



REGIONAL DISTRICT OF CENTRAL KOOTENAY
BOX 590, 202 Lakeside Drive, NELSON, BC V1L 5R4
 ph: 250-352-8165 fax:250-352-9300
 email: plandept@rdck.bc.ca

REFERRAL FORM
DEVELOPMENT PERMIT APPLICATION
RDCK Planning File: DP2109E
Date: June 24, 2021

You are requested to comment on the attached DEVELOPMENT PERMIT for potential effect on your agency’s interests. We would appreciate your response WITHIN 30 DAYS (PRIOR TO July 26). If no response is received within that time, it will be assumed that your agency’s interests are unaffected.

LEGAL DESCRIPTION & GENERAL LOCATION:
 389 Park Ave, Procter Electoral Area ‘E’
 STRATA LOT 31 DISTRICT LOT 873 KOOTENAY DISTRICT STRATA PLAN NES3286 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM V

PRESENT USE AND PURPOSE OF PERMIT REQUESTED:
 The purpose of this application is to construct a single-family dwelling on the subjection property. There are two components to this application:

- 1) Application for a Site Specific Exemption to the Floodplain Management Bylaw, No. 2080 and
- 2) Application for a Watercourse Development Permit pursuant to Electoral Area ‘E’ Official Community Plan Bylaw No. 2260.

The subject property is 0.14 hectares in size and located in the Kootenay Lake Village in Procter, Electoral Area ‘E’. This subdivision was approved at a time when the floodplain setback distance to Kootenay Lake was 7.5 metres, and the Official Community Plan was not yet in place. As a result, it is challenging for land owners to meet current regulatory requirements on constrained lots. This application seeks to build a single family dwelling 9 metres from the present natural boundary of Kootenay Lake, and to mitigate impacts of construction through restoration measures defined the attached Environmental Assessment Report.

AREA OF PROPERTY AFFECTED	ALR STATUS	ZONING	OCF
160 m ² building footprint	N/A	N/A	Suburban Residential (RS)

APPLICANT: Donald and Holly Pruet

OTHER INFORMATION: ADVISORY PLANNING COMMISSION PLEASE NOTE:
 If your Advisory Planning Commission plans to hold a meeting to discuss this Development Permit application, please note that the applicants must be provided with an opportunity to attend such meeting, in accordance with Section 461, subsection (8) of the *Local Government Act*, which reads as follows:

“If the commission is considering an amendment to a plan or bylaw, or the issue of a permit, the applicant for the amendment or permit is entitled to attend meetings of the commission and be heard.”

Please fill out the Response Summary on the back of this form. If your agency’s interests are ‘Unaffected’ no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this permit.

Eileen Senyk, PLANNER
REGIONAL DISTRICT OF CENTRAL KOOTENAY

TRANSPORTATION <input checked="" type="checkbox"/> West Kootenay District Office, Nelson	REGIONAL DISTRICT OF CENTRAL KOOTENAY DIRECTORS FOR:
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HABITAT BRANCH (Environment)

FRONT COUNTER BC (FLNRORD)

Nelson

Cranbrook

AGRICULTURAL LAND COMMISSION

REGIONAL AGROLOGIST

ENERGY & MINES

MUNICIPAL AFFAIRS & HOUSING

INTERIOR HEALTH

HBE Team, Nelson

KOOTENAY LAKES PARTNERSHIP

(FORESHORE DEVELOPMENT PERMITS)

SCHOOL DISTRICT NO.

WATER SYSTEM OR IRRIGATION DISTRICT

UTILITIES (FORTIS, BC HYDRO, NELSON
HYDRO, COLUMBIA POWER)

A B C D E F G H I J K

ALTERNATIVE DIRECTORS FOR:

A B C D E F G H I J K

APC AREA E

RDCK FIRE SERVICES

- District Chief Nora Hannon – Kaslo, Balfour, Harrop, North Shore & Ymir
- District Chief George Hamm – Pass Creek, Ootischenia, Robson, Tarry's & Beasley
- District Chief Gord Ihlen – Crescent Valley, Passmore, Winlaw, Slocan & Blewett

RDCK EMERGENCY SERVICES

RDCK BUILDING SERVICES

RDCK UTILITY SERVICES

RDCK RESOURCE RECOVERY

RDCK REGIONAL PARKS

INSERT COMMENTS ON REVERSE . . .

The personal information on this form is being collected pursuant to *Regional District of Central Kootenay Planning Procedures and Fees Bylaw No. 2457, 2015* for the purpose of determining whether the application will affect the interests of other agencies or adjacent property owners. The collection, use and disclosure of personal information are subject to the provisions of FIPPA. Any submissions made are considered a public record for the purposes of this application. Only personal contact information will be removed. If you have any questions about the collection of your personal information, contact the Regional District Privacy Officer at 250.352.6665 (toll free 1.800.268.7325), info@rdck.bc.ca, or RDCK Privacy Officer, Box 590, 202 Lakeside Drive, Nelson, BC V1L 5R4.

RESPONSE SUMMARY
FILE: DP2109E APPLICANT: Pruett

Name:

Date:

Agency :

Title:

RETURN TO: EILEEN SENYK, PLANNER
DEVELOPMENT SERVICES
REGIONAL DISTRICT OF CENTRAL KOOTENAY
BOX 590, 202 LAKESIDE DRIVE
NELSON, BC V1L 5R4
Ph. 250-352-8190
Email: plandept@rdck.bc.ca



Subject property outlined in yellow

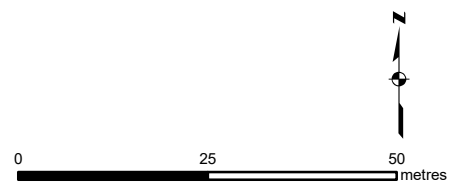
Source: Esri, Maxar, GeoEye, Earthstar, IGN, and the GIS User Community



Box 590, 202 Lakeside Drive, Nelson, BC V1L 5R4
 Phone: (250) 352-6665 Toll-Free 1-800-268-7325 (BC)
 Fax: (250) 352-9300 Internet: www.rdck.bc.ca

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 on this map.

Watercourse Development Permit File No. DP2109E



Map Projection: UTM Zone 11 Map Datum: NAD83
 Date Plotted: Thursday, June 24, 2021



NORTH MOUNTAIN CONSTRUCTION LTD.

525 Josephine Street, Nelson, BC V1L 1W5

Tel: 250.352.7275

info@northmountainconstruction.ca

www.northmountainconstruction.ca

May 11th, 2021

**RE: Development Permit Application for Don and Holly Pruett
Strata Lot 31, District Lot 873, Kootenay District Plan, NES3286
389 Park Avenue. Proctor, BC.**

To whom it may concern,

North Mountain Construction is submitting this Development Permit on behalf of the Pruett family. The Pruett's plan to build a 4-bedroom multi generational family home on their property at Kootenay Lake Village.

Lot 31 has significant challenges for development including its proximity to the lake, geography, and access. Furthermore, much of the property outside of the 15m riparian setback acts as the structural bank for the access road to Lot 31 and 32. Existing development on the site was extensive, and in efforts to minimise further sprawl we have chosen a building location that utilises the existing developed footprint.

It is these reasons that we seek a relaxation to the riparian setback. We recognise the sensitive nature of the Kootenay Lake foreshore and have enlisted the consultation of Masse environmental and Ursus Archaeological services to provide consultation on how we can achieve this home build with minimal disturbance to the environment.

Please do not hesitate to reach out to request any further information.

Many thanks,

DUSTIN LALIK

NORTH MOUNTAIN CONSTRUCTION

250. 509. 4129

dustin@northmountainconstruction.ca



PRUETT RESIDENCE

CONSULTANTS

STRUCTURAL- EFFISTRUC

ENVIRONMENTAL- MASSE ENVIRONMENTAL

ENERGY CONSULTANT- 3 WEST

AREA

LEVEL 1 - 1340 SF

LEVEL 2 - 1260 SF

TOTAL- 2600 SF

GARAGE- 357 SF

Sheet List	
Sheet #	Sheet Name
A0.0	COVER SHEET
A0.1	SITE PLAN
A0.2	AIR SEALING
A0.3	AIR SEALING
A0.4	3D VIEWS
A1.0	FOUNDATION LAYOUT
A2.0	FLOOR PLAN- LVL 1
A2.2	FLOOR PLAN- LVL 2
A2.3	STRUCTURAL- LEVEL 1
A2.4	STRUCTURAL- LEVEL 2
A4.0	ROOF PLAN
A6.0	ELEVATIONS
A6.1	ELEVATIONS
A6.2	ELEVATIONS

Sheet List	
Sheet #	Sheet Name
A6.4	KITCHEN
A6.5	STAIRS
A6.6	MASTER BATH
A7.0	SECTIONS
A7.1	SECTIONS
A7.2	SECTIONS
A8.0	DETAILS
A8.1	DETAILS
A9.0	SCHEDULES
A10.0	LANDSCAPE PLAN

PRUETT RESIDENCE | 3899 PARK AVENUE, PROCTER, BC.

2025-03-05

A.0.0

COVER SHEET



Revision Schedule		
No.	Description	Date

ZONING
 DISTRICT: ROCK (AREA E, RURAL)
 CIVIC ADDRESS: 389 PARK AVENUE, PROCTER, BC, V0G 1V0.
 LEGAL DESCRIPTION: STARTA LOT 31
 PLAN NES3286
 Folio: 707.02256.131
 PID: 027-785-114
 District Lot 873
 LTO LB551916.
 PARCEL SIZE: 0.36 ACRES
 ZONING: UNZONED
 USE: SINGLE FAMILY DWELLING
 SETBACKS: FRONT: 0M
 SIDES: 0M
 REAR: 0M

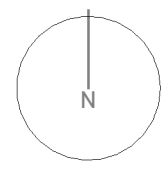
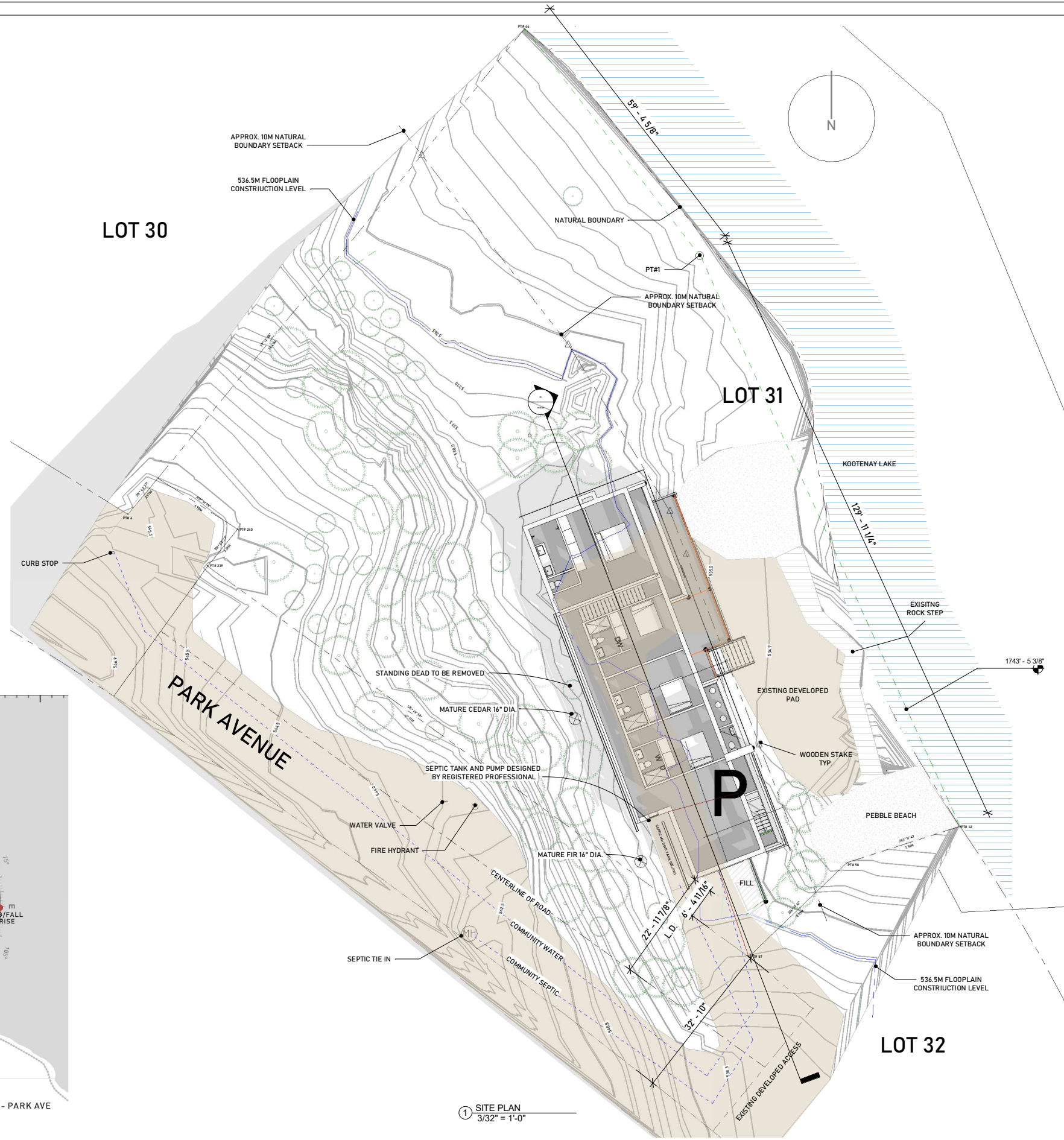
FIRE DEPARTMENT: HARROP PROCTER (9 MINUTE RESPONSE TIME)

BUILDING INFORMATION

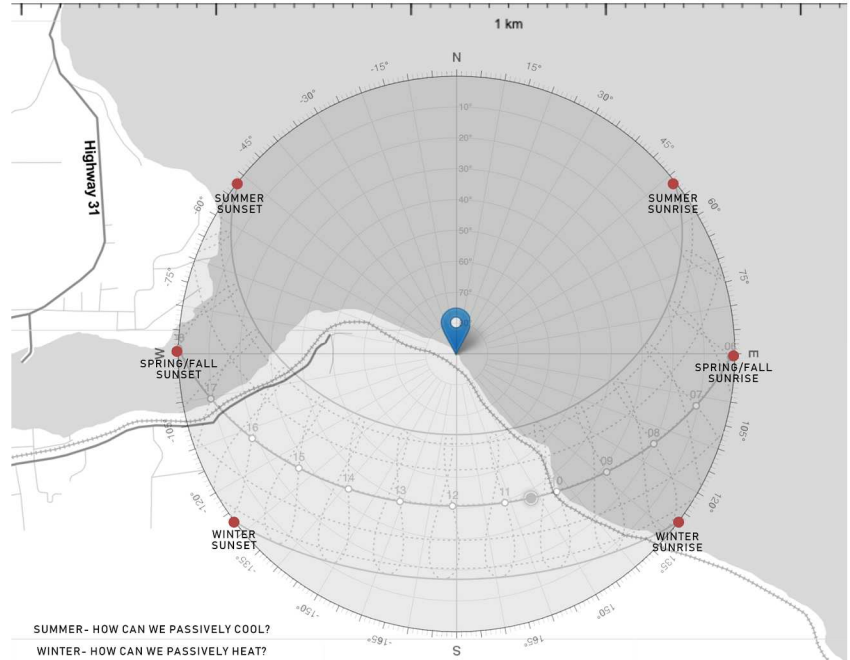
BUILDING CODE: DIVISION B, PART 9
 BUILDING AREA: XXSF (NO PARCEL COVERAGE RESTRICTION)
 WATER: CITY OF PROCTER WATER
 SEWER: STRATA SEPTIC
 HVAC: RADIANT IN FLOOR HEATING, COMBI BOILER DHW

BUILDING CODE

REFERENCE: BCBC DIVISION B, PART 9



SITE CONTEXT



PRUETT | LOT 31 - PARK AVE

1 SITE PLAN
 3/32" = 1'-0"

PRUETT RESIDENCE | 389 PARK AVENUE, PROCTER, BC.

2023-03-05

A0.1

SITE PLAN



Revision Schedule		
No.	Description	Date



KOOTENAY LAKE VILLAGE STRATA LOT 31 Riparian Assessment



Prepared for:
Regional District of Central Kootenay
202 Lakeside Drive,
Nelson BC, V1L 5R4

Prepared by:
Masse Environmental Consultants Ltd.
812 Vernon St.
Nelson, BC, V1L 4G4

May 11, 2021

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ABBREVIATIONS

- AHI: Aquatic Habitat Index
- DBH: Diameter at Breast-Height
- FIM: Foreshore Inventory Mapping
- GSC: Geodetic Survey of Canada
- HWM: High Water Mark
- LWD: Large Woody Debris
- FLNRORD: Forests, Lands and Natural Resource Operations and Rural Development
- QEP: Qualified Environmental Professional
- RAPR: Riparian Area Protection Regulation
- RDCK: Regional District of Central Kootenay
- ROW: Right of Way
- SPEA: Streamside Protection and Enhancement Area
- WDP: Watercourse Development Permit
- ZOS: Zones of Sensitivity

1 INTRODUCTION

Masse Environmental Consultants Ltd. was retained by Dustin Lalik of North Mountain Construction to conduct a riparian assessment for Kootenay Lake Village Strata Lot 31 with civic address of 389 Park Avenue (Strata Lot 31, District Lot 873, Kootenay District Plan, NES3286; PID: 027-785-114).

Proposed construction at Lot 31 will involve work within the 15 m Watercourse Development Permit (WDP) Area of Kootenay Lake, as defined in the Regional District of Central Kootenay Electoral Area 'E' Rural Official Community Plan Bylaw No. 2260, 2013.

A site visit was conducted on April 8, 2021 by Sylvie Masse, RPBio and Jennifer Ross, PChem to conduct a riparian assessment on the property. This assessment evaluates the existing conditions of the property and riparian areas, identifies habitat values, assesses potential environmental impacts, and recommends measures to protect environmentally sensitive areas during development. It is based on the following regulatory framework and best management practices documents:

- Electoral Area 'E' Rural *Official Community Plan Bylaw No. 2260, 2013.*
- British Columbia *Riparian Area Protection Regulation*
- Kootenay Lake Shoreline Management Guidelines
- British Columbia *Water Sustainability Act*
- General BMPs and Standard Project Considerations (Ministry of Environment)
- On the Living Edge: Your Handbook for Waterfront Living
- Develop with Care. Environmental Guidelines for Urban and Rural Land Development in British Columbia
- British Columbia Firesmart Homeowners Manual
- Riparian Factsheet No. 6 – Riparian Plant Acquisition and Planting
- BC Tree Replacement Criteria
- A Homeowner's Guide to Stormwater Management.

This report has been prepared by Sylvie Masse, MSc, RPBio, and reviewed by Fiona Lau, BTEch., ASCt.

I, Sylvie Masse, 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;
- c) I have carried out my 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.

This report is prepared for the Regional District of Central Kootenay (RDCK) as a pre-condition of the issuance of a Building Permit. The submitted report shall be included in a Development Permit under section 920 of the Local Government Act and filed on title of the subject property.

The report has been prepared for and at the expense of the owner of the subject property. The Qualified Environmental Professionals (QEP) who prepared this report have not acted for, or as an agent(s) of the RDCK.

2 PROJECT OVERVIEW

2.1 Location

The subject property is located at the northeast end of Procter, BC, and is bordered by private properties to the northwest and southeast, Kootenay Lake to the northeast, and Park Avenue Right of Way (ROW) to the southwest (Appendix 1). The Canadian Pacific Railway runs parallel along the southeast side of Park Avenue. The property measures ~1456.9 m² (0.36 acres) with 39.4 m of frontage on Kootenay Lake.

The project area is within the Interior Cedar Hemlock dry warm variant 1 (ICHdw1) biogeoclimatic subzone (MacKillop and Ehman 2016). This moist climatic region is characterized by very hot, moist summers; and very mild winters with light snowfall. Soils generally dry out in late summer for varying extents of time ranging from insignificant to extensive. Snowpacks are very shallow to shallow and of short duration and combined with the mild climate result in no significant soil freezing (MacKillop and Ehman 2016).

2.2 Existing Site Conditions

The property was created as part of the 182 ha Kootenay Lake Village (KLV) subdivision and is located on the main arm of Kootenay Lake, just south of the outlet into the West Arm and is exposed to strong southerly winds. The lot was modified and prepared for development into a series of small terraces and pathways protected by rock walls prior to purchase by the current owners. The building site has a mostly east facing aspect, which has been leveled into two terraces between a steep slope below the Park Avenue ROW and the rugged shoreline of Kootenay Lake (Photo 1 to 4). In the southeast corner at the upper margin of the high water mark (HWM), a 12 m long, two tiered rock stack retaining walls have been constructed to form a 6 m wide terrace colonized with non-native grasses (Appendix 2, Photo 5 and 6). Smaller rocks have been placed between the two rock walls to fill the void (Photo 6). The terrace is showing signs of erosion indicating that flood levels have extended beyond the Natural Property Boundary (NPB; Photo 7). Gravel was imported into an area at the south end of the property to create a “beach area” measuring approximately 6 m x 10 m (Photo 8). The remainder of the property is relatively undisturbed with a mature forest and open understory (Photo 17 and 18).



Photo 1. Access to property and upper terrace with proposed building site.



Photo 2. Proposed building site and steep slope between road ROW and building site.



Photo 3. Park Avenue ROW above property.



Photo 4. Rugged foreshore.



Photo 5. Greenspace terrace at southeast corner of property.



Photo 6. Tiered rock stack retaining walls supporting greenspace terrace.



Photo 7. North view of terrace with eroding bank.

Photo 8. Beach with imported gravel at south end.

2.3 Proposed Development

Proposed development on the subject property will have a 160 m² footprint including:

1. two-storey home and garage; and
2. area with stairs.

Site plans drafted by North Mountain Construction are provided in Appendix 2. The current plans have been revised from the original to reduce the proposed home/garage footprint from an estimated 253 m² to 160 m². The second floor will be cantilevered on the non lake side by 0.61 m to reduce impacts to the lake side and allow for a small deck. The proposed development will involve the removal of approximately 10 trees located within and adjacent to the building footprint (Photo 15). The existing access road will be used as the driveway to enter the property.

Landscaping within the WDP area has not yet been confirmed, however the greenspace terrace in front of the house is expected to accommodate some soft landscaping to serve as outdoor living space. This has already been cleared and leveled and no additional vegetation removal is expected in this area. Note that if any works are proposed below the HWM, they would require an application for Notification and/or Approval under Section 11 of the BC *Water Sustainability Act* and possibly a Department of Fisheries and Oceans Request for Review under the *Fisheries Act*.

2.4 Services and Site Drainage

The home will be connected to a community septic system via a buried line along the center of the existing access road at the southeast end of property. The septic tank will be tucked against the house below the front entrance (Appendix 2). Conduits for drinking water and electrical services will also be provided via a line along the access road.

3 REGULATORY REVIEW

3.1 Streamside Protection and Enhancement Area

To determine whether the 15 m WDP setback from the High Water Mark (HWM) of Kootenay Lake aligns with Riparian Area Protection Regulation (RAPR) criteria, a detailed assessment of the subject property was conducted to calculate the Streamside Protection and Enhancement Area (SPEA) setbacks. Results for the Zones of Sensitivity (ZOS) and SPEA are presented in Table 1 and Appendix 2. As per the RAPR, the large woody debris (LWD), and litter ZOS were plotted 15 m inland from the HWM. The Shade ZOS was plotted 30 m south of the HWM. The SPEA setback is determined based on the ZOS with the greatest width. Therefore, within the subject property the SPEA ranges from 15-20 m from the HWM and encompasses a large portion of the building footprint.

Prior modification and rocky character of the site makes it difficult to precisely delineate the HWM based on soil characteristics and the presence of terrestrial vegetation (see HWM definition below). In the absence of a clearly defined HWM, the SPEA and the WDP will be measured from the surveyed natural boundary (Appendix 2), however the presence of woody debris above the rocky outcrops indicate that flood levels may occasionally be higher (Photo 9 and 10).

The BC Riparian Areas Regulation (BC 2015) defines the “High Water Mark” as follows:

“High Water Mark” means the visible high water mark of a stream where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the stream a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself, and includes the active floodplain”

“Stream” includes any of the following that provides fish habitat:

- (a) a watercourse, whether it usually contains water or not;
- (b) a pond, lake, river, creek or brook;
- (c) a ditch, spring or wetland that is connected by surface flow to something referred to in paragraph (a) or (b).

Table 1. Results of detailed RAR assessment.

Feature Type	SPVT ¹	Zones of Sensitivity			SPEA
		LWD	Litter fall	Shade	
Lake	TR	15 m	15 m	9-20 m	15-20 m

¹ SPVT: site potential vegetation type (TR-tree)



Photo 9. Woody debris along terrace.

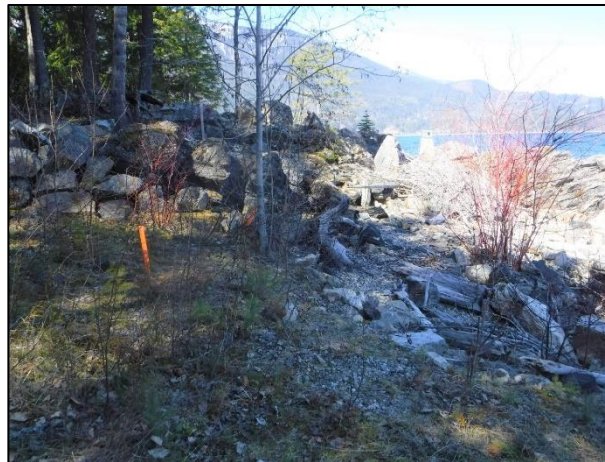


Photo 10. Woody debris showing elevation of flood zone.

3.2 Kootenay Lake Shoreline Management Guidelines

The Kootenay Lake Foreshore Inventory Mapping (FIM) and the Kootenay Lake Shoreline Management Guidelines documents (EEC 2016, KLP 2018) were used to help determine site specific risk for riparian habitat, Ktunaxa Nation cultural values, and archaeological resources along the shoreline. The property is located within FIM segment 214. Table 2 provides the environmental and archaeological risk results identified in the FIM along the shoreline of the property.

Table 2. Environmental and archaeological risk results.

Aquatic Habitat Index Rating (AHI)	Aquatic Sensitivity	Archaeological Risk	Enhanced Engagement Required
High	Yes	Yellow	Yes

The subject property is located within an Enhanced Engagement area and may require further consultation with the Ktunaxa Nation. The engagement requirements will be determined through a consultation process with the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) and the Ktunaxa Nation.

The subject parcel was also flagged as a yellow (moderate) archaeological risk; however, assessment of archaeological risk is beyond the scope of this report. For further information please consult the Kootenay Lake Shoreline Management Guidelines (KLP 2017).

4 RESOURCES

4.1 Fish and Fish Habitat

The shoreline in front of the property consists primarily of a bedrock outcrop and a mixture of cobbles and angular boulders occupy the littoral zone (Photo 11 and 12). This area provides rearing habitat for juvenile fish as well as fry that are able to utilize the cobble and boulder substrate for cover. Migration of some of

the gravel imported to create a beach area can be observed along the shoreline (Photo 11). Slopes range from almost vertical along the bedrock outcrops to 5-10 % in the littoral zone. Sparse herbaceous and shrubby vegetation is present on and above the rock outcrops, but no submergent vegetation was observed. Kootenay Lake supports a variety of fish species, including several species of regional interest, such as Rainbow Trout (*Oncorhynchus mykiss*), Bull Trout (*Salvelinus confluentus*), Kokanee (*O. nerka*), White Sturgeon (*Acipenser transmontanus*), Westslope Cutthroat Trout (*O. clarki lewisii*), and Burbot (*Lota lota*). Foreshore Inventory Mapping indicates that this segment of foreshore is a potential Kokanee shore spawning area (EEC 2016). Kokanee shore spawning occurs in areas with pea-sized gravels, groundwater seepage, and sufficient water depth.

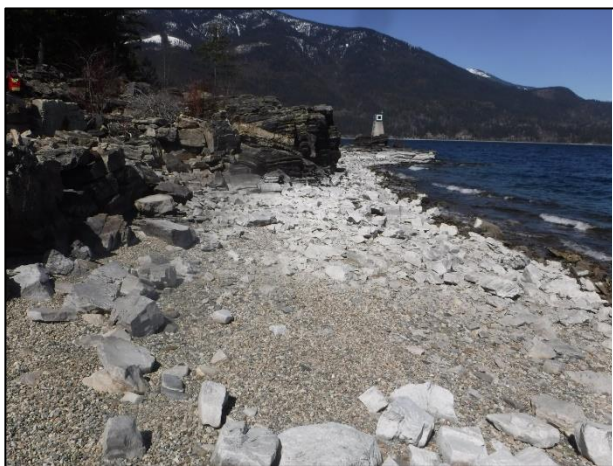


Photo 11. North view of foreshore with angular boulders in littoral zone and bedrock outcrop. Note imported gravel from beach creation along foreshore.

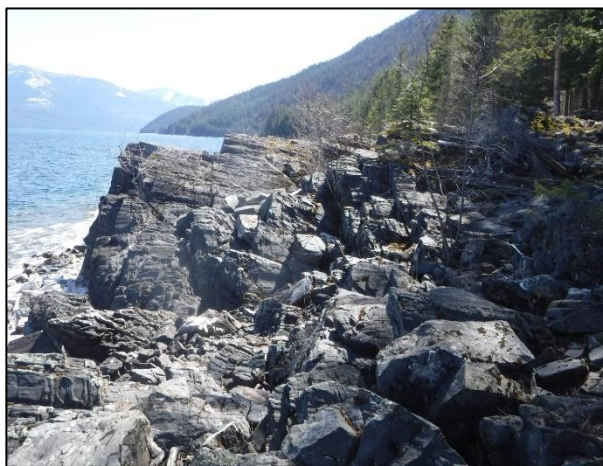


Photo 12. South view of bedrock outcrops at north end of property.

4.2 Riparian Vegetation

The riparian area within the southern portion of the property has been disturbed by the construction of the access into the property, building site and terrace. Some of this area has been colonized by non-native plant species. The upland margin of the property consists of a steep rocky slope (Photo 13 and 14). Vegetation on this slope consists mostly of mature Interior Douglas fir (*Pseudotsuga menziesii*), and western red cedar (*Thuja plicata*) trees. The area between the proposed building site and the terrace (Photo 13) includes younger trees with an average diameter at breast height (dbh) of 15 cm consisting of western red cedar, Douglas fir and water birch (*Betula occidentalis*). The northern half of the property is relatively undisturbed with a forested stand of Interior Douglas fir, western red cedar and black cottonwood (*Populus trichocarpa*), with an open understory dominated by mosses (Photo 16). The rocky shoreline is sparsely vegetated with native forbs and grasses. A list of all plant species observed on site is presented in Table 3. This list is not exhaustive due to the timing of the site visit in early spring.



Photo 13. Mature Douglas fir and red cedar on steep slope between access road and building site. Note Douglas fir to be removed.



Photo 14. Steep rocky slopes northern end of property.



Photo 15. Area between building site and terrace with young stand of trees proposed for removal.



Photo 16. Patch of trees to be retained at south end of property.



Photo 17. South view of undisturbed forest at north end with understory dominated by mosses.



Photo 18. North view of undisturbed forest at north end of property.

Table 3. Plant species list.

Common Name	Scientific Name	Common Name	Scientific Name
Trees		Herbaceous and Low Shrubs	
Douglas-fir	<i>Pseudotsuga menziesii</i>	grasses	<i>Poa sp.</i>
western redcedar	<i>Thuja plicata</i>	kinnikinnick	<i>Arctostaphylos uva-ursi</i>
hemlock		Oregon grape	<i>Mahonia aquifolium</i>
Tall Shrubs		pearly everlasting	<i>Anaphalis margaritacea</i>
falsebox	<i>Pachistima myrsinites</i>	princess pine	<i>Chimaphila umbellata</i>
mountain alder	<i>Alnus incana</i>	rattlesnake plantain	<i>Goodyera oblongifolia</i>
Nootka rose	<i>Rosa nutkana</i>	spotted knapweed	<i>Centaurea stoebe</i>
paper birch	<i>Betula papyrifera</i>	tufted vetch	<i>Vicia cracca</i>
red raspberry	<i>Rubus idaeus</i>	twinflower	<i>Linnaea borealis</i>
red-osier dogwood	<i>Cornus stolonifera</i>	western licorice fern	<i>Polypodium hesperium</i>
rose	<i>Rosa sp.</i>	yarrow	<i>Achillea millefolium</i>
common snowberry	<i>Symphoricarpos albus</i>	yellow clover	<i>Trifolium aureum</i>
soopolallie	<i>Shepherdia canadensis</i>	yellowdevil hawkweed	<i>Hieracium glomeratum</i>
water birch	<i>Betula occidentalis</i>	Mosses	
Willow sp	<i>Salix sp.</i>	pipecleaner moss	<i>Rhytidiopsis robusta</i>
Herbaceous and Low Shrubs		red-stemmed feathermoss	<i>Pleurozium schreberi</i>
bull thistle	<i>Cirsium vulgare</i>	rockmoss	<i>Racomitrium sp.</i>
dandelion species	<i>Taraxacum sp.</i>	lichens	
fescue			

4.3 Wildlife

4.3.1 Reptiles and Amphibians

The rocky foreshore may provide habitat for northern alligator lizards (*Elgaria coerulea*) and garter snakes (*Thamnophis spp.*). The subject property and surrounding areas provide no breeding habitat, and very limited upland foraging habitat for amphibians.

4.3.2 Birds

The subject property is likely visited by songbirds, waterfowl, and raptors particularly during the spring breeding season. No stick nests were observed, though the mature Douglas-fir may provide potential perching and nesting sites for raptors.

4.3.3 Mammals

The property provides potential habitat for ungulates, bears and small mammals and connectivity with upland habitat. The step rocky foreshore and sparse vegetation cover, however, may limit usage of the foreshore area. Deciduous habitat and gentler terrain on the foreshore on the lots to the north may be more conducive to habitat use by mammals.

4.4 Species at Risk

A 10 km buffer around the subject property was used to query BC Conservation Data Center records using the [CDC iMap](#) tool. Based on this query, three species at risk occurrences are known within the 10 km buffer around the project area. These include white sturgeon (*Acipenser transmontanus*), western skink (*Plestiodon skiltonianus*) and wild licorice (*Glycyrrhiza lepidota*). None of these species are likely to occur on the property. The lack of documented species at risk identified in the data queries does not preclude the presence of a species at risk from an area. Given the time of year, and the scope of this assessment it is impossible to rule out the presence of species at risk on and near the subject property.

4.5 Archaeological Resources

Kootenay Lake is part of the traditional territory of the Sinixt, Okanagan and Ktunaxa First Nations and archaeological evidence is documented at multiple shoreline sites. A review of archaeological resources on this property is outside the scope of this report.

5 IMPACT ASSESSMENT

The proposed development will involve construction of a two storey home and garage with ~160 m² of the footprint occurring entirely within the SPEA (summarized in Section 2.3). The house and associated structures will be constructed ~ 10 m away from the HWM of Kootenay Lake on previously created access road and terrace. The riparian habitat in this area has previously been disturbed from clearing of vegetation and infilling of rock and gravel to create the building sites, terrace and pathways. Impacts from the proposed development will permanently remove at least 160 m² of potential riparian vegetation within the SPEA. There are ~10 trees located within and or adjacent to the building footprint proposed removal (Table 4; Photo 15). One large leaning Douglas fir located west of the building will also require removal (Photo 13). Potential impacts from the loss of riparian vegetation on terrestrial and aquatic species are described in this section. Section 7 outlines a plan to mitigate for impacts from the permanent loss of potential riparian vegetation.

Table 4. Summary of trees proposed for removal.

Species	Number	DBH (cm)
Douglas fir	1	>30
Douglas fir	3	<15-20
western red cedar	2	<15
water birch	5	<15

5.1 Wildlife Impacts

Permanent removal of potential riparian vegetation will contribute to cumulative local losses of wildlife habitat associated with the development of Kootenay Lake Village and other regional land modification. Removal of mature trees reduces cover and perching opportunities for songbirds and raptors within the riparian area.

5.2 Aquatic Impacts

Permanent removal of potential riparian vegetation within the SPEA will decrease riparian functions which maintain the health and productivity of aquatic ecosystems, including future loss of large woody debris recruitment, shade potential and water temperature regulation and nutrient input including litter fall and insect drop.

The property was previously altered by the developer to prepare for development. Past alterations include the creation of two terraces and two retaining walls. Some of the retaining walls may have been constructed below the HWM and have created vertical structures that can impact juvenile fish movements along the foreshore. The rock wall consists of different size angular rocks which provide some interstitial space that could be used for cover by fish. No additional works are currently proposed below the HWM.

6 MEASURES TO PROTECT THE INTEGRITY OF SPEA

This section provides measures to protect the integrity of the SPEA as described in RAPR, as well as recommended best management practices.

6.1 Danger Trees

A large Douglas fir with a prominent sweep is located in close proximity to the building footprint and would have to be removed (Photo 11). It is recommended that a certified arborist be retained to assess the health of the trees in close proximity to the building footprint and be removed if considered danger trees.

6.2 Windthrow

There is little windthrow risk to the SPEA because no significant clearing of timber is proposed. It is unlikely that the proposed construction activities on site will increase the windthrow risk to trees in or near the SPEA, unless building of the house compromises some of the root structure. A full assessment of windthrow risk by a Registered Professional Forester (RPF) was not completed as part of this survey. A certified arborist or RPF should be retained to determine if the construction of the building will affect the stability of the trees in close proximity to the building footprint.

6.3 Slope Stability

Some of the trees growing on the steep slope between the access road and the proposed building site had a noticeable sweep, which is an indication of potential slope creep and instability. Further assessment of geotechnical hazard is beyond the scope of this report, and any such assessment should be led by a P.Geo. or P.Eng.

6.4 Protection of Trees and Vegetation in the SPEA

Protection of remaining trees and other vegetation in the SPEA can be achieved by implementing the following measures:

- Locate the proposed house and associated structures on previously created terraces and rock outcrops to minimize additional disturbance to riparian vegetation. Avoid encroachment into the undisturbed area at the north end of the property. Install the septic tank, well, and all buried utilities in a way that does not require vegetation removal or disturb root systems of existing trees. All vegetation outside of the construction footprint should be preserved to ensure the redevelopment of a functioning riparian ecosystem within the SPEA.
- Clump of trees south of the building site should be retained if possible (Table 5; Appendix 2; Photo 14). If they cannot be retained, then they should be replaced according to the ratios in the BC Tree Replacement Criteria (MELP 1996).
- Limit landscaping to the minimum footprint necessary to allow foot traffic between the home, garage, beach and driveway.
- Building of the house will need to be staged in such a way that will reduce any additional disturbance to the site and should be limited as much as possible to the previously disturbed areas.
- A QEP should visit the site with the construction contractor prior to development to identify areas of vegetation to be retained.
- In addition to marking vegetation retention areas with flags and/or fencing, the QEP may make other recommendations regarding material handling and equipment storage to ensure that remaining riparian vegetation is not impacted.
- No pollutants should be allowed to contaminate the soil around trees in the SPEA.
- To prevent encroachment and potential damage to riparian vegetation, orange snow fencing will be installed around the patch of ~12 trees within the SPEA at the south end of the property and to the north of the building (Table 5; Photo 16). Snow fencing shall be installed at least 1 m outside of the dripline to protect the root zones and maintained throughout the duration of the project (Appendix 2).

Table 5. Trees to be retained within the SPEA.

Species	Number	DBH (cm)
western red cedar	9	<15
Douglas fir	1	<15
black cottonwood	1	<15
alder	1	

6.5 Encroachment

As a large portion of the proposed building will occur within the SPEA, further encroachment of areas beyond the proposed home/garage footprint should be avoided to preserve the function of the remaining riparian vegetation, and to promote re-establishment of riparian vegetation recommended in the Mitigation Plan in Section 7. The undisturbed area on the southern portion of the property is particularly valuable and should be retained.

6.6 Sediment and Erosion Control

Soil disturbance during construction involves the risk of erosion and sediment releases. The following mitigation measures should be implemented to reduce the risk of sediment input to Kootenay Lake:

- Amount of soil disturbance should be kept to a minimum.
- During construction surface runoff should be controlled and directed away from exposed soils.
- Install sediment fence where necessary to prevent migration of soils from the building site.
- In the event of heavy rainfall, additional mitigation measures such as ditching or covering soils may be required to ensure turbid water does not leave the construction site.
- Turbid surface water from the construction site must not be discharged directly into Kootenay Lake.
- Remaining SPEA vegetation should not be used to filter sediment laden water.
- Soil stockpiles should be as far from Kootenay lake as possible and covered with tarps to prevent erosion and establishment of invasive weeds if in place for more than 1 month or show signs of erosion.
- Disturbed soils should be revegetated as soon as possible after construction.

6.7 Stormwater Management

The proposed development will result in an increase in the total impervious area of the property from surfaces such as driveways and roof tops. The following mitigation measures will help decrease stormwater impacts:

- Minimize impervious surfaces (e.g. permeable driveway, pathways, patios etc.) by incorporating materials which limit surface runoff and promote infiltration. (See Homeowner's Guide to Stormwater Management. MV n.d. and Stormwater Planning: A Guide for British Columbia (May 2002).
- Maintain greenspace and vegetated swales. A landscape architect should be consulted to design site specific stormwater management solutions which will minimize surface runoff from the final home site.
- Rainwater collected on roofs should not be allowed to form surface runoff. Downspouts should direct rainwater into suitable landscape features which can absorb and utilize runoff rather than discharging it directly to Kootenay Lake (MV n.d.)
- A landscape architect should be consulted to design site specific stormwater management solutions which will minimize surface runoff from the final home site.
- Stormwater discharges must meet the *Water Sustainability Act* or any other application legislation.

6.8 Floodplain Concerns

Development of Kootenay Lake Village Lot 31 within the 15 m *Floodplain Management Bylaw 2080* setback will require site-specific exemption by the RDCK which will be submitted at the same time as the WDP application. Modifications to the floodplain have previously been completed on the property and no further flood related works (i.e. diking, beach modification, etc.) are proposed.

6.9 Scheduling of Environmentally Sensitive Activities

Under the provincial *Wildlife Act* it is unlawful to disturb nesting birds, nests, and eggs. In order to avoid potential impacts to breeding songbirds, any clearing of vegetation within the subject property should be completed within the least risk work period for nesting birds (August 15- March 31).

6.10 Protection of Fish Habitat

Development of the property should protect fish habitat by implementing the following recommendations:

- Limit beach modification and preserve foreshore vegetation and boulders which provide fish habitat during periods of inundation.
- Adhere to sediment, stormwater, and waste management best practices outlined in this report to ensure that there is no release of deleterious materials into Kootenay Lake.
- If vertical retaining walls are modified or constructed below the HWM then the areas in front of the walls should be complexed with boulders and/or large woody debris to provide additional cover for juvenile fish.
- If instream works are required, including any work below the HWM, it must be approved under Section 11 of the *Water Sustainability Act* and a QEP should be present to ensure proper isolation of construction work from aquatic habitat.

6.11 Construction Waste Management

All construction waste generated on site must be taken off site and re-used, recycled or disposed of at proper facilities. Construction personnel should ensure the site is kept clean and to prevent litter from escaping the site. Food wastes generated on site should be removed daily so it does not become a wildlife attractant.

Concrete will be used in the construction of foundations. Fresh concrete and concrete laden water is caustic and toxic to aquatic organisms. The following precautions should be taken when handling concrete to ensure the protection of fish habitat:

- Concrete waste should be collected and disposed of at an approved disposal site.
- Washing of equipment used during concrete work should occur at a designated location at least 30 m away from any waterbody where wash water will not drain directly into the water. If this is not possible then lined trays should be used to collect all concrete waste and washwater to ensure it does not enter Kootenay Lake.

6.12 Management of Equipment and Fuel/Lubricant Materials

The most likely source of any contaminant is from equipment or vehicles used or stored on-site, either during fueling or from unanticipated leaks or the failure of a hydraulic hose. In order to minimize the likelihood and impact of a spill within the riparian area, ensure that:

- Each piece of heavy equipment will be equipped with its own spill response kit.

- All staff will be familiar with the use of spill kits and their contents. The contents of the kits will be replaced immediately after use.
- Excavators will be parked in a level area, as far from the lake as possible and equipped with secondary containment.

6.13 Invasive Plant Management

Construction activities can potentially increase prevalence of invasive plant species which can out-compete native riparian vegetation, causing damage to habitat and ecosystem function. The following mitigation measures are recommended in order to reduce the establishment and proliferation of invasive plant species on site:

- All equipment should be thoroughly washed and inspected before entering the project site to prevent the import of new invasive plant seeds and root fragments.
- Amount of vegetation clearing, and soil disturbance should be minimized.
- All exposed soils should be re-vegetated immediately following construction.

7 MITIGATION PLAN

The Shoreline Management Guidelines for Kootenay Lake outlines general principles for shoreline development in order to achieve a “No Net Loss” of habitats present. The principle is achieved by applying the following mitigation options: 1. Avoidance of environmental impacts; 2. Minimizing unavoidable impacts; 3. On-site restoration; and 4. Offset residual impacts that cannot be minimized through compensation (KLP 2018).

The avoidance of environmental impacts is not possible during development of Lot 31 as a large portion of the buildable footprint is within the SPEA. Development of this lot was approved by the RDCK during the creation of the Kootenay Lake Village subdivision and offsetting the residual impacts through compensation in a similar ecosystem is also not possible as the RDCK does not have a program for offsite habitat enhancement works to offset residential developments. Therefore, a combination of minimizing further impacts to the SPEA and implementing on-site restoration are the only options, however due to the small size and location of the lot within the riparian area “No Net Loss” will not be achieved.

In order to minimize further impacts to the SPEA the best management practices outlined in Section 6 should be adhered to. Although on-site restoration opportunities are limited on the property, native shrubs could be incorporated into the landscaping of the terrace area.

- Plant at least 20 native shrubs/trees within the areas proposed for revegetation on the existing terrace next to the house (Appendix 2). Species listed in Table 5 are recommended, which are known to occur in the local area and provide the necessary riparian function. Additional native tree or shrub species could be substituted under direction from a QEP. Plantings which do not survive should be replaced to ensure that long term establishment of the target quantity of native trees and shrubs is achieved.

- Plant stock should be a minimum of 1 gallon potted stock.
- Direction from a qualified landscaper will increase the likelihood of success.
- Planting should not occur during periods of hot dry weather unless they are irrigated daily.
- Regularly irrigate new plantings during the plant establishment period, minimum 3 years.
- In addition to incorporating riparian vegetation along the terrace, all disturbed areas around the home and any landscape features should be planted entirely with native plant species such as those listed in Table 6.
- Replanting of riparian and upland vegetation around the proposed buildings should adhere to principles of rural residential fire protection (for more information see the FireSmart Homeowner’s Manual MFLNRO N.D.).
- Trees and shrubs listed in Table 6 are available from Sagebrush Nursery in Oliver (<https://sagebrushnursery.com>), or Nupqu Native Plants (<https://nupqu.com/native-plants-nursery-home/>) near Kimberley.
- A recommended native seed mix blend specifically formulated for the Kootenay Lake foreshore is available at Nupqu Native Plants ([http:// https://nupqu.com/native-plants-nursery-home](http://https://nupqu.com/native-plants-nursery-home)) near Kimberley (Table 7).
- The landscaping plan will need to incorporate measures to address the erosion observed on the lake side of the terrace.

Table 6. Native plants for revegetation.

Common Name	Scientific Name	Common Name	Scientific Name
Trees		Shrubs (Cont’d)	
Western red cedar	<i>Thuja plicata</i>	Oceanspray	<i>Holodiscus discolor</i>
Western white pine	<i>Pinus monticola</i>	Blue elderberry	<i>Sambucus caerulea</i>
Interior Douglas fir	<i>Pseudotsuga menziesii</i>	Thimbleberry	<i>Rubus parviflorus</i>
Paper birch	<i>Betula papyrifera</i>	Blueberry	<i>Vaccinium ovalifolium</i>
Shrubs		Common snowberry	<i>Symphoricarpus albus</i>
Red osier dogwood	<i>Cornus stolonifera</i>	Herbaceous	
Sandbar willow	<i>Salix exigua</i>	Blue joint grass	<i>Calamagrostis canadensis</i>
Sitka willow	<i>Salix sitchensis</i>	Idaho fescue	<i>Festuca idahoensis</i>
Nootka rose	<i>Rosa nutkana</i>	Junegrass	<i>Koeleria macrantha</i>
Mountain alder	<i>Alnus incana</i>	Nodding onion	<i>Allium cernuum</i>
Water birch	<i>Betula occidentalis</i>	Pink spirea	<i>Spirea douglasii</i> spp. <i>Menziesii</i>
Douglas maple	<i>Acer glabrum</i>	Canadian goldenrod	<i>Solidago lepida</i>
Mallow ninebark	<i>Physocarpus malvaceus</i>		

Table 7. Recommended native seed mix blend.

Native Riparian Blend 1	% weight	% by species
slender wheatgrass	25.0%	18%
streambank wheatgrass	25.0%	18%
fringed brome grass	24.7%	9%
northern wheatgrass	20.0%	14%
sheep fescue	3.0 %	10%
tufted hairgrass	1.0 %	11%
fowl bluegrass	1.0 %	9%
yarrow	0.3 %	3%

8 ENVIRONMENTAL MONITORING

Environmental monitoring of construction activities by a QEP may be required at the discretion of the RDCK to ensure the Environmental Best Practices outlined in this report are followed. Further effectiveness monitoring of mitigation measures may also be required. The following indicators of success of riparian plantings should be documented:

- Plant composition includes only trees and shrubs from Table 6, or other species as advised by QEP.
- Establishment of planted trees and shrubs after 3 full years would be a reasonable indication that the mitigation plan has been successfully completed.

9 CONCLUSION

The proposed 160 m² footprint of the home and garage at Lot 31 is within the SPEA of Kootenay Lake. Recommended mitigation measures include minimizing losses of riparian vegetation, restoring disturbed areas with native plant species to partially offset the permanent loss of potential riparian vegetation to the extent possible on this lot.

10 CLOSURE

I, Sylvie Masse, certify that I am qualified to carry out this assessment; and that the assessment methods under the Regulation have been followed; and that, in my professional opinion:

- (i) if the development is implemented as proposed, or
- (ii) if the streamside protection and enhancement areas identified in the report are protected from the development, and
- (iii) if the developer implements the measures identified in the report to protect the integrity of those areas from the effects of the development,

then there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area.

Prepared by:



Sylvie Masse, MSc, RPBio

College of Applied Biology: R.P.Bio. #834

Reviewed by:



Fiona Lau, BTech, ASCT

11 REFERENCES

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[MFLNRO] BC Ministry of Forests Lands and Natural Resource Operations. N.D. Firesmart Homeowner's Manual.

[RDCK] Regional District of Central Kootenays. 2013. Electoral Area 'E' Rural Official Community Plan Bylaw No. 2260, 2013.

APPENDIX 1
LOCATION MAP

RDCK Map



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
 maps@rdck.bc.ca

Legend

 Electoral Areas

Project Location Map
 Lot 31, Kootenay Lake Village
 (389 Park Avenue)
 Procter, BC

Map Scale:

1:72,224

Date: April 26, 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 errors or omissions on this map.

APPENDIX 2
SITE PLAN

ZONING

DISTRICT: ROCK (AREA E, RURAL)

CIVIC ADDRESS: 389 PARK AVENUE, PROCTER, BC, V0G 1V0.

LEGAL DESCRIPTION: STARTA LOT 31
PLAN NES3286
Folio: 707.02256.131
PID: 027-785-114
District Lot 873
LTO LB551916.

PARCEL SIZE: 0.36 ACRES

ZONING: UNZONED

USE: SINGLE FAMILY DWELLING

SETBACKS: FRONT: 0M
SIDES: 0M
REAR: 0M

FIRE DEPARTMENT: HARROP PROCTER (9 MINUTE RESPONSE TIME)

BUILDING CODE

REFERENCE: BCBC DIVISION B, PART 9

BUILDING INFORMATION

BUILDING CODE: DIVISION B, PART 9

BUILDING AREA: XXSF (NO PARCEL COVERAGE RESTRICTION)

WATER: CITY OF PROCTER WATER

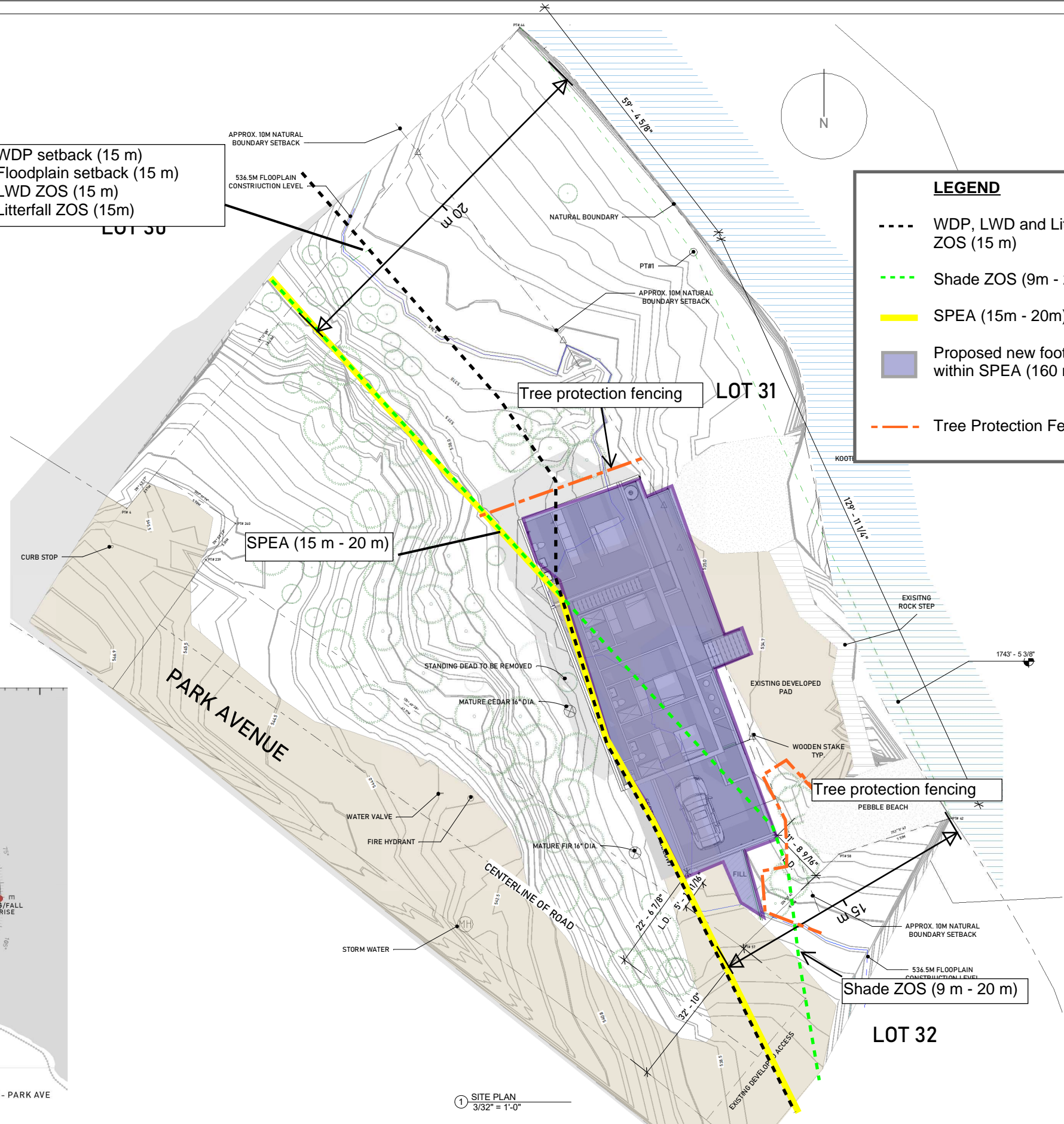
SEWER: STRATA SEPTIC

HVAC: RADIANT IN FLOOR HEATING, COMBI BOILER DHW

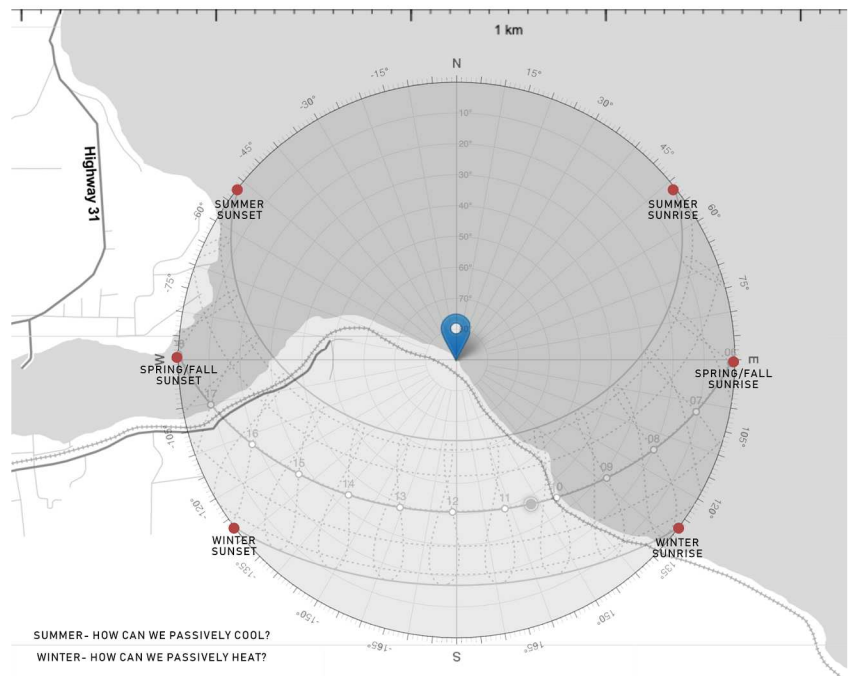
WDP setback (15 m)
Floodplain setback (15 m)
LWD ZOS (15 m)
Litterfall ZOS (15m)

LEGEND

- WDP, LWD and Litterfall ZOS (15 m)
- Shade ZOS (9m - 20m)
- █ SPEA (15m - 20m)
- █ Proposed new footprint within SPEA (160 m²)
- - - Tree Protection Fencing



SITE CONTEXT



PRUETT RESIDENCE | 389 PARK AVENUE, PROCTER, BC.

2025-03-05

A0.2

SITE PLAN



Revision Schedule		
No.	Description	Date

PRUETT | LOT 31 - PARK AVE

① SITE PLAN
3/32" = 1'-0"

HARDSCAPING



IMAGE 1



IMAGE 2

NATIVE REVEGETATION

NET REVEGETATION AREA- 360 SF (33.44 sqm)

TREES

- Western red cedar- *Thuja plicata*
- Western white pine- *Pinus monticola*
- Interior Douglas fir- *Pseudotsuga menziesii*
- Paper birch- *Betula papyrifera*

SHRUBS

- Red osier dogwood- *Cornus stolonifera*
- Sandbar willow- *Salix exigua*
- Sitka willow- *Salix sitchensis*
- Nootka rose- *Rosa nutkana*
- Mountain alder- *Alnus incana*
- Water birch *Betula occidentalis*
- Douglas maple- *Acer glabrum*
- Mallow ninebark- *Physocarpus malvaceus*
- Oceanspray- *Holodiscus discolor*
- Blue elderberry- *Sambucus caerulea*
- Thimbleberry- *Rubus parviflorus*
- Blueberry- *Vaccinium ovalifolium*
- Common snowberry- *Symphoricarpos albus*

HERBACEOUS

- Blue joint grass *Calamagrostis canadensis*
- Idaho fescue *Festuca idahoensis*
- Junegrass *Koeleria macrantha*
- Nodding onion *Allium cernuum*
- Pink spirea *Spirea douglasii* spp. *Menziesii*
- Canadian goldenrod *Solidago lepida*

In order to minimize further impacts to the SPEA the best management practices outlined in Section 6 should be adhered to. Although on-site restoration opportunities are limited on the property, native shrubs could be incorporated into the landscaping of the terrace area.

- Plant at least 20 native shrubs/trees within the areas proposed for revegetation on the existing terrace next to the house (Appendix 2). Species listed in Table 5 are recommended, which are known to occur in the local area and provide the necessary riparian function. Additional native tree or shrub species could be substituted under direction from a QEP. Plantings which do not survive should be replaced to ensure that long term establishment of the target quantity of native trees and shrubs is achieved.
- Plant stock should be a minimum of 1 gallon potted stock.
- Direction from a qualified landscaper will increase the likelihood of success.
- Planting should not occur during periods of hot dry weather unless they are irrigated daily.
- Regularly irrigate new plantings during the plant establishment period, minimum 3 years.
- In addition to incorporating riparian vegetation along the terrace, all disturbed areas around the home and any landscape features should be planted entirely with native plant species such as those listed in Table 6.
- Replanting of riparian and upland vegetation around the proposed buildings should adhere to principles of rural residential fire protection (for more information see the FireSmart Homeowner's Manual MFLNRO N.D.).
- Trees and shrubs listed in Table 6 are available from Sagebrush Nursery in Oliver (<https://sagebrushnursery.com>), or Nupqu Native Plants (<https://nupqu.com/native-plantsnursery-home/>) near Kimberley.
- A recommended native seed mix blend specifically formulated for the Kootenay Lake foreshore is available at Nupqu Native Plants ([http:// https://nupqu.com/native-plants-nursery-home](http://https://nupqu.com/native-plants-nursery-home)) near Kimberley (Table 7).
- The landscaping plan will need to incorporate measures to address the erosion observed on the lake side of the terrace.



1 LANDSCAPE
3/16" = 1'-0"



Revision Schedule		
No.	Description	Date

Lasca Group Technical Services

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

**Geotechnical/Flood Engineering Report for 389 Park Ave,
Procter BC**

15 April 2021

The purpose of this letter is to inform the RDCK Planning Department that during 26 March 2021, at the request of the contractor (North Mountain Construction), I conducted a natural hazard geotechnical/flood engineering site visit and field testing for the 389 Park Avenue property located 2.5 kilometres east of Procter along East Procter Road (see Map One).

The legal description and property information is:

Owner: Don and Holly Pruett
Mailing Address: 6614 Golden Bear Loop 84098 Park City Utah
Description: Strata Lot 31 Plan NES3286 DL873 LD26 together with an interest in the common property in proportion to the unit entitlement of the strata lot as shown on Form V
PID: 027-785-114
Folio: 21-707-02256.131
Zoning: Unzoned
Flood Construct Elev. 536.5 metres
Residence Elev. 536.6 metres
UTM Coordinate: 49.62371°N, -116.92923°W
Area: 0.15 ha
Neighbours: West – 381 Park Ave; East – 397 Park Ave.; South – CPR

Attached to this report are location maps detailing proposed project area and the surrounding properties, and an APEG Flood Hazard and Risk Assurance Statement for the study property. This report has been prepared for the RDCK as a precondition of the issuance of a site specific exemption as per Section 11.2 of the RDCK Floodplain Management Bylaw 2080 for the Natural Boundary setback.

This report has been prepared for and at the expense of the owner of the subject property and that I have not acted for or as an agent of the Regional District of Central Kootenay in the preparation.

The property is not in the ALR. There is an Official Community Plan (Electoral Area E). The property has a minor lake floodplain but no alluvial fan. The north of the property

shore is on the main body of Kootenay Lake. There are no geotechnical hazards on or near the property.

The property in question is sloped at a height of 2.5 metres along the lake frontage at an angle of 43 degrees embankment towards the lake. The land below the base of the access road and the Park Avenue slope is almost equal to the flood construction level (FCL – 536.5 m) at 536.6 metres. Lasca Group Technical Services is confirming that the site has adequate room to construct a multi-story residence although this structure must be built on a slope. The property in question is of a moderately inclining acreage of 0.36 acres (0.15 ha) sloping downwards north towards Kootenay Lake. The slope varies from 3 to 19 percent and contains soil and rock which is a geological complex of the late Precambrian Reeves Badshot Formation.

Rock/Soil:

The area for a residence has not experienced compaction and is considered raw land. There has been no imported fill but there is second growth treed vegetation of no concern and of no economic value. There is no water table of concern (estimate is lake level). The property has extensive bedrock exposure.

The property bedrock is strata of layered massive recrystallized limestone (dolomite) dipping at 57 degrees downward towards the west. The dolomite is creamy to grey coloured with occasional tremolite, wollastonite, and fine graphite flakes. The dolomite layers are massive to blocky but very competent for foundation anchoring purposes. In between the layers are bands of micaceous and chloritic schists along with hard quartzites.

The rock-quality-designation (RQD) of the dolomite is estimated at 90 but the “in-between” layers are less than 5. Any value over 60 is competent to support footings.

There is a soil layer (exclusive of dolomite layering) on the north side of the property:

1. Organic soil 2 cm thickness
2. Fine loamy sand 10 cm thickness
3. Soil as given below for remainder of exposure:

5% cobbles (irregular shaped)

35% gravelly material (the majority being hard quartzite and dolomite)

10% silt

45% sand

<5% clay

The material is therefore classed as “permeable” and not of geological engineering concern.

Soil is primarily debris from the Reeves Badshot Formation.

Setbacks:

The setbacks are given below:

Property frontage	4.5 metres
Side of property	1.5 metres
Lakefront	15 metres

Map Two shows the area available for a residential structure.

Bearing Capacity:

The soil at 389 Park Ave. has an allowable bearing capacity of 6 short tons per square foot (excludes minor amounts of voids between rock material). Any structural footings and parking areas will require compaction by a minimum sized compactor of 500 pounds. Footings will be required to be at a minimum depth of 0.75 metres. Weight of a typical Procter area residence is 0.7 short tons per square foot (roof snow load included).

Slope Stability:

There are no slopes on the property of concern. The steepest area slope is that of the Canadian Pacific Railroad which is at a safe angle of 33 degrees (37 degrees is the maximum angle).

High Water:

The highest flood elevation is 534.829 metres which occurred during the 1974 flood which is the post Duncan Dam record. The location of the proposed residence is approximately 9 metres from this shoreline (assuming a 6 metre relaxation approval) and is of an acceptable distance for a distance reported (536.6 metres). Also, there is no septic field concern since the lot is on a community waste water system.

Flood Construction Elevation:

The flood construction level (FCL) as given by RDCK (mapping) to the author is 536.5 metres. The location of the residence is based upon a recent survey by Sprouler's Enterprisers Ltd. The area proposed for a residence therefore meets the FCL RDCK bylaw requirements.

Natural Boundary Setback:

A planned residence would require a minimum relaxation of 6.0 metres of the bylaw setback. The first five metres from the natural boundary is a blocky debris filed followed by a 2.5 metre 65 degree cliff. This is followed by a 10 metre flat area at the FCL elevation then the rock dolomite slope.

Lot Size Limitation:

The Lot suffers from restrictions beyond FCL and natural boundary issues. The access ramp from Park Avenue is steep (15.8%) and presents a turning radius issue. The 6 metre setback relaxation would remove this issue.

Reference:

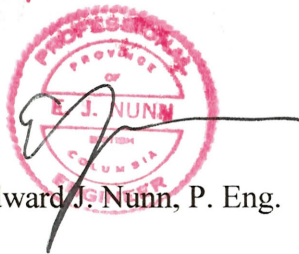
1. *Geological Survey of Canada Memoir 228; Nelson Map Area East Half*
2. *Floodplains, Alluvial Fans and Geotechnical Hazard, RDCK*
3. *Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC; EGBC*
4. *RDCK Floodplain Management Bylaw No. 2080,2009*
5. *Rock Slope Engineering; E. Hoek & Bray;1973*

Conclusion:

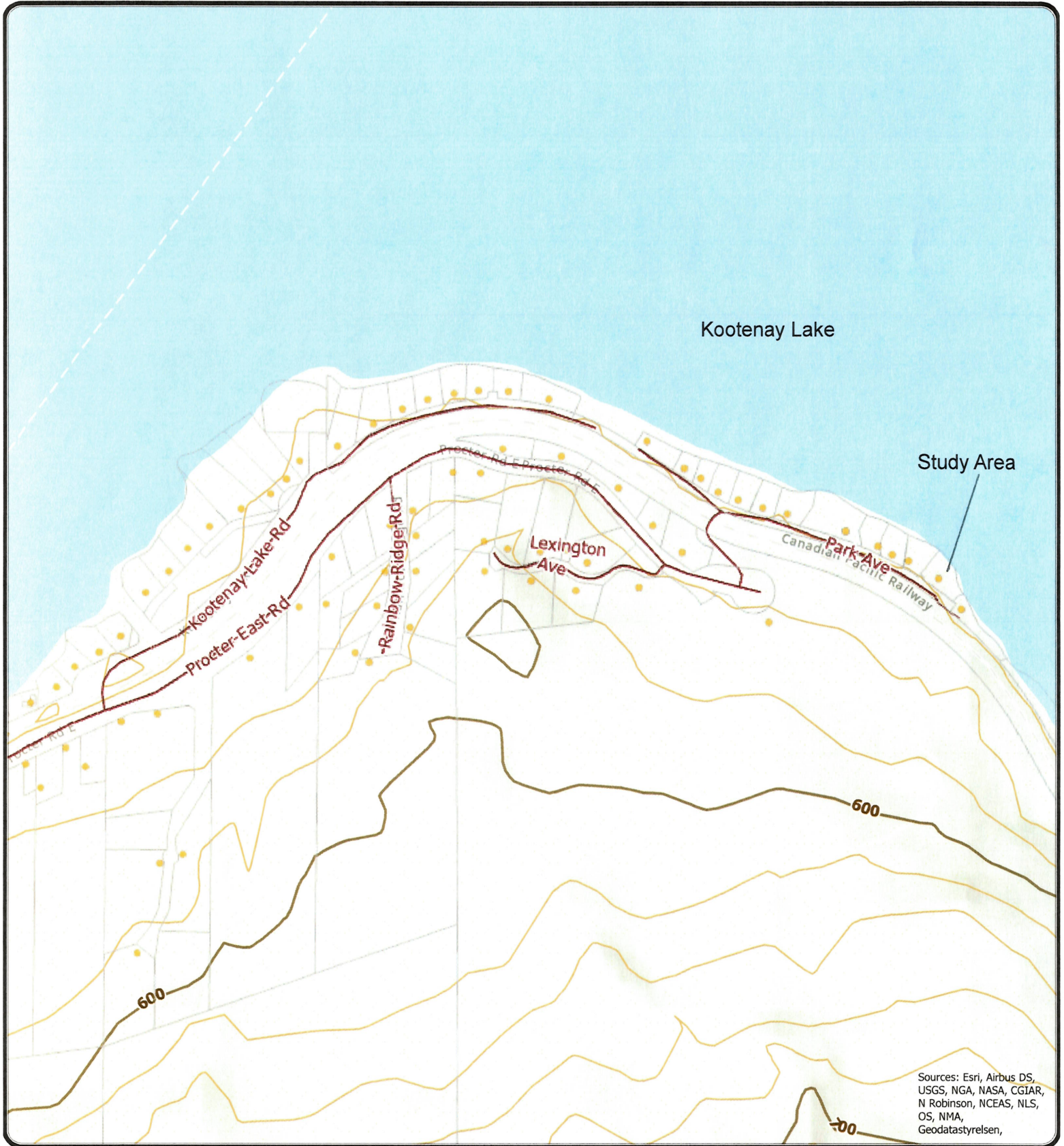
The residence site is planned to be located within the area shown in the attached plan. To achieve an area to build would be extremely difficult if the floodplain setback is from 15 metres to 9 metres is not approved. The FCL is not a concern since the requirement is possible. The north of this planned building area is the location where the variance to 6 metres is required. There are no flooding risks at 389 Park Avenue therefore Edward J. Nunn, P.Eng. of Lasca Group Technical Services verifies that the land may be used safely for the use intended as required under Section 56 of the Community Charter.

If you have any questions, please telephone Edward J. Nunn at (604) 649-3543 or email me at tednunnwater@shaw.ca.

Sincerely,



Edward J. Nunn, P. Eng.



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
 maps@rdck.bc.ca

Legend

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



Map Scale:

1:9,028

Date: April 29, 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 errors or omissions on this map.

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: 15 April 2021

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"):

389 Park Ave, Procter

Strata Lot 31 Plan NES 3286 DL873 LD26 together with an interest in the common
Legal description and civic address of the Property property in proportion to the unit entitlement
of the strata lot as shown on Form V.

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
- 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
- 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 (*residence elevation*)
- 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. *Foundation*

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".

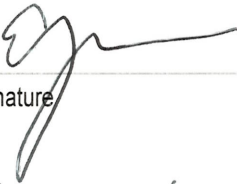
FLOOD ASSURANCE STATEMENT

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

15 April 2021
Date

Lasca Group
Prepared by

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


Signature

610 Front St.
Address

Nelson BC V1L 4B7

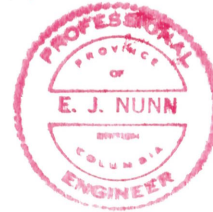
(604) 649-3543
Telephone

tednunnwater@shaw.ca
Email

Reviewed by

Name (print)

Signature



(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)

Photograph One
Proposed House Site



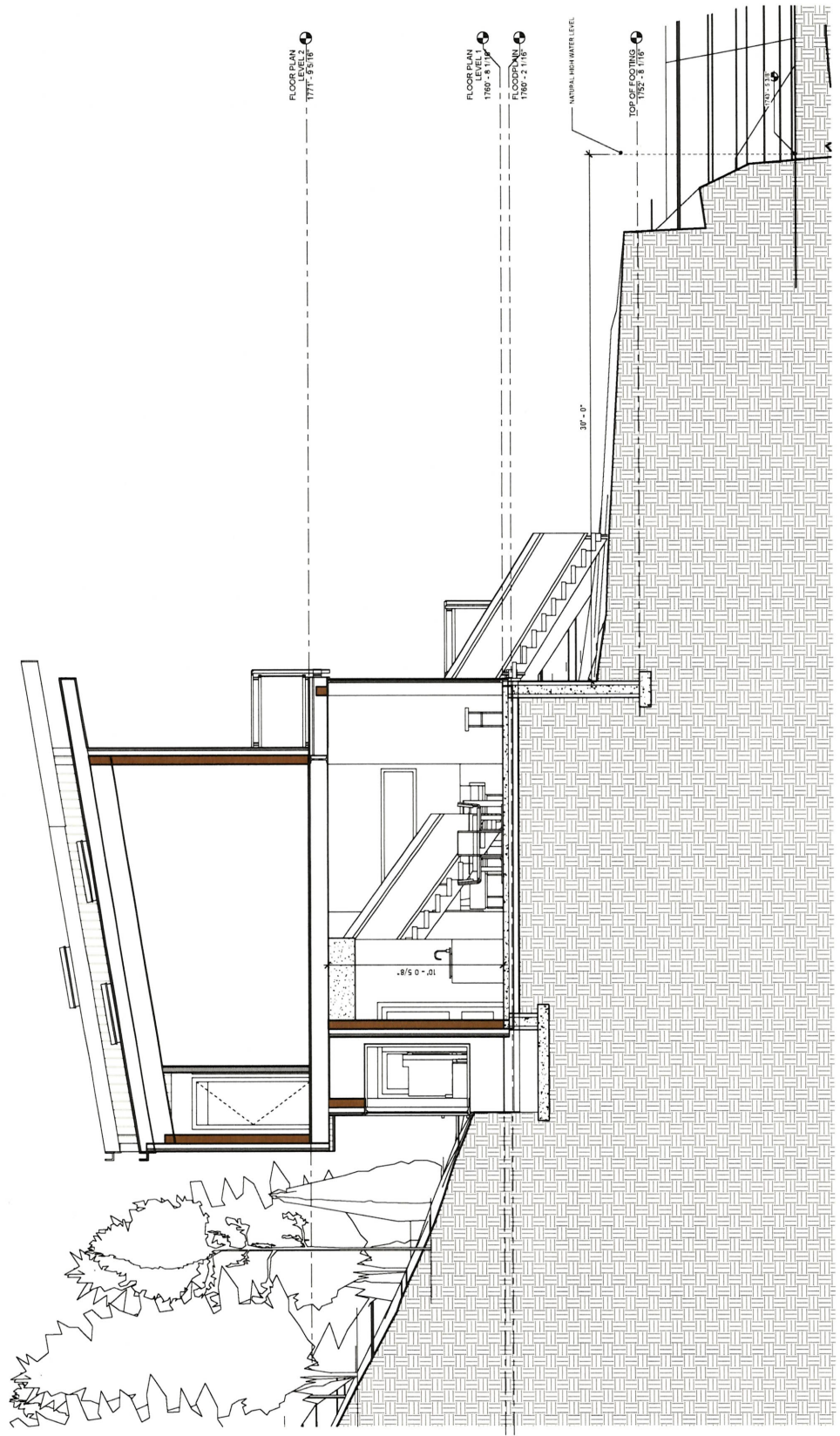


Photograph Two

Property North Boundary



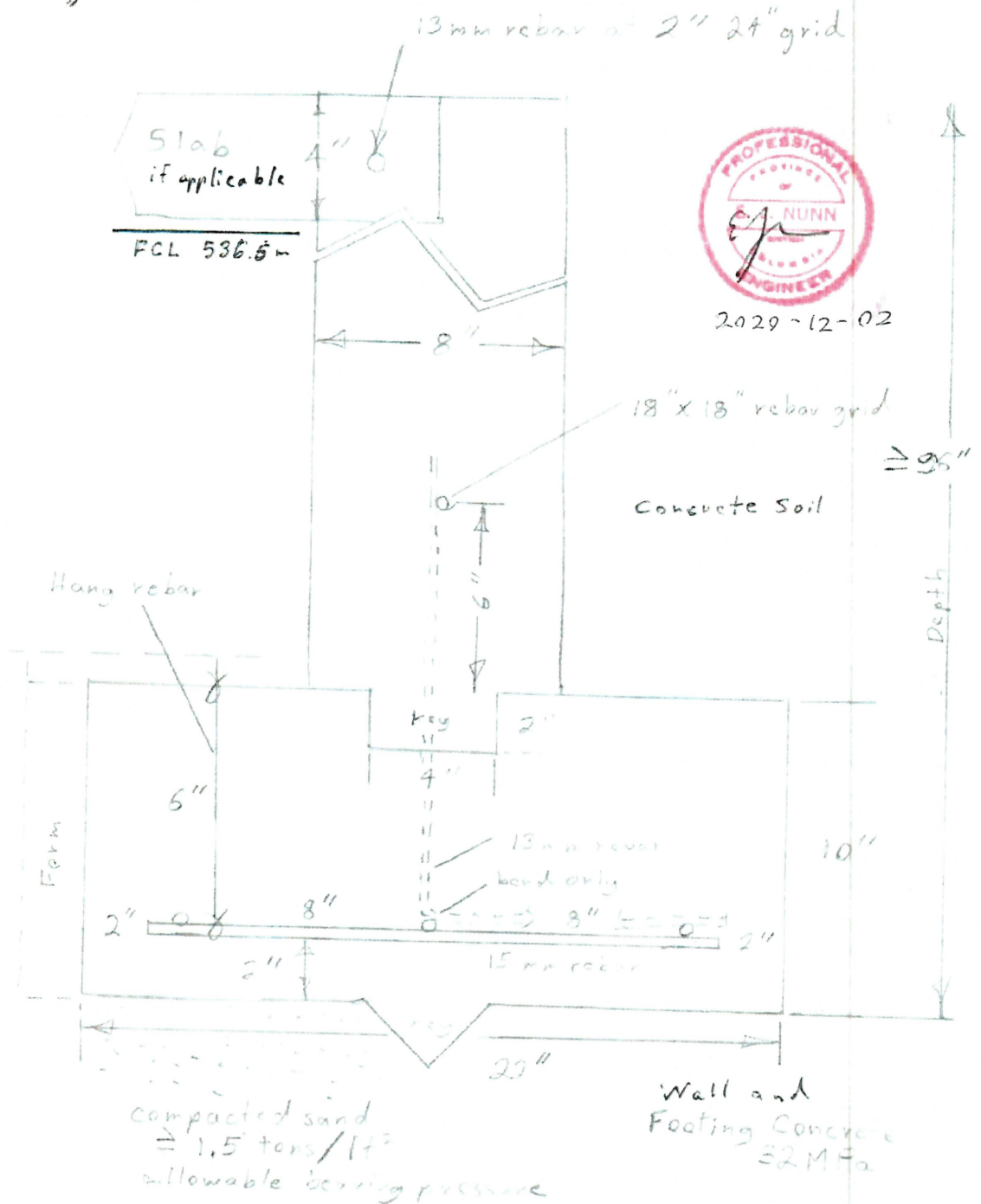
123 ROSSDALE STREET, VANCOUVER, BC
V6L 2G6
TEL: 604-271-1111
WWW.MOUNTAINCONSTRUCTION.COM



SECTION: GEOTECH
30'-0"

Sectional View - Residential Foundation for Hydrostatic Pressure

Diagram One





April 28, 2021

Dustin Lalik
North Mountain Construction Ltd.
523 Josephine St.
Nelson, BC V1L 1W5

RE: Archaeological Overview Assessment and Preliminary Field Reconnaissance of the 389 Park Avenue, Kootenay Lake Village Strata Lot 31, Procter, B.C.

This letter reports the findings of the Archaeological Overview Assessment (AOA) and Preliminary Field Reconnaissance (PFR) of 389 Park Avenue, Kootenay Lake Village Strata Lot 31 in Procter, B.C. (Figure 1). The AOA and PFR was requested by Dustin Lalik of North Mountain Construction Ltd., on behalf of the lot owners to satisfy conditions of permitting for the residential development of the lot. Fraser Bonner, BA of Ursus Heritage Consulting Ltd. (Ursus) conducted the PFR portion of the study on March 16, 2021.

The objectives of the AOA and PFR are to:

- Identify and evaluate any areas of archaeological potential within the subject lot that warrant detailed archaeological investigation;
- Provide recommendations regarding the need and appropriate scope of further archaeological studies.

Archaeological sites can be defined as physical evidence of past human use of an area that, in the subject region, is typically represented by artifacts, lithic debitage (by-products of stone tool production), faunal remains, fire altered rock, hearth/fire pit features, and habitation and subsistence features.

Lot Description

The subject lot at 389 Park Avenue, Kootenay Lake Village (PID 027-785-114, DL 873 Plan NES3286 Lot 31), is located along the western shoreline of the main body of Kootenay Lake south of the entrance to the West Arm of Kootenay Lake, approximately 2.25 km eastward of the village of Procter (Figure 1).

The lot and its foreshore shoreline have been previously modified and landscaped as part of the initial development and lot preparation by the developers of Kootenay Lake Village. A building site / landing area have been created, a rudimentary road and trail constructed to provides access to the lot, and underlying community septic service line installed. Along the foreshore geotextile and imported pea gravel have been laid to provide a beach-like area and more hospitable access to the lake. Observing the remaining portions of natural shoreline adjacent to the lot, prior to the landscaping the shoreline would have consisted of convoluted, rocky shoreline characterised by bedrock outcrop and talus boulders and cobble backed by steep east aspect talus slope. Photos 1 and 2 provide views of the subject lot.





Photo 1. View northeast of the lot showing the built access road previous landscaping work undertaken as part of the preparation of the Kootenay Lake Village strata lots. Note the large talus boulders and cobbles and the steep slope talus that backs the property.








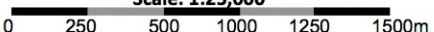


Photo 2. View southeast of the foreshore of the lot. Note the foreground where geotextile has been overlaid with imported pea gravel to improve access to the naturally rocky shoreline.





Figure 1. Kootenay Lake Village Strata Lot 31 AOA-PFR Location Map

	Mapped	16-03-21	F.B.	Legend:  Project Location  Previously Rec'd Arch Site  Previously Rec'd Historic Shipwreck  Highway - Highway Ferry	
	Site Visit	01-04-21	F.B.		
					
Base Map Source: Google Earth 2020		HIP # n/a Borden # n/a		Scale: 1:25,000 	



Previously Recorded Sites

A search of the BC Remote Access to Archaeological Data (RAAD) application revealed that no previously recorded archaeological sites are recorded within the subject lot. The closest previously recorded precontact archaeological site is DjQf-2 a large shoreline site located along the north shore of the entrance to the West Arm (Figure 1). The site extends from west of the Kootenay Lake ferry terminal at Balfour, eastward to the entrance of the West Arm and consists of surface and subsurface artifacts, as well as hearth features.

Historic shipwreck site DjQf-6 is located offshore, approximately 200 m north of the subject lot. This is the site of the CPR Railroad Barge *Procter*, which sank in 1902 with a load of six rail cars.

Proposed Development

The proposed residential development of Strata Lot 31 consists of the construction of a residence and landscaping of the surrounding yard.

AOA/PFR Methodology

The current AOA was conducted in accordance with the *British Columbia Archaeological Impact Assessment Guidelines* (Apland and Kenny 1998) issued by the Archaeology Branch at the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO). For the current project, the AOA involved:

- A review of pertinent regional archaeological, historical, ethnographic, geological, and biophysical literature;
- A review of the property's biophysical and topographic characteristics;
- An evaluation of the previous impacts to the natural landscape of the property; and
- An evaluation of archaeological site potential.

The archaeological site potential assessment process considers several criteria to establish potential ratings for a given landscape. This AOA employs a two-tiered rating system with either low or high potential values assigned based on topographical and biophysical characteristics coupled with the examination of several cultural and archaeological criteria.







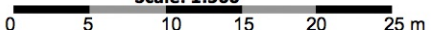
A correlation exists between particular biophysical characteristics and the incidence of archaeological sites. The presence of particular biophysical characteristics can be used to predict the likelihood of a location being used prehistorically. Generally, people gravitate toward areas with access to water, shelter, and food and raw material resources, seeking out locations that are relatively level, well-drained, with solar aspect, and provide a good vantage point. As such the biophysical characteristics that are considered are:

- Presence and nature of water features;
- Wildlife and fish values;
- Slope, aspect, and topography;
- Presence of bedrock exposures, karst, talus, or boulders suitable for rock art locations, caves, rock shelters, or lithic raw material sources; and
- Vegetation and forest cover composition and age.





Figure 2. Kootenay Lake Village Strata Lot 31 AOA-PFR Detailed Map

	Mapped	16-03-21	F.B.	Legend:  Lot Boundary  Road RoW  CPR Rail Line	
	Site Visit	01-04-21	F.B.		
		HIP # n/a Borden # n/a		Scale: 1:500 	
Base Map Source: Google Earth 2020					



Archaeologically it is important to not only examine these biophysical characteristics as they appear currently but to also consider the changes in these biophysical characteristics over time, from the Late Pleistocene through to the Holocene.

Further to the biophysical characteristics, a number of cultural and archaeological criteria are considered to further refine the archaeological site potential assessment included:

- Connection of study area to First Nations' traditional use localities, oral history, and/or known traditional place names;
- Proximity of study area to previously recorded archaeological sites;
- Prehistoric settlement and resource use of the region with a specific emphasis on the nature and characteristics of Kootenay Lake archaeological sites;
- Level and type of past historic land use and the resulting impacts; and
- The previous archaeological experience of the researcher.

PFR survey was conducted to supplement, ground truth and refine the potential evaluation as determined in the AOA, through a detailed in-field examination of the proposed project area. The field survey consisted of two archaeologists traversing the lot. Ground surfaces were intensively examined for the presence of artifacts, cultural materials, and other evidence of past human settlement and land use. The landscape was examined for archaeologically significant landforms such as beaches, level benches, terraces and/or promontories. Landforms, vegetation, aspect, and sources of potable water were noted in the field; natural and manmade disturbance was examined and evaluated.

Results

No archaeological remains were identified during the PFR of the subject lot and the archaeological potential of the location is low. This potential rating is based on the natural terrain of the lot prior to lot preparation, which consisted of convoluted, rocky shoreline terrain backed by steep talus slope. Additionally, there was an absence of archaeologically significant landforms such as level well-drained benches, terraces, and/or promontories within the lot.

Recommendations

The subject lot is assessed with low potential for the presence of archaeological sites. Based on these results, no further archaeological work is warranted for Kootenay Lake Village Strata Lot 31.

The AOA and PFR are concerned with identification of archaeological potential and archaeological within the subject property. It does not address potential for traditional use sites within the subject property. It is not the intent of this report to document First Nations' interest in the land. The study was conducted without prejudice to First Nations' treaty negotiations, Aboriginal rights, or Aboriginal title.

Users of this report should be aware that even the most thorough investigation may fail to reveal all archaeological remains, including sites protected by the BC *Heritage Conservation Act*, that exist in an area. All users of this report should also be aware that: (1) archaeological remains in BC are protected from disturbance, intentional or inadvertent, by the *Heritage Conservation Act*; (2) in the event that archaeological remains are encountered, all ground disturbance in the immediate vicinity must be suspended at once; (3) it is the individual's responsibility to inform the Archaeology Branch, and appropriate First Nations as soon as possible, about the location of the archaeological remains and the nature of the disturbance; and (4) the *Heritage Conservation Act* may incur heavy fines and imprisonment for failing to comply with these requirements.



The project area is assessed as having low potential for the presence of archaeological sites and it is the authors' opinion that no further archaeological work is warranted for the project area. For more information on this review of archaeological potential, please contact Ursus Heritage Consulting Ltd.

With respect,



Fraser Bonner, BA
Archaeologist / Project Manager
Ursus Heritage Consulting Ltd.

