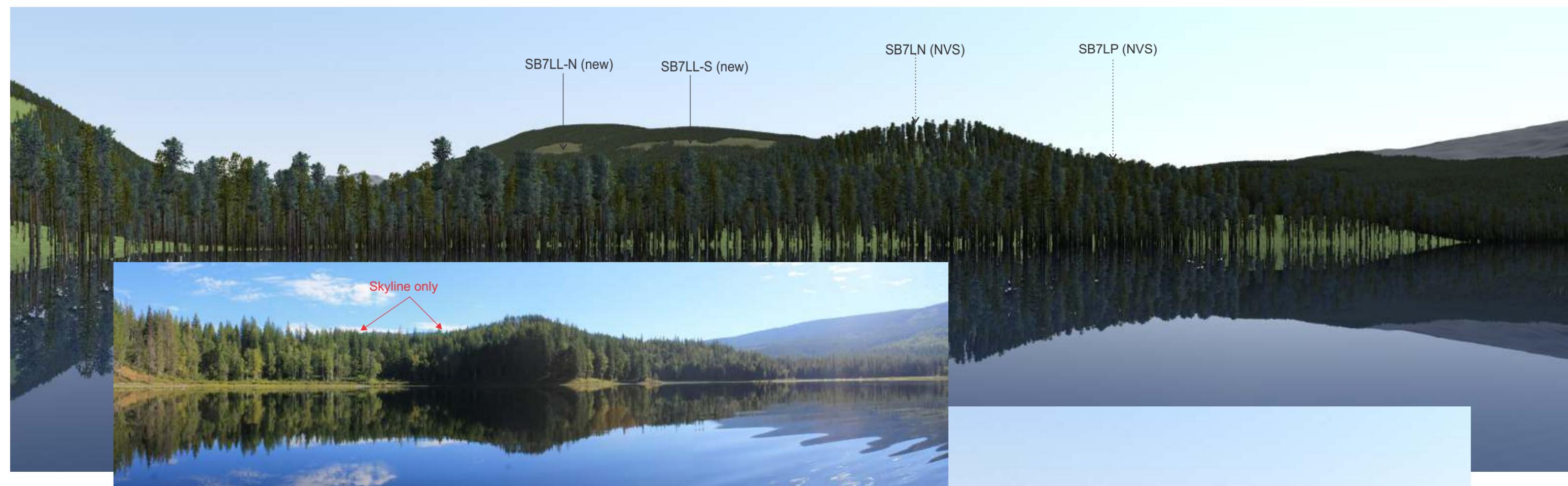


Percent Alteration Mica 1 - adjusted per Clem Photos		
NAME	AREA2	% Alt
Landform 1	140029.24570400000	
SB7LL-N	4710.90881974000	3.36%
SB7LL-S1	2198.45490019000	1.57%
SB7LL-S2	6364.44504841000	4.55%
NVS-Per Photo	0.00000000000	0.00%
Sum Alt	13273.80876834000	9.48%



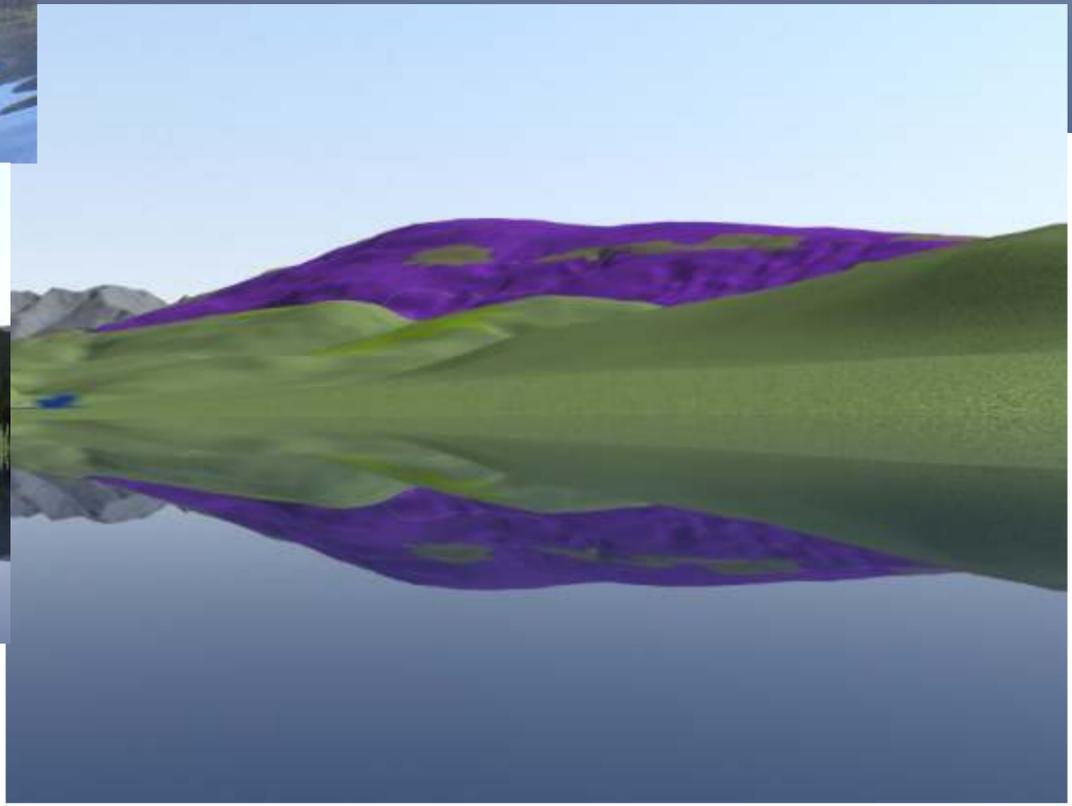
Meets Modification VQO

Viewpoint Mica Lake 1



Percent Alteration in Skyline=0 from Photo assessment

Meets Modification VQO



VNS Bare with VSU 293 (M) - Landform 1

Viewpoint Mica Lake 3

Approximate visibility from Mica 2

SB7LL-N (new)

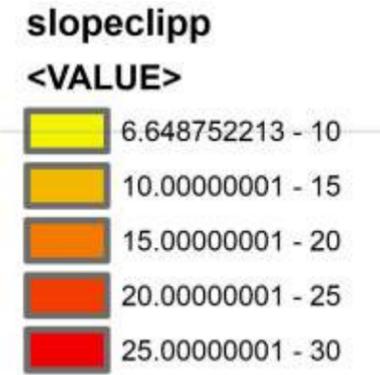
SB7LL-S (new)

1405692-2012
nonVEG

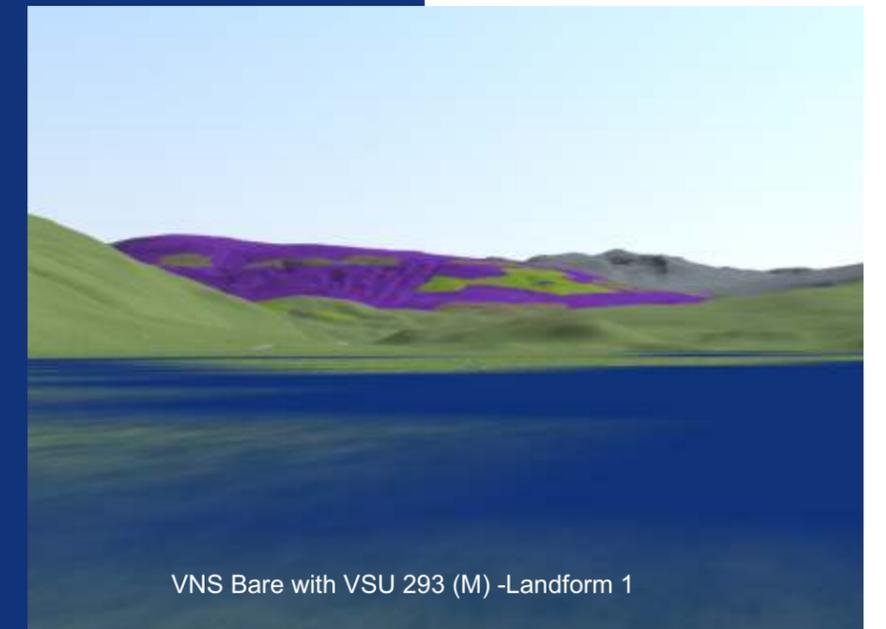
SB7LN

SB7LP

Ones Clem Photo September 10, 2020



Less Screening without Deciduous Foliage



VNS Bare with VSU 293 (M) -Landform 1

Less Screening without Deciduous Foliage



Ches Clem Photo September, 2020



Percent Alteration Adam0-Ches		
NAME	AREA2	%Alt
Landform	156524.10	
SB7LL-N	2801.87	1.79%
SB7LL-S1	1173.00	0.75%
SB7LL-S2	3509.70	2.24%
SB7LN	522.56	0.33%
SB7LS	697.63	0.45%
L2012	14210.79	9.08%
L2012	259.99	0.17%
Leave	-300.80	-0.19%
Sum Alt	22874.74	14.61%

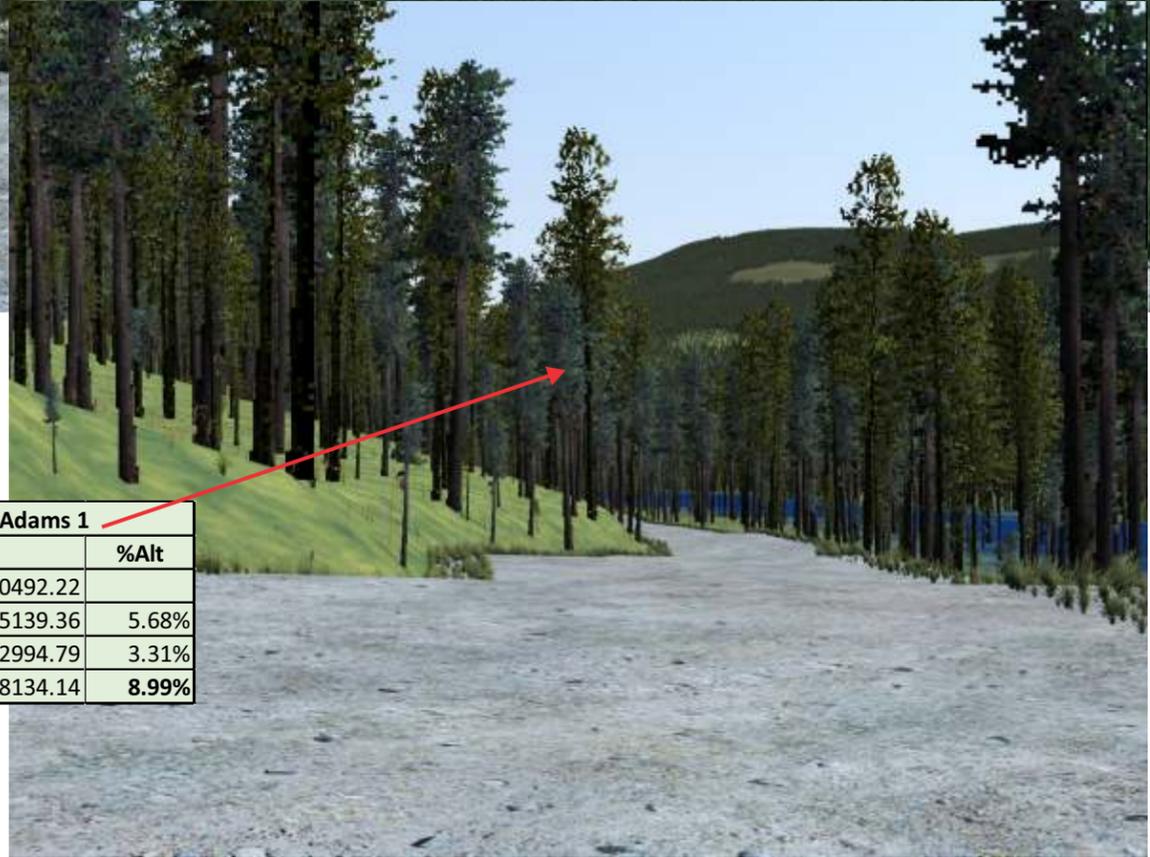
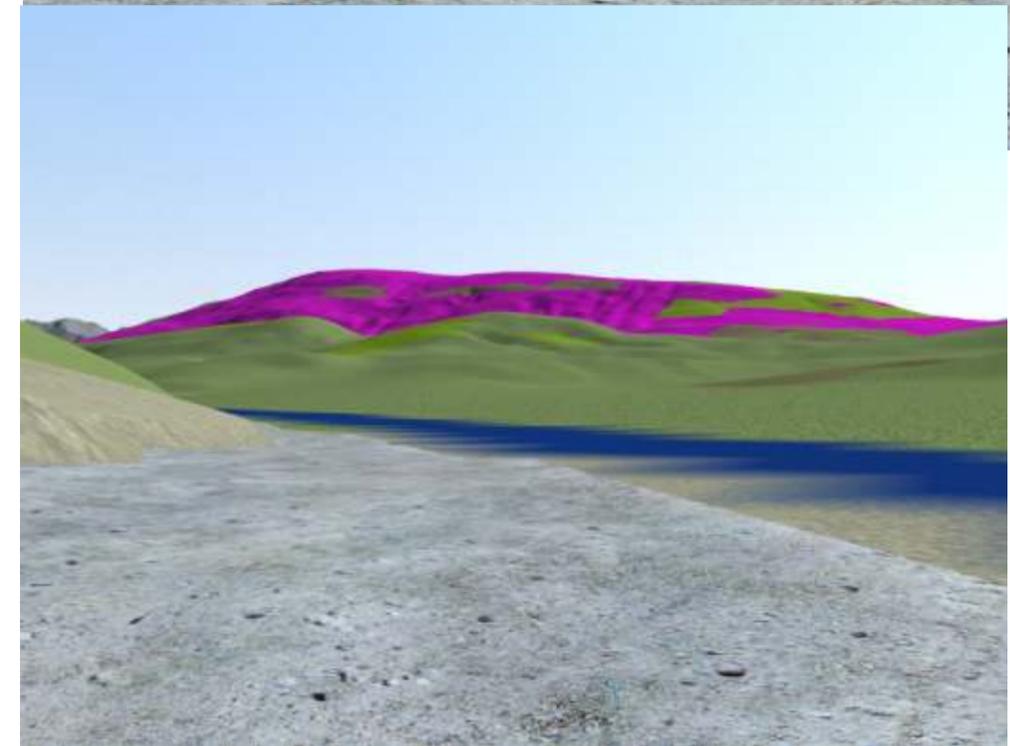
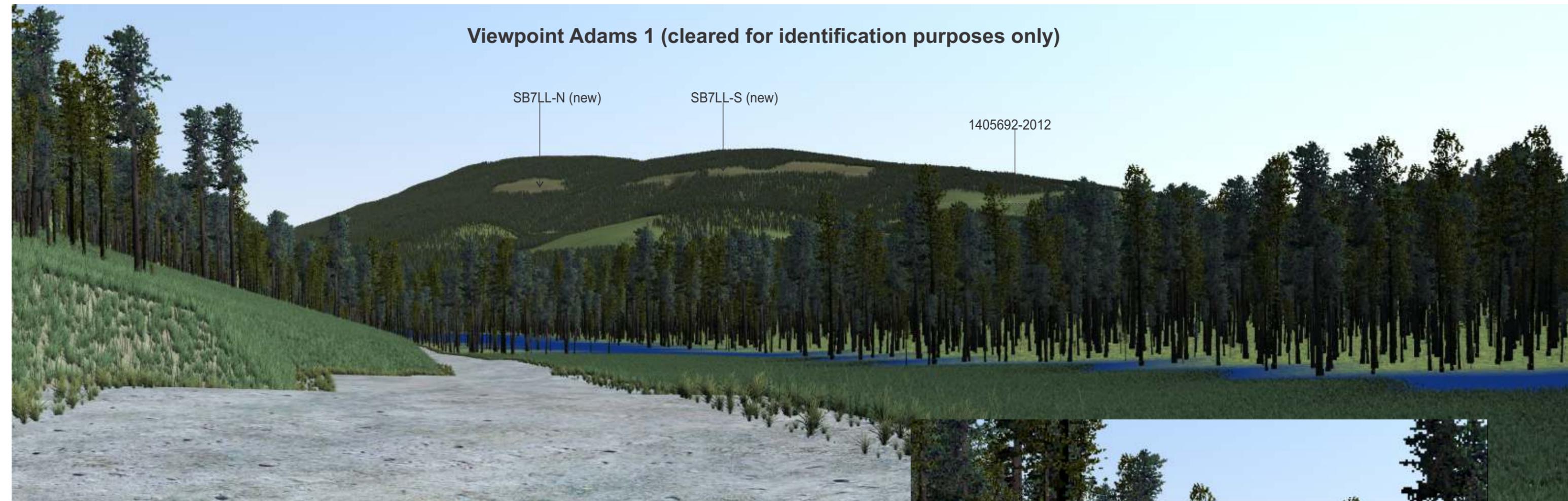
Percent Alteration Viewpoint Adam 0 - Ches Clem Photopoint - meets Modification Visual Quality Class

Viewpoint Adams 1 (cleared for identification purposes only)

SB7LL-N (new)

SB7LL-S (new)

1405692-2012



Percent Alteration from Adams 1		
NAME	AREA2	%Alt
Landform 1	90492.22	
SB7LL-N	5139.36	5.68%
SB7LL-S	2994.79	3.31%
Sum Alt	8134.14	8.99%

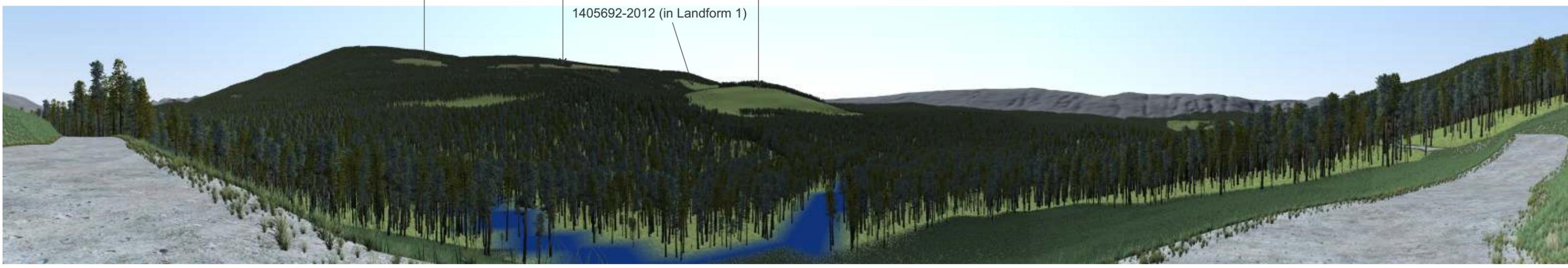
VNS Bare with VSU 293 (M) -Landform 1

VNS Rendering with Roadside Trees per VRI

Viewpoint Adams 1

SB7LL-N (new) SB7LL-S (new) 1466551-2012 (not in Landform 1)

1405692-2012 (in Landform 1)

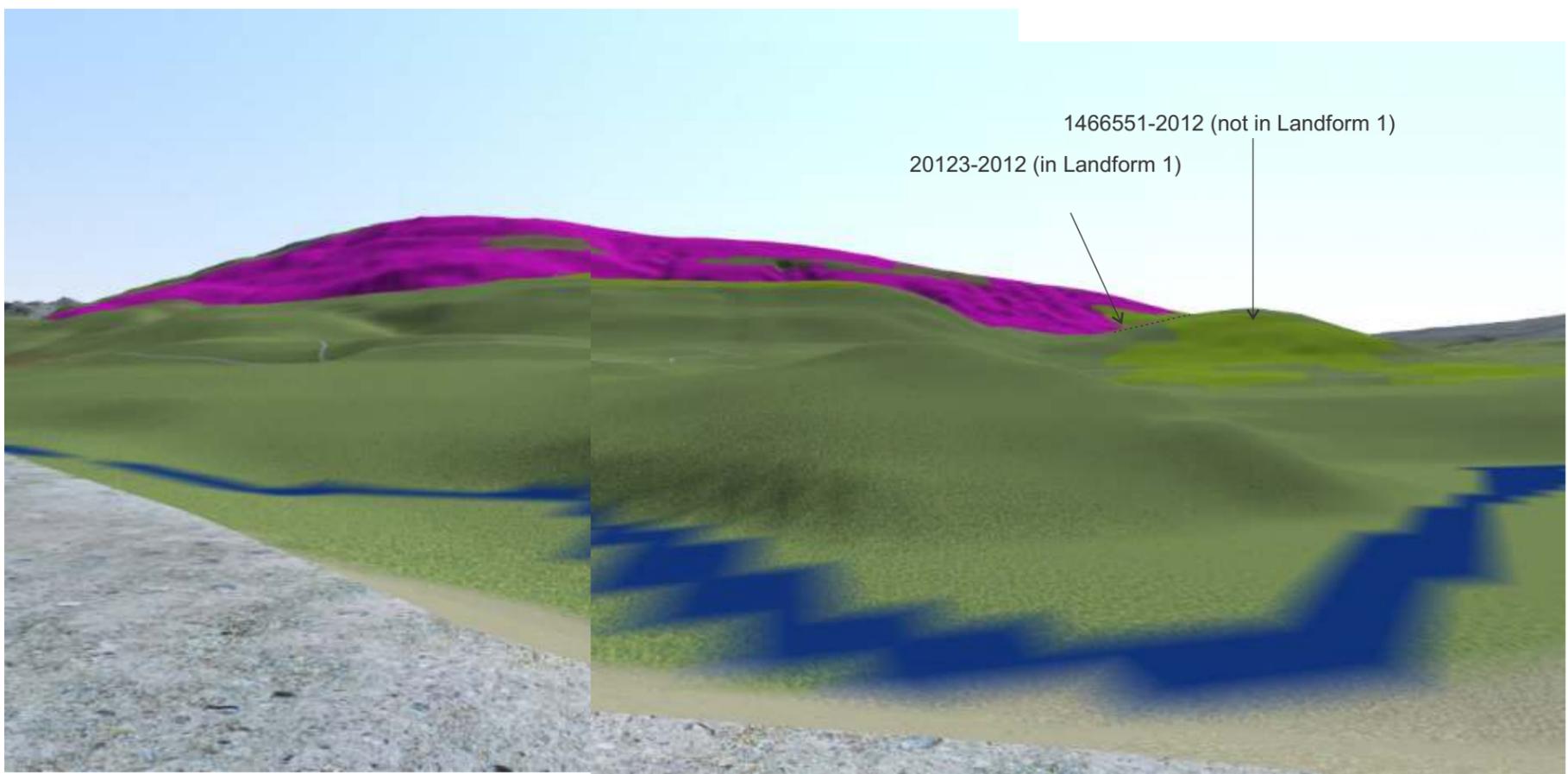


Viewpoint Adams 2 (cleared for identification purposes only)

SB7LL-N (new)

SB7LL-S (new)

1466551-2012 (not in Landform 1)
20123-2012 (in Landform 1)



VNS Bare with VSU 293 (M) -Landform 1



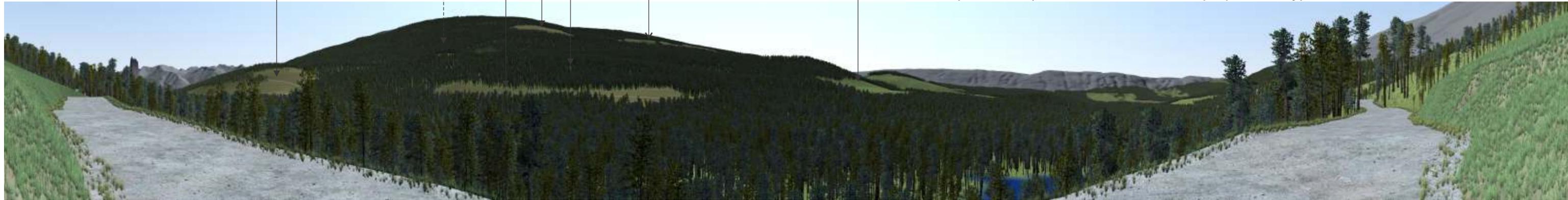
VNS Rendering with Roadside Trees per VRI

No open viewing

Viewpoint Adams 2

SB95E
 SB95U (minor)
 SB95C
 SB7LL-N (new)
 SB7F0 (NVS or non-existing)
 SB7LL-S (new)
 SB7VJ?

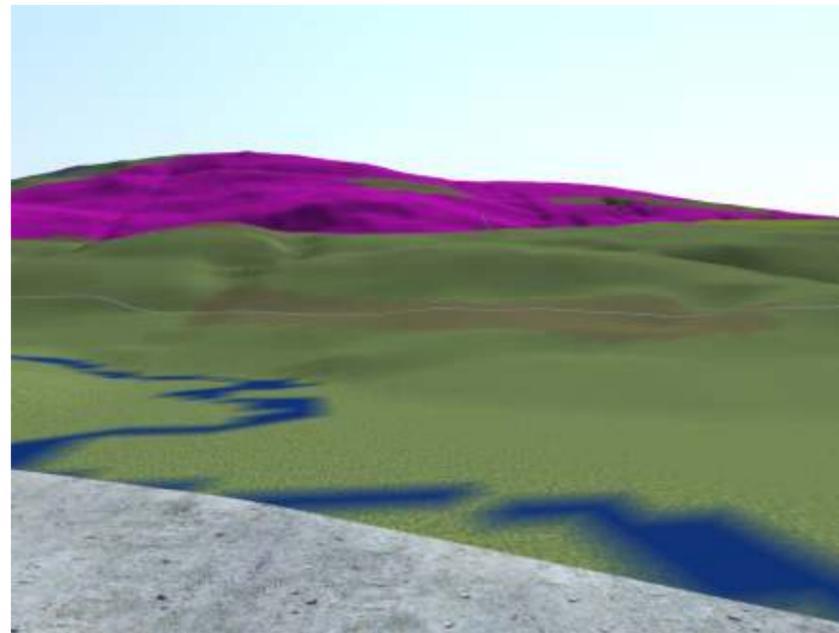
Viewpoint NT2 (cleared for identification purposes only)



No open viewing



Photos by Tyson Leudtke September, 2017



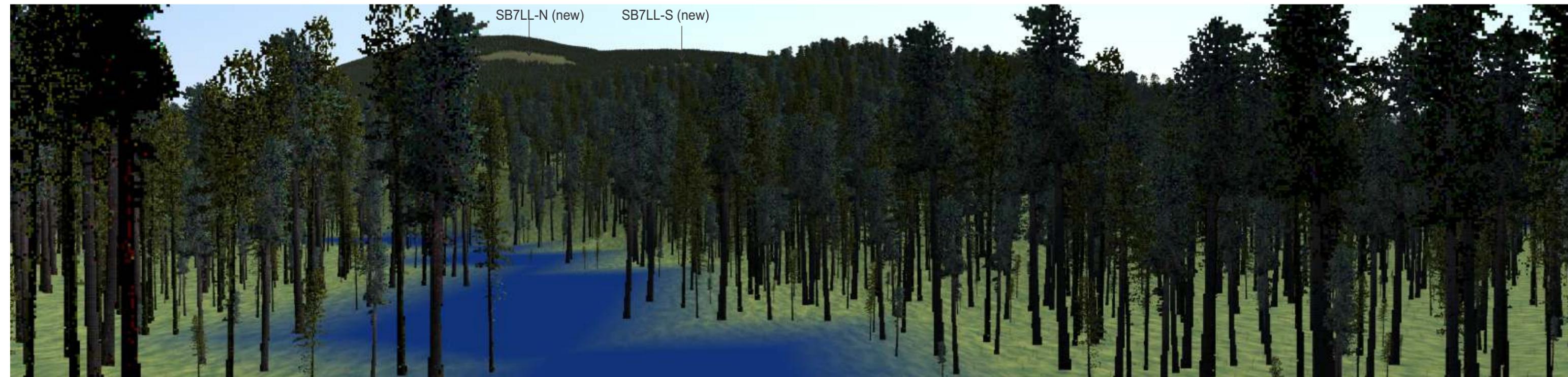
VNS Bare with VSU 293 (M) -Landform 1

Viewpoint NT2



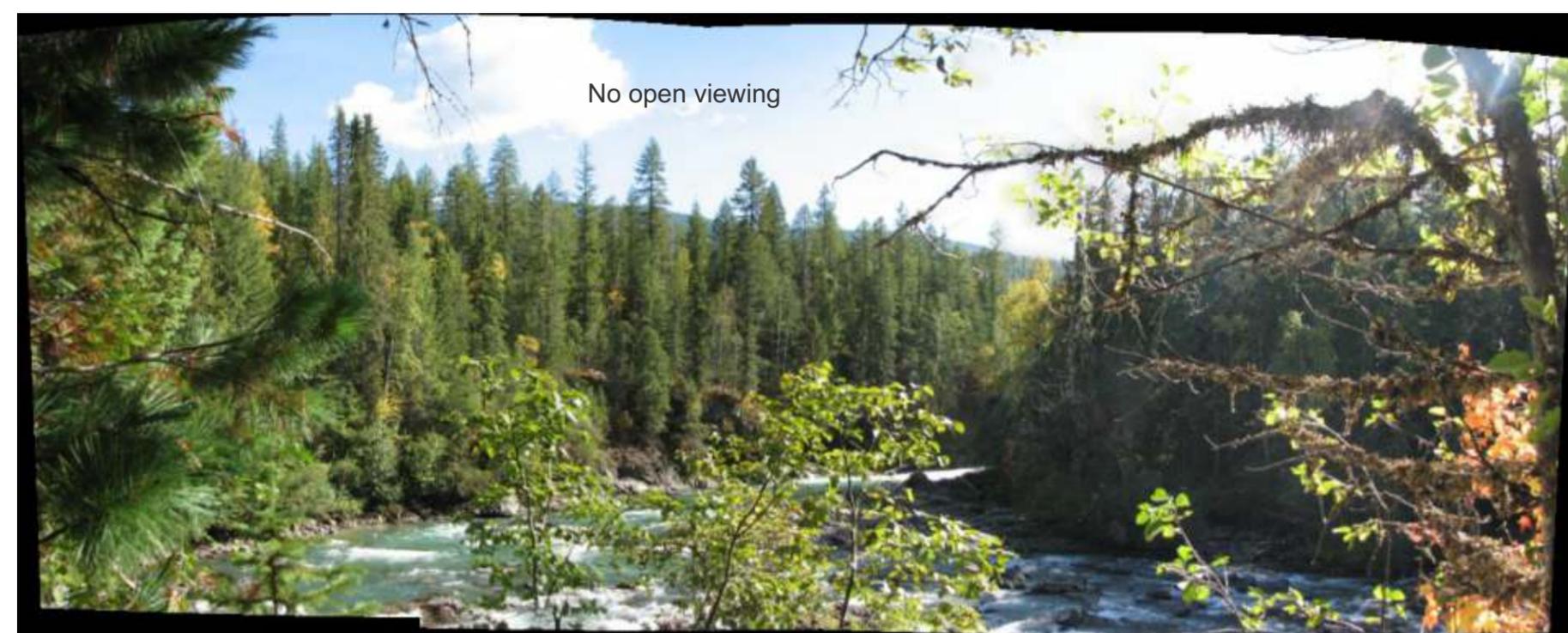
SB7LL-N (new) SB7LL-S (new) SB95C

VNS Rendering with Roadside Trees per VRI



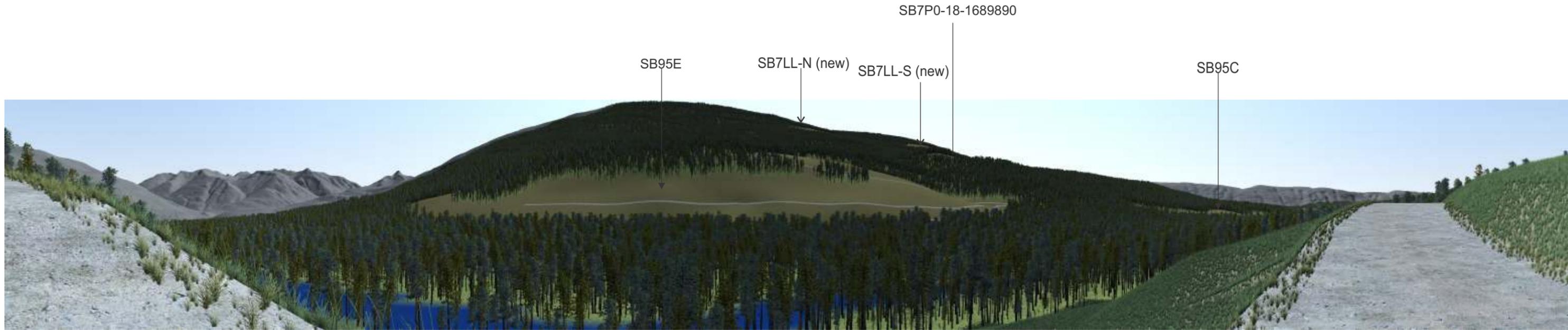
Viewpoint NT2-Riverbend- no VP clearing - slightly raised viewpoint elevation

5236 pixels



Photos by Tyson Leudtke September, 2017

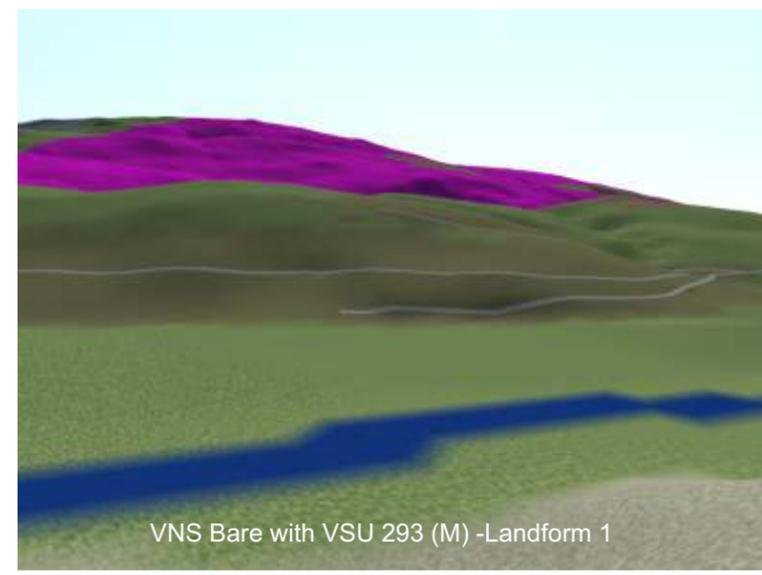
Viewpoint NT2 River



Viewpoint NT3 (cleared for identification purposes only)
 Composite (stitched) 48 mm camera lens (40 degree field of view). 4.5 images road to road (180 degrees).



Photos by Tyson Leudtke September, 2017

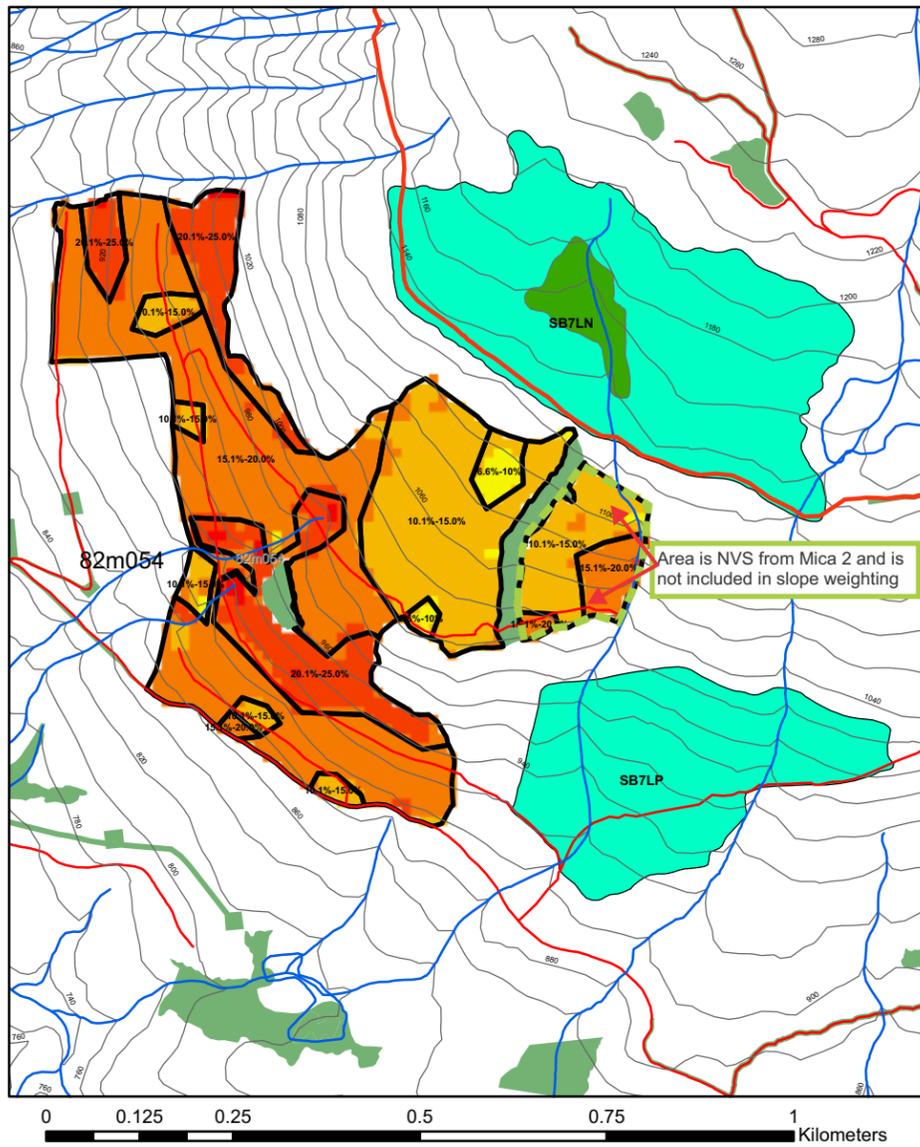


No open viewing



VNS Rendering with Roadside Trees per VRI

Viewpoint NT3



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RDI Resource Design Inc
April, 2020

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 - A89160_CTR_Clip
 - Roads
 - 2012slope
 - Main_River
 - Lakes
 - TA_PEP_SWW_polygon
 - TRIM_EBM_WATERBODIES
 - April_9_2020_A89160_WTRA's
 - A89160_Block_Shapes
 - Existing_WTRA's_&_Road_PAS
 - TRIM_WATER_LINES
 - Roads_for_RDI_July_23_2013
 - TRIM_EBM_WATERBODIES
 - TRIM_EBM_WATERCOURSES
 - 20kbcgrid
- slopeclipp**
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 - 10.000000001 - 15
 - 15.000000001 - 20
 - 20.000000001 - 25
 - 25.000000001 - 30
 - 082m084vri
 - RDI_trim_transportation
 - RDI_TRIM_watercourse



Tree height required to meet VEG by percent slope for well stocked stands
(Source: B.C. Ministry of Forests, 1998, Procedures for Factoring Visual Resources into Timber Supply Analyses, Table 6, P. 9.)

	Slope Class					
	1	2	3	4	5	6
Slope %	0-5	6-10	11-15	16-20	21-25	26-30
Regen. Height	3	3.5	4	4.5	5	5.5

Weighted Average Years to Achieve VEG, Considering Planimetric Area in Each Slope Class					
NAME	AREA2	Area % of Total	Weighting Factor	Required VEG Ht. by Slope Class (m)*	Weight (years) and Total Weighted Average (Years)
2012 Opening	404465.19				
CL2_ 6-10%	6918.11				
CL2_ 6-10%	1873.26				
Sum Class 2	8791.36	2.17%	0.0217	3.5	0.08
CL3_ 11-15%	88026.64				
CL3_ 11-15%	5464.32				
CL3_ 11-15%	2555.47				
CL3_ 11-15%	4095.08				
CL3_ 11-15%	2325.35				
CL3_ 11-15%	1809.69				
Sum Class 3	104276.56	25.78%	0.2578	4	1.03
CL4_ 16-20%	198372.63				
CL4_ 16-20%	2945.19				
Sum Class 4	201317.82	49.77%	0.4977	4.5	2.24
CL5_ 21-25%	22321.75				
CL5_ 21-25%	9880.00				
CL5_ 21-25%	57877.70				
Sum Class 5	90079.45	22.27%	0.2227	5	1.11
Sum Opening	404465.19	100.00%	1		4.46

Weighted Average

*Tree height required to meet VEG by percent slope for well stocked stands (Source: B.C. Ministry of Forests, 1998, Procedures for Factoring Visual Resources into Timber Supply Analyses, Table 6, P. 9.)

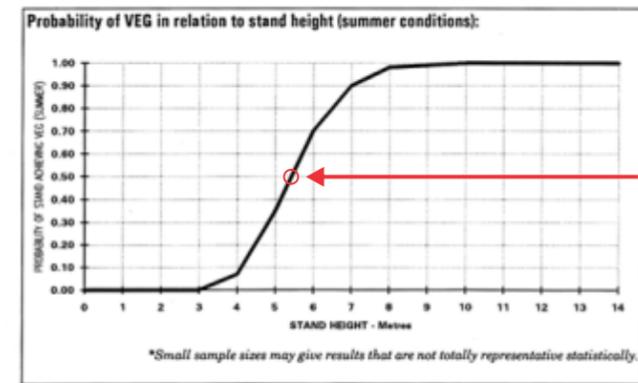
Notes:

- The probability curves from the 1994 VEG study are the original "first look" at the topic. The authors of original study indicated a need for further studies, such as the relationship between Plan View and Perspective View (P2P), and the effects of slope, viewing angle, and angle of incidence on VEG. The viewing angle towards most of the photos of green-up used in the study were at elevation towards the opening or higher (superior), thereby reducing the visually effective coverage of trees within the opening as compared to the coverage as would be seen from lower (inferior) viewpoints typical of valley and water body viewing opportunities. Of the 21 representative summer photos presented in the report, by RDI's interpretation, 20 were either from level of higher (aerial). The selection of the mid-slope viewing opportunities was intended to be a control in the study, but is not representative of normal viewing as from Mica Lake. Further work on P2P was conducted for the Forest Practices Branch by Gerard Olivotto in 2001 and by A.F.L. Nemeč in 2002. The key take-away is that as the angle of incidence increases, whether by steeper slope or higher viewing angles, less screening is afforded by on-site trees for a given tree form and density, and more bare ground is seen, requiring greater tree heights to fill in the opening visually. The reverse is also true: the lower the AOI, the greater the screening cover afforded by a given tree height. The "first look" also was very limited in Biogeoclimatic subzone sampling, and produced just two Province-wide probability curves (one for summer and one for winter). The curves have neither been adjusted nor made more specific to each subzone's growth performance for over 2 1/2 decades.

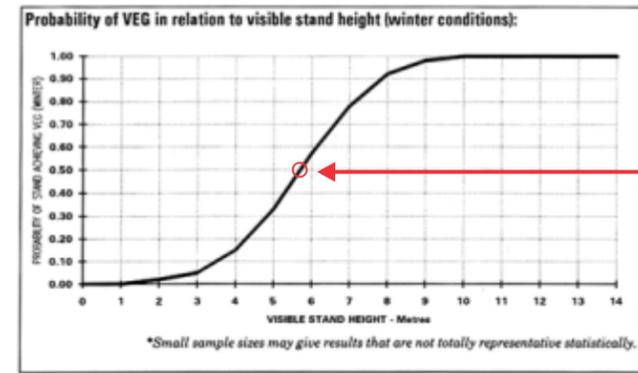
- The Procedures for Factoring Visual Resources into Timber Supply Analysis (1998) provides a more informed VEG application by stratifying the landbase (Green Area) by 5% slope classes to assign refined VEG heights by each slope class. As with the VEG "First Look" study, the viewing situation was assumed to be mid-slope and not exceeding 20% vertical angle. Therefore it may overestimate the amount of greenup height required to meet VEG, compared with inferior viewing situations that are more common, such as at Mica Lake. RDI compiled the amount of area in each slope class for the 2012 opening (see chart above). The weighted average for the entire opening is 4.45m. Even though calculated with mid-slope viewing, the height to achieve VEG using this method is a full metre shorter than the probability tables at 50% probability of VEG, and likely indicates the benefit of such refinement.

- The Fairhurst 2010 PhD research applied angle of incidence from cumulative viewpoints, proving the procedure to be useful for visual resource planning for minimizing or avoiding visual impacts. However, no assessment was made for the effects on VEG in his study. While the slope class approach in #2 above does not provide for angle of incidence effects from the viewpoint, it is representative of that effect, particularly in this instance, as the aspect of the terrain faces directly towards the viewpoint (Mica 2). See next page for the Mica 2 P2P results.

Visually Effective Green-up

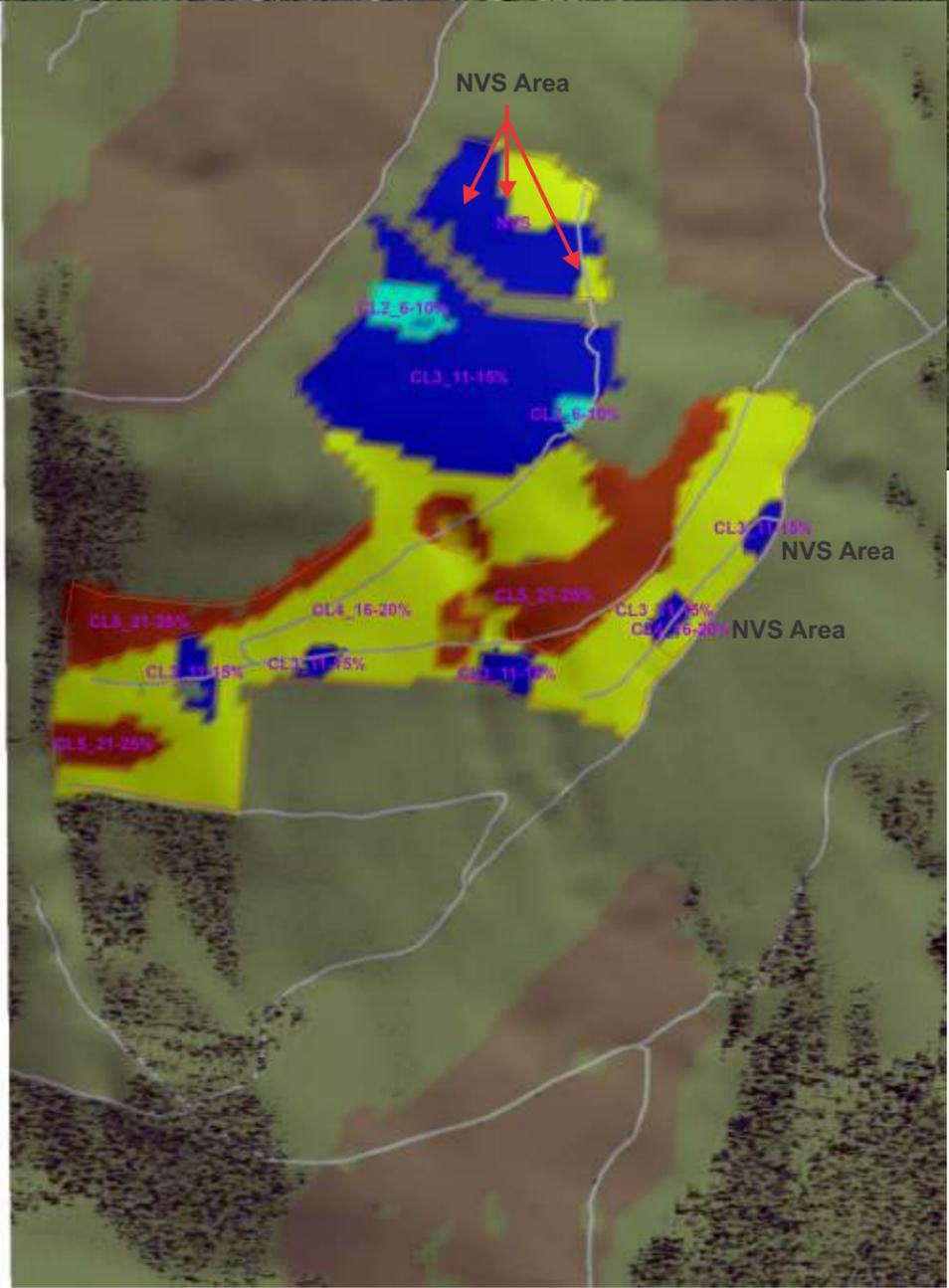
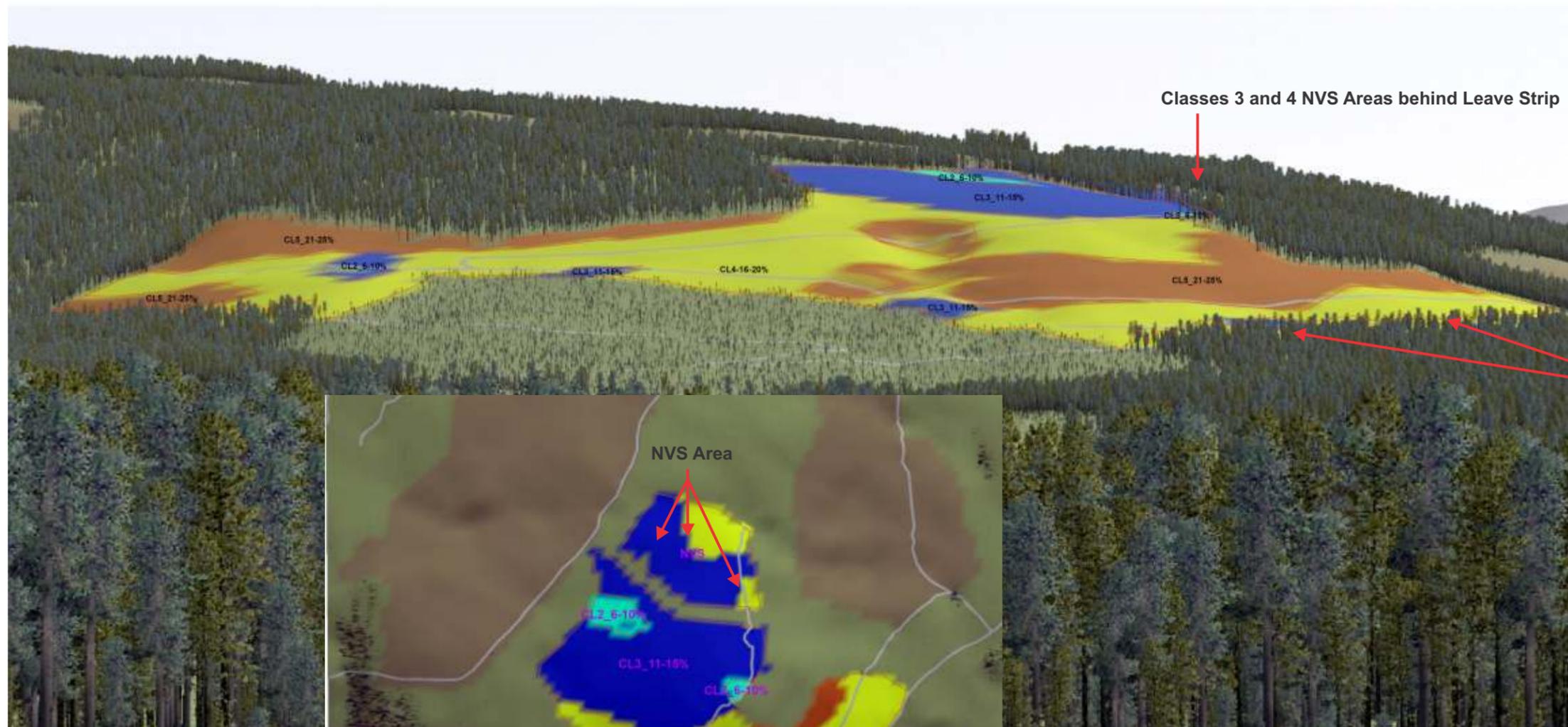


Summer
50% Probability of achieving VEG at 5.5m



Winter
50% Probability of achieving VEG at 5.75m

Source: A first look at visually effective green-up in BC. Ministry of Forests 1994



Plan to Perspective Ratios by Slope Class				
Slope Class	Planimetric % of Area	Perspective % of Area	Plan./Pers.	Required Ht. to VEG (m)
CL2_6-10%	2.17%	1.95%	1.11	3.00
CL3_11-15%	25.78%	11.77%	2.19	3.50
CL4_16-20%	49.77%	51.15%	0.97	4.00
CL5_21-25%	22.27%	35.14%	0.63	4.50

See discussion of inferences regarding slope class and P2P in the Findings on Pages 3 and 4
See also Page 15 for slope and weighting procedures.

Visual Quality - Categories of Alteration

Visual Quality Objectives are defined in Section 1.1 of the Forest Planning and Practices Regulation. Visual Quality research shows that percent alteration for clear cuts and volume/stems per hectare for partial cuts are also good predictors of visual quality if applied correctly.

Clear Cuts

Retention Harvest

Partial Cuts

Preservation: very small in scale, and not easily distinguishable from the pre-harvest landscape.
0% ground may be visible.



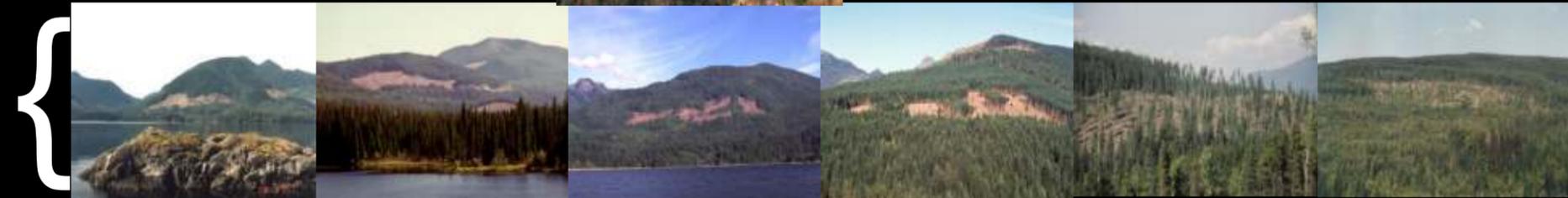
Retention: is difficult to see, small in scale, and natural in appearance
0 - 1.5% ground may be visible.



Partial Retention: easy to see, small to medium in scale, and natural and not rectilinear or geometric in shape.
1.6 – 7% ground may be visible.



Modification: is very easy to see, and is (A) large in scale and natural in its appearance, or (B) small to medium in scale but with some angular characteristics.
7.1-18% ground may be visible.



Maximum Modification: is very easy to see, and is (A) very large in scale, (B) rectilinear and geometric in shape, or (C) both
18.1-30% ground may be visible.



Percent Alteration	Per VQO
Preservation	0
Retention	0 - 1.5
Partial Retention	1.6 - 7.0
Modification	7.1 - 18.0
Max Modification	18.1 - 30.0

Note: % Alteration numbers must be applied to a readily distinguishable landform. They were not derived for application against entire landscapes.



Volume (Stems) Removed in %	Tree Height (Metres)									
	5	10	15	20	25	30	35	40	45	50
10	R	R	R	R	R	R	R	R	R	R
20	R	R	R	R	R	R	R	R	R	R
30	R	R	R	R	R	R	R	R	R	R
40	R	R	P	P	P	P	P	P	P	M
50	P	P	P	P	P	P	P	P	M	M
60	P	P	P	P	P	M	M	M	M	M
70	P	P	P	M	M	M	M	M	M	M
80	M	M	M	M	M	M	M	M	M	M
90	M	M	M	M	M	M	M	M	M	M

Note: The Partial Cutting table may be applied across the landscape as this measure is landform Independent.