

**Riparian Areas Protection Regulation: Assessment Report**

Please refer to submission instructions and assessment report guidelines when completing this report.

Date 2022-06-28

**I. Primary QEP Information**

First Name	Harry	Middle Name	Bapty
Last Name	Williams		
Designation	MSc, RPBio, PAg, Certified Arborist	Company: Madrone Environmental Services Ltd.	
Registration #	963	Email: <span style="background-color: black; color: black;">[REDACTED]</span>	
Address	<span style="background-color: black; color: black;">[REDACTED]</span>		
City	<span style="background-color: black; color: black;">[REDACTED]</span>	Postal/Zip	<span style="background-color: black; color: black;">[REDACTED]</span>
Prov/state	<span style="background-color: black; color: black;">[REDACTED]</span>	Country	Canada
		Phone #	<span style="background-color: black; color: black;">[REDACTED]</span>

**II. Secondary QEP Information (use Form 2 for other QEPs)**

First Name	N/A	Middle Name	
Last Name	N/A		
Designation	N/A	Company	
Registration #	N/A	Email N/A	

**III. Developer Information**

First Name	Mike and Wendy	Middle: Name	
Last Name	Wiersma		
Company	Wiersma Contracting		
Phone #	<span style="background-color: black; color: black;">[REDACTED]</span>	Email: <span style="background-color: black; color: black;">[REDACTED]</span>	
Address	<span style="background-color: black; color: black;">[REDACTED]</span>		
City	<span style="background-color: black; color: black;">[REDACTED]</span>	Postal/Zip	<span style="background-color: black; color: black;">[REDACTED]</span>
Prov/state	<span style="background-color: black; color: black;">[REDACTED]</span>	Country	Canada

**IV. Development Information**

Development Type	Single Family Residential		
Area of Development (ha)	0.02	Riparian Length (m)	65
Lot Area (ha)	0.19	Nature of Development	New
Proposed Start Date	2022-07-15	Proposed End Date	2023-07-01

**V. Location of Proposed Development**

Street Address (or nearest town)	124 Elk Road		
Local Government	Town of Lake Cowichan	City	Lake Cowichan
Stream Name	Tern Creek		
Legal Description (PID)	001-221-591; LOT A, SECTION 5, RENFREW DISTRICT (SITUATED IN COWICHAN LAKE DISTRICT), PLAN 30829	Region	Region 1 – Vancouver Island
Stream/River Type	Stream	DFO Area	South Island
Watershed Code	Tern Creek is non-gazetted; Cowichan Lake Watershed Code is 920-257700-05700-80600		
Latitude	48	83	32.5
Longitude	124	06	15.2

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## **Section 1. Description of Fisheries Resources Values and a Description of the Development proposal**

### ***Nature of Development/Specific Activities***

Recently, the owners of 124 Elk Road, Lake Cowichan, BC (PID: 031-538-983), have formulated plans to submit an application for development through the Town of Lake Cowichan. In this case, the current development proposal involves building a house on Lot 3.). This assessment is required under the provincial Riparian Areas Protection Regulation (RAPR) because construction will occur within the 30 m Riparian Assessment Area (RAA) of a non-gazetted stream known locally as Tern Creek on Lot 3 (Figure 1). Tern Creek flows into Cowichan Lake near the point where the Cowichan River flows out of Cowichan Lake. A legal "no-development" covenant (EPP100676) has been placed on the portion of Tern Creek that flows through the subject property, and it includes the Streamside Protection and Enhancement Area (SPEA) that extends off Tern Creek.

Because development will occur within the 30 m RAA of Tern Creek, the Town of Lake Cowichan has requested that a Qualified Environmental Professional (QEP) conduct an assessment to ensure that all riparian protection requirements are satisfied.

To satisfy Section 10 (1) of the RAPR, thought has been given to the siting and layout of the any new construction near Tern Creek to ensure that there is no harmful alteration, disruption or destruction (HADD) of the natural features, functions and conditions in the SPEA that support the life processes of fish. The nearest house will be built on the adjacent lot to the west (Lot 3). The house will be positioned in the central portion of the lot but section of it may be close to the outer edge of the SPEA / Covenant Area. Being entirely outside the SPEA, construction of the new house will not result in a HADD of the natural features, functions and condition of the SPEA. Furthermore, the project manager has agreed to build a split-cedar fence along the western edge of the SPEA / Covenant area to prevent ingress, or "yard extension".

The property is located within the Town of Lake Cowichan and is bordered by residential properties to the east, west, and south, with Elk Road and a green belt area to the north (adjacent to Youbou Road). At the present time the property is mostly undisturbed. Only a "roughed" in driveway has been constructed, providing access from Elk Road.

### ***Fisheries Resource Values of Cowichan Lake***

Cowichan Lake (Watershed code 920-25770) represents a significant fishery resource value as it provides important rearing and spawning habitat for anadromous and resident fish species. Background research was conducted to determine the species composition that potentially occurs in nearby waters.

The documented anadromous salmonids in Cowichan Lake include Steelhead (*Oncorhynchus mykiss*), Chinook Salmon (*O. tshawytscha*), Coho Salmon (*O. kisutch*) and Chum Salmon (*O. keta*). These species migrate from the ocean, up the Cowichan

River and into Cowichan Lake. Once in the lake, these fish will then move up into the numerous inlet streams in order to spawn.

Resident forms of Rainbow Trout (*O. mykiss*) and Coastal Cutthroat Trout (*O. clarkii clarkii*) also occur in Cowichan Lake and the tributary streams. Brown Trout (*Salmo trutta*), Dolly Varden Char (*Salvelinus malma*) and Lake Lamprey (*Lampetra macrostoma*) also exist in Cowichan Lake. Protected under the *Species at Risk Act* (SARA), the Cowichan Lake Lamprey is completely endemic to Cowichan and Mesachie Lakes. Cowichan Lake Lamprey spawns in shallow water where creeks flow out into the lake, and where the substrate is suitable (small gravel).

**Drainage and Riparian Vegetation Descriptions**

Tern Creek originates north of Youbou Road. The creek flows through a culvert under Youbou Road, and then through a 90cm culvert under Elk Road onto the subject property. The creek then flows in a south-easterly direction for about 65m and is then conveyed through another 90mm culvert onto the neighbouring properties to the east and eventually into Cowichan Lake.

The Riparian Assessment Area (RAA) represents the 30 zone that extends as a horizontal distance from the stream's boundary (also referred to as the high-water mark - HWM). As part of the RAPR assessment, the HWM was indicated with orange flagging, professionally surveyed, and used as the inner edge of the 10-metre-wide Streamside Protection and Enhancement Area (SPEA).

Over the assessed length, the subject stream is well-defined and the bankfull width ranges between 0.80 m and 1.50 m (average width 114.3 cm). The gradient of the stream averages 2 - 5%. The stream bed is composed mainly of small alluvium (gravel) with organic materials present (such as decomposing leaf and woody debris). Based on the stream characteristics, the assessed stream is classified as having a riffle-pool channel morphology.

At the time of the assessment (June 8, 2022) the water flow was low to moderate due to recent wet weather. The water appeared to be clear and clean.

Healthy riparian vegetation occurs on both sides of the creek. Table 1 represents the dominant plant species observed within the riparian zone of Tern Creek. The SPEA on the west side of the creek has a full width of 10 metres, but on the east side only several metres due to the presence of a private driveway close to the creek (Figure 1).

**Table 1. Tern Creek Riparian Area Vegetation List**

COMMON NAME	LATIN NAME
Trees	
Western redcedar	<i>Thuja plicata</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
Grand fir	<i>Abies grandis</i>
Big-leaf maple	<i>Acer macrophyllum</i>
Red alder	<i>Alnus rubra</i>

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Shrubs	
Red huckleberry	<i>Vaccinium parvifolium</i>
Sitka mountain-ash	<i>Sorbus sitchensis</i>
Dull Oregon-grape	<i>Mahonia nervosa</i>
Salmonberry	<i>Rubus spectabilis</i>
Red elderberry	<i>Sambucus racemosa</i>
Herbaceous	
Western starflower	<i>Trientalis latifolia</i>
Vanilla leaf	<i>Achlys triphylla</i>
Lady fern	<i>Athyrium felix-femina</i>
Skunk cabbage	<i>Lysichiton americanum</i>
Little buttercup	<i>Ranunculus uncinatus</i>
False lily-of-the-valley	<i>Maianthemum dilatatum</i>
Siberian miner's-lettuce	<i>Claytonia sibirica</i>
Mountain sweet-cicely	<i>Osmorhiza chilensis</i>
Brewer's mitrewort	<i>Mitella breweri</i>
Bracken fern	<i>Pteridium aquilinum</i>
Slough sedge	<i>Carex obnupta</i>
Dewey's sedge	<i>Carex deweyana</i>
Tall mannagrass	<i>Glyceria elata</i>
Trailing blackberry	<i>Rubus ursinus</i>
Cooley's hedge-nettle	<i>Stachys cooleyae</i>
Western trillium	<i>Trillium ovatum</i>
Pacific bleeding heart	<i>Dicentra formosa</i>
Sword fern	<i>Polystichum munitum</i>
Slough sedge	<i>Carex obnupta</i>
Common horsetail	<i>Equisetum arvense</i>
Badge moss (Coastal leafy moss)	<i>Plagiomnium insigne</i>
Oregon beaked moss	<i>Kindbergia oregana</i>

In addition to the above noted native plant species, invasive plants were also observed and consisted mainly of English holly (*Ilex aquifolium*), Evergreen daphne (*Daphne laureola*), Himalayan blackberry (*Rubus discolor*), and English ivy (*Hedera helix*).

**Section 2. Results of Riparian Assessment (SPEA width)**

Attach or insert the Form 3 or Form 4 assessment form(s). Use enough duplicates of the form to produce a complete riparian area assessment for the proposed development

**2. Results of Detailed Riparian Assessment**

Refer to Section 3 of Technical Manual

Date: 2022-06-28

Description of Water bodies involved (number, type)

Tern Creek

Stream	X
Wetland	
Lake	
Ditch	
Number of reaches	1
Reach #	1 of 1

**Channel width and slope and Channel Type (use only if water body is a stream or a ditch, and only provide widths if a ditch)**

Channel Width(cm)		Gradient (%)	
starting point	110	2%	I, <u>Harry Williams, R.P.Bio.</u> , hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the <i>Riparian Areas Protection Act</i> ; b) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Mike Wiersma</u> ; c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and d) In carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.
upstream	80		
	103		
	95		
downstream	175	2%	
	150		
	145		
	135	3%	
	105		
	100	3%	
	90		
Total: minus high /low	1033	4%	
mean	114.7		
	R/P	C/P	
Channel Type	X		

**Site Potential Vegetation Type (SPVT)**

	Yes	No	
SPVT Polygons		X	Tick yes only if multiple polygons, if No then fill in one set of SPVT data boxes I, <u>Harry Williams, R.P.Bio.</u> , hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the <i>Riparian Areas Protection Act</i> ; b) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Mike Wiersma</u> ; c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and d) In carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.
Polygon No:	1		Method employed if other than TR
SPVT Type	LC	SH	
			X
Polygon No:			Method employed if other than TR

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SPVT Type	LC	SH	TR	
Polygon No:				Method employed if other than TR
SPVT Type				

**Zone of Sensitivity (ZOS) and resultant SPEA**

Segment No:	1	If two sides of a stream involved, each side is a separate segment. For all water bodies multiple segments occur where there are multiple SPVT polygons			
LWD, Bank and Channel Stability ZOS (m)	10				
Litter fall and insect drop ZOS (m)	10				
Shade ZOS (m) max	2.49	South bank	Yes	No	X
Ditch	Justification description for classifying as a ditch (manmade, no significant headwaters or springs, seasonal flow)				
Ditch Fish Bearing	Yes	No	If non-fish bearing insert no fish bearing status report		
SPEA maximum	10 m	(For ditch use table3-7)			

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**Comments**

This RAPR assessment is being completed in response to proposed house construction on the adjacent lot to the west (Lot 3). The assessment was required because portions of Lot 3 occur within the 30 m Riparian Assessment Area (RAA) of Tern Creek (Figure 1).

While traversing the site, the HWM of the stream was identified and flagged with orange ribbon/flagging. A 10-m wide SPEA was identified and mapped (Figure 1).

***Section 3. Site Plan***



**PROJECT:**  
Riparian Area Assessment for 124 Elk Road

**ASSESSED BY:**  
Harry Williams RPBio PAg Certified Arborist

**LOCATION:**  
Lake Cowichan, BC

**FIELD VISIT:**  
June 8, 2022

**MAP SCALE:**  
1:600

**CLIENT:**  
Wiersma Contracting

**MAPPING DATE:**  
June 20, 2022

**DOSSIER:**  
22.0146

**DRAWN BY:**  
Jeff Krus



**Figure 1:** Site Plan of Subject Property showing Tern Creek and associated SPEA



**LEGEND**

- Property Boundary
- Covenant Boundary
- Parcel Boundary
- Tern Creek
- High Water Mark
- SPEA (10 m)
- RAA (30 m)
- Proposed Buildings
- Proposed Driveway

**Zones of Sensitivity**

- Shade (5.3 m)
- Large Woody Debris (10 m)
- Insect Drop / Litterfall (10 m)

0 10 20  
m

\*All features on this map are approximate. Features measured in the field were located using a handheld GPS and accuracy can only be guaranteed to 15m\*

star Geographics, and the GIS User Community

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**Section 4. Measures to Protect and Maintain the SPEA**

This section is required for detailed assessments. Attach text or document files, as need, for each element discussed in Part 4 of the RAPR. It is suggested that documents be converted to PDF *before* inserting into the assessment report. Use your "return" button on your keyboard after each line. You must address and sign off each measure. If a specific measure is not being recommended a justification must be provided.

<p>1. Danger Trees</p>	<p>The riparian areas adjacent to Tern Creek are composed mainly of young big-leaf maple, red alder, and western redcedar trees. Only one danger tree was observed during field work – a dead grand fir just west of the SPEA in Lot 3. This tree will be removed as part of the clearing for Lot 3.</p> <p>No Danger Trees were found in the SPEA itself. Should tree management measures be required in the future any woody material generated from the works should remain inside the SPEA. Coarse Woody Debris (CWD) provides potential cover/security habitat for wildlife (e.g., amphibians). CWD is also important as it aids in maintaining soil moisture and contributes nutrients to the soil as it decomposes.</p>
<p>I, <u>Harry Williams, R.P.Bio.</u>, hereby certify that:</p> <p>e) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the <i>Riparian Areas Protection Act</i>;</p> <p>f) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Mike Wiersma</u>.</p> <p>g) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Minister's technical manual to the Riparian Areas Protection Regulation.</p>	
<p>2. Windthrow</p>	<p>Windthrow usually occurs as a result of removing trees from a large expanse of land, thus creating new forest "edges" that become susceptible to increased wind velocities. This will be the case for this property as Lot 3 will be cleared of trees, thus exposing the trees in the SPEA to increased wind velocities. However, most of the trees in the SPEA are young maple trees (see photos) and will likely be able to withstand slightly windier conditions. No further clearing is planned for the east side of the creek.</p>
<p>I, <u>Harry Williams, R.P.Bio.</u>, hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the <i>Riparian Areas Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Mike Wiersma</u>.</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Minister's technical manual to the Riparian Areas Protection Regulation.</p>	
<p>3. Slope Stability</p>	<p>At this time, there are currently no requirements to develop slope stability measures for the proposed house construction in Lot 3. Slopes on this lot, and in the SPEA, are low (2 - 5%) and appear stable.</p>
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<p>c.</p>	<p>I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Minister's technical manual to the Riparian Areas Protection Regulation.</p>
<p>4. Protection of Trees</p>	<p>In construction, damage to trees most commonly occurs at the site clearing and initial stages of work. Severing tree roots, changing the grade of the soil around trees (adding or removing soil), and other root zone disturbances can lead to tree mortality. Construction can also damage the bark, break branches, and injure tree trunks.</p> <p>The majority of the trees will be cleared from Lot 3, however retention of many of the conifers is being planned. For protection during construction, retained trees should have temporary fencing placed around them at a 3-5m radius from the tree.</p> <p>No trees in the SPEA of Tern Creek will be removed.</p> <p>Tree protection measures in construction areas should be based on the following list, which represents potential sources of damage to trees:</p> <p>Common impacts to trees in construction zone include:</p> <ul style="list-style-type: none"> <li>- Trenching through the root zone of trees during excavation.</li> <li>- Direct damage to tree limbs, bark, and stems from heavy machinery.</li> <li>- Changing the ground level (grade) around trees.</li> <li>- Allowing pollutants to contaminate the soil around trees.</li> <li>- Allowing machinery to maneuver or park adjacent to trees.</li> <li>- Storing construction materials or waste around trees.</li> </ul> <p>By eliminating these sources, the possibility of damage to trees within any of the SPEAs is significantly reduced.</p>
<p>I, <u>Harry Williams, R.P.Bio.</u>, hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the <i>Riparian Areas Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Mike Wiersma</u>.</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Minister's technical manual to the Riparian Areas Protection Regulation.</p>	
<p>5. Encroachment</p>	<p>SPEAs are intended to be areas that are left in a natural state or, in cases where riparian areas have been disturbed, where enhancement is recommended (such as removal of invasive plants and planting of native species). In general, SPEAs are to be considered "no-go zones" in which unapproved development activities are prohibited. Unapproved development activities that are not permitted in the SPEA include the following:</p> <ul style="list-style-type: none"> <li>• Removal, alteration, disruption or destruction of vegetation;</li> <li>• Disturbance of soils;</li> <li>• Construction of temporary or permanent structures;</li> <li>• Creation of impervious or semi-impervious surfaces;</li> <li>• Flood protection works;</li> </ul>

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	<ul style="list-style-type: none"> <li>• Construction of roads and trails;</li> <li>• Provision and maintenance of sewer/water services;</li> <li>• Development of drainage systems; and</li> <li>• Development of utility corridors.</li> </ul>
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<p>5. Sediment and Erosion Control</p>	<p>According to the text in the project blueprints (Cascara Engineering), Erosion and Sediment control for this project will be based on the Fisheries and Oceans Canada Handbook entitled "Land Development Guidelines for the Protection of the Aquatic habitat" (1993); and "Environment Best Management Practices for Urban and Rural Land Development in BC" (2004). Additionally, the text also states that: "Silt fencing is to be installed around all stock / spoil piles. Spoil piles may also be covered with poly sheets to limit erosion and sediment generation".</p> <p>Sediment resulting from construction activities can become mobilized during rainfall and transported into water bodies (i.e., creeks, ditches, lakes and wetlands). Sediment is a deleterious substance under the Federal Fisheries Act, and its introduction into watercourses can lead to negative impacts to adjacent and connected downstream fish habitat. Because work will occur close to the 10 m SPEA of Tern Creek, it is important to implement measures to prevent any sediment from entering the watercourse. The following preventative measures must be implemented as part of the construction process:</p> <ul style="list-style-type: none"> <li>- Carry out any excavation activities for the house in Lot 3 during dry periods.</li> <li>- Apply straw mulch to exposed ground (not applicable to exposed rock) and piles of fill. Or cover these areas with tarps or non-woven geotextile material. This will help decrease the mobilization of sediment from rainfall and surface run-off.</li> <li>- Incorporate clean gravel fill as this will minimize the amount of sediment being generated.</li> <li>- Install a sediment fence along the southern, lower edges of the house footprint and curve the fence to isolate the work zone, as surface water from the site would naturally move in this direction. The sediment fence will partially enclose the worksite and help prevent any turbid water from being transported elsewhere on the property. The sediment fence should be installed so that the lower edge of the fence fabric is dug into</li> </ul>

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the ground and back-filled to prevent turbid water from potentially flowing underneath the fence.

The fence must also be securely fixed to strong wooden stakes. The diagram below illustrates the proper installation of sediment fencing:

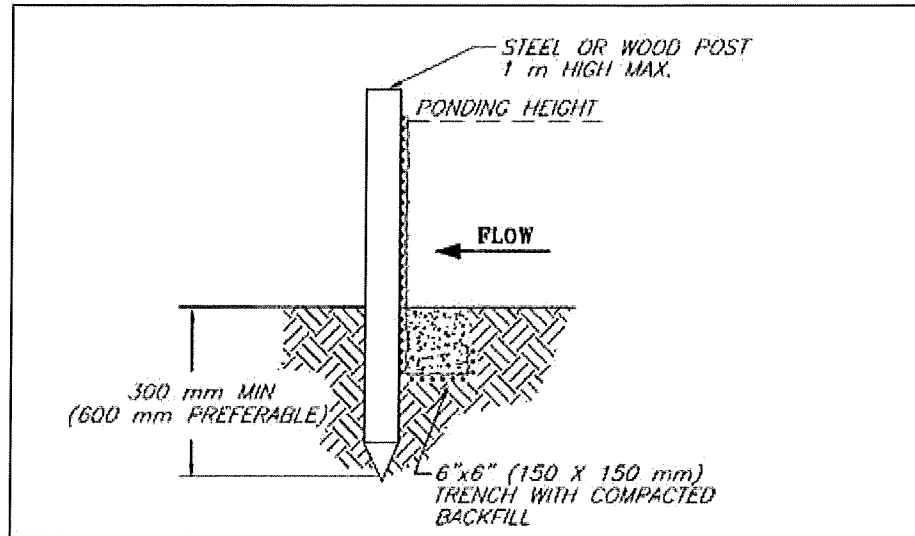


Figure 2. Schematic diagram for proper installation of sediment fencing.

I, Harry Williams, R.P.Bio., hereby certify that:

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6. Stormwater Management

Construction of new developments usually leads to an increase in surface water run-off and a decrease in natural infiltration as a result of a greater cover of impermeable surfaces such as driveways and rooftops. The main goals of stormwater management are to either capture run-off from impermeable surfaces and return it to natural hydrological pathways or implement initiatives to reduce the production of stormwater run-off (*i.e.*, by installing a bio-retention area).

As the developer is proposing to build new housing in Lot 3, there will be an increase in the amount of runoff. For this proposal, one recommendation that could be applicable to stormwater management is the placement rock-lined perimeter drains. This feature would receive water from the downspouts and gutters of the houses, which will then direct water to flow back into subsurface pathways.

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<p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Mike Wiersma</u>.</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Minister's technical manual to the Riparian Areas Protection Regulation.</p>	
<p>7. Floodplain Concerns (highly mobile channel)</p>	<p>There are currently no concerns related to flooding or highly mobile channels at this time. When construction is initiated in the adjacent lot and the house is built, flooding will not be a concern at that time either, as a ditch will be built along Elk Road to divert water away from the lot. Tern Creek represents a fairly low magnitude system that is runoff fed and may not have running water year-round. The current stream and narrow floodplain will likely remain in its natural state which will allow for some lateral natural movement of the stream channel.</p>
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## FORM 1

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### **Section 5. Environmental Monitoring**

Attach text or document files explaining the monitoring regimen Use your "return" button on your keyboard after each line. It is suggested that all document be converted to PDF *before* inserting into the PDF version of the assessment report. Include actions required, monitoring schedule, communications plan, and requirement for a post development report.

The proposed house construction in Lot 3 will be occurring close to the SPEA . covenant boundary. As noted, a split-cedar fence will be built along this boundary to protect the SPEA. However, some environmental monitoring may still be required throughout the construction process.

As part of the monitoring process, three site visits are required (or more if warranted):

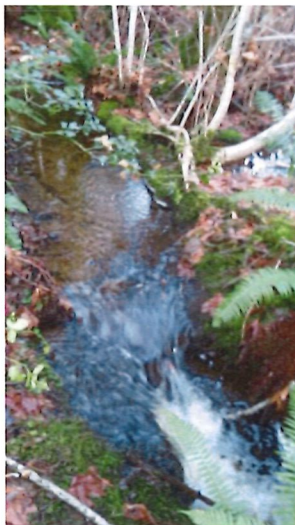
- The first visit will be conducted at the beginning of construction in order to review expectations as they relate to protection of the surrounding SPEA – in particular the implementation of the sediment and erosion control plan - specifically installing the sediment control fencing. It is the responsibility of the developer to contact the QEP to schedule the initial site visit.
- A second visit will take place at about the mid-point of construction and the third once construction is complete. The final visit should take place within 1 week of the project's completion.

Observations that are collected during each of the site visits will form the basis of a post-construction monitoring report, which will be submitted to the provincial Riparian Areas Regulation Notification System (RARNS). It is important that the developer contact the QEP within 6 months of project completion to allow the post-construction report to be completed. The final monitoring visit and post-construction report can be carried out prior to completion of final construction activities.

**Section 6. Photos**



Tern Creek originates north of Youbou Road and flows onto the subject property through a 90cm culvert under Elk Road. The channel of the creek has a riffle / pool morphology, and the bed of the creek is composed of fine alluvium and organic debris such as leaves and decaying wood.



View of Tern Creek as it traverses the north-east corner of the property. The creek exits the east side of the subject property through a 90cm culvert placed under a private driveway (Figure 1). The creek flows into Cowichan Lake near the confluence of the Cowichan River.

FORM 1

Riparian Areas Protection Regulation - Qualified Environmental Professional - Assessment Report



Above and below: Typical riparian vegetation in the SPEA of Tern Creek. Note the young maple trees, sword fern and western red cedar.



FORM 1

Riparian Areas Protection Regulation - Qualified Environmental Professional - Assessment Report



**Above and below: The SPEA of Tern Creek as seen from Elk Road. As in the previous photo, much of the area is covered in young big-leaf maple trees and western red-cedar. A split-cedar fence will be built along the boundary marking the edge of Lot 3 and the outer edge of the SPEA.**



**Section 7. Professional Opinion**

Qualified Environmental Professional opinion on the development proposal's riparian assessment.

Date

1. I, Harry Williams, M.Sc., R.P.Bio.

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Please list name(s) of qualified environmental professional(s) and their professional designation that are involved in assessment.)

hereby certify that:

- a) I am/We are qualified environmental professional(s), as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*;
- b) I am/We are qualified to carry out the assessment of the proposal made by the developer **Mike Weirsmá**, which proposal is described in section 3 of this Assessment Report (the "development proposal"),
- c) I have/We have carried out an assessment of the development proposal and my/our assessment is set out in this Assessment Report; and
- d) In carrying out my/our assessment of the development proposal, I have/We have followed the specifications of the Riparian Areas Protection Regulation and assessment methodology set out in the minister's manual; AND

2. As qualified environmental professional(s), I/we hereby provide my/our professional opinion that:

- a)  the site of the proposed development is subject to undue hardship, (if **applicable, indicate N/A otherwise**) and
- b) the proposed development will meet the **riparian protection standard** if the development proceeds as proposed in the report and complies with the measures, if any, recommended in the report.

[NOTE: "Qualified Environmental Professional" means an individual as described in section 21 of the Riparian Areas Protection Regulation.]

FORM 1

Riparian Areas Protection Regulation - Qualified Environmental Professional - Assessment Report

**Attachment 1. Summary of Qualifications – Qualified Environmental Professional, Riparian Assessments for the pre-existing Riparian Areas Regulation**

Date:	June 28, 2022
Name of Qualified Environmental Professional (QEP):	Harry Williams
Professional designation:	Registered Professional Biologist (R.P.Bio.)
Professional association:	College of Applied Biology of BC (CAB-BC)
Registration number:	963 (R.P.Bio.)
Training in Riparian Areas Regulation	Riparian Areas Regulation Methods Course
Organization or agency delivery training:	Vancouver Island University, Natural Resources Extension Program
Name of trainer:	Michele Jones, M.Sc., R.P.Bio.
Date of training session:	2007
Certificate number:	N/A
Other relevant education, training or experience	<ul style="list-style-type: none"> <li>I have attended provincial-government-led QEP RAR workshops over the years to discuss RAR implementation.</li> <li>MSc in Forest Ecology</li> <li>Professional Agrologist (PAG), #1751</li> <li>Have completed the Streamkeepers Certification (2011)</li> <li>Certified Arborist (ISA) #PN-6432A</li> <li>Completed the Environmental Monitoring for Construction Projects course (VIU Natural Resources Extension Program) - 2009</li> </ul>
Riparian assessments completed or contributed to:	
Report title (RARNS #):	134 Cowichan Lake Road (#4258) – Madrone Dossier #16.0296
Report date:	2016-09-26
As lead Qualified Environmental Professional (Y/N)	Y
As supporting specialist (Y/N)	N
Report title (RARNS #):	2749 W Shawnigan Road, Shawnigan Lk. (#5072) – Madrone Dossier #17.0402
Report date:	2018-03-16
As lead Qualified Environmental Professional (Y/N)	Y
As supporting specialist (Y/N)	N
Report title (RARNS #):	1820 Wellman Rd, Shawnigan Lake (#4975) – Madrone Dossier #17.0420
Report date:	2018-01-15
As lead Qualified Environmental Professional (Y/N)	Y
As supporting specialist (Y/N)	N
Report title (RARNS #):	140 Okotoks Rd, Malahat, BC (CVRD #07-A-17SA) – Madrone Dossier #18.0230
Report date:	2018-06-18
As lead Qualified Environmental Professional (Y/N)	Y
As supporting specialist (Y/N)	N
Report title (RARNS #):	8580 North Shore Road, Lake Cowichan BC #3867
Report date:	2015-11-07
As lead Qualified Environmental Professional (Y/N)	Y
As supporting specialist (Y/N)	N
Report title (RARNS #):	3016 Cliffs Road, Duncan BC #5966
Report date:	November 8, 2019
As lead Qualified Environmental Professional (Y/N)	Y
As supporting specialist (Y/N)	N
Report title (RARNS #):	1476 Shawnigan Lake Road RAPR #7369 Madrone File#21.0249
Report date:	January 19, 2022
As lead Qualified Environmental Professional (Y/N)	Y
As supporting specialist (Y/N)	N

*\*This is a digitally signed duplicate of the official manually signed and sealed document.*



\_\_\_\_\_  
Qualified Environmental Professional Signature

\_\_\_\_\_  
Date

June 28, 2022

FORM 1

Riparian Areas Protection Regulation - Qualified Environmental Professional - Assessment Report

**Attachment 2. Riparian Assessment Assurance Statement – Qualified Environmental Professional**

**Note:** This Statement is to be read and completed in conjunction with the *Professional Practice Guidelines – Legislated Riparian Assessments* and the Riparian Areas Protection Regulation 2019 OIC 446 and is to be provided for *riparian assessments* (not landslides, floods or flood controls) for the purposes of the Riparian Areas Protection Regulation.

To: Town of Lake Cowichan  
39 South Shore Road  
Lake Cowichan, BC V0R 2G0

Date: June 28, 2022

With reference to the Riparian Areas Protection Regulation assessment for the property:  
124 Elk Road, Lake Cowichan, BC PID: 001-221-591

The undersigned hereby gives assurance that he is a *Qualified Environmental Professional*:  
Name of *Qualified Environmental Professional*: Harry Williams, M.Sc., R.P.Bio.  
Professional designation: Registered Professional Biologist (R.P.Bio. #963)  
Professional association: College of Applied Biology of BC

I have signed, sealed and dated, and thereby certified, the attached riparian assessment report on the property in accordance with the *Professional Practice Guidelines – Legislated Riparian Assessments* and with the *assessment methods*. That report must be read in conjunction with this statement. In preparing that report I have:

- 1. Collected and reviewed appropriate background information
- 2. Reviewed the *development proposal* on the property
- 3. Conducted field work on and, if required, beyond the property
- 4. Reported on the results of the field work on and, if required, beyond the property
- 5. Incorporated recommendations or assessment results from other *specialists*
- 6. Prescribed *measures* to protect and maintain the integrity of the streamside protection and enhancement area
- 7. Prescribed *measures* to avoid the occurrence of a HADD\*
- 8. Reported on the requirements for *field reviews* or *environmental monitoring* of the property during or following site works for the proposed *development* and recommended who should conduct those *field reviews* or *environmental monitoring*
- 9. Reviewed the *riparian assessment* report with the *client* and explained the content and the *measures* required to be implemented.

\*HADD – *harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes*

I hereby confirm that in my professional opinion, based on the conditions contained in the attached *riparian assessment report*, as required by the Riparian Areas Protection Regulation (Section 4):

The proposed development will meet the **riparian protection standard** if the development proceeds as proposed in the report and complies with the measures recommended in the report.

**Recommended Long-term SPEA Protection**

Check one:

- with one or more recommended registered covenants
- without any registered covenant.

*\*This is a digitally signed duplicate of the official manually signed and sealed document.*

*Harry Williams*



June 28, 2022

Signature, seal and date

