

























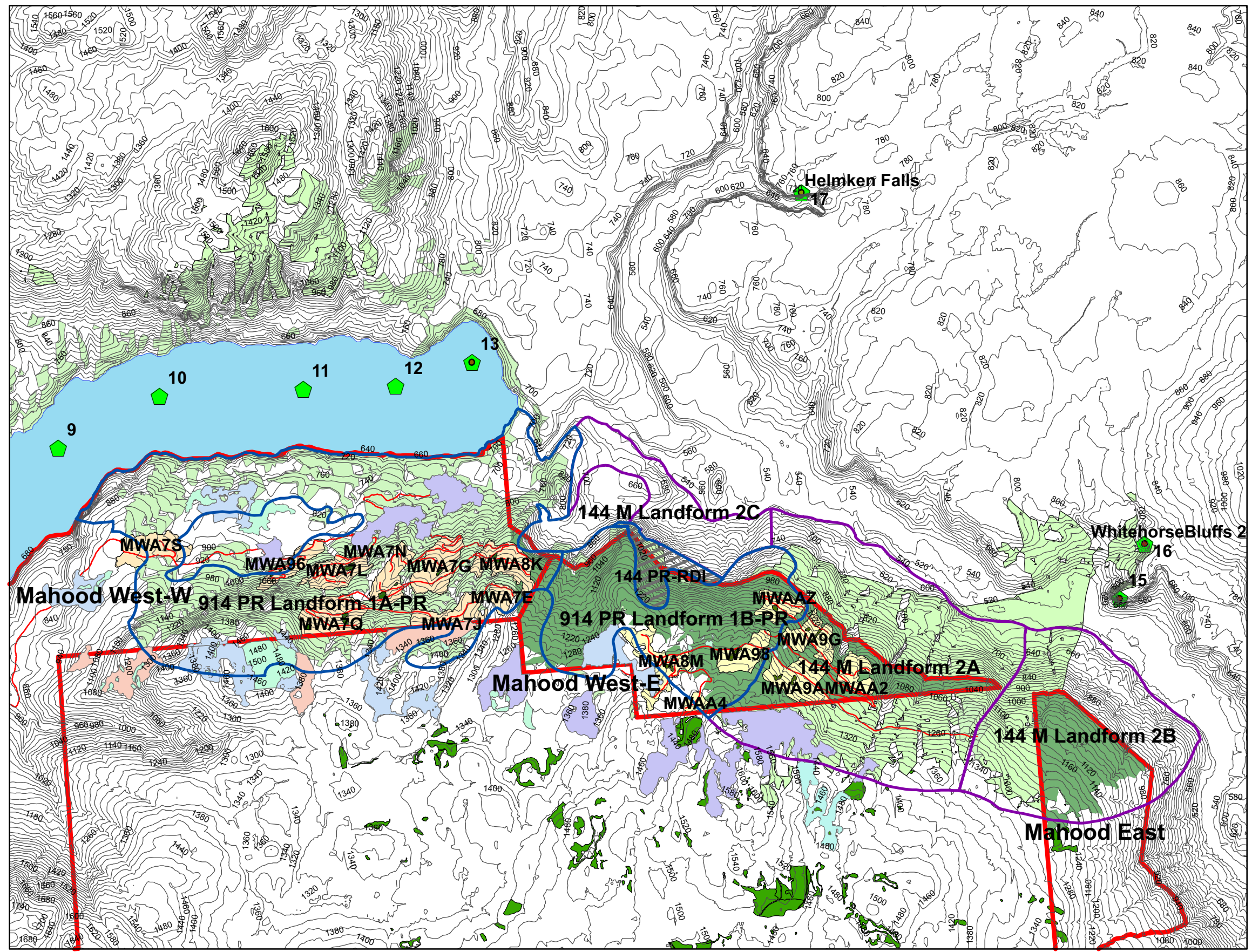


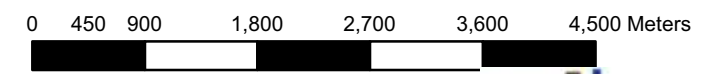
**Visual Impact Assessment  
Mahood West  
RDI Resource Design Inc  
June, 2021  
Legend**

-  MahoodPR\_31052021
-  ADD-914-145-PR-change-from-913-144M
-  VSU\_144\_Modification\_Objective
-  E2000-2009
-  E-2010-2014
-  E-2015+
-  Third\_Attempt\_WTRA\_Mahood
-  May\_14,\_2021\_Existing\_Cutblocks
-  Contours
-  Mahood Operating Areas
-  Mahood West - Westside WTRA
-  Mahood West - Eastside WTRA
-  Mahood West - Eastside Roads
-  Mahood West - Westside Roads
-  Mahood West - East Cutblocks
-  Mahood West - West Cutblocks
-  NE\_Mahood\_Lake\_VP
-  Cumulative Viewshed
-  WhitehorseEnd
-  WhitehorseStart
-  FallsTrue
-  Mahood2020Viewpoints
-  MahoodLake
-  Lake All Viewshed
-  m20W2ok
-  Aug\_8,\_2020\_Existing\_WTRA's



Cumulative Viewshed - All Viewpoints - Mahood West - West Side and Mahood West- East Side with VSU Boundary adjustment for cohesion and simplification

**Interim Report June 8, 2021**



## Visual Impact Assessment - Interim Report

### Contents

1	Key Map
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3	Visibility and Percent Alteration Tables with Recommendations
4	Lake Viewpoint 10
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6	Lake Viewpoint 12
7	Lake Viewpoint 13
8	Lake Viewpoint 13 Percent Alteration and Visual Force Analysis
9	Lake Viewpoint 13 Viewshed Analysis
10	White Horse Bluffs Simulations and VQOs
11	White Horse Bluffs Percent Alteration and Photos
12	White Horse Bluffs Operating Areas and Visual Force Analysis
13	White Horse Bluffs Photos
14	White Horse Bluffs 1 Viewshed
15	White Horse Bluffs 2 Viewshed
16	Helmcken Falls Simulations and Photography
17	Helmcken Falls Viewshed
18	Green Mountain Tower Viewpoint Photography

Viewshed Summary in Hectares		
Viewpoint	Mahood West (East End)	Mahood East
	Area (ha)	Area (ha)
Bluffs Start	325	162
Bluffs End	374	126
Falls	669	42
Lake	253	0
Tower	0	0
Cumulative	823	184

RDI was requested by Ches Clem, RPF, Planning Forester, Clearwater Field Team, BC Timber Sales Kamloops Business Area, to conduct a Visual Impact Assessment of 16 cutblocks proposed in the Mahood Lake West Operating Area. RDI received the go-ahead and data initial data transfer including cutblocks, roads, and Wildlife Tree Retention Areas (WTRAs) on April 9, 2021. A second transfer was received on May 14, including an additional Visually Sensitive Unit (VSU) polygon (Modification (M) VQO), and existing cutblocks. Viewpoints tested were those selected for an initial visibility study conducted by RDI (delivered October 23, 2020): White Horse Bluffs Trail Start, White Horse Bluffs Trail End, Helmcken Falls, Green Mountain Tower Lookout, and a view from northeast Mahood Lake itself (Viewpoint 13). Ches provided photos from each of the viewpoints except from the lake surface. RDI added three additional viewpoints from Mahood Lake. Cutblocks, WTRAs, roads, and existing openings were provided to RDI. No further assessment was conducted from the Tower viewpoint as the operating area is non-Visually Sensitive (NVS) due to foreground tree screening.

RDI updated the existing ArcMap and Visual Nature Studio projects with the new data, and proceeded with 4 procedures: 1) Arc Map Key Map update, 2) Visual Nature Studio visual simulations, 3) determination of appropriate landforms for analysis, and 4) percent alteration calculations. Simulations were rendered with tree cover according to stand heights from Vegetation Resources Inventory. The existing openings were grouped by year harvesting. Most recent (2018) harvesting appeared to have a significant, non-visually-greened-up areas (nonVEG) influence.

RDI rationalized the lakeside VSUs by merging the shore (VSU142) and back unit (VSU145) as both were Partial Retention (PR) VQO. There appeared to be no compelling purpose for keeping them separate. The Modification VSU (VSU 144) had a distinct sliver separate from the main VSU appearing isolated within the PR VSU which RDI merged into the PR VSU for cohesion. The main boundary between the PR and M VSUs was adjusted slightly to follow a ridge, thereby simplifying the analysis as the original boundary straddled small tips of several cutblocks as seen from the bluffs viewpoints. MWA98 and MWA99 were made fully PR while MWA9G was made fully M. RDI created sub-landforms in both the PR and M VSUs. Landform 1A contains all of the Mahood West west cutblock group having the PR VQO; Landform 1B contains all the Mahood West east cutblock group having the PR VQO following adjustment of the VSU line by RDI; Landform 2A contains all of the Mahood West - east cutblock group having the M VQO following adjustment of the VSU line by RDI. Landform 2B incorporates the Mahood East Operating Area (no cutblocks planned), and Landform 2C is the low land beneath Landform 1B and has an M VQO (no cutblocks planned). The landforms are delineated on the key map (page 1), and further delineated on the simulation sheets in perspective (camera) view from each viewpoint. Percent alteration was calculated from Mahood Lake VP 13, and from both Bluffs viewpoints in perspective view. The Falls viewpoint was foregone for percent alteration analysis due to substantial truncation of the landforms by intervening topography and trees in that view. The other lake viewpoints presented less visible alteration than VP 13.

### Results

The results of visibility analysis from all viewpoints and percent alteration analysis from Viewpoint Lake 13 and the Bluffs are presented in tabular form on the next page. The Lake 13 viewpoint exceeds upper limit of the PR VQO by 2.62% (9.62%) and fails to meet the VQO. Other lake viewpoints are less in extent of visible alteration than VP13. The Bluffs 1 viewpoint meets the PR VQO (4.94%) in Landform 1B, but Bluffs 2 exceeds the PR VQO (9.8%) in Landform 1B. Due to landform truncation in the Bluffs 2 view of Landform 1B, it is recommended that Bluffs 2 not be considered for determination of VQO achievement, favouring Bluffs 1 for that purpose due to greater visible extent. Landform 2A meets the M VQO from both Bluffs viewpoints. Recommendations have been made by RDI to bring the percent alteration, shape and pattern into line with the VQOs. These are added to the percent alteration tables and on each simulation sheet. Further discussion is planned by Ches with the planning team. RDI will provide further design and VQO achievement suggestions as requested. All cutblocks are likely to be visible except MWAA4.



KB Fairhurst, PhD, RPF  
RDI Resource Design Inc  
June 8, 2021

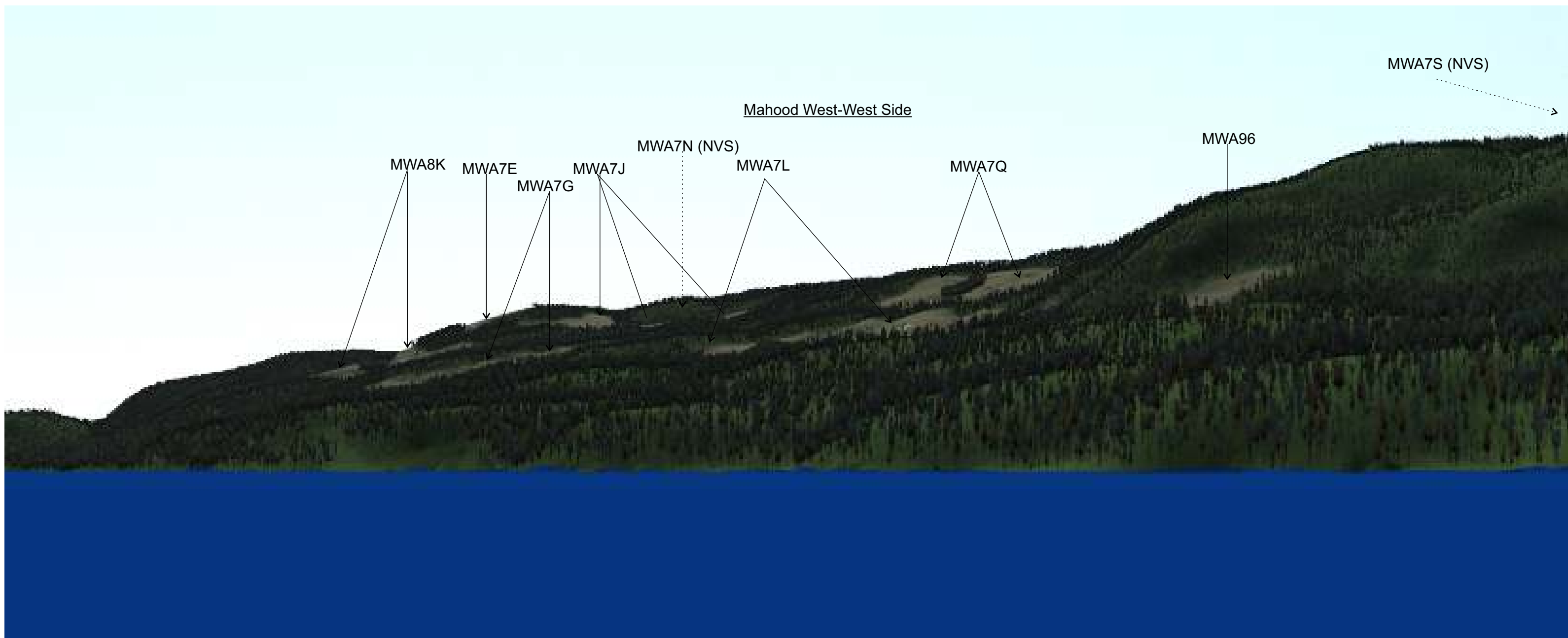
Percent Alteration Mahood Lake VP13NE - M merged into L1-PR			
Name	AREA2	%Alt	
<b>Landform 1A-PR</b>	938957.33		includes L2-PR (was M)
MWA8K	17190.16	1.83%	needs break at central pinch-point
MWA7E	2281.99	0.24%	
MWA7G-L	-757.70	-0.08%	
MWA7G	19266.15	2.05%	needs large break or defer
MWA7J	177.34	0.02%	
MWA7J	1262.56	0.13%	
MWA7N	2388.10	0.25%	
MWA7N	309.33	0.03%	
MWA7Q	2498.51	0.27%	reduce rectangular appearance
MWA7Q	9325.93	0.99%	reduce square corners
MWA7L	11165.52	1.19%	add break or two
MWA96	5833.13	0.62%	
MWA96-L	-137.17	-0.01%	
MWA7S	299.53	0.03%	
E-2012	349.98	0.04%	
E-2018	2442.50	0.26%	
E-2018	57.54	0.01%	
E-2018	19.25	0.00%	
E-2018	37.19	0.00%	
E-2018	1701.77	0.18%	
E-2018	638.79	0.07%	
E-2018	19.03	0.00%	
E-2018	66.07	0.01%	
E-2018	73.94	0.01%	
E-2018	103.04	0.01%	
E-2018	33.47	0.00%	
E-2018	2173.42	0.23%	
E-2018	3504.83	0.37%	
E-2018	4437.20	0.47%	
E-2018	3599.33	0.38%	
<b>Sum Alt L1A</b>	<b>90360.74</b>	<b>9.62%</b>	
<b>Landform 1B-PR</b>	121683.12		
MWAAZ	235.70	0.19%	
MWAAZ	20.80	0.02%	
E-2012	1688.51	1.39%	
<b>Sum Alt L1B</b>	<b>1945.01</b>	<b>1.60%</b>	
<b>Landform 2-M</b>	5859.89		M deleted and added to 1-PR above
<b>Landform 2-M</b>	1444.09		
<b>LandformWest</b>	27740.93		

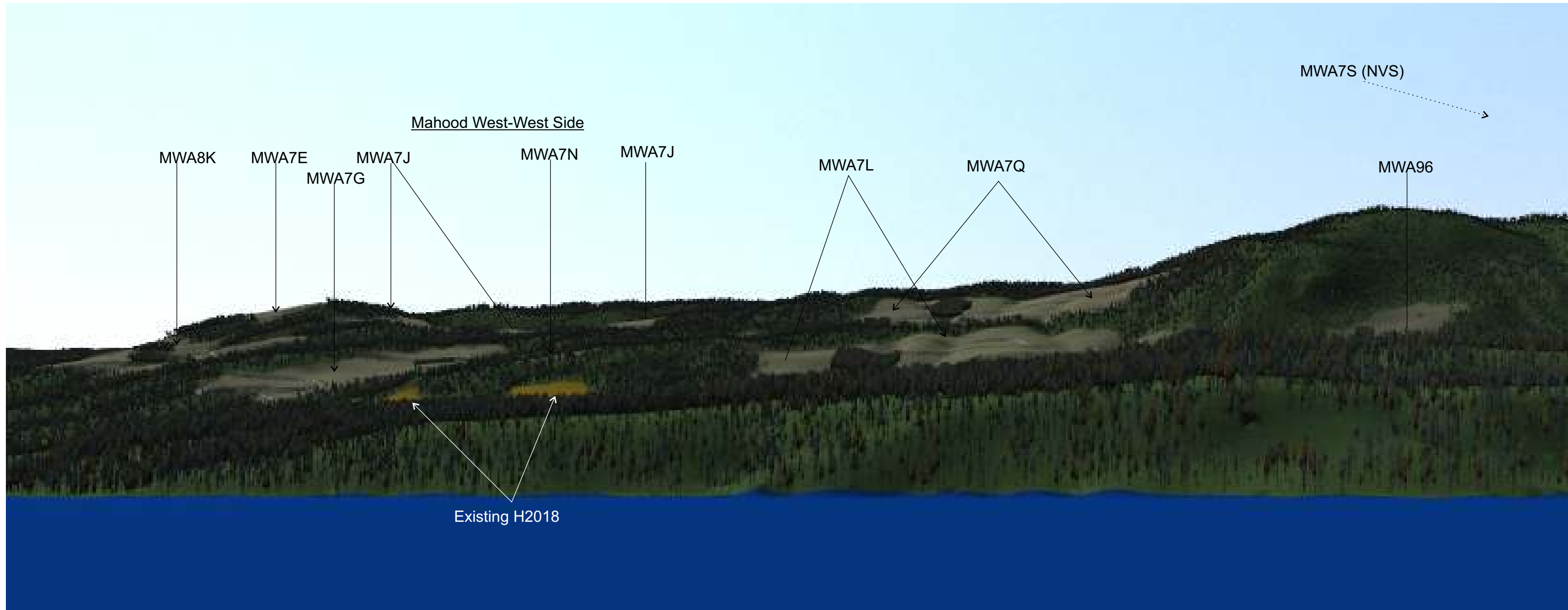
Mahood Percent Alteration from White Horse Bluffs 1		
Name	AREA2	%Alt
<b>Landform 1B</b>	37629.36	
MWA98	527.46	1.40%
MWAAZ	1329.66	3.53%
<b>Sum Alt L1B-PR</b>	<b>1857.12</b>	<b>4.94%</b>
<b>Landform 2A</b>	478190.50	
MWA9G	7959.68	1.66%
MWA9G-L	-459.19	-0.10%
MWA9G-L	-220.16	-0.05%
MWAA2	396.19	0.08%
MWAA2	442.79	0.09%
MWA9A	5735.14	1.20%
MWA9A-L	-367.29	-0.08%
E-2018	431.97	0.09%
E-2018	1706.39	0.36%
<b>Sum Alt L2A-M</b>	<b>15625.51</b>	<b>3.27%</b>
<b>Landform 2B</b>	1137705.28	
<b>Sum Alt L2B</b>	<b>0.00</b>	<b>0.00%</b>

Percent Alteration from White Horse Bluffs 2		
Name	AREA2	%Alt
<b>L1B - PR</b>	57810.84	
MWA98	1444.35	2.50%
MWAAZ	4220.31	7.30%
<b>Sum Alt L1B-PR</b>	<b>5664.66</b>	<b>9.80%</b>
<b>L2A - M</b>	738124.40	
MWA9G	17384.49	2.36%
MWA9G-L	-866.20	-0.12%
MWA9G-L	-471.22	-0.06%
MWA9A	12823.43	1.74%
MWA9A-L	-669.98	-0.09%
MWAA2	763.32	0.10%
MWAA2	2236.05	0.30%
E-2018	937.27	0.13%
E-2018	3956.83	0.54%
E-2018	490.94	0.07%
E-2018	19.96	0.00%
E-2018	132.16	0.02%
<b>Sum Alt L2A - M</b>	<b>36737.05</b>	<b>4.98%</b>
<b>L2B - M</b>	455466.73	
<b>Sum Alt L2B - M</b>	<b>0.00</b>	<b>0.00%</b>

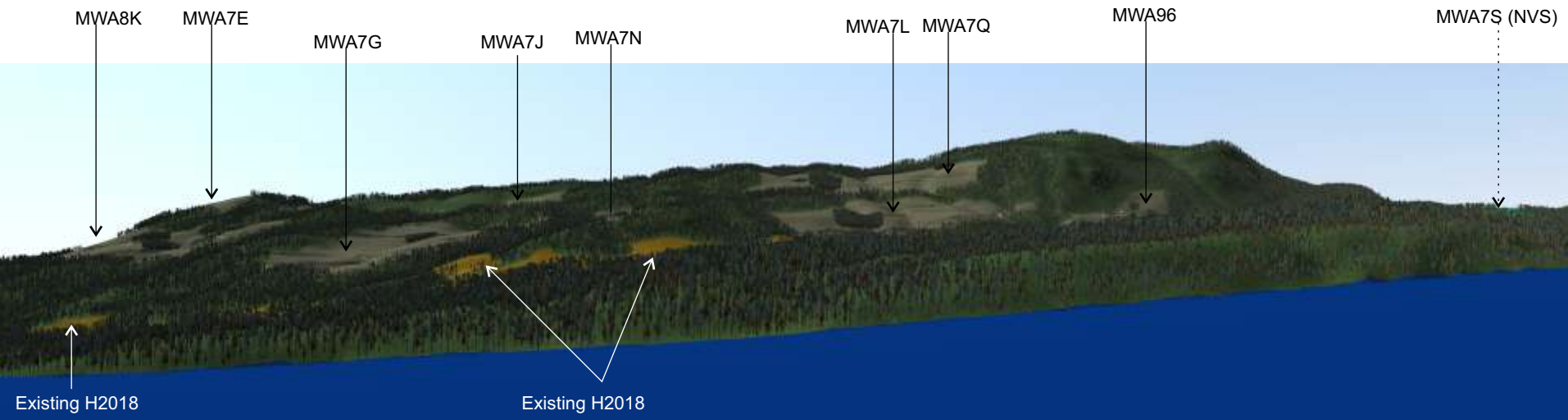
Mahood West 2021 Cutblock Visibility by Landform - Ordered West to East							
Cutblock	Mahood10	Mahood11	Mahood12	Mahood13	Falls	Bluffs 1	Bluffs2
<b>Landform 1A (PR) - Mahood West - West Cutblocks</b>							
<b>MWA7S</b>	NVS	NVS	NVS	V	NVS	NVS	NVS
<b>MWA96</b>	V	V	V	V	NVS	NVS	NVS
<b>MWA7L</b>	V	V	V	V	NVS	NVS	NVS
<b>MWA7Q</b>	V	V	V	V	V (PART)	NVS	NVS
<b>MWA7N</b>	NVS	V (PART)	V	V	NVS	NVS	NVS
<b>MWA7G</b>	V	V	V	V	V (PART)	NVS	NVS
<b>MWA7J</b>	V (PART)	V	V	V	V (PART)	NVS	NVS
<b>MWA8K</b>	V	V	V	V	V (PART)	NVS	NVS
<b>MWA7E</b>	V	V	V	V	V	NVS	NVS
<b>E-2018</b>	NVS	V	V	V	NVS	NVS	NVS
<b>Landform 1B (PR) - Mahood West - East Cutblocks</b>							
<b>MWA8M</b>	NVS	NVS	NVS	NVS	V	NVS	NVS
<b>MWAA4</b>	NVS	NVS	NVS	NVS	NVS	NVS	NVS
<b>MWA98</b>	NVS	NVS	NVS	NVS	V	V	V
<b>MWAAZ</b>	NVS	NVS	NVS	V	V (PART)	V	V
<b>E-2018</b>	NVS	NVS	NVS	NVS	NVS	V	V
<b>Landform 2A (M) - No Alteration Proposed</b>							
<b>MWA9A</b>	NVS	NVS	NVS	NVS	V	V	V
<b>MWA9G</b>	NVS	NVS	NVS	NVS	V	V	V
<b>MWAA2</b>	NVS	NVS	NVS	NVS	NVS	V	V

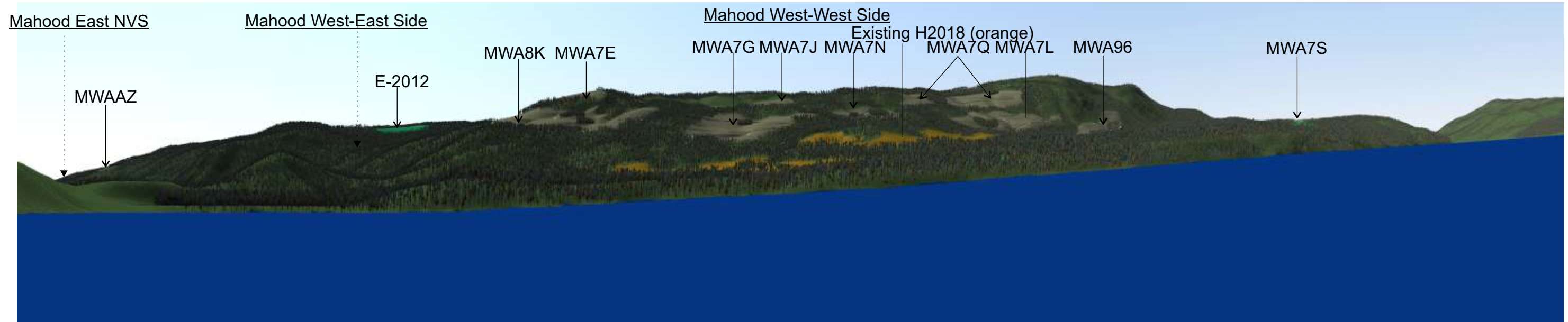
Percent Alteration and Visibility Tables

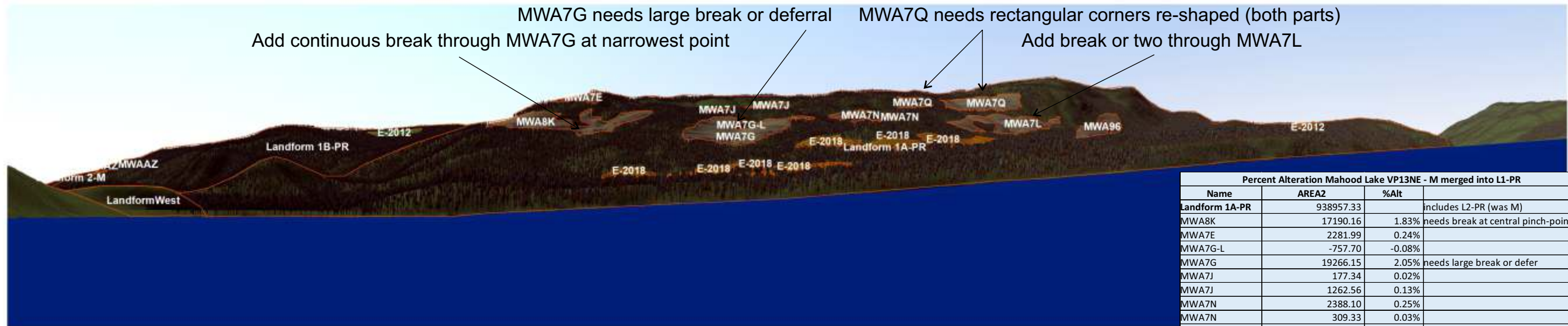
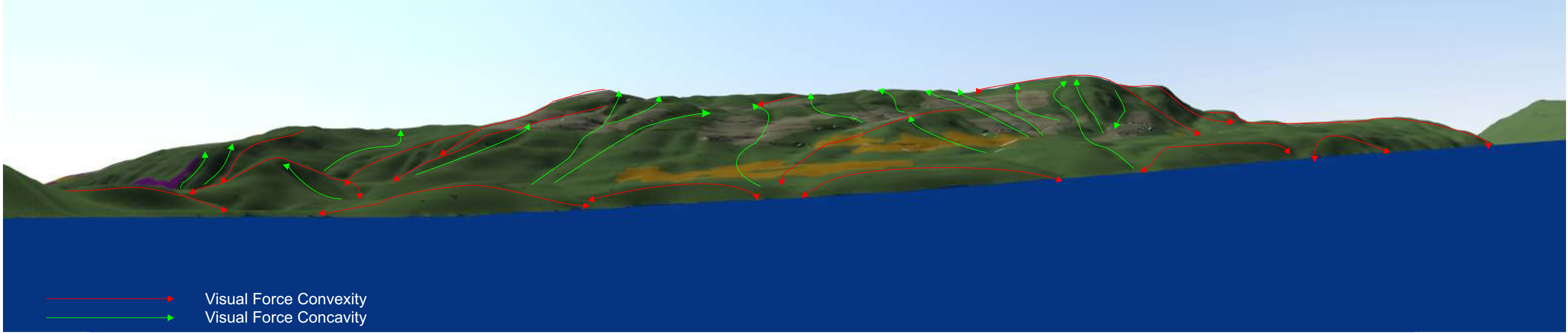




Mahood West-West Side





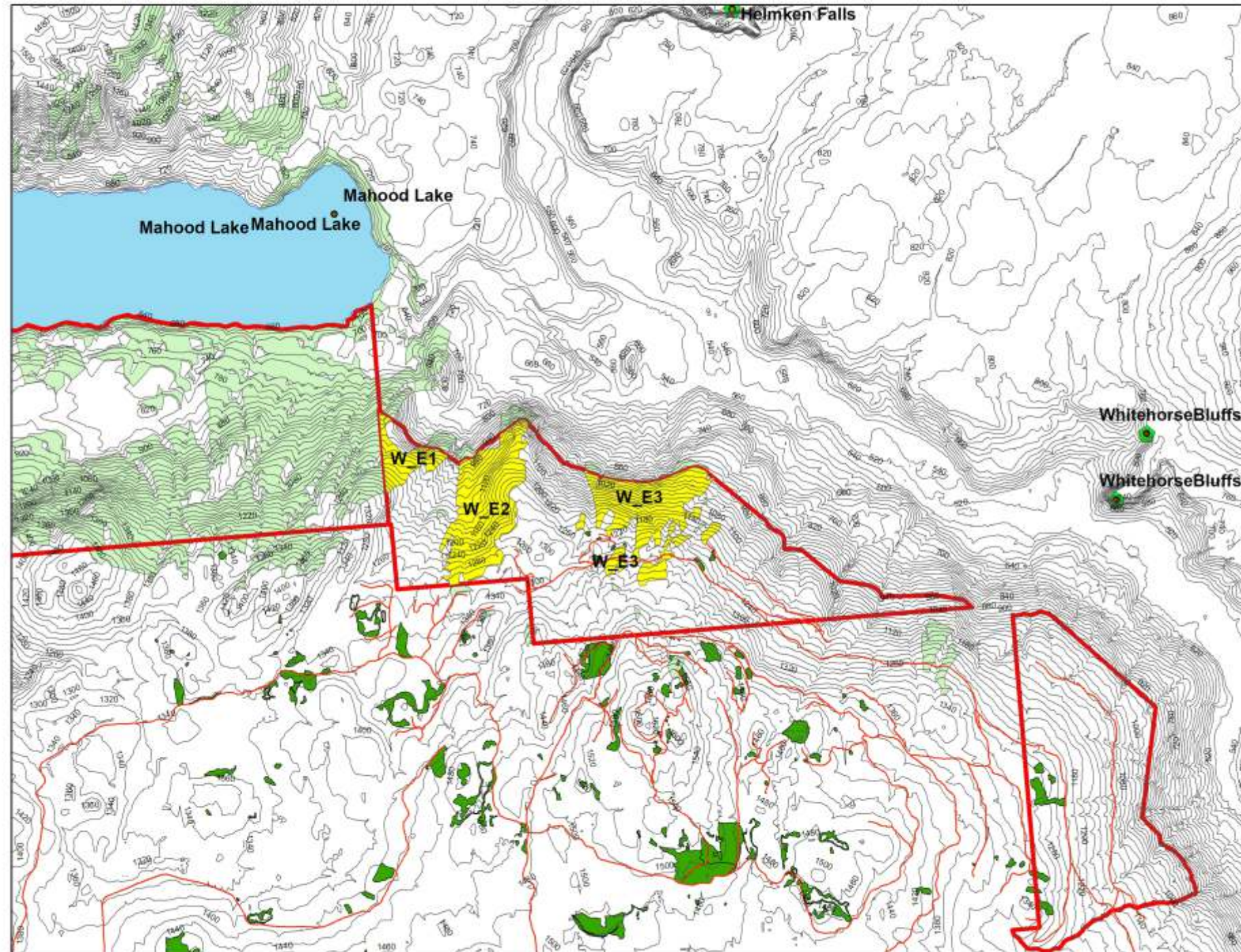


Percent Alteration Mahood Lake VP13NE - M merged into L1-PR			
Name	AREA2	%Alt	
Landform 1A-PR	938957.33		includes L2-PR (was M)
MWA8K	17190.16	1.83%	needs break at central pinch-point
MWA7E	2281.99	0.24%	
MWA7G-L	-757.70	-0.08%	
MWA7G	19266.15	2.05%	needs large break or defer
MWA7J	177.34	0.02%	
MWA7J	1262.56	0.13%	
MWA7N	2388.10	0.25%	
MWA7N	309.33	0.03%	
MWA7Q	2498.51	0.27%	reduce rectangular appearance
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MWA96	5833.13	0.62%	
MWA96-L	-137.17	-0.01%	
MWA7S	299.53	0.03%	
E-2012	349.98	0.04%	
E-2018	2442.50	0.26%	
E-2018	57.54	0.01%	
E-2018	19.25	0.00%	
E-2018	37.19	0.00%	
E-2018	1701.77	0.18%	
E-2018	638.79	0.07%	
E-2018	19.03	0.00%	
E-2018	66.07	0.01%	
E-2018	73.94	0.01%	
E-2018	103.04	0.01%	
E-2018	33.47	0.00%	
E-2018	2173.42	0.23%	
E-2018	3504.83	0.37%	
E-2018	4437.20	0.47%	
E-2018	3599.33	0.38%	
<b>Sum Alt L1A</b>	<b>90360.74</b>	<b>9.62%</b>	
Landform 1B-PR	121683.12		
MWAAZ	235.70	0.19%	
MWAAZ	20.80	0.02%	
E-2012	1688.51	1.39%	
<b>Sum Alt L1B</b>	<b>1945.01</b>	<b>1.60%</b>	
Landform 2-M	5859.89		M deleted and added to 1-PR above
Landform 2-M	1444.09		
LandformWest	27740.93		

Mahood VP 13 Percent Alteration and Visual Force Analysis

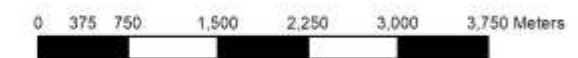


# Bare Ground Visibility Analysis



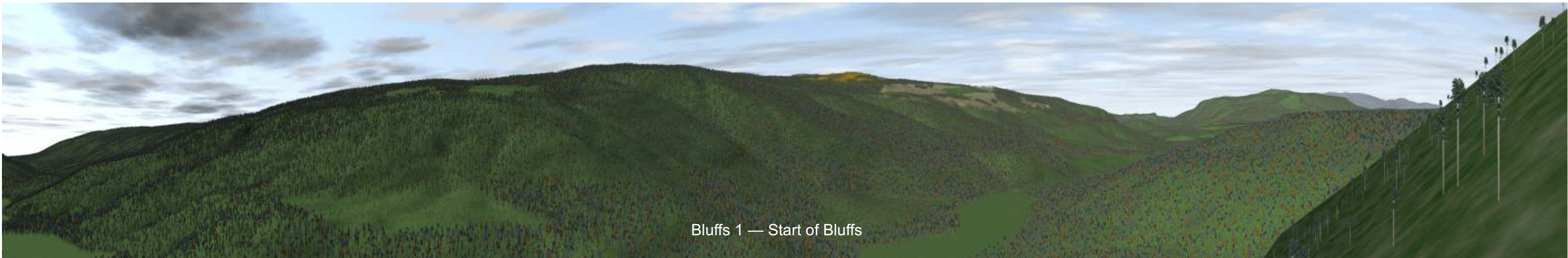
**Visibility Analysis**  
 Mahood West\_East Side and Mahood East  
 RDI Resource Design Inc  
 October 22, 2020  
**Legend**

- Contours
- NE\_Mahood\_Lake\_VP
- m20\_Lake\_Inside
- Aug\_8\_2020\_Operating\_Area's
- MahoodLake
- m20\_LakeAll
- WhitehorseEnd
- WhitehorseStart
- FallsTrue
- Mahood2020Viewpoints
- Aug\_8\_2020\_Existing\_WTRA's

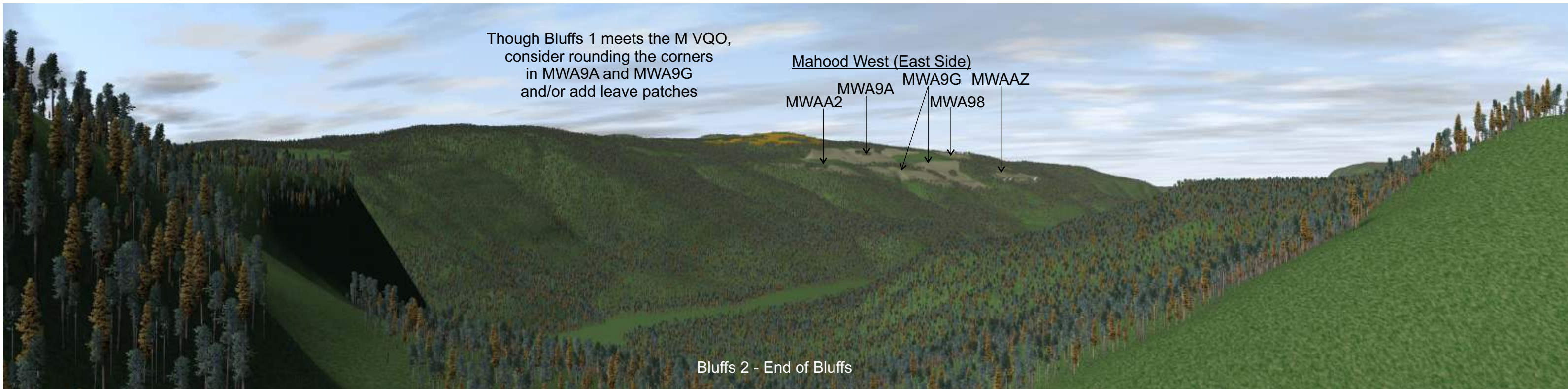


Mahood Lake NE Viewpoint Visibility

Visible: West-E - 253 ha; East - NVS



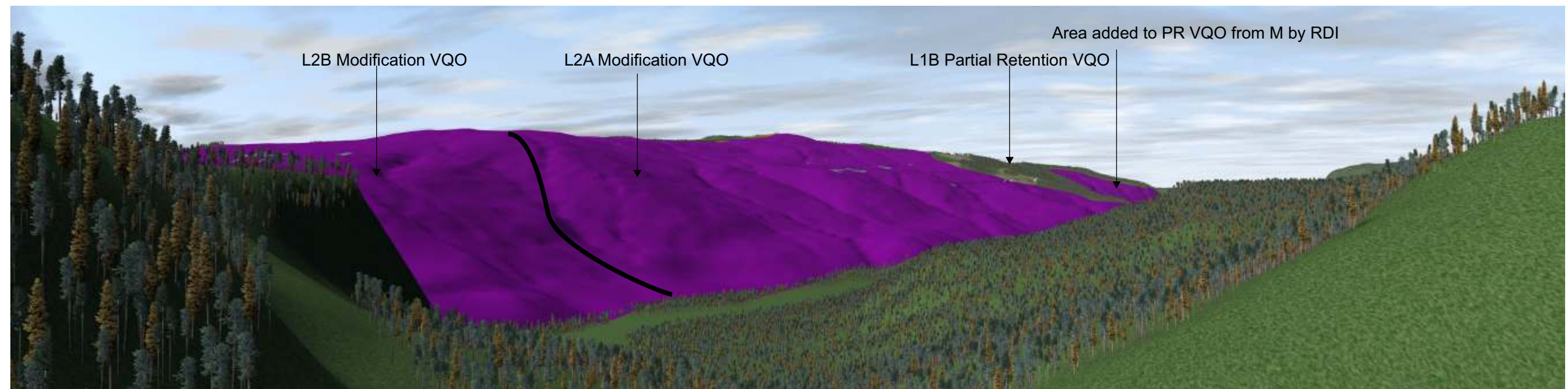
Bluffs 1 — Start of Bluffs



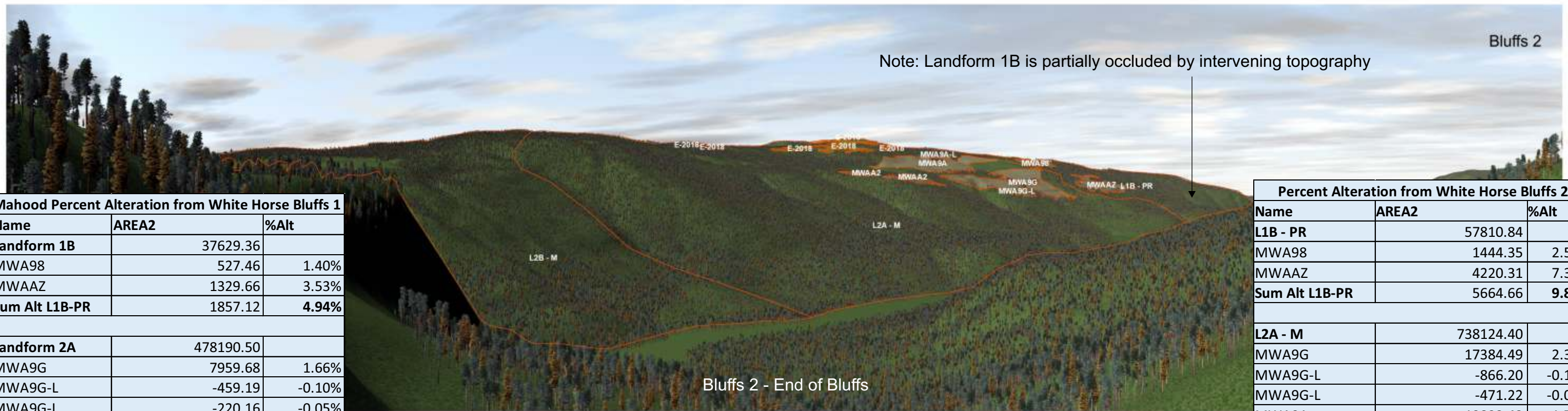
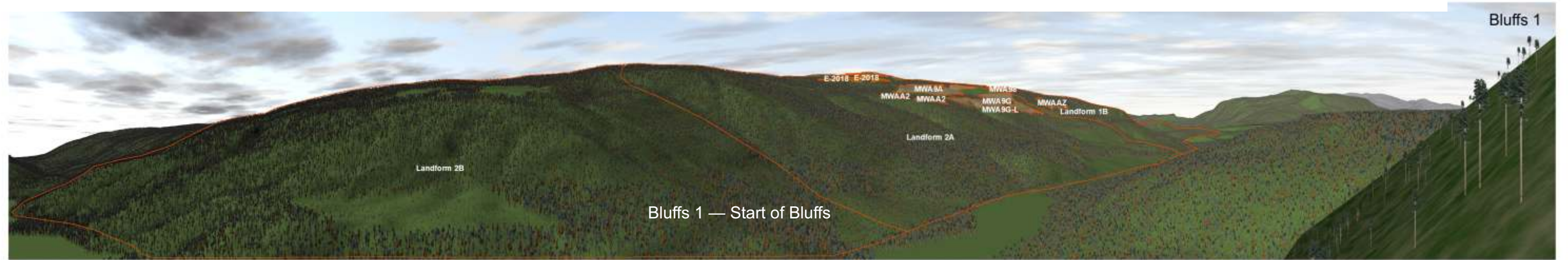
Though Bluffs 1 meets the M VQO,  
consider rounding the corners  
in MWA9A and MWA9G  
and/or add leave patches

Mahood West (East Side)  
MWA9A MWA9G MWAAZ  
MWAA2 MWA98

Bluffs 2 - End of Bluffs



L2B Modification VQO      L2A Modification VQO      L1B Partial Retention VQO      Area added to PR VQO from M by RDI



Mahood Percent Alteration from White Horse Bluffs 1		
Name	AREA2	%Alt
<b>Landform 1B</b>	37629.36	
MWA98	527.46	1.40%
MWAAZ	1329.66	3.53%
<b>Sum Alt L1B-PR</b>	1857.12	<b>4.94%</b>
<b>Landform 2A</b>	478190.50	
MWA9G	7959.68	1.66%
MWA9G-L	-459.19	-0.10%
MWA9G-L	-220.16	-0.05%
MWAA2	396.19	0.08%
MWAA2	442.79	0.09%
MWA9A	5735.14	1.20%
MWA9A-L	-367.29	-0.08%
E-2018	431.97	0.09%
E-2018	1706.39	0.36%
<b>Sum Alt L2A-M</b>	15625.51	<b>3.27%</b>
<b>Landform 2B</b>	1137705.28	
<b>Sum Alt L2B</b>	0.00	<b>0.00%</b>

Percent Alteration from White Horse Bluffs 2		
Name	AREA2	%Alt
<b>L1B - PR</b>	57810.84	
MWA98	1444.35	2.50%
MWAAZ	4220.31	7.30%
<b>Sum Alt L1B-PR</b>	5664.66	<b>9.80%</b>
<b>L2A - M</b>	738124.40	
MWA9G	17384.49	2.36%
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MWA9A	12823.43	1.74%
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MWAA2	763.32	0.10%
MWAA2	2236.05	0.30%
E-2018	937.27	0.13%
E-2018	3956.83	0.54%
E-2018	490.94	0.07%
E-2018	19.96	0.00%
E-2018	132.16	0.02%
<b>Sum Alt L2A - M</b>	36737.05	<b>4.98%</b>
<b>L2B - M</b>	455466.73	
<b>Sum Alt L2B - M</b>	0.00	<b>0.00%</b>

Although Bluffs 1 meets the M VQO, consider rounding the corners in MWA9A and MWA9G if practical and/or add leave patches



Photos by Ches Clem

9317

9308

9312





9317



9308



9312

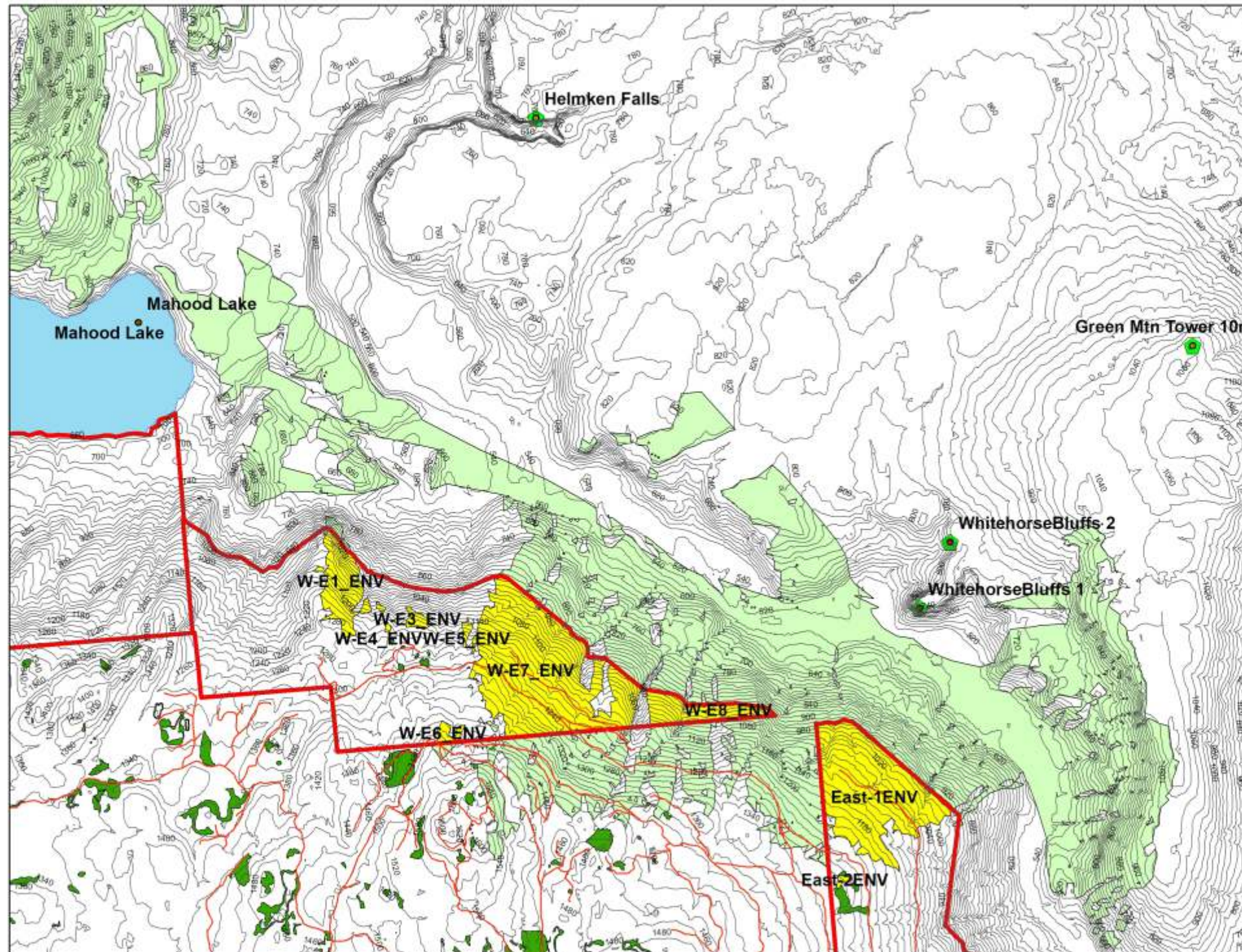
Photos by Ches Clem



9287-9288

White Horse Bluffs Trail Viewpoints 1 and 2 Photos

# Bare Ground Visibility Analysis



**Visibility Analysis**  
**Mahood West\_East Side and Mahood East**  
**RDI Resource Design Inc**  
**October 22, 2020**  
**Legend**

- Contours
- NE\_Mahood\_Lake\_VP
- Aug\_8\_2020\_Operating\_Area's
- MahoodLake
- m20W1-simple
- WhitehorseEnd
- WhitehorseStart
- FallsTrue
- Mahood2020Viewpoints
- m20W1
- Aug\_8\_2020\_Existing\_WTRA's

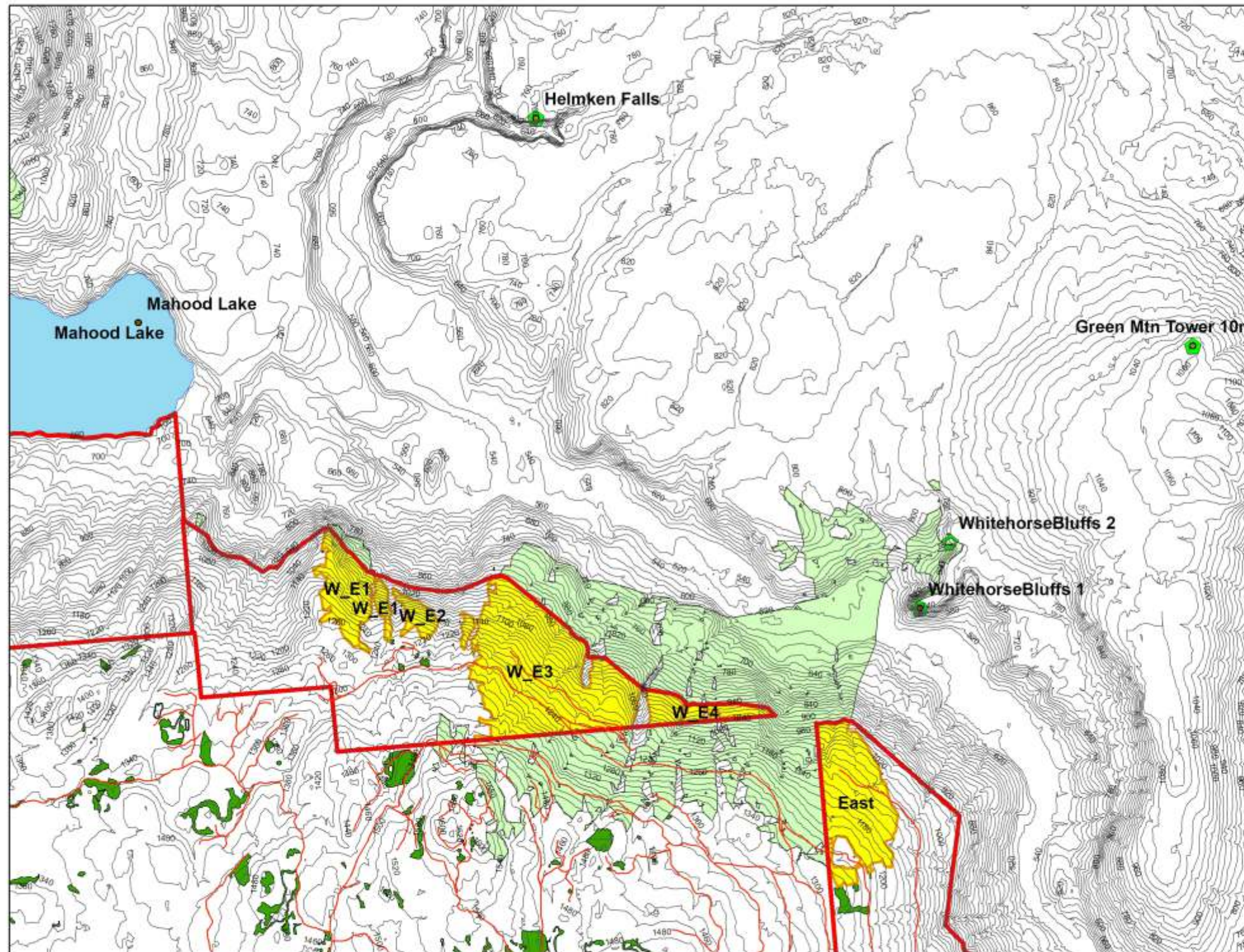


0 375 750 1,500 2,250 3,000 3,750 Meters

**White Horse Bluffs 1 (Trail Start) Viewpoint Visibility**

Visible: West-E - 325 ha; East - 162 ha

# Bare Ground Visibility Analysis



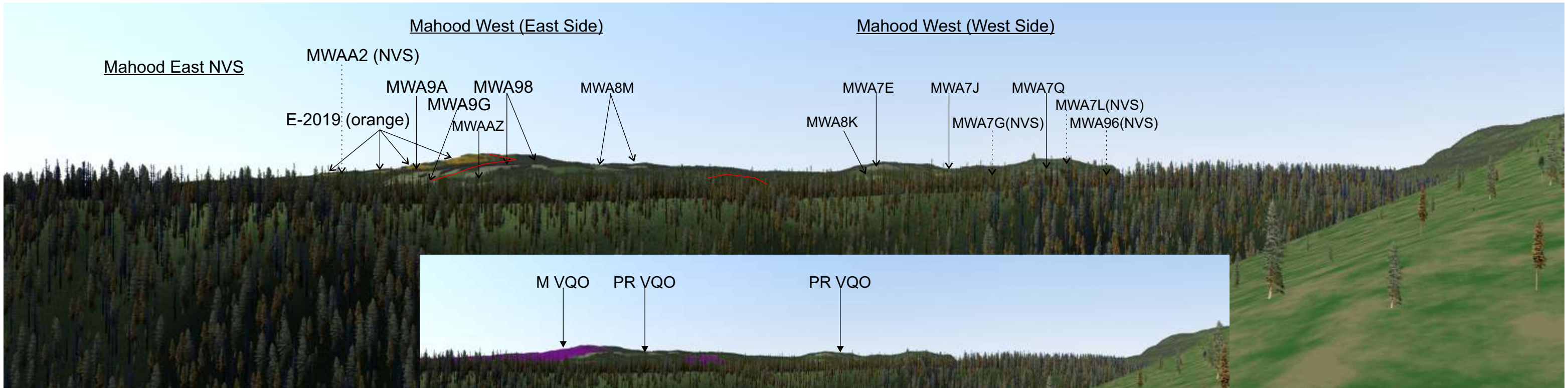
**Visibility Analysis**  
**Mahood West\_East Side and Mahood East**  
**RDI Resource Design Inc**  
**October 22, 2020**  
**Legend**

- Contours
- NE\_Mahood\_Lake\_VP
- Aug\_8,\_2020\_Operating\_Area's
- MahoodLake
- m20W2\_inside
- m20W2ok
- WhitehorseEnd
- WhitehorseStart
- FallsTrue
- Mahood2020Viewpoints
- Aug\_8,\_2020\_Existing\_WTRA's



**White Horse Bluffs 2 (Trail End) Viewpoint Visibility**

**Visible: West-E - 374 ha; East - 126 ha**

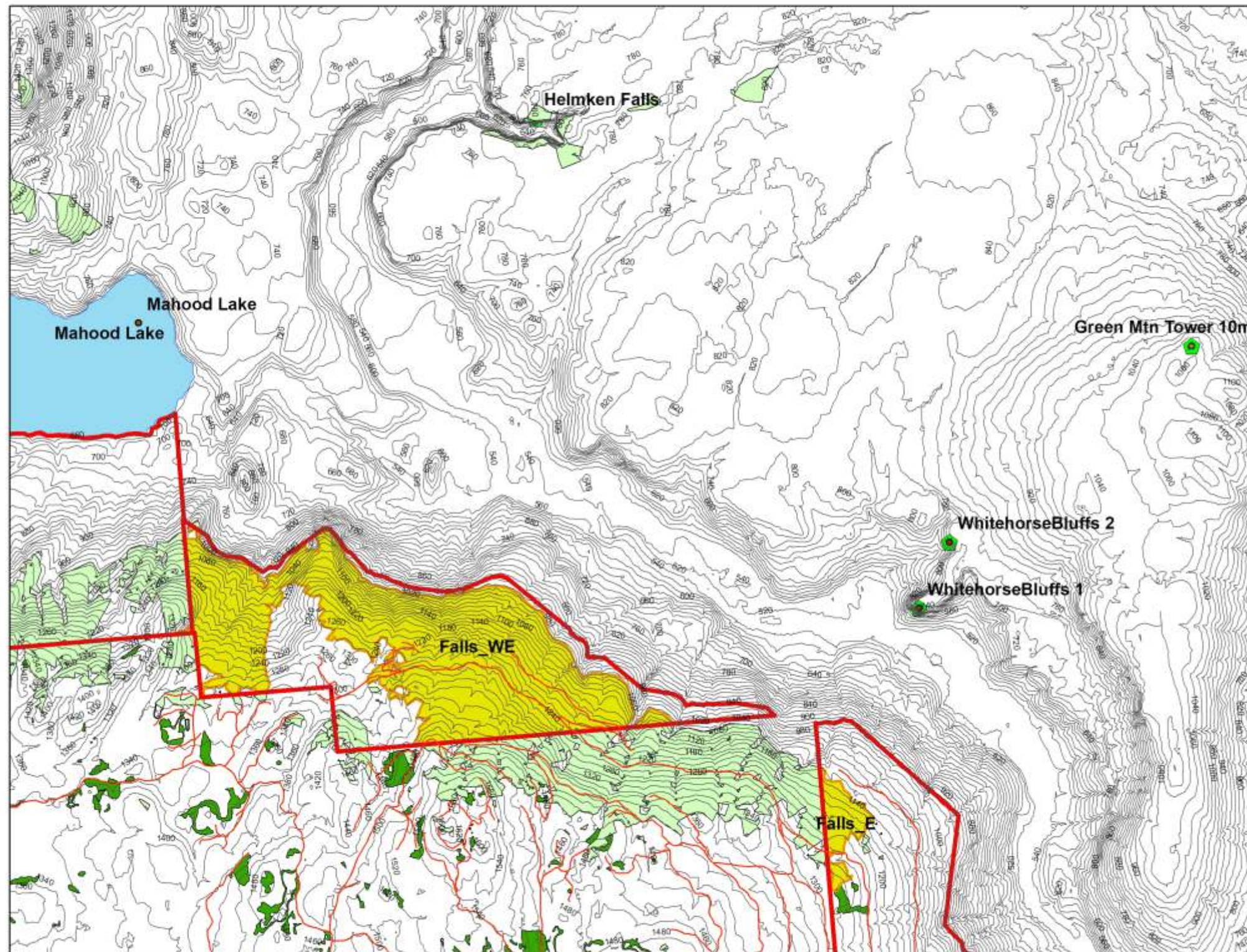


Photos by Ches Clem

Helmcken Falls Viewpoint - Percent Alteration not calculated due to partial landform obscuration

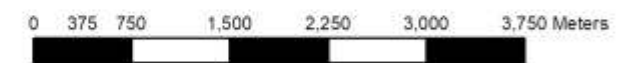


# Bare Ground Visibility Analysis



**Visibility Analysis**  
 Mahood West\_East Side and Mahood East  
 RDI Resource Design Inc  
 October 22, 2020  
**Legend**

- Contours
- NE\_Mahood\_Lake\_VP
- ▭ Aug\_8\_2020\_Operating\_Area's
- MahoodLake
- m20\_Falls\_within
- m20FallsUse
- WhitehorseEnd
- WhitehorseStart
- FallsTrue
- ◆ Mahood2020Viewpoints
- Aug\_8\_2020\_Existing\_WTRA's



Visible: West-E - 669 ha; East - 42 ha

Helmcken Falls Viewpoint Visibility



Mahood Operating Areas NVS in Photos

Photos by Ches Clem

NVS - no simulation produced

Visible: West-E - 0 ha; East - 0 ha

Green Mountain Tower Viewpoint

