



Richard Swanson, RPF  
754 South Crest Drive  
Kelowna, BC V1W 4W

[rswanson@uniserve.com](mailto:rswanson@uniserve.com)  
Office: 250-764-2820  
Cell: 250-718-9637

March 21st, 2022.

Robert Renner  
Lorinda Shmyr  
3336 Ridge Blvd.  
West Kelowna BC  
V4T2V6

Joe Lima  
Bernadette Lima  
2335 Marshall Road  
West Kelowna BC  
V1Z1E9

Debra Paget  
9691 Lawson Road  
Telkwa BC  
V0J2X3

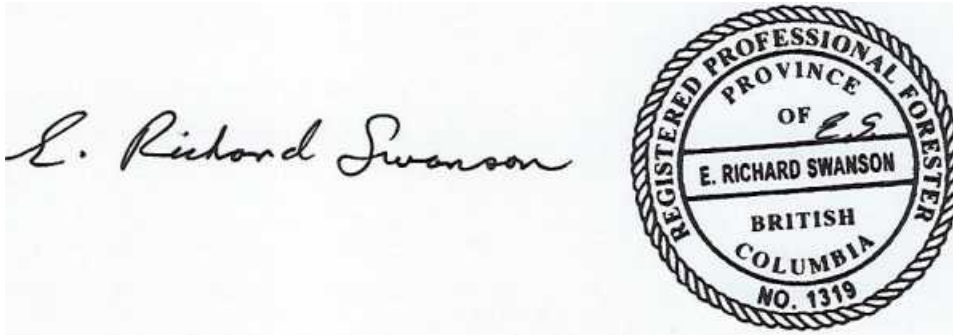
Dear Owners of 4690 Trepanier Road:

**RE: The Wildfire Hazard Assessment and Wildfire Hazard Mitigation Report for the property located at 4690 Trepanier Road in the Regional District of Central Okanagan.**

As requested, I carried out a Wildfire Threat Assessment for the above-noted property for the forest interface areas surrounding the proposed development on March 20<sup>th</sup>, 2022. The RDCO requires a Wildfire Threat Assessment for the application for a Temporary Use Permit. The Temporary Use Permit is required for the proposed campground and recreational vehicle storage area on the property. This assessment was completed using the required Wildland Urban Interface Wildfire Threat Assessment Worksheet, provided by the BC Wildfire Management Branch. The result of the survey has determined that there is a **High Wildfire Threat Rating** for the forest interface area on the north side of Trepanier Road and a **Moderate Wildfire Threat Rating** for the property on the south side of Trepanier Road. I have included recommendations to mitigate the threat from wildfire in my report.

If any further information or clarification is required, please contact me at 250-764-2820 or 250-718-9637(cell).

Yours truly,  
Signature and Seal  
Richard Swanson, RPF #1319



Attachment

**The Wildfire Hazard Assessment and Wildfire Hazard Mitigation  
Report for the Property Located at 4690 Trepanier Road, in the  
Regional District of Central Okanagan.**

**Prepared for:**

**Robert Renner  
Lorinda Shmyr  
3336 Ridge Blvd.  
West Kelowna BC  
V4T2V6**

**Joe Lima  
Bernadette Lima  
2335 Marshall Road  
West Kelowna BC  
V1Z1E9**

**Debra Paget  
9691 Lawson Road  
Telkwa BC  
V0J2X3**

**Prepared by:**



**754 South Crest Drive  
Kelowna, BC.  
V1W 4W7  
Phone: 250-764-2820  
Cell: 250-718-9637**

**March 21st, 2022**

## Table of Contents

Objectives.....	5
Legal Information.....	5
Registered Owners.....	5
Property Description .....	5
Forest Cover – Overview of Region .....	6
Forest Cover on Subject Property.....	7
Methodology .....	7
Wildland Urban Interface Threat Assessment.....	7
Recommendations for Mitigating the Risk from Wildfire .....	10
Appendix .....	12
Overhead Views of the Property .....	13
Temporary Use Permit Map .....	16
Photos.....	17
Wildfire Threat Assessment Sheets .....	29
Resume for Richard Swanson, RPF .....	30

## **Objectives**

This report was requested by Joe Lima and Rob Renner, two of the owners of the property. A Wildfire Threat Assessment is required by the Regional District of Central Okanagan (RDCO) as a condition for the Temporary Use Permit for constructing the proposed campground and recreational vehicle storage area on the property (see Temporary Use Permit Map in the Appendix). Overheads of the property are also provided in the Appendix.

## **Legal Information**

4690 TREPANIER RD.

Part S1/2 of S1/2, District Lot 484, Osoyoos Div. of Yale Land District,  
Except Plan EXC. RD. TAKING R2-160-02, KAP45900, KAP74941, P/N 63292.  
PID: 011-349-611

Manufactured Home Reg.# 51481

Zoning: RU2, Rural Residential

Size: 75.336 Acres

Size: 30.4917.2 Ha.

## **Registered Owners**

Robert Renner  
Lorinda Shmyr  
3336 Ridge Blvd.  
West Kelowna BC  
V4T2V6

Joe Lima  
Bernadette Lima  
2335 Marshall Road  
West Kelowna BC  
V1Z1E9

Debra Paget  
9691 Lawson Road  
Telkwa BC  
V0J2X3

## **Property Description**

The total area for the proposed development is 75.3 acres (see Figure 1 in the Appendix) and is located on the north side of Highway 97C. Trepanier Road bisects the property and provides access. The area on the south side is approximately 50 acres and will have a campground and recreational vehicle storage area of 1.15 acres. The property to the north is approximately 25 acres and will be undeveloped. Trepanier Provincial Park is located to the south on the

other side of Highway 97C. The property elevation varies from 532 meters in the flat areas west of Trepanier road to 595 meters on the northwest corner. The slopes on the property are mostly gentle with a neutral aspect. There is a small area with slopes of >75% along the northern boundary. Trepanier Creek runs through the property roughly parallel to and west of Trepanier Road. The Creek has two wooden bridges that provide access to the southern portion of the property. The RDCO does not provide fire protection in the area.

## **Forest Cover – Overview of Region**

This property is within the Okanagan Very Dry Hot Douglas-fir Variant (IDFxh1) bio-geo-climatic sub-zone. This sub-zone occurs above the PPxh1, the hottest and driest forested zone in British Columbia. The IDFxh1 is characterized by dry, hot summers with moisture deficits contributing towards a high to extreme fire hazard risk for most of the summer and early fall. The drier sites within this sub-zone have very open stands of Douglas-fir (*Pseudotsuga menziesii*) and Ponderosa pine (*Pinus ponderosa*) with a herb layer of bluebunch wheatgrass (*Agropyron spicatum*) and a shrub layer made up of patches of snowbrush (*Ceanothus velutinus*) of Saskatoon (*Amelanchiera alniifolia*) and birch-leaved spirea (*Spirea betulifolia*). The average sites have open Douglas-fir and Ponderosa pine forests with a sparse understory of Saskatoon (*Amelanchiera alniifolia*), birch-leaved spirea (*Spirea betulifolia*) with pine grass (*Calamagrostis rubescens*) occupying the herb layer and a sparse moss layer. The moistest sites within this sub-zone usually have a northern aspect or occur along streams. The forest cover is made up of Douglas-fir with paper birch (*Betula papyrifera*) as a seral species. The under-storey is made up of Douglas maple (*Acer glabrum*), common snowberry (*Symphoricarpus albus*), red-osier dogwood (*Cornus stolonifera*), and black goose berry (*Ribes lacustra*) with willow (*Salix spp.*) and sedge species (*Carex spp.*) growing on the wetter sites (BC Ministry of Forests, 1990).

The Okanagan Valley has fire-maintained ecosystems that would normally have naturally occurring wildfires every 10-20 years. These ecosystems are maintained by wildfire, and the trees and plants found in these ecosystems are all adapted to fire and benefit from these periodic wildfires. Under natural conditions, a fire would likely only burn on the ground, consuming ground fuels such as fine grasses, pine needles and small saplings, leaving the pine trees larger than 15 cm in diameter at breast height (DBH) intact. The larger trees have thick bark that allows them to withstand a fire. The removal of the smaller trees creates an open forest condition with approximately 150-200 trees/ha on the south aspects and 200-400 trees/ha on the cooler east and north aspects. These forests should have light ground fires that can be more easily controlled by fire crews. Suppression of natural fire has resulted in heavy fuel accumulations that are difficult to control when ignited. The potential for catastrophic wildfires, such as the 2003 Okanagan Mountain Park Fire is an example of a catastrophic wildfire.

There have been a few wildfires near the property. The Trepanier Bench wildfire in August of 2017 burned the adjacent property located on the south side of Highway 97C. The wildfire burned on both sides of Trepanier Creek. Another wildfire, the Mt. Law fire, occurred to the northeast and had some scattered areas of wildfire that burned close to Highway 97C. Another wildfire caused by a lightning strike was located to the south of the property. Both wildfires occurred in August of 2021.

## **Forest Cover on Subject Property**

Due to the neutral aspect and location close to Trepanier Creek, this property is within the slightly wetter site series for this Bio-geoclimatic sub-zone close to Trepanier Creek. Most of the property is within the average to dry site series on the flat areas. The areas with steep side slopes on the north side of Trepanier road have a south aspect and occupy the driest site series. The trees on the property are mostly made up of two timber types. The timber type located on the north side of Trepanier Road is made up of mixed aged Douglas-fir (90%) and Ponderosa pine trees (10%). The crown closure is 55%, numbering with an average height of 26 meters. The second type occupies most of the western portion of the property. Most of the dead trees have been fallen and used for firewood or left on the ground. This timber type is a mixture of Ponderosa pine and Douglas-fir trees with a crown closure of 15%, with <100 live trees/ha and approximately 20 dead trees/ha. The dead pine trees were killed by Mountain Pine Beetles in 2003. The average height of the remaining trees is just over 30 meters. The tree volume is not enough to be merchantable and will be used as firewood for the campground. There are scattered immature Douglas-fir and Ponderosa pine trees numbering less than 200 per hectare. These trees can have ladder fuels that could bring wildfire into the upper crowns of the adjacent mature trees; however, these trees are very scattered and do not increase the wildfire threat. Ground cover for most of the property consists almost entirely of pine grass and kinnikinnick, with some small shrub patches of Oregon grape, birch-leaved spirea, snowbrush and a few juniper shrubs. The riparian areas near Trepanier Creek have a herb cover of red osier dogwood, Douglas maple and common snowberry. Most of the trees on the property appear healthy. There are a few Douglas-fir trees with mistletoe brooms that should be removed.

## **Methodology**

### **Wildland Urban Interface Threat Assessment**

In assessing the fire hazard threat, the property boundaries were located, and a traverse through the property determined if there was any variation in fire hazard threat rating. The riparian areas within 20 meters of Trepanier Creek are not included in the areas requiring fire hazard mitigation. These areas have deciduous tree cover and low ground fuel that does not require wildfire mitigation work. Wildland Urban Interface Threat Assessment Worksheets for the forested area is included in the Appendix. By completing the worksheets, the fire hazard

threat rating can be measured. This hazard rating has four classes: low (indicating a low risk of fire, with a low number of points), moderate, high, and extreme. Photos were taken throughout the property to show site conditions.

Plots 1, 2: Based on the information from plots 1 and 2.

Fuel:

- The duff layer is thin <3 cm
- Flammable surface vegetation cover is 20-40%
- The vegetation fuel composition is pine grass
- There is scattered fine and coarse woody debris-<10%
- There is coarse woody debris-10-25% coverage
- Live and dead crown closure is 15% for most of the area. Plot 2 has 20-40% crown closure.
- The deciduous tree cover is N/A
- The average conifer crown base height is N/A for plot 1-<20% crown closure and 2-<3m for plot 2.
- The average conifer crown base height is on average 2 to <3m
- There are less than 500 understory conifers/ha
- There are scattered standing dead trees 5-25/ha
- There is 80% of forested area within 2 km.

Weather:

- The polygon is in the Interior Douglas-fir Subzone
- The historical wildfire occurrence is the Penticton Zone rating.

Topography:

- The aspect is <16%
- The slope averages <16% for most of the property
- The terrain is flat
- Rolling terrain, minor restrictions to wildfire spread.

Structural: N/A-the wildfire threat rating is <96-this section does not apply.

The risk from wildfire from the forest interface on the south side of Trepanier Road (the proposed campground and recreational vehicle storage area) is a **Moderate Wildfire Behavior Threat Class – 80 and 95/240. The Wildland Urban Interface Wildfire Threat Score is N/A since the threat rating is less than 96.**

Plots 3 and 4:

Fuel:

- The duff layer is thin, <3 cm
- Flammable surface vegetation cover is 20-40%
- The vegetation fuel composition is pine grass
- There is scattered fine and coarse woody debris-<10%
- There is coarse woody debris-10-25% coverage
- The crown closure is 55%
- The average conifer crown base height is 2-<3m
- There are less than 500 understory conifers/ha



- There are standing dead trees <20/ha
- There is 80% of forested area within 2 km

Weather:

- The polygon is in the Interior Douglas-fir Subzone
- The historical wildfire occurrence is the Penticton Zone rating.

Topography:

- The aspect is <16%
- The slope averages <16% for most of the property
- The terrain is flat on the area to be developed
- Rolling terrain, minor restrictions to wildfire spread.

Structural:

- The position on the slope is the valley bottom
- The type of development is <1 structure/ha
- The position of assessment area is above and <200m from the forest interface.

The risk from wildfire from the forest interface on the north side of Trepanier Road is a **High Wildfire Behavior Threat Class- 100/240. The Wildland Urban Interface Wildfire Threat Score is also high- 35/55.**

The high rating in the northern section will be reduced when the property is developed due to the removal of trees and ground debris required for road access and residential construction. Wildfire moving on the ground to the south of Highway 97C and to the north of Trepanier Road would be limited by the road right of ways; however, embers carried by the wind from a high intensity wildfire can spread to distances over 2 kilometers. Winds tend to flow uphill during the day and downhill towards Okanagan Lake in the evening. Embers can be carried to the areas surrounding a wildfire. These embers can cause spotting fires with the resulting loss of homes, as was shown in the 2021 White Rock Lake Fire. Additional reduction of the wildfire threat can be achieved by doing the Fuel Treatment included in this report. In addition, by following the FireSmart manual recommendations, the odds of buildings surviving a wildfire can be increased to 85% (Bruce Blackwell, B. A. Blackwell and. Associates Ltd., Vancouver, B.C).

## Recommendations for Mitigating the Risk from Wildfire

### Fuel Treatment- 4690 Trepanier Road

Submission of this report by the owners of the property to the RDCO Planning Department is part of the requirements for granting a Temporary Use Permit. The treatment area is located on the south side of Trepanier Road where the proposed campground and recreation vehicle storage facility is located. The area to be treated is approximately 35 acres. The riparian areas within 20 meters of Trepanier Creek are not included in the areas requiring fire hazard mitigation. These areas have deciduous tree cover and low ground fuel that does not require wildfire mitigation work. Approximately 10 acres has already been cleaned up with ground fuel and dead trees being piled and burned where the campground is located. The recreation vehicle storage area has been completely cleared down to mineral soil. The owners are going to clean up the adjacent area south of the campground. Here is a list of the recommendations to mitigate the wildfire threat in this area:

#### 1. Tree removal

- Remove dead Douglas-fir and Ponderosa pine trees. Wildlife trees should be marked for retention.
- Remove unhealthy trees with poor form and defects that may pose a hazard. Remove Douglas-fir trees with mistletoe brooms.
- **Cut Tree Requirements:** Cut trees so that the stump is as close as possible to the ground. Make the cuts parallel to the ground so that the stubs left do not pose a hazard.

#### 2. Coarse Woody Debris (CWD)

- Remove most of the coarse woody debris on the ground within the treatment area.
- Leave 5-10 pieces of CWD >20cm in diameter and 3-5 meters long per hectare along with partially decomposed coarse woody debris.

#### 3. Ladder Fuels

- Remove ladder fuels to a height of 2-3 meters above ground level.
- Prune ladder fuels so the stub remaining is even with the branch collar.

#### 4. Debris Disposal

The owners have been in contact with the West Kelowna Fire Department regarding the debris disposal requirements for burning.

### Landscaping Recommendations

These recommendations apply to the property areas located on the south and north side of Trepanier road.

Due to the risk of fire spreading by sparks from forest interface areas, a 10-meter fuel modified space around homes and buildings is recommended (Priority Zone 1 from the FireSmart Manual). The main objective of vegetation within this space

is to create an environment that will not support fire of any kind. Here are the recommendations within 10 meters of homes and buildings:

- Landscaping on the property within 10 meters of a building should not include coniferous shrubs such as junipers, mugo pines or coniferous hedges. Plant low-growing (<0.5 meter tall) shrubs around buildings.
- Deciduous trees and shrubs are favoured for landscaping.
- No additional or new coniferous evergreen trees are to be planted within 10 meters of buildings.
- Watered and mowed lawns are also recommended close to buildings.
- It is recommended that pea gravel, lava rock or other non-combustible material be used as groundcover rather than bark mulch.

For the forest interface areas within the 30-meter space around buildings (Priority Zone 2 from the FireSmart Manual):

- Perform regular maintenance to clean up excessive needle accumulations and ground fuel under the Ponderosa pine trees. Do not remove all of the needles leaving bare soil exposed. This will limit the introduction of unwanted weed species.
- Space trees so that there is 3-6 meters between the crowns to limit the spread of wildfire between the tree crowns. This will reduce the forest cover to 400-600 trees/ha and duplicate the results of a wildfire moving through the area.
- Remove ladder fuels to a height of 2-3 meters to limit the spread of ground fire to the tree canopy.

## **Appendix**

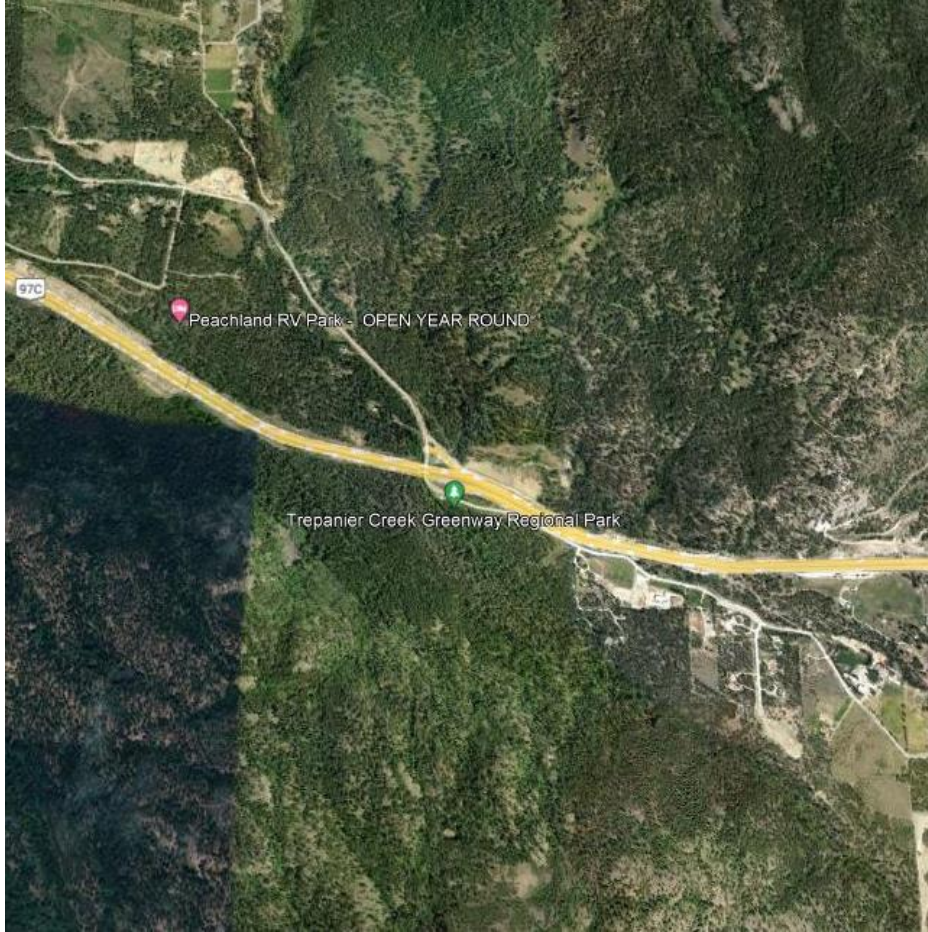
## Overhead Views of the Property



Overhead of the 50-acre area of the proposed campground and recreational vehicle storage area.

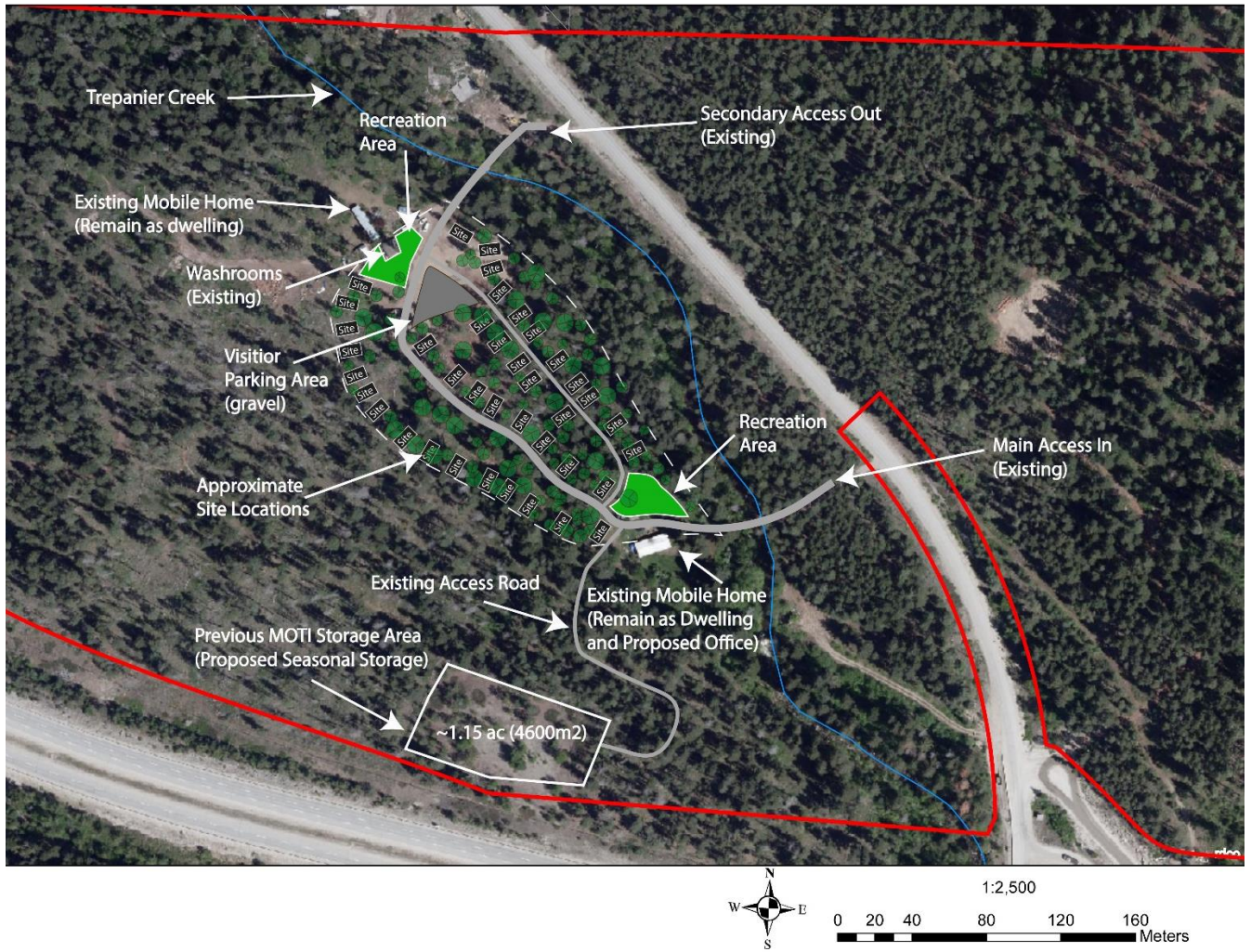


Overhead of the 25-acre section-no proposed development.



Overhead of the forest cover within 2km of the project.

# Temporary Use Permit Map





## Photos



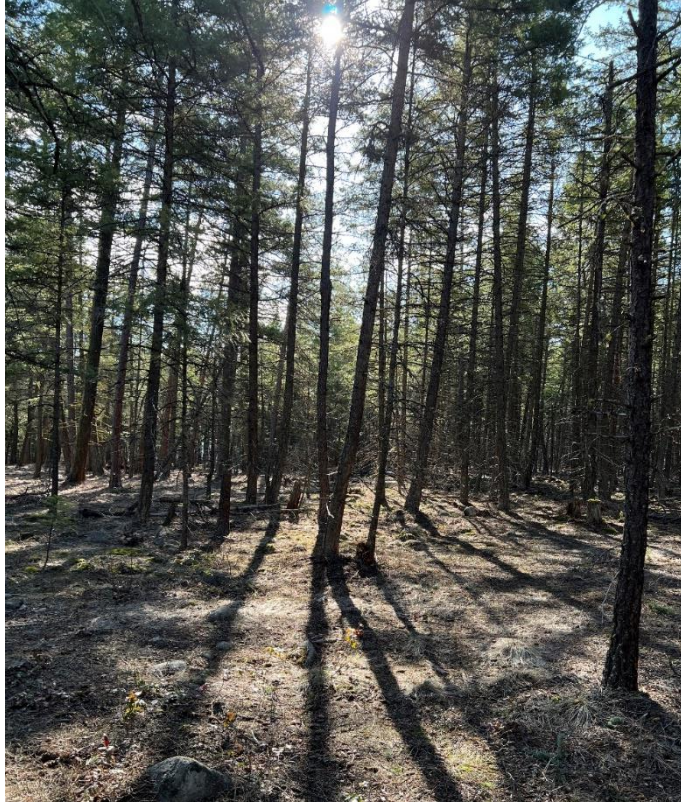
Photo showing most of the forest cover on the west portion of the property.



Plot 1.



Photos of the campground under construction.



Looking south from the southwest corner.



The adjacent property to the west.



Most of the western portion has scattered, semi-open forest cover.



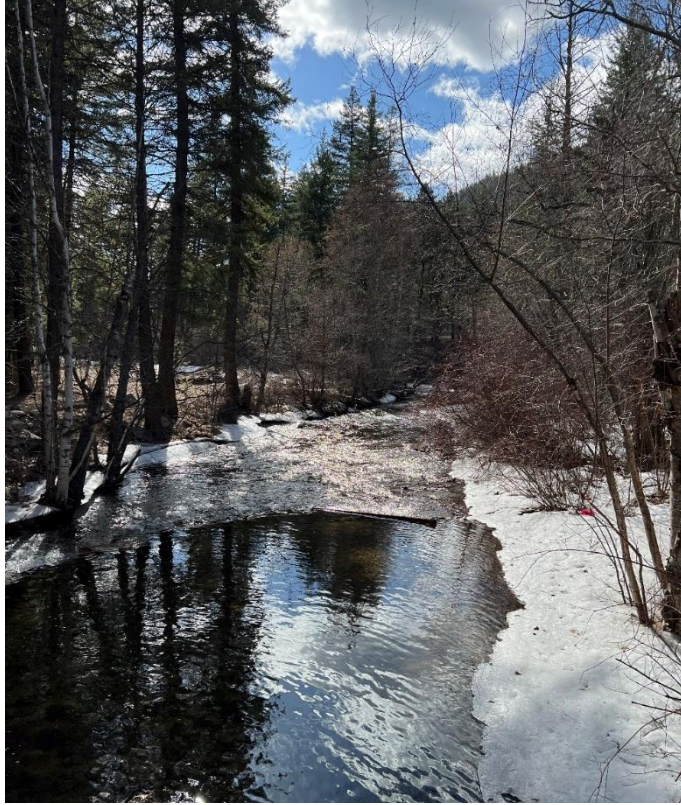
Plot 2.



Photo looking northwest of the proposed recreational vehicle storage area.



Photos from the eastern corner on the Trepanier Rd. right of way. This area is close to Trepanier Creek and does not require fire hazard mitigation work.

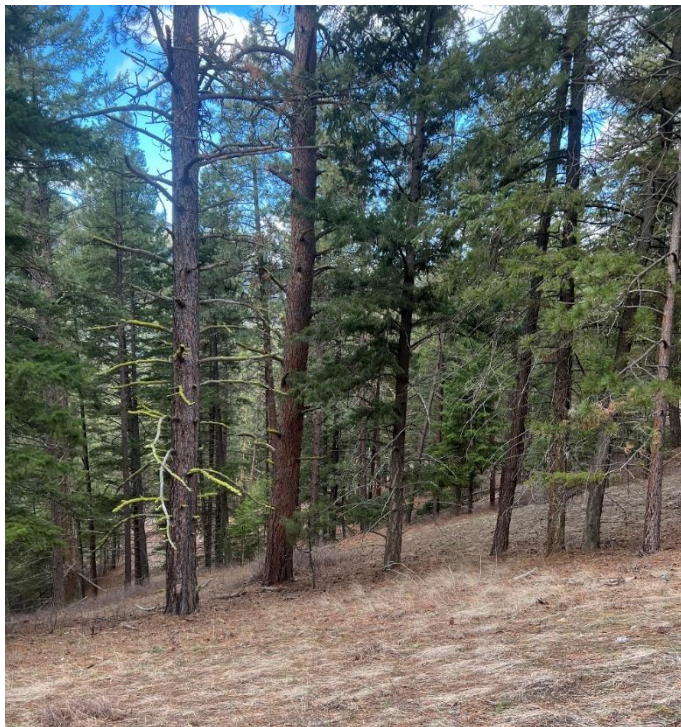


Trepanier Creek and new bridge crossing.





Plot 3-forested area on the north side of Trepanier Road.



Photos of the steep area along the northern boundary.



Photo looking north showing the open forest area along the northern boundary below the northwest corner.



Photo looking east from the west corner on the Trepanier Road right of way.



Plot 4-located on the northern portion near the west corner of the right of way.

## **Wildfire Threat Assessment Sheets**

**WILDLAND URBAN INTERFACE WILDFIRE THREAT ASSESSMENT WORKSHEET**

Pre-treatment  Post-treatment

Plot #: 1	Community: RDCO
Assessor: R. Swanson, RPF	Geographic Location/Street Name: 4690 Trepanier Rd.
Date: March 19, 2022	GPS/UTM:
Photos: Y X N #:	Land Ownership: <input type="checkbox"/> Crown <input checked="" type="checkbox"/> Private <input type="checkbox"/> I.R. Other (specify)

COMPONENT /Subcomponent	LEVELS				
	A	B	C	D	E
1 Duff Depth and Moisture Regime (cm)	1-<2 3	2-<5 Dry Zonal Wet 5 3 X 1	5-<10 Dry Zonal Wet 10 6 2	10-20 Dry Zonal Wet 12 8 4	>20 Dry Zonal Wet 15 10 5
2 Surface Fuels Continuity (% cover)	<20 0	20-40 2 X	41-60 3	61-80 4	>80 5
3 Vegetation Fuel Composition	Moss, Herbs, Irrigated Crops, Low Flammability Weeds 1	Herbs, Deciduous Shrubs 2	Lichen, Conifer Shrubs 3	Pinegrass, Juniper 4 X	Sagebrush, Bunchgrass, Antelope Brush, Scotch Broom 5
4 Fine Woody Debris Continuity (<=7cm) (% cover)	<1 coverage 1	Scattered, <10 coverage 5 X	10-25 coverage 7	>25 coverage, <10 cm deep 10	>25 coverage, >10 cm deep 15
5 Large Woody Debris Continuity (>7cm) (% cover)	<1 coverage 1	Scattered, <10 coverage 2	10-25 coverage 5 X	>25 coverage, not elevated 7	>25 coverage, partially elevated 10
6 Live and Dead Coniferous Crown Closure (%)	<20 2 X	20-40 5	41-60 10	61-80 15	>80 10
7 Live Deciduous Crown Closure (%)	>80 or <40% coniferous crown closure 0 X	61-80 2	41-60 3	20-40 4	<20 5
8 Live and Dead Conifer Crown Base Height (m)	5+ or <20% conifer crown closure 0 X	3-5 5	2-<3 7 X	1-<2 10	<1 15
9 Live and Dead Suppressed and Understorey Conifers (stems/ha)	0-500 2 X	501-1000 5	1001-2000 10	2001-4000 20	>4000 30
10 Forest Health (% of dominant and co-dominant stems)	Standing Dead and Partly Down <5 or <20 stems/ha 0	Standing Dead and Partly Down 5-25 5 X	Standing Dead and Partly Down >25-50 10	Standing Dead and Partly Down >50-75 20	Standing Dead and Partly Down >75 30
11 Continuous Forest/Slash Cover within 2km (%)	0-20 0	21-40 3	41-60 5	61-80 7	>80 10 X
<b>Sub Total</b>					<b>38 /155*</b>

Weather	A	B	C	D	E
12 Biogeoclimatic Zone	AT, Irrigated 1	CWH, CDF, MH Dry Zonal Wet 5 3 1	ICH, SBS, ESSF Dry Zonal Wet 10 7 3	IDF, MS, SBPS, CWH ds1 & ds2, BWBS, SWB - Dry Zonal Wet 15 10 X 5	PP, BG 15
13 Historical Wildfire Occurrence (by WMB Fire Zone)	G5, R1, R2, G6, V5, R9, V9, V3, R5, R8, V7 1	G3, G8, R3, R4, V6, G1, G9, V8 5	G7, C5, G4, C4, V1, C1, N6 8	K1, K5, K3, C2, C3, N5, K6, N4, K7, N2 10 X	N7, K4, K2, N1 15
<b>Sub Total</b>					<b>20/30</b>

Topography	A	B	C	D	E
14 Aspects (>15% slope)	North 0	East 5	<16% slope all aspects 10 X	West 12	South 15
15 Slope (%)	<16 1 X	16-29 and max score for North slopes 5	30-44 10	45-54 12	>55 15
16 Terrain	Flat 1 X	Rolling 3	Sloped terrain, minor low relief draws 5	Consistent slope, deep draws or shallow gullies 7	Consistent slope, deep gullies 10
17 Landscape/Topographic Limitations to Wildfire Spread	<5 ha isolated forest land 1	North and/or east aspects dominate, wildfire spread restricted from South and/or West 2	Mountainous terrain, broken topography, regular aspect and slope changes, multiple restrictions to wildfire spread large water bodies 5	Rolling terrain, minor water bodies, minimal aspect and slope changes, minor restrictions to wildfire spread 10 X	Continuous, consistent topography No restriction to wildfire spread 15
<b>Sub Total</b>					<b>22/55</b>

**FUEL, WEATHER AND TOPOGRAPHY**

**WILDFIRE BEHAVIOUR THREAT SCORE**

**80 /240\*\***

Structural	A	B	C	D	E
18 Position of Structure/Community on Slope	No Structures Values within 2 km 0	Bottom of slope, valley bottom 5	Mid-slope benchland, elevated valley, <16% slope 10	Mid-slope continuous, >15% slope 12	Upper 1/3 of Slope 15
19 Type of Development	No Structures Values within 2 km 0	Perimeter Interface, no inclusions 3	Perimeter Interface, with inclusions 5	Intermix >1 structure/ha 8	Intermix <1 structure/ha Infrastructure 10
20 Position of Assessment Area Relative to Values	No Structures Values within 2 km 0	Above >500 200-500 <200 m 1 10 20	Sidehill >500 200-500 <200 m 1 12 25	Flat/Rolling >500 200-500 <200 m 1 12 25	Below >500 200-500 <200 m 1 15 30

\*Proceed only if Fuel sub total is >29.

**WILDLAND URBAN INTERFACE WILDFIRE THREAT SCORE /55**

\*\* Proceed to Structural component only if Wildfire Threat Behaviour Score is >95 for untreated polygons.

**TOTAL WILDFIRE THREAT SCORE 80 /295**

**Wildfire Behaviour Threat Class** (check applicable class)

- Low 0-40
- Moderate 41-95
- High 96-149
- Extreme >149

**Wildland Urban Interface Threat Class** (check applicable class)

- Low 0-13
- Moderate 14-26
- High 27-39
- Extreme >39

**WILDLAND URBAN INTERFACE WILDFIRE THREAT ASSESSMENT WORKSHEET**

Pre-treatment  Post-treatment

Plot #: 2	Community: RDCO
Assessor: R. Swanson, RPF	Geographic Location/Street Name: 4690 Trepanier Rd.
Date: March 19, 2022	GPS/UTM:
Photos: Y X N #:	Land Ownership: <input type="checkbox"/> Crown <input checked="" type="checkbox"/> Private <input type="checkbox"/> I.R. Other (specify)

COMPONENT /Subcomponent	LEVELS				
	A	B	C	D	E
1 Duff Depth and Moisture Regime (cm)	1-<2 3 X	2-<5 Dry Zonal Wet 5 3 1	5-<10 Dry Zonal Wet 10 6 2	10-20 Dry Zonal Wet 12 8 4	>20 Dry Zonal Wet 15 10 5
2 Surface Fuels Continuity (% cover)	<20 0	20-40 2 X	41-60 3	61-80 4	>80 5
3 Vegetation Fuel Composition	Moss, Herbs, Irrigated Crops, Low Flammability Weeds 1	Herbs, Deciduous Shrubs 2	Lichen, Conifer Shrubs 3	Pinegrass, Juniper 4 X	Sagebrush, Bunchgrass, Antelope Brush, Scotch Broom 5
4 Fine Woody Debris Continuity (<=7cm) (% cover)	<1 coverage 1	Scattered, <10 coverage 5 X	10-25 coverage 7	>25 coverage, <10 cm deep 10	>25 coverage, >10 cm deep 15
5 Large Woody Debris Continuity (>7cm) (% cover)	<1 coverage 1	Scattered, <10 coverage 2	10-25 coverage 5 X	>25 coverage, not elevated 7	>25 coverage, partially elevated 10
6 Live and Dead Coniferous Crown Closure (%)	<20 2	20-40 5 X	41-60 10	61-80 15	>80 10
7 Live Deciduous Crown Closure (%)	>80 or <40% coniferous crown closure 0 X	61-80 2	41-60 3	20-40 4	<20 5
8 Live and Dead Conifer Crown Base Height (m)	5+ or <20% conifer crown closure 0	3-5 5	2-<3 7 X	1-<2 10	<1 15
9 Live and Dead Suppressed and Understorey Conifers (stems/ha)	0-500 2 X	501-1000 5	1001-2000 10	2001-4000 20	>4000 30
10 Forest Health (% of dominant and co-dominant stems)	Standing Dead and Partly Down <5 or <20 stems/ha 0	Standing Dead and Partly Down 5-25 5 X	Standing Dead and Partly Down >25-50 10	Standing Dead and Partly Down >50-75 20	Standing Dead and Partly Down >75 30
11 Continuous Forest/Slash Cover within 2km (%)	0-20 0	21-40 3	41-60 5	61-80 7	>80 10 X
<b>Sub Total</b>					<b>48 /155*</b>

Weather	A	B	C	D	E
12 Biogeoclimatic Zone	AT, Irrigated 1	CWH, CDF, MH Dry Zonal Wet 5 3 1	ICH, SBS, ESSF Dry Zonal Wet 10 7 3	IDF, MS, SBPS, CWH ds1 & ds2, BWBS, SWB - Dry Zonal Wet 15 X 10 5	PP, BG 15
13 Historical Wildfire Occurrence (by WMB Fire Zone)	G5, R1, R2, G6, V5, R9, V9, V3, R5, R8, V7 1	G3, G8, R3, R4, V6, G1, G9, V8 5	G7, C5, G4, C4, V1, C1, N6 8	K1, K5, K3, C2, C3, N5, K6, N4, K7, N2 10 X	N7, K4, K2, N1 15
<b>Sub Total</b>					<b>25/30</b>

Topography	A	B	C	D	E
14 Aspects (>15% slope)	North 0	East 5	<16% slope all aspects 10 X	West 12	South 15
15 Slope (%)	<16 1 X	16-29 and max score for North slopes 5	30-44 10	45-54 12	>55 15
16 Terrain	Flat 1 X	Rolling 3	Sloped terrain, minor low relief draws 5	Consistent slope, deep draws or shallow gullies 7	Consistent slope, deep gullies 10
17 Landscape/Topographic Limitations to Wildfire Spread	<5 ha isolated forest land 1	North and/or east aspects dominate, wildfire spread restricted from South and/or West 2	Mountainous terrain, broken topography, regular aspect and slope changes, multiple restrictions to wildfire spread large water bodies 5	Rolling terrain, minor water bodies, minimal aspect and slope changes, minor restrictions to wildfire spread 10 X	Continuous, consistent topography No restriction to wildfire spread 15
<b>Sub Total</b>					<b>22 /55</b>

**FUEL, WEATHER AND TOPOGRAPHY**

**WILDFIRE BEHAVIOUR THREAT SCORE**

**95 /240\*\***

Structural	A	B	C	D	E
18 Position of Structure/Community on Slope	No Structures Values within 2 km 0	Bottom of slope, valley bottom 5	Mid-slope benchland, elevated valley, <16% slope 10	Mid-slope continuous, >15% slope 12	Upper 1/3 of Slope 15
19 Type of Development	No Structures Values within 2 km 0	Perimeter Interface, no inclusions 3	Perimeter Interface, with inclusions 5	Intermix >1 structure/ha 8	Intermix <1 structure/ha Infrastructure 10
20 Position of Assessment Area Relative to Values	No Structures Values within 2 km 0	Above >500 200-500 <200 m 1 10 20	Sidehill >500 200-500 <200 m 1 12 25	Flat/Rolling >500 200-500 <200 m 1 12 25	Below >500 200-500 <200 m 1 15 30

\*Proceed only if Fuel sub total is >29.

**WILDLAND URBAN INTERFACE WILDFIRE THREAT SCORE /55**

\*\* Proceed to Structural component only if Wildfire Threat Behaviour Score is >95 for untreated polygons.

**TOTAL WILDFIRE THREAT SCORE 95 /295**

**Wildfire Behaviour Threat Class** (check applicable class)

- Low 0-40
- Moderate 41-95
- High 96-149
- Extreme >149

**Wildland Urban Interface Threat Class** (check applicable class)

- Low 0-13
- Moderate 14-26
- High 27-39
- Extreme >39

**WILDLAND URBAN INTERFACE WILDFIRE THREAT ASSESSMENT WORKSHEET**

Pre-treatment  Post-treatment

Plot #: 3, 4	Community: RDCO
Assessor: R. Swanson, RPF	Geographic Location/Street Name: 4690 Trepanier Rd.
Date: March 19, 2022	GPS/UTM:
Photos: Y X N #:	Land Ownership: <input type="checkbox"/> Crown <input checked="" type="checkbox"/> Private <input type="checkbox"/> I.R. Other (specify)

COMPONENT /Subcomponent	LEVELS				
	A	B	C	D	E
1 Duff Depth and Moisture Regime (cm)	1-<2 3 X	2-<5 Dry Zonal Wet 5 3 1	5-<10 Dry Zonal Wet 10 6 2	10-20 Dry Zonal Wet 12 8 4	>20 Dry Zonal Wet 15 10 5
2 Surface Fuels Continuity (% cover)	<20 0	20-40 2 X	41-60 3	61-80 4	>80 5
3 Vegetation Fuel Composition	Moss, Herbs, Irrigated Crops, Low Flammability Weeds 1	Herbs, Deciduous Shrubs 2	Lichen, Conifer Shrubs 3	Pinegrass, Juniper 4 X	Sagebrush, Bunchgrass, Antelope Brush, Scotch Broom 5
4 Fine Woody Debris Continuity (<=7cm) (% cover)	<1 coverage 1	Scattered, <10 coverage 5 X	10-25 coverage 7	>25 coverage, <10 cm deep 10	>25 coverage, >10 cm deep 15
5 Large Woody Debris Continuity (>7cm) (% cover)	<1 coverage 1	Scattered, <10 coverage 2	10-25 coverage 5 X	>25 coverage, not elevated 7	>25 coverage, partially elevated 10
6 Live and Dead Coniferous Crown Closure (%)	<20 2	20-40 5	41-60 10 X	61-80 15	>80 10
7 Live Deciduous Crown Closure (%)	>80 or <40% coniferous crown closure 0	61-80 2	41-60 3	20-40 4	<20 5 X
8 Live and Dead Conifer Crown Base Height (m)	5+ or <20% conifer crown closure 0	3-5 5	2-<3 7 X	1-<2 10	<1 15
9 Live and Dead Suppressed and Understorey Conifers (stems/ha)	0-500 2 X	501-1000 5	1001-2000 10	2001-4000 20	>4000 30
10 Forest Health (% of dominant and co-dominant stems)	Standing Dead and Partly Down <5 or <20 stems/ha 0 X	Standing Dead and Partly Down 5-25 5	Standing Dead and Partly Down >25-50 10	Standing Dead and Partly Down >50-75 20	Standing Dead and Partly Down >75 30
11 Continuous Forest/Slash Cover within 2km (%)	0-20 0	21-40 3	41-60 5	61-80 7	>80 10 X
<b>Sub Total</b>					<b>53 /155*</b>

Weather	A	B	C	D	E
12 Biogeoclimatic Zone	AT, Irrigated 1	CWH, CDF, MH Dry Zonal Wet 5 3 1	ICH, SBS, ESSF Dry Zonal Wet 10 7 3	IDF, MS, SBPS, CWH ds1 & ds2, BWBS, SWB - Dry Zonal Wet 15 X 10 5	PP, BG 15
13 Historical Wildfire Occurrence (by WMB Fire Zone)	G5, R1, R2, G6, V5, R9, V9, V3, R5, R8, V7 1	G3, G8, R3, R4, V6, G1, G9, V8 5	G7, C5, G4, C4, V1, C1, N6 8	K1, K5, K3, C2, C3, N5, K6, N4, K7, N2 10 X	N7, K4, K2, N1 15
<b>Sub Total</b>					<b>25/30</b>

Topography	A	B	C	D	E
14 Aspects (>15% slope)	North 0	East 5	<16% slope all aspects 10 X	West 12	South 15
15 Slope (%)	<16 1 X	16-29 and max score for North slopes 5	30-44 10	45-54 12	>55 15
16 Terrain	Flat 1 X	Rolling 3	Sloped terrain, minor low relief draws 5	Consistent slope, deep draws or shallow gullies 7	Consistent slope, deep gullies 10
17 Landscape/Topographic Limitations to Wildfire Spread	<5 ha isolated forest land 1	North and/or east aspects dominate, wildfire spread restricted from South and/or West 2	Mountainous terrain, broken topography, regular aspect and slope changes, multiple restrictions to wildfire spread large water bodies 5	Rolling terrain, minor water bodies, minimal aspect and slope changes, minor restrictions to wildfire spread 10 X	Continuous, consistent topography No restriction to wildfire spread 15
<b>Sub Total</b>					<b>22/55</b>

**FUEL, WEATHER AND TOPOGRAPHY**

**WILDFIRE BEHAVIOUR THREAT SCORE**

**100 /240\*\***

Structural	A	B	C	D	E
18 Position of Structure/Community on Slope	No Structures Values within 2 km 0	Bottom of slope, valley bottom 5 X	Mid-slope benchland, elevated valley, <16% slope 10	Mid-slope continuous, >15% slope 12	Upper 1/3 of Slope 15
19 Type of Development	No Structures Values within 2 km 0	Perimeter Interface, no inclusions 3	Perimeter Interface, with inclusions 5	Intermix >1 structure/ha 8	Intermix <1 structure/ha Infrastructure 10 X
20 Position of Assessment Area Relative to Values	No Structures Values within 2 km 0	Above >500 200-500 <200 m 1 10 20 X	Sidehill >500 200-500 <200 m 1 12 25	Flat/Rolling >500 200-500 <200 m 1 12 25	Below >500 200-500 <200 m 1 15 30

\*Proceed only if Fuel sub total is >29.

**WILDLAND URBAN INTERFACE WILDFIRE THREAT SCORE** **35 /55**

\*\* Proceed to Structural component only if Wildfire Threat Behaviour Score is >95 for untreated polygons.

**TOTAL WILDFIRE THREAT SCORE** **135 /295**

**Wildfire Behaviour Threat Class** (check applicable class)

- Low 0-40
- Moderate 41-95
- High 96-149
- Extreme >149

**Wildland Urban Interface Threat Class** (check applicable class)

- Low 0-13
- Moderate 14-26
- High 27-39
- Extreme >39



**Resume for Richard Swanson, RPF**



Richard Swanson, RPF  
754 South Crest Drive  
Kelowna, BC V1W 4W

[rswanson@uniserve.com](mailto:rswanson@uniserve.com)  
Office: 250-764-2820  
Cell: 250-718-9637

## ***EDUCATION AND PROFESSIONAL QUALIFICATIONS***

---

- B.Sc. Forestry (1978), University of British Columbia
- Registered Professional Forester (1980)
- Certified Vegetative Resource Inventory Ground Sampling Timber Cruiser (1998)
- S 215-Fire Operations in the Wildland/Urban Interface (2008)
- BC Timber Sales Emergency Management System (2009)
- Wildlife/Danger Tree Assessor, Parks/Recreation and Silviculture /Harvesting Modules (2009)
- S-100 Basic Fire and Safety Course (2012)
- Accredited Silviculture Surveyor (Reg. No. 2009011)
- Safe Company Certified #3090014

## ***FIELDS OF SPECIALIZATION***

---

- Timber Harvest Planning
- Wildland Interface Wildfire Threat Assessments
- Wildfire Hazard Mitigation Treatment Prescriptions
- Ecosystem Restoration Plans, Prescriptions and Implementation
- Ecosystem Classification
- Stand and Silviculture Surveys
- Project Supervision

## ***SUMMARY OF PAST EXPERIENCE***

---

### **Timber Harvesting, Planning and Supervision**

7 years as a TFL Forester in the interior, and an additional 27 years' experience preparing Timber Sale Licenses for the Ministry of Forests, Lands, Natural Resource Operations and Rural Development and local timber companies including:

- Preparation of Site Plans, Harvest and Silviculture Plans
- Data collection and recommendations for forest inventory, health management recommendations, silviculture strategies, ecological data collection and analysis
- Stream assessments and riparian management
- Species At Risk assessments, migratory bird assessments.

### **Wildland Interface Fire Hazard Assessments**

Conducted Wildland Urban Interface Wildfire Threat Assessments in the Regional Districts of Central Okanagan, North Okanagan, Okanagan – Similkameen (16 communities), Cities of Kelowna, Vernon, Penticton, West Kelowna, Districts of Peachland and Summerland, BC Parks (1998-2021). These assessments included:

- Mapping and describing the wildfire risk
- Making recommendations for mitigating the wildfire hazard
- Combining recommendations for habitat restoration (if required)
- Using the FireSmart guidelines (after 2004) for the development plans with regards to community bylaws and Official Community Plans.

### **Habitat Restoration Projects**

Clients have included BC Parks, the Fire Maintained Ecosystem Restoration Committee (Boundary Forest District), Penticton and Vernon Forest Districts (2001-2005) and the Regional District of Central Okanagan, including:

- An Inventory of grassland and forest habitat ecosystems
- A fire hazard risk assessment, prescribed burn plans, stand thinning prescriptions and fuel reduction plans to restore the ecosystems
- Timber harvesting to restore habitat for ungulates and endangered species.

### **Fuel Treatment Projects**

Fuel treatment prescriptions have been prepared for the Cities of Kelowna (2010-2021), Penticton (2008), District of Summerland (2007, 2017, 2021), BC Parks (Kalamalka Lake Park and the White Lake Conservation Area 2002, 2003), the Boundary Forest District (2002, 2003), West Kelowna (2019, 2021), District of Lake Country (2021) and Joe Rich (2019). The plans included prescriptions to return forest and grassland ecosystems to more natural conditions for fire-maintained ecosystems and fuel reductions to mitigate the wildfire hazard.

Fuel Treatment Project Supervision- various projects including fuel treatments for the Regional District of Central Okanagan, City of Kelowna.

## ***RECENT EMPLOYMENT HISTORY***

---

Owner, Swanson Forestry Services Ltd., Kelowna, 1998-Present  
Projects Manager, Drake Forestry Services, Kelowna, 1997-1998  
Forester, Simons, Reid, Collins, Kelowna, 1995-1997

## List of Sources

Bruce Blackwell, B. A. Blackwell and. Associates Ltd., Vancouver, B.C.

Guide to Site Identification and Interpretation for the Kamloops Forest Region, Land Management Handbook 23, February 1990, BC Ministry of Forests.

Official Community Plan Amendment Project, Wildland Fire Policy Discussion Paper, February 2006 supplied to the Thompson- Nicola Regional District by the TRUE Consulting Group, Pages 4 - 9.

The FireSmart Manual, BC Edition, 2004, Ministry of Forests, Protection Branch. The manual is available from the local fire department and is a helpful source of information to property owners.

Weatherspoon, C.P. and Skinner, C.N. 1996. Landscape-level strategies for forest fuel management. In Sierra Nevada Ecosystem Project: Final reports to Congress II Assessments and scientific basis for management options. pp. 1471-1492.

Wildland Urban Threat Assessments in BC, Wildfire Management Branch of BC Ministry of Forests, Land and Natural Resource Operations, January, 2013.