**REGIONAL DISTRICT OF CENTRAL KOOTENAY**

# DEVELOPMENT PERMIT

DP1703D-05746.100-KAY-DP000075 (D1703D)

Date: August 15, 2017

Issued pursuant to Section 489 of the *Local Government Act*

1. This Development Permit is issued to 52785308 AMUNDSEN ENTERPRISES of Vancouver, BC as the registered owner (hereinafter called the "Permittee") and shall only apply to those lands within the Regional District of Central Kootenay, in the Province of British Columbia legally described as Lot 1 Plan NEP22516 District Lot 7386 Kootenay Land District (PID: 023-195-738) as shown on the attached Schedules 1 and 2, forming part of this Permit, referred to hereafter as the "said lands".

2. This Development Permit is issued subject to compliance with all of the bylaws of the Regional District of Central Kootenay applicable thereto, except as specifically varied or supplemented by this Permit.

3. This Development Permit shall not have the effect of varying the use or density of land as specified in the applicable Zoning Bylaw of the Regional District of Central Kootenay, nor a Floodplain Specification under Section 524 of the Local Government Act.

4. This Development Permit shall not relieve the applicant from meeting Provincial requirements and obtaining Provincial permits.

5. The said lands have been designated as a 'Watercourse Development Permit Area' pursuant to the Area D Comprehensive Land Use Bylaw No. 2435, 2016, as amended.

6. The Permittee has applied to the Regional District of Central Kootenay to build two amenity buildings, utility corridors and trails and to use land and buildings situated on the said lands for this purpose. Pursuant to this Development Permit and subject to the terms and conditions herein contained, as well as all other applicable Regional District Bylaws, the Regional District of Central Kootenay hereby authorizes the use of the said lands for this purpose.

7. The Permittee is required to obtain approval in writing from the Regional District of Central Kootenay prior to any further development, including the construction any new buildings, external additions to existing buildings or for any deviation from the development authorized in this Development Permit. Furthermore, the Permittee is hereby advised of the following requirements:

   7.1 The Regional District of Central Kootenay Building Department requires that the Permittee obtain a demolition permit and/or building permit prior to the removal of any existing buildings and structures, the renovation, expansion or alteration of any existing building and the construction of any new building.

   7.2 Development is authorized in accordance with the terms described in the report titled "5278 Amundsen Road Riparian Assessment" prepared by Masse Environmental Consultants Ltd., dated May 2017, attached to this permit as Schedule 2.

7.3 To mitigate for the loss of riparian habitat, planting 13 native trees and 20 native shrubs is required in accordance with Section 7 – Mitigation Plan (as indicated in Schedule No. 2). Landscaping shall be completed once the construction is complete. Plant species shall be in accordance with Table 6 of Schedule 2.

7.4 Further development as defined in the Watercourse Development Permit area, including: removal, alteration, disruption or destruction of vegetation; installation of buildings or structures or impervious or semi-impervious pathways; yard maintenance; flood protection works or the creation of wharves or docks within the 15.0 metre streamside protection and enhancement area other than that authorized by this permit is strictly prohibited, except for the following:

7.4.1 The removal of trees that have been examined by an arborist and certified to pose an immediate threat to life or property.

8. As a condition of the issuance of this Permit, the Regional District shall hold an irrevocable Letter of Credit submitted by the Permittee in the amount of $825 to ensure the landscaping requirements as set forth in Section 7 are completed and in accordance with the following provisions:

8.1 A condition of the posting of the Letter of Credit is that should the Permittee fail to carry out the works and services as herein above stated, according to terms and conditions of this permit within the time provided, the Regional District may use the Letter of Credit to complete these works or services by servants, agents or contractors, and any surplus shall be paid over to the Permittee. If the amount of funds is insufficient to cover the actual cost of completing the works, then the Permittee shall pay such deficiency to the Regional District immediately upon receipt of the Regional District's bill for same.

8.2 The Permittee shall complete the landscaping works required by this Permit prior to October 2019. Within this time period the required landscaping must be inspected and approved by the Regional District.

8.3 If the landscaping is not approved within this time period, the Regional District has the option of continuing to renew the Letter of Credit until the required landscaping is completed or has the option of drawing from the Letter of Credit to complete the required landscaping. In this event, the Regional District or its agents have the irrevocable right to enter into the property to undertake the required landscaping for which the Letter of Credit was submitted.

8.4 If the landscaping is approved within this time period without the Regional District having to draw the on the Letter of Credit, 90% of the original amount of the Letter of Credit shall be returned to the Permittee.

8.5 A hold back of 10% of the original amount of the Letter of Credit shall be retained until a final inspection is undertaken within 12 months of the date of the original inspection and approval was given to the landscaping. If the landscaping receives approval at final inspection, the 10% hold back will be returned to the Permittee. If after the final inspection, approval of the landscaping is not given, the Regional District has the option of continuing to renew the Letter of Credit until the required landscaping is approved or has the option of drawing on the Letter of Credit the funds to complete the required landscaping. In this event, the Regional District or its agents have the irrevocable right to enter onto the property to undertake the required landscaping for which the Letter of Credit was submitted.

9. The said lands shall be developed strictly in accordance with the terms and conditions of this Development Permit and the requirements of all applicable Regional District Bylaws as well as any plans and specifications which may, from time to time, be attached to this Permit shall form a part thereof.

10. In accordance with the Local Government Act, if the development authorized by this Development Permit is not commenced within two years of the date of this Permit, this Permit shall lapse.

11. In accordance with the Local Government Act, 'Notice' shall be filed in the Land Title Office that the said lands are subject to this Development Permit.

12. The terms of this Development Permit including subsequent amendments, are binding on all persons who acquire an interest in the said lands associated with this Permit.

13. It is understood and agreed that the Regional District has made no representations, covenants, warranties, guarantees, promises, or agreement (verbal or otherwise) with the Permittee other than those in this Development Permit. It is solely the responsibility of the Permittee to ensure that the requirements of all other applicable government agencies are satisfied.

14. This Development Permit does not constitute a building permit.

15. This Development Permit shall come into force and effect 14 days after the date of issuance unless a Waiver of Appeal is received from the Permittee at which time the Development Permit shall be deemed to be issued upon receipt of the Waiver of Appeal. OR If a Notice of Appeal is received the Development Permit shall be suspended until such time as the Board of the Regional District of Central Kootenay has decided the Appeal.

Sangita Sudan, General Manager of Development Services

August 22, 2017
Date of Approval

Sept 26, 2017
Date of Issuance

**Schedule 1:** Location Map

**Schedule 2:** 5278 Amundsen Road – Environmental Assessment, dated May 2017 by Masse Environmental Consultants Ltd.

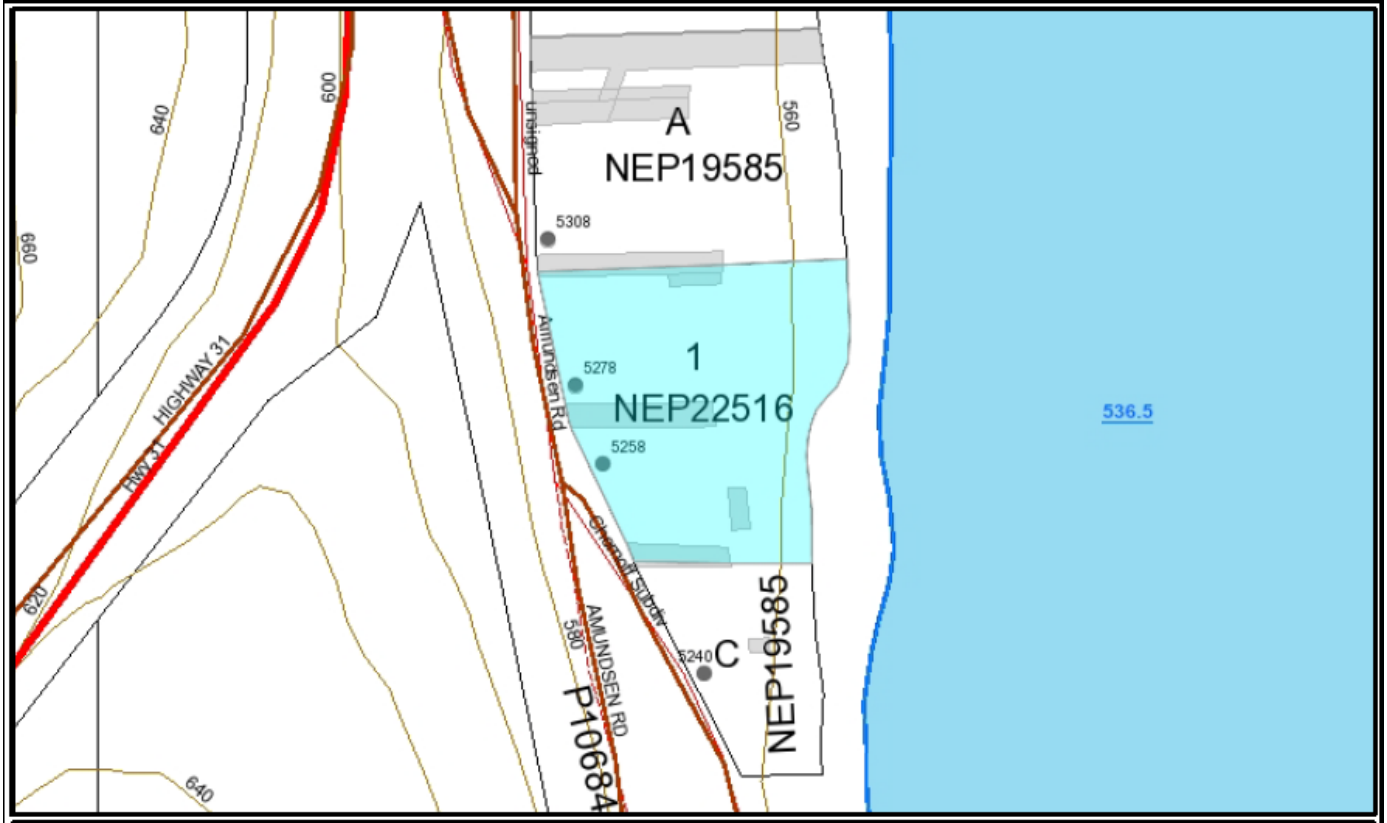
# Schedule 1: Location Map

**The Regional District of Central Kootenay**
Box 590, 202 Lakeside Drive, Nelson British Columbia V1L 5R4
Phone: 250-352-6665 Toll Free 1-800-268-7325 Web:
www.rdck.bc.ca E-Mail: info@rdck.bc.ca

12-Jun-2017

## Property Information Report

| | | | |
|---|---|---|---|
| Owners: | 52785308 AMUNDSEN ENTERPRI‹ | | EA: D |
| Mailing Address: | | | |
| Folio Number: | 786.05746.100 | PID: 023-195-738 | Parcel area: 337 382 WIDTH/DEPTH |
| Site Address: | 5278 AMUNDSEN RD | | |
| Legal Description: | LOT 1 PLAN NEP22516 DISTRICT LOT 7386 KOOTENAY LAND DISTRICT | | |




## Land-use Information

| | | | |
|---|---|---|---|
| Zoning Designation: | UNZONED | | |
| | | | |
| | | Actual Use Code: | 060 2 Acres Or More (Single Family Dwelling, Duplex) |

Schedule 2

MASSE ENVIRONMENTAL
CONSULTANTS LTD.

# 5278 AMUNDSEN ROAD
# KASLO, BC
## 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 2017

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# 1 INTRODUCTION

Masse Environmental Consultants Ltd. (MEC) was retained by Dunowen Properties, owner of 5278 Amundsen Road on Kootenay Lake (Appendix 1), to provide environmental consulting services in support of the proposed two amenity buildings within the Environmentally Sensitive Development Permit (ESDP) area.

A site visit was conducted on May 3, 2017 by Fiona Lau, Btech. AScT., to assess the habitat values and potential impact of the proposed development on the riparian and foreshore areas.

This assessment will evaluate the existing conditions of the foreshore and riparian areas, identify important habitat values, assess the existing environmental impacts and recommend measures to protect environmentally sensitive areas for future development. It is based on the following regulatory framework and best management practices documents:

- Electoral Area 'D' Comprehensive Land Use Bylaw No. 2435, 2016.
- Riparian Areas Regulation
- Provincial 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

This report has been prepared by Fiona Lau, AScT. I, Fiona Lau, 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.

## 1.1 Location

The subject property, 5278 Amundsen Road is located south of the community of Kaslo, BC (Appendix 1). The property is bordered by private property to the north and south, Ministry of Transportation (MoT) right of way to the west and Kootenay Lake to the east.

The project area is within the Interior Cedar Hemlock dry warm variant 1 (ICHdw1) biogeoclimatic subzone (Ketchesen and Braumandl 1992). 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. Snow packs are very shallow to shallow and of short duration and combined with the mild climate result in no significant soil freezing.

During my site visit, the visible high water mark (HWM) was located at ~533.5 m - 534 m elevation, approximately the natural boundary line as shown on the attached site plan (Appendix 2). The natural boundary was based on the location of presence of terrestrial vegetation along the foreshore (see definition of Natural Boundary below). The riparian setbacks will be measured from the natural boundary line as depicted on the survey.

> "**Natural Boundary**" means the visible high water mark of any lake, river, stream or other body of water is 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 body of water a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself."
>
> (MOE 2016)

## 1.2 Streamside Protection and Enhancement Area (SPEA)

To determine whether the environmentally sensitive development permit (ESDP) area of 30 meters from natural boundary of the lake aligns with the criteria in the Riparian Area Regulation (RAR), a detailed assessment of the site was conducted to calculate the streamside protection and enhancement area (SPEA) for Kootenay Lake on the proposed subdivision site. Results for the Zones of Sensitivity (ZOS) and SPEA are presented in Table 1 below and shown on the site plan in Appendix 2.

Table 1. SPEA result of detailed assessment.

| Feature Type | SPVT[1] | Zones of Sensitivity | | | SPEA[3] |
|---|---|---|---|---|---|
| | | LWD[2] | Litter fall | Shade | |
| Lake | TR | 15 m | 15 m | 0 - 7 m | **15 m** |

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

[2] LWD: large woody debris

[3] SPEA: streamside protection and enhancement area

# 2 PROJECT OVERVIEW

## 2.1 Existing Development

Existing development of the property consists of a single family residential home, with multiple outbuildings, and currently is undergoing new additions to the existing home (Photos 1 and 2). The existing development is located outside of the 15 meter setback. An access trail to the foreshore runs in a north to south direction from the existing home to a grassy area next to the lake (Photos 2 and 3).

Photo 1. Existing deck and storage on Lot 8.

Photo 2. Existing wood shed on south side of home on Lot 8.

Photo 3. Grassy area along foreshore.

## 2.2 Proposed Development

The proposed development consists of the construction of two amenity buildings within the 30 meter riparian setback. A meeting room (11 m x 6 m) is proposed at the south end of the property with a small washroom facility (1.2 m x 4.3 m) located at the back of the building. The structure will be built on 16 concrete footings and wood posts elevating the structure off the ground, with a finished floor elevation of ~538 m. The building will be located outside of the 15 meter setback with the exception of a 1.2 m wide overhanging deck along the east side of the building, which will encroach by 1.2 meters into the 15 meter setback at the north-east corner. A secondary amenity building, referred to as the "Roundhouse" is proposed at the north end of the property. The Roundhouse is circular in shape with a diameter of 11 m and will be constructed on circular I.C. forms, elevated ~8" above grade with a finished floor elevation of ~558 m. The building will be sited outside of the 15 meter setback with the exception of a 1.2 m wide overhanging deck along the front side of the building, encroaching 1.2 m into the 15 meter setback on the east side of the building. Both overhanging decks will be supported by the proposed building

structures and will not require additional support within the 15 meter setback; therefore does not trigger the requirement for a flood plain exemption.

Gravel access paths and service lines (sewer and water) will be installed to and from the main residence to the amenity buildings.

### 2.3 Water Resources

Kootenay Lake's main inflows include to the North the Lower Duncan River and to the South the Kootenay River, and the lake eventually drains through the west arm into the Kootenay River. The existing home is connected to a water system which draws water from Kootenay Lake. The proposed two new amenity buildings will be connected to the existing water system.

### 2.4 Services and Site Drainage

Sewage disposal for the existing residence is serviced by an existing septic disposal field located on the west side of the property, outside of the 30 meter setback. The proposed amenity buildings will be serviced by the existing field; however the system will be upgraded to accommodate the additional flows. There was no drainage issues observed within the riparian areas of the proposed development.

## 3 RESOURCES

### 3.1 Fish and Fish Habitat

Typically, Kootenay Lake experiences two seasonal water level increases annually. The first increase is observed in April during low elevation snowmelt followed by a more substantial secondary rise in water levels due to high elevation snowmelt in June. Lake levels can vary by up to 4 m throughout the year affecting the extent of exposed shoreline.

The foreshore consists of a rocky shoreline with exposed bedrock and overlying angular boulders and cobble (Photos 4 and 5). The south section of the property is moderately sloped at the shoreline with ~30 % gradient, while the north portion section of the property along the shoreline is a steep rocky cliff with >80 % gradient. The rocky shoreline provides potential rearing and cover habitat for juvenile and adult fish. No aquatic vegetation was observed within this segment.

Kootenay Lake supports a variety of fish species (Table 2), including several species of regional interest, such as rainbow trout, bull trout, kokanee, white sturgeon, Westslope cutthroat trout, and burbot.

Table 2. Fish species present in Kootenay Lake.

| Species | Scientific Name | Comments |
|---|---|---|
| Burbot | *Lota lota* | Kootenay Lake population is red listed |
| Bull Trout | *Salvelinus confluentus* | Blue-listed species |
| Brook Trout | *Salvelinus fontinalis* | Introduced species |
| Kokanee | *Oncorhynchus nerka* | |
| Largemouth Bass | *Micropterus salmoides* | Introduced species |
| Largescale Sucker | *Catostomus macrocheilus* | |

| Species | Scientific Name | Comments |
|---|---|---|
| Longnose Dace | *Rhinichthys cataractae* | |
| Longnose Sucker | *Catostomus catostomus* | |
| Lake Whitefish | *Coregonus clupeaformis* | |
| Mountain Whitefish | *Prosopium williamsoni* | |
| Northern Pikeminnow | *Ptychocheilus oregonensis* | |
| Peamouth Chub | *Mylocheilus caurinus* | |
| Pumpkinseed | *Lepomis gibbosus* | Introduced species |
| Prickly Sculpin | *Cottus asper* | |
| Pygmy Whitefish | *Prosopium coulteri* | |
| Rainbow Trout | *Oncorhynchus mykiss* | |
| Redside Shiner | *Richardsonius balteatus* | |
| Slimy Sculpin | *Cottus cognatus* | |
| Torrent Sculpin | *Cottus rhotheus* | |
| Westslope Cutthroat Trout | *Oncorhynchus clarki lewisi* | Blue-listed species |
| White Sturgeon | *Acipenser transmontanus* | Kootenay Lake population is red-listed |
| Yellow Perch | *Perca flavescens* | Introduced species |

(Habitat Wizard 2017)

Photo 4. View of shoreline looking south from in front of proposed meeting room.

Photo 5. View of rocky shoreline looking north from in front of proposed meeting room.

### 3.2 Riparian Vegetation

The riparian area along Kootenay Lake is considered habitat located within the 30 m riparian setback from the natural boundary. The riparian area along the lake has an eastern aspect (Appendix 2), with mostly exposed bedrock with minimal top soil, mixed coniferous and deciduous tree species and low growing shrubs (Photos 6 and 9). The large open areas have dominant understorey vegetation consisting of mosses and lichens (Photos 7 and 8), with exception of a large grassy area located along the foreshore closer to the south end of the property. At the south end of the property the gradient within the first 15 m averages ~10%, where a grade break occurs and the topography steepens to ~ 55 %. At the north end of the property the topography is steep within the first 15 m with >80% slope, where a grade break occurs and the topography levels out and slopes slightly back down at ~15% gradient. Many of the trees within the riparian setback may have shallow rooting systems due to the lack of soils and available nutrients and may be susceptible to windthrow.

Photo 6. View of riparian area at south end of property.

Photo 7. Proposed meeting room building site.

Photo 8. Cliff sited in front of existing home within riparian area.

Photo 9. Proposed Roundhouse building site.

Table 3 provides a list of native plant species encountered on the property within the riparian area of Kootenay Lake.

Table 3. Kootenay Lake riparian area native plant and weed species.

| Species Name | Latin Name | Species Name | Latin Name |
|---|---|---|---|
| **Trees** | | **Shrubs cont.** | |
| Interior douglas fir | *Pseudotsuga menziesii* | soopolallie | *Shepherdia canadensis* |
| western red cedar | *Thuja plicata* | thimbleberry | *Rubus parviflorus* |
| ponderosa pine | *Pinus ponderosa* | douglas maple | *Acer glabrum* |
| lodgepole pine | *Pinus contorta* | **Herbaceous** | |
| paper birch | *Betula payrifera* | queen's cup | *Clintonia uniflora* |
| **Shrubs** | | pasture sage | *Artemisia frigida* |
| Oregon grape | *Mahonia aquifolium* | wild strawberry | *Fragaria virginiana* |
| common snowberry | *Symphoricarpos albus* | Grasses sp, mosses sp. and lichens sp. | |

## 3.3 Wildlife

### *3.3.1 Reptiles and Amphibians*

The rocky outcrops have the potential for reptiles; however presence of these species on site was not confirmed since no incidental observations were made.

### *3.3.2 Birds*

Both conifer and deciduous trees favour species such as cavity dwellers, songbirds and raptors. A quick assessment was conducted to identify raptor nests and none were found. The mature conifer trees within the riparian area are conducive for perch and potential nesting sites for raptors.

### *3.3.3 Mammals*

The riparian area has some suitable habitat for mammals with palatable vegetation including grasses and young saplings. Ungulates and bears may occasionally use the area to access the water and browse on vegetation, however no signs of droppings or browse were observed.

## 3.4 Species at Risk

A species at risk inventory search was conducted using Habitat Wizard on Imap to identify any known occurrences within or near the project area (Table 4).

Table 4. Species at risk.

| Common Name | Latin Name | Comments |
|---|---|---|
| White sturgeon- Kootenay River Population | *Acipenser transmontanus* | Red listed Kootenay lake population. |
| Painted turtle | *Chrysemys picta* | Blue listed Intermoutain-Rocky Mountain Population. Recorded in Mirror Lake 2.5 km away. Does not occur in Kootenay Lake. |
| Wild licorice | *Glycyrrhiza lepidota* | Blue listed. Recorded at Mirror Lake 2.5 km away. |

(CDC 2017)

# 4 POTENTIAL ENVIRONMENTAL HAZARDS

The riparian area was assessed for potential environmental hazards including: slope stability indicators and hazard trees. Field indicators listed in Table 3.8 of the RAR were reviewed by the QEP while on site to identify the presence of any potential indicators.

## 4.1 Windthrow

A Registered Professional Forester (RPF) was not retained to assess potential windthrow. Clearing activities are limited and are not expected to increase the risk of windthrow on the property.

## 4.2 Slope Stability

No slope stability indicators were observed by the QEP (as per Table 3.8 of the RAR. However, this does not confirm the absence of terrain stability issues as a geotechnical assessment was not completed by a P.Geo. or P.Eng.

## 4.3 Hazard Tree Removal

A RPF was not retained to assess hazard trees; however, a quick assessment for potential hazard trees was conducted by the QEP within the property. A standing dead tree just outside the 30 meter setback was observed on top of the bank above the proposed meeting room building, which may be considered a hazard tree due to its proximity to the building. It is recommended that this tree be assessed or removed.

# 5 ENVIRONMENTAL CONSIDERATIONS

## 5.1 Riparian and Wildlife Impacts

The proposed development will involve the following activities within the 30 meter setback:

- Construction of a meeting room and roundhouse amenity buildings;
- Construction of gravel access paths and installation of service lines to and from the amenity buildings; and
- Removal of seven conifer trees.

The proposed development is sited mostly outside of the 15 m SPEA setback with the exception of a small section of each overhanging deck structure on each building which will encroach into the setback by 1.2 m. The decks will be elevated off the ground allowing light to penetrate underneath and vegetation to grow. The proposed meeting room building will impact 97 $m^2$ of riparian habitat and the roundhouse will impact 140 $m^2$ of riparian habitat within the 30 meter setback. Both buildings are proposed in areas with minimal trees and shrubs and are considered to have low impact to riparian and wildlife habitat. The proposed access paths will be gravel and ~ 1-1.5 m wide minimizing impact to the riparian area.

The proposed development will require the removal of seven trees within the 30 meter setback area (Table 5). These trees are either sited within the proposed footprint or close to the building (within 1 m). These trees potentially provide some nutrient input into the lake and potential perch habitat for raptors; therefore, the removal of these trees will have a small impact on wildlife and fish habitat. To mitigate for the loss of trees and impact within the riparian area, we recommend that the trees be replaced as per the BC Tree Replacement Criteria (MoE 1996), including some native shrub substitutions. Refer to Section 7 for Mitigation Plan and recommended plant species.

Table 5. Trees proposed for removal within 30 m setback.

| Tree Species | Quantity | Diameter at breast height (dbh; cm) |
|---|---|---|
| Interior douglas fir | 5 | 10, 17, 18, 21, 35, |
| Western larch | 2 | 8 and 22 |

## 5.2 Aquatic Impacts

There are no projected aquatic impacts foreseen with the construction of the two amenity buildings.

# 6 MEASURES TO PROTECT THE INTEGRITY OF SPEA

General environmental procedures recommended for the project in order to protect the integrity of the SPEA include scheduling of environmentally sensitive activities, clearing of vegetation, concrete management, water quality, construction waste management, wildlife management, and site reclamation. Erosion and sediment control issues are not expected to occur with the proposed development due to the rocky terrain and lack of soil.

## 6.1 Scheduling of Environmentally Sensitive Activities

Environmentally sensitive activities include the clearing of vegetation and work within the riparian area. The project has been scheduled to commence this fall, within the least risk work window period for nesting birds (August 1- March 31) and raptors (August 15-January 30).

## 6.2 Clearing of Vegetation

The proposed development will require some clearing of vegetation prior to the commencement of work to accommodate construction activities. The following mitigation measures will be implemented:

- Clearing of vegetation will be kept to the minimum possible area required for access, staging, construction works, and safety considerations.
- The boundaries of the project site will be clearly marked before the crews arrive. All vegetation outside of these boundaries will be retained.

## 6.3 Concrete Management

Concrete will be used during the construction of the footings. Fresh concrete and concrete laden water is caustic and toxic to aquatic organisms. The following precautions will be taken when handling concrete to ensure the protection of adjacent waterbody:

- The proposed concrete work will be conducted well above the HWM.
- Concrete waste will be collected and disposed of at an approved disposal site.
- Washing of equipment used during concrete work will occur at a designated location at least 30 m away from Kootenay Lake where wash water will not drain directly into the lake.

## 6.4 Construction Waste Management

All construction waste generated on site will be taken off site and re-used, recycled or disposed of accordingly. Construction personnel will be instructed to ensure the site is kept clean and to prevent litter from escaping the site.

## 6.5 Wildlife Management

Interactions between field crew and wildlife will be minimized by maintaining a litter free worksite and encouraging awareness.

# 7 MITIGATION PLAN

To mitigate for the loss of trees and riparian habitat within the 30 meter setback it is recommended that the Owner plant 13 native trees and 20 shrubs within the proposed riparian planting areas (See Riparian Planting Plan, Appendix 3).

Table 6 provides a list of recommended plant species. Composition and plant locations within the proposed riparian planting areas are at the discretion of the owner. It is recommended that trees be planted at minimum 3 m spacing and shrubs be planted at minimum of 1 m spacing. Planting should be completed in the spring or fall to ensure best survival rates. Additional soil amendments, including top soil, mycorrhizae, and shrub and tree transplant fertilizer are recommended during planting. Bark mulch placement around each of the planted stock will help the soil retain moisture and reduce weeds and watering requirements.

Table 6. Recommended plant species.

| Species | Scientific Name | Pot Size | Species | Scientific Name | Pot Size |
|---|---|---|---|---|---|
| ***Trees*** | | | **Shrubs cont.** | | |
| Interior douglas fir | *Pseudotsuga menziesii* | #1 | Douglas maple | *Acer glabrum* | |
| Paper birch | *Betula papryfera* | #1 | kinnikinnick | *Arctostaphylos uva-ursi* | 4” |
| ponderosa pine | *Pinus ponderosa* | #1 | mallow ninebark | *Physiocarpos malvaceus* | #1 |
| Western larch | *Larix occidentalis* | #1 | nootka rose or native rose sp. | *Rosa nutkana or rosa sp.* | 4” |
| Western red cedar | *Thuja plicata* | #1 | ocean spray | *Holodiscus discolor* | #1 |
| Western white pine | *Pinus monticola* | #1 | oregon grape | *Mahonia aquifolium* | 4” |
| ***Shrubs*** | | | red flowering currant | *Ribes sanguineum* | #1 |
| black twinberry | *Lonicera involucrata* | #1 | red osier dogwood | *Cornus stolonifera* | #1 |
| blue elderberry | *Sambucus caerulea* | #1 | Saskatoon berry | *Amelanchier alnifolia* | #1 |

## 7.1 Acquiring Native Plant Stock

Nurseries located as close to the planting sites as possible are recommended to ensure the genetic integrity of selected species are as ecologically appropriate as possible. The species composition and sizing may be subject to minor changes from what is proposed in this plan. Careful transportation to the site is critical to plant survivability.

Native plant stock can be obtained from the following nurseries:

- Sagebrush Nursery; 38206 93rd St. RR 2; Oliver, BC V0H 1T0; (250) 498-8898
- Tipi Mountain Native Plants; Box 946; Cranbrook BC V1C 4J6; (250) 427-7010
- PRT Harrop; 6320 Harrop - Procter Road; Nelson, BC Canada V1L 6P9; Phone: (250) 229-5353

# 8 CONCLUSION

Overall, the construction of the two amenity buildings as proposed will pose minimal ecological risk to Kootenay Lake provided that the best management practices and mitigation measures outlined in this document are implemented. If you have any comments or questions, please do not hesitate to contact me.

# 9 CLOSURE

I, Fiona Lau, 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:**

**Fiona Lau, BTech AScT.**

**Reviewed by:**

**Sylvie Masse, M.Sc., R.P.Bio.**
**College of Applied Biology: R.P.Bio. #834**

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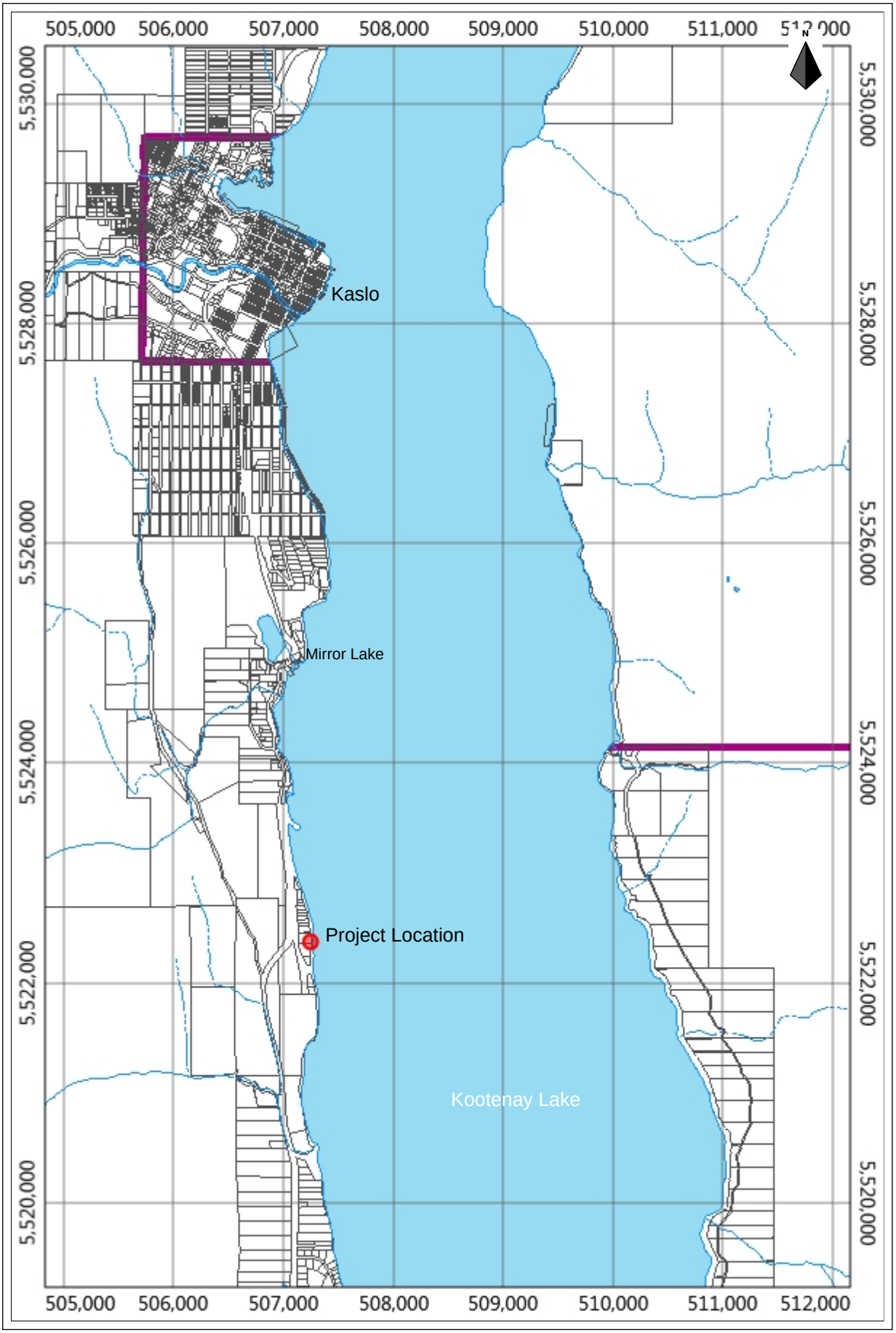
**APPENDIX 1**
**LOCATION MAP**




# RDCK Map

## Legend

- Streams
- Cadastre / Property Li
- Lakes (Mid Scale)
- Electoral Boundaries (

## Notes

Map Details

5278 Amundsen Rd
Kaslo, BC
Site Location

Date Plotted: 5/17/2017

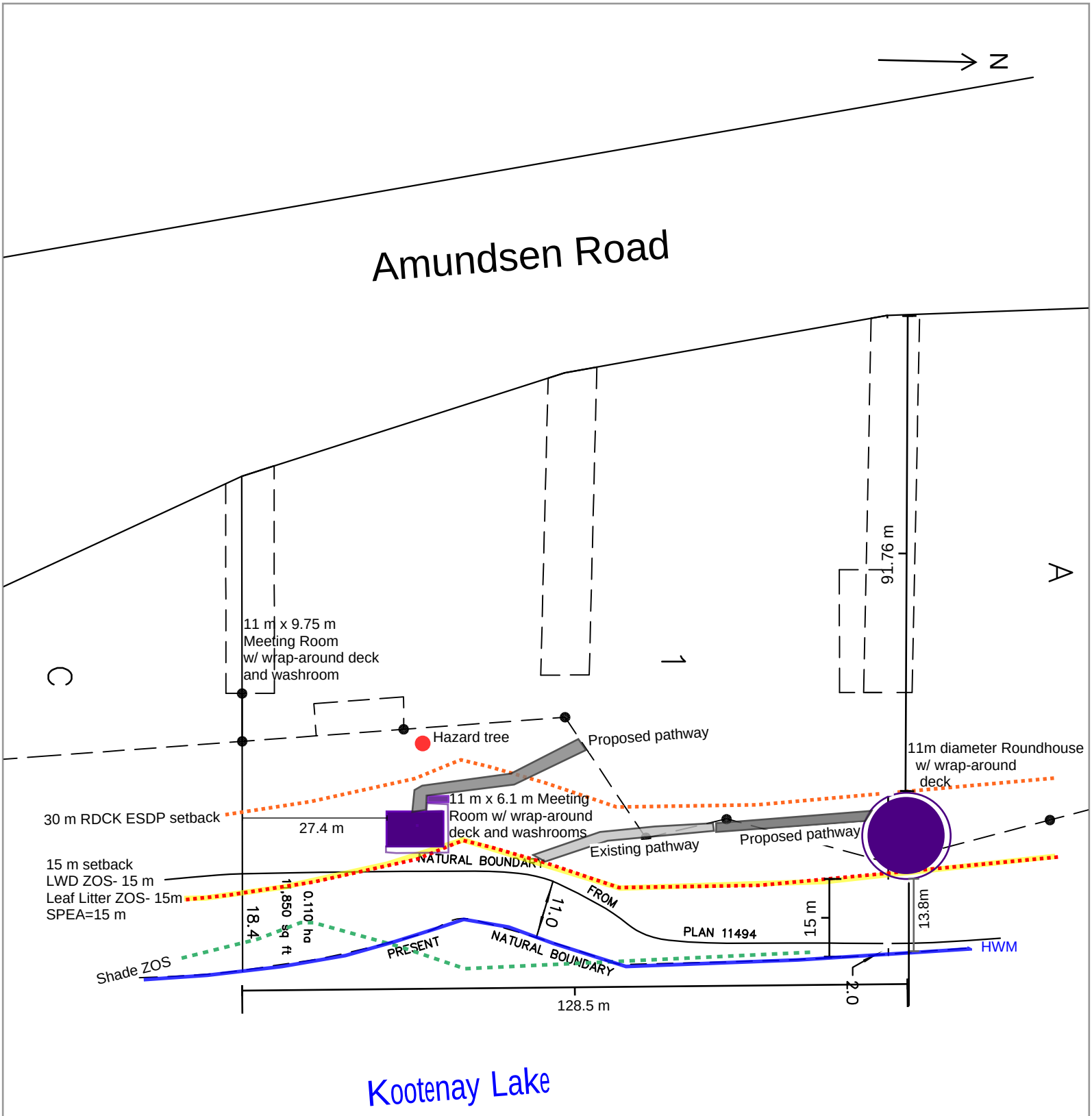

REGIONAL DISTRICT CENTRAL KOOTENAY

*202 Lakeside Drive*
*Nelson, BC*
*1-800-268-7325*
*http://www.rdck.ca*


0 5,000.00 Meters 10cm

1 : 50,000.00

**APPENDIX 2**
**SITE PLAN AND SPEA SETBACKS**




Legend

- SPEA Setback (15m)
- RDCK ESDP Setback (30 m)
- Proposed structures (Meeting Room =97 m2 Roundhouse= 140 m2)
- Hazard tree

5278 Amundsen Rd
Proposed Site Plan with SPEA setbacks
Date: May 2017
Scale: 1:100

Masse Environmental Consultants Ltd.

**APPENDIX 3**
**RIPARIAN PLANTING PLAN**

# Planting Legend

Riparian Planting Areas

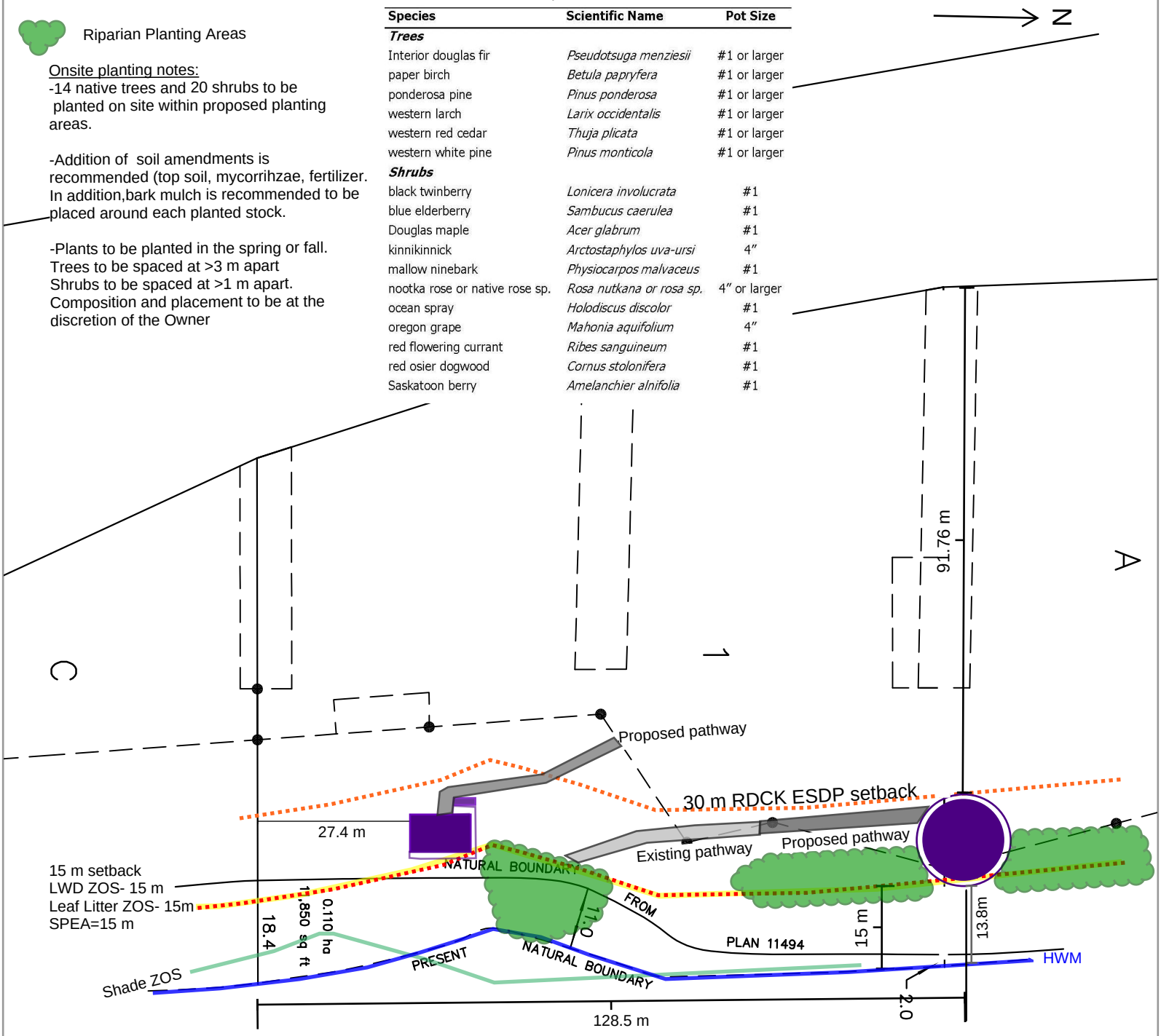
Onsite planting notes:
-14 native trees and 20 shrubs to be planted on site within proposed planting areas.

-Addition of soil amendments is recommended (top soil, mycorrihzae, fertilizer. In addition,bark mulch is recommended to be placed around each planted stock.

-Plants to be planted in the spring or fall.
Trees to be spaced at >3 m apart
Shrubs to be spaced at >1 m apart.
Composition and placement to be at the discretion of the Owner

Recommended Plant Species

| Species | Scientific Name | Pot Size |
|---|---|---|
| ***Trees*** | | |
| Interior douglas fir | *Pseudotsuga menziesii* | #1 or larger |
| paper birch | *Betula papryfera* | #1 or larger |
| ponderosa pine | *Pinus ponderosa* | #1 or larger |
| western larch | *Larix occidentalis* | #1 or larger |
| western red cedar | *Thuja plicata* | #1 or larger |
| western white pine | *Pinus monticola* | #1 or larger |
| ***Shrubs*** | | |
| black twinberry | *Lonicera involucrata* | #1 |
| blue elderberry | *Sambucus caerulea* | #1 |
| Douglas maple | *Acer glabrum* | #1 |
| kinnikinnick | *Arctostaphylos uva-ursi* | 4" |
| mallow ninebark | *Physiocarpos malvaceus* | #1 |
| nootka rose or native rose sp. | *Rosa nutkana or rosa sp.* | 4" or larger |
| ocean spray | *Holodiscus discolor* | #1 |
| oregon grape | *Mahonia aquifolium* | 4" |
| red flowering currant | *Ribes sanguineum* | #1 |
| red osier dogwood | *Cornus stolonifera* | #1 |
| Saskatoon berry | *Amelanchier alnifolia* | #1 |




Kootenay Lake

Legend

- SPEA Setback (15m)
- RDCK ESDP Setback (30 m)
- Proposed structures

5278 Amundsen Rd
Riparian Planting Plan
Date: May 2017
Scale: 1:100

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