



THE CORPORATION OF THE DISTRICT OF SUMMERLAND COUNCIL REPORT

DATE: June 22, 2017 File: 2016-1787
TO: Linda Tynan, Chief Administrative Officer
FROM: Dean Strachan, MCIP, RPP, Director of Development Services
Kris Johnson, P.Eng., Director of Works and Utilities
SUBJECT: OCP Amendment and Rezoning – 13610 Banks Crescent - Update

STAFF RECOMMENDATION:

That Council pass the following resolution:

THAT the update report dated June 22, 2017 from the Director of Development Services and the Director of Works and Utilities in relation to the OCP Amendment and Rezoning for 13610 Banks Crescent be received.

PURPOSE:

To receive a progress update on review and study components related to the OCP Amendment and Rezoning for 13610 Banks Crescent.

BACKGROUND and DISCUSSION:

These following items remain under study and review:

1. Letter received from Freshwater Fisheries Society of BC dated February 24, 2017.
 - a. On June 8, 2017 Staff received a letter and report with the results and recommendations from the applicants on the alternate water source for the Freshwater Fisheries Society of BC hatchery facility (see Figure 1).
 - b. Staff have forwarded the report to the Freshwater Fisheries Society for their review. Staff spoke with Kyle Girgan, Hatchery Manager to confirm their receipt of the report. They have confirmed their receipt and indicated they will be reviewing and having their professionals also review. Once they have completed their review they will be contacting District Staff to meet and discuss. Staff will also be reviewing the proposed options.
 - c. Freshwater Fisheries Society of BC contacted Staff on June 22, 2017 indicating a letter on the proposed alternate lake water source seeking additional information would be submitted. On June 23, 2017 District Staff received the attached letter. The applicants have been advised and are reviewing the information requested.
2. Letter received from the Penticton Indian Band (PIB) dated January 26, 2017.
 - a. District staff met with PIB Development Services staff on March 14, 2017. Good discussion between staff occurred on both the Banks Crescent

application and development in general. PIB staff requested additional information on the Banks Crescent application, that has been provided by staff. Staff to staff correspondence has continued.

- b. The RDOS committee on referral protocol was scheduled to have a meeting in March, to date a meeting time and date has not yet been confirmed. District staff followed up with RDOS staff and were informed that they plan to schedule a meeting.
3. Revised and updated Environment Assessment Reporting in accordance with the District of Summerland Terms of Reference for Environmental Reports.
 - a. The applicants consulting biologist has completed and submitted a revised report. The District's Environmental Planner, Alison Peatt, RPBio provided her review comments which were included as a late item with the May 23, 2017 update report.
 - b. Mappings errors were identified which have now been corrected by the applicant. The updated report is attached for reference.
 - c. The Ministry of Forest, Lands and Natural Resource Operations has asked to receive the revised report and has indicated they will be providing a referral response following their review.
 - d. The Penticton Indian Band has been sent a copy of the final report as they requested.
4. District Revenue Analysis.
 - a. The Finance Department has prepared a financial analysis (see attached) of the potential financial impact on taxation, water and sewer utilities.
5. High level plan for upgrades required for road sections determined through the traffic study to be upgraded from local roads restricting truck use to collector roads permitting truck use.
 - a. The applicant's Engineering Consultant has submitted a revised traffic study for review. District staff provided comments to the applicant and have received responses to these comments along with a revised traffic study which is being reviewed.
 - b. Road modifications and/or improvements are to be identified in the traffic study and detailed design drawings are to be prepared following finalization of the traffic study.
6. Sanitary sewer service modelling for full build out of lift station and mains in service catchment area.
 - a. The applicants Engineering Consultant provided updated sanitary sewer flow data expected to be generated from the proposed development.
 - b. Staff have provided the updated information to our Engineering Consultant to model the impacts to the downstream gravity sewer system and lift station.
7. Identify the preferred water service option and what off site works would be required.
 - a. The applicant's Engineering Consultant have now selected a preferred water service option and have submitted a preliminary design drawing. District staff have provided comments to the applicant and have received responses to these comments along with a revised concept servicing memo which is being reviewed.
8. Additional storm water design including off site line routing plan.

- a. The storm water management plan has been submitted. District staff have provided comments to the applicant and have received responses to these comments along with a revised concept servicing memo which is being reviewed.
9. Additional electrical design and modelling for onsite construction purposes as well as potential off site upgrades required.
- a. District Staff is reviewing the proposed electrical load and the impact to the electrical system. Staff is also reviewing the projected demand in comparison to the capacity of the existing substations with Fortis.
 - b. Staff requested that the Applicant to review alternate methods to heat the buildings to reduce the electrical demand.
 - c. The Applicant is currently completing the design to bring temporary power from Lakeshore Drive for construction and to allow the existing power poles onsite to be removed and not impact the electrical system.

As previously noted, additional areas of review and study may be identified through the information gathering process. Once the above noted study and review is completed a summary report will be prepared including a summary of the community consultation comments and questions received with responses and answers provided where possible and/or applicable. It is anticipated that the additional information gathered would likely result in more detailed additional and/or alternate amenity provisions being recommended. It is noted that several outstanding items are outside of District Staff control. We continue to correspond and seek timeline updates.

One of the primary objectives for study and review during the rezoning process on a major project such as the subject proposed project is to provide Council with information on the potential positive and/or negative impacts on infrastructure. As the rezoning process is at the beginning of the development approval process the construction details are generally not prepared, however, the overall plan for major components is.

At rezoning focus is generally placed on infrastructure components that may be necessary, needed or wanted but can only sought from the development through the rezoning process. These are items that may be provided at subsequent stages such as building permit but need to be included at rezoning in order to be required. These items would include off-site infrastructure that may or may not be adequate to service the proposed development and could be recommended to be upgraded or replaced as a part of the development through a Development Agreement.

As noted under Legislation and Policy, with the Development Agreement a 219 Restrictive Covenant is registered which is a no build and no disturb covenant. This covenant is not released on any portion of the property until the detailed design drawings for off-site infrastructure are received and approved for the phase, each phase agreement must follow the overall Development Agreement. The Development Agreement for each phase would be required to be in place with the required security before a Building Permit could be issued.

LEGISLATION and POLICY:

The Bylaws related to the subject application have received second reading, however, a Public Hearing has not yet been scheduled.

The mechanism proposed to be used for addressing concerns, requirements, conditions and bonding security would be a Development Agreement. The Development Agreement

would be completed, presented to Council and would need to be approved in advance of the Rezoning Bylaw being adopted. As the proposed development would not be constructed all at once the Development Agreement would include provisions to be addressed at each construction phase. As part of this process, a No-Build and No-Disturb 219 Restrictive Covenant would be registered prior to adoption of the Rezoning Bylaw. This covenant would only be released for each phase once the detailed designs are approved and/or provisions are completed and bonding security is in place.

FINANCIAL IMPLICATIONS:

There are no financial implications anticipated to result from the subject recommendation.

CONCLUSION:

The study and review continues to progress. The applicant has engaged professionals in the necessary fields to complete the studies and reviews requested. Staff continue to review the information provided, monitor progress on all components and will continue to regularly update Council on progress.

OPTIONS:

1. Move the motion as recommended by Staff.
2. Request additional information on one or more updates provided.

Submitted by,



Dean Strachan, MCIP, RPP
Director of Development Services



Kris Johnson, P.Eng.
Director of Works and Utilities

Approved for Agenda



Linda Tynan, CAO

Figure 1



While the deep water lake intake option is the most expensive option, it does provide a number of robust, long term viability benefits which make it the favored of the options reviewed. It is also worth noting that the water quality tests were performed at what could be considered a worst-case scenario with respect to the most recent levels of precipitation and flooding exceeding norms in the region.

Lark Enterprises supports maintaining the drilled well option as a secondary option should the lake option not end up being viable; however at this time we are fully committed to working with the District of Summerland in developing a deep water lake intake as the contingency water supply to be provided for the FFSBC.

In order to continue with the development of this option, Lark Enterprises is requesting to work with the District of Summerland in the use of the existing water license commencing immediately upon the conclusion of the rezoning process.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Malek Tawashy', is written over a faint, larger blue signature.

Lark Enterprises Ltd.
Malek Tawashy,
Development Project Manager

Attachments:

- Larrat Aquatic Consulting Letter on Possible Intake for Summerland Hatchery
- CTQ Summary of Water Quality Analysis of Options



To: Malek Tawashy, Lark Group
Re: Possible Intake for Summerland Hatchery

Hello Malek:

The analytical results from the samples collected from the area of Okanagan Lake in front of the Summerland Hatchery on May 16 2017 from 20 m depth and 30 m depth with 2m clearance to the substrates are appended. They were compared to the BC MoE MAC and 30-day guidelines for the protection of aquatic life. There were no exceedances. This information is appended to this letter.

These results are within the normal range for the southern basin of Okanagan Lake. An extensive history of water quality in this basin, but not specific to the proposed intake location, is available from BC MoE, Penticton. The southern basin is a stable, reliable water source. Obtaining a new license may be challenging.

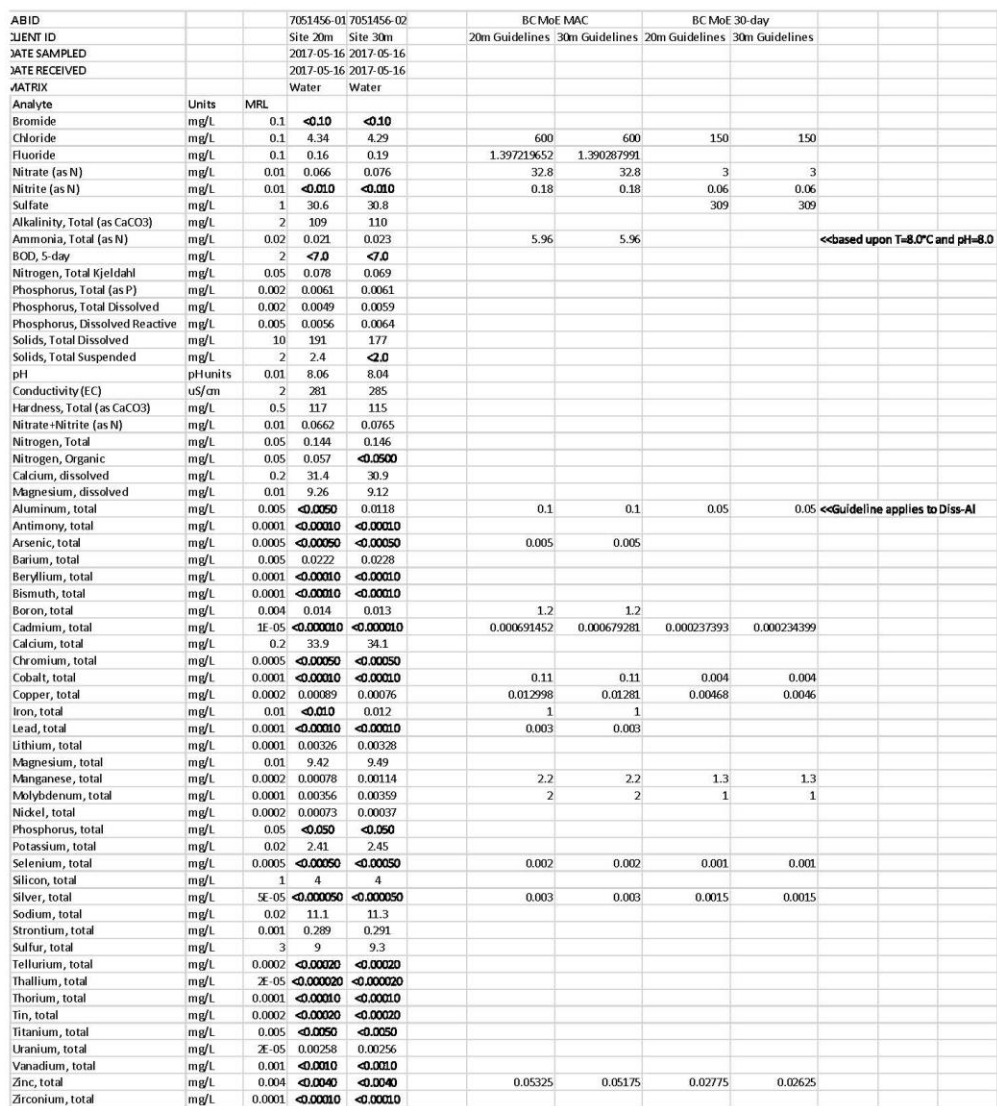
When the 20 m sample and the 30 m sample are compared, they are similar in most respects, however, the 20 m sample may be showing more of an influence from creek plumes/lake flooding than the 30 m sample. This is best indicated in the difference between TDS (191 vs 177 mg/L) and TSS (2.4 vs <2.0 mg/L). Since 2017 is experiencing the largest flooding event recorded, these results are indicative of a worst-case freshet condition.

We trust this information is helpful,

Heather Larratt, R.P. Bio.

Larratt Aquatic Consulting Ltd. 2605 Campbell Rd. West Kelowna B.C. V1Z 1T1

Phone: 250.769.5444 Email: heather@larratt.net



mg/L (UNLESS SPECIFIED)	BASELINE - SPRING				ANALYSIS RESULTS				OPTION 1 - PUMPHOUSE 6				WQO				ANALYSIS RESULTS			
	Max	Min	Mean	Median (dist.)	Short Term Max	Long Term Average	Short Term	Long Term	Max	Min	Mean	Median (dist.)	Short Term Max	Long Term Average	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
Nitrate	8.424	0.440	5.236	4.432					0.041	0.010	0.021	0.026								
CalcO3	265.000	218.000	248.168	241.500	600.000	350.000			50.000	24.000	39.667	37.000	27.864	600.000						
Chloride	43.000	15.000	27.864	29.000					16.500	10.400	13.200	13.450								
Nitrite	8.420	0.443	5.231	4.427					0.041	0.010	0.021	0.026								
Ammonia	0.000	0.000	0.000	0.000	0.000	0.000			0.010	0.010	0.010	0.010	0.000	0.000						
Fluoride	1.320	0.410	0.720	0.820																
Hardness	0.000	0.000	0.000	0.000																
Sulphate	42.600	0.410	0.730	21.505		420.000			150.000	104.000	130.667	127.000		218.000						
Conductivity	699.000	56.100	570.640	340.500																
pH	8.300	7.510	7.694	4.150					75.300	7.710	7.600	7.545								
TDS	450.000	90.000	387.560	270.000																
BOD (5 day)	10.000	0.410	0.730	5.705					56.400	28.600	44.007	42.500								
CalcO3	615.000	184.000	297.048	399.500																
Aluminum	0.3560	0.0000	0.0000	0.0000	0.1400				0.0700	0.0100	0.0100	0.0100								
Antimony	0.0010	0.0000	0.0000	0.0000	0.0000				0.0010	0.0000	0.0000	0.0000								
Arsenic	0.0010	0.0000	0.0000	0.0000	0.0000				0.0050	0.0000	0.0000	0.0000								
Barium	0.0880	0.0000	0.0000	0.0000	0.0440				0.0500	0.0100	0.0100	0.0100								
Beryllium	0.0000	0.0000	0.0000	0.0000	0.0000				0.0010	0.0000	0.0000	0.0000								
Boron	0.0690	0.0000	0.0000	0.0000	0.0345				0.0400	0.0000	0.0000	0.0000								
Calcium	205.0000	24.7000	86.6800	114.8500	3.8201	1.2000			17.8000	0.0001	0.0001	0.0001		0.2651		1.2000				
Carbon	0.0000	0.0000	0.0000	0.0000	0.0000	0.4713			0.0000	0.0000	0.0000	0.0000		0.1157						
Chromium	0.0000	0.0000	0.0000	0.0000	0.0000				8.8000	0.0000	0.0000	0.0000								
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Banks Crescent Development projected revenue analysis

The Southwood Retirement Resort located at 3475 Wilson Street in Penticton, BC was used for comparative purposes as the facility was constructed in 2015, and offers similar levels of care. Details provided by BC Assessment for this comparative property are as follow:

Square footage:	159,167
2017 Assessment values:	Land \$ 1,614,000
	Buildings 19,098,000
	Total <u>\$ 20,712,000</u>
Value per square foot (Land & Buildings)	<u>\$ 130</u>

In reviewing existing assisted living complexes in Summerland (Angus Place and Summerland Senior Village), both properties were included in Class 1 - Residential for property taxation purposes. Using the assessed values as calculated (square footage x \$130), in conjunction with 2017 Class 1 taxation rates, the approximate property taxes (Municipal portion) would be as follows:

Proposed Development	# of Units	Square Footage	Approximate Assessed Value	2017 Property Taxes
Building A - Market Housing (1 and 2 bedroom)	93	141,061	\$ 18,355,912	\$ 57,482
Building B - Market Housing (1 and 2 bedroom)	83	108,767	14,153,575	44,322
Building C - Independent Living (1 bedroom)	99	92,495	12,036,141	37,691
Building D - Memory Care (1 bedroom)	48	46,466	6,046,503	18,935
Building E - Market Housing (1 and 2 bedroom)	66	100,390	13,063,497	40,908
	<u>389</u>			<u>\$ 199,338</u>

Utility Charges

Water Calculations include a per unit base fee plus commercial rate consumption (usage is based on per unit consumption levels at a similar facility located in Summerland).

Sewer Calculations reflect a per unit apartment rate charge.

	Monthly	Annual	
Water Base Rate *	\$ 34.35	\$ 412.20	
Water Consumption	4.31	51.71	
Sewer Apartment Rate	17.90	214.80	
Total Annual Charges per Unit	<u>\$ 56.56</u>	<u>\$ 678.71</u>	
Less 10% early payment discount		(67.87)	10% Discount
Total per Unit		\$ 610.84	
		x 389 Units	
Facility Total		<u>\$ 237,615.50</u>	

* The proposed water charges are based on a base fee per unit whereas the current bylaw refers to a base fee applicable to each account (potentially one fee per building).

** Electrical revenue component has been excluded from these preliminary revenue projections as sufficient information is not available at this time.

Revenue Projection Summary:

Property Taxes based on 2017 Class 1 tax rates	\$ 199,338
Utility Charges based on 389 Units at current water and sewer rates	237,615
	<u>\$ 436,953</u>



Freshwater Fisheries Society of BC

Dear Mr. Strachan,

Thank you for the information regarding analysis of Okanagan Lake water samples, which we received June 8, 2017. We agree that the water quality results indicate the deep-water intake option sample meets the MOE Guidelines for the protection of Aquatic Life however, there are several relevant water quality parameters not included in the laboratory report. The information provided does not show water temperature profiles at the 20m and 30m depths. The temperature of water originating from Shaughnessy Springs is quite stable and varies by approximately 5 degrees Celsius year-round, from about 9 to 13 degrees Celsius. Other very important unreported parameters that are particularly relevant to basin surface waters are microbial pathogens, which do not occur in the groundwater originating from Shaughnessy Springs, and could have an extremely negative effect on the fish reared at the Summerland Trout Hatchery. One known example of a pathogen occurring in Okanagan Lake is the Infectious Haematopoietic Necrosis Virus (IHNV), which has been detected in BC trout and salmon. Both species of fish are found in Okanagan Lake and, since we do not stock Okanagan Lake, these wild lake fish are not routinely screened for disease as our hatchery fish are.

Information provided to-date by Lark Group regarding their consideration of lake water as a source for the required Contingency Water Supply is very conceptual, including, for example, reference to an existing surface water licence held by others that might be utilized to access the lake water. To properly assess the suitability of Okanagan Lake for the Contingency Water Supply, we anticipate that a quite comprehensive water quality characterization will be required. Given the construction schedule for the Lark Group project is years-long, the lake water quality characterization would necessarily include multiple lake water samples acquired under seasonal conditions that produce results that are representative of the natural variation of lake water quality. Concurrent with the lake water characterization, and if Okanagan Lake is Lark Group's preferred source for the required Contingency Water Supply, we would like to see some details (beyond concepts) of the infrastructure that Lark Group proposes to facilitate delivery of lake water to the hatchery at the quantity and quality currently available from existing groundwater source. Our request for such details is relevant, since Lark Group's infrastructure must be compatible with both the hatchery's current land uses and the hatchery's existing mechanical/electrical systems. I would also like to reiterate that any infrastructure requirements for the deep-water intake option must be in place prior to the start of construction.

Kyle Girgan

Hatchery Manager

Freshwater Fisheries Society of BC

T 250.494.0491 C 250.488.0485

13405 Lakeshore Drive South, Summerland, BC V0H 1Z1

ENVIRONMENTAL ASSESSMENT

13610 Banks Crescent, Summerland

LOTS A, B, C PLAN 2091 AND LOT 1, PLAN 20906
PID # 011-218-860, 011-218-908, 011-218-932 & 007-679-076

DISTRICT OF SUMMERLAND

Prepared For:

MALEK TAWASHY
LARK GROUP
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Prepared By:

ECOSCAPE ENVIRONMENTAL CONSULTANTS LTD.
#102 – 450 Neave Court
Kelowna, BC V1V 2M2



May 2017

Ecoscape File No: 16-1837

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APPENDIX

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1.0 INTRODUCTION

Ecoscape Environmental Consultants Ltd. (Ecoscape) has been retained by Lark Group (proponent) to provide environmental consulting services related to the proposed development of a seniors' residential care and multi-family development at 13610 Banks Crescent, Summerland, BC (subject property). The subject property is legally described as Lots A, B, and C, Plan 2091 (except Plans B4126 and KAP53034); and Lot 1, Plan 20906, District Lot 455 (Figure 1).

The proponent intends to re-zone the subject property from Agricultural (A1) to Comprehensive Development (CD8) to accommodate residential housing and urban services as well as amend the Official Community Plan to change the future land use designation from Agriculture to High Density Residential (HDR). The subject property occurs within a District of Summerland Environmentally Sensitive Development Permit Area (ESDPA); therefore, an environmental assessment is required to address the potential for adverse environmental effects resulting from the proposed development.

1.1 Background

Ecoscape provided an overview letter of environmental values in July 2016 in response to the immediate requirements outlined in the June 17, 2016 District of Summerland letter regarding the proponent's application to amend the OCP and Zoning Bylaw. The current report will provide a detailed Environmental Assessment for the subject property.

The purpose of this report is to address the conditions of the Environmentally Sensitive DPA guidelines as described in the District of Summerland Official Community Plan (OCP) (Bylaw No. 2014 – 002), to meet the requirements of the District of Summerland's Terms of Reference for Environmental Assessment Reports, as well as to expand on Ecoscape's previously submitted letter from July 18, 2016, which outlined environmental values within the subject property. This report provides a full environmental assessment of potentially existing terrestrial resource values, the potential for rare/endangered species and habitats, potential impacts of the proposed development, and subsequently provides mitigation measures to incorporate into development planning to protect and enhance the natural integrity of existing ecological communities.

The scope of this assessment does not include a hydrogeological / groundwater assessment or review of the potential impacts on groundwater in the surrounding area.



1.2 Study Area

The subject property is approximately 6.1 ha in size and the total proposed development footprint is 2.5 ha (Figure 1).

Existing site conditions include an operational vineyard and rural residential dwelling in the center of the subject property, surrounded by moderate to steep slopes. These warm-aspect slopes are characterized by sagebrush steppe, while the cool-aspect slopes are characterized by open woodland. Moisture-receiving gullies exist along the southwest portion of the property and are characterized by shrubs such as tall Oregon grape and Saskatoon. Silt bluffs are present along the northern boundaries of the subject property, where there is evidence of bird foraging and nesting. The surrounding land use is mixed urban residential with agricultural and rural areas. To the north exists a 0.4 ha lot designated as park land, while the west side of the property is bordered by Solly Road and Bristow Road. The south and east sides of the property are bordered by low density residential lots.

1.3 Proposed Works

The proposed works include the rezoning of the subject property from A1 to CD8, followed by the development and construction of a seniors' residential care and multi-unit development. The development footprint will be 22,881 m² and will include the multi-unit development including driveways, site servicing, a walking trail etc.

2.0 ENVIRONMENTAL ASSESSMENT

The most recent site visit was conducted on March 16, 2017 by Kyle Hawes, B.Sc., R.P.Bio., and Tina Deenik, B.Sc., Natural Resource Biologists with Ecoscape. During this site visit, additional details were collected and the previously described Terrestrial Ecosystem Mapping (TEM) polygons from the Sensitive Ecosystem Inventory (SEI) for South Okanagan (Iverson and Haney, 2012) were refined. The following section describes the natural conditions and values inherent within the study area, based on information collected during both site visits.

Other sources of information queried for the assessment include:

- District of Summerland Official Community Plan (Schedule "A" to Bylaw No. 2014-002);
- BC Conservation Data Centre (CDC) Species and Ecosystems Explorer and Species at Risk Mapping;
- District of Summerland GIS;
- Sensitive Ecosystem Inventory (SEI) and Terrestrial Ecosystem Mapping (TEM); and
- Provincial Best Management Practices (BMP).



2.1 Ecosystem Communities and Vegetation

The subject property occurs within a transitional zone between the Okanagan Very Dry Hot Bunchgrass variant (BGxh1) biogeoclimatic zone and the Okanagan Very Dry Hot ponderosa pine (PPxh1) zone, described by the Biogeoclimatic Ecosystem Classification (BEC) program (Lloyd et al. 1990). The bunchgrass (BG) zone occurs at low elevations within the southern Okanagan and is the hottest and driest zone in British Columbia. The ponderosa pine (PP) zone is generally the driest forest region in BC, with hot dry conditions in the summer, and cool with little snow in the winter.

The existing Terrestrial Ecosystem Mapping (TEM) polygon extents were adjusted to address seral conditions and previous disturbance that has impacted of sites. Nine separate polygons represented by seven different classifications were identified within the subject property and are displayed in Table 1 and Figure 2.

Table 1. Ecosystem communities occurring within the subject property.			
Ecosystem Code	PPxh1 & BGxh1 Site Series	Site Series Name	Provincial Status ¹
CV	-	Cultivated Vineyard	-
ES	-	Exposed Soils	-
OS	-	Oregon Grape-Saskatoon	-
PW*	01	Ponderosa Pine / Bluebunch Wheatgrass	Blue
PS	05	Ponderosa Pine / Sumac	Red
RW	-	Rural	-
SW	01	Big Sagebrush / Bluebunch Wheatgrass	Red

¹ Source: <http://www.env.gov.bc.ca/cdc/>

Blue: Of special concern. Red: Endangered or threatened.

*Part of PPxh1 site series

Shrub Steppe Ecosystem

The subject property has south and southeast facing slopes along the north and west property boundaries as well as on Lot 1, Plan 20906, which are characterized by a shrub-steppe ecosystem dominated by big sagebrush (*Artemisia tridentata*) and bluebunch wheatgrass (*Pseudoroegneria spicata*) (Polygons 2, 4, 6 & 8; Photo 1.). The big sagebrush / bluebunch wheatgrass (SW) ecosystem is a Red-listed community meaning it is considered endangered or at risk of becoming extirpated within the region.

Beginning in the northeast corner of the property, the slope toe bordering the vineyard is dominated by non-native black locust (*Robinia pseudoacacia*) and Siberian elm trees (*Ulmus pumila*) (Polygon 3, Photo 2.). Crested wheatgrass (*Agropyron cristatum*) dominates the ground cover in the shadow of these trees with native grasses and forbs being uncommon. Bluebunch wheatgrass becomes more prevalent further upslope with exposed soil and prickly pear (*Opuntia fragilis*). Persistent site disturbance and



frequent ungulate movement through this fragmented ecosystem has destroyed much of the cryptogamic crust with only small patches remaining (Photo 3).

Continuing to the west along the slope from the east property line, a section of weedy forbes and grasses, such as Russian thistle (*Salsola kali*), disrupts the shrub steppe ecosystem and occurs in association with a yard waste dumping site upslope of the subject property (Photo 4). To the west of this disturbance, the shrub steppe ecosystem continues with small silt bluffs (ES) at the top of the slope and mature elm trees at the toe (Polygon 2, Photo 5). Grasses here are mostly non-native crested wheatgrass as well as tufted white prairie aster (*Aster ericoides ssp. pansus*), with bluebunch wheatgrass occurring in the areas that are not shaded by the elm trees.

In the northwest corner of the subject property above the vineyard, there is a modified shrub steppe community with big sage, bluebunch wheatgrass and silver poplar (*Populus albus*) (Polygon 4, Photo 6). The aspect begins to shift east as you head south and Siberian elm trees are interspersed with common snowberry (*Symphoricarpos albus*), white clematis (*Clematis ligusticifolia*), and weeds such as Dalmatian toadflax (*Linaria dalmatica*). An old apple tree (*Malus sp.*) is also present in this corner of the property.

Woodland Ecosystems

Polygon 5 begins at northwest gully on the subject property and continues to the south adjacent to the vineyard. This polygon represents the cooler north and northeast aspects of the subject property and is characterized by an open canopy of ponderosa pine (PS) with a moderately well-developed shrub stratum with tall Oregon grape (*Mahonia aquifolium*) / Saskatoon (*Amelanchier alnifolia*) and common snowberry (OS) present in on lower slopes and moisture-receiving gullies (Photo 7). OS is not listed but PS is a Red-listed community.

Polygon 6 represents the warmer aspects associated with the large drainage gullies in the southwest portion of the subject property. Here, scattered ponderosa pine communities can be found on the upper slopes (PW) with sagebrush communities (SW) dominating the mid and lower slopes. The shrub community typical of OS is found in the gully bottoms here as well. The ponderosa pine / bluebunch wheatgrass (PW) ecosystem is a Blue-listed community meaning it is of special concern

The disturbed slopes of Polygons 5 and 6, have an abundance of invasive and non-native species such as Dalmatian toadflax, common mullein (*Verbascum thapsus*) diffuse knapweed (*Centaurea diffusa*), agronomic grasses and forbes, cleavers (*Galium aparine*), and hounds tongue (*Cynoglossum officinale*) (Photo 8). Native species such as Ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*) regeneration, Rocky Mountain juniper (*Juniperus scopulorum*), tall Oregon- grape, big sagebrush, and common snowberry are also growing here with Saskatoon and Douglas maple (*Acer*



glabrum) in the gullies. Feathermosses were present on steep, cool aspect slopes (Photo 9).

Anthropogenic Communities

The rural and cultivated vineyard communities (CV and RW) are largely represented by Polygons 1, 3, 7, and 9 and are not considered sensitive to development (Photo 10). Polygon 4 has a small amount of rural disturbance on the upper slopes as well.

2.2 Aquatic Resources

No aquatic resources were documented within the subject property. However, a broad moisture-receiving area occurs 50-m downslope to the southeast and is the location of emerging ground water known as Shaughnessy Springs. This spring supplies the Freshwater Fisheries Society Summerland Trout Hatchery. A detailed Hydrogeological Assessment including a review of groundwater systems, was completed by Piteau Associates, dated July 2016, and can be found on the District of Summerland's webpage. Two fish-bearing creeks are located within 500 m of the subject property. Eneas Creek is located 450 m north of the property and Prairie Creek is located 250 m south of the property. Development is not anticipated to impact either of these watercourses.

2.3 Wildlife

This section provides incidental wildlife observations made onsite during the July 2016 and March 2017 site visits.

The vineyard and rural residential area generally have a low suitability for wildlife. Similarly, the Siberian elm and black locust treeline that is established along the northern fringe of the vineyard over the lower shrub steppe slopes is degrading the value of this fragmented ecosystem for wildlife.

Birds

Several mature ponderosa pine trees we documented on the western boundary of the subject property, upslope of the vineyard. These trees and associated grassland and shrub-steppe ecosystems may provide moderate value nesting habitat for woodpeckers and other avian species in the area. No raptor nests, cavities, or woodpecker activity was observed during the site visit; however, the silt bluffs present along the northern boundaries of the subject property showed evidence of bird foraging for insects and possible nesting (Photo 11. Bird foraging activity within silt bluffs (photo taken July, 2016).). Development will not impact the silt bluffs as they are beyond the development footprint.



Species recorded onsite during the July 2016 site visit included: American Crow (*Corvus brachyrhynchos*), American Robyn (*Turdus migratorius*), Black-billed Magpie (*Pica hudsonia*), California Quail (*Callipepla californica*), Clarke's Nutcracker (*Nucifraga columbiana*), European Starling (*Sturnus vulgaris*), House Finch (*Haemorhous mexicanus*), Northern Flicker (*Colaptes auratus*), Northern Rough-winged Swallow (*Stelgidopteryx serripennis*), Oriole species (*Icterus* spp.), and Red-eyed Vireo (*Vireo olivaceus*).

Species recorded onsite during the March 2017 environmental assessment included: American Crow (*Corvus brachyrhynchos*), American Robyn (*Turdus migratorius*), Black-billed Magpie (*Pica hudsonia*), California Quail (*Callipepla californica*), Cedar Waxwing (*Bombycilla cedrorum*), Dark-eyed Junco (*Junco hyemalis*), Eurasian Collared Dove (*Streptopelia decaocto*), European Starling (*Sturnus vulgaris*), House Finch (*Haemorhous mexicanus*), House Sparrow (*Passer domesticus*), Northern Flicker (*Colaptes auratus*), Pygmy Nuthatch (*Sitta pygmaea*), Song Sparrow (*Melospiza melodia*), and Tree Swallow (*Tachycineta bicolor*).

Mammals

There was evidence of recent deer utilization (tracks and scat) observed onsite throughout the shrub steppe and vineyard. There are abundant browse opportunities that exist in the shrub-dominated communities within the subject property. Inactive burrows occurred throughout the subject property (Photo 12), and are likely to be due to Yellow-bellied Marmot (*Marmota flaviventris*) activity as one was observed during the March site visit.

Reptiles

The subject property generally has moderate habitat suitability for reptile species of concern (e.g., Racer, Western Rattlesnake, Gopher Snake and Rubber Boa) due to the warm south aspects of the site and the hunting opportunities of rodents such as mice, voles and gophers in the vineyard and the friable soils provided by the adjacent hillslopes. Although this site may provide hunting opportunities and possible nesting on south-facing slopes, it is lacking important, security and thermal habitats (e.g. talus slopes and fragmented rock outcrops) for hibernation / denning and general cover. Development activity will not impact the south-facing shrub-steppe ecosystem where potential snake habitat may occur.

2.4 Species at Risk

Species at risk are identified in the context of provincial and national ranking systems. The provincial ranking system applies to species that have been assessed by the BC Conservation Data Centre (CDC). The national ranking system applies to species that



have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Due to the timing and duration of the site visit, it was not possible to identify the presence of rare or endangered wildlife that may occasionally use the site. We have provided a habitat review rather than a complete rare plant or animal survey, the results of which can be found in Tables 2 and 3. In addition, species and ecosystems at risk as well as wildlife species inventories were queried within a 2 km radius of the subject property using the Ministry of Environment's iMapBC, the results of which are provided below. The Open Government Portal Maps of BC Biota was also queried for critical habitat for species at risk.

The following results include only those species that have the potential to occur within the subject property and have been noted within a 2 km radius. The subject property occurs within a masked CDC area as well as within the range of the red-listed American Badger (*Taxidea taxus*), which extends from the U.S. border to the north end of Okanagan Lake (Shape ID 74373, Occurrence ID 10214). Shape ID 104496, Occurrence ID 13237 is located 1.1 km southwest of the subject property and represents the sighting of the Blue-listed North American Racer (*Coluber constrictor*) in 2014. Shape ID 79069, Occurrence ID 10630, is located 1.3 km from the subject property and represents the sighting of a Blue-listed Gopher Snake (*Pituophis catenifer deserticola*) in 2011. Shape ID 6554, Occurrence ID 1504, represents the sighting of the Blue-listed Vivid Dancer (*Argia vivida*) in 2011, 700 m north of the subject property. The online Wildlife Species Inventory iMap revealed the following species within a 2 km radius of the subject property: White-throated Swift (*Aeronautes saxatalis*), Western Screech Owl (*Megascops kennicottii*), Lewis's Woodpecker (*Melanerpes lewis*), and Vivid Dancer (*Argia vivida*). The BC Open Maps for Biota revealed that critical habitat for Lewis's Woodpecker (*Melanerpes lewis*) occurred within 0.8 km of the subject property.

It should be noted again that the development area, within the cultivated vineyard, has low habitat suitability for wildlife, particularly provincially ranked and/or federally listed species.



Table 2: Summary of wildlife species at risk with the potential to occur within the study area.

Class	Scientific Name	Common Name	COSEWIC	BC List
Amphibians	<i>Anaxyrus boreas</i>	Western Toad	SC (Nov 2012)	Blue
	<i>Spea intermontana</i>	Great Basin Spadefoot	T (Apr 2007)	Blue
Birds	<i>Ammodramus savannarum</i>	Grasshopper Sparrow		Red
	<i>Buteo swainsoni</i>	Swainson's Hawk		Red
	<i>Chondestes grammacus</i>	Lark Sparrow		Blue
	<i>Chordeiles minor</i>	Common Nighthawk	T (Apr 2007)	Yellow
	<i>Coccythraustes vespertinus</i>	Evening Grosbeak	SC (Nov 2016)	Yellow
	<i>Empidonax wrightii</i>	Gray Flycatcher	NAR (May 1992)	Blue
	<i>Hirundo rustica</i>	Barn Swallow	T (May 2011)	Blue
	<i>Megascops kennicottii</i>	Western Screech-Owl, <i>macfarlanei</i>	T (May 2012)	Red
	<i>macfarlanei</i>	subspecies		
	<i>Melanerpes lewis</i>	Lewis's Woodpecker	T (Apr 2010)	Blue
	<i>Sphyrapicus thyroideus</i>	Williamson's Sapsucker, <i>thyroideus</i>	E (May 2005)	No Status
		subspecies		
	<i>Spizella breweri</i>	Brewer's Sparrow, <i>breweri</i> subspecies		Red
	<i>Tyto alba</i>	Barn Owl	T (Nov 2010)	Red
Insects	<i>Apodemia mormo</i>	Mormon Metalmark	E (May 2014)	Red
	<i>Callophrys affinis</i>	Immaculate Green Hairstreak		Blue
	<i>Cicindela decemnotata</i>	Badlands Tiger Beetle		Red
	<i>Cicindela pugetana</i>	Sagebrush Tiger Beetle		Blue
	<i>Danaus plexippus</i>	Monarch	E (Nov 2016)	Blue
	<i>Hesperia nevada</i>	Nevada Skipper		Blue
	<i>Lycaena nivalis</i>	Lilac-bordered Copper		Blue
	<i>Satyrrium californica</i>	California Hairstreak		Blue
	<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat		Blue
	<i>Euderma maculatum</i>	Spotted Bat	SC (Nov 2014)	Blue
Mammals	<i>Myotis thysanodes</i>	Fringed Myotis	DD (May 2004)	Blue
	<i>Perognathus parvus</i>	Columbia Plateau Pocket Mouse		Blue
	<i>Reithrodontomys megalotis</i>	Western Harvest Mouse	SC (Apr 2007)	Blue
	<i>Sorex merriami</i>	Merriam's Shrew		Red
	<i>Sorex preblei</i>	Preble's Shrew		Red
	<i>Taxidea taxus</i>	American Badger	E (Nov 2012)	Red
	<i>Charina bottae</i>	Northern Rubber Boa	SC (Apr 2016)	Yellow
	<i>Coluber constrictor</i>	North American Racer	T (Nov 2015)	Blue
Reptiles	<i>Crotalus oregonus</i>	Western Rattlesnake	T (May 2015)	Blue
	<i>Pituophis catenifer deserticola</i>	Gopher Snake, <i>deserticola</i> subspecies	T (Apr 2013)	Blue
	<i>Plestiodon skiltonianus</i>	Western Skink	SC (Nov 2014)	Blue

Source: <http://www.env.gov.bc.ca/cdc/>

Search criteria: Animals AND MOE Regions: 8- Okanagan (Restricted to Red, Blue, and Legally designated species) AND Regional Districts: Okanagan-Similkameen (OSRD) (Restricted to Red, Blue, and Legally designated species) AND Habitat Subtypes: Conifer Forest - Dry (Restricted to Red, Blue, and Legally designated species) AND BGC Zone: BG, PP

Yellow: Not considered at risk. Blue: Of special concern. Red: Endangered or threatened.



EXTIRPATED (XT): A species that no longer exists in the wild in Canada, but occurring elsewhere. ENDANGERED (E): A species facing imminent extirpation or extinction. THREATENED (T): A species that is likely to become endangered if limiting factors are not reversed. SPECIAL CONCERN (SC): A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events. NOT AT RISK (NAR): A species that has been evaluated and found to be not at risk. DATA DEFICIENT (DD): A species for which there is insufficient scientific information to support status designation.

Note: Only individuals with the possibility of occurring at the subject property based on existing conditions are displayed here.

Table 3: Summary of plant species at risk with the potential to occur within the study area.

Family	Scientific Name	Common Name	COSEWIC	BC List
Fabaceae	<i>Astragalus spaldingii</i>	Spalding's milk-vetch		Red
Brassicaceae	<i>Boechea sparsiflora</i>	stretching suncrest		Red
Asteraceae	<i>Brickellia oblongifolia</i> var. <i>oblongifolia</i>	narrow-leaved brickellia		Blue
Asteraceae	<i>Erigeron poliospermus</i> var. <i>poliospermus</i>	cushion daisy		Blue
Onagraceae	<i>Gaura coccinea</i>	scarlet gaura		Red
Polemoniaceae	<i>Gilia sinuata</i>	shy gilia		Red
Polemoniaceae	<i>Lathrocasis tenerrima</i>	slender gilia		Red
Polemoniaceae	<i>Leptosiphon harknessii</i>	Harkness' linanthus		Red
Fabaceae	<i>Lupinus sulphureus</i>	sulphur lupine		Red
Onagraceae	<i>Neoholmgrenia andina</i>	Andean evening-primrose		Red
Solanaceae	<i>Nicotiana attenuata</i>	wild tobacco		Red
Orobanchaceae	<i>Orobanche corymbosa</i> ssp. <i>mutabilis</i>	flat-topped broomrape		Blue
Scrophulariaceae	<i>Orthocarpus barbatus</i>	Grand Coulee owl-clover	E (May 2005)	Red
Boraginaceae	<i>Pectocarya penicillata</i>	winged combseed		Red
Polemoniaceae	<i>Phlox speciosa</i> ssp. <i>occidentalis</i>	showy phlox	T (Nov 2004)	Red
Brassicaceae	<i>Sandbergia whitedii</i>	Whited's halimolobos		Blue
Malvaceae	<i>Sphaeralcea coccinea</i>	scarlet globe-mallow		Red
Malvaceae	<i>Sphaeralcea munroana</i>	Munroe's globe-mallow		Red
Poaceae	<i>Achnatherum thurberianum</i>	Thurber's needlegrass		Red
Poaceae	<i>Hesperostipa spartea</i>	porcupinegrass		Blue
Poaceae	<i>Melica bulbosa</i>	oniongrass		Blue
Poaceae	<i>Poa fendleriana</i> ssp. <i>fendleriana</i>	mutton grass		Red

Source: <http://www.env.gov.bc.ca/cdc/>

Search criteria: Plants AND MOE Regions: 8- Okanagan (Restricted to Red, Blue, and Legally designated species) AND Regional Districts: Okanagan-Similkameen (OSRD) (Restricted to Red, Blue, and Legally designated species) AND Habitat Subtypes: Conifer Forest - Dry (Restricted to Red, Blue, and Legally designated species)

AND BGC Zone: BG, PP

Yellow: Not considered at risk. Blue: Of special concern. Red: Endangered or threatened.

ENDANGERED (E): A species facing imminent extirpation or extinction. THREATENED (T): A species that is likely to become endangered if limiting factors are not reversed.

Note: Only individuals with the possibility of occurring at the subject property based on existing conditions are displayed here.



2.5 Environmentally Sensitive Areas

To determine the ESA rating, criteria such as stand, landscape, regional rarity, successional stage, structural complexity, and levels of disturbance were all considered in the determination of environmental sensitivity. Further, wildlife habitats as they relate to species at risk, connectivity, adjacency, and edge effects were also considered. Based upon these criteria, professional judgment was used to determine the sensitivity of the subject property. Ecosystem condition (i.e. level of disturbance, invasive species presence, etc.) is also considered when evaluating ecosystem units. The assessment also addresses the potential for conservation and wildlife movement corridors, and measures to reduce the effects of fragmentation and isolation from adjacent natural habitats.

The following describes the four-class ESA rating system provided by the District of Summerland that was used for the assessment:

- a) ESA – 1 High: Locally and provincially significant ecosystems, extremely rare and/or of critical importance to rare wildlife species. These areas may also represent a diverse range of habitats and contribute significantly to the overall connectivity of the habitat and ecosystems. Avoidance and conservation of ESA-1 designations is the primary objective.
- b) ESA – 2 Moderate: Locally or provincially significant ecosystems, uncommon and important to rare wildlife species. ESA-2 should be avoided, but if development is pursued, portions of the habitat must be retained and integrated to maintain the contiguous nature of the landscape. Some loss to these ESAs can be offset by habitat improvements to the remaining natural areas found on the property.
- c) ESA – 3 Low: Ecosystems that may have low to moderate conservation values because of importance to wildlife (e.g. disturbed or fragmented ecosystems or habitat features). These areas may contribute to the diversity to the landscape, although based on the condition and adjacency of each habitat the significant function within the landscape is limited. If development is pursued in these areas the impacts should be offset by habitat improvements in other more sensitive natural areas found on property.
- d) ESA – 4 Not Sensitive: Little or no inherent ecological value or importance as wildlife habitat. The majority of development should occur within ESA-4 areas.

The subject property consists of 48.1 % Low-value ecosystems (ESA 3), 29.5 % Moderate-value ecosystems (ESA 2), and 22.4 % High-value ecosystems (ESA 1) (Table 4, Figure 3). The cultivated vineyard within the subject property is rated as ESA 3 because it is highly disturbed, and lacks suitable habitat and environmentally valuable resources for species at risk. The surrounding shrub steppe and shrub dominated woodland ecosystems are rated as ESA 2 due to natural habitat value containing red-



listed communities (PS and SW) but with disturbances and the presence of invasive species. It also lacks connectivity to other valued ecosystems. The ESA 1 areas are rated High due to the presence of natural, largely undisturbed open woodland and shrub steppe ecosystems with silt bluffs and the presence of a red-listed community (SW) and blue-listed community (PW).

The entire development disturbance footprint is approximately 22,881 m², or 36.5 % of the subject property, while 63.5 % will remain undisturbed. The development footprint is primarily located within the already-disturbed vineyard area in the center of the subject property (Polygon 1). This area has a Low-value ESA rating (3) due to the disturbed cultivated field, lack of high-value habitat, and lack of connectivity. The western boundary of the subject property also has a Low-value ESA rating (3) due to edge effect and adjacency to a road way and rural developed area. The sloped area surrounding the vineyard has a Moderate-value ESA (2) due to the natural shrub steppe ecosystem, however it is on the lower end of the scale due to the presence of invasive and non-native plants and is not equivalent to other ESA 2 areas that are less disturbed, and have greater connectivity and continuity with adjacent areas. There will be slight encroachment into the High-value ESA by an area of approximately 16.8 m² which represents approximately 0.1 % of the High-value ESA within the subject property. This impacted ESA 1 is directly adjacent to an ESA 3, and is likely closer to an ESA 2, than a true ESA 1 (Figure 3). Approximately 2,031.7 m² of Moderate-value ESA will be disturbed which represents 10.9 % of the Moderate-value ESA within the subject property. Overall the majority of the development (69.1%) is located within Low-value ESA within the subject property.

In order to offset the 2,031.7 m² development of the Moderate-value ESA, habitat improvements and restoration are proposed in other natural areas throughout the subject property (refer Section 4.6 below).

The following values in Table 4 apply to the subject property (Figure 3):

Table 4. Percent composition of ESA lost to development within the study area.					
ESA Value	ESA Area Within Development Footprint (m ²)	ESA Area Outside Development Footprint (m ²)	Total ESA Area Within Subject Property (m ²)	ESA Lost to Development (%)	ESA Retained (%)
High (ESA 1)	16.7	14,020.3	14,037	0.1	99.9
Moderate (ESA 2)	2,031.7	16,473.3	18,505	10.9	89
Low (ESA 3)	20,832	9,303	30,135	69.1	30.9
Nil (ESA 4)	0	0	0	0	0
Total	22,881.2	39,796.6	62,677.8	-	-



2.5.1 Re-Design Summary

The following summarizes design changes that have been made to minimize disturbance within High and Moderate-value ESAs throughout the development permitting process:

- Electrical servicing was to occur underground, and was encroaching into ESA 1. To reduce the footprint of impact, an overhead power service has been included, reducing ground disturbance within both ESA 1 and ESA 2.
- The retaining wall footprint has been reduced, which limits encroachments into ESA 1. This reduction has almost entirely avoided ESA 1.
- The retaining wall reduction also occurred with a reduction in the building footprint to avoid ESA 1 as well.

3.0 IMPACT ASSESSMENT

3.1 Potential Impacts

Potential environmental impacts from proposed development are typically associated with the clearing, grubbing, and earthworks required for construction of permanent structures, including site servicing, driveways, and other infrastructure. The following section provides an overview of potential impacts to terrestrial resources on the property from development. Provincial best management practices (BMPs) and mitigation measures must be incorporated into the planning and construction phases. Many impacts can be mitigated through the implementation of BMPs and mitigation measures. If mitigation measures are not adhered to, there is the potential for environmental impacts to occur as described below.

- Potential for the release of deleterious substances (e.g., fuel, oil, hydraulic fluid) to the environment as a result of improper storage, equipment re-fueling, and/or poorly maintained equipment.
- Potential for the release of fine sediment down slope to adjacent aquatic values, such as Shaughnessy Spring. This can be mitigated by following best management practices for preventing surface runoff.
- Encroachment into steep slopes could potentially occur if disturbance limits or covenant boundaries are not properly identified and clearly marked in the field prior to initiation of site clearing and grading.



- Potential to directly or indirectly impact wildlife and their habitat, such as herptiles, avian species, and small mammals within the vineyard, silt bluffs, and adjacent shrub communities, during clearing, earthworks, and roadworks. This includes disruption of migration, breeding, or other behavior, as a result of tree falling, site grading, construction noise, impacts to air quality, and other alterations to existing wildlife habitat and cover. The subject property generally has low habitat suitability for wildlife species of concern. Thus, it is not anticipated that the development will harm or displace wildlife species of concern.
- Establishment of invasive weeds would deteriorate wildlife habitat and natural condition of surrounding shrub steppe and woodland ecosystems.

As with any land development, there will be an incremental loss of natural lands, and this incremental loss has not been fully considered in a Cumulative Impacts Assessment as part of this report. This cumulative impacts assessment goes beyond what is typical of an impact assessment for sites of this size, as they are typically completed for larger, more regional-type assessments. In addition to the impacts listed above, there is the potential for activities associated with the senior's residential care and multifamily development to impact terrestrial areas through encroachment into Environmentally Sensitive Areas. As these impacts result from human activities, they are highly variable and thus hard to account for.

4.0 MITIGATION MEASURES AND RECOMMENDATIONS

4.1 General

Ecoscape provides the following general mitigation strategies for development within the study area, based on the existing ecosystems and environmental sensitivity analysis. In addition to the recommendations provided herein, the proponent and individual property owners can find additional information on best management practices in the following documents (the URL for these reference documents has been provided in parentheses so that they can be sourced online):

- All works must generally conform to the Develop with Care Environmental Guidelines for Urban and Rural Land Development in British Columbia (2014) (<http://www.env.gov.bc.ca/wld/BMP/bmpintro.html#second>)
- Guidelines for Amphibian and Reptile Conservation during Urban and Rural Land Development in British Columbia (2014) (http://www.env.gov.bc.ca/wld/documents/bmp/HerptileBMP_complete.pdf)



- Best Management Practices for Amphibian and Reptile salvages in British Columbia (2016)
<http://a100.gov.bc.ca/pub/eirs/finishDownloadDocument.do;jsessionid=vQ4jXR5DC5mQXkGb1H3GYHGKyT712l7LGjmx818Ksg9hclhpXQ5B!101758496?subdocumentId=10351>
- Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia (2013)
(http://www.env.gov.bc.ca/wld/documents/bmp/raptor_conservation_guidelines_2013.pdf)

Some of the recommendations included in this report were obtained from these reference documents. The pertinence of the provided recommendations will depend on the final construction plan and selected contractor. A complete Environmental Protection Plan (EPP) or Construction Environmental Management Plan (CEMP) should be prepared and submitted to support a Development Permit process. This plan will formalize the generic recommendations made below. The EPP or CEMP should include the following general mitigation strategies for site development.

4.2 Conservation and Connectivity

This property is surrounded by low-density rural development and is considered isolated from surrounding critical habitat values, therefore it is not considered a prime wildlife corridor. Any animals that are using this area as a corridor are not likely to be impeded so long as the Moderate- and High-value ESA areas surrounding the cultivated vineyard area and development footprint are left natural or restored as per the recommendations in Section 4.6 below.

4.3 Clearing and Grubbing

- Prior to any disturbance within the site, the limits of disturbance with site grading and lot establishment must be clearly marked in the field by a legal surveyor and delineated with brightly coloured snow fence to prevent unnecessary encroachment into adjacent steep slopes and natural areas. Permanent fencing may be necessary along some buffers where development and/or related-activity are anticipated.
- Native vegetation, including trees, shrubs, and groundcover, must be retained where possible during any future development planning and design to mitigate the establishment of invasive plants and to maintain the existing ecological value sustained within the study area. Standing dead trees (snags) and coarse woody debris should also be retained where possible for the critical wildlife habitat value they provide.



- Vegetation, soil and rock excavated from the development footprint must be taken offsite and disposed of/recycled appropriately, or stored onsite within disturbed areas of the development footprint if reuse onsite is proposed. No sidestepping of material over steep slopes or storage of material can occur outside of the development footprint.
- In the event that land and/or natural vegetation is disturbed or damaged beyond the development footprint area, these areas must be restored and/or replanted with plants indigenous to the area under the direction of the EM.
- Equipment and vehicle access must use existing roads, trails, and other disturbed areas to minimize the disturbance footprint.
- Limit cuts and fills and wherever possible, alter the development to suit the local topography.
- Maintain natural drainage patterns where feasible.
- If clearing activities are required during the identified avian nesting period (i.e., April 1 to August 30), pre-clearing surveys must be conducted by the EM to identify active nests and other critical habitat features, such as burrows, dens, etc. Surveys will focus on songbird, raptor and heron nests, stick nests, and snags and cavities that may be used over multiple years or year-round (i.e., winter resident and hibernating species). Section 34 of the *Wildlife Act* protects all birds and their eggs, and Section 34(c) protects their nests while they are occupied by a bird or egg.
- If active nests are found within the clearing limits, a buffer will be established around the nest until such time that the EM can determine that nest has become inactive. The size of the buffer will depend on the species and nature of the surrounding habitat. Buffer sizes will generally follow provincial BMP guidelines or other accepted protocol (e.g., Environment Canada). In general, a minimum 20 m buffer will be established around songbird nests or other non-sensitive (i.e., not at risk) species.
- Clearing and other construction activities must be conducted within 72 hours following the completion of the pre-clearing nest surveys. If works are not conducted in that time, the nest surveys are considered to have expired and a follow-up survey will be completed by the EM to ensure that no new nests have been constructed.
- Contractors, construction workers, and the public should be educated about the presence of herptile species that may occur within the subject property and shown how to limit disturbance and re-locate individuals if necessary. A link to BMPs for amphibian and reptile salvage are included above.



4.4 Erosion and Sediment Control

In this section, Ecoscape provides general mitigation measures to address sediment control during construction works due to surface run-off. Please note that a full Geotechnical Assessment, including a slope stability hazard assessment, was completed by Rock Glen Consulting Ltd., dated September 2016, and can be found on the District of Summerland's website.

- Silt fencing will be installed as directed by the EM in a field-fit manner, generally along the clearing and grading limits and/or in areas where sediment-laden flows may be conveyed offsite such as steep slopes. Silt fencing will be required along the southeast toe of the development footprint to protect aquatic resources downhill.
- Silt fence must be staked into the ground and trenched a minimum of 15 cm to prevent flow underneath the fence, as per the manufacturer's specifications. Silt fencing will be monitored on a regular basis and any damages or areas where the integrity and function of the fencing has been compromised must be repaired or replaced promptly.
- Silt fence must remain in place where required until the completion of the project. Other sediment and erosion control measures may include check dams (e.g., rock, sand bag, hay bales) to slow flows along drainage channels and ditch lines, sumps, or other settling areas for turbid waters.
- The release of silt, sediment, sediment-laden water, raw concrete, concrete leachate, or any other deleterious substances into any drainage, gully, or storm water system must be prevented at all times.
- Develop roads, utilities, and building sites with as little soil excavation and disturbance as possible.
- Erosion and sediment control materials such as silt fence, straw wattles, sand bags, erosion control matting, etc. must be readily available during construction and used to address erosion problems as they arise.
- Seed and re-vegetate cuts and fills as well as disturbed slopes as early as possible following clearing activities.
- Consider incorporating more permeable surfaces into development areas where it is practical and safe to do so, as a design best practice. This will encourage water infiltration to ground instead of increasing overland flow and runoff.
- Exposed soils along slopes and temporary stockpiles must be stabilized and covered where appropriate using geotextile fabric, poly sheeting, tarps, or other



suitable materials to reduce the potential for erosion resulting from rainfall, seepage, or other unexpected causes.

- Adjacent roadways must be kept clean and free of fine materials. Sediment accumulation upon the road surfaces must be removed and disposed of appropriately. This may require the installation of a clean blast-rock pad at the ingress/egress point for the development to reduce the amount of sediment material conveyed offsite during hauling activities.

4.5 Emergency Spill/Response Plan

Spills of deleterious substances can be prevented through awareness of the potential for negative impacts and with responsible housekeeping practices onsite. Maintenance of a clean site and the proper use, storage and disposal of deleterious liquids and their containers are important to mitigate the potentially harmful effects of spills and/or leaks. The following BMP are adapted from Chilibeck et al. (1992) to provide guidance in the control of deleterious substances:

- Spills occurring on dry land will be contained, scraped and disposed of appropriately. Contaminated material will be stored on tarps and covered to prevent mobilization, and will be disposed of in accordance with the *Environmental Management Act*.
- Copies of contact phone numbers for notification of all the required authorities in the event of a spill/emergency response will be kept posted and clearly visible onsite.
- Spill containment kits must be kept readily available onsite during construction in case of the accidental release of a deleterious substance to the environment. Any spills of a reportable amount of a toxic substance must be immediately reported to Emergency Management BC's 24-hour hotline at 1-800-663-3456.

4.6 Site Cleanup and Restoration

Effective site cleanup and restoration refers to returning a site to a state resembling the original habitat characteristics. Grassland ecosystems, including shrub steppe, are being heavily impacted by urban development and agriculture. Many Red and Blue-listed species found in the South Okanagan are those that depend on grassland ecosystems for habitat (MOE, 1998). To offset development encroachment into the Moderate and High-value ESA, Ecoscape recommends restoration of the surrounding shrub steppe ecosystems:

- Remove non-native elm and locust trees located throughout the subject property, primarily to the north of the vineyard where they are shading the



natural shrub steppe ecosystem that exists on the toe of the north facing aspect above. The area consists of the strip of Polygon 3 that is located between Polygon 1 and 2. Removal of the non-native trees will likely require multi-year removal, in addition the area must be seeded as described below. Provided that the non-native trees are removed adequately and seeding occurs, it is anticipated that natural infill from the adjacent sagebrush community should occur.

- Remove non-native elm and silver poplar present above the northwest corner of vineyard where they are shading the natural shrub steppe ecosystem. Weed management is necessary for this area to restore the shrub steppe ecosystem. Specific strategies for invasive plant management are provided in section 4.6.1 below.

4.6.1 Invasive Plant Management

As part of the restoration of the site and prevention of ecological degradation, the principles of a noxious weed management plan are provided below. The intent of the weed management plan will be to restore the area's natural integrity and to reduce the potential to spread noxious weeds within or beyond the construction site. The basic principles include: Removal of existing weed species, suppression of weed growth, prevention or suppression of weed seed production, reduction of weed seed reserves in the soil, and prevention or reduction of weed spread.

Dominant Invasive Plant Species

As a part of the recommended restoration for offsetting the development footprint, invasive plant species within the remaining subject property must be removed. The dominant invasive plant species found within these areas, as well as effective control measures, are provided in Table 5.

Table 5. Invasive species present on site.

Botanical Name	Common Name	Description	Mechanical Control	Biological Control
<i>Cynoglossum officinale</i>	Hound's tongue	Taproot biennial or short-lived perennial. Grows up to 1.2 m tall. Contains toxic alkaloids which cause liver damage if consumed. Produces up to 4000 seeds per year and buried seeds do not typically survive longer than one year. Spreads readily on animals with its burred seeds.	Reduce seed production by hand-pulling, mowing or cutting smaller infestations of second-year plants after they have bolted, prior to seeding Repetition is likely necessary First year rosettes should be hand-pulled or dug out, as nutrient reserves in the taproot will sustain the	Coordinate with the Ministry of Forests, Lands and Natural Resources (MFLNRO) for large infestations: Hound's tongue root weevil (<i>Mogulones cruciger</i>), Flea beetle (<i>Longitarsus quadriguttatus</i>)



Botanical Name	Common Name	Description	Mechanical Control	Biological Control
		Flowering occurs from May through July	plant if it has been cut Efforts should be made to remove as much of the taproot as possible	
<i>Centaurea diffusa</i>	Diffuse knapweed	Taproot biennial or short-lived perennial. Heavy seeds that are readily dispersed by wind, seed drop, humans, animals and vehicles. Produces up to 18 000 seeds per year. Flowering occurs in July, with seed set in August	Small infestations should be a priority and can be treated by hand pulling - this will need to be repeated Cutting or mowing in June or July (early in the flowering stage) can reduce seed production, but should occur prior to seed set to prevent further spread Repetition of treatment will be required as seeds are viable in the soil for several years Disturbed areas should be seeded with Certified grade 1 seed mix immediately following disturbance or treatment method to provide competition and limit reestablishment	Coordinate with the MFLNRO for large infestations: Beetle (<i>Sphenoptera jugoslavica</i>), Fly (<i>Chaetorellia acrolophi</i>), Fly (<i>Urophora affinis</i>), Fly (<i>Urophora quadrifasciata</i>), Fungus (<i>Sclerotinia sclerotiorum</i>), Moth (<i>Agapeta zoegana</i>), Moth (<i>Pelochrista medullana</i>), Moth (<i>Pterolonche inspersa</i>), Nematode (<i>Subanguina picridis</i>) (gall forming), Weevil (<i>Cyphocleonus achates</i>), Weevil (<i>Larinus minutus</i>), Weevil (<i>Larinus obtusus</i>), Stem and leaf rust (<i>Puccinia jaceae</i>)
<i>Linaria genistifolia</i> ssp. <i>dalmatica</i>	Dalmatian toadflax	Provincially noxious perennial which forms a deep root system, with a taproot which can extend up to 1.2 m into the ground and horizontal roots that can spread up to 3.7 m. Seeds are small and a single plant can produce as many as 500 000 seeds per year. Dalmatian toadflax flowers from May to August and seed set occurs from July to September. Seeds can remain viable in the soil up to 10 years and treatment options will need to be repeated to be effective at reducing the seed bank over established areas.	Management of Dalmatian toadflax is most optimal in June when carbohydrate reserves are low. It is beneficial to repeat treatments in late June and early July to catch additional plants. Treatment should take place prior to seed set to minimize further spread. Overseed disturbed areas with a competitive Certified Grade 1 seed mix to provide competition. Physical means of control include hand pulling small infestations. Cutting to ground level in early summer, in the early stage of flowering, can limit seed	Coordinate with the MFLNRO for large infestations: <i>Brachypterolus pulicarius</i> – Beetle, <i>Calophasia lunula</i> – Moth, <i>Eteobalea intermediella</i> – Moth, <i>Eteobalea serratella</i> – Moth, <i>Mecinus janthinus</i> – Beetle (weevil), <i>Rhinusa antirrhini</i> – Beetle (weevil), <i>Rhinusa linariae</i> - Beetle (weevil), <i>Rhinusa neta</i> – weevil



Botanical Name	Common Name	Description	Mechanical Control	Biological Control
			production. Hand pulling and cutting will need to be repeated in an area several years to reduce the viable seed bank.	
<i>Verbascum thapsus</i>	Great mullein	Taprooted biennial that grows up to 2 m tall and occurs sporadically within the study area. It is not identified as a provincially or regionally noxious species and is not a priority species at the Rose's Pond site. If desired, removal of these plants can be done by hand pulling or cutting as they are identified within the study area.	If seeds are present, plants should be cut and bagged and disposed of in the garbage - never composted.	

- Prevention of the spread of non-native and invasive species can be achieved by limiting disturbance to soils and native vegetation where possible. Areas that have previously been disturbed or disturbed through the proposed development must be restored with grass seeding under the direction of the EM. Infestation areas must be controlled with regular manual removal of weeds (e.g., mowing, pulling), which should only occur before they have flowered or gone to seed. The use of herbicide treatments is not recommended.
- Invasive plant species must be disposed of in the landfill; however, invasive species material must not be composted in the yard waste section of the landfill. Invasive plant species must not be transported to or deposited in other natural areas.
- Upon completion of construction all exposed soils including the roadway cuts, fill areas and any areas where invasive plant removal has occurred must be



hydroseeded. At a minimum, hydroseed or loose grass seed must be applied to re-vegetate areas that have been disturbed, this must be completed under the direction of the EM. The anticipated areas include the following;

- proposed utility line installation areas;
 - disturbed areas resulting from the walkway construction;
 - Cut/fill slopes adjacent to the driveway access;
 - Bulk excavation area; and,
 - Areas disturbed through non-native tree removal (Polygon 3).
- Slopes steeper than 2:1 should be stabilized with erosion matting or equivalent material following grass seeding. Other appropriate measures include erosion control blankets, geo-textile fabrics, or mulch to cover and stabilize exposed soils.
 - Grass seed must be Canada Agricultural Grade #1 to minimize weed seed counts and a native mix of hydroseed grasses. A suitable grass seed mix is provided below. Alternative mixes must be reviewed and approved by the EM prior to application. The grass seed mixture must not contain native varieties and/or non-native varieties that are known to be noxious or invasive. Fodder species such as clover and alfalfa must not be included in the mixture.

Table 6. Recommended upland grass seed mix

Seed Weight	Botanical Name	Common Name
40%	<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass
25%	<i>Festuca campestris</i>	rough fescue
15%	<i>Festuca idahoensis</i>	Idaho fescue
10%	<i>Lolium perenne</i>	perennial ryegrass
5%	<i>Poa secunda</i>	Sandberg bluegrass
4%	<i>Koeleria macrantha</i>	junegrass
1%	<i>Poa compressa</i>	Canada bluegrass

- Timing of grass seeding is critical to optimize success and it is recommended that seeding should occur in late spring between April and June or late summer/early fall in September. Overseeding (to obtain adequate coverage and reduce competition by invasive plant species) is required at least twice during the growing season. Timing should occur once between April and June and once in September. Seeding over multiple years may be required to gain adequate coverage.
- Grass seed should be at sufficient density that no more than 50% of surface soil is visible when rough cut areas are mown to a height of 100 mm.



- If fertilizer is used, the forest fertilization guidebook recommends a urea-ammonium sulphate fertilizer blended to deliver 175–200 kg N/ha and 50–60 kg S/ha.
- Silt fencing and other temporary mitigation features must be removed upon substantial completion of works if the risk of surface erosion and sediment transport has been adequately mitigated with other permanent measures. This will be under the guidance of the EM.

4.6.2 Slope Restoration

Given the nature of slopes on the subject property, methods that enhance erosion control are recommended (i.e., hydroseeding with a tackifier, creation of planting pockets, and overplanting). The following measures are proposed for the restoration of slopes that will be disturbed during the proposed development (mainly through utility servicing and a walking trail) within the subject property:

- Manual/mechanical removal of invasive plant species throughout the slope. Herbicides/pesticides must be avoided given potential to impact native vegetation. Invasive species removal will require ongoing maintenance. Refer to Section 4.6.1 above for specific details.

4.7 Air Quality and Greenhouse Gas Reduction

Dust control can be achieved by reducing the spatial extents and amount of time that soils are exposed to construction activities. Reducing traffic speed and volume can also reduce dust concerns. Surface and air movement of smoke and dust during project activities can be mitigated through preventive measures and design criteria.

- Where suitable, exposed soils should be watered as required to suppress dust. Sediment-laden runoff water must not be conveyed to the storm drain system, off the project site, or over steep slopes. Oil and other petroleum products must not be used for dust suppression. Alternative dust suppressants must be approved by the EM prior to application.
- Idle time of construction equipment and contractor vehicles must be kept to a minimum to reduce the release of greenhouse gases. The contractor should inform and educate employees and sub-contractors on the importance of minimizing idling time and develop guidelines to direct the practice of reducing unnecessary idling.
- If possible, alternate energy sources should be considered during development of the site, such as solar panels and ground source heating and cooling. Other options for greenhouse gas reducing features include rainwater recycling systems, landscaping with native species, and utilizing water efficient products.



4.8 Environmental Monitoring

A suitably qualified environmental monitor (EM) is typically required by the District of Summerland to be retained during construction to document compliance with mitigation measures and provide guidance for implementation of best practices. If greater disturbance occurs due to unforeseen circumstances, the EM will recommend further measures to protect/restore the natural integrity of the site. The EM must be notified a minimum of 48 hours prior to initiation of construction works to schedule site visits.

- A pre-construction meeting must be held between the EM and the contractor(s) undertaking the work onsite to ensure a common understanding of the mitigation measures and best practices required for the project. At this time the location of erosion and sediment control measures will be reviewed.
- The EM will be an appropriately Qualified Environmental Professional (QEP) that will halt construction activities should an incident arise that is causing undue harm (unforeseen or from lack of due care) to terrestrial, aquatic or riparian resource values.
- Environmental monitoring is typically conducted on a minimum monthly basis for the duration of the construction works. However, this will be dependent on the nature of the works occurring, construction schedule, and District of Summerland DP requirements.
- A copy of the DP and this assessment report must be kept readily available at the site for reference while the work is being conducted.
- Summary monitoring reports will be completed on a regular basis (i.e., monthly) and submitted to the client, District of Summerland and appropriate contractors. A final report will be submitted upon substantial completion of construction and restoration works.
- Follow-up monitoring of restoration works will need to take place 1, 2, and 3 years post-completion to document adequate removal of non-native trees, establishment of grass seed, and successful invasive plant control/management. Ongoing maintenance will be recommended as required, with reports provided to the client, District of Summerland, and appropriate contractors. If disturbance occurs outside of the development footprint, additional restoration recommendations will be provided by the EM.

4.9 Anticipated Next Steps

At the time of the development permit, the following are items that should occur:



- A detailed environmental protection plan or construction environmental management plan should be prepared that updates and confirms specifics of the generic recommendations presented within this report.
- A formal restoration plan, that identifies the locations and extents of weed management and restoration should be prepared to accompany the development permit.

4.10 Bonding

Performance bonding is typically required by the District of Summerland to ensure the recommended compensation and restoration measures are completed and an EM is retained to document compliance with provincial guidelines and BMPs. Bonding in the amount of 125% of the estimated value of restoration works is required to ensure faithful performance and that all mitigation measures are completed and function as intended.

Performance bonds shall remain in effect until the District of Summerland has been notified, in writing, by the EM that the standards bonded for have been met and substantial completion of the works has been achieved. Table 7 outlines the proposed bonding amount for the recommended restoration within the subject property. The restoration focuses on the removal of non-native / invasive trees, weed management and grass seeding. Please note that this is a general estimate based on sourcing of materials and labour separately and based on communication with local landscapers/plant suppliers. This is only a basic estimate provided to estimate the required bonding and should not be used for development costing. A quote from a landscape/reclamation company which will handle most components of the works may prove to be more accurate. If a separate quote is prepared, it must be reviewed by Ecoscape prior to implementation.

Table 7. Bonding estimate for restoration work at subject property	
Item	Total
Removal of non-native trees from Polygon 3	\$15,000
Invasive Species Removal (initial and 3 year maintenance period)	\$10,000
*Hydroseeding with tackifier of disturbed areas (resulting from proposed development works and invasive plant / tree removal) – estimated at 0.8 m ² x 6,174 m ²	\$4,940
Erosion and Sediment Control Measures	\$2,000
Environmental Monitoring of restoration work (including a substantial completion report) and 3-year maintenance period. Note: this cost does not include EM during construction	\$5,400
Total	\$37,340

*Note: The area of 6,174 m² to be hydroseeded is a rough estimate and will have a finer resolution in the formal restoration plan.



Ecoscape estimates that the cost for the proposed monitoring, seeding, non-native tree / invasive species removal, erosion control, and substantial completion assessment will be approximately **\$37,340**. A 125% bond in the amount of **\$46,675** is recommended to meet the District of Summerland standards. Bonding for formal landscaping within the development area (around buildings/roadways) is not included in the bond estimate provided by Ecoscape.

5.0 CONCLUSION

This report summarizes the existing site conditions and natural areas within the study area and assesses the impacts that the proposed development may have on these values. This report also addresses the conditions of the District of Summerland ESDPA guidelines, as described in the District of Summerland OCP (Bylaw No. 2014 – 002),

The proposed development results in 63.5% of the study area being left undisturbed, while 36.5% will be disturbed with site development. The majority of the development occurs within Low and Moderate-value areas which have been subject to anthropogenic disturbance. This is with the exception of approximately 16.7 m² of High-value ESA which will be disturbed, this represents 0.1 % of the High-value ESA within the subject property. The impacted ESA 1 is directly adjacent to an ESA 3, and is likely closer to an ESA 2, than a true ESA 1. Based upon the site assessment and the client's general plan, the proposed development retains 99.9% of the High-value ESA (ESA 1) and 89 % of the Moderate-value (ESA 2) habitat.

Incorporation of the outlined best practices and recommended mitigation measures in the design and construction, as well as municipal and provincial regulations and best management practices will provide appropriate guidance in the development of avoidance, mitigation and/or compensation strategies for the sensitive habitats described in this report. Implementation of mitigation measures and environmental monitoring will reduce potential environmental and/or land use conflicts and identify opportunities for further restoration or enhancement activities in the future.



6.0 CLOSURE

This report has been prepared for the Lark Group with consideration for the existing and potential site conditions of the study area with respect to intrinsic ecological values, as well as the proposed land use of the area. Ecoscape has prepared this report with the understanding that all available information on the past, present, and proposed conditions of the site have been disclosed. Lark Group has acknowledged that in order for Ecoscape to properly provide the professional service, Ecoscape is relying upon full disclosure and accuracy of this information.

If you have any questions or comments, please contact the undersigned at your convenience.

Respectfully submitted,

ECOSCAPE ENVIRONMENTAL CONSULTANTS LTD.

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Photo 1. View of the shrub steppe ecosystem, photo taken in the northeast corner of the subject property (all photographs taken March 16, 2017).



Photo 2. View of the non-native locust and elm trees disrupting the natural shrub steppe ecosystem.



Photo 3. View of the cryptographic crust and bare soil sections within the upper slopes of the subject property.



Photo 4. Yard waste and associated invasive species located just north of the subject property adjacent to the property boundary.



Photo 5. View of the silt bluffs located along the northern boundary of the subject property.



Photo 6. Silver poplars disrupting the natural shrub steppe ecosystem along the northern boundary of the subject property.





Photo 7. Transition zone with the shrub steppe ecosystem to the viewer's right and the woodland, cool aspect ecosystem to the left. Douglas maple and Saskatoon are located in this drainage gully.



Photo 8. Some of the invasive species located within the subject property. Left to right: cleavers, Dalmatian toadflax, hounds tongue.



Photo 9. View of the cool aspect of the subject property characterized by ponderosa pine, moss and shrubs.



Photo 10. View looking north toward the shrub steppe ecosystem on the subject property and the vineyard below.





Photo 11. Bird foraging activity within silt bluffs (photo taken July, 2016).



Photo 12. One of many unused burrows located within the subject property. Based on the level of landscape fragmentation and shape of burrows, previous species use is assumed to have been marmot. This is corroborated by observations of adults in the early spring 2017 site visit.

FIGURES



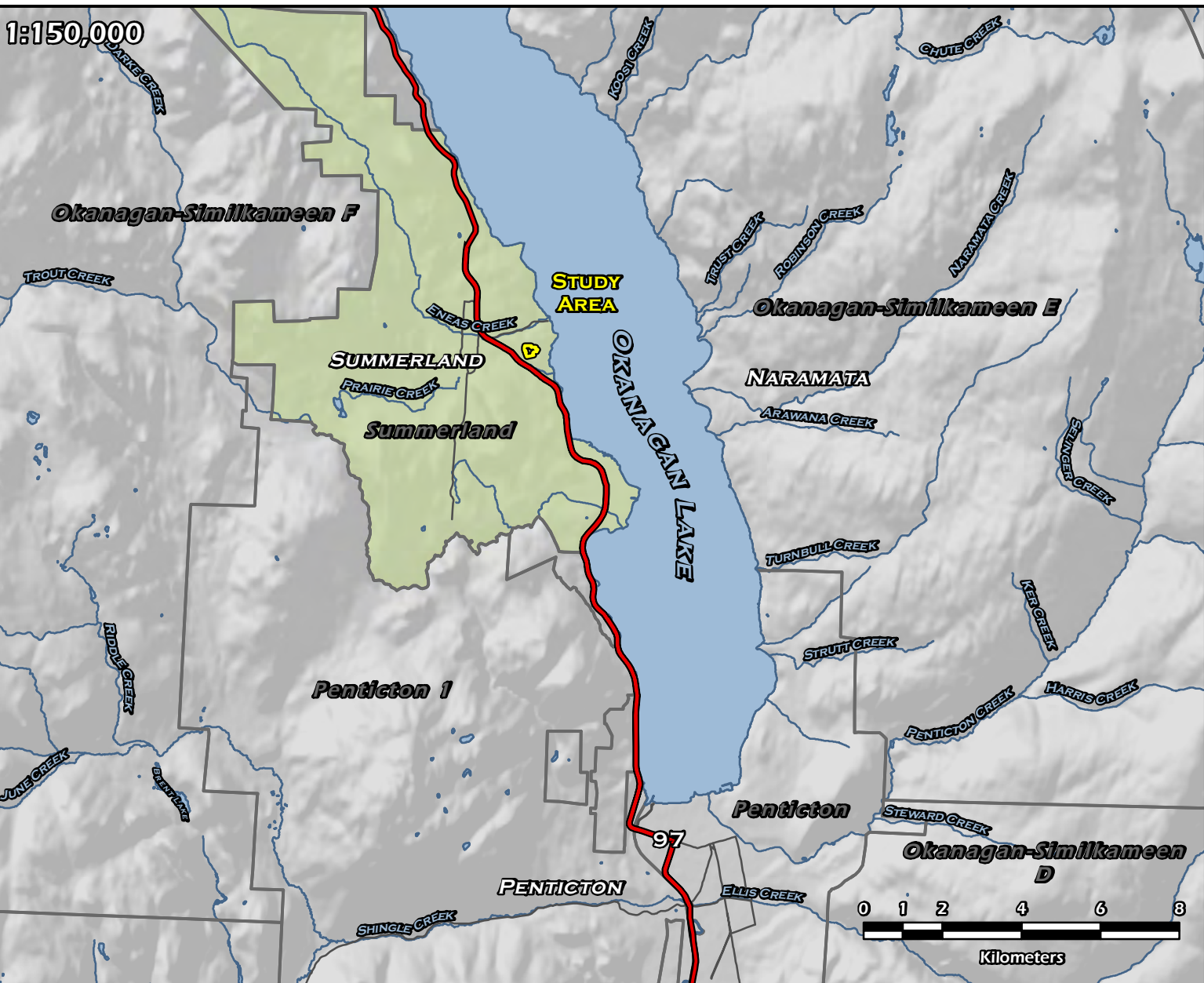


FIGURE 1
Site Location

Project: Environmental Assessment
 Location: District of Summerland
 Project No.: 16-1837
 Prepared for: Lark Group
 Prepared by: Ecoscape Environmental Consultants Ltd.
 Drawn by: Robert Wagner
 Checked by: Tina Deenik
 Projection: NAD83-UTM Zone 11
 Date: June 21, 2017



LEGEND

- | | | |
|------------------|------------------------|--------------------|
| Places | Municipal Boundary | Streams and Rivers |
| Subject Property | District of Summerland | Lake |
| Major Highway | Study Area | |
| Major Roads | Cadastre | |

DISCLAIMER
 The data displayed is for conceptual purposes only and should not be interpreted as a legal survey or for legal purposes. If discrepancies are found between the data portrayed in this report and that of a legal survey, the legal survey will supersede any data presented herein.

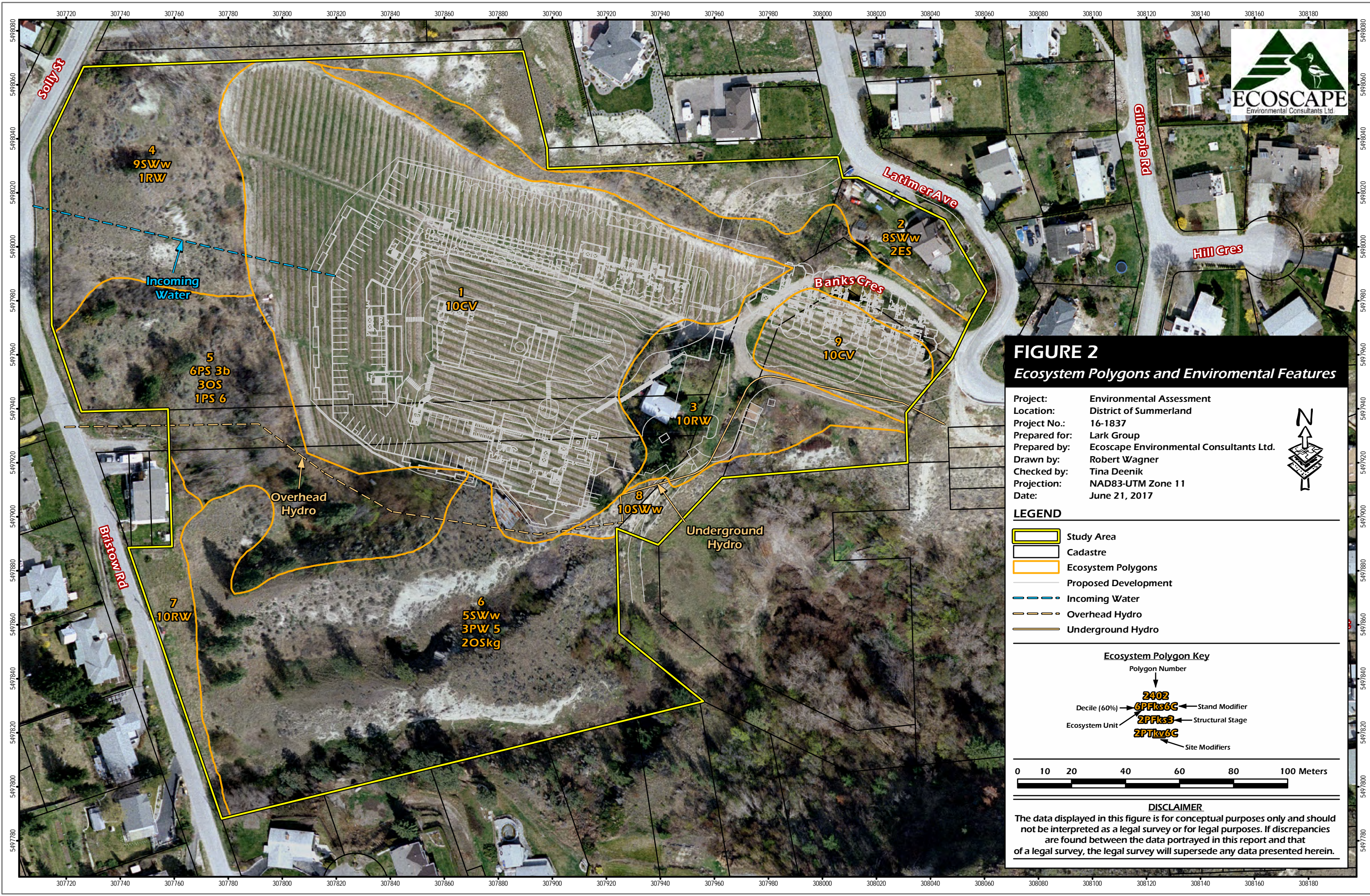




FIGURE 3
Environmental Sensitivity Analysis

Project:	Environmental Assessment
Location:	District of Summerland
Project No.:	16-1837
Prepared for:	Lark Group
Prepared by:	Ecoscape Environmental Consultants Ltd.
Drawn by:	Robert Wagner
Checked by:	Tina Deenik
Projection:	NAD83-UTM Zone 11
Date:	June 21, 2017



LEGEND

- Study Area
- Cadastre
- Proposed Development
- Incoming Water
- Overhead Hydro
- Underground Hydro
- Extent of Disturbance

Environmental Sensitivity Rating

- High (ESA 1)
- Moderate (ESA 2)
- Low (ESA 3)
- None (ESA 4)

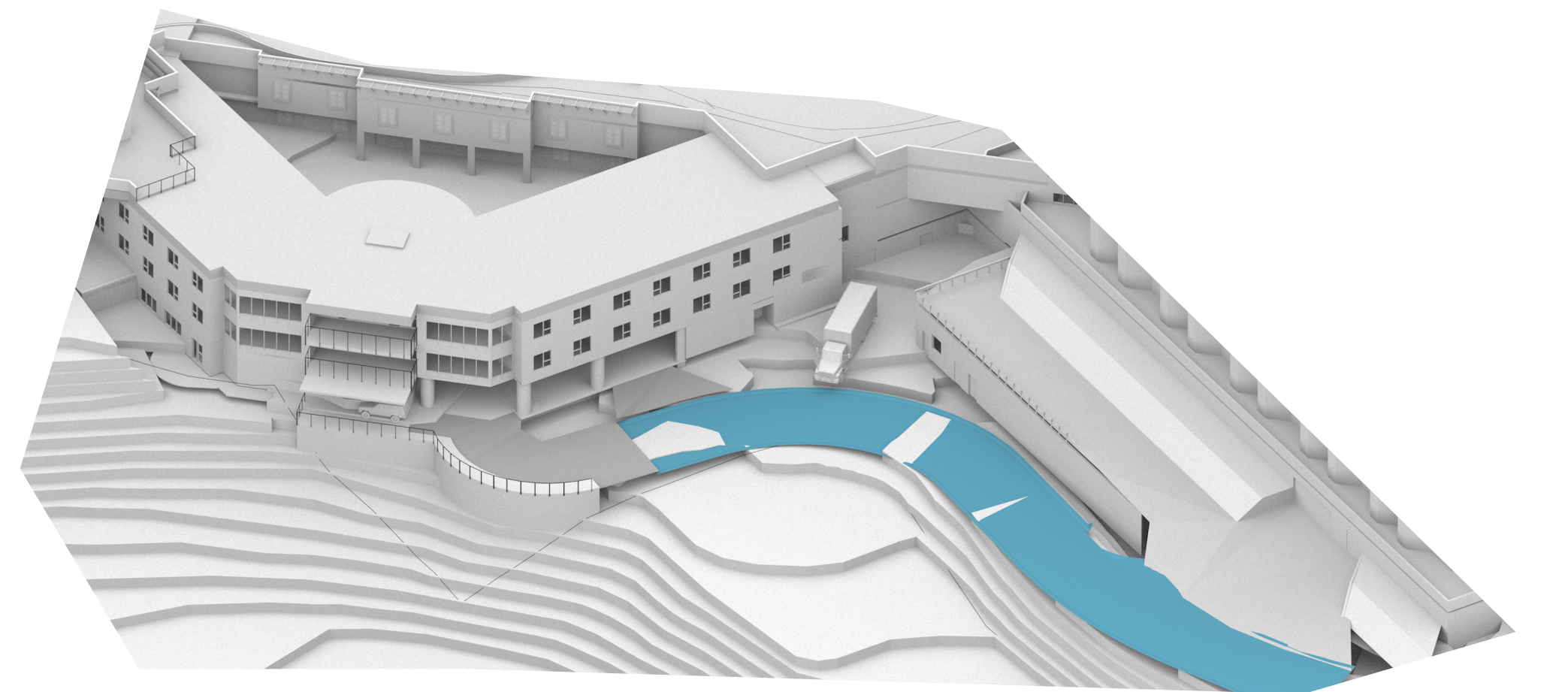
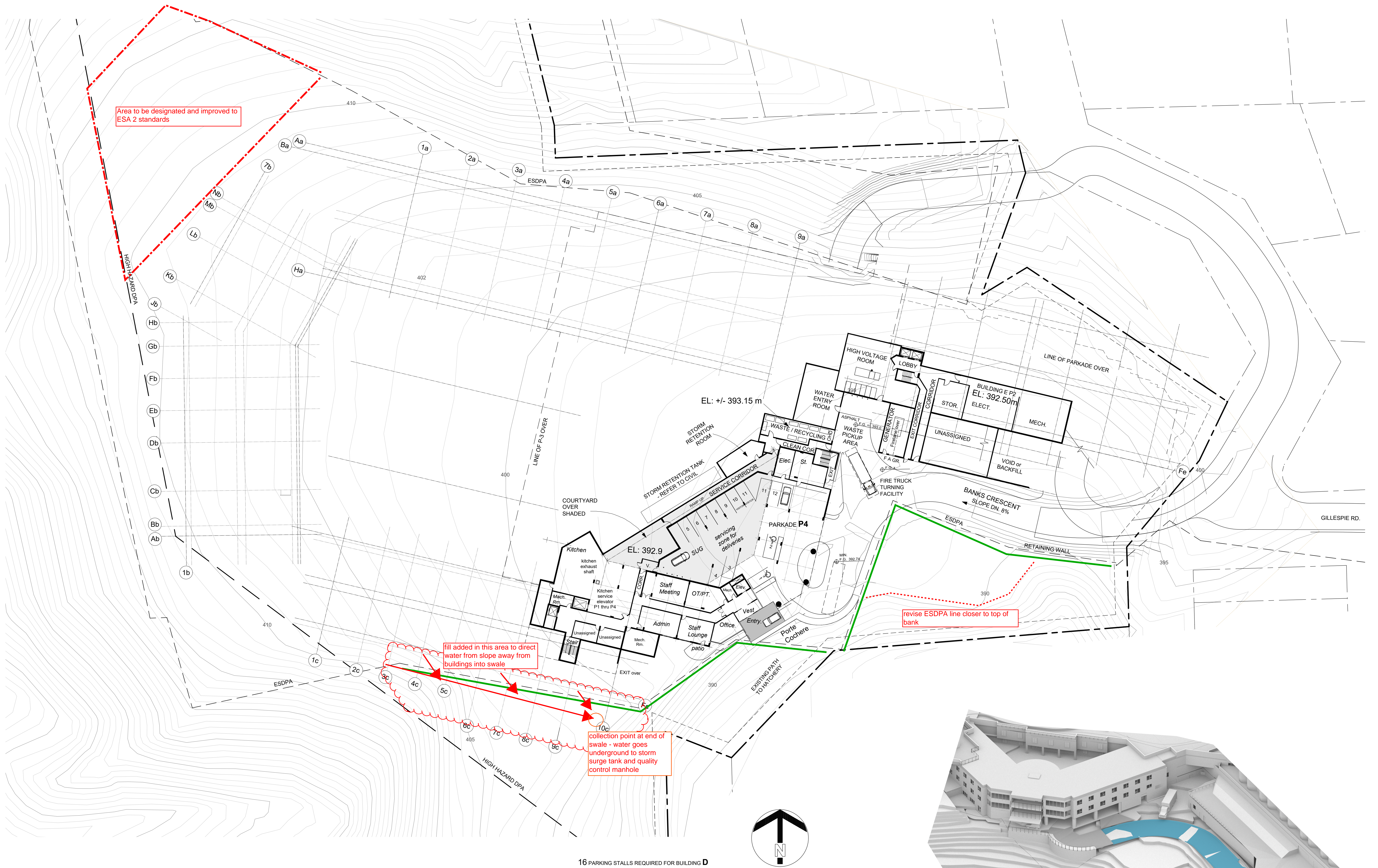
0 10 20 40 60 80 100 Meters

DISCLAIMER
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APPENDIX A

Site Plan





16 PARKING STALLS REQUIRED FOR BUILDING D