

**Riparian Area Regulation (RAR) Assessment Report
for the
Property Located at 365 Highway 3, Princeton, BC**



Prepared by:

VALLEY ENVIRONMENTAL

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3265 Webber Road
Westbank, BC
V4T 1G3**

Riparian Areas Regulation: Assessment Report

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

Date

I. Primary QEP Information

First Name	David	Middle Name	William
Last Name	Cassidy		
Designation	R.P.Bio.	Company	Valley Environmental
Registration #	1556	Email	david.cassidy@shaw.ca
Address	3265 Webber Road		
City	Westbank	Postal/Zip	V4T 1G3
Prov/state	BC	Country	Canada
		Phone #	250-490-0161

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

First Name		Middle Name	
Last Name			
Designation		Company:	
Registration #		Email:	
Address			
City		Postal/Zip	
Prov/state		Country	
		Phone #	

III. Developer Information

First Name	Gary	Middle Name	
Last Name	Schatz		
Company	Town of Princeton		
Phone #	250-295-3135	Email	gschatz@princeton.ca
Address	151 Vermilion Avenue		
City	Princeton	Postal/Zip	VOX 1W0
Prov/state	BC	Country	Canada

IV. Development Information

Development Type	Construction: Institutional / recreational – RV Park Washrooms		
Area of Development (ha)	0.016	Riparian Length (m)	120
Lot Area (ha)	134	Nature of Development	Re-development
Proposed Start Date	July 15, 2022	Proposed End Date	Dec 31, 2023

V. Location of Proposed Development

Street Address (or nearest town)	365 Highway 97		
Local Government	Town of Princeton		
Stream Name	Similkameen River		
Legal Description	018-238-823	Region	Okanagan (8)
Stream/River Type	Stream	DFO Area	BC Interior
Watershed Code	310-367800		
Latitude	49	27	44
Longitude	120	28	38

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Section 1. Description of Fisheries Resources Values

The Similkameen river flows east through the southern portion of British Columbia starting near Manning Park and emptying into the Okanogan River just south of the Canada/US border near Oroville, Washington.

This stream is a primary tributary to the Okanogan River and to the Columbia River both of which support numerous salmonid and non-salmonid species. Coyote Falls, a natural barrier at the Enloe Dam, was used to construct the dam and has prevented salmon from migrating into the upper Canadian portions of the Similkameen River.

Fish species include: rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), dolly varden (*Salvelinus malma*), mountain whitefish (*Prosopium williamsoni*), black catfish (*Ameiurus melas*), bridgelip sucker (*Catostomus columbianus*), largescale sucker (*Catostomus macrocheilus*), longnose dace (*Rhinichthys cataractae*), mottled sculpin (*Cottus bairdi*), northern mountain sucker (*Catostomus platyrhynchus*), northern pikeminnow (*Ptychocheilus oregonensis*), redbelly dace (*Richardsonius balteatus*), slimy sculpin (*Cottus cognatus*), torrent sculpin (*Cottus rhotheus*), Umatilla dace (*Rhinichthys umatilla*).

There are no endangered species in this system but Umatilla dace are considered a special concern species under Section 3 of the Species At Risk Act (SARA). Umatilla dace prefer the warmer lower elevation waters of the lower Similkameen. The proposed development is however in the colder water higher elevation upper portion of the river which is fed by streams from the East Cascade Mountains. The mottled sculpin in the Columbia River system is considered endangered or threatened under Section 1 of the SARA. However, current populations in the Similkameen River system are considered at natural historic levels.

Stream habitat immediately adjacent to the property consists of cascade-glide habitat with dominant cobble and large gravel substrate. Cover component consist of some larger boulders and large amounts of overhanging vegetation from Douglas fir and Ponderosa pines on the south bank of the river and cottonwood and ponderosa pine on the north bank. The river provides habitat for various life history stages for the above mentioned species that includes: spawning, incubation and rearing habitats.

Much of the area immediately surrounding the property is somewhat developed with mixed commercial & single family homes as well as roads. The subject property is municipal run campground. A disturbed 5 to 10 m riparian strip is found along the south bank of the river adjacent to the campground; the north bank also contains a similar 5 – 10 riparian strip. The native riparian buffer consists of black cottonwoods, Douglas fir and Ponderosa pine. A man-made berm or reinforced dyke was noted along the river adjacent to the subject property, other adjacent properties in the area as well as much of the within much of the municipal boundaries. The berm was created to minimize flooding in the area. Understory vegetation is minimal but consists of snowberry, roses, Oregon grape and Douglas maple.

The proposed development is the construction of a 140 m² washroom facility. All construction and excavation is located outside: 1) the 15 m streamside protection and enhancement area (SPEA) or RAPR setback as well; and 2) the 30 m riparian assessment area. The structure will be placed in an existing gravel parking/common area which has been historically disturbed.

2. Results of Detailed Riparian Assessment

Refer to Chapter 3 of Assessment Methodology

Date: June 20, 2022

Description of Water bodies involved (number, type)

Stream	Similkameen
Wetland	
Lake	
Ditch	
Number of reaches	1
Reach #	

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(m)	Gradient (%)
starting point	56	
upstream	58	
	61	
	65	
downstream	69	.6
	70	
	64	
	55	
	62	
	65	.6
	61	
Total: minus high /low mean	421 62.3	0.6
	R/P	C/P
Channel Type		xx

I, David Cassidy, hereby certify that:

a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the *Fish Protection Act*;

b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Town of Princeton;

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 assessment methods set out in the Schedule to the Riparian Areas Regulation.

Site Potential Vegetation Type (SPVT)

SPVT Polygons	Yes	No	
	<input type="checkbox"/>	<input type="checkbox"/>	Tick yes only if multiple polygons, if No then fill in one set of SPVT data boxes
	<p>I, <u>David Cassidy</u>, hereby certify that:</p> <p>a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish 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>Town of Princeton</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</p> <p>d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.</p>		
Polygon No:	<input type="text"/>		Method employed if other than TR
SPVT Type	LC	SH	TR
	<input type="text"/>	<input type="text"/>	<input type="text"/>
Polygon No:	<input type="text"/>		Method employed if other than TR
SPVT Type	LC	SH	TR
	<input type="text"/>	<input type="text"/>	<input type="text"/>
Polygon No:	<input type="text"/>		Method employed if other than TR
SPVT Type	<input type="text"/>	<input type="text"/>	<input type="text"/>

Zone of Sensitivity (ZOS) and resultant SPEA

Segment No:	<input type="text"/>	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)	15	<input type="text"/>

Litter fall and insect drop ZOS (m)	15					
Shade ZOS (m) max	0 (30)	South bank	Yes		No	xxx
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	15	(For ditch use table3-7)				

Segment No:		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)						
Litter fall and insect drop ZOS (m)						
Shade ZOS (m) max		South bank	Yes		No	
SPEA maximum		(For ditch use table3-7)				

Segment No:		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)						
Litter fall and insect drop ZOS (m)						
Shade ZOS (m) max		South bank	Yes		No	
SPEA maximum		(For ditch use table3-7)				

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- 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 Schedule to the Riparian Areas Regulation.

Comments

- Channel Type Clarification: The assessment methods Figure 3-4 is limited to 30 m channel width, although the graph should read up to 25 m....according to the scale from 0 to 20 m. Due to the lack of direction in the methodology, VE extrapolated the channel type by extending the graph and trend lines up to a 50 m wide channel width. The resulting 0.6% slope and 46.7 m wide channel indicates a cascade-pool (see attached Figure with modified chart).

- VE also reviewed the Fish & Fish Habitat Inventory Site Card Field Guide (April 2008) and prepared by MOE Ecosystems Branch. Page 28 identifies a visual classification guide table for determining stream morphology. The stream bed material of the Similkameen consists primarily of cobble but also contains small and large boulders which were noted as round (alluvial) and not lag boulders. According to the table, riffle-pool systems do not contain boulders; only cascade-pool and step-pools contain boulders. Furthermore, the table also indicates that cascade-pool systems have either absent or minor presence of LWD. VE noted in the field that LWD was absent from the immediate stream banks in the survey area. LWD was noted washed up on large channel islands in the center of the stream. During non high peak flows, these log jams / debris flows would not provide cover for fish. A larger search of the river through the area reveals little to no LWD along the stream bank. As such this would further classify the channel type as cascade-pool.

- VE further reviewed the Forest Renewal BC: Watershed Restoration Technical Circular Document No. 7 (July, 1996). This document also provides several visual classification tables for channel type. In particular Table 3Aiv (page 28) Cascade-Pool (CPb) best describes the channel conditions near the site.

Conditions of RAPR Section 10(4) have been met as the development falls well outside the 15 m SPEA setback as well as the 30 m riparian assessment area. As such, the development is not limited by the 15 m setback.

Section 3: Site Plan



1 cm = 5.4 m

Section 4. Measures to Protect and Maintain the SPEA

1. Danger Trees	
<p>1. <u>David Cassidy</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>Town of Princeton</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>	
2. Windthrow	
<p>1. <u>David Cassidy</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>Town of Princeton</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>	
3. Slope Stability	
<p>1. <u>David Cassidy</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>Town of Princeton</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>	
4. Protection of Trees	
<p>1. <u>David Cassidy</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>Town of Princeton</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>	
5. Encroachment	
<p>1. <u>David Cassidy</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>Town of Princeton</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>	
6. Sediment and Erosion Control	
<p>1. <u>David Cassidy</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 <u>Town of Princeton</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>	
7. Stormwater Management	
<p>1. <u>David Cassidy</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>Town of Princeton</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>	
8. Floodplain Concerns (highly mobile channel)	
<p>1. <u>David Cassidy</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>Town of Princeton</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>	

- 1) Danger Trees – There are several large trees within the 15 m SPEA setback & 30 m assessment area. All trees appear healthy however, they should be inspected by the municipality annually for any hazards.
- 2) Windthrow – Windthrow is not expected to be a problem as no forest habitats will be removed for the development.
- 3) Slope stability – The area of the proposed development is relatively flat.
- 4) Tree Protection in the SPEA – The development is outside the tree root protection zone of all trees within the 15 m SPEA setback as well as the 30 riparian assessment area. In addition, no tree are proposed for removal.
- 5) Encroachment in the SPEA – There will be no encroachment into the 15 m SPEA for the development as the proposed structure is ~ 21 m from the SPEA setback.
- 6) Sediment & Erosion Control – Sediment delivery is not anticipated to be a significant problem as the areas of development are relatively flat.
- 7) Stormwater Management – Stormwater will be located on site and or will use existing drainage methods. If any new perimeter drainage systems are required for the new structure such as tiles or rock pits etc., they must be located outside the 15 m SPEA
- 8) Floodplain concerns – The property is within the floodplain of the Similkameen River. Much of the stream bank throughout the town of Princeton has been diked to protect the existing home, business and infrastructure developments (see additional attached picture). Diking is noticeable throughout the project site.

If applicable, the structure will follow the guidelines within the Town of Princeton Flood Protection bylaw Section 6.12 of the Zoning Bylaw No. 880, 2013 (noted below) will ensure that future proposed structure(s) meets their floodplain requirements:

Flood Protection

6.12 No person shall construct, alter, locate or use a building or structure:

- .1 within 7.6 m (25 ft) of the landside toe of the Tulameen and Similkameen River Dyke, within 15 m (49 ft) of the natural boundary of any other watercourses; and*
- .2 with the underside of the floor system of any area used for habitation, business or storage of goods lower than 0.6 m (2 ft) above the 200 year flood level when it can be determined, or if not, less than 3 m (10 ft) above the natural boundary of any watercourse.*

Section 5. Environmental Monitoring

Full-time monitoring is not anticipated as the risk to the 15 m SPEA setback is very low and all work is located outside the 30 m assessment area. Furthermore, much of the 30 m assessment area has been previously development.

Section 6. Photos



June 1, 2022 – Drone view looking west and upstream along the active floodplain/stream boundary of the Similkameen River adjacent to the property. The stream boundary is noted as the edge of large rooted vegetation.



June 1, 2022 – Drone view looking east and downstream along the Similkameen River. Cottonwoods mark the stream boundary / active floodplain. This picture was also taken during the freshet and shows the location of the typical high water directly adjacent to large rooted vegetation.



June 1, 2022 – View looking east along the 15 m SPEA setback (green line) approximately. Most of the 15 m riparian setback is campground with several large pines remaining.



June 1, 2022 – View looking west along the 15 m SPEA setback. The existing washrooms are on the left.



June 1, 2022 – View looking east along the 30 m riparian assessment area (blue).



June 1, 2022 – View looking west along the 30 m riparian assessment area. The proposed washrooms are an additional 7 m outside (left) the assessment area.



June 1, 2022 – View looking westward towards the location of the proposed washrooms. The structure is located in an existing parking area / common space.



June 1, 2022 – Drone view looking westward toward the proposed washroom site (white) and 30 m riparian assessment area (blue). Highway 3 is on the left and the Similkameen River is on the right.

Section 7. Professional Opinion

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

Date

1. I/We David Cassidy, RPBio.

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 Town of Princeton, 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.