



1 2 2 0 G O V E R N M E N T S T R E E T ,
N E L S O N , B . C . , V 1 L 3 K 8

October 15, 2020

Mr. Troy Van Skiver RPF.
Development Forester
Kalesnikoff Lumber Co.

Dear Troy:

RE: Site Review of potential harvesting on Airey Face.

On August 14th, 2020, you sent me an email requesting a site review of some proposed development on Airey Face. The site review was indicated by your Terrain Management System due to high value elements (Fish values in Sitkum Creek, Highway infrastructure, private properties, Domestic and community water supplies. Potentially unstable terrain has been mapped on the sideslope to Sitkum Creek. The proposed harvesting is Patch cuts with conventional yarding, some additional trails will be required. The site review was requested to determine if a DTSFA was warranted. If terrain stability concerns were noted, the site review would transition into a DTSFA.

The area was field assessed on August 26th, 2020, the weather was hot and sunny. A Samsung android tablet with the Avenza maps program and imported georeferenced development maps with satellite imagery were used in the field for navigation and note taking. Inferences are made from observations of materials in soil pits, road cuts, and tree churns within and adjacent to the proposed blocks during the field site review.

The proposed development, POD's, terrain polygons and observation sites are shown on figure #1.

For ease of discussion the site review will be divided into Airey Face and Sitkum Creek.

Airey Face:

Airey Face is typified as rolling to stepped rocky terrain. Rock controlled springs occur sporadically across the slope. Existing roads switch across the face, much of the face has

already been harvested. Streams and springs have been intercepted, diverted and concentrated by the existing road network along the western edge of the proposed development (figure 1). The only POD's mapped in that area are Bowers Brook and possibly Driesser Brook. It is likely that mapped NCD-1A and NCD-1 contribute to Bowers Brook, Driesser Brook appears to be west of the affected drainage.

The skid trails proposed in the western area traverse the drainage pathways. There are no terrain stability concerns, but to avoid impacts to downslope water resource values it is important to maintain current drainage patterns. Any new skid trails should be completely reclaimed after harvesting and inspected to ensure water isn't intercepted or diverted. Current drainage patterns on existing trails should be maintained.

Sitkum Creek:

The north eastern portion of the proposed development impinges on the slope above Sitkum Creek. Except for the large WTP patch within the P polygon, the proposed development is on moderate or gentle slopes. The slope gradient increases rapidly downslope of the proposed development. The slope break is rock controlled with rock outcrops along the top lip of the slope. The slope below the break is 75% to 85% underlain by silty sandy gravel in the east, to coarse angular colluvium in the west. There are ancient slides in the eastern portion, the western portion has no evidence of past instability. Avoid directing water onto this slope. The trail above the WTP runs down a rock swale that is floored (at the top) with blocky rubble which limits the speed of water delivery to the slope break, construction a bladed trail may increase the speed water the can flow down that trail, ensure this trail is reclaimed after harvesting and if bladed, the trail bed is decompacted. A blue flag has been hung at the top of the proposed trail where it enters Airey Face, ensure water does not flow down the trail from Airey onto this slope.

This site review assumes good timber harvesting standards are met. Even if all standards are met there is still a possibility of landslides. Terrain assessment can reduce the likelihood of landslides but not eliminate it.

Conclusion:

The site review found no indicators that timber harvesting as proposed will significantly increase the low likelihood of landslides. With the implementation of the minor recommendations a DTSFA is not required for this development.

Sincerely,

Will Halleran, P.Geo.,
Apex Geoscience Consultants Ltd.

Table #1 Observations:

Title	Description
airey 1	to here dry rolling rock with loose bouldery gravel, gentle to moderate slopes, we know there are springs below main, but lowest lift dry now. no sign of instability, road blocked by wood cutters.
airey 2	height of road, short 60% slope below, rock, small rock steps,
airey 3	small rock seep in ditch, bullrush, near low point of road, 1m cut, dry, 30% slope, culvert on upstream side.
airey 4	low point of road, wet, ditch seasonally wet, organic wet again just ahead, flowing from up road to culvert just ahead. flows short distance then dry, so from m last culvert to just past this one wet ditch.
airey 5	mostly mounded rock, pockets of silty gravel, scattered short rock faces, average gradient 40%.
airey 6	end of road rolling rock, 35%,

airey 7	+25%-125%, sub vertical to overhanging rock just bellow rim, rock face, ancient rock slump?
airey 8	+45%-75%, silty boulder gravel to cobbly boulders, 7m to rock bluff, small head then flats uptop, failed partial slump or lineation,dry.
airey 9	75% slope, ancient shallow slides to creek, sand 35%, silt 15%, sub rounded mostly cobble or larger coarse fragment, appears dry, areas of mossy cobbles on surface, possible small outcrops, no sign of recent instability. seems okay, do not divert drainage on this face, just before aspect change boulder zone.
airey 10	boundary on 45% slope, towards steep, 2m onto 65% slope, corner close. black and pink on 45% slope just inside block, trail?,
airey 11	corner sta. 3 (just on slope), little clear bubble on slope, that drains towards sitkum, no bladed trails in this portion. cannot see flags ahead for reserve in P. follow bike trail to see if I can find flags.
airey 12	trail on 45%, then 6m 100% rock step, then 65 to 70%, likely lip has sections of rock, no sign of instability.
airey 13	boundary at 45/just back from 100%, continues onto 55% slope just back from steep step, trail on small bench just upslope . rock swale followed to 16 would discharge around here.
airey14	small ridge keeps water off this face, ensure no water is directed down trails to this face, critical , on this side acts as swale,
airey15	rock ridge on inside, blocky colluvium on outside towards slope, will mark with blue at divide. just ahead rock on both sides, so this feature will direct surface flows to steep slope.
airey16	trail enters feature here, crosses small rock ridge, blue, small rock steps on face, do not direct water across here, near end so not likely.
airey 17	rock boulder mounds 45%, scattered cedar.
airey 18	+/-85%, angular coarse frags 75%, large angular blocks scattered, no sign of instability, likely rock controlled. sand 15%, silt 10%
airey 19	+50%/-80%, boulders on 50%.
airey 20	45% silty sandy bouldery gravel, dry, no obvious flags.
airey 21	rock knolls
airey 22	to here, rock knoll and small steps faces, dry
airey 23	rock to here, seasonal spring in ditch here
airey 24	culvert, dry now, evidence of wet both sides low gradient road low point

airey 25	armour3d cross ditch, broad swale, water flowing, some just uproad gradient, partially reclaimed road, decomposed rock, make sure all water gets in culvert, at swale, cedar grove upslope, adverse road broad wet zone.
airey 26	high point of road, decomposed rock.
airey 27	culvert, bench
airey 28	horse tail and bullrushes in ditch, some water, alders on low gradient slope up, bench downslope
airey 29	rock in ditch here, did not notice a culvert but ditch looks drier.
airey 30	spring out of forest, flowing down ditch. wrecked culvert, blue flag.
airey 31	water flowing down ditch to this culvert.
airey 32	small stream and culvert.
airey 33	small stream
airey 34	small stream
airey 35	combined stream to this culvert, low point.
airey 36	strong spring culvert, ditchblock, ditch wet ahead with bullrushes.
airey 37	good stream flow in ditch to this culvert, shallow ditch with water rock cut ahead. goes sub surface

Figure #1

