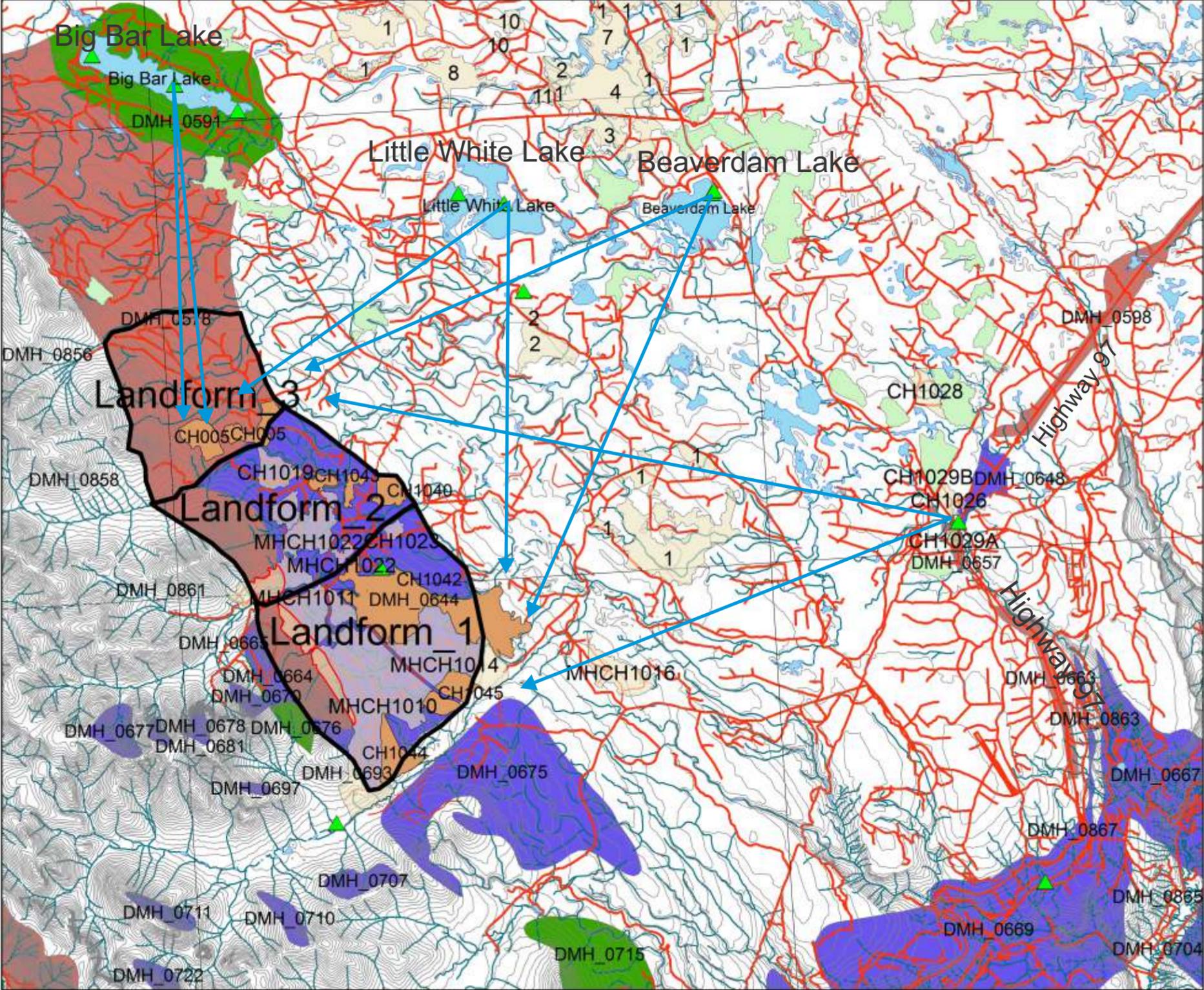


**BC Timber Sales
Chasm 2013
Visual Impact Assessment
RDI Resource Design Inc
October, 2013**



- ▲ Chasm_Viewpoints
 - Chasm_Landforms
 - existing-PR
 - Existing_2002_2008
 - Existing_2010_2012
 - Chasm_2013_Blcks
 - Beaverdam Lake
 - Big Bar Lake
 - Little White Lake
 - TRIM_contours
 - Chasm_TRIM_Transp
 - Chasm_Genus_Streams
 - Genus_Roads
 - Chasm_TRIM_Waterbodies
- Chasm_Scenic_Areas**
- VQO**
- R
 - PR
 - M



Contents

- 1 Cover / Key Map
- 2 Contents
- 3 VIA Summary Table
- 4 VIA Summary Table page 2
- 5 RDI Comments page 1
- 6 RDI Comments page 2
- 7 Aerial Simulation
- 8 Highway 97 Photos (VQO 2)
- 9 Highway 97 Simulation (VQO 2)
- 10 Meadow Road Photos (VQO3)
- 11 Beaverdam Lake Simulation near VQO 3
- 12 Beaverdam Lake Close-up Simulation near VQO 3
- 13 Little White Lake Photos (VQO 4)
- 14 Little White Lake Simulation (VQO 4)
- 15 Little White Lake Simulation Close-up (VQO 4)
- 16 Little White Lake Simulation Percent Alteration and Visual Force Analysis
- 17 Little White Lake Percent Alteration Sheet
- 18 Big Bar Lake Photos (VQO 5)
- 19 Big Bar Lake Simulations



Visual Impact Assessment Summary Table

District: Kamloops

Licensee: BCTS Kamloops Business Area, Clearwater Field Team

Licence Number	A91129	CP# & BLK #, or RP#:	CH005-1 CH005-2 CH1040 CH1040a CH1042 CH1043 CH1044 CH1045	Map Reference #:	92P012 92P022	Proposed year of Harvest	2014	Proposed Silv System	CC
----------------	--------	----------------------	---	------------------	------------------	--------------------------	------	----------------------	----

Type of Proposed Alteration (e.g. Cutblock, Road or Pipeline R/W, Oil lease, etc.) Cutblock

VISUAL LANDSCAPE INVENTORY LABEL (old) VLU#: VSR: VAC: EVC: EVQO:

VISUAL LANDSCAPE INVENTORY LABEL CCLUP June 25, 2010
 DOES EVC EXCEED THE ESTABLISHED VQO? VSU#: 578
644 VSC: VAC: EVC: EVQO: PR
M
 See comment sheet Yes No

Combined PR/M in Landforms 1 and 2; PR only in Landform 3. VQO exceeded in landform 1, met in 2 and 3

VIEWPOINTS & VIEWING CONDITIONS

Number & Name of Viewpoints from which the proposal is visible?	Little White Lake	Beaverdam Lake	Highway 97
Indicate Viewpoint Importance. (Major/minor/potential)	Major	Major	Major Transitory only
Viewing Distance (Fg, Mg or Bg.)	BG (7km-18km)		

ASSESSING BASIC VQO DEFINITION

Does the proposed alteration, in combination with any existing Non-Veg alterations, achieve the basic VQO definition for the established VQO from each of the identified viewpoints?	No/yes - see comment sheet	No/yes - see comment sheet	No/yes - see comment sheet
--	----------------------------	----------------------------	----------------------------

If applicable state reasons why the proposal does not achieve the basic definition.

Existing nonVEG dominates VSU 644 and south end of VSU578. Landform approach selected for analysis. With landform approach Landform 1 is MM in combined PR/M landform, Landform 2 is nearly PR (in combined PR/M landform), Landform 3 is PR in PR landform. - see comment sheet.

If applicable, which basic VQO definition would the proposed alteration in combination with any existing Non-VEG alterations meet?

N/A or P R PR M MM EM

ASSESSING VISUAL DESIGN

Does the proposed alteration(s) exhibit elements of good visual design? YES NO

Does the proposed alterations respond to the lines of force analysis? YES NO

If No why?

“Partial retention” means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is easy to see, (b) is small to moderate in scale, and (c) has a design that appears natural and is not angular or geometric (Visual Quality Effectiveness Evaluation definition).

Is there existing human made alterations visible in the unit showing no or poor design?
 NO YES Existing nonVEG blocks grab the eye, cross lines of force, out of scale

ASSESSING SCALE OF ALTERATION

(Use photographs or computer simulation output for calculations) (See Appendix 4 for example of calculation)

Little White Lake Landform #1

Little White Lake Landform #2

Little White Lake Landform #3

Landform approach used - see Percent analysis pages for details

1. Total area of landform/VSU in perspective view as seen from each viewpoint.(measured in cm ²)				
2. Visible portion of proposed alteration(s) in perspective from each viewpoint.(measured in cm ²)				
3. Visible Ground area of all existing alterations in Non-VEG state in perspective view from each viewpoint.				
4. Total % alteration of the viewshed in perspective view from each viewpoint. [(#2+#3), #1] 100=#4	28.06%	7.71%	3.67%	
Does the total % alteration in perspective view from each viewpoint fall within the VQO guidelines? (P=0%; R=0-1.5%; PR=1.6-7.0%; M=7.1-18.0%)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Alteration exceeds both M and PR Portions of landform	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Alteration in Modification portion only of combined PR and M units	YES <input type="checkbox"/> NO <input type="checkbox"/> Alteration in all PR landform	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

FOREGROUND ALTERATIONS AND SCREEN DESIGN

Is the proposed alteration within 1 kilometre of the viewing locations? YES NO

Does vegetative or landform screening exist? much intervening YES NO

If yes, what type: Deciduous Coniferous Mixed Forest Landform

Would the screen hide proposed operations? Some to all YES NO

Is vegetative screen designed properly ie responds to lines of force, shape & scale and remains a viable unit for future removal? YES NO N/A

Is vegetative screen expected to be windfirm? YES NO N/A

If alteration would not be screened or only partially screened, describe the actions proposed to reduce the visual impact in the immediate foreground (e.g. landing location, roadside clean-up, etc.)
N/A

ADDITIONAL CONSIDERATIONS

Does the EVC in adjacent units exceed the established VQO for those units and how would this affect the management of the present unit proposed for alteration? YES NO

Comments:

Has this VIA submission incorporated all known alterations proposed within the Visual Sensitivity Unit for the next 5 years? (i.e. all blocks proposed by the same or different licensees) YES NO

Comments:

Ken B. Fairhurst
Completed by: Ken B. Fairhurst, R.P.F.

Date Completed: October 18, 2013

BC Timber Sales
Chasm 2013
Visual Impact Assessment
RDI Resource Design Inc
October, 2013

Introduction

The Chasm blocks, together with existing non-Visually Greened-up (nonVEG) openings were evaluated for visual impact within the two Visual Sensitivity Units (VSUs) in which they are located. VSU 644 which has a Modification VQO, runs along the base of two distinct landforms. VSU 578 with a Partial Retention VQO, is located above VSU 644 on two of the distinct landforms, then carries on north-westwards across several additional more-or-less complete and distinct landforms past Big Bar Lake then wraps west out of view, and then travels much further south again behind the Marble Range. For analysis purposes, RDI has delineated three of the relevant landforms within VSU 578, two of which also contain VSU 644 at their bottom. These are shown on the key map on the cover page: Landforms #1, #2, and #3.

The report presents photographs and 3-D simulations from several viewpoints, but restricted full analysis to a single viewpoint - Little White Lake - the one offering most open viewing and closest to the planned blocks. Open viewing was also simulated from Beaverdam Lake with similar results as from Little White Lake. Other viewpoints from Highway 97 and roadways indicate substantial to full screening of planned harvesting with only the upper existing nonVEG openings in view. A minor part of CH005 will be visible from the surface of Big Bar Lake. All viewpoints provide only background views greater than 8 km to 18 km away from the planned harvesting operations. BC Timber Sales' Bill Warden provided the photography taken late this summer.

As shown in the Contents page on page 2, viewpoint photos and simulations are found arranged as follows:

Highway 97 Viewpoint (BCTS VQO 2) - viewing distance 10-18 km - pages 8-9
Meadow Road (BCTS VQO 3) - viewing distance 10-16 km - page 10 (photos only)
Beaverdam Lake (near BCTS VQO 3) - viewing distance 10-16 km - pages 11-12 (no photos)
Little White Lake (BCTS VQO 4) - viewing distance 7-14 km, pages 13-17 (full analysis)
Big Bar Lake (BCTS VQO 5) - viewing distance 8 km (only CH005 in view), pages 18-19

The report also includes an aerial oblique overview 3-D simulation used to show spatial arrangement of the blocks and to validate that all blocks were in the model (page 7). The analyses for Little White Lake viewpoint include Visual Force Analysis (page 16), and Percent Alteration (pages 16 and 17). Percent alteration analysis was examined firstly by VSU (1 and 2 below) then by landform (3 and 4 below), including a rationale for landform selection and use.

1. Little White Lake Percent Alteration in Visual Sensitivity Unit DMH 0644

As determined by 3-D visual simulation from a "best-case" wide-open viewpoint on Little White Lake, the currently planned blocks in VSU 644, on their own, will cause 3.5% well-designed alteration in perspective view to the VSU as seen from Little White Lake, well below the limits for Modification (M) of 7-18% established for this VSU. However, percent alteration already exceeds the limits of Modification in VSU 644 when existing alterations are taken into account. The 2011-2012 alterations in the VSU created by cutblocks MHCH 1010, 1011, 1014, 1019, 1021, 1022 attributed to Ainsworth and SAPP, are nonVEG having been planted in 2012 with some areas still to be planted, and visually dominant. The nonVEG areas in VSU 644 represent 19% alteration in the VSU, bringing total alteration to 22.6% (in the Maximum Modification range). Two of the nonVEG blocks (MHCH 1010 and MHCH 1011) carry over into VSU 578 above, which has a PR VQO (see 2 below). They are viewed as a single large opening without differentiation by VSU boundaries on the same landform along with existing block MHCH 1014. The landform approach is discussed in sections 2, 3 and 4 below.

The existing alterations are clearly visible in photos from the shore of the lake provided by BCTS (VQO4), but the area below the existing blocks where the planned activity will occur would be almost completely obscured as evidenced in the BCTS photo taken from the VQO4 viewpoint. The photos from VQO3 by BCTS reveal slightly more open views lower down on the slope below the existing blocks where the new blocks will be located. Existing alterations continue into VSU 578 as discussed in the next paragraphs. The percent alteration image (page 16) is followed by the detailed calculation spreadsheet on page 17.

2. Percent Alteration in Visual Sensitivity Unit DMH 0578

Higher up on the same landform, several of the existing blocks enter VSU 578 which has a Partial Retention (PR) VQO allowing 1.5%-7% alteration. RDI delineated three separate landform components containing the VSU directly impacted visually by planned and existing alterations: VSU 578-1, the south-most (left) portion containing most of the existing alteration, 578-2 - a distinct pointed unit in the middle (centre), and 578-3 - the north-most (right) component containing the two parts of planned block CH005.

The VSU continues northward to above Big Bar Lake and beyond analysis was restricted to VSU 578-3 at the first break north. That unit was extended by RDI to the height of land missed in the current Visual Landscape Inventory and is identical to Landform #3 described below. See percent alteration images for the viewpoint on page 16, followed by the calculation sheet on page 17.

The left landform, VSU 578-1, contains no new alteration. Existing nonVEG alteration brings percent alteration to 21%, much exceeding the limits of the PR VQO, reaching Maximum Modification. The existing blocks which are the cause are MHCH 1010 and 1011 which cross over from VSU 644 and are seen as one indivisible opening on the same landform, along with the existing MHCH 1014 in VSU 644.

The centre landform, VSU 578-2, is a distinctly pointed landform component within the overall VSU. No new activity is planned for this part of the VSU, and no existing alteration is present. The new and nonVEG blocks in VSU 644 extend below the bottom of 578-2 in the same middle landform.

The landform on the right side of the trio, VSU 578-3, contains the two parts of new block CH005. The block will cause 3.7% well-designed alteration in VSU 578-3, easily meeting the PR VQO. This unit was purposefully drawn by RDI to include the obvious height of land ignored in current Visual Landscape Inventory. The photos from BCTS VQO4 on the Little White Lake's shore show this slope in open view.

The overall percent alteration for the three parts of VSU 578 was 7.9%, bringing the total for the VSU portion used in the analysis close to achieving PR if considered in isolation from VSU 644 below. The strong breaks between units would suggest they are not seen as a single unit by the average viewer and therefore should not be combined for analysis.

The strong influence of nonVEG openings in VSU 644 being the same openings showing without breaks in VSU 578 directly above made it obvious to RDI the need to consider entire landforms in the analysis (see 3 and 4 below).

3. Rationale for Landform Approach

The VSUs are positioned with VSU 644 below portions of VSU 578, past which VSU 578 extends to the bottom of the landform. VSU 644 has a VQO of Modification while VSU 578 has Partial Retention. Existing alteration crosses the VSU boundaries. VSU 578 continues across many landforms below the Marble Range. A considerable amount of visible terrain has been left out of the current Visual Landscape Inventory, both significant mountain tops as well as low land near Little White and Beaverdam lakes.

RDI considers it important to manage by distinct landforms as they would be seen by the average viewer, rather than by VSUs, these VSUs in particular as they are arranged. It is expected that MOF would also most likely use a similar approach in any potential FREP-based visual quality effectiveness evaluation or compliance and enforcement assessment. The exact landform delineation they would choose is not known by RDI. Most of the higher terrain was not included in the current Visual Landscape Inventory as indicated on the VQO simulation images produced from each viewpoint. RDI has included some of the more obvious and relevant landform omissions in its analysis.

4. Percent Alteration - Landform Approach

Management by landform would require that VSU 644 be placed together with a part of VSU 578, then delineated by definite terrain breaks (see key map on front page). Seen from the analysis viewpoint, the topographic breaks used to delineate the landforms travel obliquely across the landscape, showing some blocks in one landform underneath the next landform to the left. The three landforms are addressed separately in the following paragraphs. See Percent Alteration images for the viewpoint on page 16, followed by the detailed calculation sheet on page 17. The findings are summarized in the table below.

The percent alteration is 28% total in the left Landform #1 which has a combination of Partial Retention VQO in the upper part and Modification in the lower part. Only 2.3% is attributed to the planned harvesting.

The centre Landform #2 will have a total perspective alteration of 7.7%, all of which is located in the lower Modification VQO portion of the landform, below the Partial Retention area which will remain completely unaltered. Only 1.4% is attributed to the planned harvesting.

There will be 3.7% perspective alteration in the right-most Landform #3 all of which is in Partial Retention VQO. Landform #3 is identical to VSU 578-3 (right). The entire 3.7% alteration is attributed to the planned harvesting.

For documentation, the three landforms combined, two of which with PR and M VQO's, the third with PR, would have 13.2% alteration.

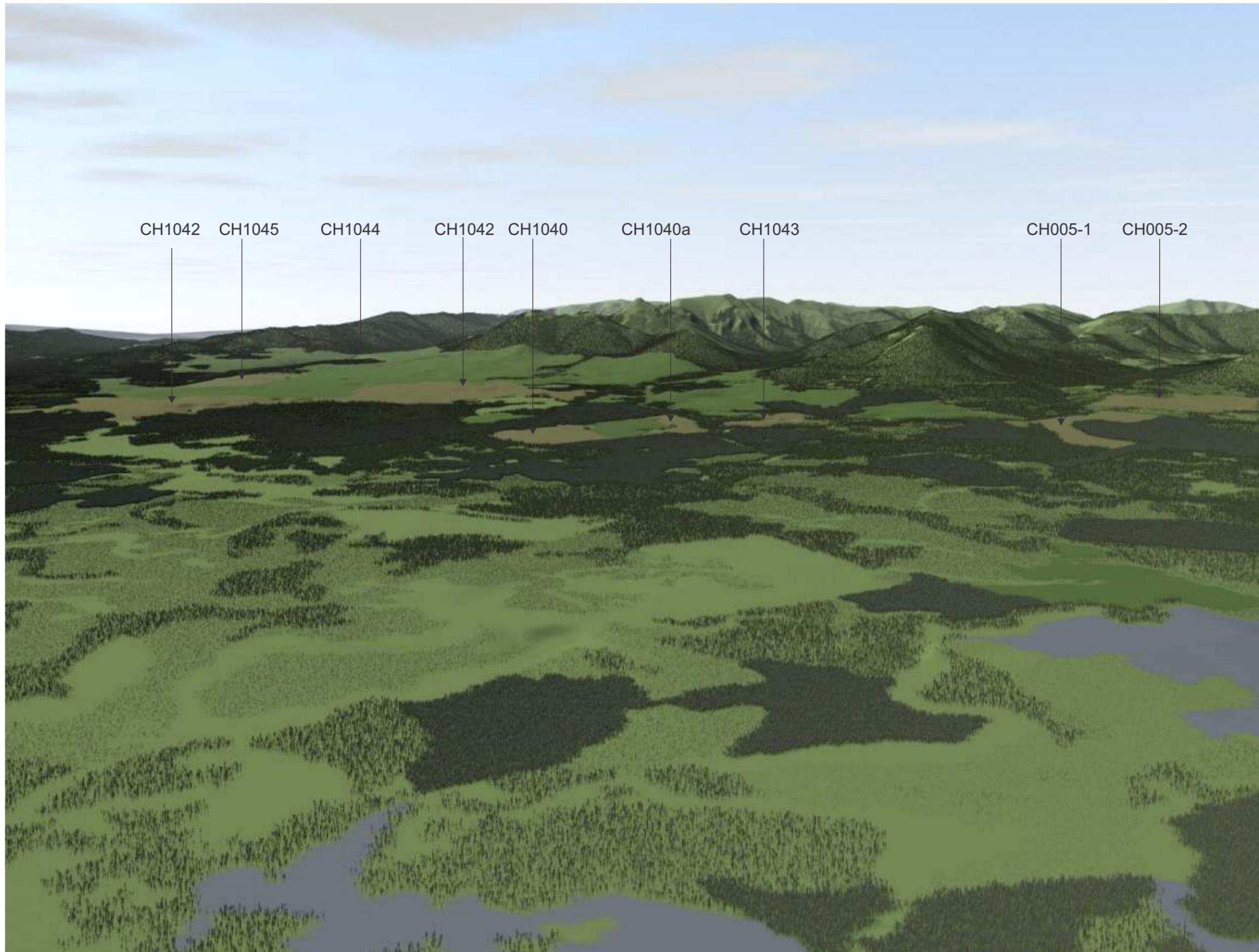
5. Conclusions

The old alterations in VSUs 644 and 578 will take time to green up. The scheduling of the new blocks in Landform #1 could be considered to be somewhat premature (namely the visible portions of CH1042 and CH1045). The other two landforms are within their PR/M or PR range. All of the planned blocks in all of the landforms will have minimal impact in the landscape. Given their highly integrated and visually effective design they will be scarcely noticed, if at all, below the existing larger horizontal openings. Any apparency will be softened or mitigated by much intervening screening and the long background viewing distances.

Ken B. Fairhurst, PhD, RPF

Percent Alteration by Landform Summary

	VQOs in Landform	New	nonVEG	Total
Landform #1	PR/M	2.34%	25.73%	28.06%
Landform #2	PR/M	1.41%	6.30%	7.71%
Landform #3	PR	3.67%	0.00%	3.67%



RDI VNS aerial simulation at 2122m elev., 1000m above Little White Lake for orientation and data confirmation purposes only.

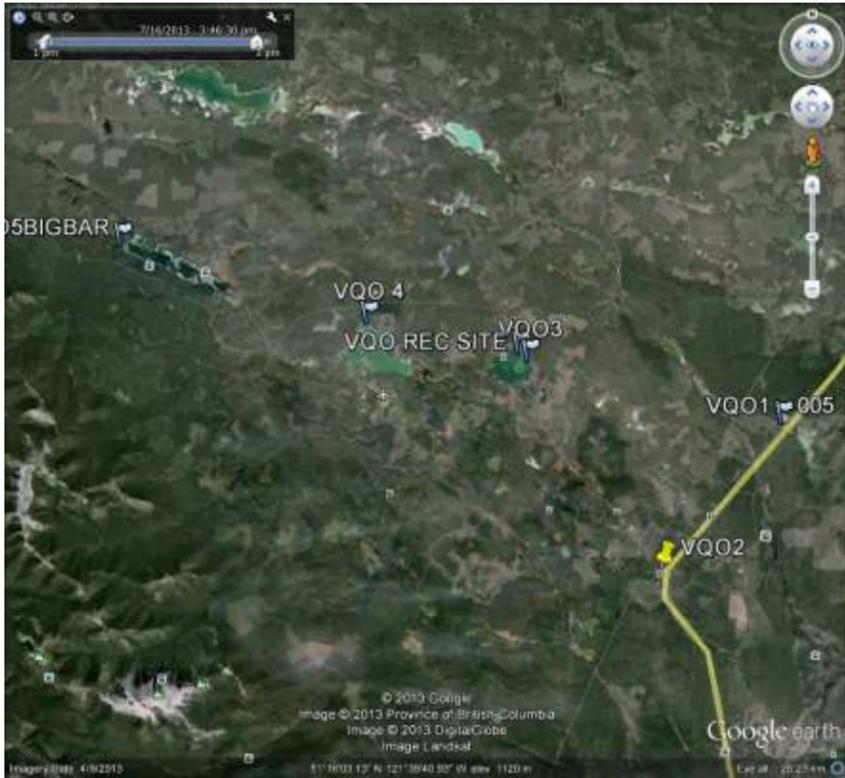


Site VQO1

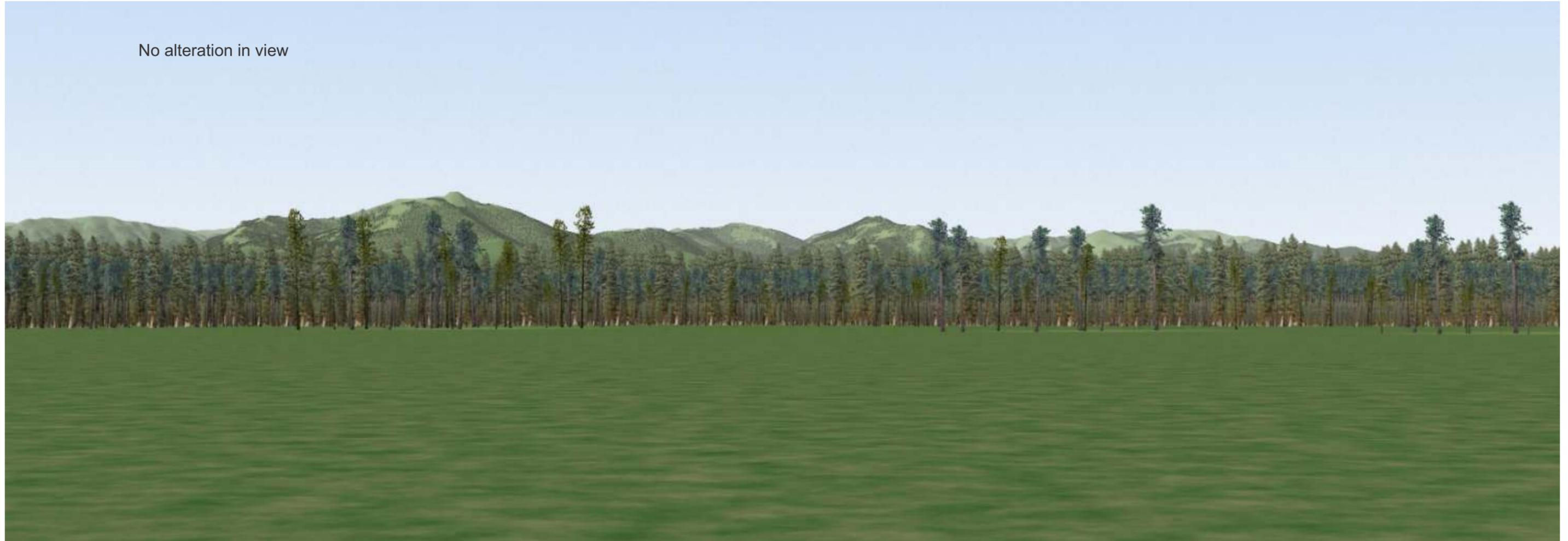
Co-ordinates: N51-15.348 W 121 28.256. Bill Warden photos.

Description; highway pull out on #97 slightly lower than surroundings, better view from approx 300 meters to the north for the south bound lane, however there is no reason or place to pull off the highway until reaching the pull at site #1. Improved view is fleeting at highway speeds.

Highway 97 (VQO1) - no RDI VNS simulation
View distance - 10-18km (background view)



No alteration in view



Site VQO2 - Bill Warden comments:

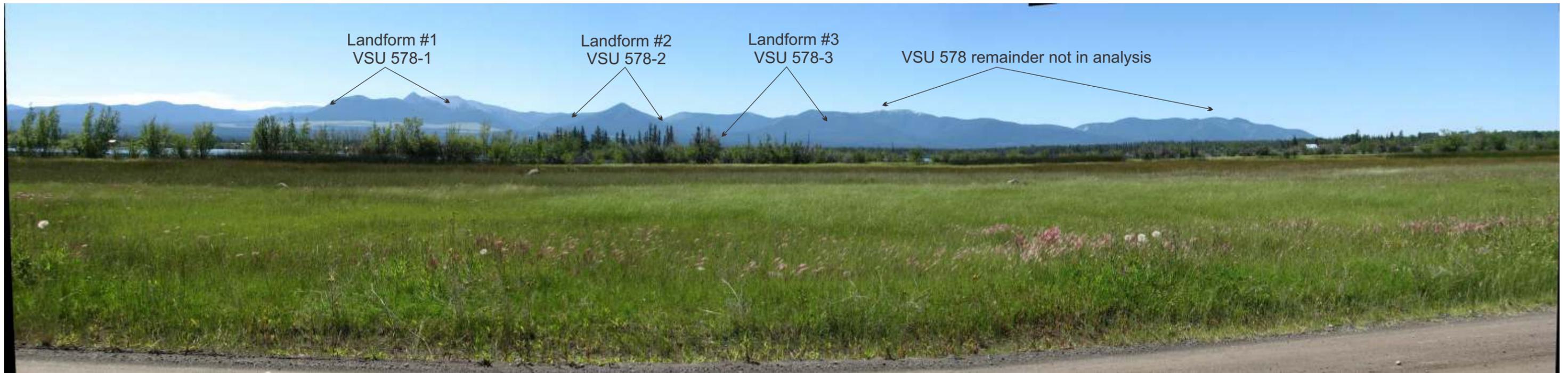
Co-ordinates:

Description; Highway #97 and Meadow lake road, unpaved secondary road, larger parking area bowl like topography view limited to 300 to 400 meters in all directions because of topography and tree screening. Only the peak of mt Kerr visible.

No photos recorded, no view.

Highway 97 (VQO2) at bend - RDI VNS simulation
View distance - 10-18km (background view)

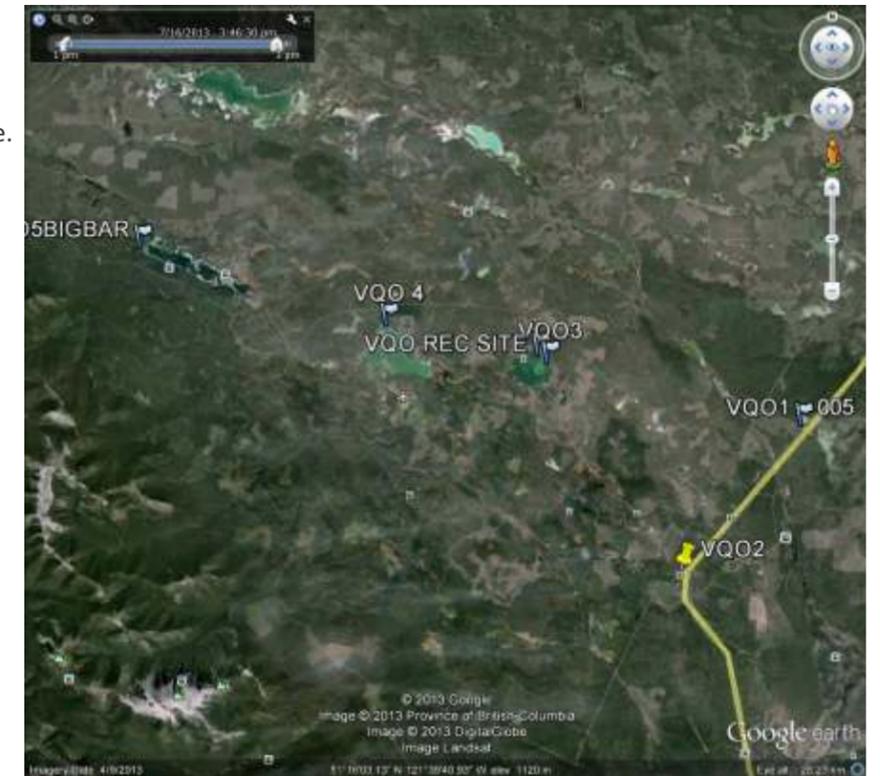
BC Timber Sales
Chasm 2013
Visual Impact Assessment
RDI Resource Design Inc
October, 2013



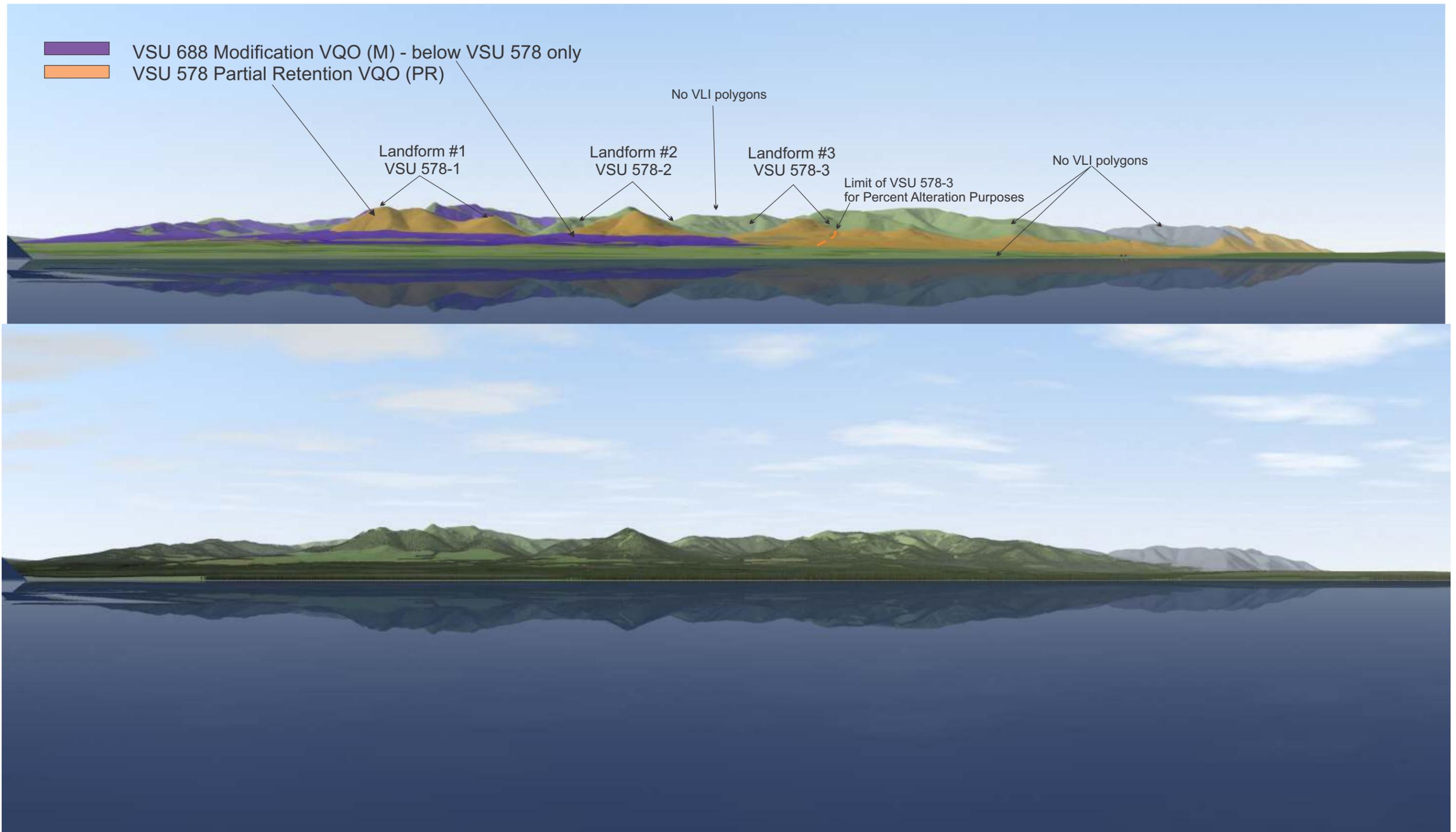
Site VQO3 - Bill Warden photos and comments:

Co-ordinates: N51 16.596 W 121 36.370

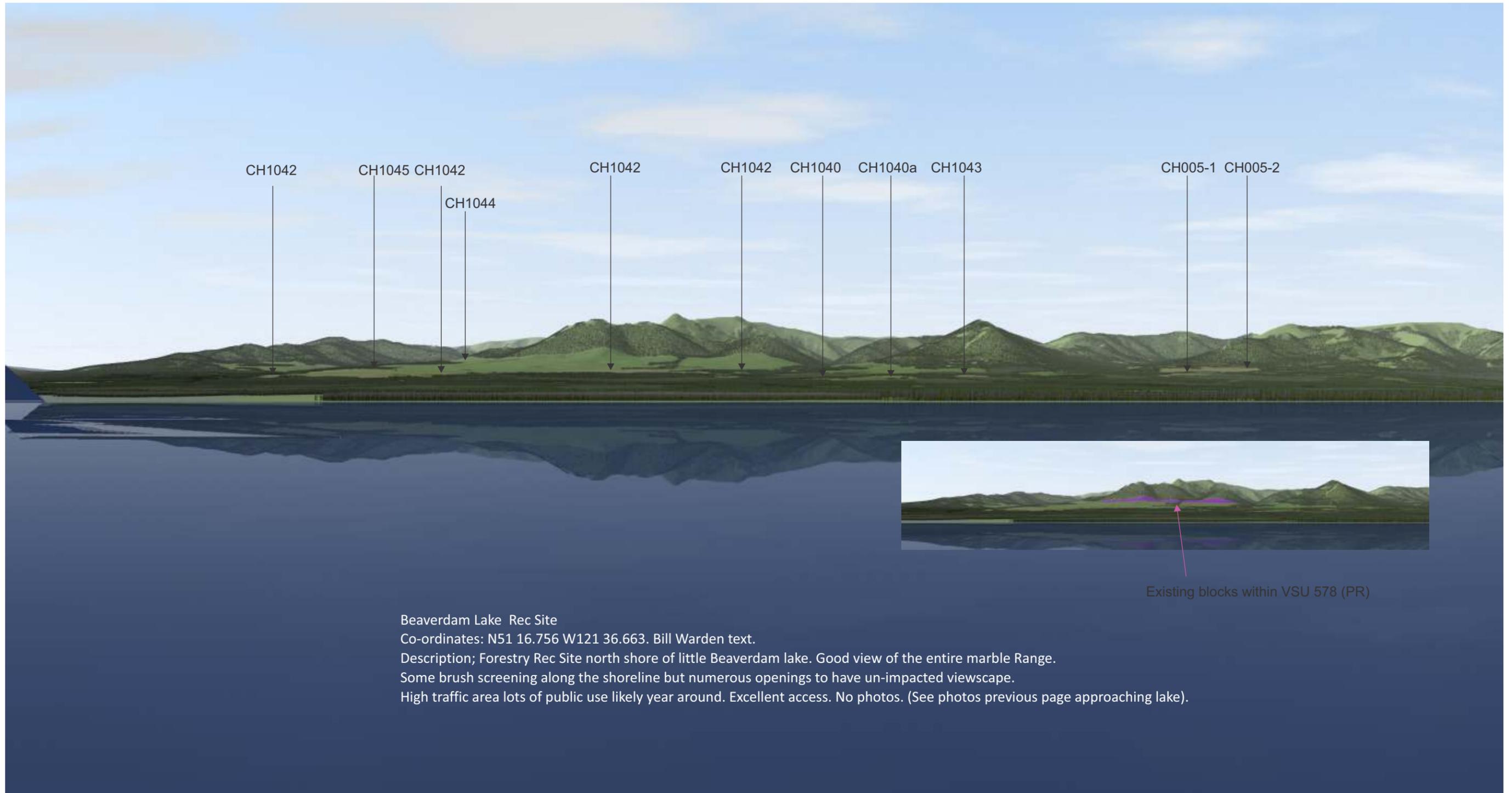
Description; Best view scape from beside the Meadow Lake road from Jct with highway #97 towards Beaverdam Lake (VQO3), several driveways that could offer pull off opportunities but private land. Was unaware of the Forestry Rec site ahead when I sampled this site.



Along Meadow Lake Road near Beaverdam Lake (VQO3)
View distance - 10-18km (background view)



Beaverdam Lake - on lake +2m near north end - RDI VNS simulations near VQO3
 view distance to new blocks - 9-16 km (background view)



Beaverdam Lake Rec Site
 Co-ordinates: N51 16.756 W121 36.663. Bill Warden text.
 Description; Forestry Rec Site north shore of little Beaverdam lake. Good view of the entire marble Range.
 Some brush screening along the shoreline but numerous openings to have un-impacted viewscape.
 High traffic area lots of public use likely year around. Excellent access. No photos. (See photos previous page approaching lake).

Beaverdam Lake - on lake +2m near north end - RDI VNS simulation (no photos)
 near BCTS VQO3 view distance to new blocks - 9-16 km (background view)

BC Timber Sales
 Chasm 2013
 Visual Impact Assessment
 RDI Resource Design Inc
 October, 2013

Landform #1
VSU 578-1

Landform #2
VSU 578-2 (partially shown)

Landform #3
VSU 578-3

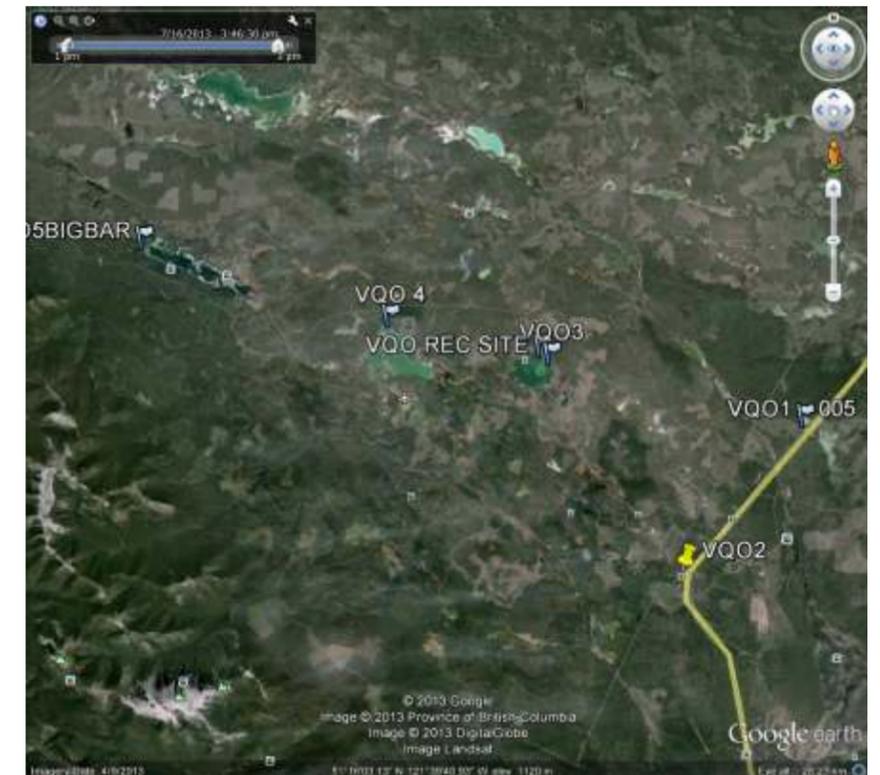
VSU 578 remainder north



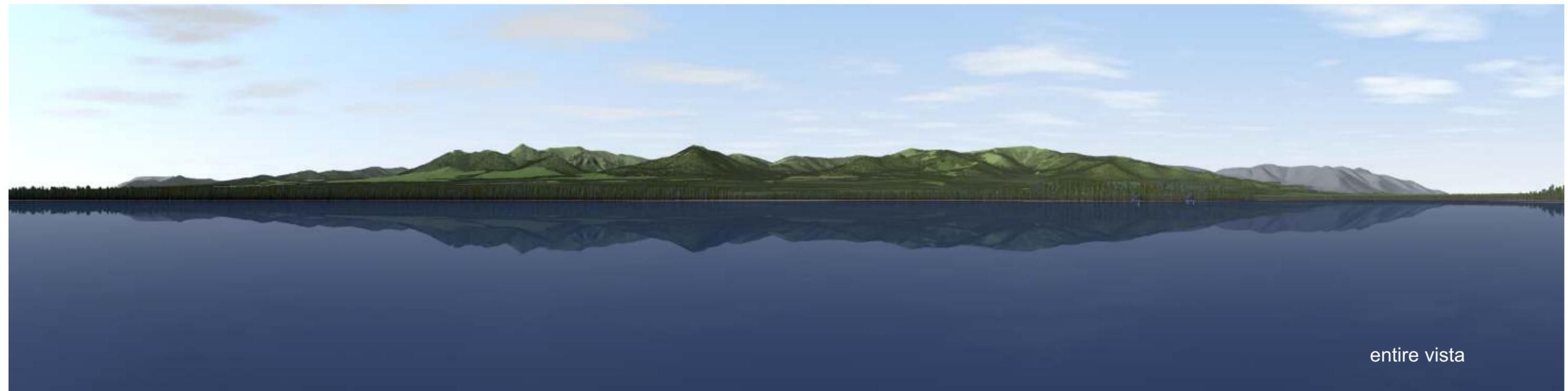
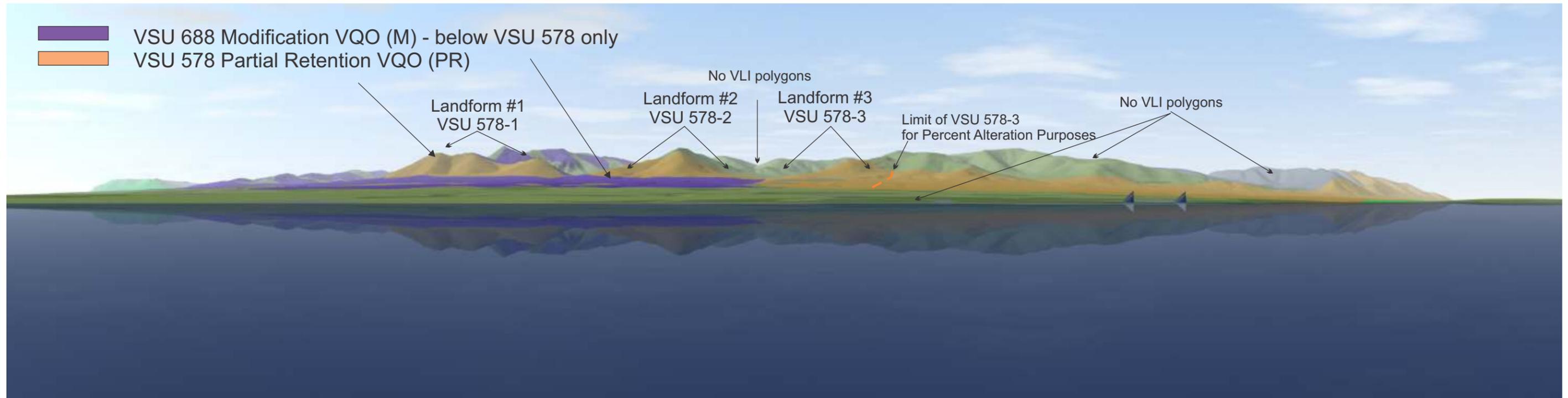
Site VQO4

Co-ordinates: N51 17.349 W121 41.513 - Bill Warden Photos.

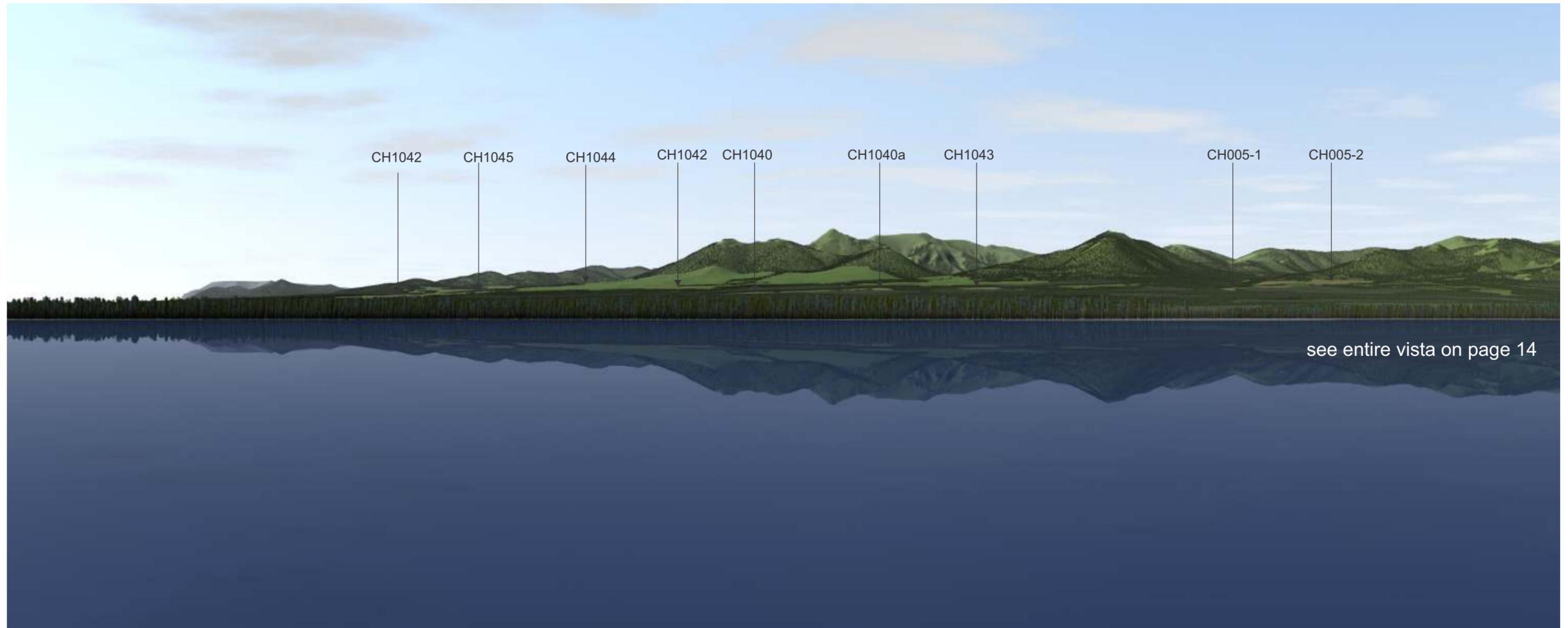
Description; north shore of Little White Lake, good view of Marble range some distance screening by trees and topography to the west. Good access via old trail but, very limited volume of visitors might be private land. View from the Clinton aerodrome may be somewhat better and would certainly have a higher amount of visitors.



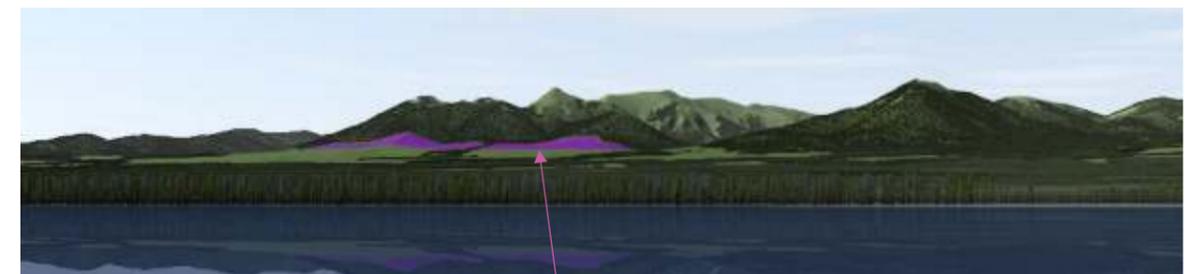
Little White Lake - on lake near north end (VQO4)
view distance - 8-12km (background view)



Little White Lake - RDI VNS simulation on lake +2m from near north end view distance to new blocks - 8-12km (background view)



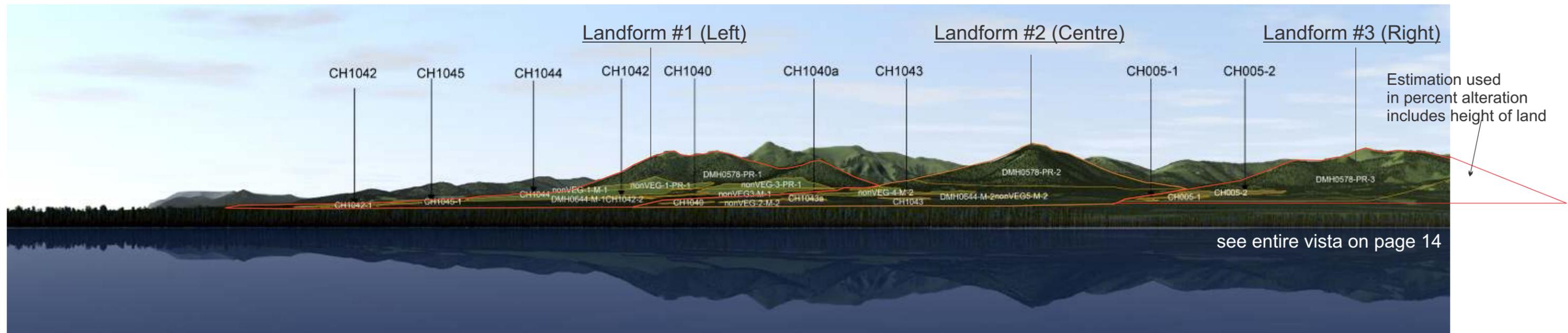
see entire vista on page 14



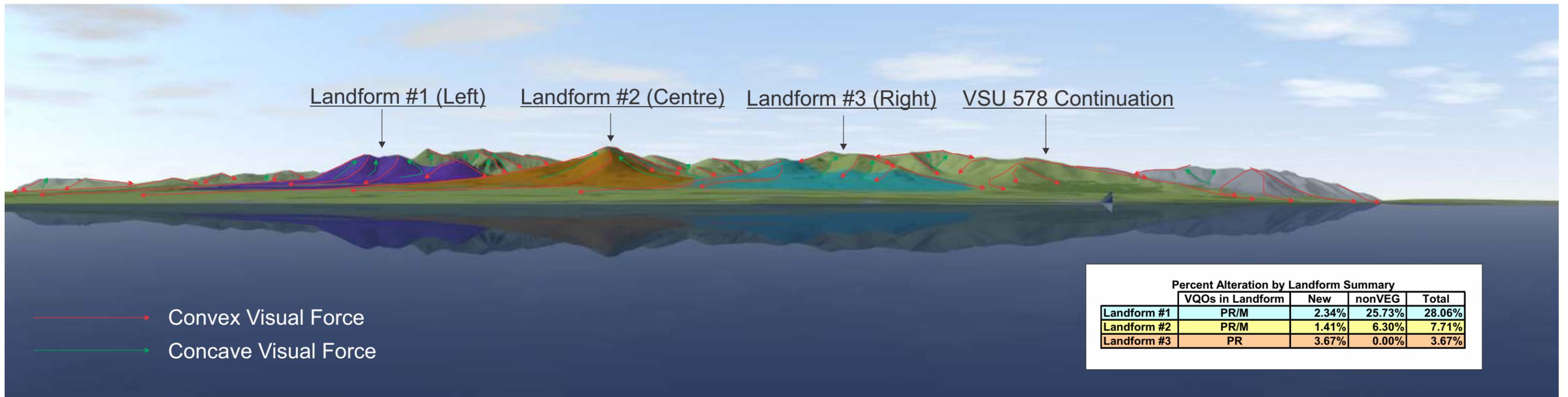
Existing blocks within VSU 578 (PR)

Little White Lake - RDI VNS simulation on lake +2m near north end view distance to new blocks - 8-12km (background view)

BC Timber Sales
 Chasm 2013
 Visual Impact Assessment
 RDI Resource Design Inc
 October, 2013



View from lake shows landform lines which follow terrain breaks crossing obliquely across landscape along lower slopes



Little White Lake Landforms and Units for Percent Alteration Calculation with Summary Table

VSU	FEATURE	AREA2	
0644	DMH0644-M	555257.52	
644-1	DMH0644-M-1 (left)	225494.70	
644-2	DMH0644-M-2 (centre)*	329763.45	
0644-1	CH1042-1	7064.78	
0644-1	CH1044	303.94	
0644-1	CH1042-2	3064.60	
0644-2	CH1040	2324.45	
0644-2	CH1043a	2909.19	
0644-2	CH1043	2452.64	
0644-1	CH1045	1475.26	
0644-1	nonVEG-1-M-1	48129.35	
0644-2	nonVEG-2-M-2	2997.35	
0644-2	nonVEG-4-M-2	26627.91	
0644-2	nonVEG5-M-2	4777.60	
0644-1	nonVEG3-M	23442.92	
*no right side of VSU 644			0.00
SumAlt 644-1 (left)	DMH0644-M-1 (left)	225494.70	
use only for analysis with VSU578-1 (left)	New	11908.57	5.28%
	nonVEG	71572.27	31.74%
	Total	83480.85	37.02%
SumAlt 644- 2 (centre)	DMH0644-M-2 (centre)	329763.45	
use only for analysis with VSU578-2 (centre)	New	7686.28	2.33%
	nonVEG	34402.86	10.43%
	Total	42089.15	12.76%
SumAlt VSU 644 - M - All	New	19594.85	3.53%
	nonVEG	105975.14	19.09%
	Total	125569.99	22.61%

0578-1	DMH0578-PR-1 (left)	283496.67	
0578	DMH0578-PR-2 (centre)	215970.45	
0578	DMH0578-PR-3* (right)	476964.68	
0578 all	DMH0578-all	976431.80	
0578-3	CH005-1	3530.82	
0578-3	CH005-2	13961.78	
0578-1	nonVEG-1-PR	28708.83	
0578-1	nonVEG-3-PR	30658.04	
SumAlt VSU578-1 (left)	New	0.00	0.00%
	nonVEG	59366.87	20.94%
	Total	59366.87	20.94%
SumAlt VSU578-2 - (centre)	New	0.00	0.00%
	nonVEG	0.00	0.00%
	Total	0.00	0.00%
SumAlt VSU578-3 - (right)	New	17492.60	3.67%
	nonVEG	0.00	0.00%
	Total	17492.60	3.67%
SumAlt VSU578 parts 1, 2, 3	VSU 578 Total*	976431.80	
	New	17492.60	1.79%
	nonVEG	59366.87	6.08%
	Total	76859.47	7.87%

SumAlt VSUs 644-1 + 578-1 (Left landform #1)	644-1+578-1 total	508991.37	
	New	11908.57	2.34%
	nonVEG	130939.15	25.73%
	Total	142847.72	28.06%
SumAlt VSUs 644-2 and 578-2 (Centre Landform #2)	644-2 + 578-2 total	545733.90	
	New	7686.28	1.41%
	nonVEG	34402.86	6.30%
	Total	42089.15	7.71%
SumAlt VSUs 644-2 and 578-3 (Right Landform #3)	644-2 + 578-3 total*	476964.68	
	New	17492.60	3.67%
	nonVEG	0.00	0.00%
	Total	17492.60	3.67%



	New	nonVEG	Total
Landform #1	2.34%	25.73%	28.06%
Landform #2	1.41%	6.30%	7.71%
Landform #3	3.67%	0.00%	3.67%

Little White Lake Viewpoint
Landforms and Units Percent Alteration Calculations with Summary Table



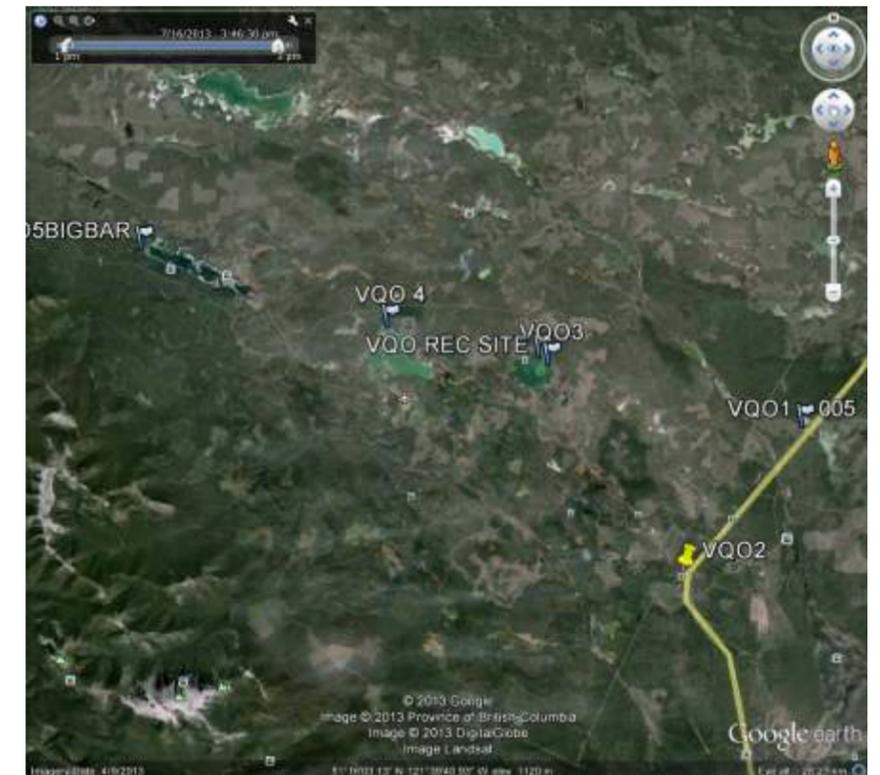
View from day use area Big Bar provincial Park looking east on left; looking west on right.

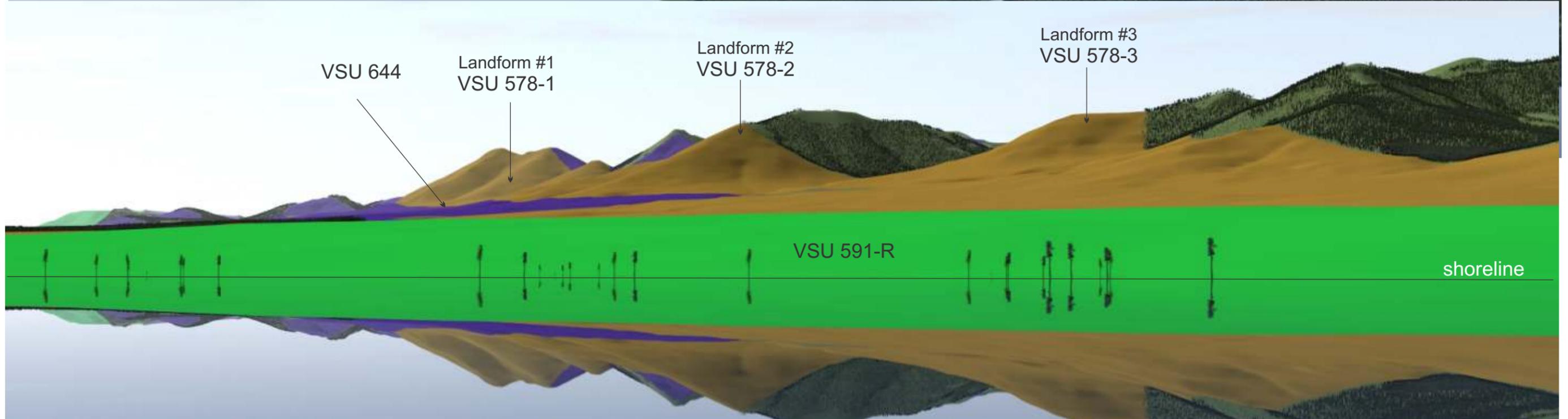
Site VQ05

Co-ordinates: N51 18.903 W121 49.389 - Bill Warden photos and comments:

Description; Big Bar park day use area. Heavy visitor volume no view of target area on the Marble range due to topography and forest screening. High ground on the north eastern portion of Big Bar Lake likely has a better viewscape, but is primarily private land.

Big Bar Lake - on lake near north end
view distance to new blocks - 9-17 km (background view)





Big Bar Lake - RDI VNS simulation on lake +2m near north end view distance to new blocks - 9-17 km (background view)