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November 9, 2017
Our Project File: 090-3

Salt Spring Island Electoral Area
Capital Regional District
108 121 McPhillips Avenue
Salt Spring Island, B.C.
V8K 2T6

Attention: Dan Ovington, Manager, Parks & Recreation (T. 250-537-4448)

ENVIRONMENTAL DUE-DILIGENCE REPORT:
Capital Regional District Parks and Recreation Program Family Bike Park Project at 160 Seaview Avenue, Salt Spring Island.

Dear Dan;

This letter presents the findings of our high-level environmental study of a 1.2-acre (0.5 ha) area in the southeast corner of Mouat Park at 160 Seaview Avenue, Salt Spring Island (Figures 1 and 2). The assessment is based on a detailed reconnaissance of the study area on October 19th 2017; review of background documentation provided by the Capital Regional District (CRD) or obtained from online sources including conceptual sketches of the proposed development layout; discussions with CRD staff; and an incidental interview with an interested citizen during the field work.

1. Introduction

The objectives of the study were to assist the CRD to complete its due-diligence, as part of the development planning process, to (a) confirm whether or not the property has any environmental constraints that will hinder its development for the proposed use; (b) identify those environmental aspects which need to be addressed as part of the development process; and (c) address any previously identified concerns that the community may have regarding the potential impact of the park development on the local environment.

In accordance with the Terms of Reference for the project, we are providing in this report a detailed biophysical description of the existing ecosystems including locations of watercourses, wetlands and associated riparian areas, critical habitat for species protected under the Wildlife Act and Migratory Birds Convention Act (e.g., active bird nests and heron & raptor nesting trees); a review the possible presence of species and ecosystems at risk; and recommended follow-up issues to be addressed in the event that the proposed bike park is to be developed at this location.

The conceptual layout of the bike park is still under development, pending the outcome of the environmental study including required setbacks from any watercourses.

2. Biophysical Description

The study area is shown in Figure 2. The field reconnaissance was completed on October 19th 2017 during rainy weather. Deciduous vegetation was entering dormancy and, as a result, many of the smaller foot paths were hidden by recently fallen leaves. Bird and other wildlife activity was minimal due to the season and the rainy weather.

2.1 Existing development and use

Existing development in the study area, which is forested, is limited to a network of unsurfaced pathways, one culvert and three wooden foot-bridges across the channel of Ganges Creek. The 36-inch diameter metal culvert is reported to have been installed to protect a midden discovered at the time the channel was being excavated (Kathy Reimer, personal communication). The remains of old concrete platforms (slabs on grade) were also observed in the area; these are reported to have been built when the area was a former provincial park. There are two parking areas along Seaview Avenue: one to the east beside the community lands parcel, and the other to the west of the proposed bike park opposite a small grassy area within the subject lot. Wooden fencing was present along much of the east property boundary, and wire fencing in variable states of repair was present along the north boundary.

Existing land use was limited to recreational walking and jogging, including dog-walking, and cycling. Much of the proposed bike park area appeared to be well used by people and dogs, as evidenced by the significantly less dense understorey vegetation compared to the forested western portion of the same parcel outside of the study area (Figure 2). The area of Mouat Park farther to the west is also used for disk golf (Figure 1); however, there was no evidence of such use within the proposed bike park area.

2.2 Topography, drainage and soils

The property is located in an area of gently sloping terrain that drains to the northeast, to Ganges Creek and Ganges Harbour (Figure 1). The upper part of the study area has an average gradient of approximately 8% increasing to 14% as the land descends towards the northeast corner of the subject lot. According to Islands Trust mapping, the elevation ranges from approximately 22 m to 12 m above sea level (Figure 3).

The stream that follows the north boundary of the lot is reported to be a constructed channel, built many years ago to provide flood relief for the properties crossed by Ganges Creek along Rainbow Road to the north (Kathy Reimer, personal communication). This stream is now considered to be a channel of Ganges Creek.

No areas of flowing or standing water were observed on the date of inspection, despite rainy weather. The channel of Ganges Creek was entirely dry; however, CRD staff indicated that water depth in the channel can increase to approximately 0.3 m in places during periods of peak flow (Kirk Harris, personal communication). Also, a permanent spring, which likely contributes significant water to the creek during the summer months, is reported to exist on Ganges Creek in the adjacent lot to the north, approximately opposite the upper end of McPhillips Avenue (Kathy Reimer, Personal communication); this spring is outside of the bike park project area.

Groundwater was not investigated, as bike park development and use does not necessarily present concerns with regard to groundwater (and this topic was beyond the scope of the present assessment).

The dominant soil in the study area is classified as Brigantine soil, described by Agriculture Canada as "imperfectly drained soils that have between 30 and 100 cm of a loamy sand to sandy loam overlay by marine or fluvial origin over deep (>l00 cm) silty clay loam to silty clay marine deposits that are usually stone free." (van Vliet et al. 1987).[1] Stones were observed nevertheless in the stream channel during the present assessment.

2.3 Vegetation

The study area contains one dominant vegetation type: young to mature coniferous forest (Figure 2). Immediately to the west, outside of the study area, is an open area of grass which appears to be mowed seasonally. Plant species observed in the forested area are listed in Table 1. This list must be considered incomplete since it was not possible to identify all annual or deciduous plants due to the onset of autumnal conditions and resulting lack of flowers.

The proposed bike park area is dominated by Douglas-fir with secondary abundance of grand fir and bigleaf maple, and lesser amounts of western redcedar and very occasional bitter cherry. Scouler's willow is present in the open areas beside Seaview Avenue. Tree diameters at breast height average approximately 0.3 m, ranging between ~0.05 and ~1 m (Photos 1, 2, 3). The canopy (crown closure) is generally moderate, in the order of 25-40% although there are some sites where the canopy is more open due to the presence of dead or dying trees. A number of standing dead trees (snags, mainly grand fir) occur on the central east side; fallen trees were not observed. Cavities made by birds are present in many of the snags (see discussion of wildlife, below).

The understorey is typically sparse, becoming denser toward the southeast where there is greater light penetration from the cleared parcel (community lands) to the east. Common understorey species include patches of Oregon grape, scattered swordfern and trailing blackberry, English ivy, grasses and mosses, as well as scattered oceanspray, Indian plum, red huckleberry and Saskatoon. Other understorey species include a thicket of Nootka rose in the southeast corner, scattered snowberry and Himalayan blackberry along the forest edge.

Invasive plants

Invasive plant species observed on the property were identified by reference to online information available from the Salt Spring Island Conservancy (SSC 2017) and the provincial government (Ralph et al. 2014), and are listed in Table 1. The most prominent invasive species were English ivy (Photo 16) and Himalayan blackberry. One plant of spurge laurel (Photo 18) was also observed. In general, the surface area affected by invasive plant species within the proposed bike park zone was limited to the outer edges, with the exception of English ivy in the east-central part of the study area.

2.4 Fish and Wildlife

Ganges Creek is reported to support chum salmon and sea-run cutthroat trout from the mouth up to approximately 80 m downstream of the end of McPhillips Avenue (Kathy Reimer, personal communication). The stream channel in the subject lot was dry on the date of our reconnaissance and

[1] *Imperfectly* drained soils are wet and saturated with water to approximately 60 cm of the surface during winter months. The subsoil remains in a moist condition during the rest of the year. Surface soil may be dry to even droughty during prolonged dry periods in the summer. (van Vliet et al. 1987)

showed no signs of recent flow. (See comment above regarding the possible role of a spring downstream of the northeast corner of the subject lot.)

Wildlife species observed during the study or likely to occur are listed in Table 2. This list must be considered incomplete since the observations were made during rainy weather and after the departure of most migratory and hibernating species.

Three bird species only were observed during the reconnaissance: Pileated Woodpecker, Steller's Jay and Common Raven. A possible long-abandoned Bushtit nest (Photo 17) was found in the southeast corner of the lot; no other bird nests were observed. Some of the grand fir snags contained cavities that may be used for nesting or roosting by bats, smaller birds (e.g., Chickadees, Red-breasted Nuthatch and others) and, to a lesser extent, by larger species such as woodpeckers and owls (Photo 16). No hawk, owl or heron nests were found in the trees on the property.

It is noted that the Islands Trust website documents a heron nesting site near Kanaka Road approximately 540 m to the northwest and a raptor next near Ganges Harbour approximately 450 m to the southeast (Figure 1). CRD staff indicated that no nesting activity was observed at the heron nesting site in 2016 and 2017 (Kirk Harris, personal communication). Additional information on the raptor nest was not available.

No mammals, reptiles or amphibians were observed during the reconnaissance. It is recognized that the likelihood of observing wildlife other than birds during the study was very low due to the time of year.

Species at risk:

Invasive or nuisance animals: Invasive and nuisance wildlife species were also identified by reference to the online information available from the Salt Spring Conservancy (SSC 2017). No invasive or nuisance animal species were observed in the study area; however, it is possible that feral or domestic cats may be present which would adversely affect low-nesting bird species.

3. Regulatory Aspects

The proposed bike park area lies within two Development Permit Areas (DPA) under the island's Official Community Plan (OCP): DPA 4 – Lakes, Streams and Wetlands (OCP Map 21), and DPA 7 – Riparian Areas (OCP Map 28). The implications of these DPAs with respect to the proposed development of a bike park at the selected location are described below.

The following aspects, which are common to both DPAs are noted: existing development and land uses are "grand-fathered" (i.e. allowed to remain), and removal of danger trees posing a hazard to persons and property is allowed, subject to an assessment by a qualified arborist.

The requirements of DPA 4 overlap with those of DPA 7 in locations where fish habitat may be involved. Nonetheless, the OCP allows for both DPAs to be dealt with through a single development permit.

3.1 DPA 4 – Lakes, Streams and Wetlands

DPA 4 is established, as the name implies, for the protection of fish habitat, sensitive riparian habitat and unique native species, and drinking water supplies associated with lakes, streams and wetlands. DPA 4 extends to a width of 10 m from the natural boundary of designated streams.

We understand this description to mean that a development permit under DPA 4 would only be required if a part of the proposed new bike park were to be located within 10 m of the natural boundary (high water mark) of Ganges Creek.

3.2 DPA 7 - Riparian Areas

DPA 7 is established for the protection of existing or potential fish habitat and associated riparian areas. This DPA is designated as mandated under the provincial Riparian Areas Protection Act (formerly Fish Protection Act) and its Riparian Areas Regulation (RAR). DPA 7 and the RAR apply to any stream, lake or wetland that contains fish or is tributary to a freshwater body that contains fish. Given that Ganges Creek is fish-bearing, the project site is confirmed to be subject to DPA 7.

DPA 7 applies to a range of residential, commercial and/or industrial activities as listed below (activities that would or could take place during bike park development are shown in *italics*):

a. Construction of, addition to, or alteration of a building or *other structure*.
b. *Removal, alteration, or destruction of vegetation*.
c. *Soil removal, soil deposit or soil disturbance*.
d. *Development of drainage systems*.
e. *Creation of non-structural impervious or semi-impervious surfaces*.
f. Subdivision, as defined in the Local Government Act;
g. Development, as that term is defined under the provincial Riparian Areas Regulation.

<u>Riparian Assessment</u>

A riparian assessment is required in situations where a project involving any of the development activities listed above is proposed within a 30-m wide Riparian Assessment Area (RAA) beside a stream, lake or wetland that is subject to the RAR. The outcome of the riparian assessment is the determination of the width of a Streamside Protection and Enhancement Area (SPEA) beside the stream and the identification of measures to protect the integrity of the SPEA.[2]

The SPEA is defined in the regulation as: "an area (a) adjacent to a stream that links aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential adjacent upland vegetation that exerts an influence on the stream, and (b) the size of which is determined according to this regulation on the basis of an assessment report provided by a qualified environmental professional in respect of a development proposal."

It is noted that existing land uses within the newly designated SPEA, such as the trail system and bridges and culvert at the project site, are "grandfathered" under the RAR and therefore allowed to continue. However, any new development within the SPEA is precluded except in cases of undue hardship to the land owner (typically this can be justified only in very small lots).

[2] Additional detailed information on the RAR is available in the following document that can be downloaded from the provincial government website: https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/fish-fish-habitat/riparian-areas-regulations/rar_assessment_methods.pdf

Accordingly, a riparian assessment of Ganges Creek in the project area was completed, employing the Method stipulated in the RAR. The completed assessment report is appended to this letter. The riparian assessment yielded a SPEA width of 10 m beside Ganges Creek at the project location (Figure 4). This width is, coincidentally, the same as the no-disturbance setback required under DPA 4.

4. Species and ecosystems at risk

Species and ecosystems at risk are identified by the Salt Spring Conservancy (SSC 2017) based on the classifications developed by the provincial Conservation Data Centre (CDC) and the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC). A report on species at risk in Mouat Regional Park has also been prepared (Mathias et al. 2010).

The evaluation of species and ecosystems at risk during the present study focused on plants and animals previously identified in or near Mouat Park that are considered likely to be present in the proposed bike park area. In the case of birds, the focus was limited to species that may nest in the study area.

4.1 Species at risk

Most of the plant species that are classified as being at risk on the island tend to be found in undisturbed ecological communities such as Garry oak meadows, open areas and dry sites with southern exposures (SSC 2017). However, five of the listed plant species at risk do occur in habitats observed in Mouat Park, possibly including the study area (Table 3). The likelihood of significant populations of any such species being present in the proposed bike park area is considered low, however, due to the relatively intensive pre-existing land use. Note, however, that no plant species at risk were found in the 2010 inventory of Mouat Park (Mathias et al. 2010).

Nine animal species at risk whose reproductive habitat may occur in the forest of the study area are listed in Table 4. None of these species were observed during the reconnaissance. However, as indicated above, many migratory bird species that may occur on the property would not have been present during the study. It is noted as well that no animal species at risk were recorded during the 2010 inventory of Mouat Park (Mathias et al 2010).

4.2 Sensitive Ecosystems

The Islands Trust's Sensitive Ecosystem (SEI) mapping identifies the ecological communities on the western part of the subject property as a primary ecosystem of Western Redcedar – Foam Flower, comprised of 60% young forest and 40% mature forest (Islands Trust 2017b). However, the eastern half of the property -where the bike park is proposed- is not classified in the SEI, possibly reflecting the recognition of its pre-existing disturbed state. A search of the BC Ministry of Environment's online BC Species and Ecosystems Explorer confirmed that neither ecosystem type is classified as sensitive or at risk (MoE 2017). The 2010 inventory of Mouat Park (Mathias et al, 2010) notes that the eastern portion of the park is highly degraded due to recreational use. Based on these findings, it is reasonable to conclude that, with the exception of Ganges Creek, the proposed bike park area does not contain sensitive or at-risk ecosystems

5. Generic environmental concerns

The issues discussed below have been identified as potential "generic" environmental concerns that may be raised by members of the community with respect to the proposed bike park project. Aesthetic and archaeological impacts of bike park development are considered separate from environmental aspects and are beyond the scope of this report. The importance of each issue below is evaluated in light of our field observations, and recommended next steps are identified as appropriate.

Water supply: The seasonal scarcity of water supplies on the island leads to a recurring concern over the demands on surface or groundwater resources and, in an environmental context, possible impacts to local flora and fauna. It is our understanding that this issue is not a concern in this case as the proposed bike park does not require water for its operation.

Stormwater Drainage and Water Quality: Any significant increase in the amount or intensity of stormwater has the potential to result in increased flooding and impaired water quality along lower Ganges Creek during high-runoff events. However, it is our understanding that the development of a bike park would not result in any change in the amount of runoff from the site because there would be no increase in the imperviousness of the ground surface, relative to existing conditions. Accordingly, stormwater drainage *per se* is not seen as a concern for the proposed bike park.

Nevertheless, construction (and use) of the proposed bike park has the potential to result in localized erosion of exposed soils, which could lead to sedimentation and other adverse impacts on water quality in lower Ganges Creek if appropriate mitigation is not in place. See Recommendations.

Loss of Wildlife Habitat: The main wildlife habitat in the project area is the trunks and canopy of the standing trees. Ground-level habitat in most of the proposed bike park area is limited due to the intensive recreational use that most of this area already receives, as described above. However, dense understorey vegetation is present in the southeast portion, which may offer nesting and feeding habitat for perching birds and other small wildlife.

It is our understanding that the conceptual design of the proposed bike park entails removing very few trees (except danger trees) and constructing the new bike-use features among the trees. The bird nesting season in south coastal B.C. is typically from mid-March to late August. Accordingly, compliance with the Wildlife Act will require that any tree or shrub removal should be undertaken, either outside of the bird nesting season (i.e., between late August and mid-March) or, otherwise, only after a nesting bird survey by a qualified professional confirms the absence of any active bird nests on the property (see 6. Recommendations, below).

Construction and use of the bike park has the potential to affect the roots of trees due to soil compaction or direct damage through abrasion and impacts. The detailed design will need to incorporate measures to avoid such impacts (see 6. Recommendations, below).

Proximity to heron and raptor nests: The heron and raptor nesting sites identified in Section 2.4 above are considered to be well beyond the potential radius of influence of the bike park project.

Impacts of Artificial Lighting on Wildlife: Artificial lighting such as is sometimes used at outdoor sports facilities can affect migrating and nesting birds, mammals and other wildlife. No information is available

at this time regarding whether or not the proposed bike park would be provided with artificial lighting. In the event that artificial lighting were to be contemplated in the future, it is recommended that the lighting system design should include mitigation of potential adverse impacts on adjacent wildlife habitat.

Climate Change Adaptation: This issue, although environmental in the broadest sense, is beyond the scope of the present assessment.

6. Recommendations

We offer the following recommendations to facilitate the design of the facility, and mitigate potential impacts of the proposed bike park (construction and use) on nearby ecosystem values.

a. Ensure that the bike park boundary remains more than 10 m from the natural boundary of Ganges Creek.
b. Develop an environmental management plan for the construction period; the aim of this plan should be to prevent potential impacts on Ganges Creek and its riparian corridor.
c. Ensure that any tree removal that may be necessary takes place, preferentially, between September 1 and March 1, to avoid the bird nesting season. If tree removal has to take place during the bird nesting season, ensure that a nest survey is conducted beforehand by a qualified professional to confirm whether or not any nesting activity is present.
d. Ensure that healthy trees are protected during the removal of any danger trees. This recommendation is especially important for the riparian corridor within 10 m of Ganges Creek, and also applies to other areas within the bike park.
e. When designing features of the bike park, ensure that the root systems and trunks of local trees are protected. To this end, seek the advice of a professional arborist to ensure that the bike course remains sufficiently far away from the trunks to prevent direct damage to exposed roots, and to prevent localized soil erosion and/or compaction that may adversely affect the roots and health of the trees. Excavation that exposes roots should be avoided, and placement of fill should be limited. Where it may be desirable for bike park features to be very close to trees, it is preferable that the course is elevated on a constructed platform.

7. Conclusions

The conclusions of the reconnaissance-level environmental due-diligence study described in this report are as follows:

a. The subject property is constrained by the riparian corridor of Ganges Creek. Based on the requirements of DPA 4 and DPA 7, the proposed bike park must be located no closer than 10 m from the natural boundary of this stream. The existing foot-paths, bridges and culvert are, however, “grandfathered” and allowed to continue.
b. The presence of an archaeological site (midden) beside Ganges Creek near the culvert location was reported to us during the study. It is recommended that the possible constraints posed by the midden should be evaluated further by a qualified person.
c. The proposed bike park area does not appear to present other significant environmental constraints, such as species or ecosystems at risk that would hinder development for its intended use. However, it

is recommended that the facility should be planned and designed to include measures to mitigate potential environmental impacts during construction and operation.

8. Statement of Limitations

This report was prepared exclusively for the Capital Regional District (the Client) by Whitehead Environmental Consultants Ltd. (WEC) for the project located at 160 Seaview Avenue, Salt Spring Island, B.C. The quality of information, estimates and conclusions contained herein are consistent with the level of effort expended and are based on: (i) information available at the time of preparation; (ii) data collected by WEC and/or supplied by outside sources; and (iii) the assumptions, conditions and qualifications set forth in this report. The report is intended for use by the Client and other regulatory agencies for this project only, subject to the terms and conditions of the Client's agreement with WEC concerning this assignment. Any other use or reliance on this report by any third party is made at that party's sole risk.

9. References

Islands Trust. 2017a. **Ecosystem Mapping – Sensitive Ecosystems.** Available online at: http://www.islandstrust.bc.ca/maps/trust-area-mapping/ecosystem-mapping/; accessed Oct. 29, 2017

_____. 2017b. **Map Islands Trust (MapIT)**. Available online at: http://mapit.islandstrust.bc.ca/ecosystems.html; accessed Oct. 29, 2017

Mathias, Laura, Karen Ferguson and Carrina Maslovat. 2010. **Mouat Regional Park Species at Risk Inventory – July 2010.** Prepared for the CRD Parks and Recreation Commission.

Ministry of Environment (MoE). 2017. **BC Species and Ecosystems Explorer**. Available online at: http://www.env.gov.bc.ca/atrisk/toolintro.html; accessed Oct. 31, 2017

Ralph, D, V. Miller, C. Hougen and J. Leekie. 2014. **Field Guide to Noxious and Other Selected Invasive Plants of British Columbia. 8th Edition**. Invasive Species Council of B.C. and Inter-Ministry Invasive Species Working Group. Available online at (accessed Oct. 30, 2017): http://bcinvasives.ca/documents/Field_Guide_to_Noxious_Weeds_Final_WEB_09-25-2014.pdf

Salt Spring Conservancy (SSC). 2017. **Plants – Animals**. Available online at: http://saltspringconservancy.ca/wp/plants-animals/ ; accessed Oct. 30, 2017

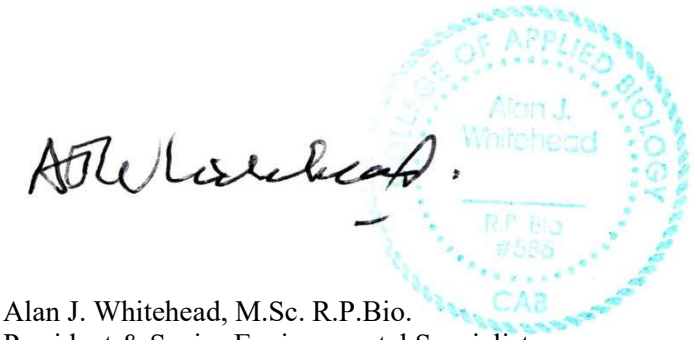
Van Vliet, L.J.P. A.J. Green, and E.A. Kenney. 1987. **Soils of the Gulf Islands of British Columbia. Volume 1 Soils of Saltspring Island.** Rep. No., 43. British Columbia Soil Survey, Research Branch, Agriculture Canada. 136 p. plus map. Report and map available online at: http://sis.agr.gc.ca/cansis/publications/surveys/bc/bc43-1/index.html; accessed Oct. 30 2017.

10. Closure

We trust the above report meets your needs for this project. Should you have any questions, please contact the undersigned at your convenience.

Yours truly,

WHITEHEAD ENVIRONMENTAL CONSULTANTS LTD.



Alan J. Whitehead, M.Sc. R.P.Bio.
President & Senior Environmental Specialist

Attachments: Figures, Tables and Photos
Riparian Assessment Report

Figure 1. Project Overview: CRD's Proposed Bike Park at 160 Seaview Avenue

(Adapted by Whitehead Environmental Consultants Ltd., 31-Oct-2017)

LEGEND
Operational Layers

- Heron Rookery
- Raptor Nest
- Property Boundaries

458.6 0 229.3 458.6 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Islands Trust

1:9,028

November 2, 2017

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. Islands Trust makes no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

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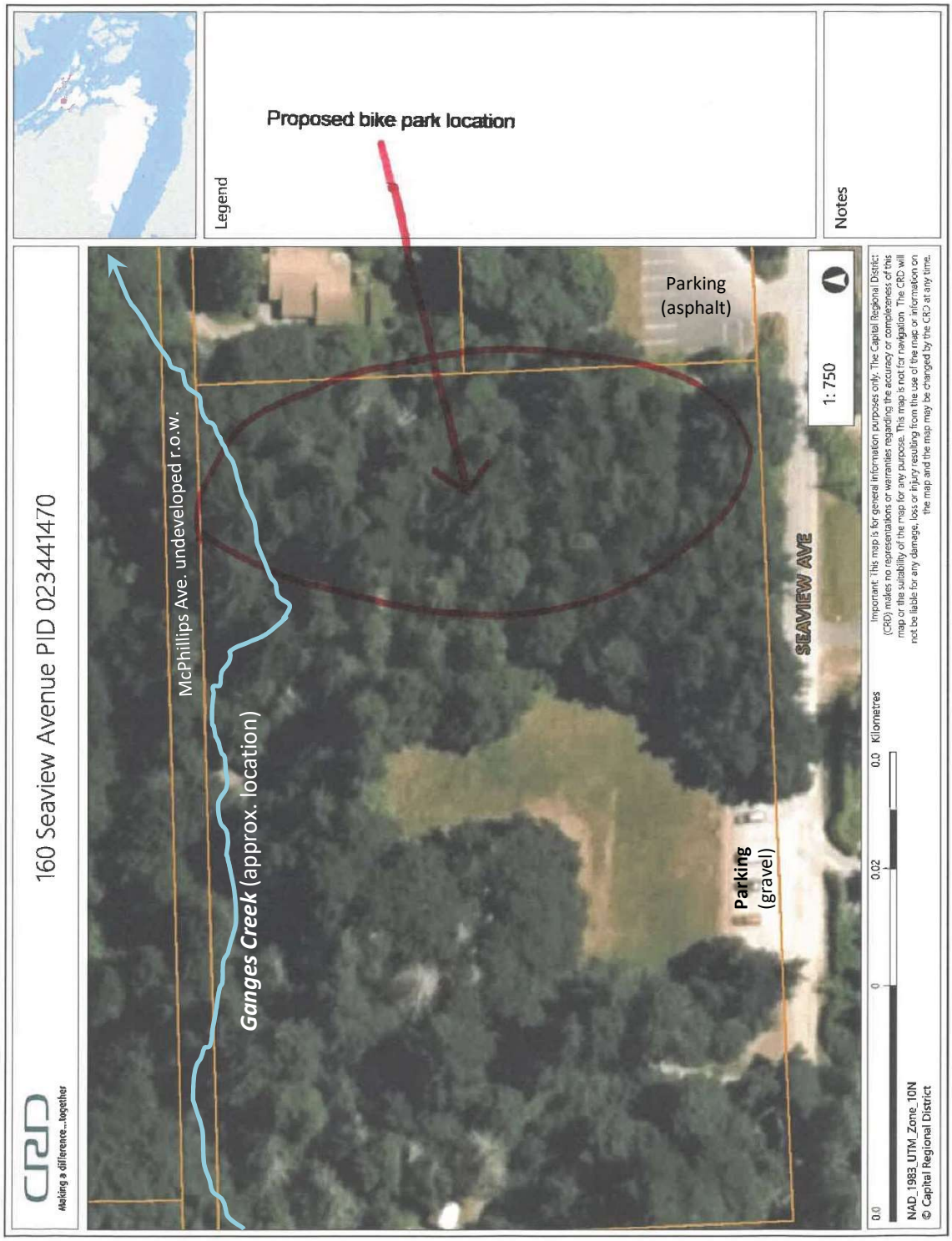

Figure 2. Location of the Proposed Bike Park at 160 Seaview Avenue
(adapted from image provided by CRD staff.)

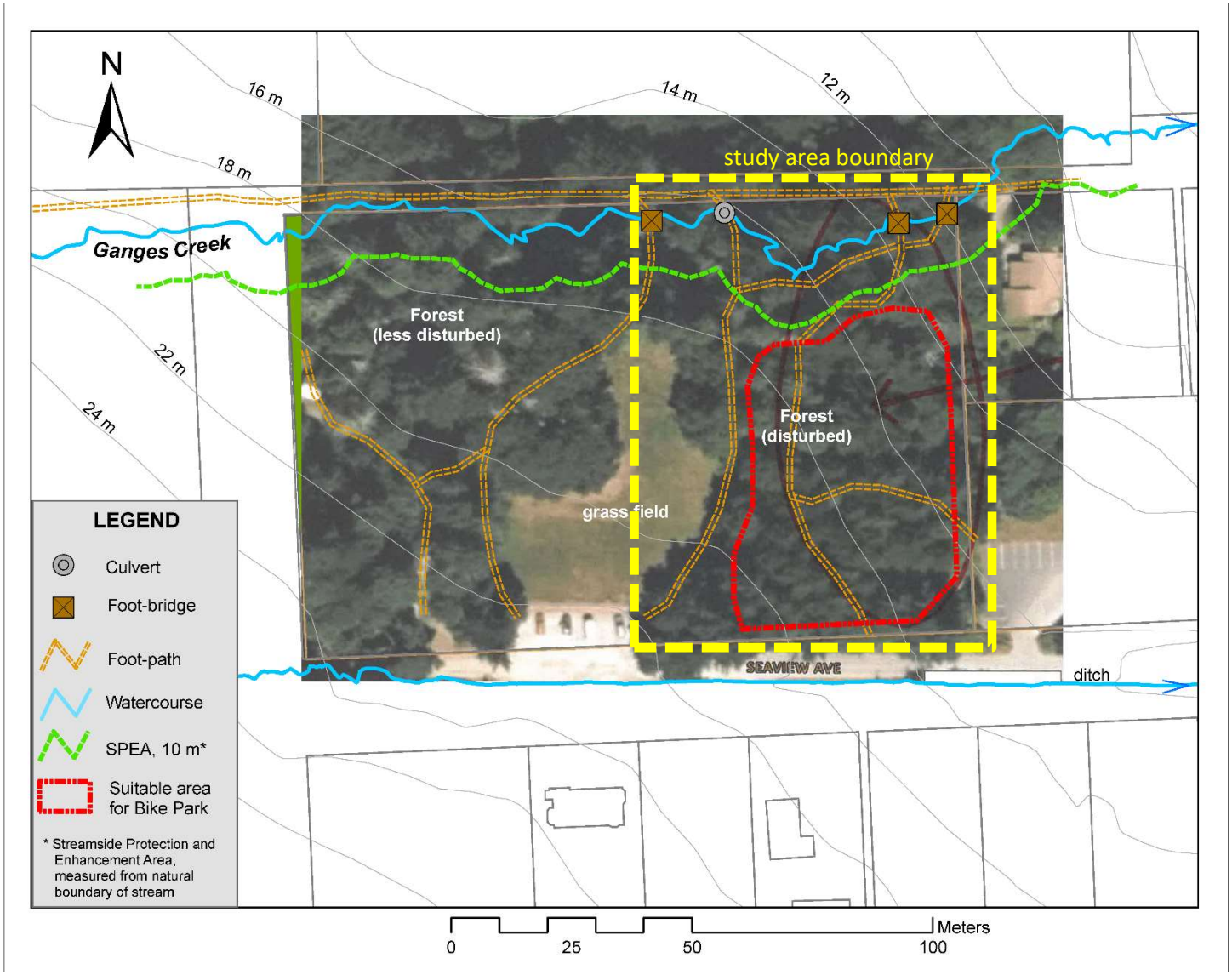

Figure 3. Biophysical Features and Recommended Stream Setback for the Proposed Bike Park at 160 Seaview Avenue.
Base map courtesy of the Islands Trust; air photo provided by CRD. All feature locations are approximate

Table 1. Preliminary list of plant species observed at 160 Seaview Avenue[(a)] or documented in Mouat Regional Park[(b)]

	Common Name	Scientific Name	Observed[a]	Notes
	Trees			
1	Douglas-fir	*Pseudotsuga menziesii*	x	
2	Western redcedar	*Thuja plicata*	x	
3	Grand fir	*Abies grandis*	x	
4	Red alder	*Alnus rubra*	x	
5	Bigleaf maple	*Acer macrophyllum*	x	
6	Bitter cherry	*Prunus emarginata*	x	
7	Scouler's willow	*Salix scouleriana*	x	
	Shrubs			
8	Oceanspray	*Holodiscus discolor*	x	
9	English holly	*Ilex aquifolium*		**Invasive**
10	Indian plum	*Oemleria cerasiformis*	x	
11	Salmonberry	*Rubus spectabilis*	x	
12	Rose, Nootka	*Rosa nootkana*	x	
13	Red elderberry	*Sambucus racemosa*	x	
14	Red huckleberry	*Vaccinium parvifolium*	x	
15	Oregon grape	*Mahonia aquifolium*	x	
16	Spurge laurel	*Daphne laureola*	x	**Invasive**, toxic bark
17	Salal	*Gaultheria shallon*	x	
18	Himalayan blackberry	*Rubus armeniacus*	x	**Invasive**
19	Hairy honeysuckle	*Lonicera hispidula*	x	
20	Trailing blackberry	*Rubus ursinus*	x	
21	English Ivy	*Hedera helix*	x	**Invasive**
	Clematis	*Clematis* sp.	x	**Invasive** (out of study area, to west)
	Herbaceous species			
22	Stinging nettle	*Urtica dioica*		
23	Northern Bedstraw	*Galium boreale*	x	
24	Vanilla leaf	*Achlys triphylla*	x	
25	Western Trillium	*Trillium ovatum ovatum*	x	
26	Sedge, unidentified	*Carex sp.*		
27	Pacific water-parsley	*Oenanthe sarmentosa*	x	
28	Common rush	*Juncus effusus*		
29	Swordfern	*Polystichum munitum*	x	
30	Bracken	*Pteridium aquilinum*	x	
31	Skunk cabbage	*Lysichiton americanus*	x	
32	Grasses, unidentified	Poaceae	x	Several species
33	Mosses, unidentified	Bryophyta	x	Several species
34	Lungwort (lichen)	*Lobaria pulmonaria*		
35	Lichens			Several arboreal species

a observed during a reconnaissance on October 19, 2017.
b additional species are listed by Mathias *et al.* 2010.

Table 2. Preliminary list of animal species observed or potentially present at 160 Seaview Avenue
(**x** = observed during a reconnaissance on October 19, 2017)[a]

	Common Name	Scientific Name	Observed	Notes
	Birds			
1	American Robin	*Turdus migratorius*		
2	Spotted Towhee	*Pipilo maculatus*		
3	Brown Creeper	*Certhia americana*		
4	Red-Breasted Nuthatch	*Sitta canadensis*		
5	Song Sparrow	*Melospiza melodia*		
6	Sparrow, unidentified			
7	Pacific Wren	*Troglodytes pacificus*		
8	Common Yellowthroat	*Geothlypis trichas*		
9	Orange-crowned warbler	*Oreothlypis celata*		
10	Pileated woodpecker	*Dryocopus pileatu*	x	heard and seen
11	Rufous Hummingbird	*Selasphorus rufus*		migratory
12	Black-capped Chickadee	*Poecile atricapillus*		
13	Common Raven	*Cyanocorax affinis*	x	Heard and seen
14	Bald Eagle	*Haliaeetus leucocephalus*		
15	Steller's Jay	*Cyanocitta stelleri*	x	heard and seen
	Mammals			
16	Black-tailed Deer	*Odocoileus hemionus columbianus*		
17	Raccoon	*Procyon lotor*		
18	Red Squirrel	*Tamiasciurus hudsonicus*		
19	Townsend vole [c]	*Microtus townsendii*		
20	Deer Mouse [c]	*Peromyscus maniculatus*		
21	Vagrant Shrew [c]	*Sorex vagrans*		
22	Little Brown Myotis (bat)[b]	*Myotis lucifugus*		**Endangered** under COSEWIC and SARA but considered secure in BC
23	California Myotis [b]	*Myotis californicus*		
	Reptiles[b]			
24	Common Garter Snake	*Thamnophis sirtalis*		
25	NW Garter Snake	*Thamnophis ordinoides*		
26	Sharp-Tailed Snake	*Contia tenuis*		**red-listed,** unlikely; prefers drier habitats
27	Northern Alligator Lizard	*Elgaria coerulea*		unlikely; prefers drier habitats
	Amphibians[c]			
28	Northern Pacific Tree Frog	*Pseudacris regilla*		
29	N. Red-Legged Frog	*Rana aurora*		**blue-listed,** recorded in Mouat Park
	Arthrpods (insects, spiders, etc.)			
30	Unidentified flies			many species

a – See also species listed in **Mouat Park Species at Risk Inventory 2010** by Mathias et al. 2010.
b – None observed; species listed are considered potentially present because elements of their preferred habitat exist on the subject property.
c – None observed; species listed are considered potentially present because they do not require aquatic habitat for reproduction and/or because elements of their preferred habitat exist on the subject property.

Table 3. Plant Species at Risk whose known habitat may occur at 160 Seaview Avenue.
(None of these species were observed during the reconnaissance on October 19, 2017)

	Common Name	Scientific Name	Conservation status[1]	Habitat[2]
1	California Hedge-parsley	*Yabea microcarpa*	**red-listed**	Usually found in Gary oak woodlands and meadows but also occurs in Douglas-fir forests
2	Heterocodon	*Heterocodon rariflora*	**blue-listed**	Found in open to forested habitats with moist seepages and seasonally moist areas
3	Leafless Wintergreen	*Pyrola aphylla*	**blue-listed**	Found in forests with deep compost and decaying wood under a dense tree canopy in deep shade
4	Poverty Clover	*Trifolium depauperatum var. depauperatum*	**blue-listed**	Found in wet or moist grassy areas at low elevations
5	Nuttal's Quillwort	*Isoetes nutallii*	**blue-listed**	Found in seasonally moist habitats and mud; associated species include Nootka rose, reed canary grass and others.

1 – Provincial status: **blue list** includes any indigenous species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia; **red list** includes any indigenous species or subspecies that have, or are candidates for, Extirpated, Endangered, or Threatened status in British Columbia; Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere; Endangered taxa are facing imminent extirpation or extinction; Threatened taxa are likely to become endangered if limiting factors are not reversed. (MoE 2017)

2 – Adapted from information available on the Salt Spring Conservancy website (SSC 2017) and associated information sources.

Table 4. Animal Species at Risk whose reproductive habitat may occur at 160 Seaview Avenue.
(None of these species were observed during the reconnaissance on October 19, 2017)

	Common Name	Scientific Name	Conservation status[1]	Critical Habitat[2]
1	Band-tailed Pigeon	*Patagioenas fasciata*	special concern/ **blue-listed**	Coniferous or broad-leaved trees in closed canopy forests near edges, in which to nest.
2	Northern Pygmy Owl	*Glaucidium gnoma swarthi*	- / **blue-listed**	Natural tree cavities in which to nest. Conservation includes protecting known nests from disturbance, preserving large diameter old trees and snags, and preserving younger trees that eventually will qualify as nest and roost trees. Nest boxes may be of benefit.
3	Olive-sided Flycatcher	*Contopus cooperi*	threatened / **blue listed**	Coniferous trees, preferring forest edges and openings with meadows and ponds. The nest is located at the tip of a branch, in a small cup-shaped nest of twigs, lichens and small roots.
4	Western Screech Owl	*Megascops kennicottii kennicottii*	special concern / **blue-listed**	Cavities of large trees, especially dead trees (snags), in low elevation forests. Nest boxes may be of benefit.
5	Western Bluebird (Georgia Depression population)	*Sialia mexicana*	- / **red-listed**	Considered extirpated from the coastal island region. Nest in secondary cavities already excavated by other bird species. Readily use nest boxes of the appropriate size.
6	Sharp-tailed Snake	*Contia tenuis*	endangered / **red-listed**	Found in open areas, forest edges, roadsides, arbutus-oak-Douglas-fir woodlands, and south-facing rocky slopes. High-quality habitat is likely to have concealment cover such as rocks, logs, decaying debris, stumps, boards, and underground burrows.
7	Dun Skipper (butterfly)	*Euphyes vestris*	threatened / **blue-listed**	Associated with soft, fine leaved sedges (Carex species), on which the eggs are laid and the caterpillars feed. Any site that supports a stand of suitable sedges is potential dun skipper habitat, including roadside ditches and seasonally wet fields. Sometimes, these butterflies may be found around 'micro wetlands' only a few metres wide that may be dry through much of the summer.
8	Pacific Sideband (snail)	*Monodenia fidelis*	- / **blue-listed**	Occurs in deciduous, coniferous, and mixed forest habitats, as well as in open woodlands.
9	Threaded Vertigo (snail)	*Nearctula spp*	special concern / **red-listed**	Typically occurs in mature second growth and old growth forests. Often found 5-6 feet up on large bigleaf maple trees.

1 – Upper line: federal status under the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); - / indicates the species in not listed under COSEWIC; **special concern** means the species has characteristics that make it is particularly sensitive to human activities or natural events. Lower line: provincial status: **blue list** includes any indigenous species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia; **red list** includes any indigenous species or subspecies that have, or are candidates for, Extirpated, Endangered, or Threatened status in British Columbia; Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere; Endangered taxa are facing imminent extirpation or extinction; Threatened taxa are likely to become endangered if limiting factors are not reversed. (MoE 2017)

2 – Adapted from information available on the Salt Spring Conservancy website (SSC 2017).

Photo 1. Proposed bike park area at 160 Seaview Avenue viewed to north from east of gravel parking area. Note absence of understorey vegetation in much of this forest. 19-Oct-2017

Photo 2. Proposed bike park area viewed to north from near edge of Seaview Avenue. Patch of understory vegetation is Oregon grape. 19-Oct-2017

Photo 3. Denser ground vegetation southeast sector of proposed bike park area at 160 Seaview Avenue. 19-Oct-2017

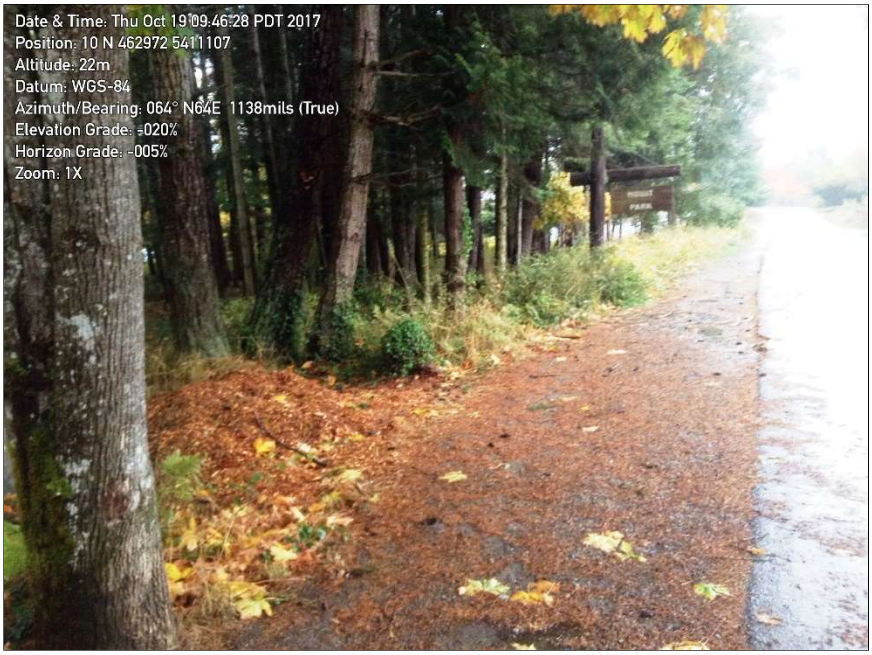

Photo 4. South edge of proposed bike park area viewed to east along Seaview Avenue. Note English ivy growing on tree trunks, and pile of wood-chips. 19-Oct-2017

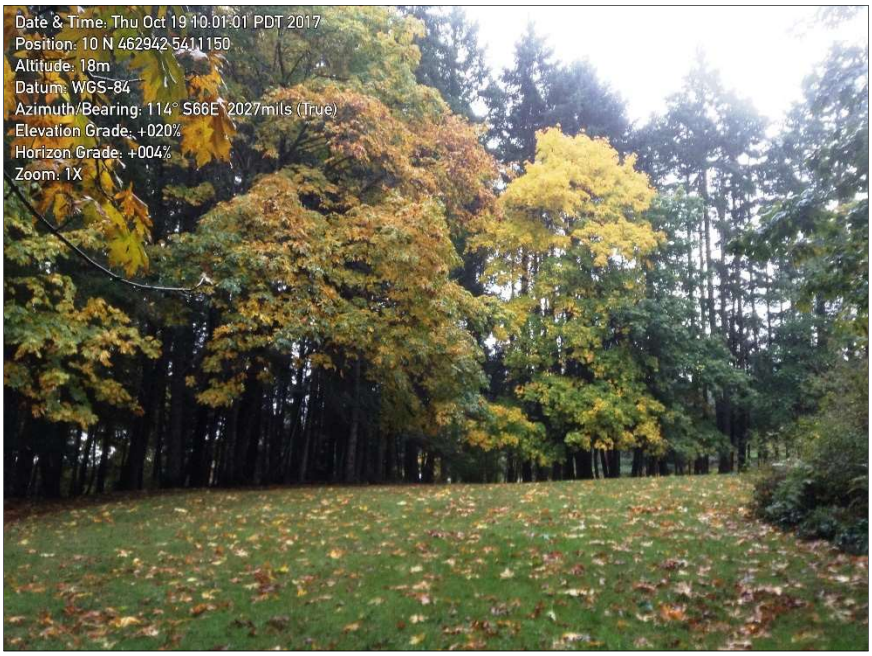

Photo 5. Eastern edge of proposed bike park area (in forest) viewed from north end pf grassy field. 19-Oct-2017

Photo 6. Northern sector of proposed bike park area viewed to south from near Ganges Creek. Note varied trunk diameters, and leaning dead tree. 19-Oct-2017

Photo 7. Dry channel of Ganges Creek on area of shallow gradient, viewed downstream toward uppermost foot bridge. Note sparse swordfern beside channel on left and English ivy on right. 19-Oct-2017

Photo 8. Dry channel of Ganges Creek viewed downstream toward culvert. Culvert was reportedly installed to protect an archaeological site (midden, see text). Note absence of riparian ground vegetation. 19-Oct-2017

Photo 9. Dry channel of Ganges Creek viewed upstream toward culvert outlet (arrow). Proposed bike park area is to left of photo. The RAR assessment yielded a no-disturbance setback (streamside protection and enhancement area 10 m wide on either side of the stream channel – see text). 19-Oct-2017

Photo 10. Dry channel of Ganges Creek viewed downstream toward second foot bridge. Note exposed large roots of Douglas-fir trees; these roots were exposed (and protected) when the channel was excavated many years ago. Proposed bike park area is to right of photo. The RAR assessment yielded a no-disturbance setback (streamside protection and enhancement area 10 m wide on either side of the stream channel – see text). 19-Oct-2017

Photo 11. Second (left) and third foot-bridges Ganges Creek in northeast corner of study area, viewed downstream. Third foot-bridge leads to trailhead at McPhillips Road. 19-Oct-2017.

Photo 12. Wooden fence line along east side of subject lot viewed across Ganges Creek from trail along north property line. Small tree in foreground is a yew. 19-Oct-2017

Photo 13. Southwest part of proposed bike park (in forest) viewed from parking area beside grassy field. Seaview Avenue is on right. Dominant conifers are Douglas-fir, while bigleaf maple are visible in foreground. 19-Oct-2017

Photo 14. Thicket of Nootka rose in understorey of open forest on east side of study area. 19-Oct-2017

Photo 15. Standing dead tree (grand fir) in northeastern sector of study area. 19-Oct-2017

Photo 16. Cavity created by feeding Pileated Woodpecker in standing dead tree (grand fir) in northeastern sector of study area. Note English ivy on trunk. 19-Oct-2017.

Photo 17. Bird nest (long abandoned) in oceanspray shrub in southeast sector of study area. 19-Oct-2017

Photo 18. Spurge laurel plant (toxic invasive species) in southern part of study area. 19-Oct-2017