MINISTRY OF FORESTS: POST-WILDFIRE NATURAL HAZARD RISK ANALYSIS

LEVEL 2 RECONNAISSANCE REPORT

NOTE: The results given on this form are reconnaissance in nature and are intended to be a warning of potential hazards and risks. It is not a detailed risk analysis and further work may alter the conclusions. Please read the appendix of this report for important limitations. Contact the author for more information.

FIRE NUMBER: V30852 Signal Hill	**FIRE YEAR: 2026**	**DATE OF REPORT: November 4, 2026**

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REPORT PREPARED FOR: Coastal Fire Centre, BCWS

FIRE SIZE, LOCATION, AND LAND OWNERSHIP

V30852 is located on Signal Hill adjacent to the Village of Pemberton (Figure 1). The fire is 105 ha in size and IMapBC shows land ownership as Crown Land with the exception of a small area of private land in the north end of the fire.

VALUES AT RISK:

1. Bob's Loop Trail along the northeast flank of the fire (identified as Lumpy's Epic Trail in IMapBC).

WATERSHEDS AFFECTED	**TOTAL AREA**	**AREA BURNED**	**BURN SEVERITY** (% of watershed area)
None			

FIRE, TERRAIN, HAZARD, and RISK DESCRIPTIONS

BCWS Pemberton Zone flagged rockfall hazard to Bob's Loop trail and flooding as potential concerns in V30852. The fire is small and on a rocky hill so flooding is not a significant risk. On August 18, 2026 I flew over Signal Hill getting an overview of the fire and terrain. Later that day I accompanied a Wildfire crew, walking along Bob's Loop trail to the end and returning the same way.

The fire is located on Signal Hill immediately south of Pemberton. Signal Hill is bisected by a thrust fault that separates Cretaceous granodiorite rock on the east portion of the fire from Jurassic-Cretaceous diorite rocks on the west portion of the fire. The granodiorites are upslope of Bob's Trail.

Bob's Loop trail is located on flat ground along the northeast flank of V30852 (Figure 1). The GeoBC BARC map shows mostly low vegetation burn intensity upslope of the trail. Burn intensity increases to moderate to high on the more gently sloped upper elevations of Signal Hill, however these areas are not sources of rockfall that could reach Bob's Loop trail. The slope above the trail is rocky with little soil, with near-vertical, lightly forested bluffs in some areas. Low volumes of talus/rockfall are located along the length of Bob's Loop, showing that over millennia rockfall reaching the areas of the trail is not a common occurrence.

Approximately 800 m of trail is located directly below steep slopes where rockfall may impact the trail. During our walk along Bob's Loop I observed about five fresh rockfall fragments near the trail. One small fragment travelled past the trail and one rockfall landed on the trail. The other rockfall stopped short of the trail. The rockfall ranges from 0.2 m to 1.0 m in length.

Published reports and my experience show that rockfall related to wildfire is most common during or immediately after the fire, with significantly reduced instances of rockfall after the fire is no longer active. Wind or freeze/thaw cycles can promote rockfall occurrence following a fire.

SUMMARY OF POST-FIRE HAZARD AND RISK

1. Hazard = P(H), the probability of occurrence of a hazardous event
2. Probability of spatial impact, P(S:H), the probability of a hazard reaching or affecting an element at risk
3. Partial Risk, the probability of a hazard occurring and affecting an element at risk = P(H) x P(S:H)
4: Location with the highest risk rating given; at other locations the risk may be lower
5. See appendix for risk ratings

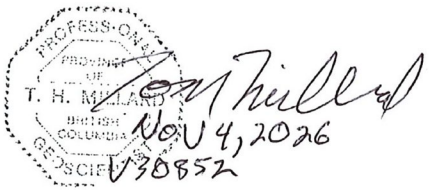
Elements at Risk

Bob's Loop Trail – rockfall hazard
Hazard P(H)[1] = L Probability of Spatial Impact P(S:H)[2] = M Partial Risk[3,4] = L
The few rockfalls that occurred during the fire indicate that rockfall is not likely to occur following the fire, particularly on calm days with no freeze/thaw cycles. If rockfall does occur, it is likely to travel to the base of the slope, however the observed post-wildfire rockfall tended to not reach the actual trail. The one-way trail length of potential rockfall exposure is approximately 800 m, or 1600 m return distance. This would take 20 – 30 minutes for a round-trip traverse time for adults. The likelihood of an individual being on the trail at the exact location and time of a rockfall event is very low.

FURTHER ACTIONS
None needed.

COMMENTS

SIGNATURE, SEAL, FIRM PRACTICE #



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Permit to Practice #1003022

ATTACHMENTS
See attached figures, references and Appendix.

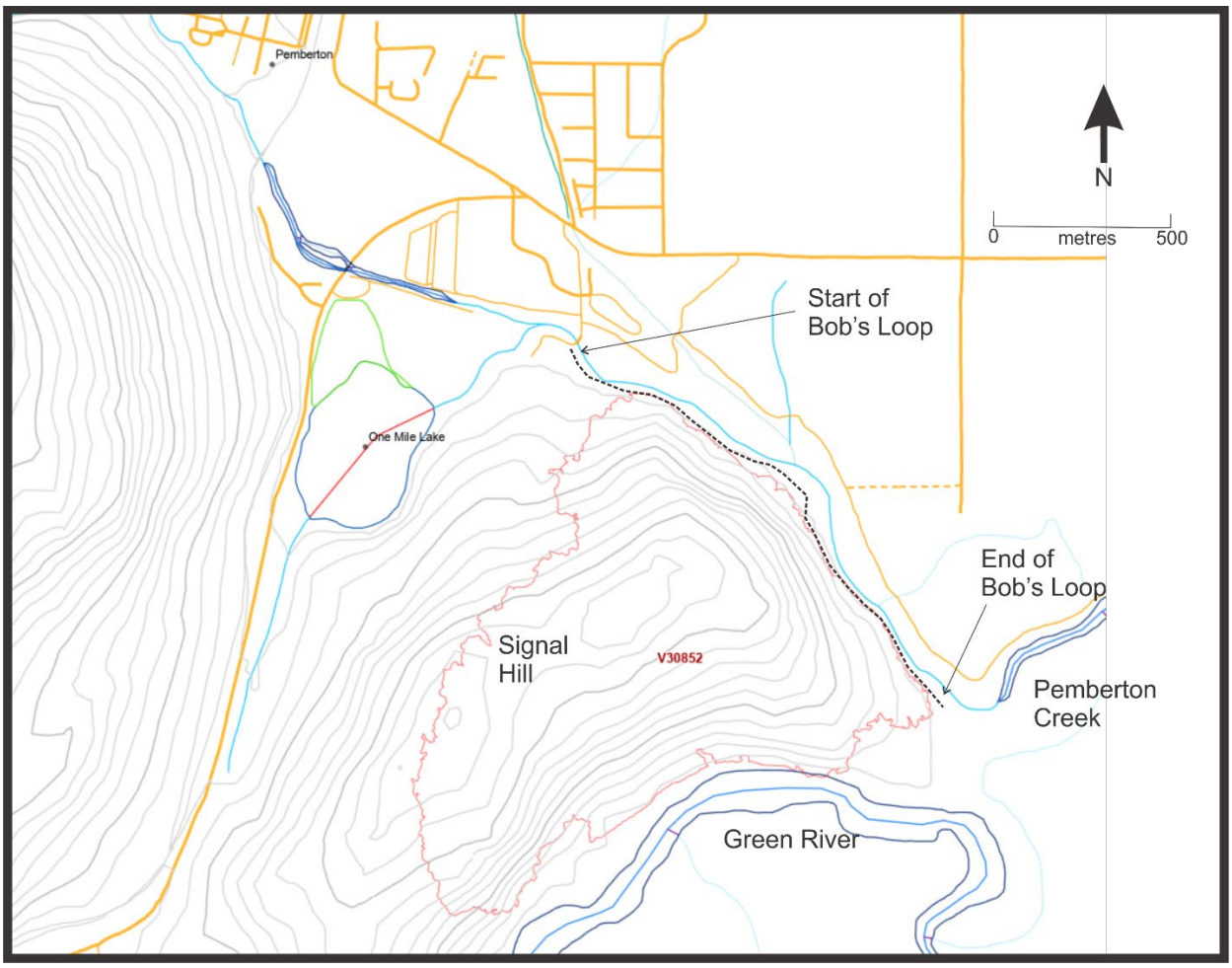


Figure 1. Location of Fire V30852 (fire boundary in red)

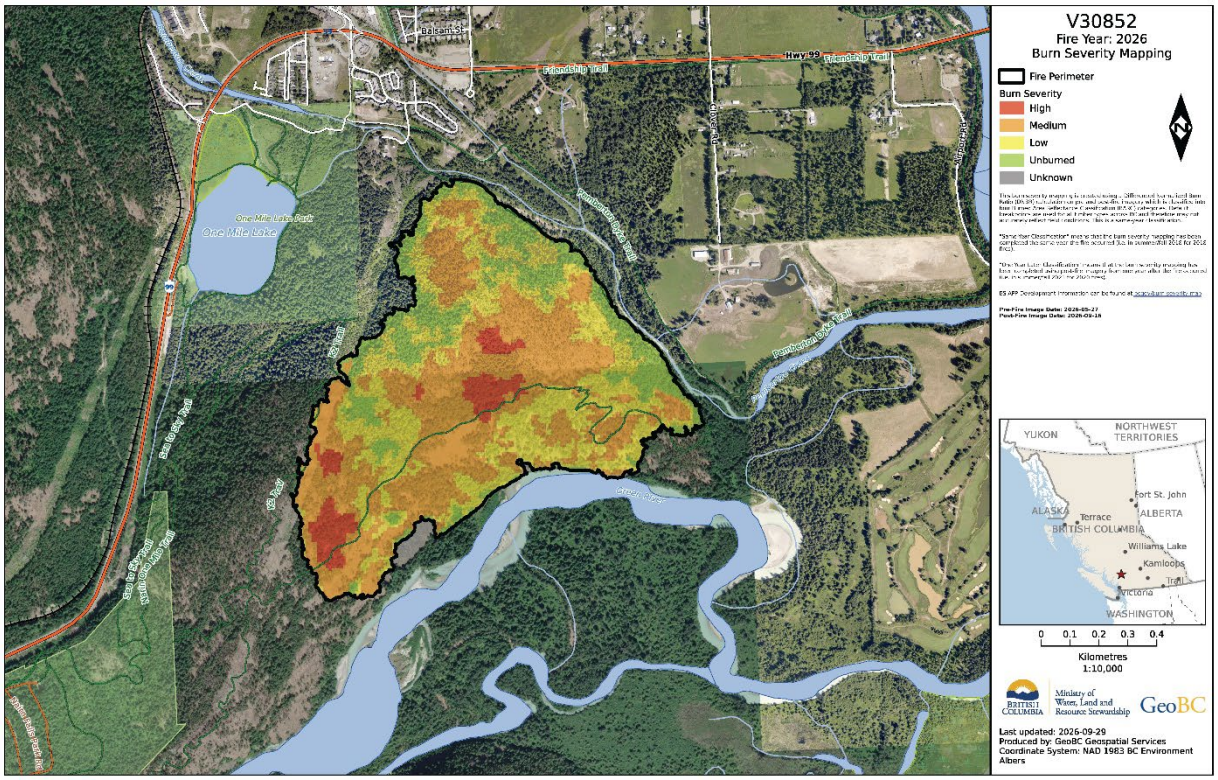


Figure 2. BARC map for V30852

References

IMapBC. Accessed November 3, 2026 at iMapBC

Appendix to PWNHRA Reconnaissance Reports

Scope of Reconnaissance (Level 2) Reports

Reconnaissance (Level 2) reports are primarily intended to identify whether post-wildfire hazards are likely to occur and need detailed investigation to protect identified elements at risk. Identified elements at risk are generally limited to public safety and infrastructure. Reconnaissance reports may also be used to assess safety conditions for wildfire fighters. In some cases, the MOF District Manager or other MOF personnel may request assessments for non-standard elements at risk or for other reasons.

Definitions of Hazard and Risk

Wildfire may produce conditions conducive to a suite of hazards. Debris flows, debris floods, and floods are often the most important hazards, but other types of landslide hazards including rockfall, debris slides and earthflows can occur in response to wildfire. Wildfire can also cause snow avalanches and may affect water quality, cause erosion and result in sedimentation. Terrain, watershed, and channel conditions that produce post-wildfire hazards may also produce similar hazards in unburned conditions; these hazards may be mentioned but are not evaluated in this report.

P(H), P(S:H) and partial risk are presented for each identified elements at risk. Multiple types of channel hazards (debris flows, debris floods, floods) may affect an element at risk. These hazards are ranked by severity, with debris flow as the highest ranked as they are most the most damaging and destructive, and floods as the least damaging. Ratings are given for the highest rating hazard that may affect an element at risk. For example, where a channel has the potential for a debris flow and an element at risk may be affected, the lower ranking debris flood and flood hazards are not rated, since discharge and velocity are likely to be less than for a debris flow. These processes may cause erosion or sedimentation that affects the element at risk. Hazards that are unlikely to affect an identified element at risk are not discussed.

Table A1 shows the annual probability ranges for qualitative definitions of P(H). The probability of the hazard occurrence is for the post-wildfire period of elevated hazard, which in many cases may be less than five years, but in some cases may extend for several more years.

Table A1. Qualitative descriptions of post-wildfire hazard likelihood, hazard criteria, and related quantitative probabilities.

Post-wildfire hazard rating	Description	Annual Probability Range
Very High	An event is expected to occur. Most of the catchment or face unit has burned with a significant proportion burned at moderate and/or high severity.	>0.2
High	An event is probable under adverse conditions. Most of the catchment or face unit has burned, with a significant proportion (i.e., >50 %) of terrain conducive to post-wildfire natural hazard initiation burned at moderate or high severity. Existing indicators of pre-fire terrain instability within stream channels, on fans or face units.	0.01 - 0.2
Moderate	An event could occur under adverse conditions. It is not probable but possible over a several-year period. More than 20% of the terrain conducive to post-wildfire natural hazards in the catchment or on the face-unit has burned with moderate and/or high severity. Historic geomorphic indicators of instability are present.	0.002 – 0.01
Low	An event could occur under very adverse conditions. It is considered unlikely over a several year period. Only a limited proportion of the catchment or face unit has burned. Few or no signs of pre-fire instability present along stream channels, fans or face units.	0.0004 – 0.002
Very Low	An event will not occur or is conceivable though considered exceptionally unlikely. A limited proportion/none of the catchment was burned. No terrain instability indicators are present.	<0.0004

Table A2 defines spatial impact to an element of risk. Post-wildfire event magnitude is considered when rating spatial impact.

Table A2. Post-wildfire spatial impact.

Likelihood of spatial impact	Description	Probability range
H	It is probable that the event will impact the element at risk.	>0.5
M	It is possible that the event will impact the element at risk.	0.5 - 0.1
L	It is unlikely that the event will impact the element at risk.	< 0.1.

Table A3 is a matrix which combines the hazard likelihood (Table A1) with the spatial impact likelihood (Table A2) to determine partial risk.

Table A3. Post-wildfire risk matrix partial risk matrix.

Hazard Likelihood P(HA) (Table 1)	Spatial Impact Likelihood (P(S:H)) (Table 2)		
	High	Moderate	Low
Very High	Very High	Very High	High
High	Very High	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Very Low
Very Low	Low	Very Low	Very Low

Report Standards

FLNRORD Land Management Handbook 69 is the primary standard followed in this report. LMH 69 describes the process to complete a detailed report. This reconnaissance report uses the framework of LMH 69 but does not follow it where detailed assessment procedures are described.

Land Management Handbook 69 Post Wildfire Natural Hazards Risk Analysis in British Columbia 2015
https://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh69.htm

Additional guidance is provided in the MOF SOG for PWNHRA and the 2014 FLNRO Landslide Risk Management Procedure.

Other professional guidance standards that may be used for the preparation of reconnaissance reports are listed below. These guidelines have similar report content to this reconnaissance assessment, but are for different purposes, have different levels of appropriate effort, and do not recognize the potential emergency nature of this reconnaissance assessment. These guidelines include:

EGBC Guidelines for TSA in the Forest Sector 2010
Microsoft Word - DOCS-#73233-v2-Guidelines_for_Professional_Services_in_the_Forest_Sector_Terrain_Stability_Assessments

EGBC Guidelines for Landslide Assessments in British Columbia 2023
Landslide Guidelines V4-1

Legislated Flood Assessments in a Changing Climate in BC 2018
PP Guidelines - Legislated Flood Assessments in a Changing Climate in BC V.2.1

Watershed Assessment and management of hydrologic and geomorphic risk in the Forest Sector
PP Guidelines - Watershed Assessment and Management of Hydrologic and Geomorphic Risk in the Forest Sector V1.0

Other standards may also apply, depending on the professional qualifications of the writer.

Statement of Limitations

Reconnaissance PWNH Level 2 assessments are typically done in constrained timelines where personnel, resources, data collection, and analysis methods are limited. Post-wildfire hydrogeomorphic hazards in B.C. are not well understood, and therefore hazard and risk assessments are estimates only. While probabilities ranges are given in Tables A1 and A2, the state of the science in B.C. does not allow for precise assessments, particularly near the borders of classes. Numeric probabilities ranges do not imply precision.

Identification of elements at risk relies on B.C. government data layers, satellite imagery, and perhaps an overview flight. BCWS and the MOF district office may provide additional information. No further confirmation of elements at risk was conducted.

Comments, conclusions, and suggestions contained in this reconnaissance assessment reflect my experience and judgement considering the information available to me at the time that this report was prepared and are considered appropriate for the reconnaissance nature of the review. The review has been carried out in accordance with generally accepted professional practices. This assessment and its contents are intended for the sole use of post-wildfire hazard management by provincial agencies, First Nation governments and local governments. I do not accept any responsibility for the accuracy of any of the data, the interpretation, or the conclusions contained or referenced in the report when the report is used or relied on for any other purpose than specified. Any such unauthorized use of this report is at the sole risk of the user.