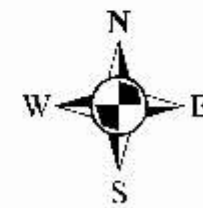


**BCTS TA0132 Mud Lake
Visual Assessment
& Design Recommendations
RDI Resource Design Inc
November 21, 2019 Final Layout**

- Nov_21,_2019_TA0132_Roads
- TRIM_Waterlines
- TRIM_Transportation_2018
- Jeep_Road
- ▭ RDI Reserves 191020 (for comparison)
- Nov_21,_2019_TA0132_WTRA
- Nov_21,_2019_TA0132_Block_Shapes
- RDI TRIM watercourse
- TA0648_WI9QC_Block_Shape
- Mud_River_East
- Mud_River_West
- Existing_Older_Cutblocks
- Mud-1718t
- HWY5
- Mud_Lake
- SkiRuns (not in frame)



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Introduction

Ken Fairhurst, PhD, RPF, RDI Resource Design Inc, conducted this Visual Assessment for BCTS Kamloops Business Area under contract PD18TEB007. The project was requested by Ches Clem, RPF, Planning Forester, for cutblocks TA0132: MU9HD, MU9HE, MU9HF, and MU9HG. Ches provided the shapefiles for the cutblocks, adjacent older harvesting, cutblocks roads, and WTRA's. The initial TA0132 Visual Assessment report was submitted by RDI to BCTS on June 27, 2019. Cautions were raised about the scale of alteration and angularity from several viewpoints: http://rdi3d.com/BCTS/Mud_Lake_TA0132_2019_RDI_190627.pdf.

On October 9th, Ches Clem provided updates from the field team, which were simulated and assessed in report updates dated October 20, 2019 sent as pdf's. Only Viewpoint 5 was analysed, being the view with the greatest Percent Alteration (14.72%), a reduction of just over 1% overall from the initial configuration. At that time, Ches added that during his meeting with Mud Lake River Safari people, they indicated that their clients suggested that the development be "more rounded" on block MU9HE and "less eye-grabbing". At Ches's request for "thoughts" and "recommendations", RDI launched design trials in consideration of the public comments. The results were presented in the same report of October 20, 2019. The updates provided a geo-referenced key map showing potential RDI reserves, visual simulations from all 8 viewpoints, and percent alteration calculation from Viewpoint 5, the viewpoint with the greatest scale of alteration in the initial configuration. The new RDI design plan reduced Percent Alteration from Viewpoint 5 to 8.46% from the original 15.84%, and 14.72% in the later iteration. The second revision results are presented following the Viewpoint 5 latest results page in this document.

The 191020 RDI report updates resulted in the field team evaluating the RDI design aspirations and finalizing a plan that might meet those aspirations. The final field layout was received November 21, 2019. RDI ran a full Visual re-Assessment as contained in this report. The detailed results are presented on each viewpoint page, and comparative visualizations are provided on the last 2 pages.

Results

The final Percent Alteration for Viewpoint 5 was 10.71% as noted in the adjacent tables. The KDC/BCTS response to RDI's trial design of 191020 presents a 25% increase over RDI's "aspirational" design, but is well within the percent alteration limits (7.1 to 18%), and is reduced in scale from the original configurations. The revised plan is small to large overall, depending on the viewpoint (3% to 11%), with some angularity. The 191121 layout has an increased conformity with the landforms. Opening edges now have undulations which strengthen visual forces rather than conflict with them, and emulate the peaks. Corners are mainly rounded. The definition allows for "very easy to see and: large in scale, but natural in its appearance; or small to moderate in scale, but with a design that has some angular characteristics". Not all of RDI's aspirations were fully achieved in the new plan, however, they have been sufficiently adopted while allowing for practical and economic considerations. The key map on Page 1 shows the original RDI trial reserves included for reference purposes and ease of comparison with the final layout.

Review by Cutblock

MU9HD remains unchanged, and very compatible within the Shorezone Landform, ranging from 0.51% to 2.62%, depending on viewpoint. No changes were recommended by RDI. The result is acceptable.

MU9HG has been significantly reduced in height above the road and narrowed, mainly implementing RDI's suggestion. The result is acceptable.

MU9HF has been substantially reduced by about one-half of the area above the upper road per RDI's suggestion. A finger remains within the RDI suggestion zone creating a strong vertical upward line. The result is acceptable as the form of MU9HE emulates the major mountain feature in shape. Some concern may be raised about scale and shape when considering the definition of Modification Category of Visual Alteration (i.e., small to moderate with some angular characteristics vs. large in scale and natural-appearing). The cutblock on its own is small but when considered together with the other cutblocks is moderate to large (the terms small, moderate and large are relative with no clear defining break between the categories, and whether the categories apply to individual cutblocks or to the overall pattern of cutblocks, or both). The VQO poster referenced and linked in the next section provides some guidance. RDI has no access to, nor has the field expertise to challenge, the final guiding considerations regarding the layout. The result is a great improvement.

MU9HE has been partly reduced by adding a reserve along the eastern edge per RDI's suggestion. One dip was added along the upper (south) line, mainly implementing RDI's suggestion. However, a second, larger dip was not implemented next to an existing dip in the plan. The new dip was suggested by RDI so that upper edge would connect visually with the lower edge, thereby strengthening visual forces and reducing the width and horizontality of the cutblock. As now presented, the two smaller dips do offer some acceptable break-up of the horizontal line of the block. Again, RDI has no access to, nor has the field expertise to challenge, the final guiding considerations regarding the layout. The result is a partial improvement.

Categories of Visual Alteration

"Partial Retention" Category of Visual Alteration 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. Percent Alteration may range from 1.5% to 7.0% in perspective (camera) view.

"Modification" Category of Visual Alteration 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 is very easy to see and is either: (a) large in scale with a design that is natural in its appearance, or (b) small to moderate in scale but with a design that has some angular characteristics. Percent Alteration may range from 7.1% to 18.0% in perspective (camera) view.

The poster "A Guide to Visual Quality Objectives" is a useful guide when interpreting the Category of Visual Alteration that a landform may achieve: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/visual-resource-mgmt/vrm_a_guide_to_visual_quality_objectives.pdf. This link, as well as other significant guides are provided on the RDI website – www.rdi3d.com.

The percent alteration calculations comparing the 190627 configuration and the 191121 post- RDI suggestion intervention from each viewpoint are presented in the next tables, with individual viewpoint results presented on each viewpoint page:

Summary of Percent Alteration 190627		
Viewpoint	Landform	Shorezone
1	4.48%	0.51%
2	7.10%	1.33%
3	7.62%	2.52%
4	6.46%	nil
5	15.84%	nil
Rec Site	6.32%	0.97%
Safari	9.44%	2.62%
Parbury	13.84%	nil
Landform comprised of VLI_Poly 842 and Upper VLI_Poly 830		
Shorezone comprized of VLI_Poly 830 from shore to first break		
Both Landform and Shorezone have Established VQO of Modification		

Summary of Percent Alteration 191121		
Viewpoint	Landform	Shorezone
1	2.79%	0.51%
2	4.91%	1.32%
3	5.30%	2.52%
4	5.73%	nil
5	10.71%	nil
Rec Site	4.37%	0.88%
Safari	6.97%	1.90%
Parbury	10.66%	nil
Landform comprised of VLI_Poly 842 and Upper VLI_Poly 830 from shore to first break		
Both Landform and Shorezone have Established VQO of Modification		



Cutblock Visibility by Viewpoint				
Viewpoint	Shorezone		Upper Landform	
	MU9HD	MU9HE	MU9HF	MU9HG
1	V	V	V	V
2	V	V	V	V
3	V	V	V	V
4	NVS	NVS	V	V
5	NVS	V	V	V
Rec Site	V	V	V	V
Safari	V	V	V	V
Parbury	NVS	V	V	V

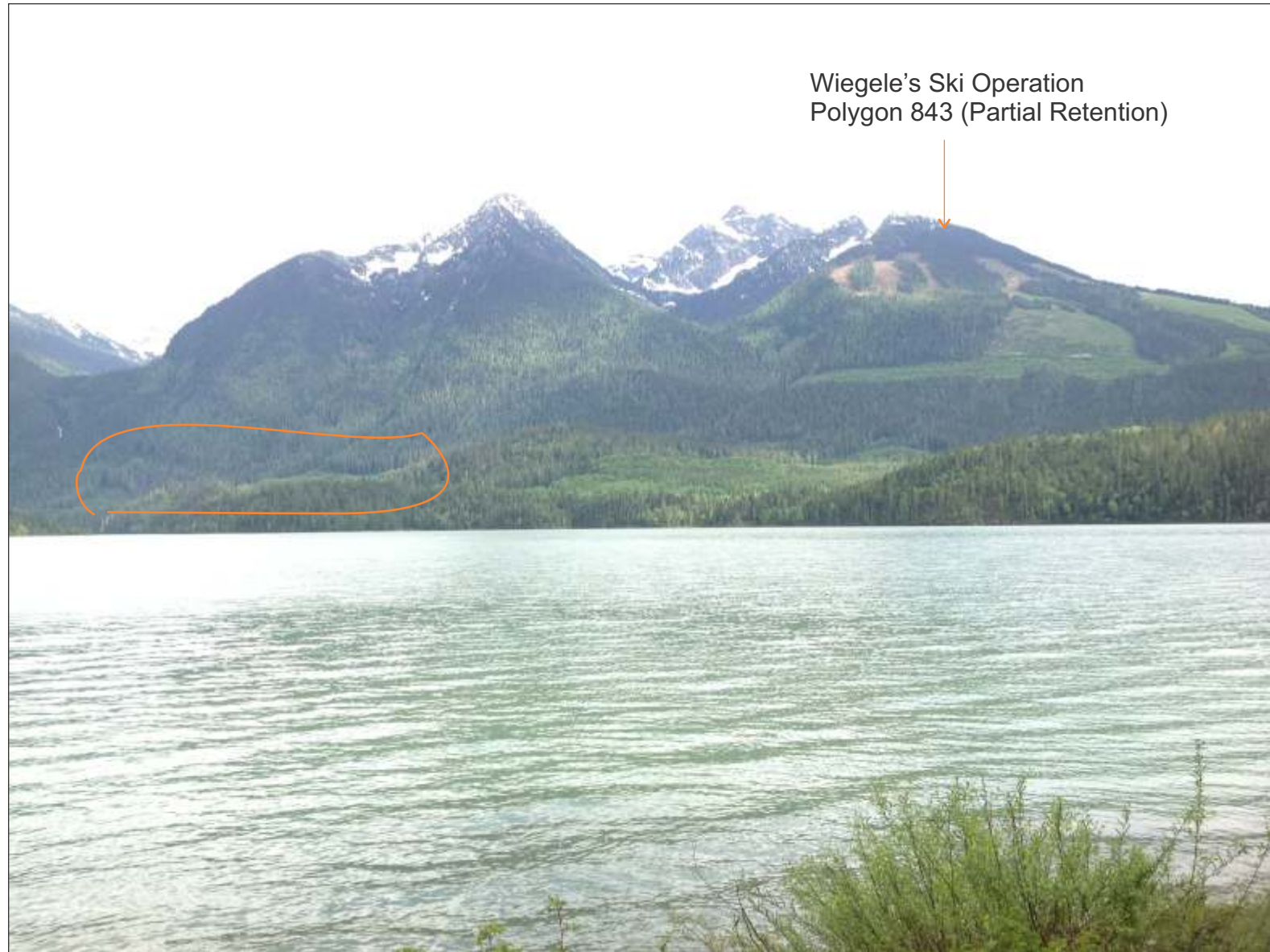
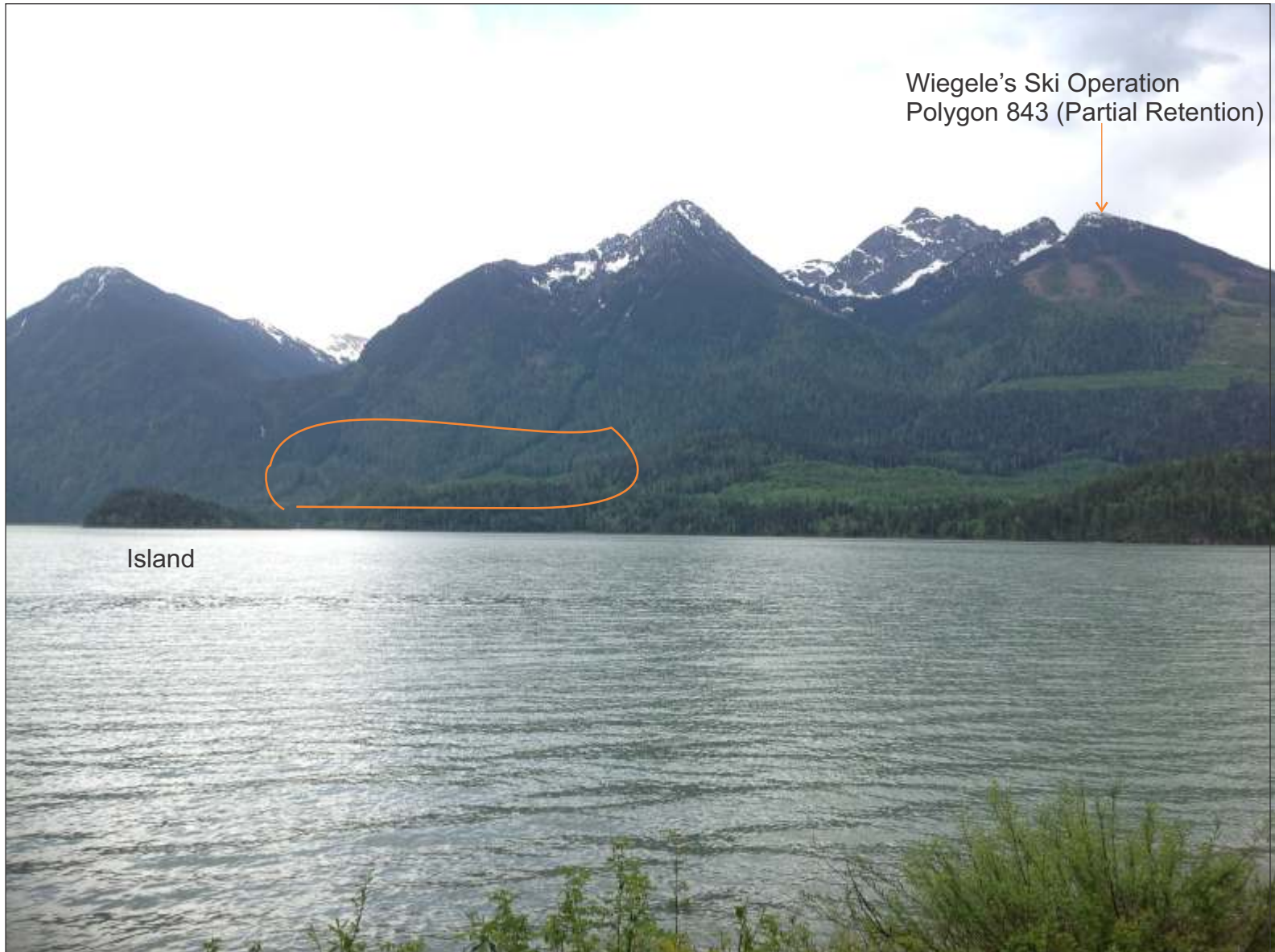
Summary of Percent Alteration by Cutblock and Viewpoint				
Viewpoint	Cutblocks in Landform (not including Shorezone; MU9HD)			
	MU9HG	MU9HF	MU9HE	Sum
Parbury	3.26	3.05	4.35	10.66
Rec Site	1.65	0.82	1.9	4.37
Jeep	0.75	2.06	3.89	6.7
VP1	1.54	0.55	0.69	2.78
VP2	1.78	0.76	2.37	4.91
VP3	0.51	1.17	3.63	5.31
VP4	3.27	2.46	nil	5.73
VP5	3.22	4.4	3.08	10.7
Largest			Smallest	

Conclusions

The KDC/BCTS plan is much improved, having substantially implemented RDI's suggestions. The Percent Alteration ranges from 2.8% (Viewpoint 1) to 10.7% (Viewpoint 5). The plan is capable of meeting the Modification Category of Visual Alteration from all viewpoints as is, and more than capable of achievement from the majority of the 8 viewpoints. Any further refinement opportunities would be up to the field team. The field team is to be congratulated.

Dr. Ken B. Fairhurst, PhD, RPF
December 28, 2019

Summary Notes



TA0132 Area of Interest

Photos by BCTS Consultant

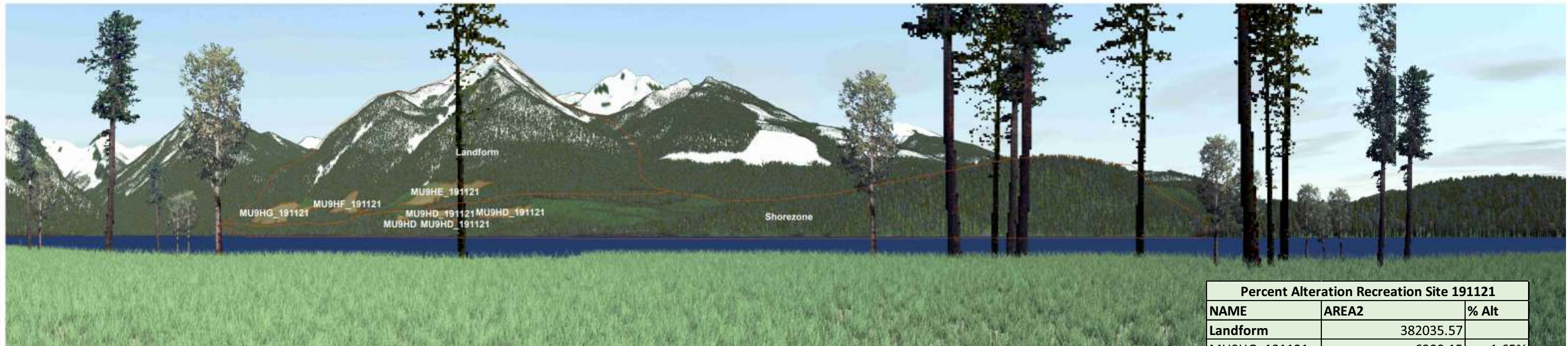
Mud Lake Rec Site VP Photos - see viewpoint analysis pages - all 4 new cutblocks visible



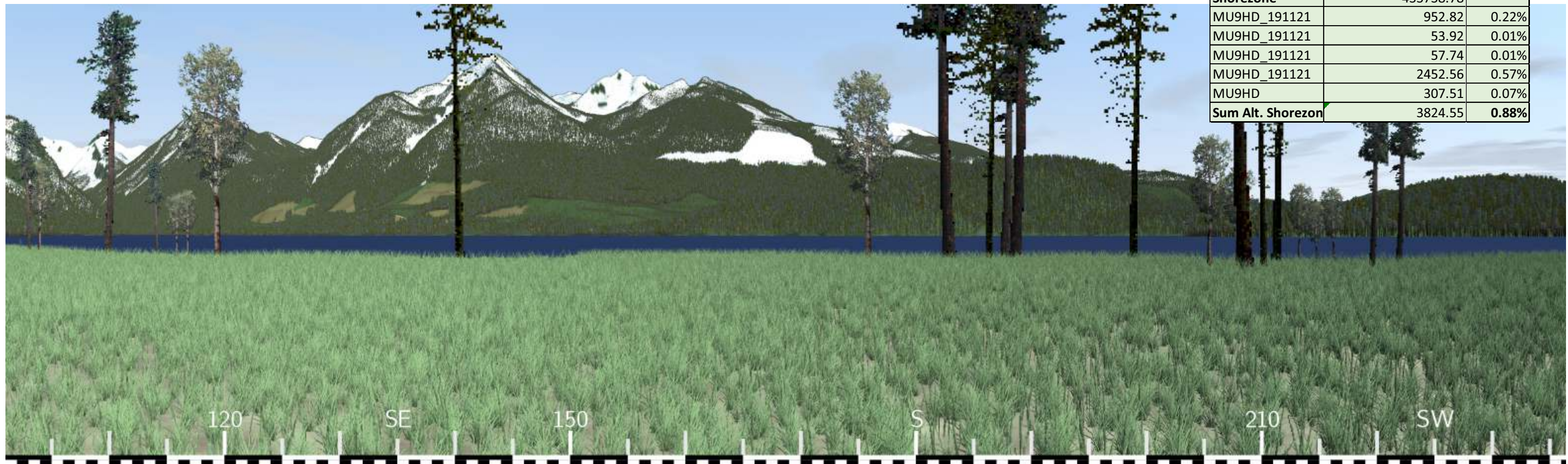
Percent Alteration Jeep Safari VP		
NAME	AREA2	% Alt.
Landform	871903.18	
MU9HG_191121	6571.31	0.75%
MU9HF_191121	17224.57	1.98%
MU9HF	706.71	0.08%
MU9HE_191121	33906.42	3.89%
Sum Alt. Landform	58409.02	6.70%
Shorezone	529121.01	
MU9HD_191121	2328.91	0.44%
MU9HD_191121	2060.90	0.39%
MU9HD_191121	622.43	0.12%
MU9HD_191121	7374.30	1.39%
Sum Alt. Shorezone	12386.54	2.34%



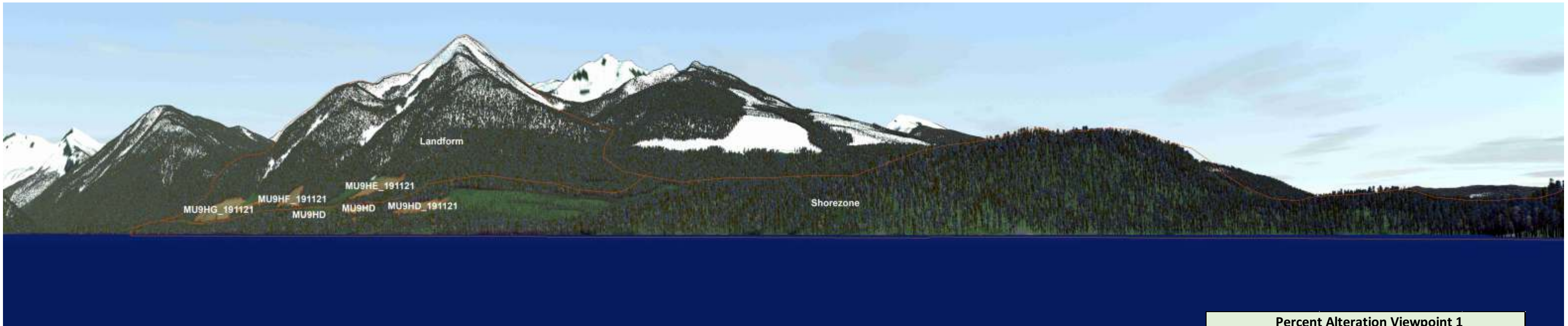
Mud Lake VP Jeep Safari Percent Alteration 191121



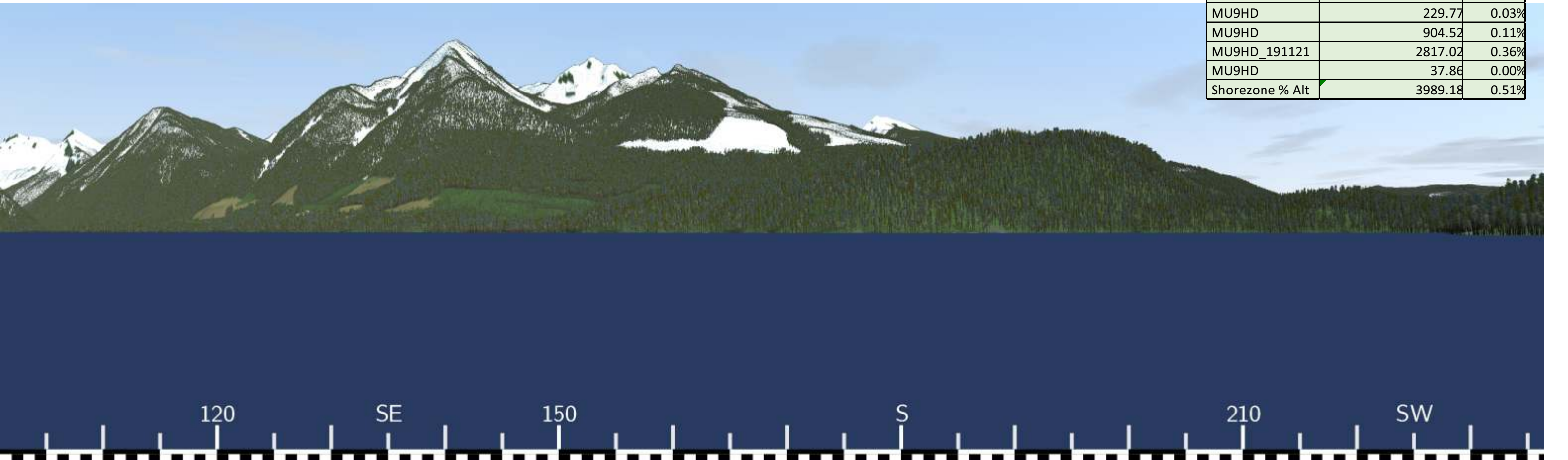
Percent Alteration Recreation Site 191121		
NAME	AREA2	% Alt
Landform	382035.57	
MU9HG_191121	6300.15	1.65%
MU9HF_191121	3113.76	0.82%
MU9HE_191121	7265.04	1.90%
Sum Alt. Landform	16678.95	4.37%
Shorezone	433738.78	
MU9HD_191121	952.82	0.22%
MU9HD_191121	53.92	0.01%
MU9HD_191121	57.74	0.01%
MU9HD_191121	2452.56	0.57%
MU9HD	307.51	0.07%
Sum Alt. Shorezon	3824.55	0.88%



Mud Lake VP Recreation Site Percent Alteration 191121



Percent Alteration Viewpoint 1		
NAME	AREA2	% Alt
Landform	390188.33	
MU9HG_191121	6013.79	1.54%
MU9HF_191121	2162.71	0.55%
MU9HE_191121	2709.33	0.69%
Landform 1 % Alt	10885.83	2.79%
Shorezone	789910.18	
MU9HD	229.77	0.03%
MU9HD	904.52	0.11%
MU9HD_191121	2817.02	0.36%
MU9HD	37.86	0.00%
Shorezone % Alt	3989.18	0.51%

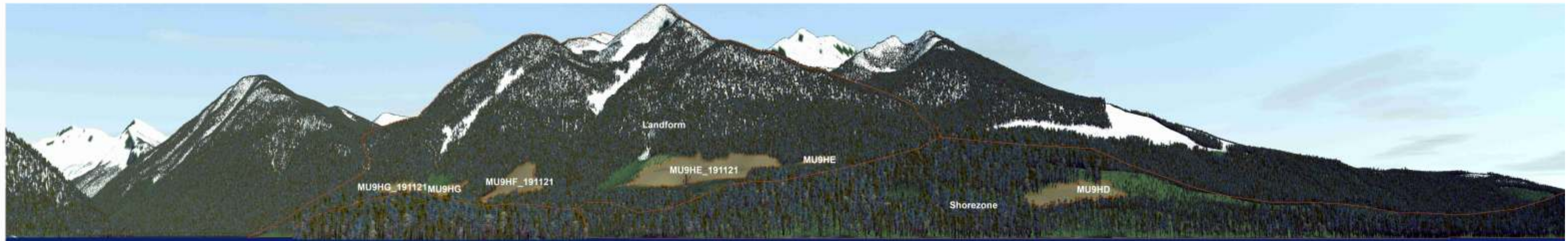


Mud Lake VP 1 Percent Alteration 191121



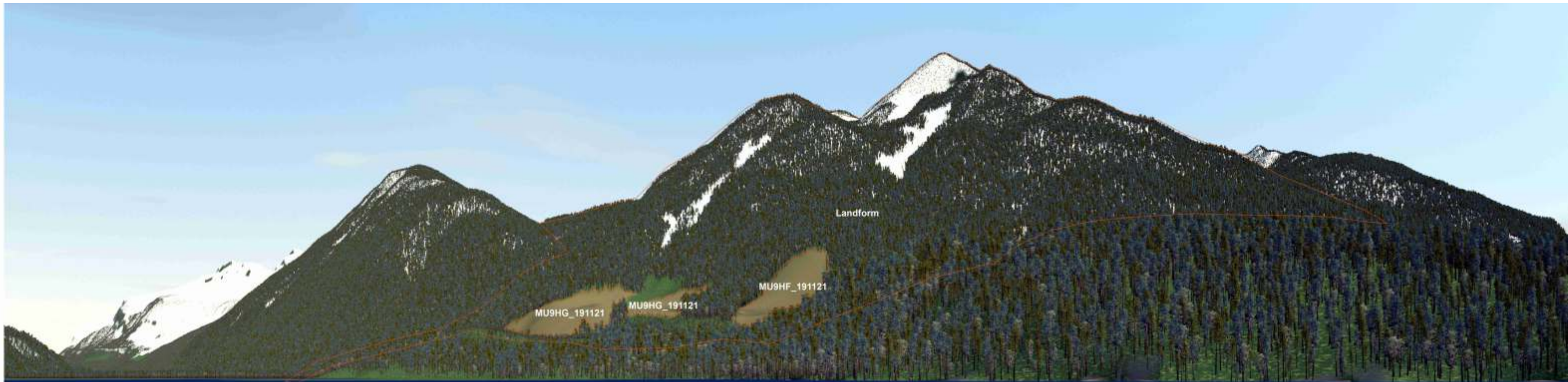
Percent Alteration Viewpoint 2		
NAME	AREA2	% Alt.
Landform	583009.29	
MU9HG_191121	10377.13	1.78%
MU9HF_191121	4418.92	0.76%
MU9HE_191121	13812.18	2.37%
Sum Alt. Landform	28608.23	4.91%
Shorezone	602750.10	
MU9HD_191121	287.91	0.05%
MU9HD_191121	853.39	0.14%
MU9HD_191121	262.23	0.04%
MU9HD_191121	6537.60	1.08%
Sum Alt. Shorezone	7941.13	1.32%





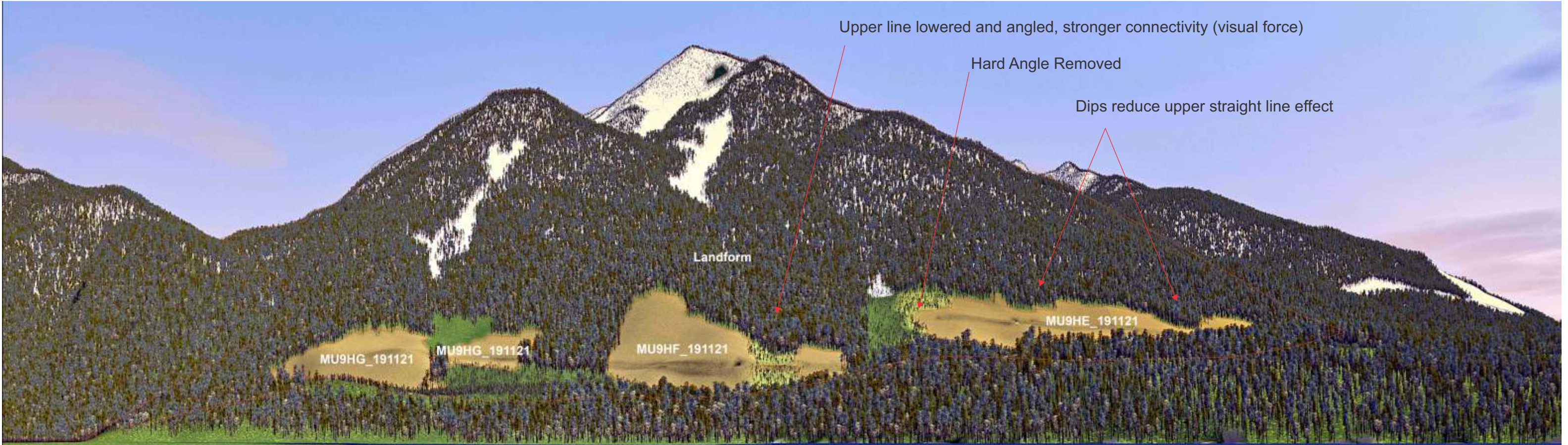
Percent Alteration VP 3 - 191121		
NAME	AREA2	% Alt.
Landform	727891.89	
MU9HG_191121	2186.98	0.30%
MU9HG_191121	1521.28	0.21%
MU9HF_191121	8488.87	1.17%
MU9HE_191121	25440.82	3.50%
MU9HE_191121	949.18	0.13%
Sum Alt. Landform	38587.12	5.30%
Shorezone	537488.93	
MU9HD_191121	13528.32	2.52%
Sum Alt. Shorezone	13528.32	2.52%



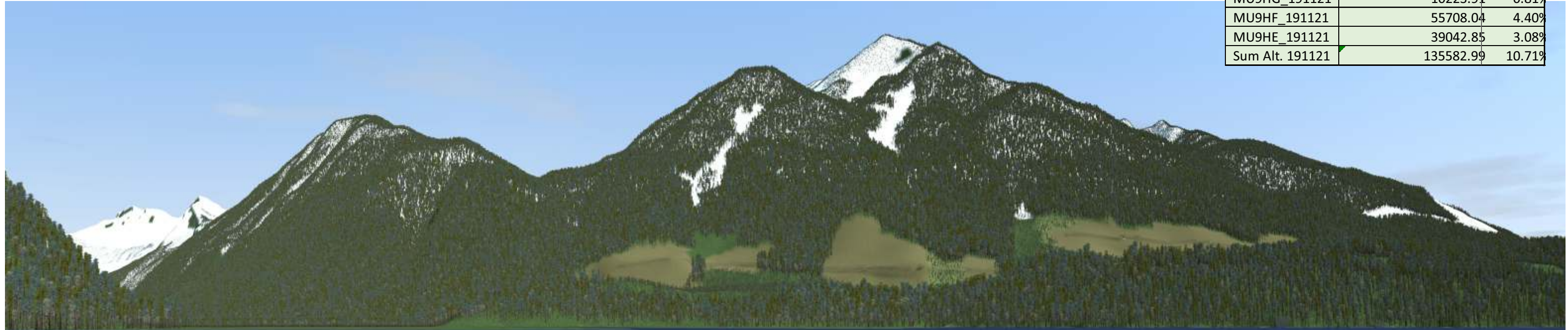


Percent Alteration VP 4 191121		
NAME	AREA2	% Alt.
Landform	1219076.22	
MU9HG_191121	30614.12	2.51%
MU9HG_191121	9234.46	0.76%
MU9HF_191121	29966.10	2.46%
Sum Alt.	69814.68	5.73%





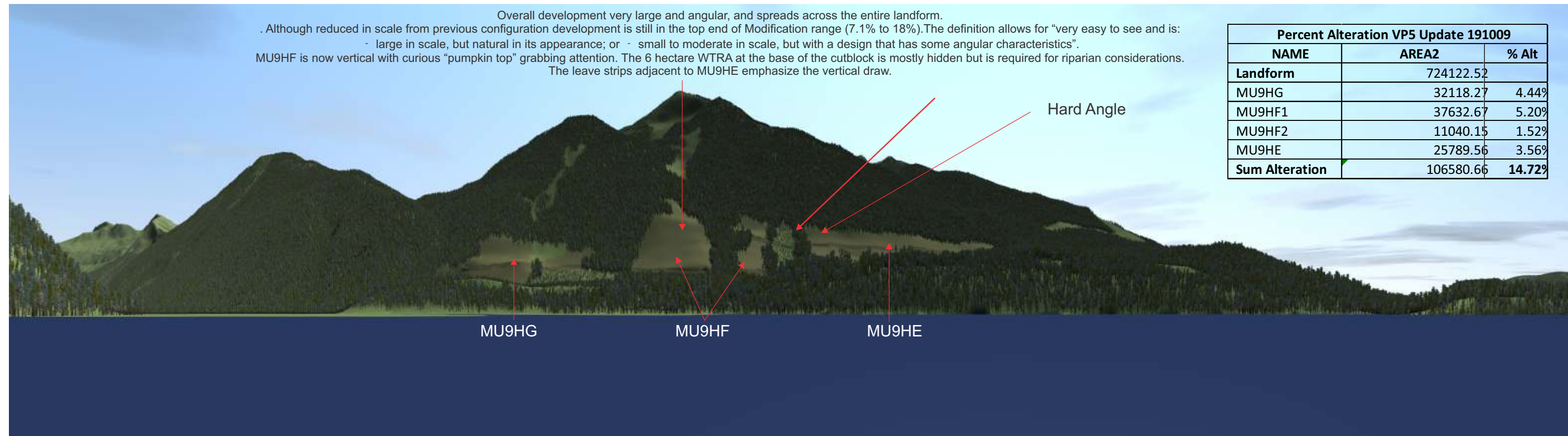
Percent Alteration VP 5 191121 Configuration		
NAME	AREA2	% Alt.
Landform	1266150.37	
MU9HG_191121	30608.18	2.42%
MU9HG_191121	10223.91	0.81%
MU9HF_191121	55708.04	4.40%
MU9HE_191121	39042.85	3.08%
Sum Alt. 191121	135582.99	10.71%





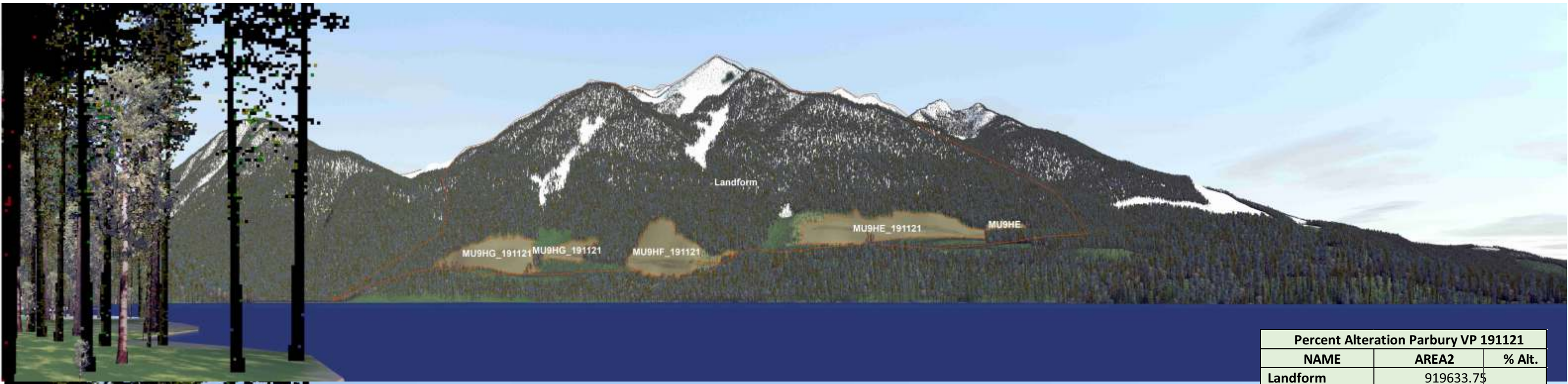
190627 Configuration

Percent Alteration VP5		
NAME	AREA2	%Alt
Landform	1318604.51	
MU9HG	62497.67	4.74%
MU9HF	86421.73	6.55%
MU9HE	60010.94	4.55%
Sum Alt	208930.35	15.84%



Overall development very large and angular, and spreads across the entire landform.
 . Although reduced in scale from previous configuration development is still in the top end of Modification range (7.1% to 18%). The definition allows for "very easy to see and is:
 - large in scale, but natural in its appearance; or - small to moderate in scale, but with a design that has some angular characteristics".
 MU9HF is now vertical with curious "pumpkin top" grabbing attention. The 6 hectare WTRA at the base of the cutblock is mostly hidden but is required for riparian considerations.
 The leave strips adjacent to MU9HE emphasize the vertical draw.

Percent Alteration VP5 Update 191009		
NAME	AREA2	% Alt
Landform	724122.52	
MU9HG	32118.27	4.44%
MU9HF1	37632.67	5.20%
MU9HF2	11040.15	1.52%
MU9HE	25789.56	3.56%
Sum Alteration	106580.66	14.72%



Percent Alteration Parbury VP 191121		
NAME	AREA2	% Alt.
Landform	919633.75	
MU9HG_191121	23425.79	2.55%
MU9HG_191121	6527.34	0.71%
MU9HF_191121	28065.63	3.05%
MU9HE_191121	38447.87	4.18%
MU9HE	1566.84	0.17%
Sum Alt.	98033.47	10.66%



