Floodplain Exemption Application

Referral Form – RDCK File F2401E

Date: January 24, 2024

You are requested to comment on the attached FLOODPLAIN EXEMPTION for potential effect on your agency's interests. We would appreciate your response WITHIN 30 DAYS (PRIOR TO February 22, 2024). 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 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.

The owners seek to develop a main residence and *"sleeping cabin"* on the site. This application seeks to reduce the floodplain setback from Kootenay Lake from 15 metres to 8.86 metres under the *RDCK's Floodplain Management Bylaw No. 2080, 2009* to allow for the construction of the main residence. The geotechnical report recommends a flood construction level (FCL) of 536.86 G.S.C. that would exceed the Bylaw requirement of 536.5 G.S.C.

Should the exemption be approved issuance of a Watercourse Development Permit would be required for all development activities within Kootenay Lake's riparian area.

AREA OF PROPERTY AFFECTED	ALR STATUS	ZONING	OCP
Approximately 66 m^2	N/A	N/A	Suburban Residential (RS)

APPLICANT: Holly Pruett

OTHER INFORMATION: ADVISORY PLANNING AND HERITAGE COMMISSION PLEASE NOTE:
If your Advisory Planning and Heritage 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.

Stephanie Johnson, PLANNER
REGIONAL DISTRICT OF CENTRAL KOOTENAY

☒ MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE	REGIONAL DISTRICT OF CENTRAL KOOTENAY DIRECTORS FOR:

Nelson Office: Box 590, 202 Lakeside Drive, Nelson, BC. V1L 5R4
Phone: 250.352.6665 | Toll Free: 1.800.268.7325 (BC) | Email: info@rdck.ca | Fax: 250.352.9300

☒ HABITAT BRANCH (Environment) ☒ FRONTCOUNTER BC (MFLNRORD) ☐ AGRICULTURAL LAND COMMISSION ☐ REGIONAL AGROLOGIST ☒ ARCHAEOLOGY BRANCH ☐ MUNICIPAL AFFAIRS & HOUSING ☒ INTERIOR HEALTH, HBE TEAM ☐ 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 ☒ APHC AREA E ☐ RDCK FIRE SERVICES ☒ RDCK EMERGENCY SERVICES ☒ RDCK BUILDING SERVICES ☐ RDCK UTILITY SERVICES ☐ RDCK RESOURCE RECOVERY ☐ RDCK REGIONAL PARKS INSERT COMMENTS ON REVERSE . . .

Nelson Office: Box 590, 202 Lakeside Drive, Nelson, BC. V1L 5R4
Phone: 250.352.6665 | Toll Free: 1.800.268.7325 (BC) | Email: info@rdck.ca | Fax: 250.352.9300

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.

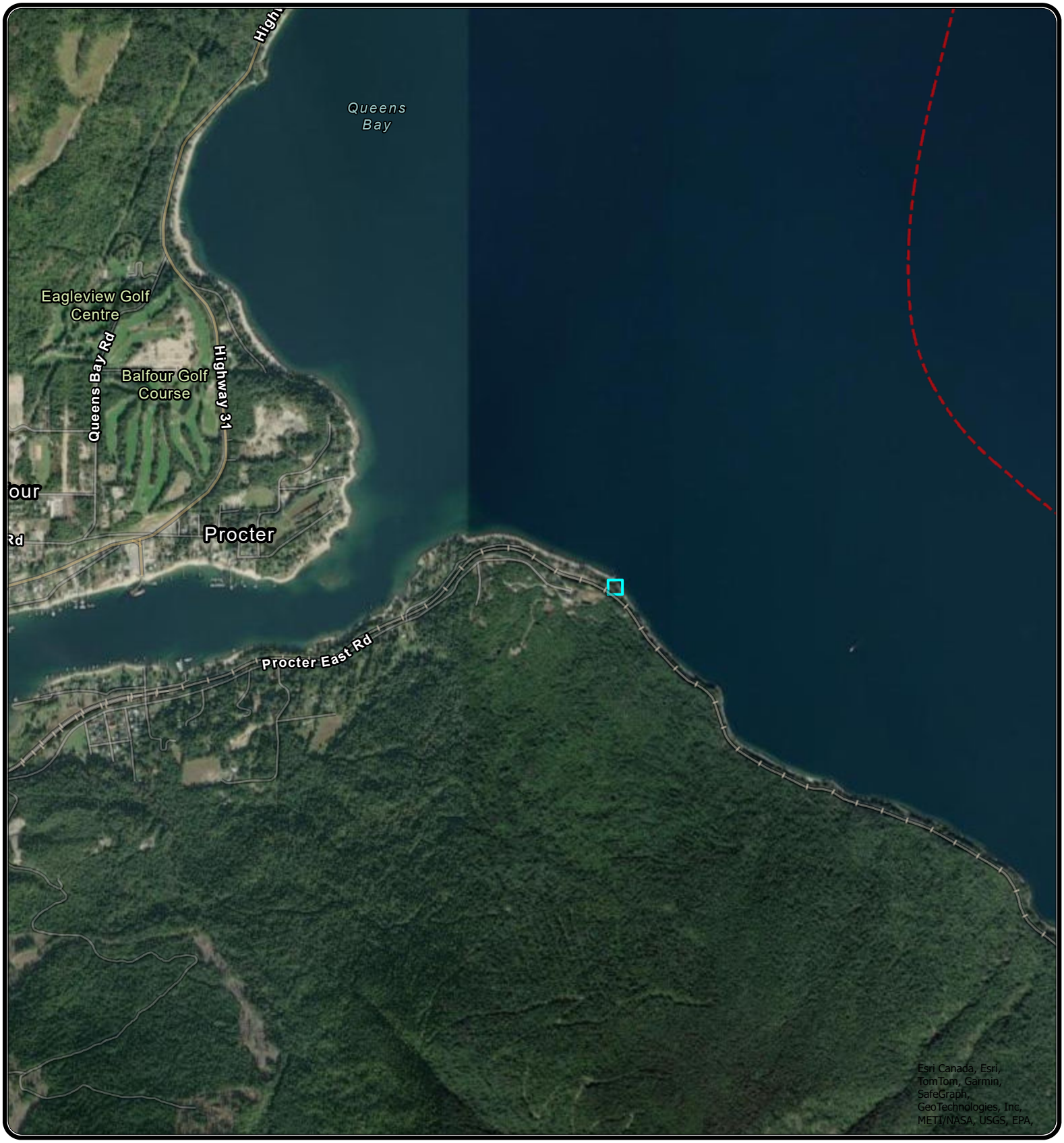
RESPONSE SUMMARY
FILE: F2401E APPLICANT: PRUETT

Name: **Date:**

Agency: **Title:**

RETURN TO: **STEPHANIE JOHNSON**, PLANNER
DEVELOPMENT AND COMMUNITY SUSTAINABILITY SERVICES
REGIONAL DISTRICT OF CENTRAL KOOTENAY
BOX 590, 202 LAKESIDE DRIVE
NELSON, BC V1L 5R4
Ph. 250-352-8175
Email: plandept@rdck.bc.ca

RDCK Map



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

Map Scale:

1:36,112

Date: January 5, 2024

RDCK Map

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

20 Meter Contours

- 20 meter
- Lakes and Rivers

Legend

- Streams and Shorelines
- Electoral Areas
- RDCK Streets
- Cadastre
- Address Points

Map Scale:

1:2,257

Date: January 5, 2024

RDCK Map

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

- Flood Construction Levels - 1990
- Electoral Areas
- RDCK Streets
- Cadastre
- Address Points

Map Scale:

1:2,257

Date: January 5, 2024

RDCK Map

REGIONAL DISTRICT OF CENTRAL KOOTENAY
Box 590, 202 Lakeside Drive,
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maps@rdck.bc.ca

Development Permit Areas

- Industrial and Commercial
- Residential Cluster

Legend

- Watercourse
- Electoral Areas
- RDCK Streets
- Cadastre
- Address Points

Map Scale:

1:2,257

Date: January 5, 2024

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 ommissions on this map.

RDCK Map

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

Official Community Plan

- Industrial
- Resource Area

Legend

- Suburban Residential
- Electoral Areas
- RDCK Streets
- Cadastre
- Address Points

Map Scale:

1:2,257

N W E S

Date: January 5, 2024

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,

I am writing to submit a development permit application on behalf of the Pruett family and to kindly request your reconsideration on the relaxation of the riparian setback for 389 Park Avenue. Proctor, BC from 15m to 8.86m. The attached proposal relates to the following bylaws:

1) Application for a Site Specific Exemption to the Floodplain Management Bylaw, No. 2080, Section 7.2.

2) Application for a Watercourse Development Permit pursuant to Electoral Area 'E' Official Community Plan Bylaw No. 2260, Section 18.0.

The Lot 31 has significant challenges for development including its proximity to the lake, geography, and access. Due to the challenging topography of the site, characterized by steep rocky slopes supporting mature forest vegetation beyond the 15-meter setback, and the limited width of the lot on its southern half, the preferred location for constructing the main house has been identified within the area previously designated and disturbed for development.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.

The building site was originally developed prior to the current floodplain and OCP bylaws, when the designated floodplain setback was 7.5 m from the natural boundary of Kootenay Lake, and as such much of the current riparian zone was disturbed.

The building site chosen has been selected with extensive consultation of both Environmental and Geotechnical professionals. As per the Masse report, from an ecological standpoint, the development when located as proposed, will result in the removal of less riparian vegetation compared to a scenario where the development is entirely situated beyond the 15-meter setback.

We have taken great care in reviewing all feedback gathered from our previous application, and have spent significant time and effort redesigning the Pruett family home to better align with the constraints of the site. This includes but is not limited to:

- Reduction in the total square footage from 2,600 SF to 1,490 SF.

- Reduction of the house footprint within the 15 m WDP area.

- Continued consultation with Masse environmental to limit and rectify any environmental impacts.

- Elevated structures on piles to minimize impacts to natural lake flow movement during flood events, minimize ground disturbance, preservation of small mammal movements and facilitation of plant growth under the front deck structures.

- Increase the Recommended Site Specific Flood Construction Level Elevation (m) G.S.C. to 536.86m (Previously 536.5m)

- The smaller footprint will also minimize mature tree removal with the SPEA by proposing development mostly within existing disturbed areas and/or areas that are rocky with minimal trees.

Please note we also had a legal survey of the site undertaken by Darrin B.C. Connatty B.C.L.S. A.L.S. P.Eng. This was to establish the current Natural Boundary of Kootenay Lake, the plan has been attached and updated in all relevant reports.

Since our last submission, our team has worked diligently to address the concerns set forth by the Advisory planning commission, and we believe our new design balances the best interest of all parties involved on this challenging site.

Moreover, we have sought additional expert advice to ensure that our renewed proposal aligns with the vision and regulations outlined by the RDCK. We have enlisted the help of the following consultants to aid in the redesign of this home:

Builder- Stu Grierson. SG Built.

Geotechnical Engineer- Addison Reist. VAST Resource Solutions.

Environmental Consultant- Fiona Lau. Masse Environmental.

We firmly believe that these adjustments have substantially improved our plan and addressed the previous deficiencies. We sincerely hope that you will consider our revised proposal favourably, taking into account the efforts we have made to rectify past issues.

Thank you for your time and consideration. Should you require any further information or clarification, please feel free to contact me at any time.

Sincerely,

DUSTIN LALIK
250. 509. 4129
dustinlalik@gmail.com

ZONING

DISTRICT:	RDCK (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:	N/A
FIRE DEPARTMENT:	HARROP PROCTER

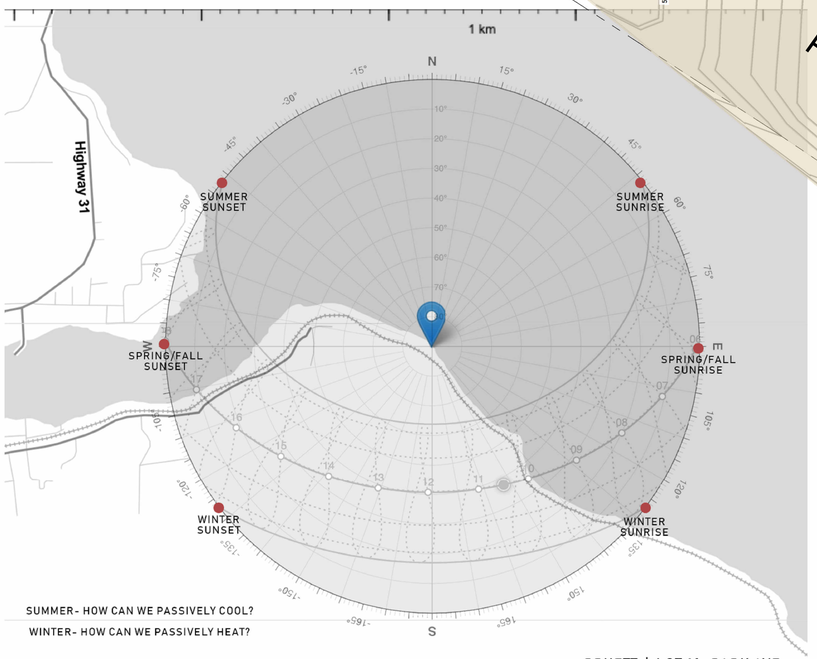
BUILDING CODE

BUILDING CODE: DIVISION B, PART 9

BUILDING INFORMATION

BUILDING CODE:	DIVISION B, PART 9
BUILDING AREA:	1536 SF (NO PARCEL COVERAGE RESTRICTION)
WATER:	CITY OF PROCTER WATER
SEWER:	STRATA SEPTIC
HVAC:	RADIANT IN FLOOR HEAT, ERV, MINI SPLIT A/C, FIREPALCE.

SITE CONTEXT



SUMMER- HOW CAN WE PASSIVELY COOL?

WINTER- HOW CAN WE PASSIVELY HEAT?

PRUETT | LOT 31- PARK AVE

LOT 30

LOT 31

LOT 32

536.5M FLOOPLAIN CONSTRUCTION LEVEL

NATURAL BOUNDARY

PT#1

15m SETBACK FROM NATURAL BOUNDARY

15M SETBACK STAKE
1762' - 3 5/16"
537.14

15M SETBACK STAKE
1761' - 11"
537.03

49' - 2 9/16"
15.00M

PLAN TO KEEP THESE TREES

DECK ON PIERS

DECK TO CANTILEVER BEYOND THIS LINE

ALTERNATIVE FOOTPRINT

STORAGE (SHED ROOF)

STEEL PROPERTY PIN
1786' - 5 1/16"
544.50

PT# 240

PT# 239

PT# 4

CURB STOP

PARKING PAD

PARK AVENUE

707.5 SF (BUILDING INSIDE 15M SETBACK)

CANTILEVER DECK

DECK ON PIERS

DECK TO CANTILEVER BEYOND THIS POST

KOOTENAY LAKE

ROCK STEP

PEBBLE BEACH

PT# 42

STEEL PROPERTY PIN
1754' - 7 5/8"
534.81

PT# 58

APPROX. 10M NATURAL BOUNDARY SETBACK

STEEL PROPERTY PIN
1761' - 8 1/2"
536.97

PT# 57

536.5M FLOOPLAIN CONSTRUCTION LEVEL

WATER VALVE

FIRE HYDRANT

STORM WATER

MH

1 SITE PLAN layout
1/8" = 1'-0"

PRUETT RESIDENCE | 389 PARK AVENUE. PROCTER, BC.

2021-03-05

A0.2

SITE PLAN

Revision Schedule

No.	Description	Date

KOOTENAY LAKE

TITLED BOUNDARY BY PLAN NES3286

STRATA LOT 30
STRATA PLAN NES3286

D. L. 8 7 3

COMMON PROPERTY ACCESS ROUTE

CANADIAN PACIFIC RAILWAY
R/W PLAN 1760

STRATA LOT 31

STRATA LOT 32
STRATA PLAN NES3286

GCM 816652
MARKED 86H1956

GCM 816652 MARKED 86H1956
DATUM: NAD 83 (CSRS) 4.0.0.BC.1
UTM ZONE 11 COORDINATES
UTM NORTHING: 5496813.102m
UTM EASTING: 505122.562m
POINT COMBINED SCALE FACTOR: 0.9995189
PUBLISHED POSITIONAL ACCURACY 0.363m

TOPOGRAPHIC PLAN OF
STRATA LOT 31 DISTRICT LOT 873
KOOTENAY DISTRICT STRATA PLAN NES3286

B.C.G.S. 82F.066

0 20 40 60 80 100 150 200

SCALE = 1 : 200

The intended plot size is 864mm in width
and 560mm in height (D size at a scale of 1:200)

LEGEND

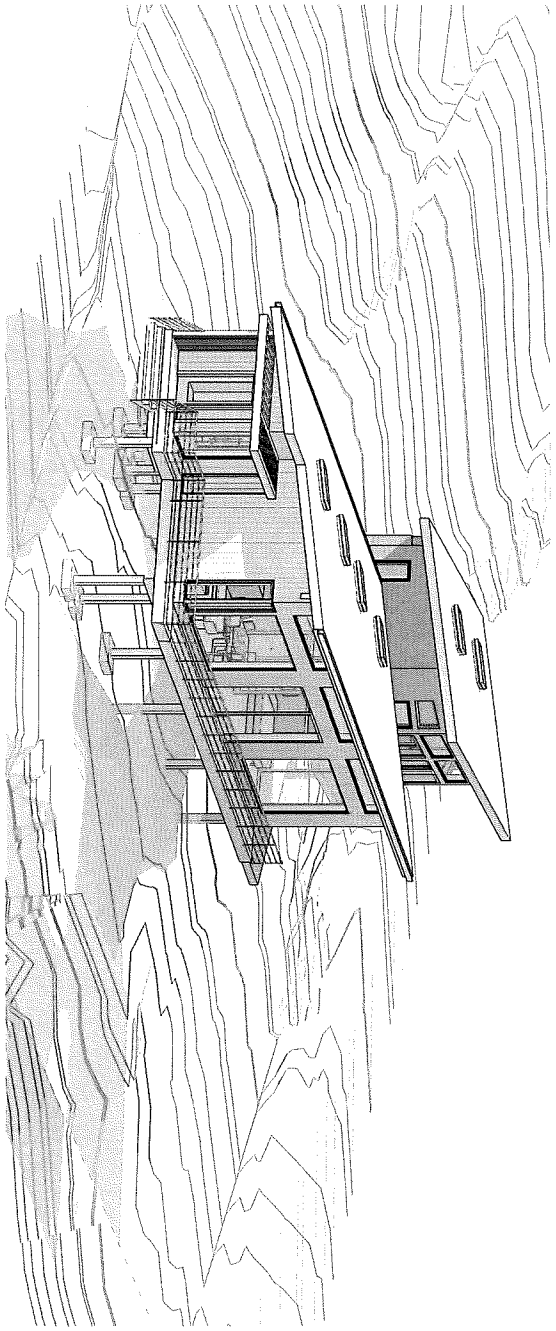
Grid bearings are derived from differential dual frequency GNSS observations and are referred to the central meridian UTM Zone 11.
The UTM coordinates and estimated absolute accuracy achieved are derived from dual frequency GNSS observations to Geodetic Control Monument 86H1956.
This plan shows horizontal ground level distances, unless otherwise specified. To compute grid distances, multiply ground level distances by the average Combined Scale Factor 0.9995189.
The average Combined Scale Factor has been determined based on an ellipsoidal elevation of 520m at GCM 86H1956

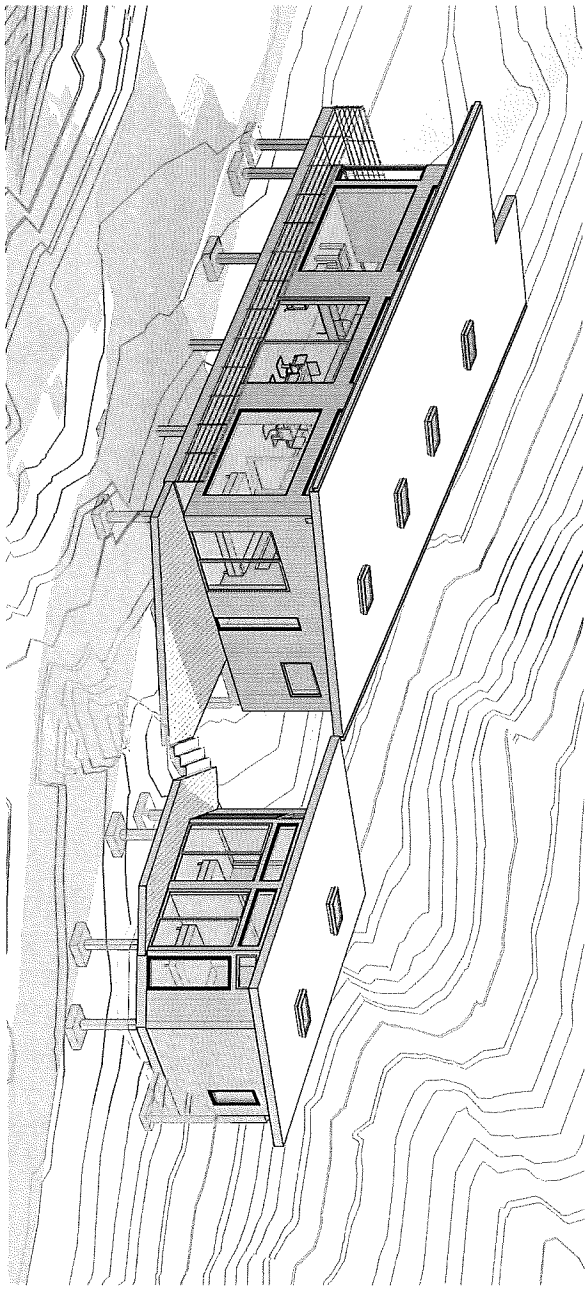
- Denotes Geodetic Control Monument found in place
- Denotes iron post found
- Mp. Denotes metal marker post
- △ Denotes traverse hub placed

This plan lies within the Regional District of Kootenay Boundary

THE FIELD SURVEY REPRESENTED BY THIS PLAN WAS COMPLETED ON THE 20TH DAY OF OCTOBER, 2021.
DARRIN B.C. CONNATTY, B.C.L.S. 737

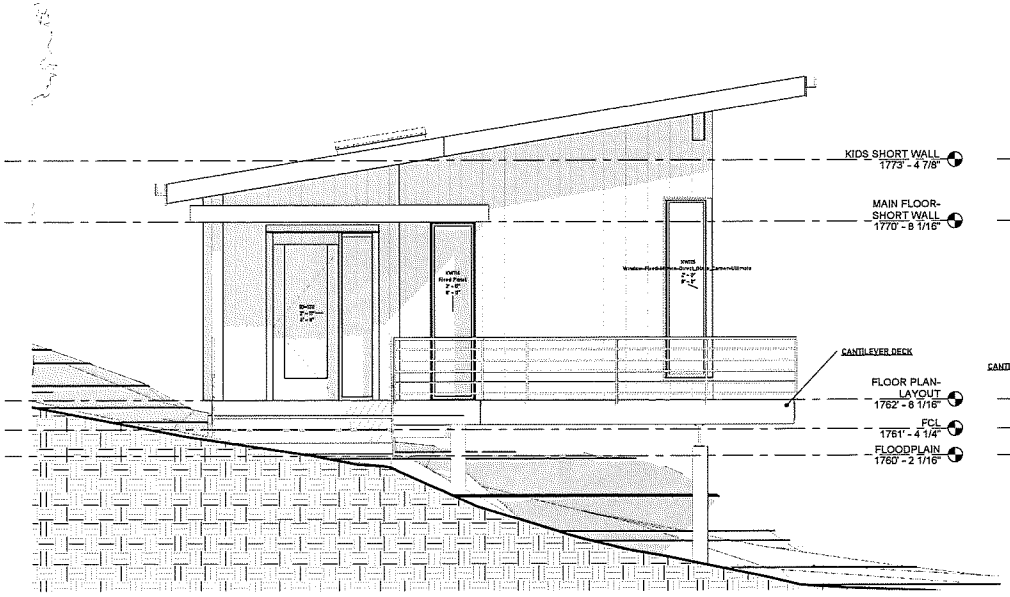
FILE # 2136 DARRIN B.C. CONNATTY, B.C.L.S. 4316 FORTYNINE CREEK ROAD NELSON B.C.



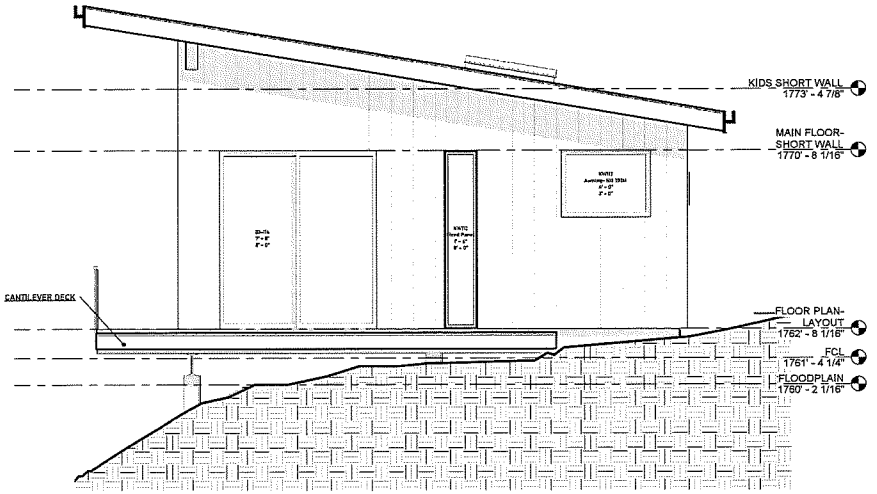


PRUETT RESIDENCE | 389 PARK AVENUE. PROCTER, BC.

3D VIEWS | A0.4 | 2021-03-05



1 MAIN EAST1
3/8" = 1'-0"



2 MAIN WEST1
3/8" = 1'-0"

PRUETT RESIDENCE | 389 PARK AVENUE, PROCTER, BC.

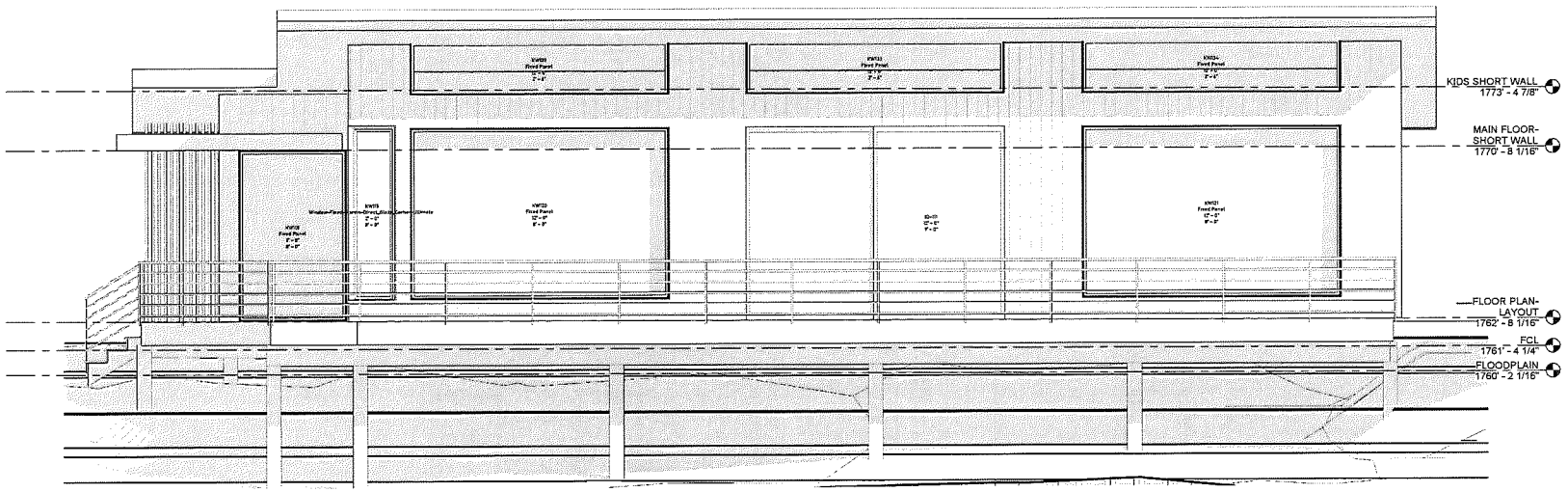
ELEVATIONS- MAIN WING

A6.0

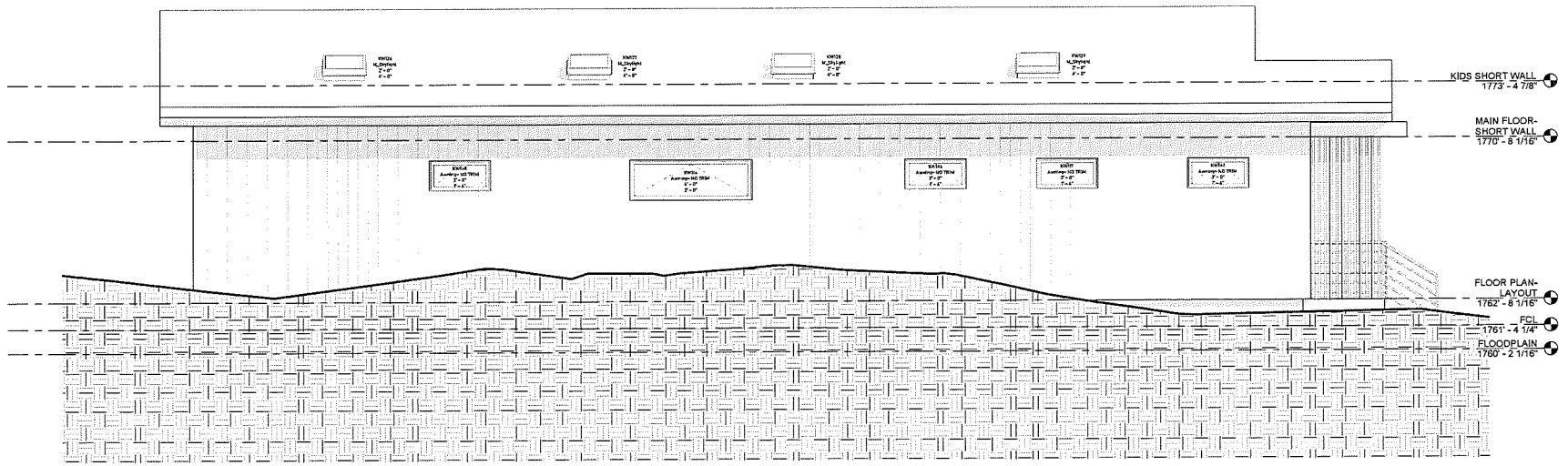
2021-10-05

Revision Schedule

No.	Description	Date



1 MAIN NORTH1
3/8" = 1'-0"



2 MAIN SOUTH1
3/8" = 1'-0"

MOUNTAIN CONSTRUCTION
1228 Hospital Street Nelson, BC, V1L 4K3

Division Schedule

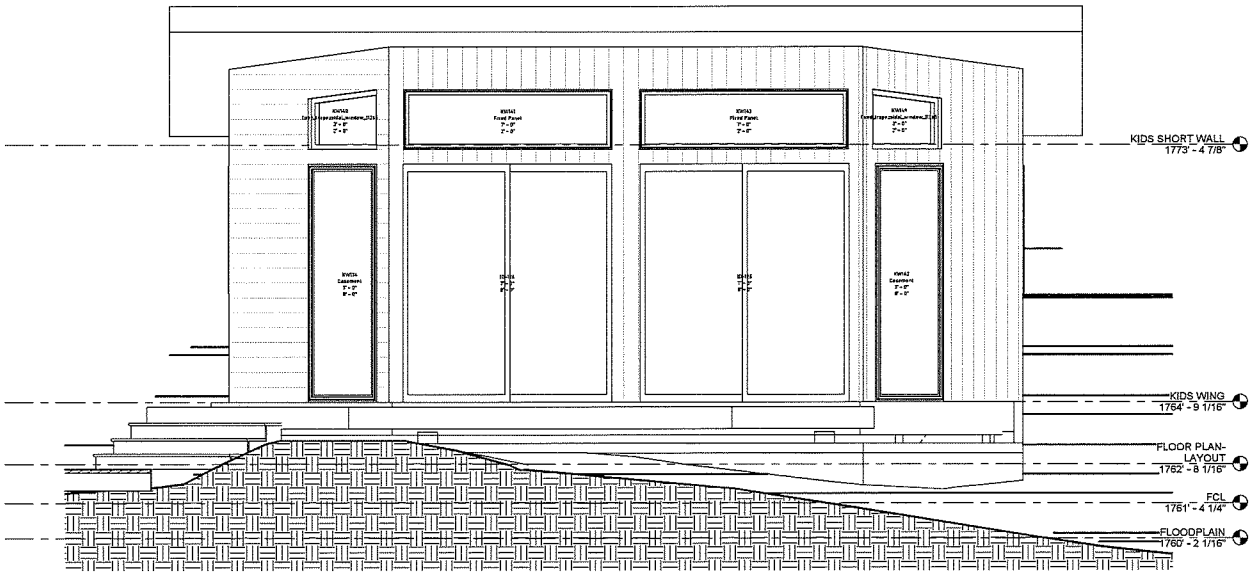
No.	Description	Date

PRUETT RESIDENCE | 389 PARK AVENUE, PROCTER, BC.

ELEVATIONS- MAIN WING

Date: 2021-03-05
Drawn by: Author
Checked by: Checker
Plot Date: 2023-12-29 9:06:53 AM

A6.1



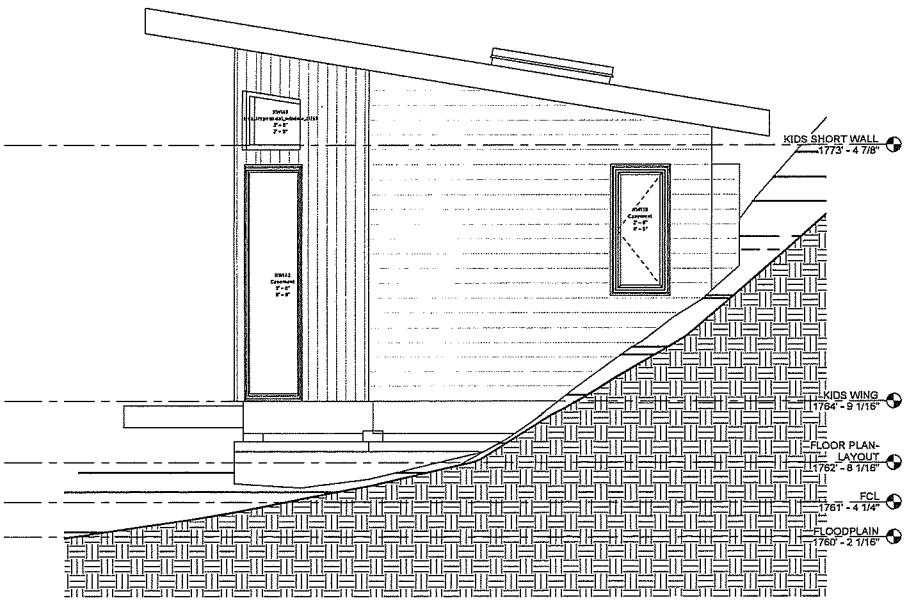
1 KIDS NORTH
1/2" = 1'-0"

PRUETT RESIDENCE | 389 PARK AVENUE, PROCTER, BC.

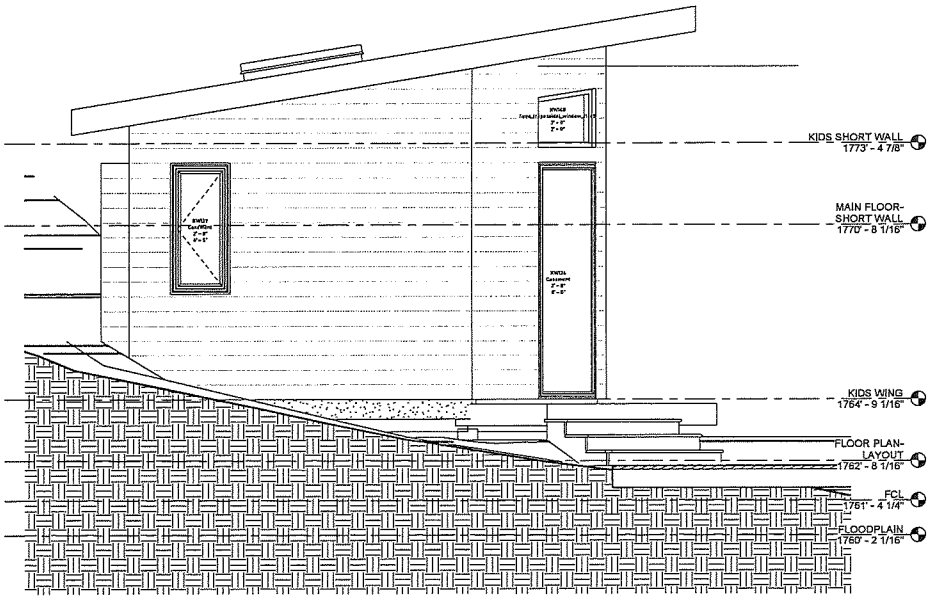
ELEVATIONS - KIDS WING | A6.2 | 2021-10-05

Revision Schedule

No.	Description	Date



① KIDS WEST
1/2" = 1'-0"



② KIDS EAST
1/2" = 1'-0"

PRUETT RESIDENCE | 389 PARK AVENUE, PROCTER, BC.

ELEVATIONS- KIDS WING | A6.3 | 2021-03-05

Revision Schedule

No	Description	Date

Ursus Heritage Consulting

11500 Coldstream Creek Road, Coldstream, BC, V1B 1E3 T: 250-938-4662 F: 250-542-0988 ian@ursus-heritage.ca
www.ursus-heritage.ca

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.
Site Visit	01-04-21	F.B.

Ursus Heritage Consulting Ltd

Legend:
- Project Location
- Previously Rec'd Arch Site
- Previously Rec'd Historic Shipwreck
- Highway - Highway Ferry

Study Area

Base Map Source: Google Earth 2020

HIP # n/a
Borden # n/a

Scale: 1:25,000
0 250 500 1000 1250 1500m

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.
Site Visit	01-04-21	F.B.

Legend:
- Lot Boundary
- Road RoW
- CPR Rail Line

Base Map Source: Google Earth 2020

HIP # n/a
Borden # n/a

Scale: 1:500
0 5 10 15 20 25 m

Study Area

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.

VAST RESOURCE SOLUTIONS

Flood Hazard Assessment
Pruett
389 Park Avenue
Revision 1

Procter, BC

Prepared For:

Ms. Holly Pruett
423 Lyon Street
San Francisco, California
914117

Prepared By:

VAST Resource Solutions Inc.
304 Industrial Road G
Cranbrook, BC
V1C 7J4

December, 2023

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December 18, 2023

VAST File: 22.0221.00

Ms. Holly Pruett
423 Lyon Street
San Francisco, California

Re: Site Specific Exemption from Floodplain Bylaw Report (Revision 1) – 389 Park Avenue, Procter BC

Dear Ms. Pruett,

This report presents the findings of a Flood Hazard Assessment (Revision 1) completed at 389 Park Avenue, within the Community of Procter, BC (The Subject Property), as it relates to two (2) proposed new residential structures.

This report was commissioned by the property owner to support a site-specific exemption application to the Regional District of Central Kootenay (RDCK) to allow residential construction within the 15 metre (m) floodplain setback as a requirement of Bylaw No. 2080, 2009. This report comprises an assessment of the natural hazards imposed by Kootenay Lake on the Subject Property and evaluates the suitability of constructing residential dwelling structures within the defined set back area.

The objectives of this assessment include:

- Complete a field assessment of the area within and adjacent to The Subject Property and assess the existing site conditions;
- Evaluate the natural Hazards (flooding, wave action, erosion) imposed by Kootenay Lake within The Subject Property and assess the suitability of the proposed building site based on current engineering practices;
- Prepare a Flood Hazard Assessment Report and provide recommendations based on the assessment, and;
- Complete a Flood Hazard Assessment Assurance statement.

VAST Resource Solutions Inc. (VAST) was retained to conduct this assessment at the owner's expense. VAST has not acted for or as an agent of the Regional District of Central Kootenay (RDCK) or any local government in the preparation of this report.

1.0 STUDY AREA

The Subject Property and proposed residential dwelling structures are located in the Regional District of Central Kootenay, in the community of Procter, BC (Appendix A). The site is accessed via Procter Road East and Park Avenue.

2.0 REFERENCES

In this report, reference is made to soil and geological maps, aerial images viewed from GoogleEarth, Basic Coastal Engineering by Robert Sorenson, the Canadian Foundation Engineering Manual (CFEM). Meteorological data collected by the BC Ministry of Transportation and Infrastructure was obtained from the Pacific Climate Impacts Consortium website.

Reference was made to the Local Government Act Section 524, the RDCK Floodplain Management Bylaw 2080, 2009 for the Regulatory basis and Building Bylaw requirements.

This report follows the Guidelines for Legislated Flood Assessments in a Changing Climate in BC (Version 2.1, August 28, 2018) as developed by the Engineers and Geoscientists of British Columbia (now EGBC).

A list of references follows the Signature page.

3.0 REGULATORY BASIS AND BYLAW REQUIREMENTS

3.1.1 Local Government Act Section 524

The Local Government Act Section 524, subsections (7) and (8) provide the regulatory basis for a site specific floodplain exception:

(7) Subject to the Provincial regulations and a plan or program a local government has developed under those regulations, the local government may exempt a person from the application of subsection (6), or a bylaw under subsection (3), in relation to a specific parcel of land or a use, building or other structure on the parcel of land, 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, which report is certified by a person who is:
>
> > (i) a person in a class prescribed by the environment minister under subsection (9).

(8) The granting of an exemption, and the exemption, under subsection (7) may be made subject to the terms and conditions the local government considers necessary or advisable, including, without limitation,

> (a) imposing any term or condition contemplated by the Provincial guidelines in relation to an exemption,
>
> (b) requiring that a person submit a report described in subsection (7) (b), and
>
> (c) requiring that a person enter into a covenant under section 219 of the Land Title Act.

3.1.2 RDCK Bylaw 2080, 2009, Section 11, Site Specific Exemptions

This report is prepared in accordance to the requirements of The RDCK Floodplain Management Bylaw 2080, 2009, Section 11, Site Specific Exemptions, pursuant to Section 910 of the Local Government Act. Requirements in this section are as follows:

- 11.1 An application by a property owner to the Regional District for a site specific exemption of Floodplain Specifications shall be completed in the form provided by the Regional District and submitted in accordance with the instructions on the application. This provision is not a substitute for any requirements under Section 56 of the Community Charter.
- 11.2 As a condition of a site specific exemption, the property owner will be required at his/her own expense to commission a Professional Engineer's Report that addresses exemption

precedents in the surrounding area and provide a summary report containing a description of the proposed development, and recommendations for conditions, as applicable.

- 11.3 As a condition of a site specific exemption, the property owner will be required at his/her expense to prepare and register a restrictive covenant under Section 219 of the Land Title Act and Section 56 of the Community Charter in favor of the Regional District specifying conditions that would enable the land to be safely used for the use intended according to the terms of the Professional Engineer's report which will form part of the restrictive covenant

3.1.3 RDCK Bylaw 2080, 2009, Section 7.1 and 7.2, Floodplain Specifications

The RDCK Floodplain Management Bylaw 2080, Section 7.1, Flood Construction Levels, Sub-Section b, states that for development adjacent to Kootenay Lake the Flood Construction Level / top of the foundation elevation shall be at a minimum elevation of 536.5 metres G.S.C. The floodplain setback is defined in Section 7.2, Sub-Section k, which states that the minimum setback for all lakes and small watercourses not specifically named in this section, including Kootenay Lake shall be 15 metres from the natural boundary.

3.1.4 RDCK Bylaw 2080, 2009, Section 8.6, Floodplain Regulations

The development proposes foundation construction to be below the Kootenay Lake flood construction level of 536.5 m G.S.C.; therefore, Section 8.6 of the RDCK Floodplain Management Bylaw 2080, 2009, applies:

- 8.6 When a building permit is applied for with frontage on Kootenay Lake, the Building Official shall request a structurally engineered foundation or geotechnical report if any part of a footing up to and including the level of a slab, or portion of the foundation is intended by its design to be submersible or subject to water fluctuation below 536.5 metres or wave action. A covenant shall be placed on Title noting such structure may be subject to damage by water.

4.0 FIELD ASSESSMENT

The field assessment was conducted by examination of areas of interest within and adjacent to The Subject Property under snow free conditions. The assessment was completed on September 6th, 2022 by Mr. Shawn Bendig, P.Eng., of VAST Resource Solutions Inc. (VAST).

The assessment comprised field traversing the area within and adjacent to The Subject Property including the shoreline of Kootenay Lake and a visual examination of the surface conditions. No subsurface exploration (i.e. test pits, boreholes) was completed as part of the assessment.

5.0 SITE DESCRIPTION

5.1 Setting and Topography

The Subject Property is located at the shoreline on the west side of Kootenay Lake approximately 600 m south of the entrance to the West Arm of Kootenay Lake, as shown on the project location map in appendix A.

The Subject Property is bound by Park Avenue on the south west side, Kootenay Lake on the east side, and residential properties and dwellings are present in all other directions. A Canadian Pacific (CP) railway line is situated on the west side of Park Avenue, approximately 30 m from The Subject Property.

The Subject Property is within a toe slope position with a north east aspect. Ground slopes at the building site have a concave profile descending to Kootenay Lake ranging, from as steep as 90% gradient on the

western side of the property and to 10-15% on the eastern side. Steep rocky slopes and outcrops present above the building sites are steeper than 90% gradient.

The ground surface elevation at the proposed building sites is approximately 536 m.

5.2 Bedrock Geology and Surficial Soils

It is anticipated that bedrock will be encountered during construction of the proposed residence. Geological mapping in the area was consistent with field observations and comprises sedimentary rocks of the Index formation within the Lardeau group. Anticipated rock types include siltstone, mudstone, shale, and fine clastic sedimentary rocks.

Surficial soil observed during the field assessment comprises a veneer (<1.0 m deep) of topsoil and colluvium (cobbles, boulders) generated from the outcrops on site.

The bedrock outcrops located on the shoreline are stable and resistant to scour and erosion processes.

5.3 Geomorphic Processes

Active geomorphic processes observed within and adjacent to the study area comprise relatively slow in-situ weathering of soil and bedrock including wave erosion and sedimentation caused by Kootenay Lake.

5.4 Shoreline Composition

The shoreline of Kootenay lake at the Subject Property comprises steeply placed block shaped landscaping rock (boulders) and natural bedrock outcrops with a small (approximately 6 m x 8 m) gravel deposit (pebble beach) that exists in between the other features. The landscaping rock is inferred to have been installed during the original development of the subdivision. The gravel on the pebble beach is of unknown origin.

5.5 Proposed Building and Foundation Locations and Elevations

The main house foundation is proposed to be constructed approximately 8.86 m horizontal distance from the natural boundary of Kootenay Lake at its closest point. The second structure, the sleeping cabin, is proposed to be 15.68 m from the natural boundary at its closest point. The locations were selected to avoid the steep terrain and rock outcrops on the west side of the lot.

Building foundations are proposed to be founded on the shallow underlying bedrock that is resistant to shoreline erosion.

The location of the proposed residential foundation for the main house is within the 15 metre floodplain setback of Kootenay Lake, and both foundations (i.e. the main house, and the sleeping cabin) are below the flood construction level (FCL) of 536.5 m G.S.C. as defined within the RDCK Floodplain Management Bylaw 2080.

The flood construction level requirement can otherwise be achieved by constructing the building with habitable levels and mechanical / electrical and related services that could be damaged by floodwaters higher than the FCL, and as recommended in this report.

6.0 SHORELINE CONSIDERATIONS – KOOTENAY LAKE

6.1 Kootenay Lake - General

Kootenay Lake is located between the Selkirk and Purcell Mountain Ranges in the Kootenay Region. It was formed by a combination of fluvial processes and receding glaciers. The lake is over one hundred kilometres in length and 3 to 5 km in width orientated primarily in the north-south direction. Kootenay

Lake drains from the approximate middle of the lake body through the West Arm, which extends 35 km toward the City of Nelson.

6.2 Kootenay Lake Water Levels

Major inflows into Kootenay Lake include the Kootenay River (south end) and the Duncan River (north end). Dams are present on both rivers, the Duncan Dam on the Duncan River is operated by BC Hydro and the Libby Dam on Kootenay River is operated by the US Army Corps of Engineers. The Kootenay Lake water levels throughout the year are governed by the 1938 Joint Commission Order. The purpose of the joint commission is to administer the Boundary Water Treaty of 1909 between Canada and the United States.

All outflow from the lake is through the West Arm, and is controlled during peak runoff periods by a natural constriction at the Grohman Narrows. During lower flow periods, outflow can be controlled at the Corra-Linn Dam, just downstream of the Grohman Narrows. The seasonal change in control is due to procedures at Corra-Linn Dam during spring runoff that allow the gates to be opened such that Grohman Narrows becomes the flow restrictive zone.

While the inflows to the lake are also under some control by reservoirs at the Duncan and Libby Dams there are limited controls during the peak flood months where extreme lake elevations are most likely to occur, between April and late June. This is due to un-regulated inflows from tributaries in the Kootenay Lake watershed which are not connected to the Duncan or Libby Dam watersheds.

The Flood Construction Level of 536.5 m for Kootenay Lake was generated from 1979 floodplain maps and corresponds to a 1 in 200 year event. A 0.76 m freeboard allowance was added to the 1 in 200 year static water elevation to account for wind set-up and wave action.

6.3 Regional Wind Data

Wind data was available from a Ministry of Transportation and Infrastructure (MoTI) station near Coffee Creek, approximately 10.5 km north of The Subject Property, and was accessed online through the Pacific Climate Impacts Consortium (PCCIC) website. This station has a wind data record from September 1995 to present day, while there are some significant gaps in the earlier years the data record has been relatively consistent since 2005.

Table 6.3.1: Coffee Creek Weather Station Data

MoTI Station ID	Record Length	Average Annual Maximum Hourly Wind Speed (km/hr)	1 in 200 year Estimate Maximum Hourly Wind Speed (km/hr)
34621	1995-2023	19.2	60.5

6.4 Extreme Wind Event Analysis

The annual extreme data was analyzed using a Gumble Distribution to estimate the 1 in 200 year (0.5 % annual exceedance probability) hourly maximum wind speed. Wind event duration was estimated by evaluating past events in the data record.

To better understand the duration at which wind events can occur in this region, the event of record (at which the maximum wind speed in the data record occurred) was plotted over time. The event of record occurred in June 1998 with the peak corresponding to approximately the 1 in 330 year event. This event sustained a very high wind speed for approximately 12 hours, as shown in Figure 1.

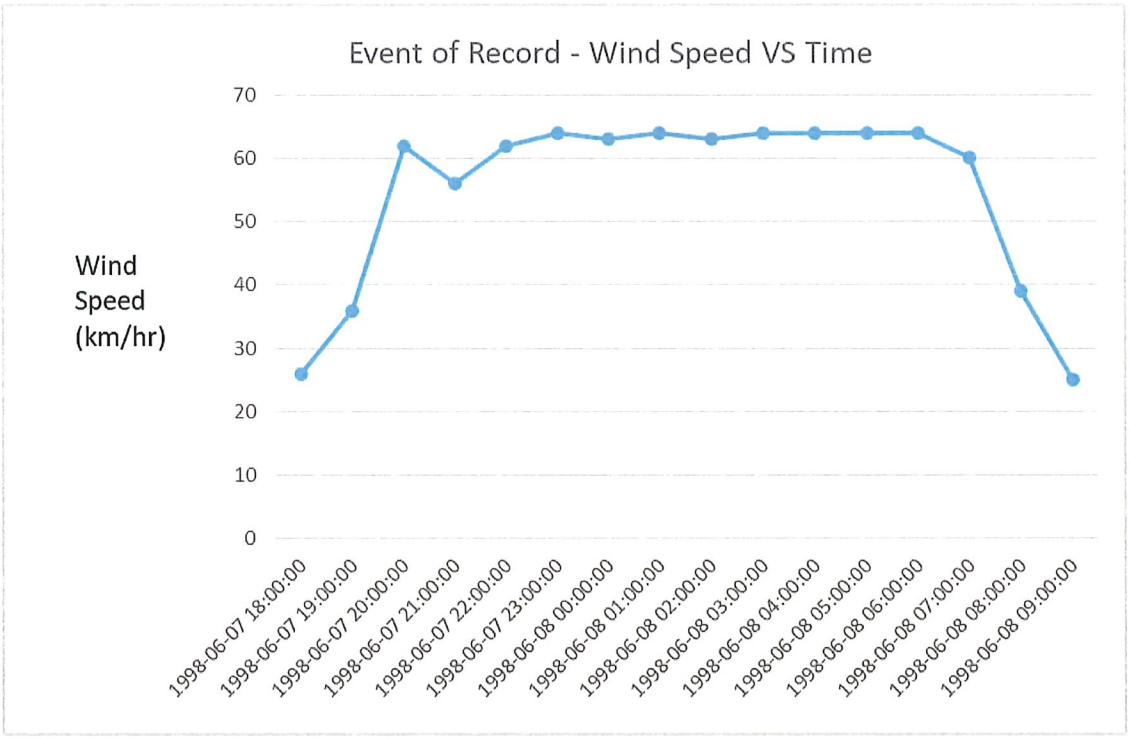

Figure 1: Event of Record - Wind Speed VS Time

6.5 Wind Direction and Speed

The wind direction and speed at the station were visualized using a diagram commonly known as a Wind Rose. Figure 2 presents the wind speed and direction data at the station from the year 2013.

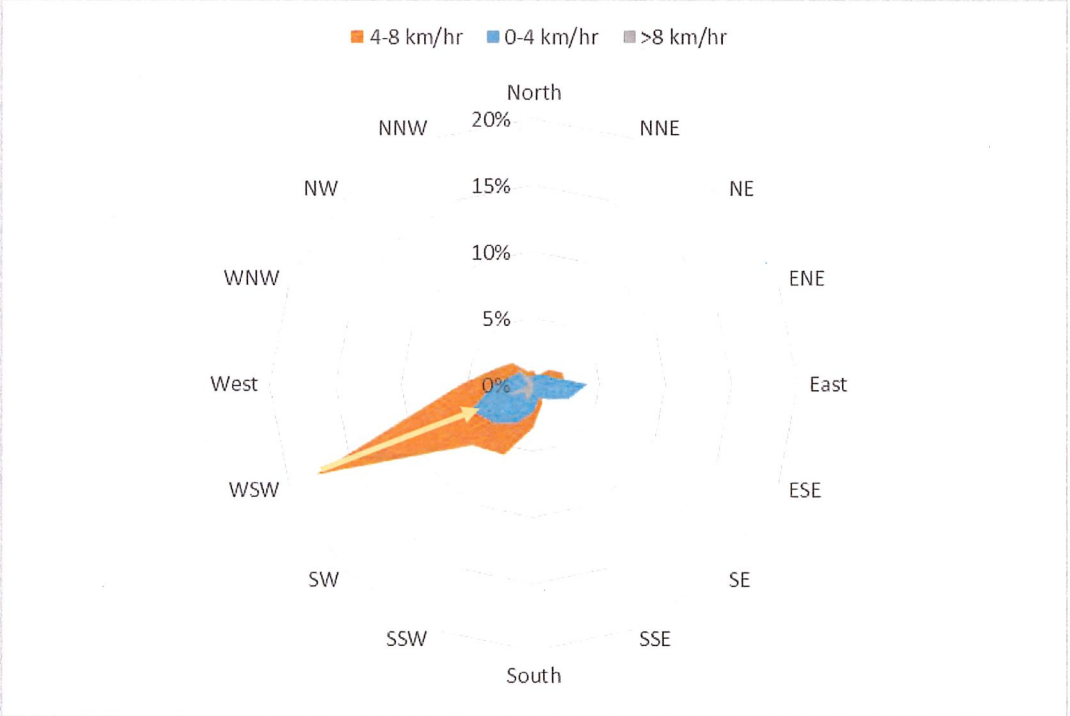

Figure 2: 2013 Wind Rose

Figure 2 indicates the predominant wind direction is from the West South West (WSW) direction. This direction is at the Coffee Creek station and is not an indication of the wind direction at The Subject Property.

6.6 Fetch

An important factor in wave generation is the distance over water in which the wind event is acting (the fetch). If the wind is acting over a large fetch, greater wave heights can be generated versus a small fetch. The maximum fetch at the subject site is 24 kilometres and requires winds originating from the North North East (NNE) direction. While this differs from the predominant wind direction at the Coffee Creek station, the wind direction at The Subject Property may be different due to its location 10.5 km to the south. Due to this, there is a possibility that an extreme wind event could originate from the NNE direction in alignment with the valley. Additionally, extreme events do not always occur in the same wind direction as the annual normal. An example is the direction of the Wind Event of Record, which originated from the East North East (ENE) direction, differing from what is typically recorded at the station.

6.7 Wave Height

The SMB method (Sorenson, 2006) was employed to estimate the wave height and period for a 1 in 200 year design wave. Wave force applied to an example foundation was estimated using Morrison's Equation (Sorenson, 2006).

6.8 Wave Height and Frequency

Combining the information from the Extreme Value Analysis and the historical wind duration and direction data, the design wind was determined to be 60.5 km/hr, for a 12-hour duration, in the direction of maximum fetch at the subject site (24 km NNE). Applying the SMB method (Sorenson, 2006) yields the estimated wave height and period generated by the design wind event. Analysis results are summarized below on Table 6.9.1.

Note that wave height is defined as the vertical distance between the crest and trough of a wave. Therefore, the height of the wave above the static water level is equal to half of the wave height, (0.87 metres).

6.9 Wave Forces on Foundations

The Morrison Equation (Sorenson, 2006) was used to estimate the lateral wave force on a fully inundated cylindrical structure 0.3 metres in diameter. Different force values would be applicable to piers or foundations of different shapes or dimensions.

Table 6.9.1: Design Wave Height, Frequency, and Force

Maximum Fetch (km)	Maximum Wave Height Generated (m)	Wave Crest Height Above Static Water Level (m)	Wave Period (s)	Example Pier (Cylinder) Width (m)	Example Pier (Cylinder) Submerged Height (m)	Maximum Force Applied on Each Pier per Wave (Unfactored) (kN)
24	1.73	0.87	5.4	0.3	2.0	1.1

6.10 Wave Height Impacts on Freeboard Allowance

The FCL for Kootenay Lake at elevation 536.5 metres is based on the 1 in 200-year water level with a 0.76 m freeboard allowance for wind set-up and wave action. Given the estimated wave height of 0.87 metres presented in Table 2, recommendations are made in this report for the FCL elevation to be revised for this site. See Section 7.1 for more information.

6.11 Wave Runup

Wave runup is defined the additional height that broken waves can reach as they run up shorelines prior to their energy being dissipated. In general, steep slopes or man-made walls can produce higher runup levels than gentle slopes due to the surging action of waves. Therefore, walls or other man-made structures which may increase wave runup are not recommended to be constructed. Piers, as recommended in this report, will have a negligible effect on wave runup. Additionally, the direction of the wind driven waves are anticipated to be parallel to the shoreline. Considering these factors at the subject site, minimal wave runup is expected.

6.12 Wind Setup

Wind setup is defined as the vertical rise of water elevation caused by wind stress on the water surface. This rise occurs on the leeward side of a body of water, such as on a leeshore, where wind is blowing directly towards the shore. The Subject Property in not located on a leeshore since wind is expected to run parallel to the shore, therefore, the change in water elevation due to wind setup is expected to be negligible.

6.13 Climate Change

Climate change is increasing the mean global temperatures, expected to be 2.8 degrees Celsius by the end of the century. The increase in temperature has a multitude of other climate effects that are not fully understood. In British Columbia, a rise in mean annual precipitation is expected, between 6 and 17%.

(EGBC, 2018). This may increase the frequency of occurrence of extreme static water levels in Kootenay Lake and / or, the magnitude of the 1 in 200 year lake water level.

6.14 Scour and Erosion

Given the footings will be founded in bedrock, the potential for scour or erosion impacting the foundations are expected to be minimal (see 5.2). With the exception of the bedrock outcrops, erosion of the existing shoreline materials such as the landscaping rock (boulders) and the pebble beach are anticipated, however, this is not expected to impact the proposed foundation (see 5.5).

6.15 Derivation of Site – Specific Flood Construction Level

In consideration of site specific factors described above, including the projected 1 in 200 year wave height, wave run-up, wind set-up, and climate change considerations, the FCL for this warrants revision to 536.86 m G.S.C. Table 6.15.1 breaks down how this site – specific FCL was derived:

Table 6.15.1: Derivation of Flood Construction Level

200 Year Static Water Level (m) G.S.C.	Change in Static Water Level from the 1 in 200 year Design Wave (m)	Freeboard to Account for Wind Set-up, Wave Run-up, and Climate Change (m)	Recommended Site – Specific Flood Construction Level Elevation (m) G.S.C.
535.686	0.87	0.3	536.86

7.0 RECOMMENDATIONS

7.1 Setback Distance

The minimum setback of the proposed development (i.e. corner of proposed building siting) is approximately 8.86 m from the natural boundary and is less than the 15 m as required by the RDCK bylaw.

In light of the minimal or negligible erosion hazard, a relaxation of the requisite setback distance warrants consideration. Recommendations presented in this report for a higher Site – Specific Flood Construction Level, Geotechnical Engineering design of building footings and foundations, and Structural Engineering design of building elements exposed to floodwaters and waves are intended to minimize the potential for damage to buildings.

7.2 Flood Construction Level (FCL)

It is recommended that The Flood Construction Level for the proposed development at The Subject Property be increased to 536.86 m. This elevation is 0.36 m higher than 536.5 m as specified in the RDCK bylaw 2080, 2009.

7.3 Foundation Design

It is recommended that building foundation design be undertaken by qualified Geotechnical and Structural Engineers to minimize potential for damage to building elements including footings and foundations exposed to floodwaters and to lateral loading from waves.

7.4 Shoreline Disturbance

It is recommended that no additional man-made structures, rock armouring (rip rap), or disturbances are made to the shoreline. These elements can result in additional wave runup, and scour and erosion. Any construction–related disturbances to the shoreline during construction are to be restored to the satisfaction of the Geotechnical Engineer, Environmental Monitor (if applicable), and local authorities.

7.5 Suitability of Building Site for the Intended Purpose

Please refer to the attached Flood Hazard and Risk Assurance Statement prepared in conformance to the Guidelines for Legislative Flood Assessments in a Changing Climate in BC, Version 2.1, August 28, 2018, prepared by EGBC, for statements regarding suitability of the proposed development on The Subject Property for the intended purpose of residential construction.

8.0 CLOSURE

This report is prepared for the exclusive use of Ms. Holly Pruett and their designated representatives and may not be used by other parties without the written permission of VAST Resource Solutions. The Regional District of Central Kootenay may also rely on the findings of this report for review, referral, and Approval purposes.

Findings of this assessment have been undertaken in consideration of development plans in place at the time of this writing.

If the development plans change in any way, VAST Resource should be notified immediately so that the recommendations can be confirmed or modified, as required.

The use of this flood assessment report is subject to the conditions on the attached Report Interpretation and Limitations sheet. The reader's attention is drawn specifically to those conditions, as it is considered essential that they be followed for proper use and interpretation of this report.

We hope the above meets with your requirements. Should any questions arise, please do not hesitate to contact the undersigned.

Yours truly,

Prepared By:

Addison Reist, E.I.T.
Junior Engineer
VAST Resource Solutions Ltd.

Reviewed By:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
E. J. KLEINDIENST
35091
December 19, 2023
I reviewed

Evan Kleindienst, P.Eng.
Geotechnical Engineer (Principal)
VAST Resource Solutions Ltd.

Engineers and Geoscientists of British Columbia Permit to Practice Number: 1000121

Reviewed By:

Norman L. Deverney, P.Eng., FEC
Deverney Engineering Services Ltd.
Permit to Practice Number 1001904

REFERENCES

Association of Professional Engineers and Geoscientists of BC. June, 2012. "Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC".

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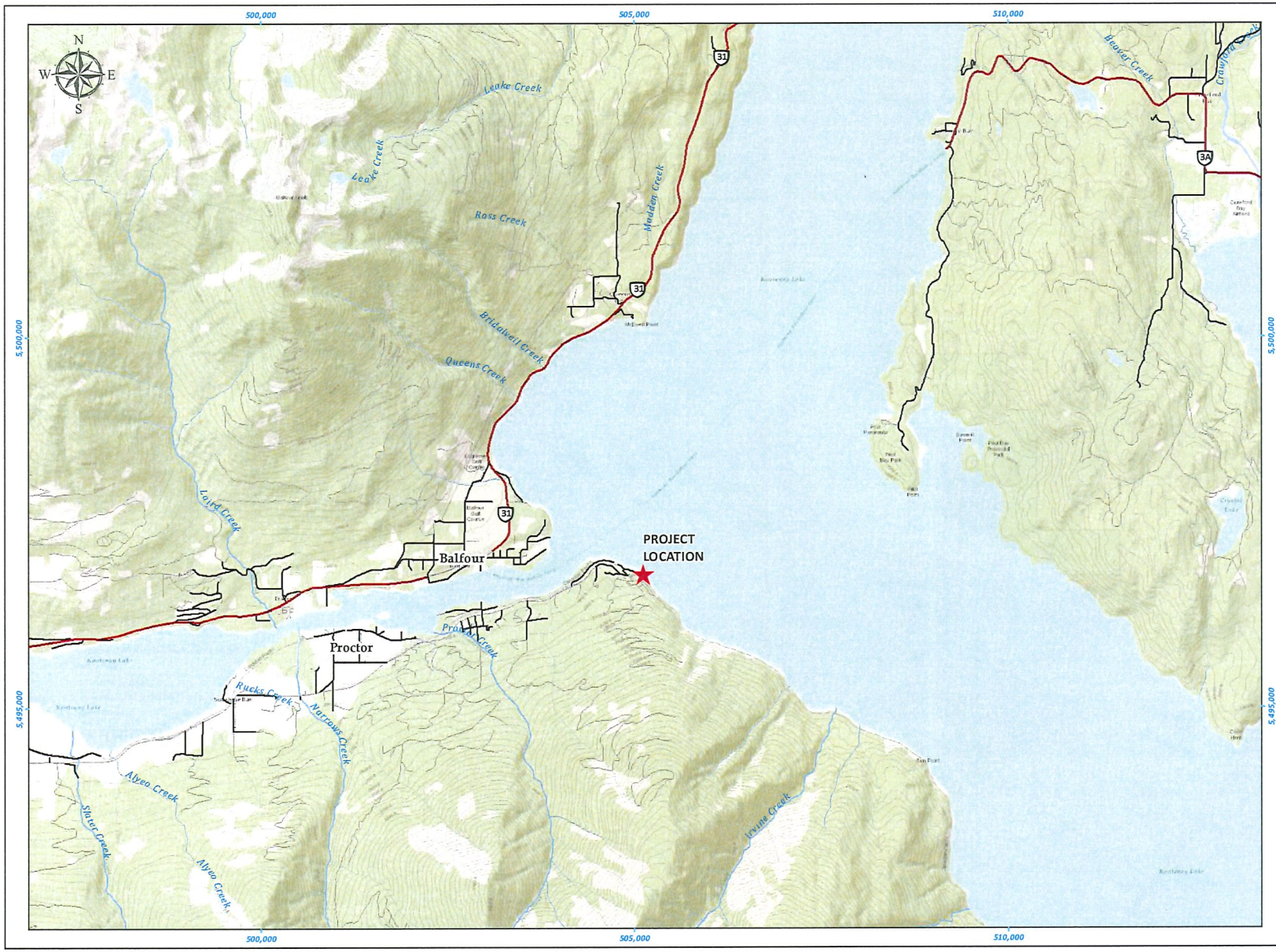
Unified Soil Classification System.

APPENDIX A: SITE PLAN AND LOCATION MAP



PROJECT
Pruett Geotech

TITLE
Project Location

LEGEND

- Project Location
- Highway
- Local Road
- Rough Road

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:50,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	DH	DATE	2023-Jan-05
DRAWING	DH	DATE	2023-Apr-04
REVIEW	XX	DATE	2023-Apr-04
MXD ID	LOCATION		

1:50,000

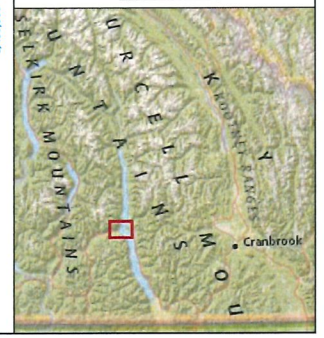
0 0.5 1 1.5 2 2.5

Kilometers

DATA SOURCES

Topographic Base Maps provided by ArcGIS License
Transport Line - GeoBC Digital Road Atlas

OVERVIEW MAP



PROJECT LOCATION

MXD Path: P:\22.0221.00 Pruett Geotech\001_ Geotech Assessment\GIS\MXD\LOCATION.mxd

ZONING

DISTRICT:	RDCK (AREA E, RURAL)
CIVIC ADDRESS:	389 PARK AVENUE, PROCTER, BC, V0G 1V0,
LEGAL DESCRIPTION:	STARTA LOT 31 PLAN NES3286 Folio: 707.02254.131 PID: 027-785-114 District Lot 873 LTO LB551916.
PARCEL SIZE:	0.36 ACRES
ZONING:	UNZONED
USE:	SINGLE FAMILY DWELLING
SETBACKS:	N/A
FIRE DEPARTMENT:	HARROP PROCTER

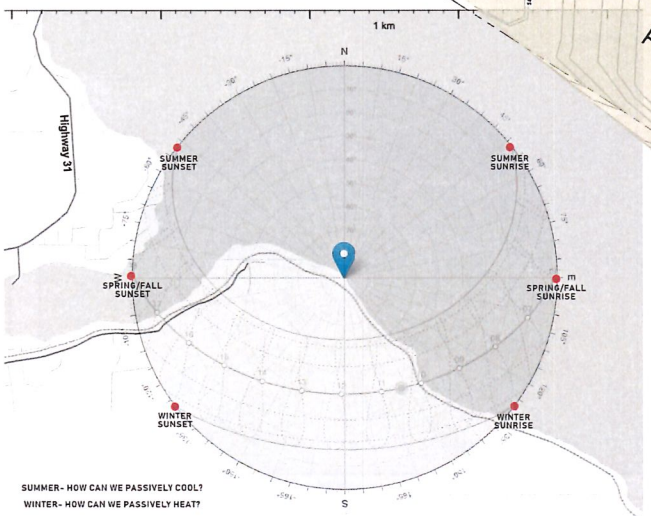
BUILDING CODE

BUILDING CODE: DIVISION B, PART 9

BUILDING INFORMATION

BUILDING CODE:	DIVISION B, PART 9
BUILDING AREA:	1536 SF (NO PARCEL COVERAGE RESTRICTION)
WATER:	CITY OF PROCTER WATER
SEWER:	STRATA SEPTIC
HVAC:	RADIANT IN FLOOR HEAT, ERV, MINI SPLIT A/C, FIREPALCE,

SITE CONTEXT



SUMMER- HOW CAN WE PASSIVELY COOL?
WINTER- HOW CAN WE PASSIVELY HEAT?

PRUETT | LOT 31- PARK AVE

LOT 30

LOT 31

LOT 32

PARK AVENUE

536.5M FLOODPLAIN CONSTRUCTION LEVEL

NATURAL BOUNDARY

PT#1

15m SETBACK FROM NATURAL BOUNDARY

15m SETBACK STAKE 1762' - 3 5/16" 537.14

15m SETBACK STAKE 1761' - 11" 537.03

KOOTENAY LAKE

DECK TO CANTILEVER BEYOND THIS LINE

DECK ON PIERS

STEEL PROPERTY PIN 1786' - 5 1/16" 544.50

CURB STOP

PARKING PAD

707.5 SF (BUILDING INSIDE 15M SETBACK)

ROCK STEP

CANTILEVER DECK

DECK TO CANTILEVER BEYOND THIS POST

PEBBLE BEACH

15m SETBACK FROM NATURAL BOUNDARY

STEEL PROPERTY PIN 1754' - 7 5/8" 534.81

STEEL PROPERTY PIN 1761' - 8 1/2" 536.97

APPROX. 10M NATURAL BOUNDARY SETBACK

536.5M FLOODPLAIN CONSTRUCTION LEVEL

WATER VALVE

FIRE HYDRANT

STORM WATER

1 SITE PLAN layout
1/8" = 1'-0"

PRUETT RESIDENCE | 389 PARK AVENUE, PROCTER, BC.

SITE PLAN

A0.2

2021-03-05

Revision Schedule

No.	Description	Date

APPENDIX B: FLOOD ASSURANCE STATEMENT

Flood Hazard and Risk Assurance Statement

Version 2.1, August 28, 2018

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 the purposes of the *Land Title Act*, *Community Charter*, or *Local Government Act*. Defined terms are capitalized; sed Defined Terms section of the guidelines for definitions.

To: The *Approving Authority* Date: December 18, 2023

Regional District of Central Kootenay
202 Lakeside Drive
Nelson, BC V1L 69B Canada
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 Property:
STRATA LOT 31, PLAN NES3286, DISTRICT LOT 873, KOOTENAY LAND DISTRICT, 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. 389 Park Avenue, Procter BC.
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 as outlined in the guidelines.

I have signed, sealed and dated, and hereby 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 this each other. In preparing that report I have:

Check to the left of all applicable items:

- ☒ 1. Consulted with representatives of the following organizations: Regional District of Central Kootenay
- ☒ 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 affects 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*
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 tolerance on the Property

☐ 11.2 Compared the level of Flood Hazard or Flood Risk tolerance adopted by the *Approving Authority* with the findings of my investigation

☐ 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 Risk 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 Risk 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 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 investigation and the adopted level of Flood Hazard or Flood Risk tolerance (item 11.2 above)

☒ 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* 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".

(1) *Flood Hazard Area Land Use Management Guidelines* published by the BC Ministry of Forests, Lands, and Natural Resource Operations and the 2009 publication *Subdivision Preliminary Layout Review – Natural Hazard Risk* published by the Ministry of Transportation and Public Infrastructure. It should be noted that the 200-year return period is a standard used typically for rivers and purely fluvial processes. For small creeks subject to debris Floods and debris flows return periods are commonly applied that exceed 200 years. For life-threatening events including debris flows, the Ministry of Transportation and Public Infrastructure stipulates in their 2009 publication *Subdivision Preliminary Layout Review – Natural Risk Hazard* that a 10,000-year return period needs to be considered.

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

December 18, 2023
Date

Evan Kleindienst
Prepared by

Signature

304 Industrial Road G, Cranbrook BC V1C 7J4
Address

250-426-5300
Telephone

Evan.kleindienst@vastresource.com
Email

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
E. J. KLEINDIENST
35091
December 19, 2023
I reviewed

(Affix PROFESSIONAL SEAL here)

I am a member of the firm VAST RESOURCE SOLUTIONS INC. and I sign this letter on behalf of the firm.

APPENDIX C: REPORT INTERPRETATION AND LIMITATIONS

REPORT INTERPRETATION AND LIMITATIONS

1. Standard of Care

VAST Resource Solutions Inc (VAST) has prepared this report in a manner consistent with generally accepted engineering consulting practices in this area, subject to the time and physical constraints applicable. Professional judgment has been applied in developing any conclusions and/or recommendations in this report. No other warranty, expressed or implied, is made.

The author reserves the right to amend this report if additional information becomes available.

The work performed in this report was carried out in accordance with the terms and conditions specified in VAST's Project Work Agreement (PWA) with the client. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations approved by the client and described in the PWA. Since site conditions may change over time, the report is intended for immediate use only.

The conclusions and/or recommendations provided in this report do not relieve the client or their agents or representatives of the responsibility to comply with applicable Acts, regulations, bylaws and/or decisions of any authorities that have jurisdiction under an enactment.

2. Completeness of this Report

This Report represents a summary of paper, electronic and other documents, records, data and files and is not intended to stand alone without reference to the instructions given to VAST by the Client, communications between VAST and the Client, and/or to any other reports, writings, proposals or documents prepared by VAST for the Client relating to the specific site described herein.

This report is intended to be used and quoted in its entirety. Any references to this report must include the whole of the report and any appendices or supporting material. VAST cannot be responsible for use by any party of portions of this report without reference to the entire report.

3. Basis of this Report

This report has been prepared for the specific site, development, design objective, and purpose described to VAST by the Client or the Client's Representatives or Consultants. The applicability and reliability of any of the factual data, findings, recommendations or opinions expressed in this document pertain to a specific project as described in this report and are not applicable to any other project or site, and are valid only to the extent that there has been no material alteration to or variation from any of the descriptions provided to VAST. VAST cannot be responsible for use of this report, or portions thereof, unless we were specifically requested by the Client to review and revise the Report in light of any alterations or variations to the project description provided by the Client.

If the project does not commence within 18 months of the report date, the report may become invalid and further review may be required.

The recommendations of this report should only be used for design. The extent of exploration including number of test pits or test holes necessary to thoroughly investigate the site for conditions that may affect construction costs will generally be greater than that required for design purposes. Contractors should rely upon their own explorations and interpretation of the factual data provided for costing purposes, equipment requirements, construction techniques, or to establish project schedule.

The information provided in this report is based on limited exploration, for a specific project scope. VAST cannot accept responsibility for independent conclusions, interpretations, interpolations or decisions by the Client or others based on information contained in this Report. This restriction of liability includes decisions made to purchase or sell land.

4. Use of this Report

The contents of this report, including plans, data, drawings and all other documents including electronic and hard copies remain the copyright property of VAST. However, VAST will consider any reasonable request by the Client to approve the use of this report by other parties as "Approved Users". With regard to the duplication and distribution of this Report or its contents, VAST authorizes only the Client and Approved Users to make copies of the Report only in such quantities as are reasonably necessary for the use of this Report by those parties. The Client and "Approved Users" may not give, lend, sell or otherwise make this Report or any portion thereof available to any other party without express written permission from VAST. Any use which a third party makes of this Report - in its entirety or portions thereof - is the sole responsibility of such third parties. VAST ACCEPTS NO RESPONSIBILITY FOR DAMAGES SUFFERED BY ANY PARTY RESULTING FROM THE UNAUTHORIZED USE OF THIS REPORT.

Electronic media is susceptible to unauthorized modification or unintended alteration, and the Client should not rely on electronic versions of reports or other documents. All documents should be obtained directly from VAST.

5. Interpretation of this Report

Classification and identification of soils and rock and other geological units, including groundwater conditions have been based on exploration(s) performed in accordance with the standards set out in Paragraph 1. These tasks are judgemental in nature; despite comprehensive sampling and testing programs properly performed by experienced personnel with the appropriate equipment, some conditions may elude detection. As such, all explorations involve an inherent risk that some conditions will not be detected.

Further, all documents or records summarizing such exploration will be based on assumptions of what exists between the actual points sampled at the time of the site exploration. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of and accept this risk.

The Client and "Approved Users" accept that subsurface conditions may change with time and this report only represents the soil conditions encountered at the time of exploration and/or review. Soil and ground water conditions may change due to construction activity on the site or on adjacent sites, and also from other causes, including climactic conditions.

The exploration and review provided in this report were for geotechnical purposes only. Environmental aspects of soil and groundwater have not been included in the exploration or review, or addressed in any other way.

The exploration and Report is based on information provided by the Client or the Client's Consultants, and conditions observed at the time of our site reconnaissance or exploration. VAST has relied in good faith upon all information provided. Accordingly, VAST cannot accept responsibility for inaccuracies, misstatements, omissions, or deficiencies in this Report resulting from misstatements, omissions, misrepresentations or fraudulent acts of persons or sources providing this information.

6. Design and Construction Review

This report assumes that VAST will be retained to work and coordinate design and construction with other Design Professionals and the Contractor. Further, it is assumed that VAST will be retained to provide field reviews during construction to confirm adherence to building code guidelines and generally accepted engineering practices, and the recommendations provided in this report. Field services recommended for the project represent the minimum necessary to confirm that the work is being carried out in general conformance with VAST's recommendations and generally accepted engineering standards. It is the Client's or the Client's Contractor's responsibility to provide timely notice to VAST to carry out site reviews. The Client acknowledges that unsatisfactory or unsafe conditions may be missed by intermittent site reviews by VAST. Accordingly, it is the Client's or Client's Contractor's responsibility to inform VAST of any such conditions.

Work that is covered prior to review by VAST may have to be re-exposed at considerable cost to the Client. Review of all Geotechnical aspects of the project are required for submittal of unconditional Letters of Assurance to regulatory authorities. The site reviews are not carried out for the benefit of the Contractor(s) and therefore do not in any way effect the Contractor(s) obligations to perform under the terms of his/her Contract.

7. Sample Disposal

VAST will dispose of all samples 3 months after issuance of this report, or after a longer period of time at the Client's expense if requested by the Client. All contaminated samples remain the property of the Client and it will be the Client's responsibility to dispose of them properly.

8. Subconsultants and Contractors

Engineering studies frequently requires hiring the services of individuals and companies with special expertise and/or services which VAST does not provide. These services are arranged as a convenience to our Clients, for the Client's benefit. Accordingly, the Client agrees to hold VAST harmless and to indemnify and defend VAST from and against all claims arising through such Subconsultants or Contractors as though the Client had retained those services directly. This includes responsibility for payment of services rendered and the pursuit of damages for errors, omissions or negligence by those parties in carrying out their work. These conditions apply to specialized subconsultants and the use of drilling, excavation and laboratory testing services, and any other Subconsultant or Contractor.

9. Site Safety

VAST assumes responsibility for site safety solely for the activities of our employees on the jobsite. The Client or any Contractors on the site will be responsible for their own personnel. The Client or his representatives, Contractors or others retain control of the site. It is the Client's or the Client's Contractors responsibility to inform VAST of conditions pertaining to the safety and security of the site – hazardous or otherwise – of which the Client or Contractor is aware.

Exploration or construction activities could uncover previously unknown hazardous conditions, materials, or substances that may result in the necessity to undertake emergency procedures to protect workers, the public or the environment. Additional work may be required that is outside of any previously established budget(s). The Client agrees to reimburse VAST for fees and expenses resulting from such discoveries. The Client acknowledges that some discoveries require that certain regulatory bodies be informed. The Client agrees that notification to such bodies by VAST will not be a cause for either action or dispute.