



# Committee Report

**Date of Report:** 02, 01, 2022  
**Date & Type of Meeting:** 02-16-2022, Rural Affairs Committee  
**Author:** Eileen Senyk, Planner 1  
**Subject:** SITE SPECIFIC EXEMPTION TO THE FLOODPLAIN MANAGEMENT BYLAW  
**File:** F2101F-09063.030-425026\_BC\_Ltd-FLD00056  
**Electoral Area/Municipality** F

## SECTION 1: EXECUTIVE SUMMARY

The purpose of this report is for the Rural Affairs Committee and Regional Board to consider an application for a Site Specific Exemption to Regional District of Central Kootenay Floodplain Management Bylaw No. 2080, 2009, in Electoral Area 'F'. The applicant proposes to reduce the setback distance from 15m to 5m from Edwards Creek in order to construct a two family dwelling.

Staff recommend that the Board approve the application. Completion of the attached riparian mitigation plan would be a condition of the building permit.

## SECTION 2: BACKGROUND/ANALYSIS

### GENERAL INFORMATION

**Property Owner:** Curtis Jones

**Property Locations:** 1293 (Formerly 1275) Highway 3A, Electoral Area 'F'

**Legal Description:** Parcel A (Being a consolidation of lots 1 AND 2, See CA8769357) District Lot 7705 Kootenay District Plan 9963 (PID 031-316-794)

**Property Size:** 0.8 Hectares (2.02 acres)

### SURROUNDING LAND USES

**North:** Rural Residential (R3)

**West:** Rural Residential (R3)

**East:** Rural Residential (R3) Highway 3A and Open Space (OS) – Kootenay Lake

**South:** Rural Residential (R3)

### Background and Site Context

The subject property is located on Highway 3A near the West Arm of Kootenay Lake in Electoral Area 'F'. The proponent seeks to reduce the floodplain setback distance for Edwards Creek from 15m to 5m in order to construct a dwelling. The property is located on a steep, rocky slope.

Edwards Creek was re-aligned in order to create adequate space between the creek and the septic field.

Re-alignment of Edwards Creek was completed without adequate authorizations pursuant to the Water Sustainability Act. As such, the file was on hold for the better part of a year in order to allow time for the applicant to work with the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (MFLNRORD) toward a solution. The staff at MFLNRORD, Resource Authorizations have determined that implementation of a riparian mitigation plan (which has been provided by the applicant) is an adequate solution. Implementation of the riparian mitigation plan will be a condition of the building permit, as there is no requirement for a watercourse development permit in Electoral Area 'F'.

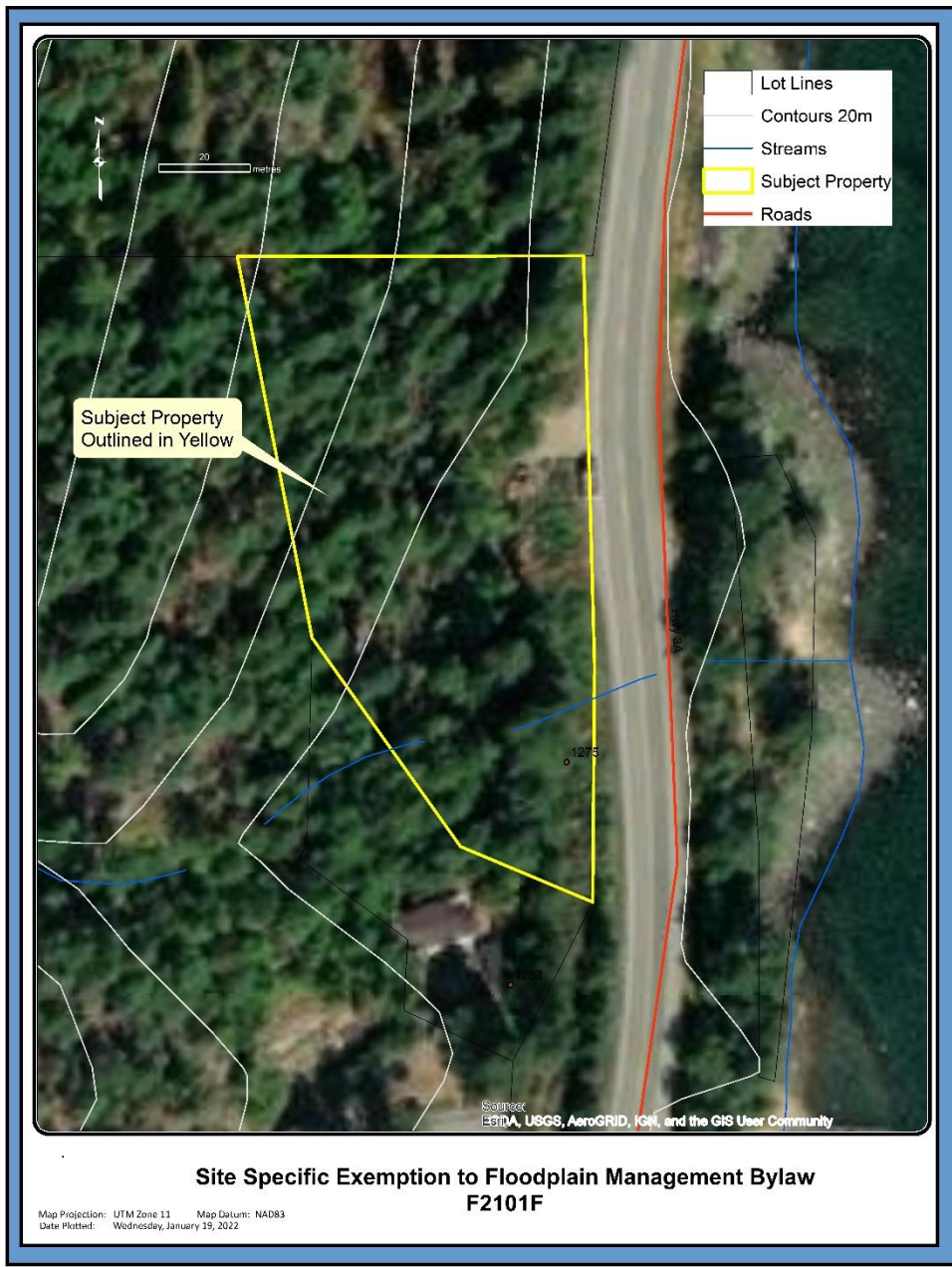


Figure 1: Overview Map

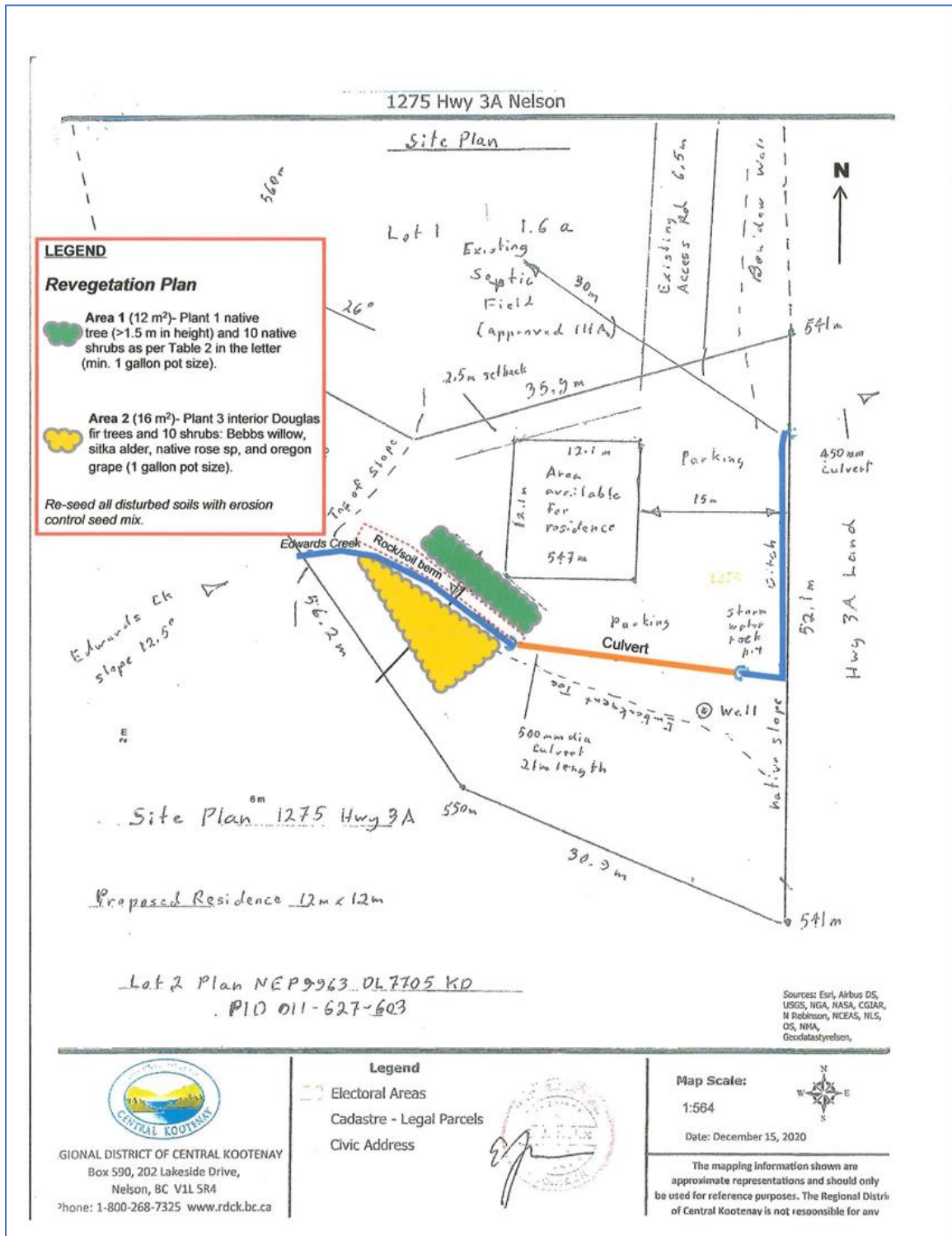


Figure 2: Site Plan from Mitigation Report

## Legislative Framework and Applicable Policy

The Floodplain Setback for most watercourses in the Regional District of Central Kootenay is 15.0 meters from the natural boundary. Under Section 524 of the *Local Government Act*, a local government may exempt a person from the application of a floodplain bylaw in relation to a specific building if the local government considers it advisable and either:

- a. Considers that the exemption is consistent with the Provincial Guidelines; or
- b. Has received a report that the land may be used safely for the use intended where such a report is certified by a person who is a professional engineer or geoscientist and experienced in geotechnical engineering.

The Board adopted 'Terms of Reference for Professional Engineers/Geoscientists undertaking Geotechnical Reports/Flood Hazard Assessment Reports' to outline basic information that should be included in such reports.

A **Flood Assessment Report** prepared by Edward Nunn of Lasca Group Technical Services, was submitted in conjunction with the application for an exemption. It was initially rejected because it did not meet statutory requirements or the RDCK's Terms of Reference. A revised report dated April 7, 2021 was submitted which did meet both the statutory requirements and Terms of Reference. A peer review of this report was then submitted by Anthony Zeberoff and Richard Munroe (please see Attachment A). The report submitted by Edward Nunn, dated April 7, 2021 states that '*It is Edward J Nunn, P.Eng. of Lasca Group Technical Services opinion that a new residence, as proposed with the setback of 5 metres, will be safe for the use intended as per Section 56 of the Community Charter.*' A Flood Assurance Statement was provided as an attachment to the above noted report.

The **Provincial Guidelines** or the Flood Hazard Area Land Use Management Guidelines for landowner requests for modification of bylaws provides the following guidance:

*Setback requirements should not be reduced unless a serious hardship exists and no other reasonable option is available. A valid hardship should only be recognized where the physical characteristics of the lot (e.g., exposed bedrock, steep slope, the presence of a watercourse, etc.) and size of the lot are such that building development proposals, consistent with land use zoning bylaws, cannot occur unless the requirements are reduced.*

*In order to avoid setting difficult precedents these site characteristics should be unique to the subject property and environs. The economic circumstances or design and siting preferences of the owner should not be considered as grounds for hardship. Before agreeing to a modification, consideration should be given to other options such as the use of alternate building sites, construction techniques and designs (e.g., constructing an additional storey and thereby reducing the size of the 'building footprint').*

## Planning Considerations

The subject property meets the definition of hardship due to its steep, rocky nature (see contours lines on Figure 1 and note steep slope in Figure 3 for context). The purpose of the consolidation was to locate all infrastructure (driveway, septic system, house and water well) on one property. The property is 0.8 hectares in size but is limited in areas that are flat enough to place infrastructure.



Figure 3: Facing Building Site from Highway 3A



Figure 4: Facing south toward building site and re-directed creek



Figure 5: Facing west toward re-directed creek and well



Figure 6: Edwards Creek directed through culvert



Figure 7: Former creek channel



Figure 8: Facing West Arm Kootenay Lake from Building Site

## SECTION 3: DETAILED ANALYSIS

### 3.1 Financial Considerations – Cost and Resource Allocations:

Included in Financial Plan:  Yes  No      Financial Plan Amendment:  Yes  No  
 Debt Bylaw Required:  Yes  No      Public/Gov't Approvals Required:  Yes  No

The application fee was paid in full pursuant to RDCK Planning Fees and Procedures Bylaw No. 2457, 2015

### 3.2 Legislative Considerations (Applicable Policies and/or Bylaws):

Section 524 of the Local Government Act provides the authority for local governments to grant exemptions from the requirements of a Floodplain Management Bylaw.

Electoral Area 'F' does not have a requirement for Watercourse, or Environmentally Sensitive Watercourse Development Permits. This presents a challenge in terms of ensuring that the mitigation plan submitted for the purpose of restoring damages to the riparian area around Edwards Creek is completed. For this reason, the RDCK Building Department has agreed to make completion of the Riparian Mitigation Plan a condition of the building permit.

### 3.3 Environmental Considerations

The initial Geotechnical Engineering Report entitled 'Flood Site Exemption Letter for 1275 Highway 3A, Nelson BC' and dated December 15, 2020 did not disclose that Edwards Creek has been re-aligned. A referral response from MFLNRORD's Habitat Branch noted that according to the site plan, the creek was no longer in its original



location. In follow up communications with MFLNRORD (Senior Authorizations Specialist), it was noted that significant ecological damage was done to the riparian area surrounding Edwards Creek at the time of re-alignment. Direction received from MFLNRORD is that moving forward, to leave the creek where it is (re-aligned and directed through a culvert) in order to avoid further damage, and to implement the mitigation plan entitled 'Mitigation Plan-1293 Hwy 3A, North Shore' and dated August 26, 2021 (See Section 3.6).

### **3.4 Social Considerations:**

There is no social benefit associated with the application.

### **3.5 Economic Considerations:**

The proposed location of the house is in the former creek channel. Should Edwards Creek flood and the house incur damage, the owner may wish to apply for disaster financial assistance, putting the financial responsibility for disaster recovery on taxpayers. The Geotechnical Engineer's report entitled 'Flood Site Variance Letter for 1275 Highway 3A' and dated April 7, 2021 states that the property is safe for the use intended. The peer review of that report entitled 'Peer Review of Lasca Services of Lasca Group Technical Services Report Dated April 7, 2021 regarding Flood Site Variance Letter for 1275 Highway 3A (Now identified as 1293 Highway 3A)' States that 'No geotechnical hazards were observed on the property. There was no evidence for geological concerns regarding slope failure on the west slope of the property. The water flow risk level would be "Very Low, Class 0". Probability of a 200-year flood is less than 0.4% (Professional Practice Guidelines).'

### **3.6 Communication Considerations:**

#### **January 26, 2021 – Regional District of Central Kootenay Manager of Community Sustainability**

*A few questions on this.*

- 1. What data did the engineer use to determine that there was no evidence of historical flooding?*
- 2. Have you been out to site? From our webmap it looks like there is more area to build south of the creek than is represented in the hand drawn map which would allow for an additional building site.*
- 3. Was this property recently subdivided from the lot immediately to the north? It looks as though it is owned by the same person.*
- 4. To confirm, the landowner would own the 500mm culvert? In my experience these cause greater issue than an open channel as debris can aggregate and restrict flow, either from lack of maintenance or during an event.*

#### **January 27, 2021 – MFLNRORD – Habitat Biologist**

*The Ministry of Forests, Lands and Natural Resource Operations – Resource Management Division reviewed this Floodplain relaxation request on January 26, 2021. The applicant is proposing a 1600 sq/ft house footprint. If the house size was reduced or the structure reconfigured, it would accommodate a reduced infringement on the creek system. A 5 metre setback could detrimentally impact the riparian function of the creek system. Additionally, if flooding of the stream did occur, it*

*is likely to cause future hard structuring requests and or risk to structure. If the applicant is approved for this request, it is recommended they have an environmental management and mitigation plan completed by a qualified profession. Implementation of any recommendations within this report should be a requirement of the permit approval.*

*The aerial photo stamped RDCK file F2101F shows a creek running through the north end of the property. Yet, the drawing indicates the creek in question runs through the southern third of the property. Is this correct? Are there 2 creeks or has Edwards Creek already been artificially moved on the property? Please confirm if there are two creeks or if Edwards Creek was potentially moved without authority.*

#### **January 28, 2021 - RDCK Building Official**

*There was a SWO posted on this property on May 31, 2018 for a large retaining wall. A permit was applied for and completed under BP 24602. I have driven passed this property throughout the years since and notice a lot of activity including the burial of the stream and moving around and using fill on the plateau portion at the top of the driveway. If the variance is passed the building department will be requesting a geotechnical engineer be involved and provide a Schedule B.*

#### **January 29, 2021 – Acting Fire Chief – North Shore Volunteer Fire Department**

*My only concern with 1275 Hwy 3A is that if the 500 mm culvert gets plugged by runoff debris Can the runoff be directed away from the house & driveway.*

*Other than that, okay.*

*Site visit was completed today.*

*PS: my personal observation.*

#### **March 3, 2021 – MFLNRORD – Senior Authorizations Specialist**

*I have some update about your inquiry. The application was to re-align Edwards Creek and this office was waiting for a hydrotechnical/engineering assessment of proposed stream diversion since May 2019. If the work has been completed without the authorization, it may have contravened section 11 - Changes in and about a stream of Water Stewardship Act.*

*You mentioned that the owner has applied for a Site Specific Exemption to the RDCK's Floodplain Management Bylaw. Has that been granted? And do you have any record?*

*From the pictures you sent, it looks like a culvert has been built and the water is diverted toward the highway 3A. The Edward Creek, though not a big stream, can discharge somewhat forceful flow during freshet and can be flooding and erosion concern, if not managed well. Some investigation may be needed to confirm the design and construction had been properly and professional completed.*

*Due to all above, I am not in a position to recommend approval unless the proponent can provide further information. I hope the proponent can be noted of this, and I may follow up with the applicant on our end.*

#### **March 10, 2021 – Ministry of Transportation and Infrastructure – Development Officer**

*MOTI would want to ensure that the subject has adequate on-site parking for the development's needs. No parking is allowed along Hwy 3a. Also, the development shall not have an impact to drainage as it relates to the highway and its drainage facilities.*

*Thanks for the opportunity to review this proposal.*

**April 30, 2021 – MFLNRORD – Senior Authorizations Specialist**

*Just want to give you an update on this subject and really appreciate you being patient with me. Water officer and habitat officer from our ministry in the region visited and inspected the site on April 22. The realignment of creek and installation of the culvert (pipeline) has been completed without required authorization, and not without significant impact to the habitat condition of Edwards Creek at the occurred section. MOTI (Ministry of transportation) was also referred to the contravention which has an culvert downstream along the highway 3A, and didn't have major concern. At this time, I am still working with habitat officer to sort out feasibility or solution to mitigate the potential impact, as the change on the site is relatively significant. So it is against our interest of stream habitat protection to grant the application until further decision regarding mitigation of the change is made.*

**June 11, 2021 – MFLNRORD – Senior Authorizations Specialist**

*We are NOT supporting the floodplain exemption over the re-aligned section of Edwards Creek within the property LOT 2 DISTRICT LOT 7705 KOOTENAY DISTRICT PLAN 9963 (PID 011-627-603), based on the followings:*

- 1. An contravention of Water Stewardship Act (WSA) Section 106(2)(b)(ii) has occurred, and evidenced by site observation on April 22, 2021: the realigned creek from its natural course along the toe of slope into an underground culvert, and the installation of the culvert;*
- 2. Habitat impacts of the above unauthorized change: it is acknowledged by this office of the length of the realigned stream and low habitat value present before the construction, although the unknown previous site condition, the following impacts can be anticipated from the nature of the unauthorized:*
  - a. Reduction in organic input and overall productivity of the stream. By moving the stream underground, it prevents any addition of organic material entering the creek and undergoing the natural decomposition process and subsequent release of organic material into the ecosystem.*
  - b. Reduction in algal community representation and invertebrate populations and site productivity due to loss of substrate and photosynthesis capability.*

*In realizing the substantial scale of required efforts for rehabilitation and potential for further environmental damages, it is not in this office or public interest to require remediation but to maintain the current condition and stop further damaging.*

*Should the proponent choose to continue pursuing the floodplain exemption, I recommend an environmental mitigation plan be developed by a Qualified Environmental Professional (QEP) to ensure the occurred damage to the creek and its ecosystem does not worsen, and acceptable mitigation measures shall be followed through the development.*

**November 29, 2021 – MFLNRORD – Senior Authorizations Specialist**

*I have reviewed the mitigation plan – 1293 Hwy 3A, North Shore signed by Fiona Lau and dated on Aug 26, 2021, and acknowledge that the proposed work, if completed accordingly, will not worsen the damage from previous unauthorized activity.*

*I have no comments on the geological peer review document as it may not be relevant to Change in and about a stream under WSA, and is not provided by a qualified professional. You may obtain comments from other relevant subject matter expertise.*

### **3.7 Staffing/Departmental Workplace Considerations:**

Should the Board approve the application; staff will register the covenant on the property's title. A building permit can then be issued. Completion of the mitigation plan will be a condition of the building permit.

### **3.8 Board Strategic Plan/Priorities Considerations:**

Not applicable.

## **SECTION 4: OPTIONS**

### **Planning Discussion**

The applicant seeks to build within 5m of Edwards Creek. The creek was realigned and directed through a 500mm culvert in order to create 30m distance between it and the septic field. The proposed dwelling site is located on the former creek channel. The original geotechnical engineering report was revised in order to meet statutory requirements and the RDCK's Terms of Reference for geotechnical reports. The accepted geotechnical report was then peer reviewed for the purpose of providing assurance that the constructed berm will contain the creek. A riparian mitigation plan has been provided to address ecological damage caused by re-aligning the creek. Staff reached out to the Provincial Research Geomorphologist for the region and the Provincial Water Stewardship Officer in order to request input regarding flood hazard, but no response was received. The Senior Authorizations Specialist at MFLNRORD has reviewed the riparian mitigation plan and is satisfied that should the plan be implemented that no further ecological damage will be sustained. Concerns were expressed by RDCK Emergency Services and Fire Services that culverts run the risk of being blocked causing flooding, and that open channels are not as prone to this risk. Nonetheless, the engineers who worked on the project have deemed the culvert to be adequate in diameter to handle the flow of Edwards Creek. If the Board approves the current application, implementation of the riparian mitigation plan and a requirement for structural and geotechnical engineering at the building stage will be conditions of the building permit.

### **Option 1**

That the Board APPROVE a Site Specific Exemption to reduce the required setback to Edwards Creek from 15 metres from the natural boundary to 5 metres from the natural boundary in accordance with the Engineering Report prepared by Edward Nunn and peer reviewed by Anthony Zeberoff and Richard Munroe for property located at 1293 (formerly 1275) Highway 3A and legally described as Parcel A (Being a consolidation of lots 1 AND 2, See CA8769357) District Lot 7705 Kootenay District Plan 9963 (PID 031-316-794) SUBJECT to registration by Curtis Jones of a restrictive covenant under Section 219 of the Land Title Act and Section 56 of the Community Charter in favour of the Regional District of Central Kootenay.

### **Option 2**

That the Board NOT APPROVE a Site Specific Exemption to reduce the required setback to Edwards Creek from 15 metres from the natural boundary to 5 metres from the natural boundary in accordance with the Engineering Report prepared by Edward Nunn and peer reviewed by Anthony Zeberoff and Richard Munroe for property located at 1293 (formerly 1275) Highway 3A and legally described as Parcel A (Being a consolidation of lots 1 AND 2, See CA8769357) District Lot 7705 Kootenay District Plan 9963 (PID 031-316-794) SUBJECT to registration by Curtis Jones of a restrictive covenant under Section 219 of the Land Title Act and Section 56 of the Community Charter in favour of the Regional District of Central Kootenay.

## SECTION 5: RECOMMENDATIONS

That the Board APPROVE a Site Specific Exemption to reduce the required setback to Edwards Creek from 15 metres from the natural boundary to 5 metres from the natural boundary in accordance with the Engineering Report prepared by Edward Nunn and peer reviewed by Anthony Zeberoff and Richard Munroe for property located at 1293 (formerly 1275) Highway 3A and legally described as Parcel A (Being a consolidation of lots 1 AND 2, See CA8769357) District Lot 7705 Kootenay District Plan 9963 (PID 031-316-794) SUBJECT to registration by Curtis Jones of a restrictive covenant under Section 219 of the Land Title Act and Section 56 of the Community Charter in favour of the Regional District of Central Kootenay.

Respectfully submitted,



Eileen Senyk - Planner

## CONCURRENCE

Planning Manager – Nelson Wight

General Manager Development and Community Sustainability – Sangita Sudan

Chief Administrative Officer – Stuart Horn

### ATTACHMENTS:

**Attachment A – Geotechnical Report and Peer Review**

**Attachment B – Riparian Mitigation Plan**

## Lasca Group Technical Services

610 Front Street  
Nelson BC V1L4B7    tednunnwater@shaw.ca  
(604) 649 3543

### Flood Site Variance Letter for 1275 Hwy 3A, North Nelson BC

**7 April 2021**

The purpose of this letter is to inform the RDCK Planning Department that a variance is requested to move a Edwards Creek setback from the Floodplain bylaw 15 metres to 5 metres for 1275 Hwy 3A west side of a planned house location. During November 2020, at the request of the owner, I conducted a geotechnical engineering site visit at 1275 Hwy 3A which is located approximately 2 kilometres northeast of the Nelson Bridge and approximately 67 metres from the West Arm of Kootenay Lake.

The legal description and information of the property is:

Owner:                    425026 BC Ltd (contact Curtis Jones)  
Mailing Address:       3249 Hwy 3A 7 Mile Nelson V1L6M7  
Site Address:           1275 Highway 3A Nelson V1L6J6  
Description:           Lot 2 Plan NEP9963 DL 7705 LD26  
                                  PID 011-627-603  
UTM Coordinates:     49.5328° N, -117.26518°W    Elevation: 544 metres  
Area:                     0.42 acres (0.175 ha)

Attached to this report are location maps and photographs of the property with an EGBC Flood Assurance Statement.

This report has been prepared for and at the expense of the owner of the subject property and that the Qualified Professional Engineer has not acted for or is an agent for the Regional District of Central Kootenay in the preparation of this report. This report is a pre-condition to the issuance of a Site Specific Exemption from the provisions of Floodplain Bylaw 2080, 2009 under Section 910 of the Local Government Act, and any conditions in this report shall include in a Restrictive Covenant of the subject property under Section 219 of the Land Act and filed against the title of the subject property.

#### Property Description:

The property is located within the small Edwards Creek designate water shed which is sloping at a downhill grade on site at 12 degrees towards the West Arm of Kootenay Lake above Highway 3A within the study property. The property is almost entirely cleared of vegetation. The property is not in the ALR. The study lots and adjacent lots are within a Community Plan. The north side of the property is Lot 1 also owned by the owner of Lot 2.

## Geology:

Edwards Creek is actually geologically classified as a ‘streamlet’ which is a creek with a maximum flowing depth and width of 2 feet (0.6 metres). The creek has a length of 2.1 kilometres, average slope of 55% and a drainage basin of 0.54 square kilometres; and flows due east to the West Arm of Kootenay Lake from the peak of Elephant Mountain (near CBC tower).

The rock is within a plutonic complex of a massive mafic stock within the Early Jurassic period. The creek follows a tension crack from a complex tectonic and magmatic structure which occurred during continental drift.

The ice age within the Nelson area began 2 million years ago and receded to where it is today 10,000 years ago. The property lot (and adjacent lots) sits on a glacial silt bench with boulders on top that were plucked off the mountain side during the last glacial period. The height of the glacier during this period was 156 metres so these plucked irregular shaped boulders are very common along the West Arm (note Anderson Creek trestle and Redfish Creek as excellent examples of this event).

## Soil Type:

There has been no imported fill of significance. There is no immediate water table or an impermeable (restrictive) layer near the surface except when near highway level (544 metres) where it is glacial silt. The property has bedrock exposure on its western side.

Two geological test pits were dug to a depth of 1.6 metres giving a cross sectional and longitudinal sections of the soil horizons. There was no fill so the soils are considered native raw material. The holes were dry. There are three distinct soil types on the property.

1. Organics – 10 cm
2. Silt - 15 cm thickness
3. Remainder of test pit:

Boulders 10%  
Cobbles 35% (irregular shaped)  
Gravelly material 20%  
Course sand 15%  
Fine/silt 15%  
Clay 5%

The bottom material of the area of the test hole is a combination of glacial sand and gravels and is therefore can be classed as “very permeable”.

#### Drainage:

There are no indications of pooling of water on the property. The test holes did not identify a water table. At close examination of the soils, the combination of rounded (20%) and irregular shaped (80%) cobbles and gravel within the soil creates interlocking of material. Since there is also a high concentration of sand in the soil, there should be consistent percolation rates. Much of the creek is in the unsaturated zone and has much of the water located below surface in creviced rock.

Edwards Creek is an intermittent creek and frequently runs dry during summer months. Flow estimated by the author is between 15 to 60 gallons per minute. The author, with the presence of the owner, has measured the water for during four seasons to obtain this range. Method used was measuring the height of the water at the entrance of the culvert and knowing its slope has used “Manning’s Hydraulic Formula” to obtain the flow rate. The culvert is oversized so the maximum flow has not exceeded 5%.

There is no sign of debris flow along the creek. This is because there is not much soil plus the creek comprising of boulders from one to ten tonnes each with spaces filled with irregular shaped cobbles and gravel. Also, the underlain geological fracture would be acting as a drain.

Because of good soil drainage characteristics, the design frost line could be at a minimum of 30 inches.

#### Natural Hazards:

##### Floodplain:

A small flood plain level is below the Highway and is therefore not a concern. There is no indication of past creek or lake erosion on the property.

##### Slope Stability:

There is no indication of inclined movement on the property. There is no danger of slope failure since the slopes are already at the angle of repose. Also, it was observed that the trees on and above the property stand vertical which assures there has been no movement. There is no danger of landslides or rolling boulders (most of the property and adjacent lot is protected by a large oversized berm).

##### Sinkholes:

There is no indication of sinkholes on the property. Because of excellent interlocking soil conditions, and competent underlain rock structures, sinkholes are not possible.



#### Alluvial Fan:

Edwards Creek has no alluvial fan. The creek is channeled and is in a near straight route and with tall sides thereby preventing overflow conditions. Boulders within the creek were earlier removed. Please refer to the attached photographs.

#### Structures:

##### Residence:

Presently there are no structures on the property. No mitigation for flood control is necessary since the creek channel depth is greater than 1.5 metre depth of Edwards Creek is much greater than FCL bylaw requirement. The creek has no erosion and is riprapped.

##### Allowable Soil Bearing Capacity:

The soil bearing capacity is estimated at ten short tons per square foot. A two story building typically built in this area would only require a maximum of 0.8 tons per square foot.

##### Setback:

To meet required property setbacks, the planned residence location can only be constructed if there is a 5 metre setback from Edwards Creek (see Map) thereby requiring a 10 metre variance.

#### Conclusion:

The site as is has no geotechnical concern in regard flooding or impact to site or neighboring structures. No mitigating flood hazard prevention structures are required. It is Edward J Nunn, P.Eng. of Lasca Group Technical Services opinion that a new residence, as proposed with the setback of 5 metres, will be safe for the use intended as per a Section 56 of the Community Charter. Consequence Description is Level 2 which is "Minor". The Risk Level would be "Very Low Class 0". Probability of a 200 year flood is less than 0.4% (*Ref 2*).

Most of the drainage water from the Edwards Creek watershed is subsurface because of the creviced thickness of the plutonic rock. The underlain glacial silt is near impervious thus allowing a subsurface path for the water to drain under the highway and into Kootenay Lake. No Restrictive Covenant is necessary. The proposed residence meets the FCL bylaw requirement.

References:

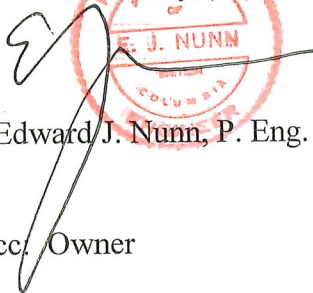
The author could not find any localized previous geotechnical studies but referred to the following documents given below and did a field perusal of the adjacent lots including travelling upstream.

*Bibliography:*

1. *RDCK Floodplain Management Bylaw 2080, 2009*
2. *Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC, APEG, 2012*
3. *Nelson Map-Area, West Half, British Columbia, Dept. of Mines & Resources.*
4. *Alluvial Fan Hazard Assessment, RDCK, Electoral Areas E & F, Northwest Hydraulic Consultants, April 1990*
5. *BC Flood Hazard Area Land Use Management Guidelines*

If you have any questions, please telephone me at (604) 649-3543 or email me at [tednunngeneral1@shaw.ca](mailto:tednunngeneral1@shaw.ca)

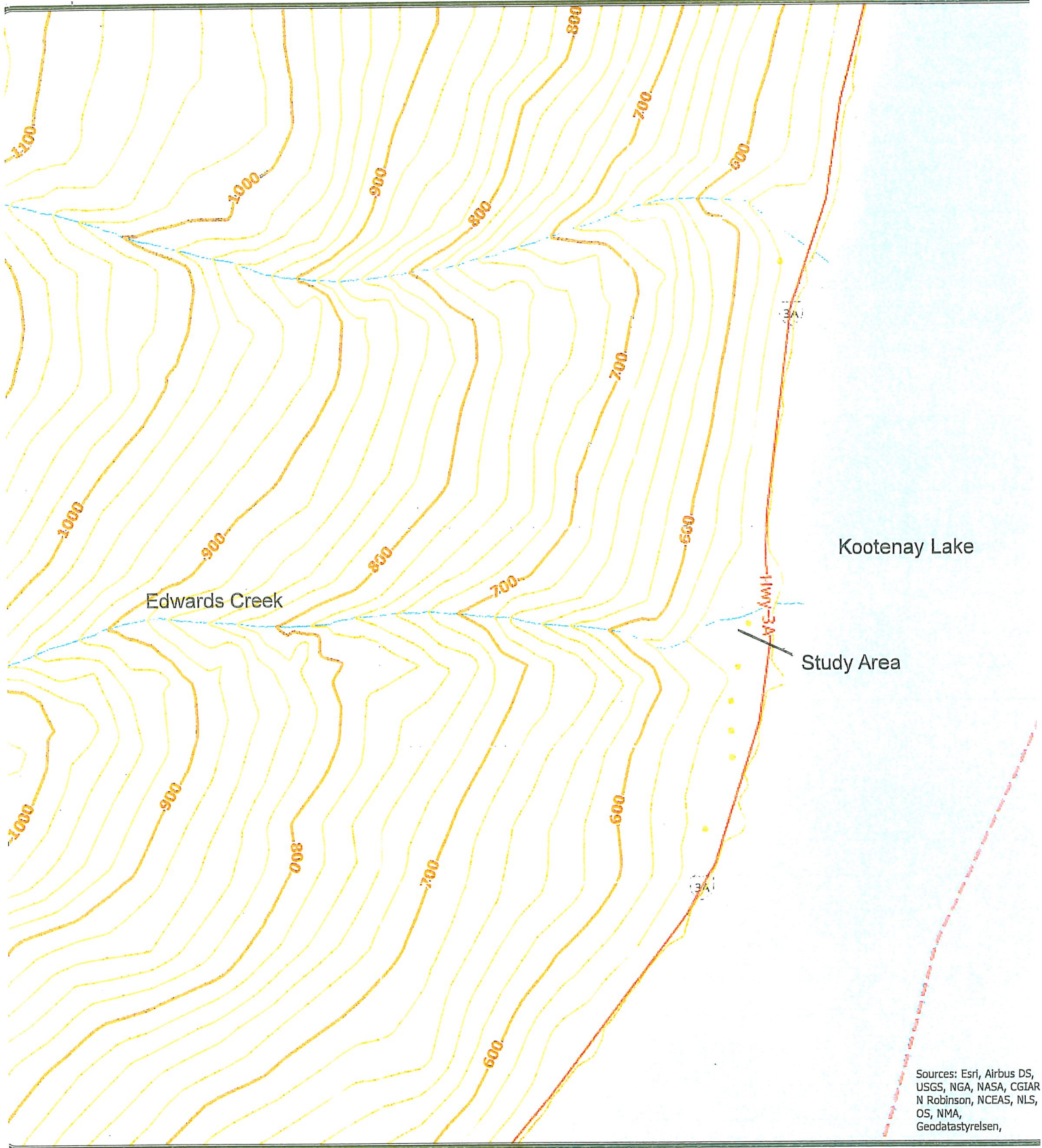
Yours sincerely,



Edward J. Nunn, P. Eng.

cc. Owner

# 1275 Hwy 3A Edwards Creek



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen,



REGIONAL DISTRICT OF CENTRAL KOOTENAY  
Box 590, 202 Lakeside Drive,

### Legend

- Electoral Areas
- RDCK Roads
- Cadastre - Legal Parcels
- Civic Address



### Map Scale:

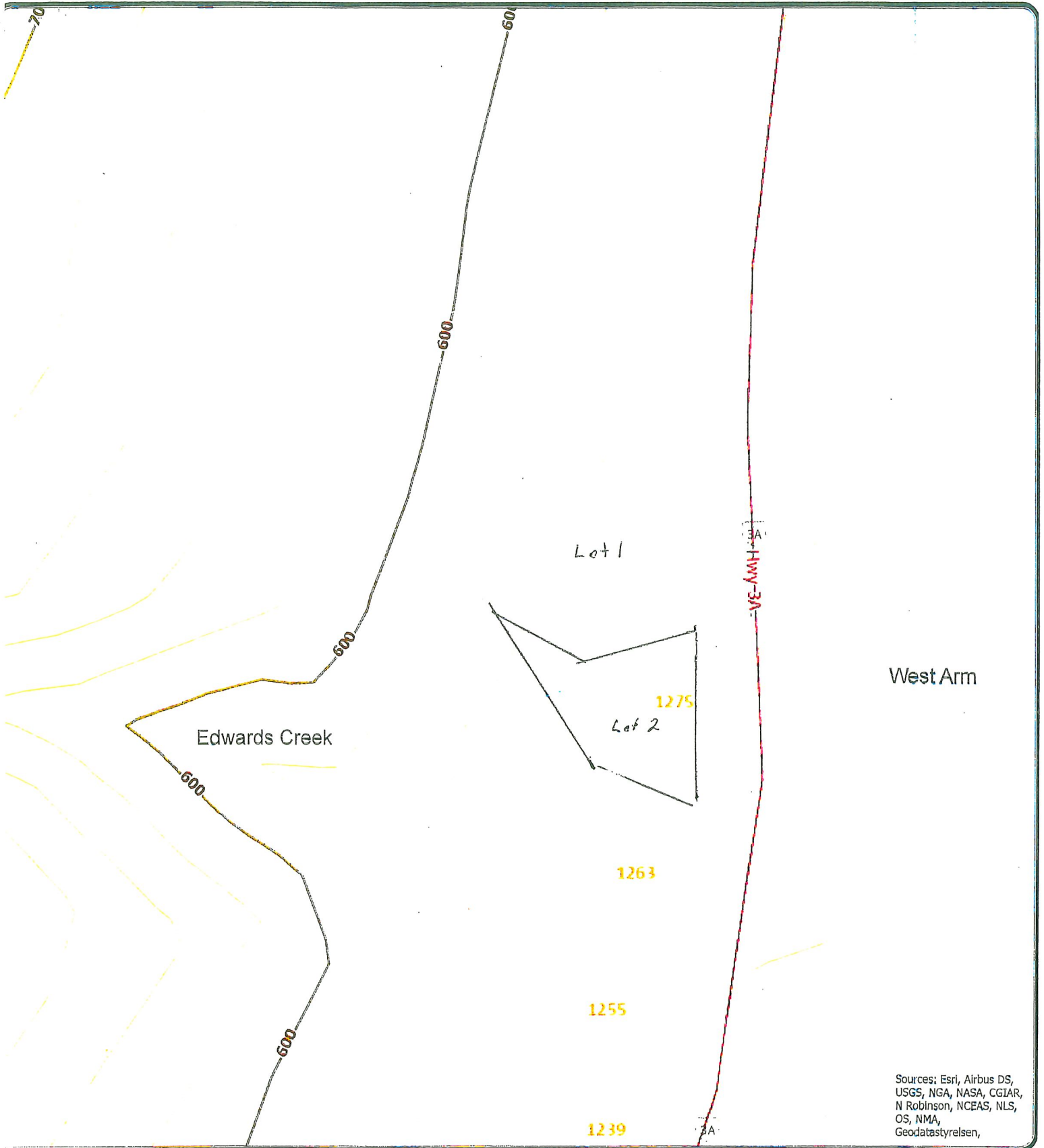
1:9,028

Date: November 25, 2020



The mapping information shown are approximate representations and should only

1275 Hwy 3A Nelson



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen,



REGIONAL DISTRICT OF CENTRAL KOOTENAY  
 Box 590, 202 Lakeside Drive,  
 Nelson, BC V1L 5B4

**Legend**

-  Electoral Areas
-  RDCK Roads
-  Cadastre - Legal Parcels
-  Civic Address



**Map Scale:**

1:2,257

Date: December 15, 2020



The mapping information shown are approximate representations and should only



REGIONAL DISTRICT OF CENTRAL KOOTENAY  
 Box 590, 202 Lakeside Drive,  
 Nelson, BC V1L 5R4

**Legend**

-  Electoral Areas
-  RDCK Roads
-  Cadastre - Legal Parcels
-  Civic Address



**Map Scale:**

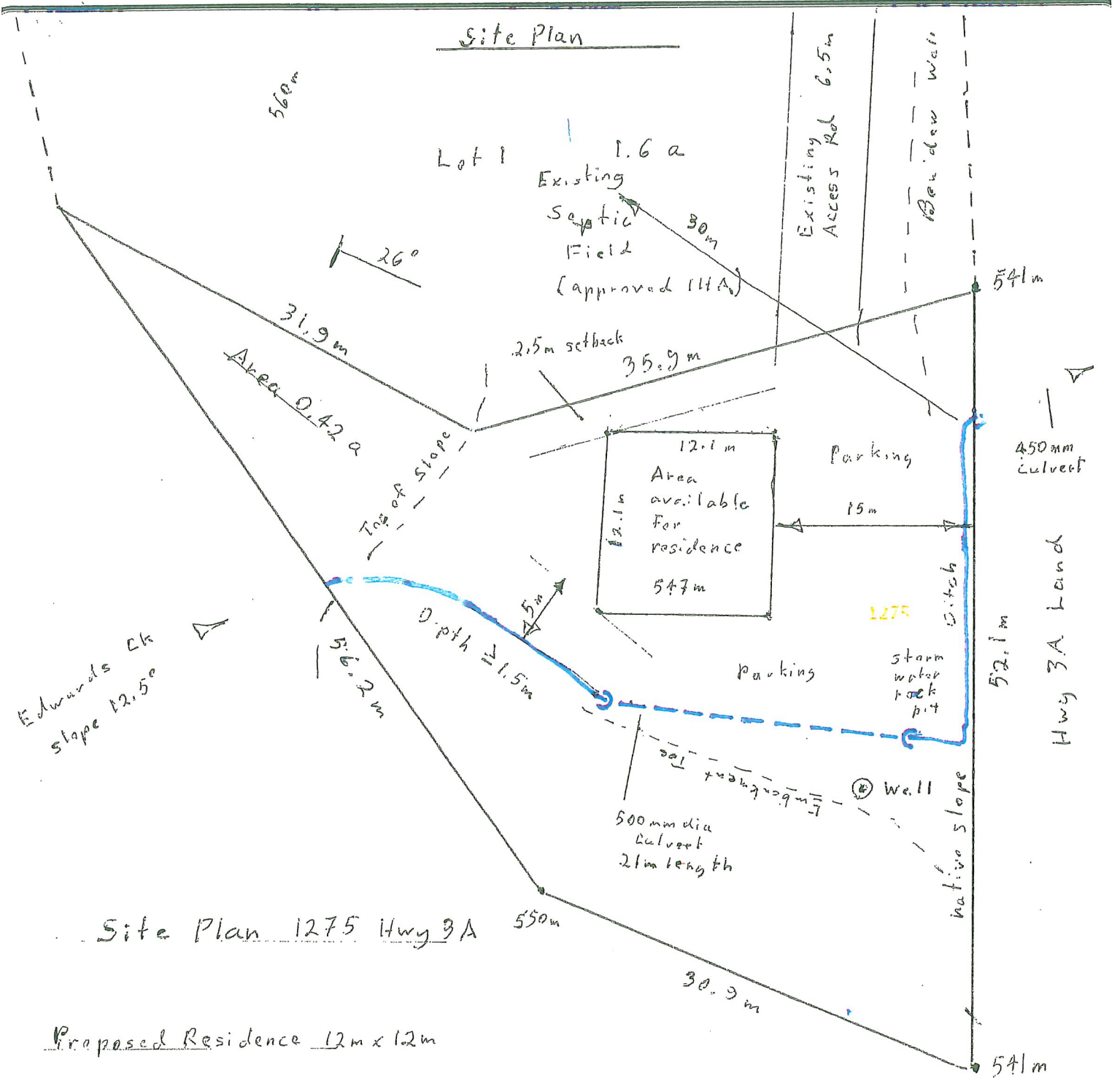
1:2,257

Date: May 1, 2021



The mapping information shown are approximate representations and should only be used for reference purposes. The Regional District of Central Kootenay is not responsible for any

1275 Hwy 3A Nelson



Site Plan 1275 Hwy 3A

Proposed Residence 12m x 12m

Lot 2 Plan NEP9963 DL7705 KD  
PID 011-627-603

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen,



REGIONAL DISTRICT OF CENTRAL KOOTENAY  
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Legend

- Electoral Areas
- Cadastre - Legal Parcels
- Civic Address



Map Scale:

1:564

Date: December 15, 2020



The mapping information shown are approximate representations and should only be used for reference purposes. The Regional District of Central Kootenay is not responsible for any errors or omissions in this information.



Property Line

Edwards Ck North View

OP



Edwards CK South View

Height > 1.5m

20" dia. culvert

22



## FLOOD ASSURANCE STATEMENT

Note: This statement is to be read and completed in conjunction with the current Engineers and Geoscientists BC *Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC* ("the guidelines") and is to be provided for flood assessments for the purposes of the *Land Title Act*, Community Charter, or the *Local Government Act*. Defined terms are capitalized; see the Defined Terms section of the guidelines for definitions.

To: The Approving Authority

Date: 2020-11-25

RDCK  
202 Lakeside Drive, Nelson  
 Jurisdiction and address

With reference to (CHECK ONE):

- Land Title Act* (Section 86) – Subdivision Approval  
 *Local Government Act* (Part 14, Division 7) – Development Permit  
 Community Charter (Section 56) – Building Permit  
 *Local Government Act* (Section 524) – Flood Plain Bylaw Variance  
 *Local Government Act* (Section 524) – Flood Plain Bylaw Exemption

For the following property ("the Property"): 1275 Hwy 3A, Nelson  
Lot 2 Plan NEP 9963 DL 7705 L026 PID 011-627-603  
 Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a Qualified Professional and is a Professional Engineer or Professional Geoscientist who fulfils the education, training, and experience requirements as outlined in the guidelines.

I have signed, sealed, and dated, and thereby certified, the attached Flood Assessment Report on the Property in accordance with the guidelines. That report and this statement must be read in conjunction with each other. In preparing that Flood Assessment Report I have:

[CHECK TO THE LEFT OF APPLICABLE ITEMS]

1. Consulted with representatives of the following government organizations:  
RDCK associated documents
2. Collected and reviewed appropriate background information
3. Reviewed the Proposed Development on the Property
4. Investigated the presence of Covenants on the Property, and reported any relevant information
5. Conducted field work on and, if required, beyond the Property
6. Reported on the results of the field work on and, if required, beyond the Property
7. Considered any changed conditions on and, if required, beyond the Property
8. For a Flood Hazard analysis I have:
- 8.1 Reviewed and characterized, if appropriate, Flood Hazard that may affect the Property
- 8.2 Estimated the Flood Hazard on the Property
- 8.3 Considered (if appropriate) the effects of climate change and land use change
- 8.4 Relied on a previous Flood Hazard Assessment (FHA) by others
- 8.5 Identified any potential hazards that are not addressed by the Flood Assessment Report None
9. For a Flood Risk analysis I have:
- 9.1 Estimated the Flood Risk on the Property
- 9.2 Identified existing and anticipated future Elements at Risk on and, if required, beyond the Property
- 9.3 Estimated the Consequences to those Elements at Risk

## FLOOD ASSURANCE STATEMENT

10. In order to mitigate the estimated Flood Hazard for the Property, the following approach is taken:
- 10.1 A standard-based approach
  - 10.2 A Risk-based approach
  - 10.3 The approach outlined in the guidelines, Appendix F: Flood Assessment Considerations for Development Approvals
  - 10.4 No mitigation is required because the completed flood assessment determined that the site is not subject to a Flood Hazard
11. Where the Approving Authority has adopted a specific level of Flood Hazard or Flood Risk tolerance, I have:
- 11.1 Made a finding on the level of Flood Hazard or Flood Risk on the Property
  - 11.2 Compared the level of Flood Hazard or Flood Risk tolerance adopted by the Approving Authority with my findings
  - 11.3 Made recommendations to reduce the Flood Hazard or Flood Risk on the Property
12. Where the Approving Authority has not adopted a level of Flood Hazard or Flood Risk tolerance, I have:
- 12.1 Described the method of Flood Hazard analysis or Flood Risk analysis used
  - 12.2 Referred to an appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk
  - 12.3 Made a finding on the level of Flood Hazard or Flood Risk tolerance on the Property
  - 12.4 Compared the guidelines with the findings of my flood assessment
  - 12.5 Made recommendations to reduce the Flood Hazard or Flood Risk
13. Considered the potential for transfer of Flood Risk and the potential impacts to adjacent properties
14. Reported on the requirements for implementation of the mitigation recommendations, including the need for subsequent professional certifications and future inspections.

Based on my comparison between:

[CHECK ONE]

- The findings from the flood assessment and the adopted level of Flood Hazard or Flood Risk tolerance (item 11.2 above)
- The findings from the flood assessment and the appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk tolerance (item 12.4 above)

I hereby give my assurance that, based on the conditions contained in the attached Flood Assessment Report:

[CHECK ONE]

- For subdivision approval, as required by the *Land Title Act* (Section 86), "that the land may be used safely for the use intended":
  - [CHECK ONE]
  - With one or more recommended registered Covenants.
  - Without any registered Covenant.
- For a development permit, as required by the *Local Government Act* (Part 14, Division 7), my Flood Assessment Report will "assist the local government in determining what conditions or requirements it will impose under subsection (2) of this section [Section 491 (4)]".
  - For a building permit, as required by the *Community Charter* (Section 56), "the land may be used safely for the use intended":
    - [CHECK ONE]
    - With one or more recommended registered Covenants.
    - Without any registered Covenant.
- For flood plain bylaw variance, as required by the *Flood Hazard Area Land Use Management Guidelines* and the *Amendment Section 3.5 and 3.6* associated with the *Local Government Act* (Section 524), "the development may occur safely".
- For flood plain bylaw exemption, as required by the *Local Government Act* (Section 524), "the land may be used safely for the use intended".

### FLOOD ASSURANCE STATEMENT

I certify that I am a Qualified Professional as defined below.

2020-11-25  
Date

Edward J. Nunn, P. Eng.  
Prepared by

N/A  
Reviewed by

Edward J. Nunn, P. Eng.  
Name (print)

N/A  
Name (print)

[Signature]  
Signature

N/A  
Signature

618 Frank St  
Address

Nelson

(604) 649-3543  
Telephone



ednunngeneral1@shaw.ca  
Email

(Affix PROFESSIONAL SEAL here)

If the Qualified Professional is a member of a firm, complete the following:

I am a member of the firm Lasca Group  
and I sign this letter on behalf of the firm. (Name of firm)

Munroe Geological Services Ltd.

1408 Madrona Place

Coquitlam, BC.

V3E 2S5

Richard Munroe, FGAC, P. Geo.

[rmunroe@munroegeo.com](mailto:rmunroe@munroegeo.com)

604-728-1875

**Peer Review of the Lasca Group Technical Services Report**

**Dated April 7, 2021 regarding:**

**Flood Site Variance Letter for 1275 Hwy 3A, North Nelson BC (Now identified as 1293 Hwy 3A, North Nelson, BC.)**

The purpose of this Peer Review is to determine if the flood mitigation concerns of the RDCK Planning Department were met with the work done by Mr. Edward Nunn, P.Eng. and Lasca Group Technical Services. The work involved the movement of the original non fish bearing rock streamlet (Edwards Creek) emanating from the high rock face on the west side of the property. The streamlet was diverted to obtain a 30 m setback from the proposed septic field for the property. On Friday July 23, 2021, Richard Munroe (P. Geo) and Anthony Zeberoff (P. Eng.) were accompanied by Edward Nunn for a site inspection. The site work met or exceeded any requirements set out in the regulations in the Regional District of Central Kootenay Bylaws.

The legal description and general information of the property was presented as:

Owner: 425026 BC Ltd. (contact person- Curtis Jones)

Mailing Address: 3249 Hwy 3A 7 Mile Nelson V1L6M7

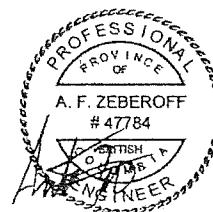
Site Address: was originally noted as 1275 Hwy 3A but subsequent to that report, the property was legally joined with the lot to the south and now both are registered as 1293 Hwy 3A. (V1L 6J6)

Description: The property rolls identifier for both lots should now be known as 21-707-09063.025. The two sites now have a combined area of 0.42 + 1.60 acres= 2.02 acres.

UTM Coordinates: (taken at water well) 11U 0480808 5486719. Elevation 563 m.

Richard G.R. Munroe, FGAC, P.Geo.

Anthony Zeberoff, P.Eng.

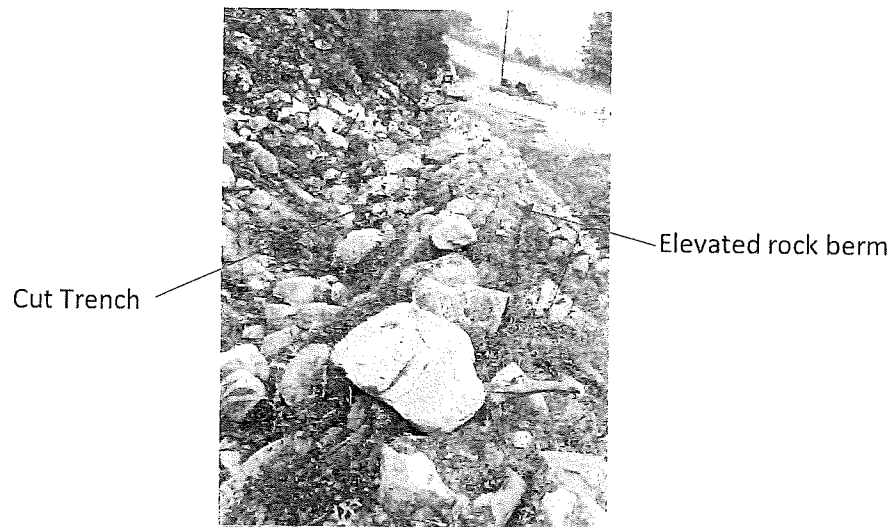


Richard Munroe and Anthony Zeberoff walked the central and eastern portions of the property and was afforded a good view of the upper steep rocky slopes running up the western edge. Access to the property is by a main road entrance off the highway at the north-eastern corner of the property, as shown below.

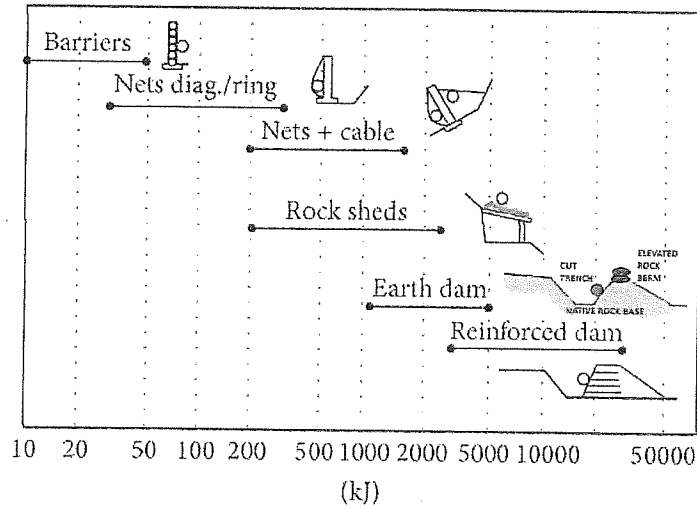


A substantial rock wall has been constructed at that point and provides protection on the western flank as one enters the central portion of the property. It was reported that a small non-fish bearing streamlet, originally ran from the center area to NW edge of the former Lot 1275. The streamlet emanates from an extensive, high, natural large boulder field cover along the entire western flank. The flank appeared to be quite stable and there was no evidence of any movement of the rocky slope face. The streamlet appears out of the base of the slope in only one location which is roughly 10 m south of 11U 0480788 5486723.

A roughly north/south trench berm was constructed and extends for approximately 25 m, where the last UTM coordinate was taken at the south end, at the centre line of the berm. The trench berm is approximately 2 m wide and has an additional, elevated, high rock sloped berm roughly 3 m high, in place along the eastern flank. The berm is sufficient to capture any falling rocks from the western slope inside the trench/ and or block any movement to the lower eastern zone of the property with the berm wall, as shown below.

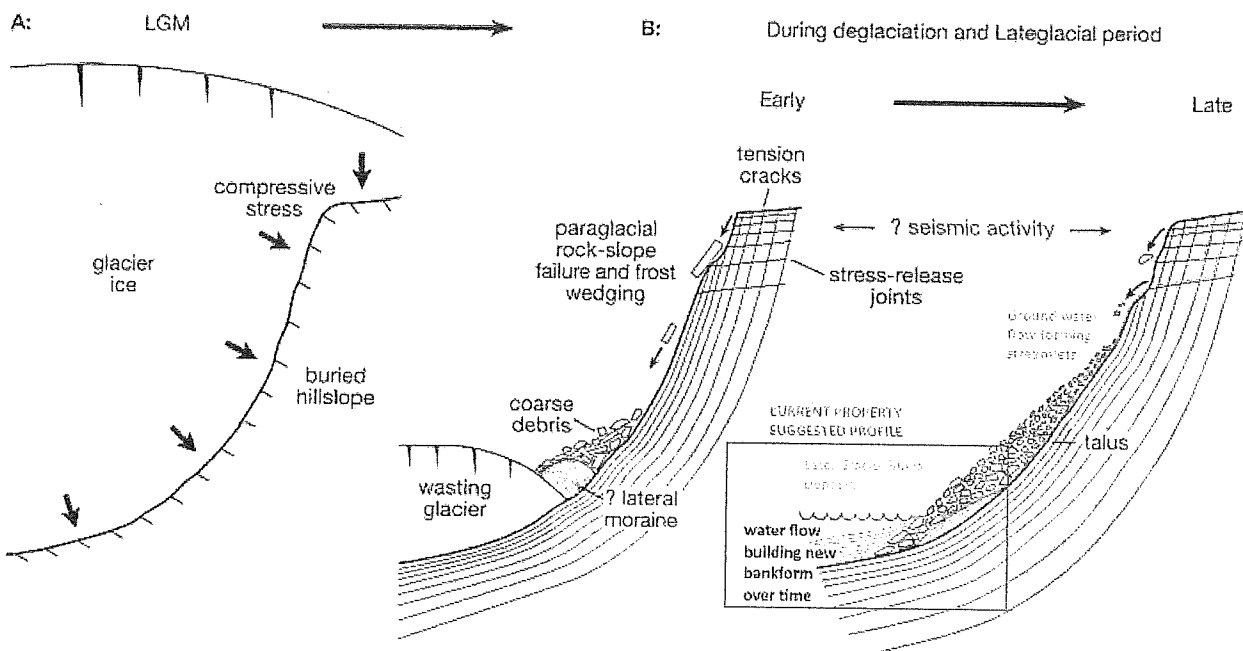


The berm wall appeared to be at least twice the height of any of the largest angular, mostly tabular, boulders situated along the face of the western slope. The largest natural boulder seen on the elevated western slope of the property was approximately 1.5 m in diameter. The berm appears safe for the use intended.



The deep trench that has been constructed on the property is very similar in design to the green highlighted earth dam variation above. When the trench was dug, the materials were pulled up to form an elevated rock berm on the downslope side. As can be seen from the chart, the force protection that results from this type of structure is great in terms of impact energy expressed in kilojoules.

The following sketch shows an idealized general slope development process that is similar to the subject property.



The roughly flat central portion of the property is where the streamlet used to transit and eventually drain into the western ditch line of the highway. The streamlet was relocated by way of a 1.5 m deep and 1.5 m wide trench that was dug from the southern edge of the berm trench area. The drainage now flows essentially due east and down slope, to a steeply sloped and buried (oversized) 18" diameter (0.48 m) diameter steel culvert – note that the culvert that goes under Hwy 3A for this streamlet is smaller in diameter than the one placed on this property. The top end of the culvert was located at UTM 11U 0480784 5486712 (elevation 569m).

The culvert passes north of the water well pipe and discharges directly into a well brushed and protected area along the western drainage ditch of the highway, as shown below.



This is the same ditch that the streamlet used to drain into some 60 m to the north in the original streamlet configuration. The vertical water drop from the top of the slope to the ditch is roughly 20 m in total. The open, upper 1.5 m wide trench zone has a very gentle slope with a trickle flow running along the rocky bottom. There is no opportunity for the slight flow to have any erosional effects on the sides or base of the rock trench. Furthermore, there appears to be no flooding that will occur on the property because of the diverted stream.

#### **Conclusion:**

No geotechnical hazards were observed on the property. There was no evidence for geological concerns regarding slope failure on the west slope of the property. The water flow risk level would be "Very Low Class 0". Probability of a 200-year flood is less than 0.4% (Professional Practice Guidelines). Mr. Munroe's addition to this reporting was to comment on the geological environment pertaining to the Peer Review. The engineering analysis and risk assessment for this project are observed by Mr. Zeberoff.

**References:**

- RDCK Floodplain Management Bylaw 2080,2009, Schedule E
- Professional Practice Guidelines- Legislated Flood Assessments in a Changing Climate in BC, Version 2.1, APEG, 2018
- Nelson Map-Area, West Half; British Columbia, Memoir 308. Dept of Mines and Resources by HW Little 1960
- Alluvial Fan Assessment, RDCK, Electoral Areas E & F, Northwest Hydraulic Consultants, April 1990
- Predicting the Primary Impact and Total Rollout Distances of Rock Falls Based on Cases in Quarries and Mines in Australia and the United Kingdom, ARMA 17-401, American Rock Mechanics Association, c.2017
- Factors That Control Slope Stability, Physical Geology, 2015
- Design of Rock Slopes, Shailer S. Philbrick, Office of District Engineer, US Corps of Engineers, 1962
- Factors that Influence Slope Stability, Prof. S.A. Nelson, Tulane University, December 2013
- Terrain Stability Assessment and Soil Erosion assessment, Proposed Perry Ridge North, Sitkum Consulting Ltd Report, Project No. 12-876, April 2013
- RDCK Terms of Reference for the Preparation of Geotechnical reports/ Flood Assessment Reports
- The Strength and Static Fatigue of a Granite (An Anorthosite and a Limestone), Rudy Schmidtke, University of Manitoba, Masters Thesis, 1986
- The Brittle-Ductile Transition in Feldspar Aggregates: An Experimental Study, J. Tullis and R. Yund, Department of Geological Sciences, Brown University Providence, USA, 1992/ Fault Mechanics and Transport Properties of Rocks, Academic Press, ISBN 0-12-243780-2
- Any questions should be directed to 604-728-1875 or by email at [rmunroe@munrogeo.ca](mailto:rmunroe@munrogeo.ca)





Masse Environmental Consultants Ltd.  
812 Vernon St.  
Nelson, BC, V1L 4G4  
Tel.: 250-352-1147  
[www.masseenvironmental.com](http://www.masseenvironmental.com)

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Eileen Senyk  
Planner, RDCK  
Nelson, BC  
[esenyk@rdck.bc.ca](mailto:esenyk@rdck.bc.ca)

Aug 26, 2021

Re: Mitigation Plan- 1293 Hwy 3A, North Shore

Masse Environmental Consultants Ltd. was retained by Curtis Jones (Owner), to develop a mitigation plan for the disturbance caused to the riparian area during re-alignment and culverting of Edwards Creek at 1293 Highway 3a (PID 031-316-794). This letter is intended to satisfy the requirements made by the RDCK and the Province in an email dated July 7, 2021 which stated:

"Shall the proponent choose to continue pursuing a floodplain exemption, I recommend an environmental mitigation plan be developed by a Qualified Environmental Professional to ensure the occurred damage to the creek and its ecosystem does not worsen and acceptable mitigation measure shall be followed through the development."

A site visit was conducted by Fiona Lau B.Tech, A.Sc.T and Chanel Gagnon, B.Sc. on July 28, 2021.

#### Location and Existing Site Conditions

The property is located ~3 km northeast of Nelson BC along Highway 3a, within the Regional District of the Central Kootenay (RDCK). The property has a south-eastern aspect, with steep talus rocky slopes. Recent development on the property includes site clearing and grubbing, construction of a rock stack retaining wall parallel to the highway, stripping of topsoil, re-grading of the property, construction of a large rock berm parallel to the north-west property line and re-alignment and partial culverting of Edwards Creek. An engineered rock and soil berm was constructed along the east bank of the open re-aligned creek channel at the north-west corner of the property.

Edwards Creek located on the subject property is a tributary to Kootenay Lake, with an average stream width of 1.5 m and stream gradient of 23% within the subject property. Dominant substrate consisted of cobbles with some boulders scattered within the natural stream bed upstream of the property.



Masse Environmental Consultants Ltd.  
 812 Vernon St.  
 Nelson, BC, V1L 4G4  
 Tel.: 250-352-1147  
 www.masseenvironmental.com



Photo 1. View of disturbed riparian area on the east bank, Edwards Creek.



Photo 1. View of steep rocky slope on the west bank, Edwards Creek.

### Proposed Mitigation Plan

To aid in bank stability and to help restore partial function of the riparian area, the following mitigation measures are proposed:

1. Minimize future clearing of native trees and shrubs within 10 m of stream:
2. Re-vegetate 28 m<sup>2</sup> of disturbed riparian area; and

Revegetation will include:

- Area 1: Planting of at least 1 native tree (> 1.5 m in height) and 10 native shrubs (minimum pot size 1 gallon) on east side of creek outside of the constructed rock berm (Refer to Table 2 for recommended plant species list and Attachment 1 for Mitigation Plan).
- Area 2: Planting of at least 3 interior Douglas-fir trees and 10 native shrubs species including Bebbs willow, sitka alder, native rose sp., and Oregon grape. Pot size shall be 1 gallon. Plant in a grid formation, create planting pockets and retain soil with placed rock downslope of each plant (Refer to Table 2 for recommended plant species list and Attachment 1 for Mitigation Plan).
- Trees shall be planted with a minimum spacing of 3 m and shrubs at 1 m spacing.
- Planting holes shall be a minimum of 3 times the size of the pot.
- Fill each planting hole with growing medium (topsoil, peat moss and compost mix).
- Composition and plant locations within the revegetation areas are at the discretion of the owner.
- Re-seed exposed soils with an erosion and sediment control seed mix available at Ellison's Market or Farmer Supply in Nelson.



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[www.masseenvironmental.com](http://www.masseenvironmental.com)

#### General Planting and Maintenance Guidelines:

- Planting should not occur during periods of hot dry weather unless they are irrigated daily. Preferred planting periods are in the spring or fall.
- Additional mycorrhizae, and shrub and tree transplant fertilizer are recommended during planting.
- Bark mulch placement around each of the planted stock will help the soil retain moisture and reduce weeds and watering requirements.
- Locally adapted native plants are preferable to those collected or grown outside the region. The species listed in Table 2 are available from Sagebrush Nursery in Oliver <https://sagebrushnursery.com>, or Nupqu Native Plant Nursery <https://nupqu.com/native-plants-nursery-home/> near Kimberley.
- Ensure the objective of the restoration is to naturalize the riparian area and not create a landscaped garden.
- Regularly irrigate new plantings during the plant establishment period for a minimum of 3 years.

Table 2. Recommended plant species

Species Name	Latin Name	Species Name	Latin Name
<b>Trees</b>		<b>Shrubs (cont.)</b>	
Interior Douglas-fir	<i>Pseudotsuga menziesii subsp. glauca</i>	Pussy willow	<i>Salix discolor</i>
Western Red Cedar	<i>Thuja plicata</i>	Choke cherry	<i>Prunus virginiana</i>
Western Larch	<i>Larix occidentalis</i>	Douglas maple	<i>Leymus cinereus</i>
Western hemlock	<i>Tsuga heterophylla</i>	Wood's rose	<i>Rosa gymnocarpa</i>
<b>Shrubs</b>		Beaked hazelnut	<i>Corylus cornuta</i>
Red-osier dogwood	<i>Cornus stolonifera</i>	Bebbs willow	<i>Salix bebbiana</i>
Sitka alder	<i>Alnus crispa sinuata</i>	Saskatoon	<i>Amelanchier alnifolia</i>
Mountain alder	<i>Alnus incana</i>	Oceanspray	<i>Holodiscus discolor</i>
Thimbleberry	<i>Rubus parviflorus</i>	Mallow ninebark	<i>Physocarpus malvaceus</i>

The riparian area on the subject property has seen major disturbances (i.e., vegetation removal, topsoil removal and bank re-grading). The proposed mitigation measures, if completed in accordance with the above letter will aid in bank stability and help restore function of the riparian area over time.



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---

If you have any comments or questions, please do not hesitate to contact the undersigned.

Sincerely,

Chanel Gagnon, B.Sc.

Masse Environmental Consultants Ltd.

E: [chanel@masse-env.com](mailto:chanel@masse-env.com)

Fiona Lau, BTech, ASCT.

E: [fiona@masse-env.com](mailto:fiona@masse-env.com)

Attachments:


Attachment 1 : Mitigation Plan


1275 Hwy 3A Nelson

Site Plan

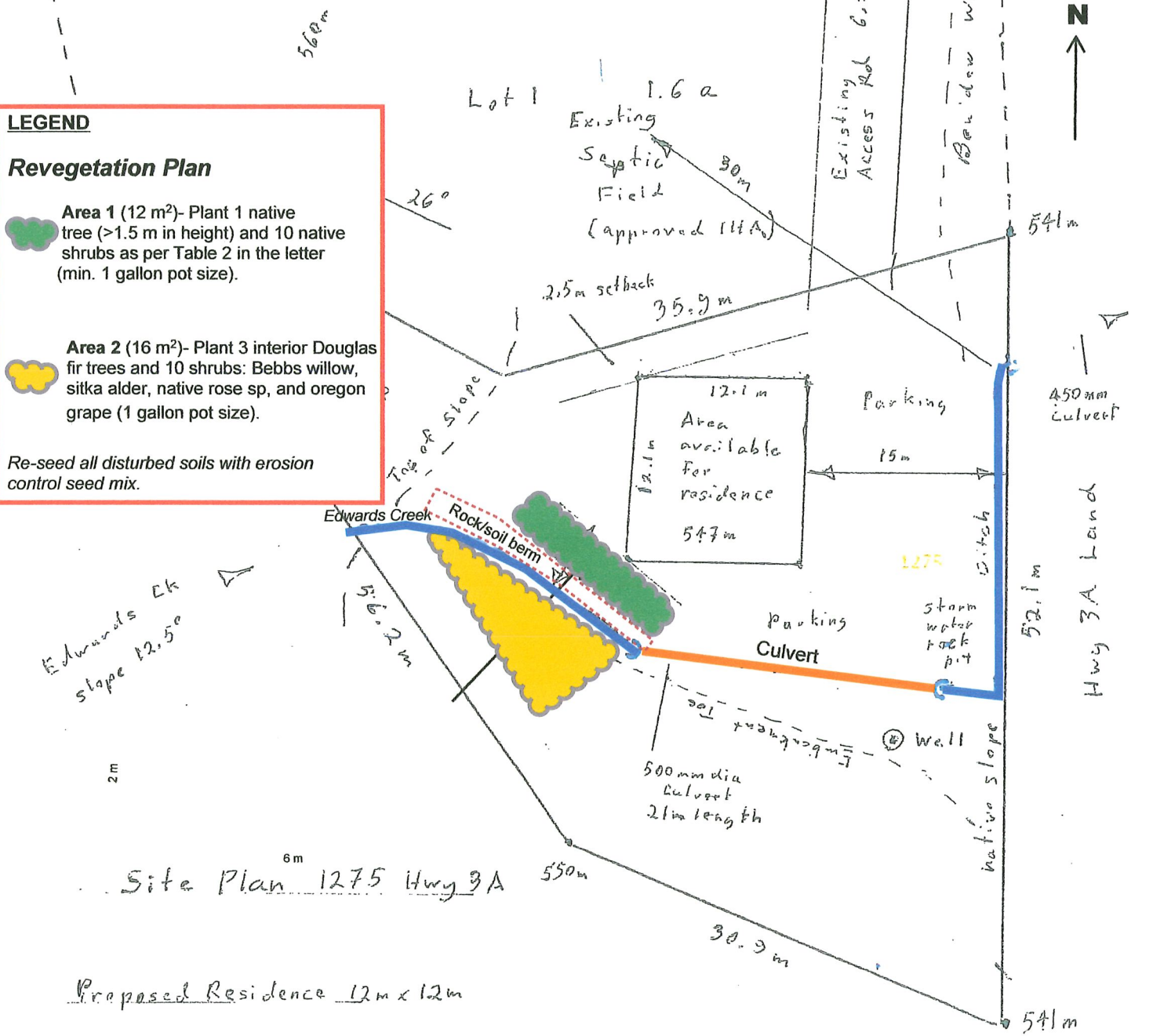
**LEGEND**

**Revegetation Plan**

 **Area 1** (12 m<sup>2</sup>)- Plant 1 native tree (>1.5 m in height) and 10 native shrubs as per Table 2 in the letter (min. 1 gallon pot size).

 **Area 2** (16 m<sup>2</sup>)- Plant 3 interior Douglas fir trees and 10 shrubs: Bebb's willow, sitka alder, native rose sp, and oregon grape (1 gallon pot size).

Re-seed all disturbed soils with erosion control seed mix.



Site Plan 1275 Hwy 3A

Proposed Residence 12m x 12m

Lot 2 Plan NEP9963 DL7705 KD  
PID 011-627-603

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen,



REGIONAL DISTRICT OF CENTRAL KOOTENAY  
Box 590, 202 Lakeside Drive,  
Nelson, BC V1L 5R4  
Phone: 1-800-268-7325 www.rdck.bc.ca

**Legend**  
 Electoral Areas  
Cadastre - Legal Parcels  
Civic Address



Map Scale:

1:564

Date: December 15, 2020



The mapping information shown are approximate representations and should only be used for reference purposes. The Regional District of Central Kootenay is not responsible for any



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---

Curtis Jones  
1293 Hwy 3a, Kootenay Lake BC  
Ph# 250-354-9040  
[duediligent@gmail.com](mailto:duediligent@gmail.com)

Sept 7, 2021

Re: Offer of Services - Landscaping- 1293 Hwy 3A (Formerly 1275), North Shore

Thank you for the opportunity to provide a cost estimate for landscaping at 1293 Hwy 3a, North Shore.

The scope of work includes landscaping of 24 plants along Edwards Creek as per the reclamation plan. The cost estimate includes, labour, plants, soil amendments, bark mulch and mileage. The cost estimate does not include top soil or machine work. The Owner will be responsible for bringing top soil to site and to help with the excavation of the larger plant holes on the east side of Edwards Creek.

The estimated cost of this work is ~\$ 1090. A detailed breakdown of the cost per task is provided in Table 1. Note that these are estimates and only the time required will be billed.

If you have any comments or questions, please do not hesitate to contact me. We look forward to working with you on this project.

Sincerely,

A handwritten signature in blue ink that reads 'Fiona'.

Fiona Lau, B.Tech AScT  
[fiona@masse-env.com](mailto:fiona@masse-env.com)  
Masse Environmental Consultants Ltd.

Offer of Services: 1293 Hwy 3A, North Shore

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Table 1. Cost estimate for Planting.

<b>1</b>	<b>Landscaping</b>					
	Labour	Labour	hrs	6	\$75.00	\$450.00
	Project management	Snr. Tech	hrs	1	\$85.00	\$85.00
	<b>Expenses</b>					\$0.00
	Plants (Includes delivery)			1	\$222.52	\$222.52
	Compost and fertilizer			1	\$30.00	\$30.00
	Bark mulch		yd	1	\$50.00	\$50.00
	Mileage		km	10	\$0.65	\$6.50
	<b>Subtotal</b>					<b>\$844.02</b>
	<b>Admin (5%)</b>					\$42.20
	<b>Total (excl GST)</b>					<b>\$1,086.22</b>