Appendix D: Environmental Review, prepared by Steve Toth, ASct, R.P. Bio., December 20, 2023

Environmental Review of PID # 024-486-914, 009-594-183, 009-594-159 & 023-414-308, Shirley, B.C.

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1.0 INTRODUCTION

Toth and Associates Environmental Services were retained by Funky Forest Inc. to conduct an environmental review for a proposed rezoning / Official Community Plan (OCP) amendment of 4 parcels (the subject properties) consisting of approximately 171 ha / 422 acres of forest lands in Shirley, BC.

The subject properties are within the Juan de Fuca Electoral Area of the Capital Regional District (CRD) and lie within the Shirley – Jordan River OCP area. The subject properties have development permit areas (DPAs) designated on them for Riparian, Sensitive Ecosystems and Steep Slope DPAs and are within a Development Approval Information Area. The western 3 properties are zoned AF (Forestry), while the northeast property is zoned RL (Rural Resource).

A field survey of the subject properties was conducted on October 26, 2023 by Steve Toth, AScT, R.P.Bio.

1.1 Proposed Development

The proposed development includes a rezoning / OCP Bylaw amendment application to a new Wilderness Campground (WC) zone to allow for low density campsites and two house sites. It is our understanding that the new WC zone would permit one camping space per 8.5 ha with a 20 m separation distance between each site, as well as continued silviculture, residential, and home-based business uses.

2.0 METHODS

Review methods included consideration of the requirements of the Juan de Fuca Development Approval Information Bylaw (No. 3, 2019), the Shirley – Jordan River OCP (Bylaw No. 4001, 2018), methods and guidelines outlined the Environmental Objectives, Best Management Practices and Requirements for Land Developments (MELP 2001), and Develop With Care, 2014 - Environmental Best Management Practices for Urban and Rural Land Development in British Columbia. Forest values were described and defined within the context of the biogeoclimatic ecosystem classification system (BEC) using methodologies for classification to the site series level described in Land Management Handbook No. 28 (MOF 1994). Ecosystem descriptions were based on those outlined in the Field Manual for Describing Terrestrial Ecosystems (MELP, MOF, 1998).

Habitat values were assessed throughout the property. Physiographic feature descriptions included estimates of slope gradient, aspect, slope position, slope shape, micro-topography and exposure.

Species of vascular plants and byrophytes occurring on the property were recorded and cover classes based on visual estimates were assigned to each species. Total cover for each stratum, as described in Land Management Handbook No. 25 (MOF 1998), were recorded (A - Trees; B - Shrubs; C - Herbs; D - Mosses/Seedlings).

Additional features assessed included: wind damage, evidence of fire and historic logging, susceptibility to fire/wind damage, geologic features, surface water features and drainage patterns.

Forest community composition and structure was qualitatively assessed to determine the suitability in providing habitat features of value to known or potential wildlife species.

2.1 Background Information Review

Maps and air photos of the subject properties were obtained from the Capital Regional District's (CRD's) Regional Map (https://maps.crd.bc.ca/Html5Viewer/?viewer=public), the Shirley – Jordan River OCP (Bylaw No. 4001, 2018) Google Earth©, the BC IMAP website (https://maps.gov.bc.ca/ess/hm/imap4m/) and the LIDAR BC website[1].

The B.C. Conservation Data Centre's (CDC) map site[2] was reviewed for documented occurrences of rare species in the area of the subject property. The B.C. Species and Ecosystems Explorer database (https://a100.gov.bc.ca/pub/eswp/search.do) was searched for red (endangered) and blue listed (special concern) species with potential to occur on the property. The search was restricted to a specified area of interest centered on the subject properties measuring approximately 40 km^2.

The CRD's website (https://www.crd.bc.ca/) was visited to review the Shirley – Jordan River OCP and Juan de Fuca Development Approval Information Bylaw, as well as to determine zoning, DPAs, air photos and topographic mapping. The Community Mapping Network's website (https://cmnbc.ca/) was visited to determine if any Sensitive Ecosystems or documented wildlife trees occur within or nearby the subject properties. The BC Habitat Wizard (https://maps.gov.bc.ca/ess/hm/habwiz/) site was reviewed for watercourse information.

4.0 RESULTS

DPAs are designated on the property and include Sensitive Ecosystems, Steep Slopes and Riparian Areas (Figure 1). It is our understanding that the Sensitive Ecosystems were identified by the Sensitive Ecosystem Inventory (SEI) for the Shirley/Jordan River Electoral Area in 2014 (Madrone Environmental Services Ltd., September 2014) and included Mature Forests and Riparian Areas.

Existing mapped watercourse locations were refined based on DEM Hillshade mapping and additional watercourses were added where the Hillshade mapping indicated the presence of drainages.

4.1 Background Information Review

4.1.1 Sensitive Ecosystems

Sensitive Ecosystem DPA polygons were digitized from Schedule E of the Shirley-Jordan River OCP and from the CRD's Regional Map onto Google Earth. The Sensitive Ecosystem DPA polygons identified by Madrone are associated with Mature Forests and cover approximately 55.55 ha (32.5%) of the subject properties.

[1] https://governmentofbc.maps.arcgis.com/apps/MapSeries/index.html?appid=d06b37979b0c4709b7fcf2a1ed458e03

[2] https://maps.gov.bc.ca/ess/hm/cdc/.

Mature Forest is defined in Madrone's SEI report as 80 – 250 years of age. Our comparison of the Mature Forest polygons mapped by Madrone in 2014 and Mature Forest areas shown on more recent air photo imagery indicates that the vast majority of the Mature Forest polygons mapped by Madrone were logged in 2015 (Figure 2).

The Vegetated Land Cover layer on BC IMAP did not provide forest cover age information for the subject properties; therefore we have mapped the approximate forest cover age / logging history for the subject properties based largely on air photo interpretation (Figure 3).

4.1.2 Riparian Areas

Riparian DPA polygons were digitized from Schedule D of the Shirley-Jordan River OCP and from the CRD's Regional Map onto Google Earth. Riparian DPA polygons are primarily associated with Jacob Creek and the headwaters of Swallow Creek and cover approximately 21.89 ha (12.8%) of the subject properties (Figure 4).

The Riparian DPA includes all lands entirely or partially within a riparian assessment area as defined by the provincial *Riparian Areas Protection Regulation* (RAPR). Therefore it is our interpretation that if a watercourse does not have a riparian assessment area as defined by the RAPR, the Riparian DPA would not apply to it.

The RAPR applies to any freshwater watercourse that either provides, or flows to freshwater fish habitat. If a watercourse does not sustain fish populations or flow to downstream freshwater fish habitat the RAPR does not apply to the watercourse, and therefore there would not be a "riparian assessment area" associated with the watercourse.

Under the RAPR the riparian assessment area consists of a 30 m strip on each side of a stream, as measured from the stream boundary (high water mark). If a stream is in a ravine, the riparian assessment area for the stream consists of the following areas, as applicable:

a) if the ravine is less than 60 m wide, a strip on each side of the stream that is measured from the stream boundary to a point that is 30 m beyond the top of the ravine bank;
b) if the ravine is 60 or more metres wide, a strip on each side of the stream that is measured from the stream boundary to a point that is 10 m beyond the top of the ravine bank.

In the Riparian DPA, no development permit will be required for the following:

a) Development where a QEP submits a report or provides certification acceptable to the CRD that the proposed development is located outside a riparian assessment area and the Riparian DPA. In the case of a subdivision, the entire plan of subdivision must be outside a riparian assessment area and the Riparian DPA.
b) External alterations, including adding an additional storey, that are entirely within the existing building footprint, provided that established driveways are used and there is no clearing of land.
c) Gardening and yard maintenance activities, such as lawn mowing, pruning and minor soil disturbances that do not alter the general contours of the land, within an existing landscaped area.
d) Removal of trees that threaten the immediate safety of life and buildings, provided that such trees are deemed hazardous by a QEP.
e) Removal of non-native, invasive species subject to the prior provision and acceptance by the CRD of report by a QEP.

f) Watercourses that have been determined to be non-fish bearing by a QEP.
g) Public trails may be developed in the Riparian DPA, but not within a SPEA.
h) Public trails may only be developed in the Riparian DPA if a QEP has determined that the trail will not have a detrimental impact on the riparian assessment area, including the SPEA.

In addition to these exemptions, we have been instructed by the provincial RAPR Coordinator that submission of a RAPR report for proposed rezoning applications is not required, as rezoning is not considered "development" under the RAPR. Submission of a RAPR report to the province would be required for future campsite development if any of the development activities are located within a "riparian assessment area".

4.1.3 Steep Slopes

The Steep Slope DPA includes all those areas having slopes exceeding 30% or 16.7 degrees over a minimum 10 metre run. Steep Slope DPA polygons were digitized from Schedule C of the Shirley-Jordan River OCP and from the CRD's Regional Map onto Google Earth. Steep Slope DPA polygons cover approximately 58.65 ha (34.3%) of the subject properties (Figure 5).

A comparison of steep slope areas indicated by the DEM Hillshade mapping and mapped Steep Slope DPA polygons suggested that this DPA may be over-mapped in some areas of the subject properties and under-mapped in some areas as well.

In the Steep Slope DPA, no development permit will be required for the following:
a) External alterations, including adding a second storey, that are entirely within the building footprint.
b) The proposed development is located outside the Steep Slope DPA, as verified by a QP report or other certification demonstrating to the CRD that the proposed development is not located on land with slopes exceeding 30% or having a slope greater than 16.7 degrees over a minimum 10 metre run.
c) Recognizing that the Building Inspector has the necessary authority to require a geotechnical report to ensure land is safe for the intended use, a development permit is not required for a building constructed under a valid building permit in the Steep Slope DPA provided that no other part of the land in the Steep Slope DPA will be altered for other purposes, such as the construction of driveways or septic systems.
d) Pruning of trees that does not adversely affect the health of the tree.
e) Removal of hazardous trees that threaten the immediate safety of life and buildings.
f) Removal of trees by hand-held tools providing the tree root ball remains intact and in situ with no soil disturbance.

4.1.4 Rare Species and Ecological Communities

The subject properties are within the western variant of the Coastal Western Hemlock very dry maritime (CWHxm2) biogeoclimatic zone.

The BC Conservation Data Centre's (CDC) mapping site indicated that there are no known rare species or ecological community occurrences on, or adjacent to the subject property. Rare species previously documented in the general area include Wandering salamander (*Aneides vagrans*),

Vancouver Island ermine (*Mustela richardsonii anguinae*) and Northern red-legged frog (*Rana aurora*) near the mouth of Jordan River, Dwarf maiden-hair fern (*Adiantum aleuticum var. subpumilum*) at Fossil Bay, Seaside bone (*Hypogymnia heterophylla*) at Sheringham Point, Keeled jumping slug (*Hemphillia burringtoni*) and Vancouver Island ermine near the mouth of Muir Creek.

There were no raptor or heron nest sites documented on or adjacent to the property by the BC Wildlife Tree Stewardship Atlas[3] or Great Blue Heron Management Team Atlas[4].

The search of the B.C. Ecosystem Explorer site for potential red and blue-listed species within the area identified 167 animal species, 79 plant species, and 48 ecological communities. Although the search area was restricted to a 40 km^2 centered on the subject properties, the search returned numerous species that are not known from the area or even Vancouver Island.

The list of rare animal species was refined by excluding those species known not to occur on the property based on known limits of distribution or specific habitat requirements that do not exist on the property. Those species not wholly dependent upon some of the characteristics provided by the subject property for critical life functions (e.g. foraging, breeding or shelter) were also excluded. The refined list included 13 species with realistic potential to occur in the general area of the subject properties.

Table 1. List of potential rare animal species

Scientific Name	English Name	BC List	Potential
Accipiter gentilis laingi	Northern Goshawk, *laingi* subspecies	Red	Low. It prefers to breed in larger, intact patches of mature forest rather than small isolated stands.
Anaxyrus boreas	Western Toad	Yellow	Very Low. There are no suitable wetland breeding habitats on the subject properties.
Aneides vagrans	Wandering Salamander	Blue	High. Wandering salamanders are widespread in low numbers throughout low – mid elevation forests on southern Vancouver Island.
Cervus elaphus roosevelti	Roosevelt Elk	Blue	Documented on the properties.
Chordeiles minor	Common Nighthawk	Blue	Moderate. Utilizes open rock outcrop habitats for nesting.
Glaucidium gnoma swarthi	Northern Pygmy-Owl, *swarthi* subspecies	Blue	Moderate. We encounter this species fairly frequently in middle elevation forests on southern Vancouver Island.
Hemphillia burringtoni	Keeled Jumping-slug	Red	Moderate. Where suitable moist conditions are present, this slug can occupy young seral stages but is more often found in stands at least 60 years old. Often associated with riparian areas.
Hemphillia dromedarius	Dromedary Jumping-slug	Red	Moderate. Similar conditions as Keeled Jumping-slug.
Lasiurus cinereus	Hoary Bat	Blue	Moderate. Widespread in low numbers. Roosts singly in trees.
Megascops kennicottii kennicottii	Western Screech-Owl, *kennicottii* subspecies	Blue	Low. Significant decline in population since 2000, primarily due to recent westward spread of Barred-owls.
Mustela richardsonii anguinae	Ermine, *anguinae* subspecies	Blue	Low. Widespread in low numbers. Often associated with grass / sedge open areas and edges such as fens and meadows.
Myotis lucifugus	Little Brown Myotis	Blue	Moderate. Widespread and still fairly common.
Myotis yumanensis	Yuma Myotis	Blue	Moderate. Widespread and still fairly common.
Oncorhynchus clarkii clarkii	Cutthroat Trout, *clarkii* subspecies	Blue	May be present in lower Jacob Creek.

[3] https://cmnbc.ca/atlasgallery/wildlife-tree-stewardship/

[4] https://cmnbc.ca/atlasgallery/great-blue-heron-gbhe-management-team/

Scientific Name	English Name	BC List	Potential
Patagioenas fasciata	Band-tailed Pigeon	Blue	Moderate. This species has drastically declined throughout southwestern BC. It is still present in low numbers during the breeding season and has a high dependence on the annual use of mineral sites. Pigeons are terrible nest builders and we have found only two band-tailed pigeon nests in 30 years. We would postulate that this species is likely an old growth dependent species that was reliant upon large diameter moss covered limbs and / or mistletoe for nesting platforms.
Rana aurora	Northern Red-legged Frog	Blue	High. Despite its listed status, we still frequently encounter red-legged frogs in moist forest habitats and riparian corridors throughout Vancouver Island. Currently the greatest threats to this species include the invasive American bullfrog, land development, emerging diseases such as Chytridiomycosis, logging and climate change (summer droughts; premature drying of ephemeral breeding sites).
Sorex navigator brooksi	Western Water Shrew, *brooksi* subspecies	Blue	Very Low. Our targeted surveys for this species over the past 30 years have indicated that it requires streams with relatively stable banks and year-round flows.

The list of plant species was refined to exclude those species with known limits of distribution or habitat requirements not found within the study area. The refined list included 3 potential rare plant species.

Table 2. List of potential rare plant species

Scientific Name	English Name	BC List	Potential
Allium amplectens	slimleaf onion	Blue	Very Low. Not generally known from the west coast but has been documented at Otter Point and Sooke River. Occurs on vernally moist rocky bluffs and meadows in the lowland zone.
Githopsis specularioides	common bluecup	Blue	Very Low. Not generally known from the west coast but has been documented at Sooke River and Bluff Mountain.
Prosartes smithii	Smith's fairybells	Blue	Very Low. Not generally known from the area. Nearest occurrence is Loss Creek. Usually associated with stream floodplains.

All of the terrestrial ecological communities within the CWHxm2 are listed by the province as red or blue listed when in Mature (>80 years) or Old-growth states (>250 years). The list of potential ecological communities was refined to include only those communities that would have realistic potential to develop on the property if the property were to remain undisturbed (i.e. climax communities). There are currently no known rare ecological communities on the subject properties.

Table 3. List of potential rare ecological communities

Scientific Name	English Name	Biogeoclimatic Units	BC List	Potential
Pseudotsuga menziesii - Pinus contorta / Cladina spp.	Douglas-fir - lodgepole pine / reindeer lichens	CWHxm2/02	Red	Very Low. Potential restricted to dry rock outcrops. Shore (lodgepole) pine not prevalent on the properties.
Pseudotsuga menziesii / Polystichum munitum	Douglas-fir / sword fern	CWHxm2/04	Red	Very Low. This ecological community occurs on dry nutrient-rich sites with significant slopes (35-70%) that have deep, medium-textured soils.
Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon Dry Maritime	Douglas-fir - western hemlock / salal Dry Maritime	CWHxm2/03	Red	Very Low. This ecological community occurs on dry sites that are often on steep upper slopes with warm aspects. Soils are shallow or coarse over bedrock.

Thuja plicata / Polystichum munitum Very Dry Maritime	western redcedar / sword fern Very Dry Maritime	CWHxm2/05	Red	Very Low. Generally not known from west coast VI.
Thuja plicata / Rubus spectabilis	western redcedar / salmonberry	CWHxm2/13	Red	Very Low. Generally not known from west coast VI.
Tsuga heterophylla - Thuja plicata / Struthiopteris spicant	western hemlock - western redcedar / deer fern	CWHxm2/06	Red	Low. Potential would be restricted to cool aspects.

4.2 Field Assessment

Habitat values and forest cover were documented throughout the subject properties during the field survey. Features were geo-referenced using a Garmin Map60CSx handheld Global Positioning System (GPS).

4.2.1 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) include the relatively small areas of remaining Mature Forests (80 – 250 years) on the subject properties as well as riparian areas. While not included in the ESA mapping, moss dominated rock outcrops in our opinion also represent ESAs. The vast majority of rare plant species found on southern Vancouver Island are associated with terrestrial herbaceous rock outcrops and rock outcrops provide important habitat for several bird and bat species. Rock outcrops are largely included within the mapped Mature Forest and Steep Slope DPA polygons.

The Mature Forest ESAs mapped by Madrone on the subject properties in 2014 measured approximately 55.55 ha. Our measurements indicate that the remaining Mature Forest areas on the subject properties measure approximately 26.2 ha, including some areas we have mapped that were not previously mapped as Mature Forest by Madrone.

4.2.2 Rare Species

The late fall timing of the field survey precluded the assessment of use by migratory birds, herptiles and the identification of most annual / perennial flowering herbaceous plants. Evidence of use of a small area on the properties by blue-listed Roosevelt elk indicated the past presence of either a solitary bull or a very small herd of elk.

4.2.3 Forest Cover

Forest cover on the subject properties consists largely of 8 – 19 year old stands with approximately 64.8% of the property logged since 2004. Approximately 19% of the property was harvested in 2005 and 39% of the property was harvested in 2015.

Areas logged in 2015 consist of open, shrub stage regenerating forest with fairly dense shrub and herb layer development (Photographs 1 – 3). Areas logged in 2004 / 2005 consist of dense early Pole-Sapling stage stands with closed canopies and relatively little understorey development (Photograph 4).

Older stands of forest cover on the property are largely limited to steep / inaccessible areas associated with the Jacob Creek ravine / canyon and rock outcrops. Most of these stands have fairly high incidents of tree failure along their borders from windthrow and exposure.

4.3 Wildlife Habitat Values and Wildlife Species

4.3.1 Bird use

Bird numbers and species noted on the subject property were low and largely limited to resident species typical of the area including dark-eyed junco, spotted towhee, chestnut-backed chickadee, American robin, Anna's hummingbird, common raven, Bewick's wren and winter wren. Evidence of use included ruffed grouse scratchings, sooty grouse droppings, red-breasted sapsucker, downy woodpecker and northern flicker foraging holes.

No raptor or heron nest sites were observed on the property. One merlin was observed.

4.3.2 Mammals

Evidence of use of the property by black-tail deer indicated a surprisingly low level of use considering the location, habitat and that this private property is gated. While many people may think that deer numbers are high on Vancouver Island due to the presence of high numbers within urban / sub-urban areas, the deer population is actually at an all time historic low. Deer numbers are down from over 250,000 animals in the 1980's to approximately 55,000 in 2019. The current numbers are likely much lower due to the rapid spread of Adenovirus Hemorrhagic Disease (AHD) over most of southern Vancouver Island and the gulf islands since 2019.

Evidence of use by black bear indicated typical levels of use with no particularly high use areas noted. Red squirrels were observed and eastern cottontail pellets were noted. One probable pine marten scat was found. No evidence of cougar or wolf was found.

The documentation of the use of a small area of the subject properties by Roosevelt elk indicated a single bull or possibly a very small herd of elk had been present in the area during the rutting season over the past two years based on rubs and sign.

4.3.3 Herptiles

No reptiles or amphibians were observed during the field surveys. Pacific tree-frogs were heard.

4.3.4 Habitat Values

The subject properties contain all of the habitat requisites to support most wildlife species expected to occur in the area. Possible limitations to use by some species include a lack of wetlands, the extensive areas of forest cover < 20 years of age and relative lack of large areas of Mature Forest.

Overall, we would rate the habitat suitability values on the subject properties as moderately high for species such as black bear, Roosevelt elk and black tail deer.

Figure 1. DEM Hillshade overlaid on the subject properties with DPA polygons.

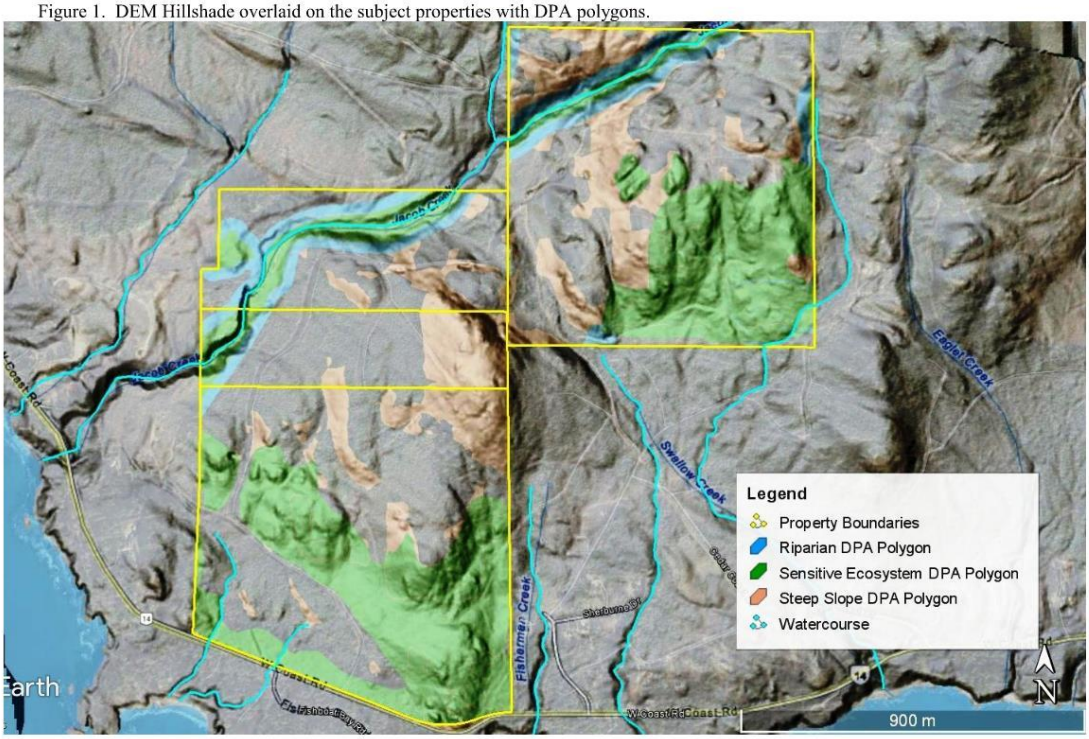


Figure 2. May 2021 air photo with 2014 Mature Forest DPA polygons and remaining Mature Forest polygons

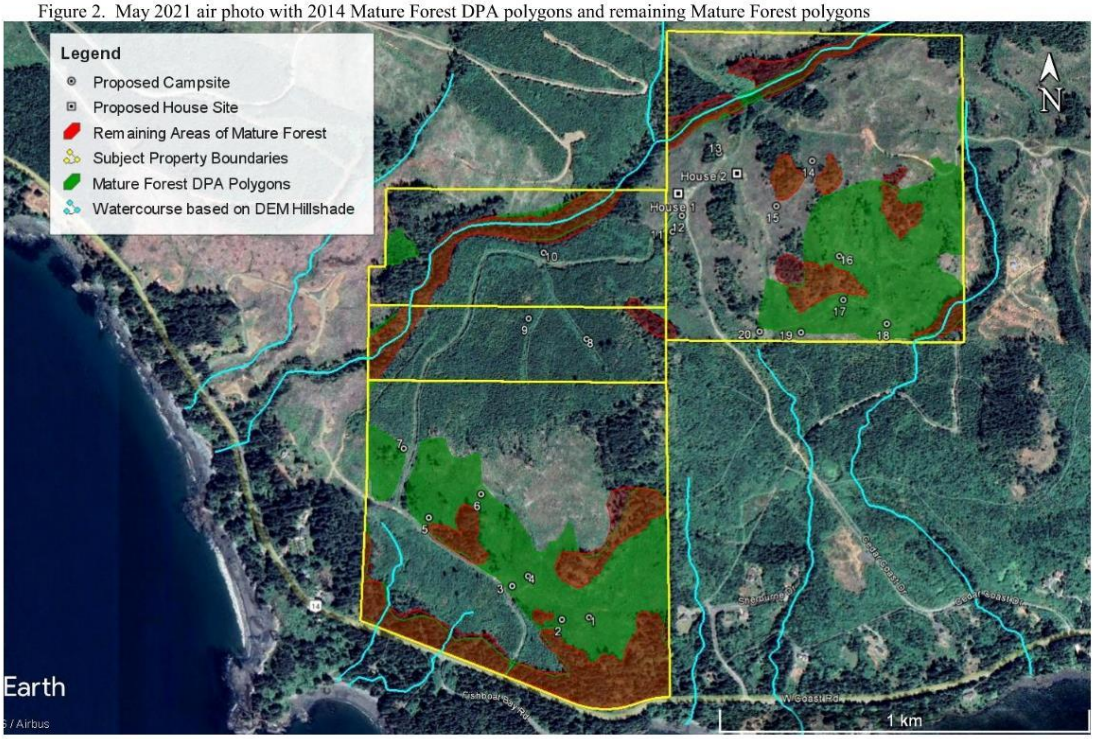


Figure 3. January 2023 air photo with forest cover polygons

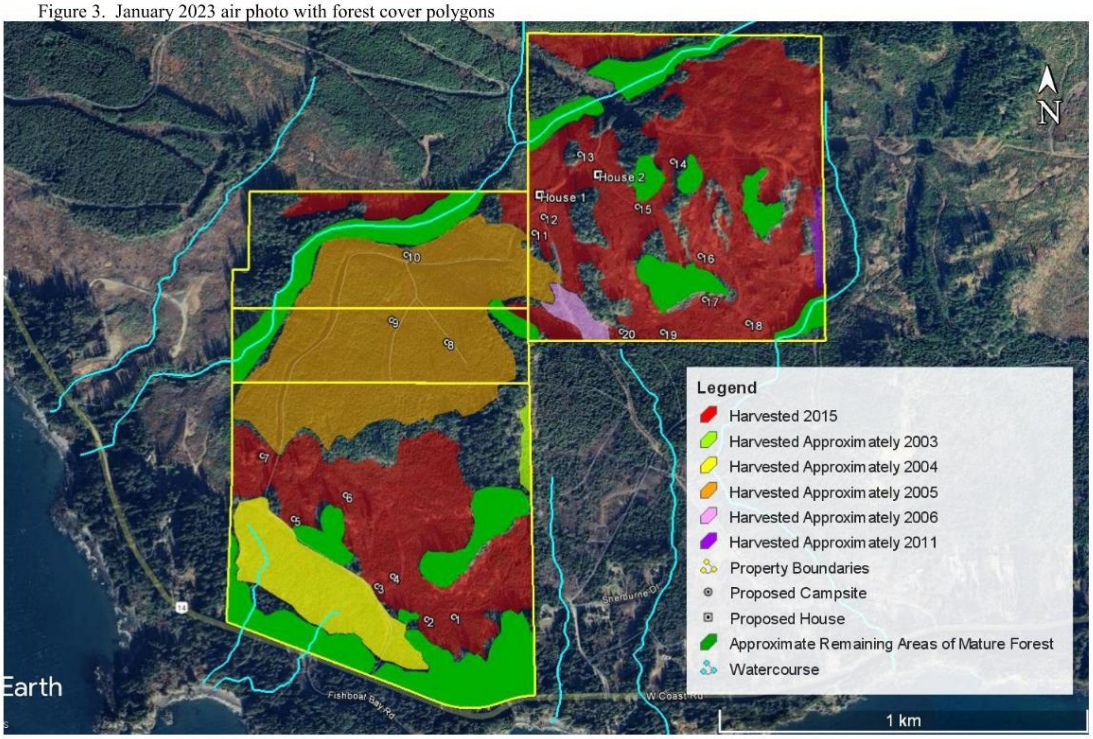


Figure 4. July 2016 air photo showing post-2015 logged areas and Riparian DPA polygons

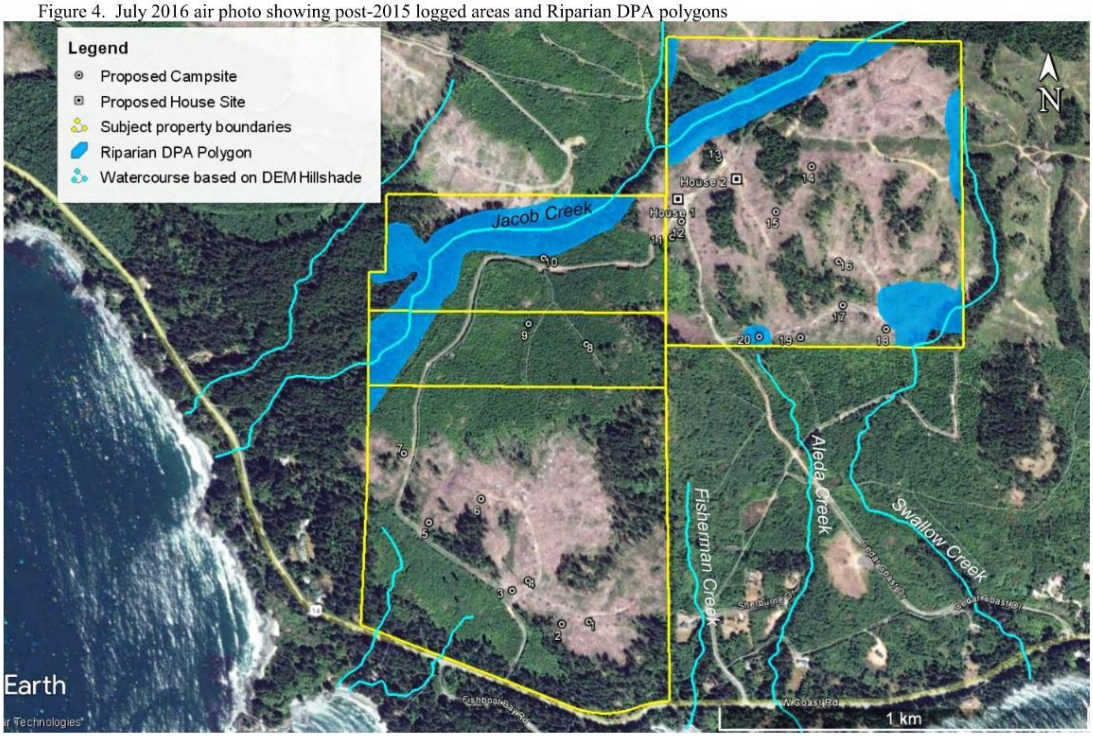
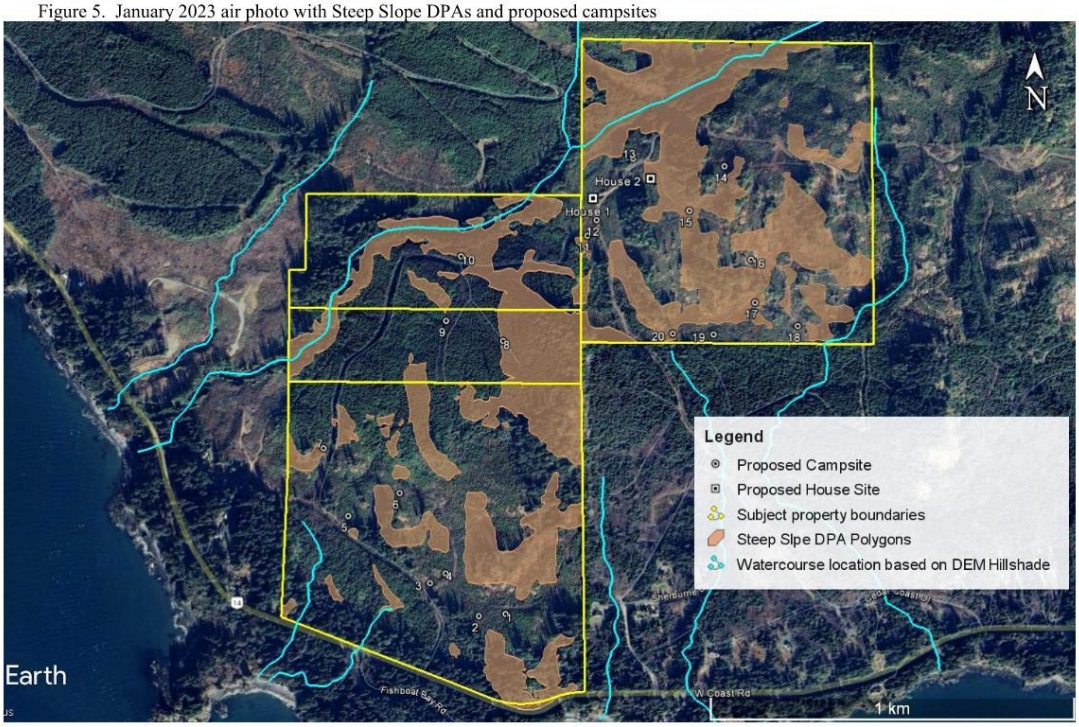


Figure 5. January 2023 air photo with Steep Slope DPAs and proposed campsites



4.4 Watercourses

The main watercourse on the subject property is Jacob Creek (Photographs 5 - 7) which is located in a deep ravine / canyon along the north side of the subject properties. Practically no information was found from our search of provincial websites, other than that it is fish bearing. Jacob Creek through the properties consists an 8 – 15% grade, cascade pool morphology with a channel width of 10 – 13 m.

There are a number of other small seasonal drainages / watercourses on the properties, none of which are of significant size. These watercourses include the headwaters of Aleda and Swallow Creeks. No information regarding fish populations was available for these watercourses from the BC Habitat Wizard site.

4.5 Watercourse Setbacks

Under the provincial *Riparian Areas Protection Regulation's* Simple Assessment Method Jacob Creek would require Streamside Protection and Enhancement Area (SPEA) setbacks of 10 m from top of ravine bank. The approximate top of ravine bank was mapped based on the DEM Hillshade imagery (Figure 6). All of the other drainages on the subject properties would require 10 m SPEA setbacks from high water mark under the RAPR's Detailed Assessment Method, *if the RAPR applies to these drainages* – which is yet to be determined. For planning purposes we have applied 10 m setbacks to all of the other drainages.

5.0 DISCUSSION & RECOMMENDATIONS

The proponent's intent is to utilize existing disturbed areas such as old rock quarries, spur roads / skidder trails and logging landings wherever possible in order to reduce the new footprint impacts associated with the proposed campsites. In many ways this a very laudable objective; however we feel that this approach must be tempered with providing a reasonable, safe campsite footprint and in most cases this should include some level of tree removal / vegetation modification.

The tree density in most of the areas logged prior to 2015 on the property is excessively high and thinning / spacing of trees in the vicinity of the campsites would actually be beneficial to long term forest development and biodiversity.

The BC FireSmart Manual[5] recommends that a minimum 1.5 metre non-combustible surface should extend around dwellings and any attachments, such as decks. Examples of non-combustible landscaping include primarily decomposed granite, gravel and rocks, pavers and brick.

The Manual indicates that between 1.5 m and 10 m from a dwelling (i.e. Zone 1) should be a fire-resistant zone, free of all materials that could easily ignite from a wildfire and recommends planting / retaining only low-density, fire-resistant plants and shrubs, as well as avoiding having any woody debris present, including mulch. Coniferous trees with cones and needles are highly flammable and should not be within 10 m of a dwelling.

[5] https://firesmartbc.ca/wp-content/uploads/2019/01/FireSmart-Homeowners-Manual.pdf

For Zone 2 (10 – 30 m from a dwelling) the Manual recommends thinning and pruning evergreen trees to reduce fire hazard in this zone. Regular clean up of accumulations of fallen branches, dry grass and needles from the ground should be conducted to eliminate potential surface fuels. There should be a minimum of 3 m *between the outermost branches of trees* (not 3 m tree spacing). Remove smaller coniferous trees and resinous shrubs that could act as a "ladder" and allow fire to move into the treetops.

Assuming a footprint of 30 m radius for each campsite based on the BC FireSmart Manual's recommendations for vegetation management provides a total area for 20 campsites and 2 house sites of approximately 6.22 ha, or roughly 3.6% of the entire land base of the subject properties. This is the footprint associated with maintaining a fire safe area at each campsite / house location and the actual development footprint associated with structures would be much lower.

The primary predicted / expected impact of the proposed development of campsites on the subject properties is associated with increased human use. It has been our experience that most wildlife species can become accustomed to persistent, low levels of human disturbance particularly when wildlife is not being harassed or hunted. However, species such as black bear, blacktail deer and Roosevelt elk do not seem to be very tolerant of dogs and therefore we recommend that the campsite rules include a requirement for any dogs to be leashed.

Ancillary use associated with campsites often includes walking / biking trails. While we encourage these activities, trail locations need to be sited carefully to avoid disturbance of sensitive sites such as moss / herb dominated rock outcrop areas and wet seepage sites, steep slopes or watercourses.

5.1 Assessment of Proposed Campsites

We have reviewed the proposed campsite locations in relation to the Steep Slope, Riparian and remaining Mature Forest DPAs and provide the following comments and alternate campsite locations (Figure 6) for discussion purposes.

- Campsites 1 & 2 – no change, not within DPAs;
- Campsites 3 & 4 – minor relocation to existing disturbed areas, not within DPAs;
- Campsites 5 & 6 - no change, not within DPAs;
- Campsite 7 – within Steep Slope DPA, we have provided an alternate location outside DPAs in a relatively flat area harvested in 2015;
- Campsite 8 – no change, although it is shown as within a Steep Slope DPA, the field survey indicated that this area is not steep;
- Campsite 9 – although the proposed location is not within a DPA, the 2006 air photo indicates the proposed location is on a minor non-defined drainage and therefore we have provided an alternate site approximately 36 m south;
- Campsite 10 – although it is not shown within a DPA, our mapping indicates this campsite location is most likely within a Riparian Assessment Area and possibly within a SPEA setback, therefore we have suggested an alternate location approximately 180 m west;
- Campsite 11 – the proposed location is within a mapped Steep Slope DPA located approximately 25 m below a cut and fill section of road, therefore we have suggested an alternate location approximately 65 m west;

- Campsite 12 – although it is not within a DPA the proposed location appears to be on a cut-through road which may be of use for long loads in the future, therefore we have suggested an alternate location approximately 25 m south;
- Campsites 13 & 14 - no change, not within DPAs;
- Campsites 15 & 16 – no change, although campsite 15 is shown as within a Steep Slope DPA, the field survey indicated that this area is not steep;
- Campsites 17 & 18 – Campsite 17 is within a Steep Slope DPA and therefore we have suggested an alternate location on an old spur road approximately 150 m northeast. We have suggested a slight relocation of Campsite 18 to 20 m north to be on an old spur road.
- Campsite 19 - no change, not within DPAs; and,
- Campsite 20 – the proposed location is within mapped Steep Slope & Riparian DPAs, therefore we have suggested an alternate location approximately 180 m west on an old skidder trail.

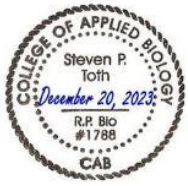
6.0 CONCLUSION

The proposed rezoning of the subject properties to a new Wilderness Campground zone is in order to allow for development of two house sites and approximately 20 campsites. This a very low level of proposed development given the large size of the subject properties, and while we have conducted studies in support of several proposed campsites over our 30 years of environmental consulting experience we have not had a development proposal with such low development density. In many ways the low level of intended development made the assessment of potential environmental impacts somewhat difficult to measure, as there does not appear to be any significant potential for environmental impacts as a result of the proposed development, particularly when compared with the historic / currently permitted land uses.

Please contact us if you have any questions or concerns regarding the contents of this report or require any additional information

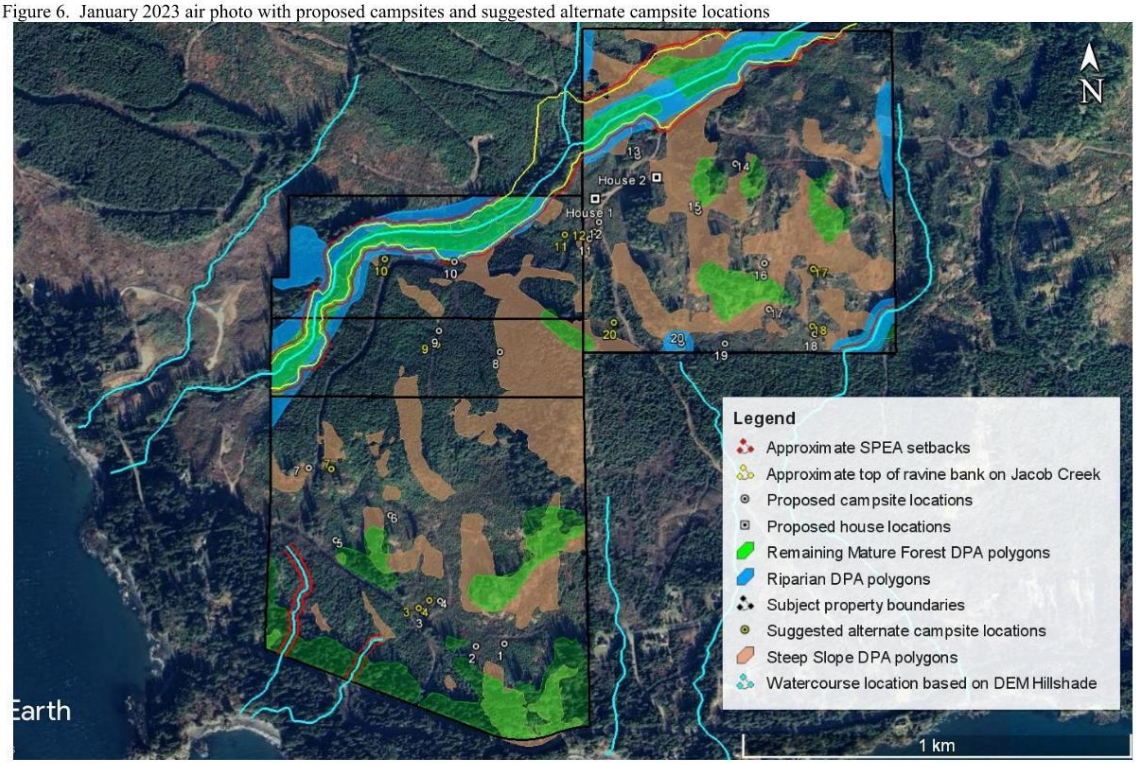
Sincerely,

Steve Toth, AScT, R.P.Bio.



Toth and Associates Environmental Services

Figure 6. January 2023 air photo with proposed campsites and suggested alternate campsite locations



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Photograph 1. October 26, 2023. View through shrub stage regenerating forest to Mature Forest on south facing rock outcrop.

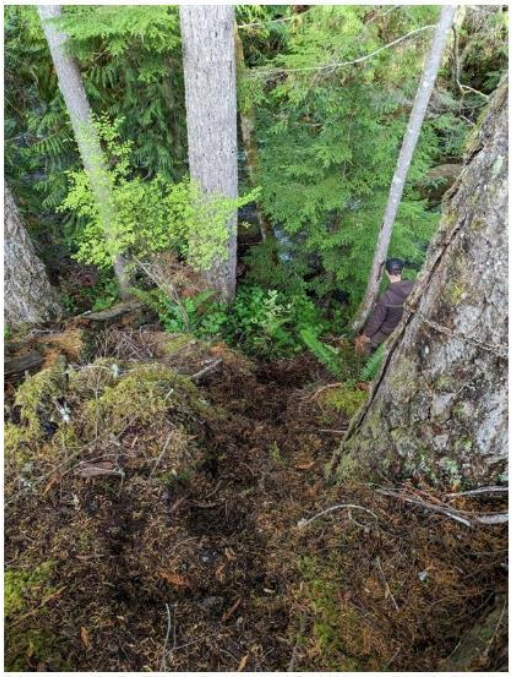
Photograph 2. View through shrub stage (logged 2015) regenerating forest to Mature Forest.

Photograph 3. Another view of typical forest cover in areas logged in 2015.

Photograph 4. View of 18 year old closed canopied forest cover typical of areas logged in 2004 / 2005.

Photograph 5. View of Jacob Creek.

Photograph 6. View of steep ravine side slope above Jacob Creek.



Photograph 7. View from top of ravine to Jacob Creek.