

TREE MANAGEMENT PLAN

LOT 2 HARROW RD.
PEMBERTON, BC

CPA DEVELOPMENT
CONSULTANTS

Submitted by:

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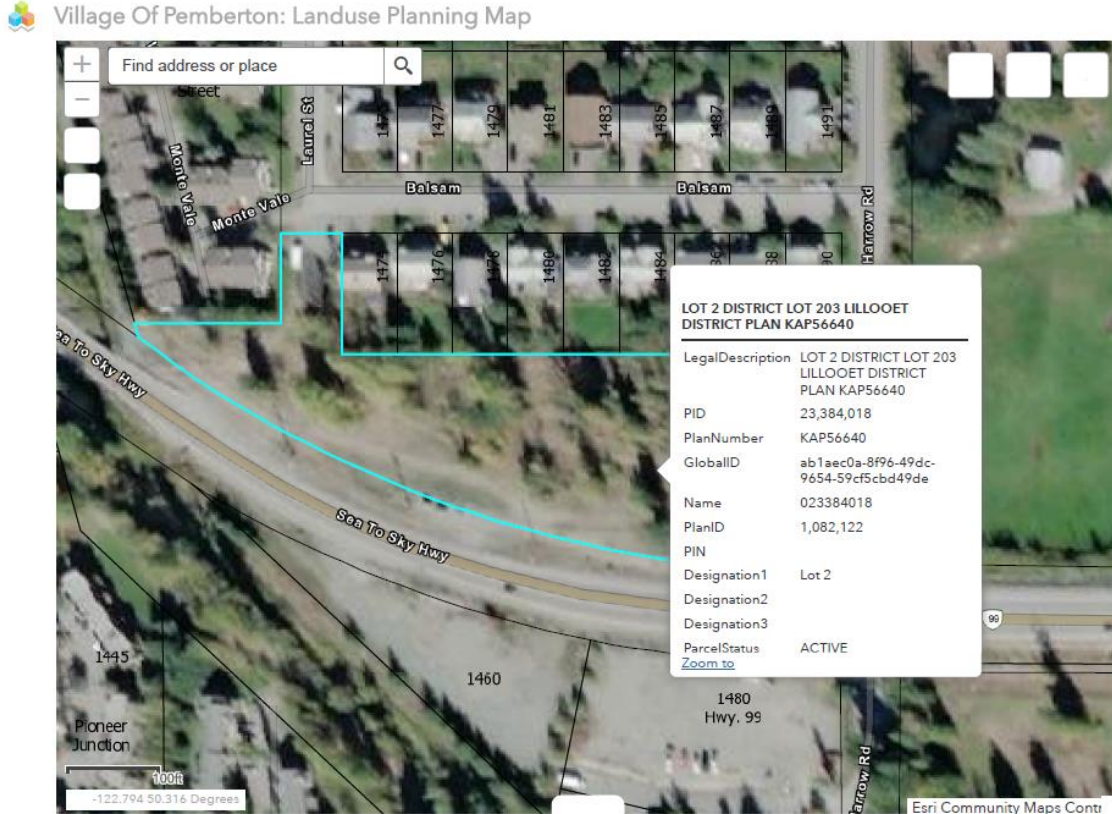
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1. Property Location

One lot comprises the property Lot 2, Harrow Rd., Pemberton, B.C.as presented in Figure 1.

Figure 1. An aerial image of the site.



2. Scope and Purpose

This report is provided to you as a means of addressing the Village of Pemberton requirements for tree inventory and management plan in the permit application process associated with the proposed development at Lot 2 Harrow Rd. The purpose of this report is to provide a tree inventory for all trees on the property and in close proximity to the proposed development (Table 1). Tree management recommendations for the development will be described. This information is intended to assist permitting officers, landscape architects, engineers and project managers during the planning and implementation of this project.

The site survey is described in Figure 2 that includes identified trees highlighted in green. The proposed development will have 63 housing units for community members and ground floor commercial space and community services. Associated parking and playground area are also proposed (Figure 3).

Figure 2. Site survey at Lot 2 Harrow Rd., Pemberton B.C.

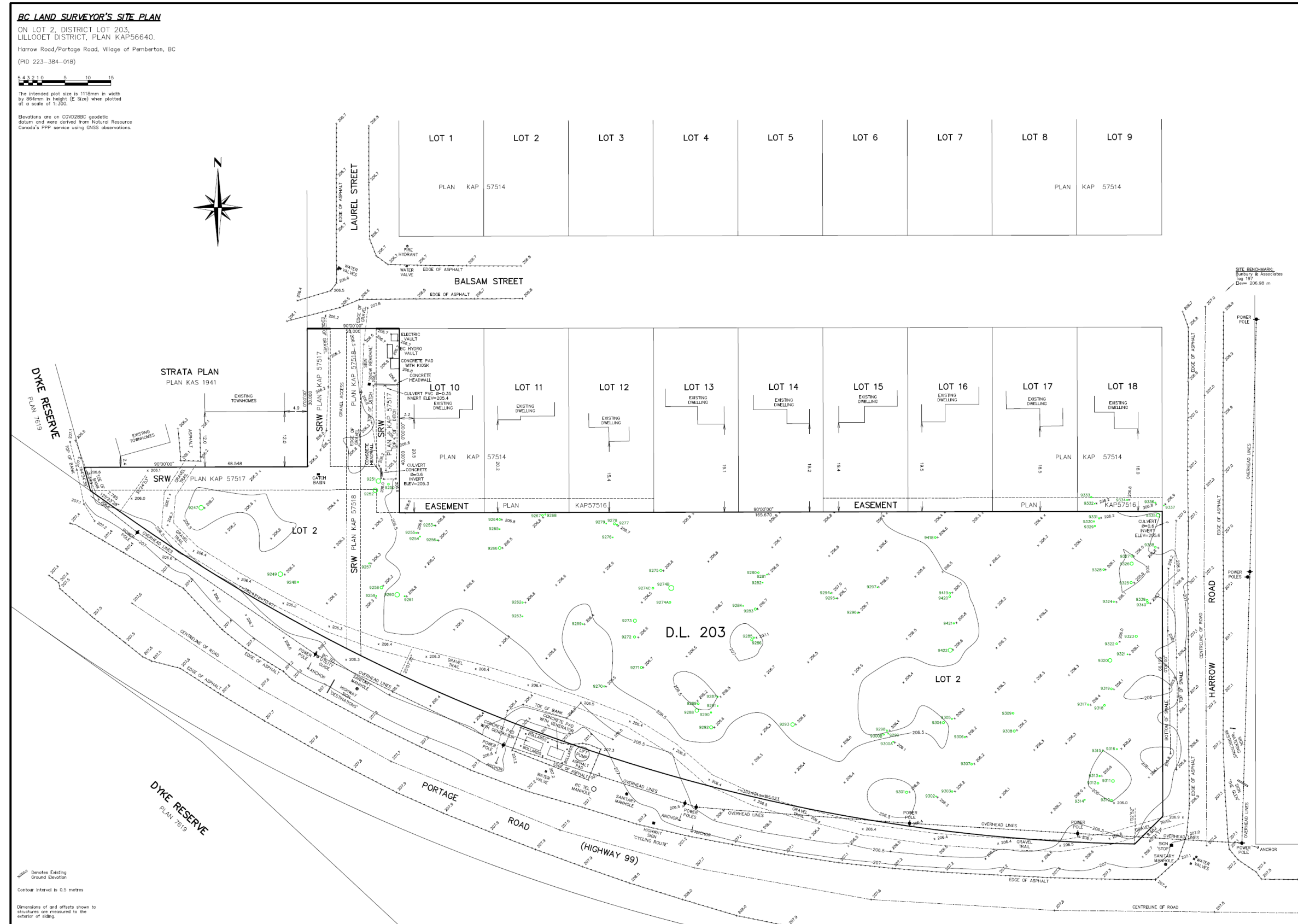
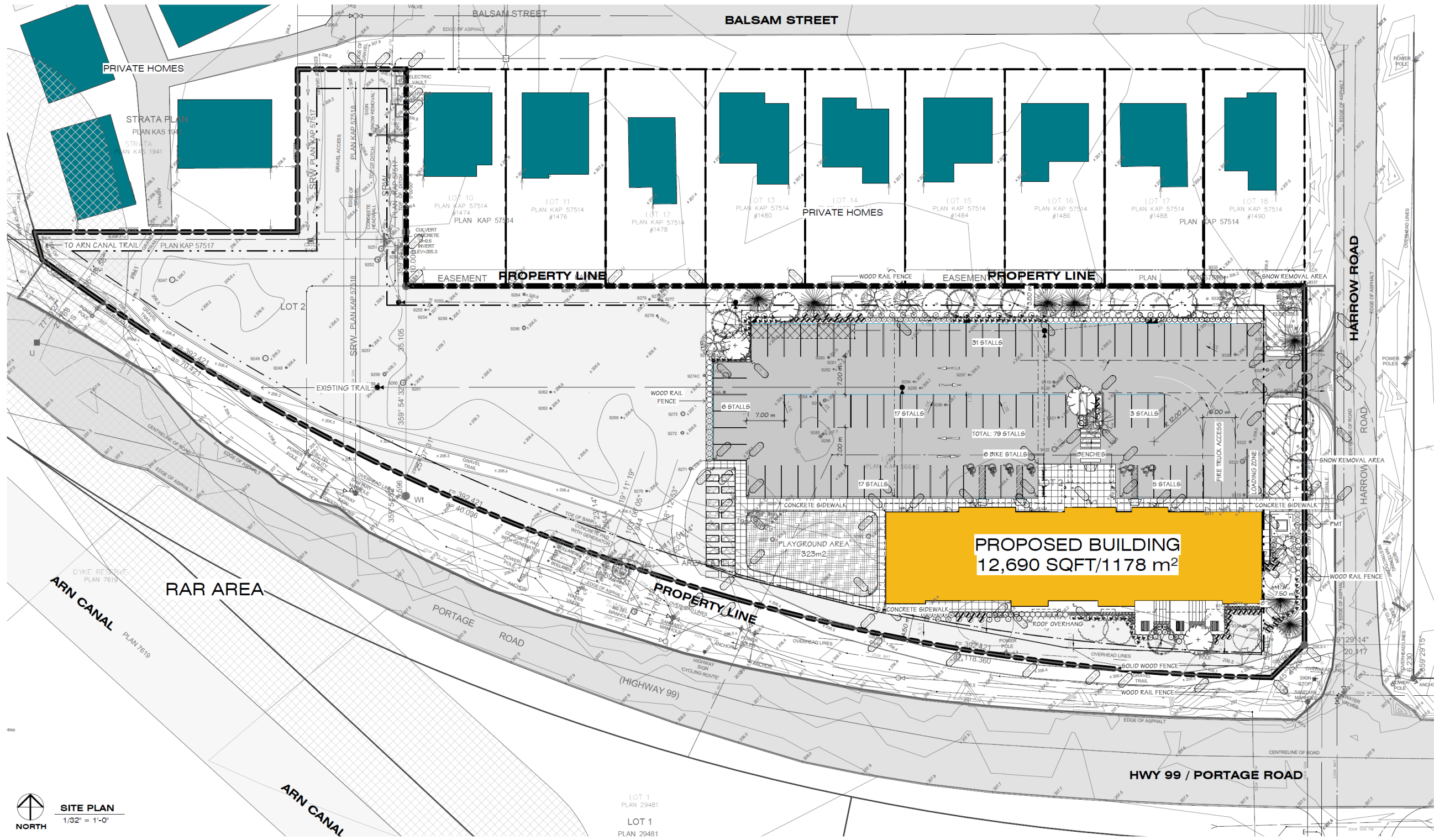


Figure 3. Proposed development at Lot 2 Harrow Rd., Pemberton B.C.



3. Site Assessment and Tree Inventory

A site visit was completed on February 28, 2022. Highway 99 borders the property, to the south. Harrow Road borders the west and private residential properties border the north of the subject property. The lot was undeveloped at time of survey.

The property is generally level and sparsely forested with juvenile mixed species forest composed of 40% Black cottonwood (*Populus trichocarpa*), 35% Pine (*Pinus spp.*) and 25% Douglas fir (*Pseudotsuga menziesii*). At time of site visit, snow was present on the ground, such that observations of tree bases and surface roots was not always possible.

In accordance with the Village of Pemberton Site Alteration Bylaw No. 822, 2017, trees with 10cm diameter at breast height (DBH) measured 1.4m above ground, were identified. In total, 102 trees were identified during the survey. Four trees were identified on neighbouring northwestern property, 1490 Balsam Street. One street tree was identified between Harrow Road and the subject property. Ninety-seven trees were located on the subject property, Lot 2 Harrow Road. Table 1 provides a description of all identified trees.

A tree protection zone (TPZ) is an arborist defined area around each tree intended to protect roots and soil within the critical root zone during development in order to ensure the health and stability for long term retention. The actual TPZ may be defined using many factors including the health and age of a tree, species and any existing factors that may have restricted root and / or canopy development.

Condition classifications included in Table 1 adhere to the following overall health and structure rating:

- Good - Tree is in good condition with no significant structural weakness or health concerns, considering the location, site conditions and species.
- Fair - Tree has noted health and / or minor structural weaknesses. Management strategies such as pruning, and modifications are reasonable to improve the health and / or condition of the tree.
- Poor - Tree is in serious decline and has multiple very definable health and / or structural weaknesses.
- Dead / Dying - Tree was found to be dead and/or dying and/or has sever defects

Table 1. Tree inventory and description of all trees on and in close proximity to the development.

Tree Number	Species	DBH (cm)	Height (m)	Condition	Comments	Treatment
9247	Cottonwood (<i>Populus trichocarpa</i>)	100	12	poor	extensive stem damage/rot	Remove due to poor condition
9248	Cottonwood (<i>Populus trichocarpa</i>)	30	11	poor	numerous cankers, extensive restoration	Remove due to poor condition
9249	Douglas fir (<i>Pseudotsuga menziesii</i>) x2	100	13	fair	numerous cankers, extensive restoration	Retain
9250	Cottonwood (<i>Populus trichocarpa</i>)	40	12	fair	numerous cankers, extensive restoration	Retain
9251	Cottonwood (<i>Populus trichocarpa</i>) x3	100	14	fair	numerous cankers, extensive restoration	Retain
9252	Cottonwood (<i>Populus trichocarpa</i>) x3	100	12	fair	numerous cankers, extensive restoration	Retain
9253	Cottonwood (<i>Populus trichocarpa</i>)	20	10	fair	some cankers on lower stem	Retain
9254	Cottonwood (<i>Populus trichocarpa</i>)	25	12	fair	some cankers on lower stem	Retain
9255	Cottonwood (<i>Populus trichocarpa</i>)	25	12	fair	some cankers on lower stem	Retain
9256	Cottonwood (<i>Populus trichocarpa</i>)	20	10	fair	some cankers on lower stem	Retain
9257	Cottonwood (<i>Populus trichocarpa</i>)	30	13	fair	some cankers on lower stem	Retain
9258	Cottonwood (<i>Populus trichocarpa</i>) x2	60	13	fair	some cankers on lower stem	Retain
9259	Cottonwood (<i>Populus trichocarpa</i>)	20	>	fair	some cankers on lower stem	Retain
9260	Cottonwood (<i>Populus trichocarpa</i>)	100	21	fair	no cankers present	Retain
9261	Pine (<i>Pinus spp</i>)	25	8	fair		Retain
9262	Cottonwood (<i>Populus trichocarpa</i>)	30	12	fair	some cankers on lower stem	Retain
9263	Cottonwood (<i>Populus trichocarpa</i>)	20	>	fair	some cankers on lower stem	Retain
9264	Douglas fir (<i>Pseudotsuga menziesii</i>) x2	40	15	fair	some cankers on lower stem	Retain
9265	Cottonwood (<i>Populus trichocarpa</i>)	20	14	fair	some cankers on lower stem	Retain
9266	Cottonwood (<i>Populus trichocarpa</i>) x4	60	14	fair	some cankers on lower stem	Retain
9267	Pine (<i>Pinus spp</i>) x2	40	8	fair	some cankers on lower stem	Retain
9268	Pine (<i>Pinus spp</i>)	25	8	fair	some cankers on lower stem	Retain
9269	Cottonwood (<i>Populus trichocarpa</i>)	20	7	fair	some cankers on lower stem	Retain
9270	Cottonwood (<i>Populus trichocarpa</i>) x3	30	6	fair	some cankers on lower stem	Retain
9271	Cottonwood (<i>Populus trichocarpa</i>)	50	11	poor	large cankers and stem swelling	Within development footprint, recommended for removal
9272	Cottonwood (<i>Populus trichocarpa</i>)	50	9	poor	canker and stem swelling and dead top	Remove due to poor condition
9273	Douglas fir (<i>Pseudotsuga menziesii</i>)	70	20	fair		Retain

Tree Number	Species	DBH (cm)	Height (m)	Condition	Comments	Treatment
9274A	Douglas fir (<i>Pseudotsuga menziesii</i>)	40	16	fair		Within development footprint, recommended for removal
9274B	Cottonwood (<i>Populus trichocarpa</i>)	110	17	poor	stem damage and badly attached top	Within development footprint, recommended for removal
9274C	Cottonwood (<i>Populus trichocarpa</i>)	40	16	poor	large wounds/swelling	Within development footprint, recommended for removal
9275	Cottonwood (<i>Populus trichocarpa</i>)	50	16	fair	some cankers/swelling	Within development footprint, recommended for removal
9276	Cottonwood (<i>Populus trichocarpa</i>)	20	9	fair	some cankers/swelling	Retain
9277	Cottonwood (<i>Populus trichocarpa</i>)	30	16	fair	some cankers/swelling	Retain
9278	Cottonwood (<i>Populus trichocarpa</i>)	45	17	fair	some cankers/swelling	Retain
9279	Douglas fir (<i>Pseudotsuga menziesii</i>)	20	5	fair	some cankers present	Retain
9280	Cottonwood (<i>Populus trichocarpa</i>)	35	12	fair	some cankers present	Within development footprint, recommended for removal
9281	Cottonwood (<i>Populus trichocarpa</i>)	20	10	fair	some cankers present	Within development footprint, recommended for removal
9282	Pine (<i>Pinus spp</i>)	20	9	fair	some cankers present	Within development footprint, recommended for removal
9283	Cottonwood (<i>Populus trichocarpa</i>)	50	10	poor	2 large tops badly attached	Within development footprint, recommended for removal
9284	Cottonwood (<i>Populus trichocarpa</i>)	20	8	fair	some cankers present	Within development footprint, recommended for removal
9285	Cottonwood (<i>Populus trichocarpa</i>)	30	9	poor	dead, significant rot	Within development footprint, recommended for removal
9286	Cottonwood (<i>Populus trichocarpa</i>)	50	10	poor	numerous large dead limbs, stem damage, badly attached	Within development footprint, recommended for removal
9287	Cottonwood (<i>Populus trichocarpa</i>)	30	9	poor	extensive swelling - poorly attached top	Within development footprint,

Tree Number	Species	DBH (cm)	Height (m)	Condition	Comments	Treatment
						recommended for removal
9288	Cottonwood (<i>Populus trichocarpa</i>) x2	80	8	poor	extensive swelling - poorly attached top	Within development footprint, recommended for removal
9289	Cottonwood (<i>Populus trichocarpa</i>)	40	5	poor	stem damage, swelling and rot	Within development footprint, recommended for removal
9290	Cottonwood (<i>Populus trichocarpa</i>)	30	8	poor	stem damage, swelling and rot	Within development footprint, recommended for removal
9291	Pine (<i>Pinus spp</i>)	20	6	fair		Within development footprint, recommended for removal
9292	Cottonwood (<i>Populus trichocarpa</i>) x2	70	12	fair	some cankers/swelling present	Within development footprint, recommended for removal
9293	Cottonwood (<i>Populus trichocarpa</i>) x2	80	12	fair	some cankers/swelling present	Within development footprint, recommended for removal
9294	Pine (<i>Pinus spp</i>)	20	9	fair		Within development footprint, recommended for removal
9295	Pine (<i>Pinus spp</i>)	20	8	fair		Within development footprint, recommended for removal
9296	Pine (<i>Pinus spp</i>)	20	8	fair		Within development footprint, recommended for removal
9297	Cottonwood (<i>Populus trichocarpa</i>)	30	10	fair		Within development footprint, recommended for removal
9298	Pine (<i>Pinus spp</i>)	20	11	fair		Within development footprint, recommended for removal
9299	Pine (<i>Pinus spp</i>)	20	11	fair		Within development footprint, recommended for removal
9300A	Pine (<i>Pinus spp</i>)	20	11	fair		Within development footprint, recommended

Tree Number	Species	DBH (cm)	Height (m)	Condition	Comments	Treatment
						for removal
9300B	Pine (<i>Pinus</i> spp)	30	10	fair		Within development footprint, recommended for removal
9301	Douglas fir (<i>Pseudotsuga menziesii</i>)	50	13	fair		Within development footprint, recommended for removal
9302	Douglas fir (<i>Pseudotsuga menziesii</i>)	20	9	fair		Within development footprint, recommended for removal
9303	Pine (<i>Pinus</i> spp)	35	9	fair		Within development footprint, recommended for removal
9304	Cottonwood (<i>Populus trichocarpa</i>)	50	14	fair		Within development footprint, recommended for removal
9305	Pine (<i>Pinus</i> spp)	30	13	fair		Within development footprint, recommended for removal
9306	Douglas fir (<i>Pseudotsuga menziesii</i>)	30	12	fair		Within development footprint, recommended for removal
9307	Pine (<i>Pinus</i> spp)	40	9	fair		Within development footprint, recommended for removal
9308	Cottonwood (<i>Populus trichocarpa</i>)	50	13	poor	extensive stem damage and rot	Within development footprint, recommended for removal
9309	Douglas fir (<i>Pseudotsuga menziesii</i>)	40	15	fair		Within development footprint, recommended for removal
9310	Pine (<i>Pinus</i> spp)	40	10	fair		Within development footprint, recommended for removal
9311	Pine (<i>Pinus</i> spp)	60	12	fair		Within development footprint, recommended for removal

Tree Number	Species	DBH (cm)	Height (m)	Condition	Comments	Treatment
9312	Cottonwood (<i>Populus trichocarpa</i>)	40	16	fair	some swelling and cankers	Within development footprint, recommended for removal
9313	Cottonwood (<i>Populus trichocarpa</i>)	30	15	fair	some swelling and cankers	Within development footprint, recommended for removal
9314A	Douglas fir (<i>Pseudotsuga menziesii</i>)	20	6	fair		Within development footprint, recommended for removal
9315	Pine (<i>Pinus spp</i>)	20	9	fair		Within development footprint, recommended for removal
9316	Pine (<i>Pinus spp</i>)	25	9	fair		Within development footprint, recommended for removal
9317	Douglas fir (<i>Pseudotsuga menziesii</i>)	30	12	fair		Within development footprint, recommended for removal
9318	Cottonwood (<i>Populus trichocarpa</i>)	40	12	poor	swelling/stem damage/badly attached tops	Remove due to poor condition
9319	Cottonwood (<i>Populus trichocarpa</i>)	40	10	poor	swelling/stem damage/badly attached tops	Within development footprint, recommended for removal
9320	Cottonwood (<i>Populus trichocarpa</i>) x2	80	10	poor	dead	Within development footprint, recommended for removal
9321	Pine (<i>Pinus spp</i>)	20	10	fair		Within development footprint, recommended for removal
9322	Pine (<i>Pinus spp</i>)	40	15	fair		Within development footprint, recommended for removal
9323	Cottonwood (<i>Populus trichocarpa</i>)	50	14	fair	some swelling/rot/poorly attached tops	Within development footprint, recommended for removal
9324	Pine (<i>Pinus spp</i>)	30	13	fair		Within development footprint, recommended for removal
9325	Cottonwood (<i>Populus trichocarpa</i>)	50	16	poor	swelling/cankers dead tops and large dead limbs	Remove due to poor condition

Tree Number	Species	DBH (cm)	Height (m)	Condition	Comments	Treatment
9326	Cottonwood (<i>Populus trichocarpa</i>)	70	14	poor	swelling/cankers dead tops and large dead limbs	Within development footprint, recommended for removal
9327	Cottonwood (<i>Populus trichocarpa</i>)	50	16	fair	swelling/cankers dead tops and large dead limbs	Within development footprint, recommended for removal
9328	Pine (<i>Pinus spp</i>)	40	13	fair		Within development footprint, recommended for removal
9329	Cottonwood (<i>Populus trichocarpa</i>)	30	14	fair	some cankers/swelling	Within development footprint, recommended for removal
9330	Cottonwood (<i>Populus trichocarpa</i>)	30	>	poor	dead	Within development footprint, recommended for removal
9331	Pine (<i>Pinus spp</i>)	30	12	fair		Within development footprint, recommended for removal
9332	Pine (<i>Pinus spp</i>)	20	10	poor	neighbour tree, 1490 Balsam Street, dead	Retain
9333	Pine (<i>Pinus spp</i>)	30	11	fair	neighbour tree, 1490 Balsam Street,	Retain
9334	Cottonwood (<i>Populus trichocarpa</i>)	25	10	fair	neighbour tree 1490 Balsam Street,	Retain
9335	Cottonwood (<i>Populus trichocarpa</i>)	80	16	poor	significant dead tops/poorly attached and stem damage	Remove
9336	Cottonwood (<i>Populus trichocarpa</i>)	25	11	fair	neighbour tree, 1490 Balsam Street, some cankers on lower stem,	Retain
9337	Cottonwood (<i>Populus trichocarpa</i>)	20	10	fair	street tree	Retain
9338	Cottonwood (<i>Populus trichocarpa</i>)	40	12	poor	swelling/cankers/poorly attached top	Remove due to poor condition
9339	Cottonwood (<i>Populus trichocarpa</i>)	45	14	poor		Within development footprint, recommended for removal
9340	Cottonwood (<i>Populus trichocarpa</i>)	40	>	poor	dead, numerous fruiting bodies	Within development footprint, recommended for removal
9418	Pine (<i>Pinus spp</i>)	40		fair		Within development footprint, recommended for removal
9419	Pine (<i>Pinus spp</i>)	40		fair		Within development footprint, recommended for removal

Tree Number	Species	DBH (cm)	Height (m)	Condition	Comments	Treatment
9420	Pine (<i>Pinus spp</i>)	40		fair		Within development footprint, recommended for removal
9421	Pine (<i>Pinus spp</i>)	30		fair		Within development footprint, recommended for removal
9422	Pine (<i>Pinus spp</i>)	90		fair		Within development footprint, recommended for removal

4. Tree Management Plan

4.1. Street Trees

The survey (Figure 2) identified, one street tree, a Cottonwood (Tag ID 9337) present within the vicinity of the project (Table 1). The tree is in fair condition and is located in the northwest corner between Harrow Road and the neighbouring northwestern property (Figure 4). The tree is on municipal land and must not be harmed during construction.

Arborist recommendations: Retain with the following management practices:

- The TPZ must be well marked and have a tree protection barrier placed 1.2m from the base of the tree to the south, east and north. Orange plastic fencing is recommended as the barrier for its high visibility and size. No material storage or construction equipment storage should occur within the TPZ of the tree. The barrier should be at least 1.4m in height and re-enforced to last throughout the construction time frame.

4.2. Neighbour Trees

The survey (Figure 2) identified four trees located on the neighbouring northwestern property, 1490 Balsam Street (Table 1). The trees are identified as 9333, 9332, 9334, and 9336 (Figure 4). All trees with the exception of 9332 are in fair condition. The trees are adjacent to the development where the proposed carpark is to be built.

Arborist recommendations: Retain with the following management practices:

- Restrict both foot and mechanized traffic over the TPZ of trees. TPZ sizes are contained in Table 1 and Figure 4. The property line fence is sufficient to act as a barrier for the development and to avoid impacting the trees. If a fence is not present then a barrier must be constructed along the property line. Orange plastic fencing is recommended as the barrier for its high visibility and size. The barrier should be at least 1.4m in height and re-enforced to last throughout the construction time frame.

4.3. Property Trees

The survey identified a total of 97 property trees (Figure 2) on the project site. Of those, 68 trees are recommended for removal because they are within the development footprint. The remainder are outside of the development footprint. Of the remaining trees, 26 trees are recommended for retention because they are in fair condition and 3 trees are in poor condition and subsequently recommended for removal. A number of Cottonwood trees in poor condition were identified to have suffered borer infestation, possibly Cottonwood Borer (*Plectrodera scalator*). The majority of these trees were within the development footprint and are requested for removal.

Arborist recommendations: Subject to receiving permission from the Village of Pemberton, remove 68 trees because they are within the development footprint as depicted in Figure 4. Subject to receiving permission from the Village of Pemberton, remove a further 3 poorly rated trees due to being assessed in poor condition (Figure 4). A summary is provided in Table 2.

Table 2. Property tree management

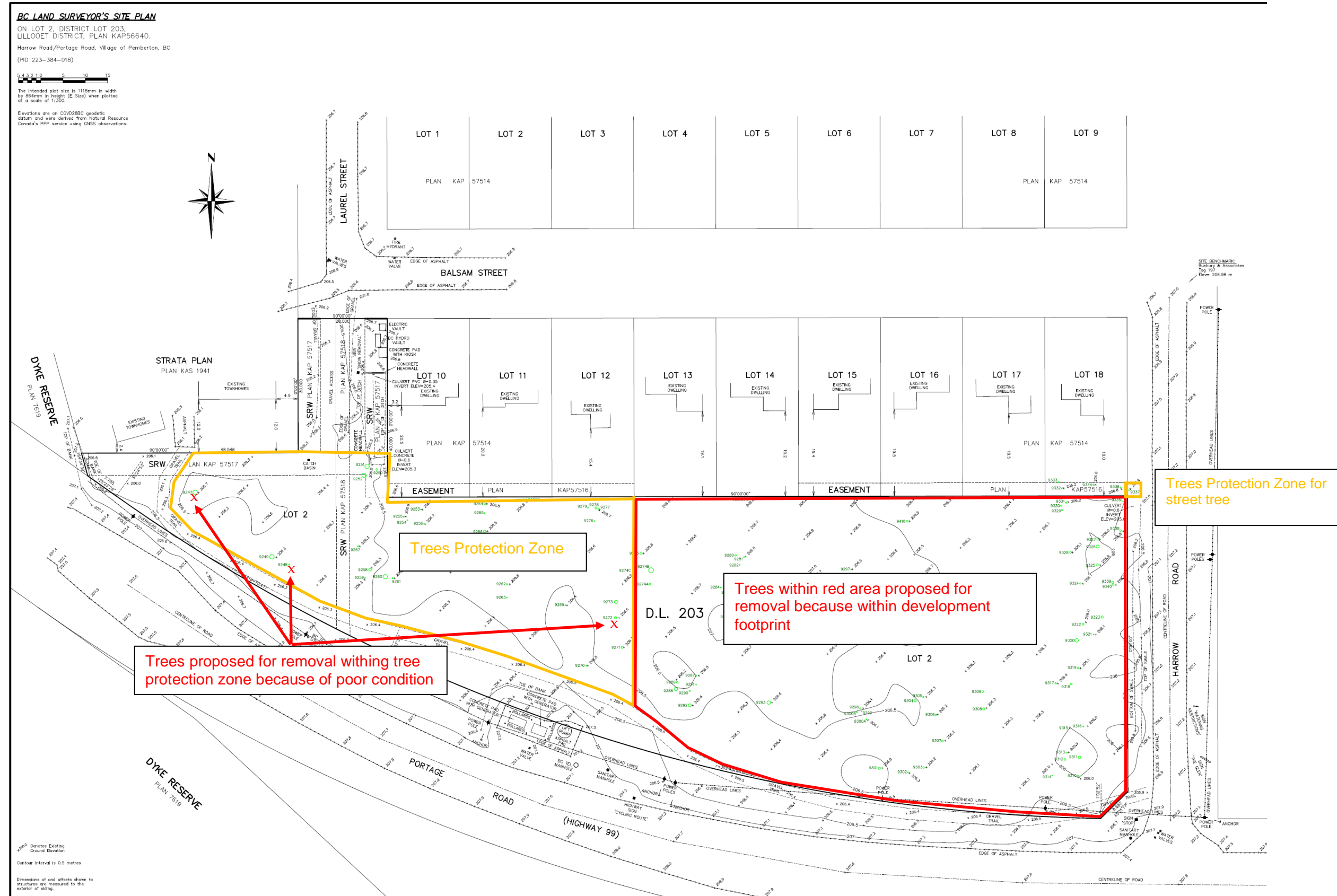
Total trees on property over 20cm Dbh	Trees proposed to be removed due to being within development footprint.	Trees proposed to be removed due to being in poor condition	Trees to be retained
97	68	3	26

The following mitigation measures are to be incorporated for construction.

- Prior to construction, protect retained trees in the western portion of the subject property by establishing a TPZ that borders the proposed wood fence along the western carpark and urban agriculture boxes in a north to south direction as depicted in Figure 4. Restrict both foot and mechanized traffic over the TPZs of the trees by using protective fencing around the area. The TPZ must be well marked and be sufficient enough to deter all foot traffic during the entire duration of the development project. Orange plastic fencing is recommended as the barrier for its high visibility and size. No material storage or construction equipment storage should occur within the TPZ of the trees. The barrier should be at least 1.4m in height and re-enforced to last throughout the construction time frame.
- Any proposed work within the TPZ for construction of the connector trail located within the western portion of the subject property, is limited to hand excavation that is no deeper than 30cm in depth from the original ground elevation. If during hand excavation critical roots greater than 2.5cm in diameter are discovered, then the supervising arborist will direct work to be halted until appropriate mitigation is enacted.
- Where the connector trail or other landscape hardscape features are proposed through the TPZ of any retained trees identified in this section, then action should be taken to disperse the load and protect the roots where incursion occurs. Minimize soil compaction and mechanical root damage by avoiding excavation for the proposed path and use permeable or semi permeable surfacing. These should be developed in consultation with a certified arborist.

- Retained trees that require pruning for development should be pruned by a certified arborist in accordance with Best Management Practices ANSI A300.

Figure 4. Tree protection zone(s) and trees recommended for removal



5. Testing and Analysis:

The assessment completed on the trees defined within this report, consisted of a visual and physical inspection from the ground and was based upon the principals of Visual Tree Assessments. No invasive tests, such as using a resistograph or increment borer, were used during the testing for this report.

6. Assumptions and Limiting Conditions:

- The information contained in this report covers only those items that were examined and reflect the condition of these items at the time of inspection. The inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees or property in question may not arise in the future.
- The opinions in this Report are given based upon observations made using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Report are valid only as at the date any such testing, observations and analysis took place. No guarantee, warranty, representation or opinion is offered or made by Silverback Treeworks Ltd. as to the length of the validity of the results, observations, recommendations and analysis contained within this Report.
- Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the appraiser/company can neither guarantee nor be responsible for the accuracy of information provided by others.
- All tree work is to be completed under the supervision of an ISA Certified Arborist and in compliance with ISA, BC Hydro and WCB standards.
- Alteration of any part of this report invalidates the entire report.
- Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
- Silverback Treeworks Ltd shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
- Silverback Treeworks Ltd, its officers, employees and agents make no warranty, express or implied representation or otherwise, in respect of this report or its contents.

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7. CLOSURE

If there are any questions regarding any of the recommendations provided within this report, please feel free to contact me at any time.

Sincerely:



March 19, 2022

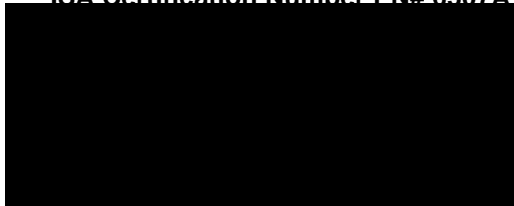
Andrew Hooper

Date

Project Arborist

ISA Certification Number PN# 6307A

Sincerely:



March 19, 2022

Marek Holin, RPBio

Date

Consulting Arborist

ISA Certification Number PN# 9070A

Appendix 1 Digital Photo Record



