Date:	April 15, 2020
To:	Leanne Bilodeau, Associate Director Sustainability – UBCO Campus Planning and Development
From:	Benjamin Butz, B.Sc., B.I.T., and Mary Ann Olson-Russello, M.Sc., R.P.Bio.
File:	19-3150
Subject:	Environmental Impact Assessment of the Proposed Lower Innovation Precinct North Multi-use Trail at UBC-Okanagan

1.0 INTRODUCTION

Ecoscape Environmental Consultants Ltd. (Ecoscape) was retained by the Campus Planning and Development Department at the University of British Columbia Okanagan (UBCO) to provide an overview environmental impact assessment (EIA) and mitigation measures for the proposed Lower Innovation Precinct (LIP) North Multi-Use Trail expansion on the UBCO campus. Figure 1 shows the proposed extent of development.

In 2014, Ecoscape conducted an ecological analysis in support of the campus masterplan update (Patterson & Olson-Russello 2014). It included detailed ecological community mapping and an environmental sensitivity analysis. In recent years, Ecoscape completed a number of assessments pertaining to the presence of Species-at-Risk on the UBCO campus, including American Badger, Western Yellow-bellied Racer and Northern Rubber Boa (Olson-Russello & Hawes 2016; Deenik et al. 2017; Chelick & Olson-Russello 2018).

In 2019, Ecoscape was retained to combine all existing ecological data collected for the UBCO campus, both by Ecoscape and other UBCO staff. This comprehensive dataset was used as a baseline to identify environmental values that may be impacted by the proposed LIP North Multi-use Trail expansion.

2.0 PROPOSED WORKS

The proposed LIP North Multi-use Trail expansion consists of a 4-metre wide paved trail that will extend from the north end of Parking Lot H to the northern industrial district of the UBCO campus (Figure 1). The trail encompasses approximately 2,574 m^2 and extends across an existing storm ditch which is known to provide habitat for the BC Blue-listed, COSEWIC[1] Threatened, SARA[2] Threatened Great Basin Spadefoot (*Spea intermontana*).

In January 2020, Ecoscape attended a site meeting with UBCO personnel and Thomas Simkins, P. Eng., Municipal Engineer (Urban Systems) to discuss the trail alignment and its potential impact on the storm ditch and the spadefoot breeding habitat. Ecoscape subsequently provided a brief memo that outlined design considerations and mitigation procedures that should be integrated into the detailed design and planning of the LIP North Multi-Use Trail to minimize impacts to the ditch (Chelick & Olson-Russello 2020).

The trail alignment in the proximity of the storm ditch has since changed from the toe of slope at the western end of the ditch, where cuts and fills would have been necessary, to the middle of the ditch. Immediately north of the ditch, the trail alignment shifts to the west and then follows the toe of slope north, prior to connecting with Innovation Drive at the north end (Figure 1).

3.0 ENVIRONMENTAL ASSESSMENT

A site visit was conducted on April 3, 2020 by Benjamin Butz, B.I.T., Natural Resource Biologist with Ecoscape. The project area occurs within ecosystem communities that have been subject to heavy levels of historical disturbance. To the west of the proposed trail alignment lies a vegetated hillside. To the east is an active gravel pit, operated by Westridge Quarries Ltd., and is lacking in significant levels of vegetation. To the north lies an industrial district and south of the proposed trail alignment is the UBC Okanagan Parking Lot H.

The project area occurs within the Okanagan Very Dry Hot Ponderosa Pine (PPxh1) biogeoclimatic zone that is described by the Biogeoclimatic Ecosystem Classification (BEC) program (Lloyd et al. 1990). Areas of the PP zone are the driest forested areas in B.C., with low snowfall and hot, dry, summers.

Terrestrial Ecosystem Mapping (TEM) was completed for UBCO in 2014 as part of the ecological analysis for the campus master plan update (Patterson & Olson-Russello 2014). The proposed LIP North Multi-use Trail expansion extends across two anthropogenic polygons. Table 1 outlines the ecosystem codes, their associated site series names, and the provincial status of each ecosystem contained within the two polygons.

TABLE 1. Ecosystem communities occurring within the project area

Ecosystem Code	Site Series	Site Series Name	Provincial Status
GP	NA	Gravel pit	NA
UR	NA	Urban	NA
RW	NA	Rural	NA

RED: Ecological communities that are Extirpated, Endangered, or Threatened in British Columbia.
BLUE: Ecological communities that are considered to be of Special Concern in British Columbia.
YELLOW: Species and ecological communities that are apparently secure and not at risk of extinction.
NA (NO STATUS): Ecological communities that have not been ranked.

The majority of the proposed LIP North Multi-use Trail expansion falls within a gravel pit (GP) polygon (Photos 1 and 2). This is an anthropogenic polygon with little-to-no habitat value. It was composed of some areas of active gravel pit with no significant vegetation and other areas of disturbed slope with almost entirely invasive vegetation. At the southern end of the GP polygon, on either side of the proposed trail alignment, lies the storm ditch adjacent to parking lot H (Photos 3 and 4). The majority of native plant species within the project area were found within the storm ditch, including black cottonwood, prickly rose, and common cattail. The southern end of the proposed trail extends into an Urban (UR) and Rural (RW) classified polygon. This area is paved and consists of parking lot H.

A list of plant species found within the project area are included in Tables 2 and 3. Due to the timing of the inventory (i.e. early spring), a comprehensive vegetation survey was not possible.

TABLE 2. Native plant species observed within the project area.

Family	Species	Common Name	BC List [1]	COSEWIC [2]
Asteraceae	*Grindelia squarrosa* sp.	Curly-cup gumweed sp.	Various	
Caprifoliaceae	*Symphoricarpos albus*	Snowberry, common	Yellow	
Onagraceae	*Epilobium brachycarpum*	Willowherb, tall annual	Yellow	
Rosaceae	*Rosa acicularis ssp. sayi*	Rose, prickly	Yellow	
Salicaceae	*Populus trichocarpa*	Black cottonwood	Yellow	
Typhaceae	*Typha latifolia*	Cattail, common	Yellow	

[1] **Yellow**: Not considered at risk. **Blue**: Of special concern. **Red**: Endangered or threatened. **Various**: May be one of multiple potential listings, depending upon more detailed taxonomic classification.

[2] **NAR = Not at Risk**: A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances. **SC = Special Concern**: A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats. **E = Endangered**: A wildlife species facing imminent extirpation or extinction. **T = Threatened**: A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction. **DD = Data Deficient**: A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

TABLE 3. Invasive plant species observed within the project area.

Family	Species	Common Name	BC List [1]
Asteraceae	*Achillea millefolium*	Yarrow	Exotic
Asteraceae	*Arctium ssp.*	Burdock	Exotic - Regionally Noxious - BC
Asteraceae	*Centaurea diffusa*	Knapweed, diffuse	Exotic - Noxious - BC
Asteraceae	*Cirsium vulgare*	Thistle, bull	Exotic
Asteraceae	*Onopordum acanthium ssp. acanthium*	Thistle, Scotch	Exotic - Regionally Noxious - BC
Asteraceae	*Potentilla recta*	Cinquefoil, sulphur	Exotic - Regionally Noxious - BC
Boraginaceae	*Anchusa arvensis*	Bugloss, European	Exotic
Brassicaceae	*Sisymbrium loeselii*	Mustard, Loesel's tumble	Exotic
Chenopodiaceae	*Salsola tragus*	Thistle, Russian	Exotic - Regionally Noxious - BC
Dipsacaceae	*Dipsacus fullonum*	Teasel, Fuller's	Exotic
Euphorbiaceae	*Euphorbia myrsinites*	Spurge, blue	Exotic
Fabaceae	*Melilotus albus*	Sweet-clover, white	Exotic
Fabaceae	*Robinia pseudoacacia*	Locust, black	Exotic
Geraniaceae	*Erodium cicutarium*	Stork's bill, common	Exotic
Poaceae	*Bromus tectorum*	Cheatgrass	Exotic
Polygonaceae	*Rumex crispus*	Dock, curled	Exotic
Scrophulariaceae	*Verbascum thapsus*	Mullein, great	Exotic

[1] **Exotic**: Species that have been moved by humans to areas outside of their native ranges where they have become established.

Additionally, the on-line BC Conservation Data Centre (CDC) was accessed and reviewed for at-risk ecological communities and critical habitat polygons that occur within a 1.0 km radius of the project area. Query results included at risk ecosystems (Table 4) and critical habitat for federally-listed species-at-risk (Table 5).

TABLE 4. Ecological communities-at-risk occurrences within 1 km of the project area (CDC 2020a).

Common Name	Species	BC List [1]	Shape ID/Occurrence ID	Distance
Common Cattail Marsh	*Typha latifolia Marsh*	Blue	103684/12972	Occurs approximately 350 m east of the project area. Based on TEM. No field inspection completed.
Common Cattail Marsh	*Typha latifolia Marsh*	Blue	103683/12971	Occurs approximately 450 m south of the project area. Based on TEM. No field inspection completed.
Black Cottonwood / Common Snowberry - Roses	*Populus trichocarpa / Symphoricarpos albus - Rosa spp.*	Red	77205/10409	Occurs approximately 400 m east of the project area. Based on TEM. No field inspection completed.

[1] **Yellow**: Not considered at risk. **Blue**: Of special concern. **Red**: Endangered or threatened.

TABLE 5. Critical habitat occurrences within 1 km of the project area (CDC 2020a).

Species	Common Name	BC List [1]	Critical Habitat ID	Distance [2]
Spea intermontana	Great Basin Spadefoot	Blue	6235	An area of 96.3259 hectares connecting Critical ID 6334 and a similar polygon, approximately 1,300 m southwest of the project area.
Spea intermontana	Great Basin Spadefoot	Blue	6334	An area of 78.5446 hectares overlapping the project area.
Pituophis catenifer deserticola	Great Basin Gophersnake	Blue	110423	Occurs as a 10 km grid square where the critical habitat criteria described in the Recovery Strategy are met, which overlaps the project area.
Crotalus oreganus	Western Rattlesnake	Blue	110193	Occurs as a 10 km grid square where the critical habitat criteria described in the Recovery Strategy are met, which overlaps the project area.
Hypsiglena chlorophaea	Desert Nightsnake	Red	110308	Occurs as a 10 km grid square where the critical habitat criteria described in the Recovery Strategy are met, which overlaps the project area.

[1] **Yellow**: Not considered at risk. **Blue**: Of special concern. **Red**: Endangered or threatened.

Due to the scope of this assessment, a detailed wildlife assessment of the project area was not conducted. However, *Turdus migratorius* (American Robin) was observed during the assessment. Additionally, large numbers of rodent holes were noted within the project area and on the adjacent slope to the west of the trail alignment (Photo 5). The project area occurs within multiple critical habitat polygons for native snake species-at-risk, including the Great Basin gophersnake, Western rattlesnake, and desert nightsnake. These burrows may be host to such species, however no historical occurrences have been noted within the immediate project area. Given that the storm ditch supports Great Basin spadefoot tadpoles in the spring, it is also likely that adult spadefoots are using the rodent holes for general living and cover.

The CDC was also reviewed for species-at-risk occurrences within a 1.0 km radius of the project area (Table 6). In addition to American Badger and Great Basin spadefoot, which have been previously documented on campus, a Western Screech Owl occurrence was noted within 660 m of the project area.

TABLE 6. Species-at-risk occurrences within 1 km of the study area (CDC 2020a).

Common Name	Species	BC List [1]	Shape ID / Occurrence ID	Distance
American badger	*Taxidea taxus*	Red	74373/10214	Found throughout the Okanagan from Vernon to Osoyoos, representing 498 sightings of Red-listed American badgers (Taxidea taxus), last observed between 1995 and 2012.
Western Screech-owl, Macfarlanei Subspecies	*Megascops kennicottii macfarlanei*	Blue	26105/6665	Represents a sighting 660 m west of the project area, last observed in 2008.
Great Basin Spadefoot	*Spea intermontana*	Blue	Incidental Observation ID: 142376	Represents a sighting within the ditch at the end of parking lot H, at the southern extent of the project area.
Great Basin Spadefoot	*Spea intermontana*	Blue	Incidental Observation ID: 180517	Represents a sighting within the ditch at the end of parking lot H, at the southern extent of the project area.

[1] **Yellow**: Not considered at risk. **Blue**: Of special concern. **Red**: Endangered or threatened.

4.0 IMPACT ASSESSMENT

Ecoscape anticipates that impacts on terrestrial and aquatic resource values as a result of the proposed LIP North Multi-Use Trail expansion are low. However, without appropriate mitigation measures, proposed works could result in the following impacts:

- Encroachment into natural areas could potentially occur if disturbance limits are not properly identified and clearly marked in the field prior to initiation of site clearing.

- Potential to directly or indirectly impact wildlife and wildlife habitat during clearing and construction, including disruption of migration, breeding, or other behavior as a result of construction noise, impacts to air quality, and other alterations to existing wildlife habitat and cover. This includes herptiles and small mammals that may have burrows in the area, and avian species that could potentially be foraging or nesting in the area.

- There is a potential for the release of fine sediments into natural areas through erosive processes during construction activities.

- Improper handling and disposal of construction materials and debris, as well as improper fuel storage and/or poorly maintained equipment, could result in the addition of deleterious substances to natural areas and subsequent negative impacts to wildlife and associated habitat.

It should be noted that this assessment does not consider the cumulative effects of development within the larger area or how this particular development may contribute to such effects.

The proposed LIP North Multi-Use Trail expansion will impact 2,574 m^2 of Low environmentally sensitive areas (ESA 4), some of which consists of paved parking lot H (Table 7).

Table 7. Impact Assessment of Proposed LIP North Multi-Use Trail Expansion.

Environmental Sensitivity	LIP North Multi-Use Trail Expansion Extent (m^2)	Total Campus (m^2)	Total Disturbed by Trail Expansion (%)
ESA 1 (Very High)	0	149,836	0
ESA 2 (High)	0	362,280	0
ESA 3 (Moderate)	0	956,656	0
ESA 4 (Low)	2,574	551,893	0.4
Total	**2,574**	**2,020,665**	**0.1***

*Percent of the Multi-Use Trail expansion in relation to the total campus area.

The majority of the habitat within the project area has been determined to have low conservation value. This area is composed almost entirely of invasive plant species. Development here could be preferable to its existing condition, as it is presently a population of almost entirely invasive plant species. This would especially be true if the proposed trail alignment is landscaped with native trees and shrubs.

However, it is probable that Great Basin spadefoot, and other potential species-at-risk use the many rodent burrows throughout the upland area as general living and foraging habitat. Consequently, disturbance should be minimized in this area to what is necessary.

A small portion of the habitat within the project area consists of a storm ditch that supports native vegetation and Great Basin spadefoot breeding habitat. Despite the artificial nature of this ditch, it should be considered environmentally sensitive, as it provides critically important breeding habitat for the spadefoot.

5.0 RECOMMENDED MITIGATION MEASURES

Ecoscape provides the following mitigation measures to minimize the risks of impacts during proposed works to wildlife and associated habitats. This document will be made available to the contractor prior to initiating the works and it should be kept onsite during proposed works. This will be to demonstrate that the contractor is aware of the recommendations and that they are being followed.

5.1 Best Management Practices

Ecoscape provides the following general mitigation strategies for the proposed works, based on the existing ecosystems and environmental sensitivity analysis. In addition to the recommendations provided herein, the proponent can find additional information on BMPs online at:
http://www.env.gov.bc.ca/wld/BMP/bmpintro.html#second

- All works should generally conform to the Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in BC (Polster 2014) and companion documents:
  - Guidelines for Raptor Conservation during Urban & Rural Land Development in BC (2013)

    https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/standards-guidelines/best-management-practices/raptor_conservation_guidelines_2013.pdf
  - Guidelines for Reptile and Amphibian Conservation during Urban & Rural Land Development in BC (2014)

    https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/best-management-practices/herptilebmp_complete.pdf

5.2 Work Timing Windows

5.2.1 Avian Nesting Periods

Avian nesting periods should be considered to protect nesting birds within and adjacent to the proposed work area.

- Section 6 of the Federal *Migratory Birds Convention Regulation* protects both the nests and eggs of migratory birds. The project area falls within the Canadian Avian Nesting Zone A1 (MECCS 2020). The general avian nesting period for migratory birds within this zone is **March 26th to August 9th**. Section 34 of the Provincial *Wildlife Act* protects all birds and their eggs, and Section 34(c) protects their nests while they are occupied by a bird or egg. The project area falls within the Northern Okanagan Basin ecodistrict. The avian nesting period for all birds within this ecodistrict is **February 18th to September 12th** (Birds Canada 2020).

- If vegetation clearing activities are required during the identified avian nesting period, pre-clearing nesting surveys may be required by an Environmental Monitor (EM) to identify active nests. Although there are no trees or shrubs within the project area, it is possible that ground nesting may occur.

- 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 nesting surveys. If works are not conducted in that time, the nesting surveys are considered to have expired and a follow-up survey will be completed to ensure that no new nests have been constructed.

- Best management practices relating to raptors and their nests can be found in Guidelines for Raptor Conservation during Urban and Rural Land Development in BC (2013).

5.2.2 Amphibian Breeding Periods

- The primary environmental concern during works will be the potential harm to Great Basin Spadefoot toads. These toads have been historically observed using the ditch at the southern end of the project area during their breeding period (**starting in April and ending in June**). Any work that must take place within this ditch should be done outside of this breeding period.

- Should work within the ditch be required during the breeding period, a EM may need to perform an amphibian salvage prior to works starting. This will be for the purpose of finding and relocating any Great Basin spadefoot toad eggs/tadpoles that may be present. Due to Great Basin spadefoot toad life history, no adult individuals are likely to be present within the ditch outside of the breeding period.

- Best management practices relating to amphibians and their eggs can be found in Guidelines for Reptile and Amphibian Conservation during Urban and Rural Land Development in BC (2014).

5.3 Clearing and Grubbing

- Disturbance limits should be clearly delineated before the start of works. Disturbance beyond the identified development footprint must not occur without further assessment.

- Native vegetation, including trees, shrubs, and groundcover, must be retained as much as possible to mitigate the establishment of additional invasive plant species.

- In the event that land and/or natural vegetation is disturbed or damaged beyond the development footprint area, these areas should be restored and/or replanted with plant material native to the area under the direction of the EM.

5.4 Erosion and Sediment Control

The following section details the mitigations and recommendations related to erosion and sediment control (ESC) that must be adhered to throughout the duration of the project.

- The release of silt, sediment, sediment-laden water, raw concrete, concrete leachate, or any other deleterious substances into any drainage or areas of high environmental value must be prevented at all times.

- Silt fencing will be installed as directed by the EM in a field-fit manner, as required. **Silt fence must be staked into the ground and trenched a minimum of 15 cm to prevent flow underneath the fence and must remain taut to prevent material from moving over the fence**. Silt fencing should contain sufficient storage capacity to collect runoff and sediment deposition during storm events. 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 should be repaired or replaced promptly. Silt fence must remain in place where required until the completion of the project.

- Erosion and sediment control (ESC) should incorporate the measures described below to mitigate risks during construction works. The plan is generally based upon provincial BMPs and other specifications and includes the following principles:

  - Construction works should be conducted during periods of warm, dry weather with no forecasted precipitation;

  - Construction works should be scheduled to reduce the overall amount of time soils are exposed;

  - Natural drainage patterns should be maintained where possible;

  - Existing native vegetation should be retained where possible;

  - Stormwater and sediment-laden runoff should be directed away from exposed soils within the construction area;

- Exposed soils along slopes must be stabilized and covered where appropriate using geotextile fabric, polyethylene 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.

5.5 Garbage and Spills

- Construction debris and stockpiled material must be removed from the site regularly and disposed of appropriately.

- All potential wildlife attractants, including food, beverages, and other strong smelling or perfumed materials must be removed from the site daily.

- Spills of deleterious substances can be prevented through awareness of the potential for negative impact on aquatic habitats 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.

    - Ensure equipment and machinery are in good operating condition, free of leaks, excess oil, and grease. Equipment needs to be pressure/steam-washed prior to use within close proximity of a watercourse.

    - 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 of the required authorities in the event of a spill/emergency response should be posted and clearly visible at the site.

    - 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 toxic substance should be immediately reported to the Emergency Management BC 24-hour hotline at **1-800-663-3456**, as well as Ecoscape at **1-250-491-7337**.

5.6 Landscaping and Site Restoration

If landscaping is to occur along the proposed trail alignment, the project area would considerably benefit from the incorporation of native plant species, including trees and shrubs. The EM can work with the proponent and provide recommendations for optimal native vegetation plantings.

5.7 Environmental Monitoring

An environmental monitor (EM) should be retained to document compliance with proposed mitigation measures and to provide guidance during construction works. In the event that greater disturbance occurs due to unforeseen circumstances, the EM should recommend further measures to protect/restore the natural integrity of the site. The EM should be an appropriately Qualified Environmental Professional (QEP).

The EM's duties and schedule will include, as a minimum, the following:

- A pre-construction meeting prior to the implementation of works. During this visit, best management practices and erosion and sediment control measures surrounding the storm ditch will be reviewed.
- Great Basin spadefoot toads require soft, deep, loose soils in order to burrow below the frost line during the winter or during the hottest parts of the day. The project area of the proposed trail expansion may provide suitable overwintering and burrowing habitat for this species. Should crews come across Great Basin spadefoot toads during works, the EM should be contacted immediately to carry out an amphibian salvage (**250-491-7337**).
- Visits should be conducted during construction and will target higher-risk activities. The EM should be notified prior to high-risk activities so they can schedule site visits accordingly.
- EM reports will be generated for each visit and submitted to the client.
- The EM should be contacted prior to initiating habitat restoration works to review plant species and placement.
- Following completion of the project, a substantial completion report will be prepared.

6.0 CONCLUSION

This document describes the existing environmental values of the project area, potential impacts to these values, and measures to mitigate these impacts that should be employed throughout construction. All measures should be reviewed and distributed to pertinent contractors that will be working on the project. If the measures identified in this report are implemented, harmful alteration, disruption, or destruction of natural features, functions, or conditions will be minimized.

7.0 CLOSURE

This memo has been prepared for the exclusive use of the Campus Planning and Development Department at the University of British Columbia Okanagan (UBCO). Ecoscape has prepared this memo with the understanding that all available information on the present and proposed condition of the site has been disclosed. The Campus Planning and Development Department at the University of British Columbia Okanagan (UBCO) has acknowledged that in order for Ecoscape to properly provide its 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.

Ecoscape Environmental Consultants Ltd.

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Attachments: Photographs
Figure 1 – Site Location and Proposed Trail Alignment

8.0 REFERENCES

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Photo 1. View of the gravel pit (GP) polygon, which encompasses the disturbed hillside. Dotted line shows approximate location of the proposed multi-use trail. Photo facing north (all photos taken April 3, 2020).

Photo 2. Southern view of the gravel pit (GP) polygon, which encompasses a disturbed flat area. Dotted line shows approximate location of proposed walking trail.

Photo 3. West facing view of the cattail march (CT) polygon within the ditch at the south end of the proposed multi-use trail.

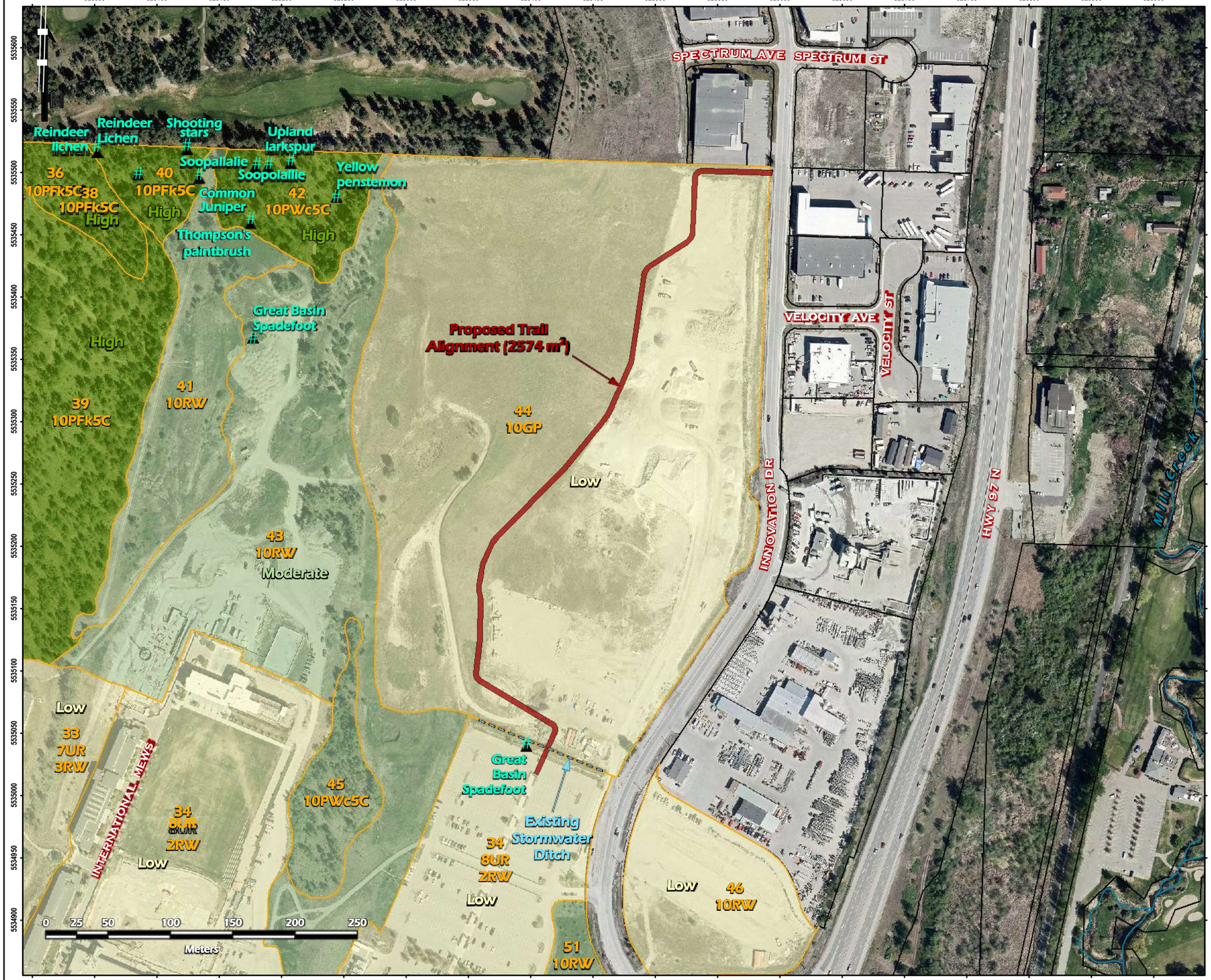
Photo 4. East facing view of the ditch at the south end of the proposed walking trail, east of the CT polygon.

Photo 5. View of some of the many rodent holes that occur within the gravel pit (GP) polygon.

FIGURES

FIGURE 1
Site Location and Proposed Trail Alignment

Project:	Environmental Assessment
Location:	City of Kelowna
Project No.:	19-3150
Prepared for:	UBCO
Prepared by:	Ecoscape Environmental Consultants Ltd. Robert Wagner, GIS Specialist
Coordinate System:	NAD83-UTM Zone 11
Imagery:	ESRI World Imagery
Site Visit:	April 3, 2020
Map Date:	April 17, 2020



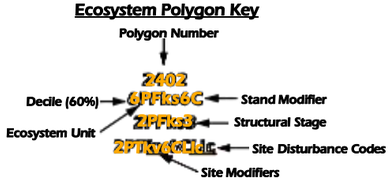
LEGEND

- Species Occurrences
- Stormwater Ditch
- Streams and Rivers
- Proposed Trail Alignment
- Ecosystem Polygons
- Cadastre

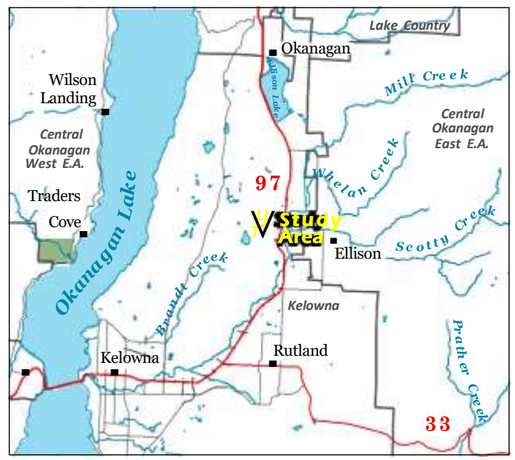
Environmental Sensitivity

- Very High
- High
- Moderate
- Low

Ecosystem Polygon Key



Regional Location of Study Area



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.

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