

# Lot 16 – KAP1190 – Spiller Road Environmental Assessment

**Submitted To:**

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**On**

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**Makonis Project No: 2018-106**



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## 1.0 Introduction

The following environmental document was prepared for proposed subdivision and rezoning of Lot 16-KAP1190, Spiller Road, Regional District of Okanagan-Similkameen (RDOS). Makonis Consulting Ltd was retained to complete an environmental assessment for the project area and provide strategies to guide subdivision development in a responsible environmental manner.

Based on the review of the project, the scope of the proposed subdivision development and the requirements per the RDOS, the objectives of this assessment are to:

- Review the physical, biological, and terrestrial aspects of the project area.
- Identify environmental impacts as a result of subdivision development.
- Address the South Okanagan's Regional Growth Strategy Sustainability Checklist to ensure development is consistent with policies.
- Address the Area "E" Naramata Area Zoning Bylaw to ensure development is consistent with policies
- Take into account the comments received from the RDOS regarding the project proposal
- Provide recommendations for impact mitigation, management and monitoring during development.

### 1.1 Project Description and Setting

Located along the north-eastern city limits of Penticton, the project site does not have formal access, though a proposed access will be from 1250 Spiller Road. Legal description of the subject parcel is PID-001-502-662, Plan KAP1190, District Lot 2711, Land District Similkameen Div. of Yale, Subsidy Lot 16.

Zoning for this property is currently RA, Resource Area Zone and falls under Area "E" Naramata Area Zoning Bylaw.

The proposed plan is to subdivide the parcel into eleven lots and remainder as park.

The subject property falls under the jurisdiction of the RDOS and consequently must conform to the Official Community Plan (the OCP) and provide requirements as per the development permit application process. This environmental assessment embodies the elements necessary for a Environmentally Sensitive Development Permit (ESDP).

Other regulatory frameworks which also guide the assessments and strategies within this report include, but not limited to:

1. Species at Risk Act (SARA) - Federal
2. Migratory Birds Convention Act – Federal
3. Wildlife Act – Provincial

4. Water Act – Provincial

## 2.0 Background

The following section summarizes the environmental conditions of the area, including a desktop review with respect to terrestrial and aquatic habitat and species and ecosystems at risk. Sources reviewed includes the following, but not limited to:

- Biogeoclimatic maps and orthographic photos of the subject property.
- BC Conservation Data Centre (CDC).
- Ecocat, Ecosystems Report Catalogue.
- Habitat Wizard.
- BC Soil Information Finder Tool.
- Water Licences database, Provincial database.

### 2.1 Climate

The subject area lies within the Okanagan Valley which is in the rain shadow of the Coast and Cascade Mountains and contains some of the warmest and driest areas of the province and Canada. The Okanagan is characterized as a continental climate of long warm dry growing seasons, and cool winters with moderate snowfall<sup>1</sup>.

Air moving into the area generally loses most moisture on the west facing slopes of the coastal mountains, prior to reaching the Okanagan. There are occasional eruptions of hot dry air from the Great Basin extending from Mexico to Canada, which in the summer, bring clear skies and very warm temperatures. In winter and early spring, there are frequent outbreaks of cold, dense, arctic air.

Needs MORE SPECIFIC CLIMATE DATA

### 2.2 Topography and Landscape

The area of focus is approximately 36.5ha consisting of a moderately sloped to steep landscape, generally draining towards Okanagan Lake to the west. The subject area highest elevation is approximately 900meters above sea level, located along the eastern property boundary. The property slopes towards

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<sup>1</sup> Lloyd, D, K. Angove, G. Hope and C. Thompson. 1990. *A guide to site identification and interpretation for the Kamloops Forest Region*. B.C. Min. of Forests, Victoria, B.C

Okanagan Lake to an approximate elevation of 700metres above sea level at the south-western property boundary. Many benches and small hills make up the area.

The region has been influenced heavily by numerous glaciations over time with the most recent being the Fraser Glacier. The result of this glaciation yields parent materials of the subject consisting of tills and bedrock. Soils are sandy loams and rapidly drained, and generally in their native condition<sup>2</sup>.

### **2.3 Ecosystems**

Climate, topography and surface geology influence the site hydrology, which in turn influences the biological resources on site. This ecological principle is fundamental in most Ecological Landscape Classifications. The vegetation assessment utilizes the Biogeoclimatic Ecosystem Classification (BEC) which is used extensively throughout British Columbia to report and describe terrestrial ecosystems. This ecological classification system enables biologists, foresters, resource managers, planners and the other stakeholders to use a common framework and currency for exchanging fundamental knowledge. In the BEC system, climate is the most significant determinant of ecosystems; influencing the soil characteristics, which in turn influence the climax (old growth) vegetation, its composition and structure.

The subject property is located in the North Okanagan Basin (NOB) Okanagan Very Dry Hot Interior Douglas Fir (IDFxh1) biogeoclimatic subzone variant which occurs at lower elevations, usually above the Ponderosa Pine zone, of the very dry valley areas of the Interior Plateau of British Columbia. It is a dry forest zone in the province, with a longer growing season, and common moisture deficits. The area is dominated by Douglas fir (*Pseudotsuga menziesii var glauca*) and Ponderosa Pine (*Pinus ponderosa*), with understory species consisting of birch-leave spirea (*Spiraea betulifolia*), pinegrass (*Calamagrostis rubescens*), saskatoon (*Amelanchier alnifolia*), and bluebunch wheatgrass (*Agropyron spicatum*). A very small corner of the property overlaps with the PPxh1 biogeoclimatic subzone, in the south-west corner of the property.

Terrestrial and Sensitive Ecosystem Mapping (TEM, SEI) polygons mapped at 1:20,000 scale for the area were reviewed for surficial materials, ecosystems and sensitive designation for the subject property<sup>3</sup>. The subject property extends over the conjunction of seven delineated polygons. ECP Tags: 082E053\_1741, 082E053\_1764, 082E053\_1828, 082E053\_1818, 082E053\_12813.

No direct sampling of polygons associated with the subject property had been completed for the TEM project. Following ecosystems were mapped within the polygons:

- IDFxh1 DP/01 – PdPy-Pinegrass

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<sup>2</sup> BC Soil Information Finder Tool. Soil Survey Map. Accessed May 5, 2018.

<sup>3</sup> Iverson, K., Haney, A., 2010, Refined and Updated Ecosystem Mapping for the South Okanagan and lower Similkameen Valley. Data file sok9922\_all-info\_apr2012

- IDFxh1 SP/04 – FdPy-Snowbrush-Pinegrass
- IDFxh1 PB/02 - FdPy-Bluebunch wheatgrass - Balsamroot
- IDFxh1 WB/93 – Bluebunch wheatgrass-Balsamroot
- IDFxh1 SB/02 – Selaginella-Bluebunch wheatgrass rock outcrop
- IDFxh1 DS/07 – FdPy-Snowberry-Spirea
- PPxh1 RO/00 – Rock Outcrop
- PPxh1 PT/02 – Py-Red three-awn

Sensitive Ecosystems listed for the subject area:

- GR:ss – Grasslands, steep-shallow soils
- WD:co – Wooded coniferous
- SV:ro – Sparsely vegetated rock outcrop
- MF:co – Mature forest – coniferous
- OF:co – Old forest – coniferous

There is also an Old Growth Management Area located north of subject site.

Review was also undertaken for the adjoining property to the south completed by Cascadia Biological Services in 2010 for Arco Holding Inc. The ecosystem reporting was not done to provincial standards using well established ecosystem classification and any comparison directly or indirectly is subjective to interpretation. This inventory was done using 1:20,000 TRIM, same scale as South Okanagan TEM done to provincial standards. The information and information to this assessment is scant or lacking and was difficult to draw conclusive base to review.

## **2.4 Aquatic Review**

There are no water features formally mapped by the province within the boundary of the subject

The nearest stream to the property is Strutt Creek (310-639000), approximately 360m is south of the subject property boundary. According to Habitat Wizard (accessed March 15, 2018), fish presence in Strutt Creek is unknown. Strutt Creek does drain directly into Okanagan Lake which is fish bearing.

## **2.5 Wildlife Review**

Review of the British Columbia iMAP online mapping interface has shown:

- Observation of the Great Blue Heron (*Ardea Herodias*) west of the subject site in 2009<sup>4</sup>
- Subject property is within the Ungulate Winter Range – u-8-001

## **2.6 British Columbia Conservation Data Centre**

### **2.6.1 Species and Ecological Communities at Risk**

Results of investigation indicate sixty-five vertebrate species listed for the area, six yellow, forty-one blue and eighteen red listed species<sup>5</sup>. Of these, forty-eight were listed by the Committee on the Status of Endangered Species in Canada (COSEWIC) as and thirty-eight listed by the Species at Risk Act (SARA). One of these species, the American Badger (*Taxidea taxus*) was listed as potentially occurring in the subject region.

Secure element occurrences were also listed for the subject area. After consultation with CDC, it was determined that there are occurrences near the subject site, and associated mitigation should be applied if development is to occur.

Eighty-nine plant species were listed for the area, one yellow, fifty-four blue and thirty-four red under Provincial Conservation Status. Fourteen were COSEWIC listed and 12 SARA listed. None of these species were mapped as being within the project boundary.

Blue Vervain (*Verbena hastata var. scabra*) has been identified historically in the area; element occurrence 7894, last seen in 1955.

Twenty-one ecological communities were listed for the area<sup>6</sup>, eight blue and thirteen red listed under Provincial Conservation Status. No sensitive communities were mapped by the CDC within the project boundary; however, Hard-stemmed Bulrush Deep Marsh was mapped approximately 216m to the east of the property.

#### **2.6.1 Habitats**

Critical habitat for the Lewis's Woodpecker has been identified for the areas south and west of the subject site. No other critical habitat or potential habitat was noted for the site.

According to the Okanagan Habitat Atlas (accessed March 15, 2018), the Biodiversity Conservation Strategy has delineated the subject site as having an overall moderate level of relative biodiversity. Only a small area in the north-west corner of the property was outlined as having a high level of biodiversity. With respect to habitat connectivity, the conservation strategy identified the subject area as moderate, with a small area of land in the north, and corridor travelling south, as having high connectivity value.

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<sup>4</sup> According to Wildlife Species Inventory. Habitat Wizard. April 3, 2018

<sup>5</sup> Search parameters-RDOS, Okanagan-Similkameen, Vertebrates, IDF, Yellow, Red or Blue Status,

<sup>6</sup> Area parameters included: IDFxh1, OSRD, Penticton, BC Yellow, Red and Blue List

## 2.7 Water Wells

According to BCiMap (accessed March 15, 2018), there are no water wells located on or immediately adjacent to the property. No groundwater observation points or points of well diversion were noted for the subject area.

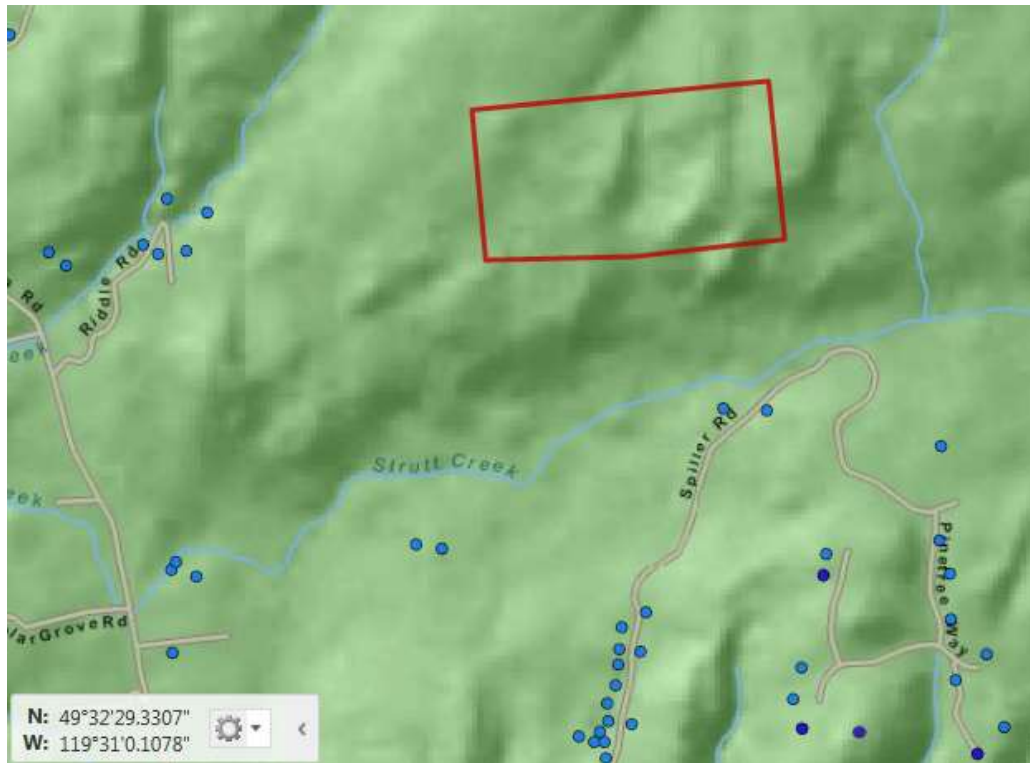


Image 1: Water wells (light blue) and groundwater points (dark blue) for the subject region.



### 3.0 Site Inventory

John Grods R.P.Bio visited the subject property and area July, 2017. Kirsten Kurjata, P.Ag. and Jamie Trottier B.Sc. of Makonis Consulting Ltd conducted site visit in spring of 2018. This included walking the proposed access from Spiller Road crossing Strutt Creek on the adjoining property to the south.

#### 3.1 Terrestrial Ecosystem

The subject area is along the boundary of the PPxh1 and IDFxh1 ecosystem variants. As such, species from each of these units were observed during the inventory (Figure 4). The refined detailed TEM mapped at 1:1000 for the property found onsite were:

Lower Subject Property

**PPxh1 PT/02 Ponderosa Pine-Red three-awn**

**PPxh1 PW/01 Ponderosa Pine -Bluebunch wheatgrass- Idaho fescue**

**PPxh1 CW/00 Choke cherry – Bluebunch wheatgrass rocky bluff**

**PPxh1 PD/00 Pond**

**PPxh1 SB/00 Selaginella – Bluebunch wheatgrass rock outcrop**

**PPxh1 Gs03 Field Sedge Wet Meadow**

Upper Subject Property

**IDFxh1 CW/00 Choke cherry – Bluebunch wheatgrass rocky bluff**

**IDFxh1 SB/00 Selaginella – Bluebunch wheatgrass rock outcrop**

**IDFxh1 SP/04 Ponderosa Pine -Snowbrush – Pinegrass**

**IDFxh1 DW/03 Ponderosa Pine -Bluebunch wheatgrass- Pinegrass**

A road network on the lower portions of the subject property is presumed to have been established sometime ago. Historical logging was evident with older stumps seen throughout the area. Leaving a younger stand of Ponderosa pine and Douglas-fir. Several older veteran trees were noted, however these were infrequent. The 1:20,000 South Okanagan Terrestrial Mapping indicating Old Growth Forest was not seen on the subject property, nor along the proposed access from Spiller Road.

Cattle grazing was also noted throughout the subject property. Grazing was significant, and weeds often associated with grazing were also seen. Diffuse Knapweed was the dominant weed seen where cattle

congregated and along roadside, as well sulphur cinquefoil, burdock, St John's wart and Canada Thistle. The open forest and grassland soils were heavily trodden by cattle where the soils-biocrusts were broken and in most cases absent. Thus allowing the cycle of weeds to continue and expand. Cattle were also seen in Strutt Creek and wetlands where the creek/waters edge and riparian vegetation were degraded by the cattle crossing, grazing and escaping the heat.

No rare or sensitive plants were noted during our site visits. The only mention towards vegetation is the dwarf-mistletoe, common in the Okanagan valley, was throughout the Douglas-fir seen on site.

### **3.2 Wildlife**

Wildlife and wildlife sign observed on the subject property.

- Elk** (*Cervus elaphus*)
- Mule deer** (*Odocoileus hemionus*)
- Coyote-scat** (*Canis latrans*)
- Northern Flicker** (*Colaptes auratus*)
- Raven** (*Corvus corax*)
- Pygmy Nuthatch** (*Sitta pygmaea*)
- Mountain Bluebird** (*Sialia currucoides*)
- American Robin** (*Turdus migratorius*)
- Black-capped Chickadee** (*Poecile atricapillus*)

#### **3.2.1 Ungulates**

Many ungulates are known to occur in the Penticton – Naramata area; Mule Deer, White-tailed Deer, Elk, Moose, Mountain Goat and Bighorn Sheep.<sup>7</sup> The subject property was identified as a general corridor for ungulates (Gyug 2005) from Penticton Creek north along the mid-slopes to Okanagan Mountain Park. A group of twelve elk were seen on the property entrance to the south, beyond Strutt Creek, below the proposed access road in the open forest.

#### **3.2.2 Birds**

Six birds were seen during the site visit. None were Red- or Blue- listed by the province.

Cavity nesting was not extensive for the subject property as most of the forest was young or in pole-sapling stages. Older veteran trees were reviewed for cavities finding none in our surveys. The historical logging appears to have reduced the cavity nesting potential for large veteran trees, standing

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<sup>7</sup> Gyug, L. 2005. Ecological Assessment of the proposed Housing Development of Naramata Benchlands. Westbank. 25pp.

snags, and heart rot trees. The area to the west of the subject property has been identified for Lewis woodpecker which may use the subject area for foraging.

No raptor nests were seen within the subject property.

### **3.2.3 Amphibians**

No amphibians were seen in the two wetted areas reviewed. Great Basin Spadefoot may occur in the area and the timing of visits coincided with known breeding in the Okanagan and no tadpoles or egg masses were seen.

### **3.2.4 Snakes**

Snake species were not observed during the inventory. There are suitable sites throughout the subject property and greater area. It is expected they will be found foraging on the property.

### **3.2.5 Other**

Other animal sign noted was coyote scat noted on the access road, and northern pocket gopher mounds in the moister soils. The site will also be expected to contain smaller rodents, such as mice and voles.

## **3.3 Sensitive Habitat**

Tied to the inventory phase of this assessment is the stratification of environmentally sensitive areas (ESA). Environmentally Sensitive Areas (ESA) is an amalgamation of wildlife habitat and vegetation community ratings identified separately within the area. A basic presence model approach can be applied using the two previous ratings to derive the final overall cumulative ratings; although considerations of adjacency and size of each setting rating was also considered on an individual basis and adjusted accordingly. In addition, because a site may receive an overall ESA rating of Low, does not mean it has no values, or even Low values, simply that, in the overall rating, the site does not rate as highly as others. Ratings are ranked from 1 to 4 in each of the groups. ESA rating of High (score 1), Moderate (score 2), Low (score 3) and Little or No Value (score 4).

The rankings for the subject property were ESA1 and ESA2. The wetlands both ranked high value and in proximity to the rock outcrops – talus provide significantly high biodiversity and wildlife usage. The surrounding forest ranked as ESA2 does provide some habitat values. The historical logging and cattle grazing has significantly degraded these communities and reduced the function and form. ie Old Growth Forest – cavity trees, increase of weeds. The rock outcrops were also ranked as ESA1.

The subject property ESA1 was 12.25ha in total, or 34% of entire subject property. The remainder as ESA2, 24ha, or 66% of total area.

Spiller Road access was noted as ESA2 for the entire length with the exception of Strutt Creek crossing that would be classed as ESA1. This proposed crossing would require further design and provincial approvals.

## 4.0 Impact Assessment

Initial plans provided for this assessment was an eleven-lot subdivision situated on the westside of subject property with park dedication on the east side. This included access road from Spiller Road and egress further to the north connecting the “Three Blind Mice” trail network and lands beyond. Once the inventory was completed we worked with the proponent to adjust the proposed plan, as seen here, to avoid impacting ESA1.

Several requirements posed by RDOS:

- Connection north from property to the ‘Three Blind Mice’ trail system as subdivision requirement to access lands beyond; and
- Emergency Egress.
- Also, road alignment in from south is planned from Spiller Road will require additional engineering design and approvals from province.

The proposed development plans as mentioned previously are the second iteration presented, figure four. Proposed Lot layout and road alignment was adjusted from the initial concept to avoid the ESA1. This plan reviewed is summarized as the following:

Proposed Plan Feature	Total Area (ha)	ESA1 Within (ha)	Buildable Area (ha)
Lot 1	1.99	0.0	1.99
Lot 2	1.99	0.0	1.99
Lot 3	2.0	0.0	2.0
Lot 4	2.0	0.0	2.0
Lot 5	2.0	1.0	1.0
Lot 6	1.97	1.0	0.97
Lot 7	2.0	0.9	1.1
Lot 8	2.0	1.1	0.9
Lot 9	2.6	0.0	2.6
Lot 10	1.99	1.0	0.9
Lot 11	2.0	1.5	0.5
Park	11.4	6.3	NA
Roads	2.3	0.01*	2.3
			18.25

\* Note – ESA1 in road alignment is in future access to lands beyond and alignment can be shifted to avoid ESA.

The proposed plans may impact up to 18.25ha, or 50% of the subject property. The remainder will be left as Park or natural areas within the several of the lots.

Lots 5-8, 10 and 11 will have the ESA1 placed into a no build covenant on title. Further Lots 5 and 6 will have additional 10-meter setback placed around each wetland feature, also placed on title. These features are non-fish bearing and thus Riparian Area Regulations will not be applicable.

## 5.0 Recommendations

Considerations and recommendations are given to the entire subject property within context of the natural features in the surrounding areas and associated Best Management Practices. Recommendations are listed below.

1. Subdivision engineering design plans are to be reviewed and considered in context of this environmental reporting – recommendations prior to construction approval.
  - a. A further assessment should take place if the access to this site is proposed to cross Strutt Creek, to ensure the creek is protected accordingly and applicable permits are sought.
    - i. Provincial authorization and local government requirements will be followed
      - Minimize the crossing footprints
      - Crossings will be engineered designed
      - Restore disturbed crossing areas to native vegetation
2. Subdivision and future development should maintain and conserve areas within the subject designated as ESA-1 values. No building or crossing should occur in these areas. A “No Disturb – No Build” covenant will be placed on title.
3. Additional setback will be placed on the wetlands – ponds on Lots 5 and 6 of 10-meters. These setbacks are also to be a “No Build – No Disturb” area placed on title.
4. ESA-1 areas should be clearly marked prior to any development.
5. Site drainage and should be addressed by a qualified professional prior to any development.
6. Removal of trees will be restricted between March 31 and July 31 for Bird Nesting. Clearing of trees within this window will require review and approval by the environmental monitor. Any nests observed as part of this review will need to be monitored to ensure the species occupying is not a nest-re-user.
7. During development spill - containment kits will be on site and on each equipment – machine.
8. Equipment moving onto site is expected to:
  - a. be free of weeds and cleaned (pressure washed)

- b. be leak-free and in good working condition
  - c. have a spill – containment kit present.
9. Any exposed soils for prolonged periods or for overwintering, shall be covered. Covering may include tarping, or hydromulch (without seed mixture) and must be maintained.
10. Road cuts and fills will require restoration to native site conditions. Plans will be required once the final engineer plans are finalized to design restoration accordingly. The exception to this will be rock cuts are to be left as is.
11. Subdivision – Spiller access construction should be monitored in accordance to this report and subsequent upcoming future reports and approvals.

## 6.0 Figures



Figure 1: Location of subdivision plan Naramata - Penticton in Regional District of Okanagan Similkameen.

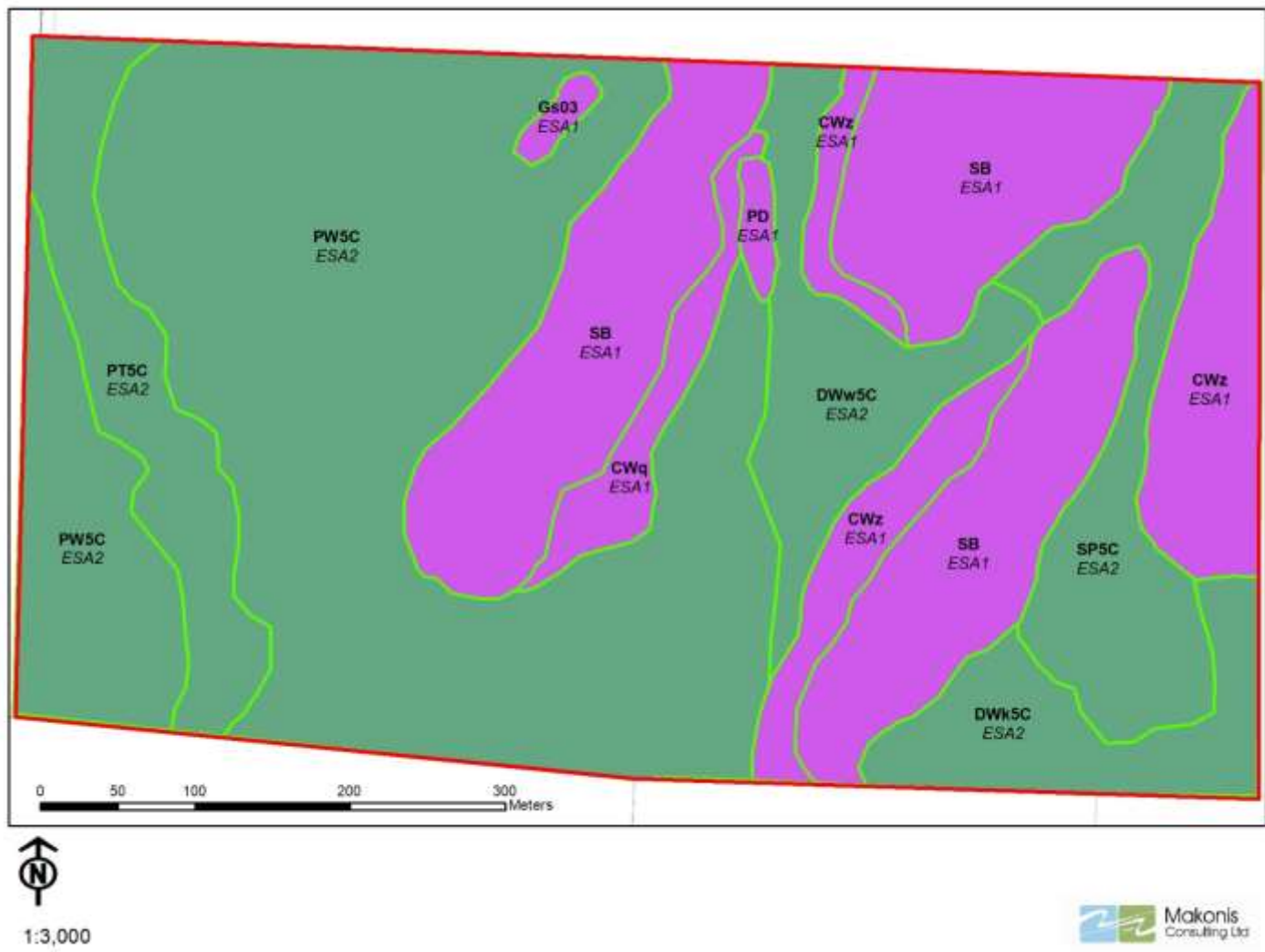


Figure 2: Ecosystems and ESA rankings for the subject property.



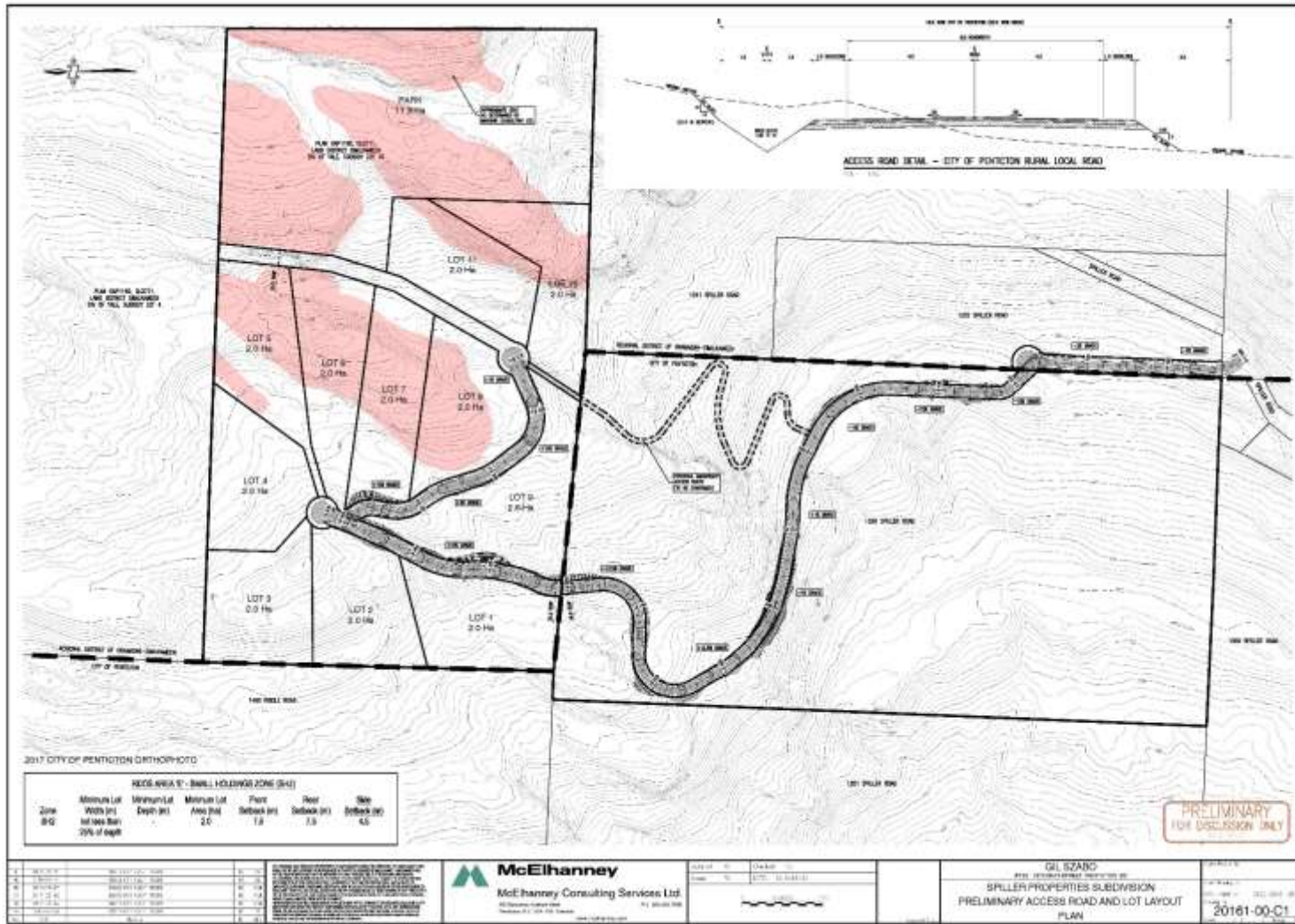


Figure 3: Proposed Subdivision and Access plans for the subject property.

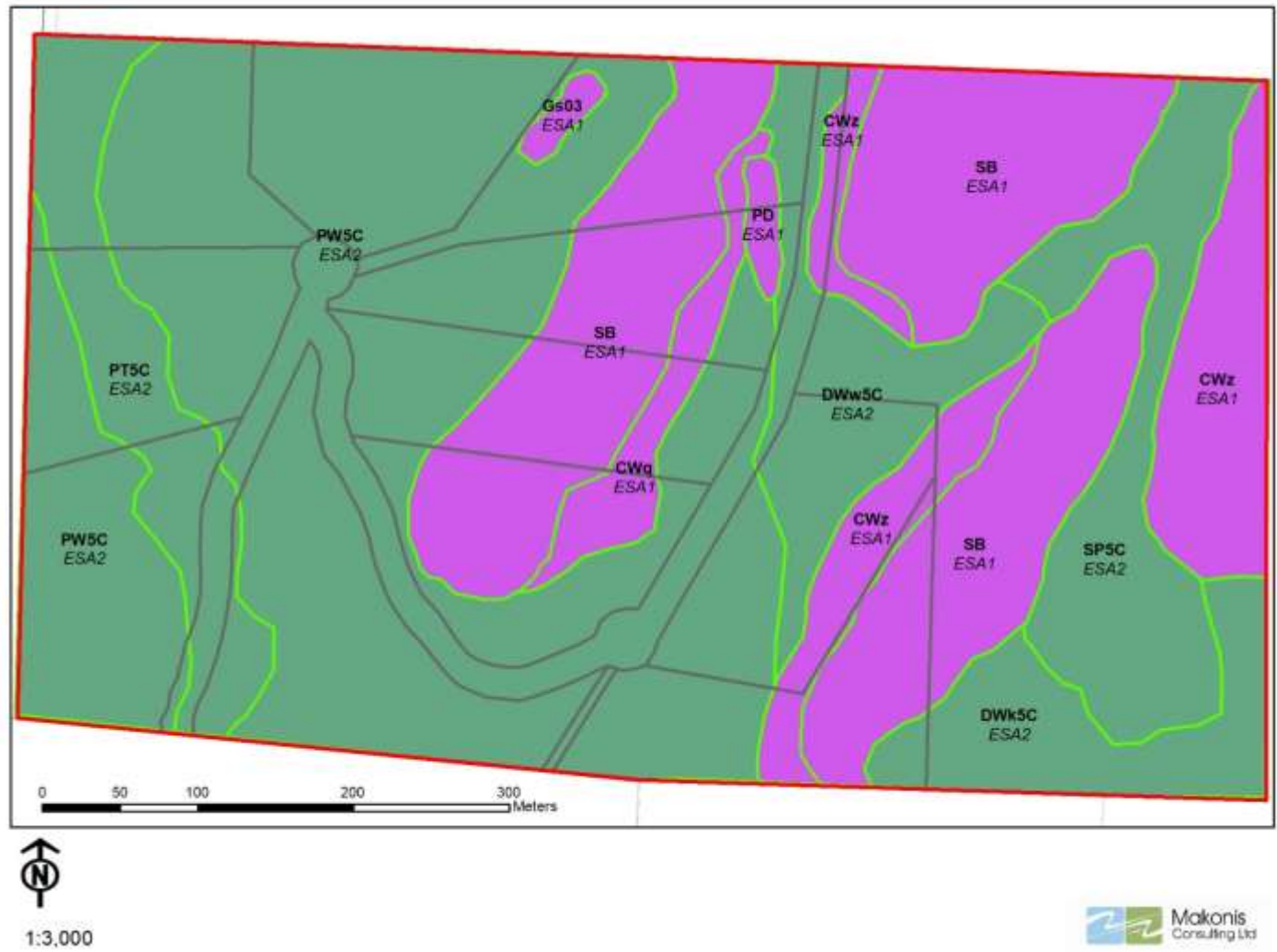


Figure 4: Proposed Subdivision Plans and Ecosystem-ESA for the subject property.

## 7.0 Photos



**Photo 1: Looking west downstream at Strutt Creek. This picture is below the proposed access route as shown on proposal.**



**Photo 2: Looking north at existing access road entering the proposed subject property. Note the tills seen with road cut and spoil sluffing onto road.**



**Photo 3: Looking north-east approximately on Lot 1 at a young stand of pine. This was common throughout most of the subject property as a result of historic logging.**



Photo 4: looking north near Lots 4,5 and 6 in approximate location of road alignment.



**Photo 5: Wetland on Lot 5.**



**Photo 6: Pond located on top ends of Lots 5 and 6.**





**Photo 7: Rock outcrop, ESA1, located on Lot 6 and 7.**



**Photo 8: Forested area on Lot 3, ESA2.**



Photo 9: View of Okanagan Lake from rock outcropping in Park towards Summerland.

## 8.0 Conclusion

This report incorporates and is subject to best management practices. If you have any questions or comments, please contact the undersigned at your convenience.

Respectfully Submitted,

John Grods, R.P. Bio

**Makonis Consulting Ltd.**

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