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960 FOUL BAY ROAD—OAK BAY, BC

CONSTRUCTION IMPACT ASSESSMENT &

TREE MANAGEMENT PLAN

PREPARED FOR: 960 Foul Bay Holdings c/o Jennifer Travelbea
754 Humboldt Street
Victoria, BC
V8W 4A1

PREPARED BY: Talmack Urban Forestry Consultants Ltd.
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Tree Risk Assessment Qualified
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DATE OF ISSUANCE: January 2, 2025

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REVISION RECORD

REVISION	DESCRIPTION	DATE (YYYY-MM-DD)	ISSUED BY
0	Original construction impact assessment & tree management plan	2017-11-10	GM
1	Construction Impact Assessment and Tree Management Plan (new designs)	2025-01-02	RM

1. INTRODUCTION

Talmack Urban Forestry Consultants Ltd. was engaged to complete a tree inventory, construction impact assessment and management plan for the trees at the following proposed project:

Site:	960 Foul Bay Road
Municipality:	Oak Bay
Client Name:	960 Foul Bay Road Holdings
Dates of Site Visit(s):	November 2017; November 2022; June 17, 2024
Site Conditions:	Relatively flat residential lot with no ongoing construction.
Weather During Site Visit:	Sunny

The purpose of this report is to address requirements of the Oak Bay arborist report terms of reference, and Tree Protection Bylaw No. 4742. The construction impact assessment section of this report **(Section 8)** is based on plans reviewed to date, including building plans from Zebra Design (dated December 19th, 2024), civil plans from Islander Engineering (dated December 23rd, 2024), preliminary landscape plans from Lombard North Group (dated December 24th, 2024), and site survey from Powell & Associates (dated November 4, 2022).

2. TREE INVENTORY METHODOLOGY

Prior to our site visit, we were provided surveyed tree locations for on-site trees. For the purposes of this report, the size, health, and structural condition of trees were documented. For ease of identification in the field, numerated metal tags are attached to the lower trunks of on-site trees. Trees located on neighbouring properties, the municipal frontage, or in areas where access was restricted, were not tagged. Each tree was visually examined on a limited visual assessment basis (level 1), in accordance with Tree Risk Assessment Qualification (TRAQ) methods (Dunster *et al.* 2017) and ISA Best Management Practices.

3. EXECUTIVE SUMMARY

Based on review of the plans and our understanding of the project scope, twenty-six (26) on-site bylaw-protected trees are likely to require removal due to impacts from the proposed construction, along with three (3) off-site protected trees and five (5) municipal trees. See **Sections 8.1., 8.2., and 8.3.** A further one (1) bylaw-protected on-site tree (#470) will be removed by BC Hydro prior to development.

All other inventoried trees are located where they are possible for retention, provided impact mitigation recommendations outlined in **Sections 8.1.1., 8.2.1., and 8.3.1.** are followed. To summarize:

- Building B is proposed within the critical root zones (CRZs) of one (1) off-site protected tree (OS2)—its retention status has been identified as "to be determined (TBD)"—possible impact mitigation recommendations are discussed in **Section 8.3.1.** Due to potential indicators of structural defects in OS2, as well as anticipated changes to wind exposure, we also recommend an advanced (Level 3) risk assessment is completed prior to construction.
- The retention status of Garry oak OS7 has also been identified "TBD" due to anticipated impacts from the proposed storm drain (SD) lateral and manhole (MH) within its CRZ, as well as the proposed municipal sidewalk. Impact mitigation recommendations are outlined in **Section 8.3.1.**
- Three (3) municipal trees (M2, M3, and M5) have also been identified "TBD" due to anticipated impacts from the storm drain (SD) lateral/manhole (MH) and/or municipal sidewalk proposed within the CRZs.

Due to potential indicators of structural weakness, we have determined that a large limb from #992 may be a "moderate" risk of failure within striking distance of off-site targets. See **Section 7.1.** for mitigation recommendations.

The existing lot is zoned RS-4, which requires 35% canopy coverage. An additional 953.34m^2 must be incorporated into the landscape to meet this figure. See ***Appendix B***—Canopy Coverage Study.

4. TREE INVENTORY DEFINITIONS

Tag: Tree identification number on a metal tag attached to tree with nail or wire, generally at eye level. Trees on municipal or neighboring properties are not tagged.

OS: No tag due to inaccessibility or ownership by neighbour.

DBH: Diameter at breast height – diameter of trunk, measured in centimeters at 1.4m above ground level. For trees on a slope, it is taken at the average point between the high and low side of the slope.

* Measured over ivy

~ Approximate due to inaccessibility or on neighbouring property

Dripline: Indicates the radius of the crown spread measured in meters to the dripline of the longest limbs.

Relative Tolerance Rating: Relative tolerance of the tree species to construction related impacts such as root pruning, crown pruning, soil compaction, hydrology changes, grade changes, and other soil disturbance. This rating does not take into account individual tree characteristics, such as health and vigour. Three ratings are assigned based on our knowledge and experience with the tree species: Poor (P), Moderate (M) or Good (G).

Critical Root Zone: A calculated radial measurement in meters from the trunk of the tree. It is the optimal size of tree protection zone and is calculated by multiplying the DBH of the tree by 10, 12 or 15 depending on the tree's Relative Tolerance Rating. This methodology is based on the methodology used by Nelda Matheny and James R. Clark in their book "Trees and Development: A Technical Guide to Preservation of Trees During Land Development."

- 15 x DBH = Poor Tolerance of Construction
- 12 x DBH = Moderate

- 10 x DBH = Good

To calculate the critical root zone, the DBH of multiple stems is considered the sum of 100% of the diameter of the largest stem and 60% of the diameter of the next two largest stems. It should be noted that these measures are solely mathematical calculations that do not consider factors such as restricted root growth, limited soil volumes, age, crown spread, health, or structure (such as a lean).

Health Condition:

- Poor – significant signs of visible stress and/or decline that threaten the long-term survival of the specimen
- Fair – signs of stress
- Good – no visible signs of significant stress and/or only minor aesthetic issues

Structural Condition:

- Poor – Structural defects that have been in place for a long period of time to the point that mitigation measures are limited
- Fair – Structural concerns that are possible to mitigate through pruning
- Good – No visible or only minor structural flaws that require no to very little pruning

Suitability ratings are described as follows:

Rating: Suitable.

- A tree with no visible or minor health or structural defects, is tolerant to changes to the growing environment and is a possible candidate for retention provided that the critical root zone can be adequately protected.

Rating: Conditional.

- A tree with good health but is a species with a poor tolerance to changes to its growing environment or has a structural defect(s) that would require that certain measures be implemented, in order to consider it suitable for retention (ie. retain with other codominant tree(s), structural pruning, mulching, supplementary watering, etc.)

Rating: Unsuitable.

- A tree with poor health, a major structural defect (that cannot be mitigated using ANSI A300 standards), or a species with a poor tolerance to construction impacts, and unlikely to survive long term (in the context of the proposed land use changes).

Retention Status:

- Remove – Not possible to retain given proposed construction plans
- Retain – It is possible to retain this tree in the long-term given the proposed plans and information available. This is assuming our recommended mitigation measures are followed
- Retain * - See report for more information regarding potential impacts
- TBD – “To be determined” at the time of construction or as new information becomes available

TABLE 1: TREE INVENTORY

Previous Tag or ID#	Tag or ID#	Surveyed? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected? (Yes/No)	Name		dbh (cm)	Dripline radius (m)	Critical root zone radius (m)	Condition		Relative Tolerance	Retention Suitability (on-site trees)	General field observations/remarks	Tree retention / location comments	Retention status
					Common	Botanical				Health	Structural					
NT10	**M1**	Y	M	**Y**	Western Red Cedar	*Thuja plicata*	77	6	9.24	Fair	Fair to good	Moderate	N/A	Slight corrected lean to the east, some health stress, historical utility pruning on east side, rooted adjacent to crosswalk	Conflict with proposed entrance plaque; potential impacts from proposed sidewalk.	**X**
NT4	**M2**	Y	M	**Y**	Garry oak	*Quercus garryana*	66	9	6.6	Fair	Fair	Good	N/A	Historical lower trunk wound with response growth, extended lower limbs to the northwest, branch dieback, some health stress, slight lean to the north, possible included bark at union on lowest limb.	Potential impacts from proposed sidewalk, SD/MH	**TBD**
NT5	**M3**	Y	M	**Y**	Garry oak	*Quercus garryana*	34*	3	3.4	Poor	Fair to poor	Good	N/A	Narrow canopy, historical leader failure with possible decay, heavy ivy infestation, large deadwood	Potential impacts from proposed sidewalk, SD/MH	**TBD**
NT7	**M4**	Y	M	**Y**	Cherry plum	*Prunus cerasifera*	16,21,15,16,12	7	4.824	Fair	Fair	Moderate	N/A	Canopy extends out to the street to the north, historical pruning wounds, included bark at various unions	Conflict with proposed sidewalk.	**X**
NT6	**M5**	Y	M	**Y**	Garry oak	*Quercus garryana*	40	12	4	Fair	Fair	Good	N/A	Lean to the east, canopy and trunk are unilaterally weighted to the east, historically pruning wounds with response growth, small deadwood, bark sloughing on lower trunk	Potential impacts from proposed sidewalk.	**TBD**
	M6	N	M	**Y**	Plum	*Prunus sp.*	13,15,10,10	5	3.456	Fair to good	Fair	Moderate	N/A	Interacting with adjacent Garry oak, some what extended crown	Within footprint of proposed sidewalk.	**X**
NT8	**M7**	Y	M	**Y**	Garry oak	*Quercus garryana*	4	0.5	0.4	Fair	Fair	Good	N/A	Soil compaction concerns due to parked cars, young tree, no support structures	Within footprint of proposed sidewalk. Transplant?	**X**
NT9	**M8**	Y	M	**Y**	Garry oak	*Quercus garryana*	7	1	0.7	Fair to good	Fair to good	Good	N/A	Young tree, support structures	Within footprint of proposed sidewalk. Transplant?	**X**
	467	Y	ON	**Y**	Douglas fir	*Pseudotsuga menziesii*	61	5	7.32	Fair	Fair to good	Moderate	Unsuitable	Small deadwood, growing in a row, some health stress, historical utility pruning	Conflict with sidewalks/patio; impacts from proposed Building C/wall.	**X**
	468	Y	ON	**Y**	Douglas fir	*Pseudotsuga menziesii*	65	5	7.8	Fair	Fair to good	Moderate	Unsuitable	Small deadwood, growing in a row, some health stress, epicormic growth, historical utility pruning	Conflict with sidewalks/patio; impacts from proposed Building C/wall.	**X**

Previous Tag or ID#	Tag or ID#	Surveyed? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected? (Yes/No)	Name		dbh (cm)	Dripline radius (m)	Critical root zone radius (m)	Condition		Relative Tolerance	Retention Suitability (on-site trees)	General field observations/remarks	Tree retention / location comments	Retention status
					Common	Botanical				Health	Structural					
998	**469**	Y	ON	**Y**	Douglas fir	*Pseudotsuga menziesii*	74	5	8.88	Fair to poor	Fair to good	Moderate	Unsuitable	Small deadwood, growing in a row, health stress, historically utility pruning, sparse canopy	Within proposed sidewalk footprint; impacts from proposed Building C/wall.	**X**
	470	Y	ON	**Y**	Douglas fir	*Pseudotsuga menziesii*	63	5	7.56	Poor	Fair	Moderate	Unsuitable	Advanced health stress, very sparse canopy, historical utility pruning, small to medium sized deadwood, growing in a row	To be removed by BC Hydro.	**X**
	471	Y	ON	**Y**	Douglas fir	*Pseudotsuga menziesii*	31	5	3.72	Fair to poor	Fair to poor	Moderate	Unsuitable	Canopy weighted to the east, historically leader lost/damage, historical utility pruning, small to medium sized deadwood, growing in a row	Within proposed sidewalk footprint; impacts from proposed Building D/wall.	**X**
	472	Y	ON	**Y**	Lawson cypress	*Chamaecyparis lawsoniana*	45	5	4.5	Fair	Fair	Good	Unsuitable	Root adjacent to garage, historically crown raised, small surface rooting, some health stress, twig dieback, possible girdle roots from cedar	Conflict with proposed parking area, sidewalks, Building B.	**X**
	473	Y	ON	**Y**	Apple	*Malus sp.*	34,29	6	6.168	Fair	Fair	Moderate	Unsuitable	Slack line around lower trunk, small deadwood, included bark at unions, historically pruned	Within footprint of proposed driveway.	**X**
	474	Y	ON	**Y**	Cherry plum	*Prunus cerasifera*	37	5	4.44	Fair	Fair	Moderate	Unsuitable	Heading cuts on eastern side of canopy, slight corrected lean to the south, burles	Within proposed Building A footprint.	**X**
	475	Y	ON	**Y**	Plum	*Prunus sp.*	25,29	6	5.28	Fair	Poor	Moderate	Unsuitable	Secondary stem historically failed to the north, pruning wounds with associated decay, basal cavity through root flare with some associated decay, failed stem is still living	Within proposed Building A footprint.	**X**
	476	Y	ON	**Y**	Cherry plum	*Prunus cerasifera*	36	4	4.32	Fair	Fair	Moderate	Unsuitable	Included bark at primary union, epicormic growth, ivy, historically pruned	Conflict with proposed Building A and SD lateral.	**X**
	477	Y	ON	**Y**	Plum	*Prunus sp.*	17,17,15,10,12	6	3.984	Fair	Fair	Moderate	Unsuitable	Multiple stems, possibly shared with municipal, canopy weighted to the south, completing with adjacent plums	Conflict with proposed Building A patios.	**X**

Previous Tag or ID#	Tag or ID#	Surveyed? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected? (Yes/No)	Name		dbh (cm)	Dripline radius (m)	Critical root zone radius (m)	Condition		Relative Tolerance	Retention Suitability (on-site trees)	General field observations/remarks	Tree retention / location comments	Retention status
					Common	Botanical				Health	Structural					
	478	Y	ON	**Y**	Japanese maple	*Acer palmatum*	15,16	3	3	Fair	Fair	Moderate	Unsuitable	Rooted adjacent to house, historical pruning wounds, small deadwood	Within proposed driveway footprint.	**X**
	479	Y	ON	**Y**	English holly	*Ilex aquifolium*	23,22,18	4	4.7	Fair to good	Fair	Good	Unsuitable	Included bark at lower and upper unions, multiple leaders	Within proposed Building D footprint.	**X**
	480	Y	ON	**Y**	Apple	*Malus sp.*	26,15,16	5	5.352	Fair	Fair to poor	Moderate	Unsuitable	Partially failed to the west, extended limbs	Within proposed driveway footprint.	**X**
	481	Y	ON	**Y**	English holly	*Ilex aquifolium*	12,15,16,17	2	3.56	Fair to poor	Fair	Good	Unsuitable	Health stress, leaders in decline, included bark at basal unions	Conflict with proposed Building D.	**X**
	482	Y	ON	**Y**	Weeping silver birch	*Betula pendula*	43,20	6	6.6	Fair	Fair	Moderate	Unsuitable	Historically tare outs with surface decay and response growth, small deadwood, included bark in branch unions	Conflict with proposed sidwealks/wall, impacts from UG hydro.	**X**
	987	Y	ON	**Y**	Horse Chestnut	*Aesculus hippocastanum*	78	7	7.8	Fair to poor	Poor	Good	Unsuitable	Large wound associated with historically scaffold limb removal, some decay in scaffold limb removal, large pruning wounds, health stress	Conflict with proposed Building B.	**X**
	988	Y	ON	**Y**	Western Red Cedar	*Thuja plicata*	63	5	7.56	Fair to good	Fair to good	Moderate	Unsuitable	90 LCR, slight corrected lean to the north, some health stress, twig dieback,	Within proposed Building B footprint.	**X**
	989	Y	ON	**Y**	Horse Chestnut	*Aesculus hippocastanum*	40,79	10	10.3	Fair	Fair to poor	Good	Unsuitable	Large included union at 6m on large stem, some response growth and possible decay associated with the included union, extended limbs, medium sized deadwood, lean to the north, partial fill over eastern root area	Conflict with proposed Building B, patio.	**X**
	990	Y	ON	**Y**	Horse Chestnut	*Aesculus hippocastanum*	66	8	6.6	Fair	Fair	Good	Unsuitable	Some surface rooting adjacent to root flare, extended limbs to the north, small to medium sized deadwood, partially fill over north eastern root area	Conflict with proposed Building B, patio.	**X**

Previous Tag or ID#	Tag or ID#	Surveyed? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected? (Yes/No)	Name		dbh (cm)	Dripline radius (m)	Critical root zone radius (m)	Condition		Relative Tolerance	Retention Suitability (on-site trees)	General field observations/remarks	Tree retention / location comments	Retention status
					Common	Botanical				Health	Structural					
	991	Y	ON	**Y**	Horse Chestnut	*Aesculus hippocastanum*	75	9	7.5	Fair	Fair	Good	Unsuitable	Extended end weighted limbs, large basal wound with response growth along east side of trunk flare, epicormic growth, decay associated with pruning wounds, lean to the north, sap ooze on west side of lower trunk	Within proposed Building B footprint.	**X**
	992	Y	ON	**Y**	Norway maple	*Acer platanoides*	63	8	6.3	Fair	Fair-poor	Good	Unsuitable	Seam on north side of lower trunk, heading cut along southern canopy, asymmetrical crown weighted to the south, small to medium sized deadwood, some extended limbs, seam on southeastern most lateral limb, historical tearout wound in upper central stem, smaller of central most stem is dead (possibly associated decay), deadwood in upper canopy,	Conflict with proposed Building B, patio/sidewalk.	**X**
	993	Y	ON	**Y**	Western Red Cedar	*Thuja plicata*	84	6	10.08	Fair	Fair	Moderate	Unsuitable	Root adjacent to garage, historically crown raised, small surface rooting, some health stress, twig dieback, irregular basal taper	With proposed driveway footprint.	**X**
	994	Y	ON	**Y**	English yew	*Taxus baccata*	49,38	4	8.616	Fair	Fair to poor	Moderate	Unsuitable	Codominant stems, heavily pruned on north side, suppressed by adjacent cedar, multiple leaders,	With proposed driveway footprint.	**X**
	995	Y	ON	**Y**	Garry oak	*Quercus garryana*	65	12	6.5	Fair	Fair	Good	Unsuitable	Possible girdle damage, canopy weighted to the south, small to medium sized deadwood, epicormic growth, some health stress, possible historic topping at ~8-9m	Within proposed Building C footprint.	**X**
	999	Y	ON	**Y**	Western Red Cedar	*Thuja plicata*	51,49	6	9.648	Fair to poor	Fair	Moderate	Unsuitable	Historical leader failure with multiple resumed leaders on larger stem, codominant, included bark at basal union, health stress	Conflict with sidewalks/patio; impacts from proposed Building C/wall.	**X**
	1000	Y	ON	**Y**	Garry oak	*Quercus garryana*	127	10	12.7	Fair	Fair	Good	Suitable	Relatively recent limb failure over driveway, small to medium sized deadwood,	Potential impacts from proposed building C, patio, wall. Crown clean.	**Retain***

Previous Tag or ID#	Tag or ID#	Surveyed? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected? (Yes/No)	Name		dbh (cm)	Dripline radius (m)	Critical root zone radius (m)	Condition		Relative Tolerance	Retention Suitability (on-site trees)	General field observations/remarks	Tree retention / location comments	Retention status
					Common	Botanical				Health	Structural					
996	**1720**	Y	ON	**Y**	Garry oak	*Quercus garryana*	81	12	8.1	Fair	Fair	Good	Unsuitable	Large deadwood some with decay,, some health stress, cavity with decay at 10m, possible included bark at primary union, acute stem attachment on lateral limbs, historical pruning wounds with associated decay, possible girdle damage, possibly historically topped ~8-9m	Conflict with proposed Building A & D, gas service, water service.	**X**
	OS1	Y	S	**Y**	Lawson cypress	*Chamaecyparis lawsoniana*	~20,15	2	2.9	Fair	Fair	Good	N/A	Located adjacent to southern property line, included union at base, hard scaping to the south	Conflict with proposed guest parking stall.	**X**
NT1	**OS2**	Y	OFF	**Y**	Garry oak	*Quercus garryana*	100	10	10	Fair to poor	Poor	Good	N/A	Large wound with associated decay below the primary union, irregular bark texture along lower trunk, some health stress, possible column of decay along northern side of trunk, extended limbs, asymmetrical crown, suspected Armillaria infection	Potential impacts from proposed Building B foundation, adjacent tree removals (possible new exposure). Advanced assessment recommended if retention is desired.	**TBD**
NT2	**OS3**	Y	OFF	**Y**	Horse Chestnut	*Aesculus hippocastanum*	52	6	5.2	Fair	Fair	Good	N/A	Small deadwood, new section of fencing installed along western property line	Conflict with Building B (root and canopy), adjacent tree removals (codominant canopies).	**X**
	OS4	Y	OFF	**Y**	False cypress	*Chamaecyparis sp.*	~40	3	4	Fair	Fair	Good	N/A	Eastern most stem of hedge row, some foliage discolouration, codominant leaders, included bark between stems, 1m off western property line	Conflict with garbage disposal area.	**X**
	OS5	Y	OFF	**Y**	False cypress	*Chamaecyparis sp.*	~30	3	3	Fair	Fair	Good	N/A	Multiple leaders, included bark at 3m union, some health stress and twig dieback, 1m west of property line	Potential impacts from proposed SD lateral, Buidling A.	**TBD**
	OS6	N	OFF	**Y**	Garry oak	*Quercus garryana*	~80,65	12	11.9	Fair	Fair	Good	N/A	Two separate trees, stems lean north and south, small and medium sized deadwood, located 5m off western property line	Potential impacts from proposed SD lateral, Buidling A. Possible clearance pruning.	**Retain***
NT3	**OS7**	Y	OFF	**Y**	Garry oak	*Quercus garryana*	~62	9	6.2	Fair	Fair	Good	N/A	Canopy weighted to the north, medium sized deadwood, located within 1m of western pl, historical ivy infestation	Potential conflict with SD lateral/MH.	**TBD**

5. SITE INFORMATION & PROJECT UNDERSTANDING

The development site consists of one residential lot (960 Foul Bay Road) in Oak Bay, B.C. It is our understanding that the proposal is to remove the existing garage, relocate the existing house elsewhere on the property, as well as construction of three (3) additional multi-unit residential buildings (complete with at-grade parking, patios, and frontage improvements).

Below is a general observation of the tree resource, as it appeared at the time of our site visit:

6. FIELD OBSERVATIONS

The on and off-site tree resource consists of a mixture of native and non-native species growing in ground in open landscape conditions generally around the perimeter of the subject property (see **Figure 1**).

Figure 1: *Site context air photo: The approximate boundary of the subject site is outlined in blue.*

7. TREE RISK ASSESSMENT

During our June 17 (2024) site visit and in conjunction with the tree inventory updated same day, trees were assessed for risk on a limited visual assessment basis (level 1) and in the context of the existing land uses. The time frame used for the purpose of our assessment is one year (from the date of the tree inventory). Unless otherwise noted herein, we did not conduct a detailed (level 2) or advanced (level 3) risk assessment, such as resistograph testing, increment core sampling, aerial examinations, or subsurface root/root collar examinations.

Existing Land Uses

We did not observe any trees that were deemed to be high or extreme risk (in the context of the existing land uses) that would require hazard abatement to eliminate present and/or future risks (within a 1-year timeframe). Targets considered during this TRAQ assessment include: occupants of vehicles travelling or parked on St. Patrick Street (frequent use), pedestrians travelling along existing sidewalks (frequent use), hydro lines (constant use), occupants of the existing houses (constant use) or yards (occasional use) on neighbouring properties.

7.1. Risk Mitigation Measures for On-Site Trees

Norway Maple #992

A seam was observed in a large, extended limb that could strike the existing basketball court (should failure of this tree part occur). #922 has also been topped historically and contains a dead central leader, which may be a potential indicator for trunk decay near other branch unions. This tree has been assigned a risk rating of "moderate" within a 1-year time frame—if this rating exceeds the risk tolerance of the property owner, we recommend the aforementioned (extended) limb be pruned for end-weight reduction by an ISA Certified Arborist. If the climbing arborist determines end-weight reduction to ANSI standards is insufficient to reduce the associated risk rating, the limb should be removed entirely.

8. Construction Impact Assessment

8.1. Retention and Removal of Municipal Trees

The following municipal trees are located where they are possible for retention provided that their critical root zones are adequately protected during construction. The project arborist must be on site to supervise any excavation or fill placement required within the critical root zones (shown on the tree management plan in ***Appendix A***):

Retain and protect 3 municipal trees

- M2^{tbd}, M3^{tbd}, M5^{tbd}

  "^{tbd}" *indicates retention status "to be determined" by the project arborist at the time construction or as additional information becomes available.*

The following municipal trees are located where they are likely to be severely impacted by proposed construction and are recommended for removal:

Remove 5 municipal trees

- M1, M4, M6, M7, M8

8.1.1. Additional Mitigation Measures for Municipal Trees

Storm Drain

All excavations related to storm drain (SD) lateral and associated manhole (MH) within the CRZs of **Garry oaks *(Quercus garryana)* M2, M3, and M5** (66cm, 34cm, and 40cm DBHs, respectively) must be supervised by the project arborist. We further recommend the following:

- All excavations within the CRZs shall be completed using low-impact techniques—we recommend hydro-vac operated according to project arborist instructions.
- All roots critical to the trees' survival and/or stability must be preserved. If critical roots are encountered and require pruning, the trees may have to be removed.
- We also anticipate non-protected on-site trees will require clearance to accommodate the proposed SD lateral/manhole. Care must be taken to avoid damaging municipal trees proposed for retention during this process. We recommend arborist supervision during removal of stumps and portions of canopy where these overlap with the CRZs and drip lines of trees proposed for retention.

SIDEWALK/CURB/WALL

The new municipal sidewalk is also proposed within the CRZs of M2, M3, and M5:

- The sidewalk must be routed to avoid conflict with the root collars of municipal Garry oaks.
- If large roots are encountered during excavations therein, the proposed municipal sidewalk must be installed above the root systems of M2, M3, and M5 using techniques outlined in ***Appendix C***—Hard Surface Above Tree Roots Detail. To inform possible adjustments to grading plans, exploratory excavations may be conducted to determine the size, quantity, and location (depth) of roots present. Alternatively, the final retention statuses will be determined by the project arborist at the time of construction.
- We anticipate non-protected on-site trees and municipal tree M6 will require clearance to accommodate the proposed sidewalk. Care must be taken to avoid damaging municipal trees proposed for retention during this process. We recommend arborist supervision during removal of stumps and portions of canopy where these overlap with the CRZs and drip lines of trees proposed for retention.

DEMOLITION

Depending on the sequence of permit issuance, we anticipate some non-protected trees will require removal at the demolition/initial clearing phase:

- All excavations including the removal of stumps from non-protected trees to be removed must be supervised by the project arborist, if this occurs within the CRZs of **municipal trees proposed for retention (esp. M2-M5).**

8.2. RETENTION AND REMOVAL OF ON-SITE TREES

The following bylaw-protected on-site trees are located where they are possible for retention provided that their critical root zones are adequately protected during construction. The project arborist must be on-site to supervise any excavation or fill placement within the critical root zones (shown on the tree management plan in ***Appendix A***):

Retain and protect 1 bylaw-protected on-site tree

- #1000

The following bylaw-protected on-site trees are located where they are likely to be severely impacted by proposed construction and are recommended for removal:

Remove 27 bylaw-protected on-site trees

- #467-469, 470*, 471-482, 987-995, 999, 1720

  ** To be removed by BC Hydro prior to development.*

8.2.1. ADDITIONAL MITIGATION MEASURES FOR ON-SITE TREES

BUILDING C/LPT

Building C is proposed within the CRZ and drip line of **Garry oak #1000** (127cm DBH):

- We anticipate root pruning will be required to construct the southeast corner of the foundation wall, which is proposed approximately 5.5m from the root collar (at nearest point). We do not anticipate critical roots will be encountered in this location, though we recommend over-excavation is limited to utilize the minimum amount of working room required to construct the foundation—0.5m outside the foundation wall is preferred. All excavations within the CRZ must be supervised by the project arborist.
- Since Building C is proposed to be three storeys in height, some clearance pruning may be required—we anticipate this will be relatively minor, as the majority of the canopy and large scaffold limbs appear higher. All clearance pruning should be completed by an ISA Certified Arborist to ANSI A300 standards. We also recommend crown cleaning to remove any dead, diseased, or damaged limbs.
- A new LP transformer is also proposed near the outer CRZ of #1000. We do not anticipate significant impacts to this tree, though the project arborist should be contacted to supervise all related excavations and perform any root pruning required.

SIDEWALK/PATIO/CURB/WALL

The new municipal sidewalk, as well as a wall along the east property line are also proposed within the CRZ of Garry oak #1000:

- We recommend the proposed patio is installed above the root system using techniques outlined in ***Appendix C***—Hard Surface Above Tree Roots Detail.
- The new municipal sidewalk is currently proposed to end near the existing utility pole along Foul Bay Road (approximately 7m from the root collar). We recommend the project arborist supervise all related excavations and perform any root pruning required.
- If encountered during wall-related excavations, critical roots must be preserved, with wall footings shifted to avoid them. This can be accomplished by relocating the footings laterally and bridging the wall over roots, or (depending on the depth of the roots encountered) a floating design above. To inform possible adjustments to grading plans and footing locations, exploratory excavations may be conducted to determine the size, quantity, and location (depth) of roots present. Alternatively, the final retention status will be determined by the project arborist at the time of construction.

HERITAGE HOUSE MOVE/DEMOLITION

It is our understanding that the existing house is proposed for relocation to the northeast side of the property, with the existing garages removed:

- All demolition activity within the CRZs of protected trees must be supervised by the project arborist.
- It may be necessary to construct a temporary site access via Brighton Avenue, which should have minimal impact on protected trees, if this coincides (roughly) with the location of the existing garage or shed on the north side of the property.
- Prior to demolition, we recommend a pre-construction meeting be held with all principals for the project present—depending on the scope of the demolition phase, we may recommend additional barrier fencing and/or areas that require arborist supervision.
- If building/tree permits for Blocks A-C are deferred until after the house move, it should be noted that **protected trees #471, 478-481, and 996** will require removal prior to the relocation of the existing house.

Depending on the sequence of permit issuance, we anticipate some non-protected trees will require removal at the demolition/initial clearing phase:

- All excavations including the removal of stumps from non-protected trees to be removed must be supervised by the project arborist, if this occurs within the CRZs of protected trees.

8.3. RETENTION AND REMOVAL OF OFF-SITE TREES

The following bylaw-protected off-site trees are located where they are possible for retention providing that their critical root zones are adequately protected during construction. The project arborist must be on-site to supervise any excavation or fill placement within the critical root zones (shown on the tree management plan in ***Appendix A***):

Retain and protect 4 bylaw-protected off-site trees

- #OS2[tbd], OS5[tbd], OS6, OS7[tbd]

  "[tbd]" *indicates retention status "to be determined" by the project arborist at the time construction or as additional information becomes available.*

The following bylaw-protected off-site trees are located where they are likely to be severely impacted by proposed construction and are recommended for removal:

Remove 3 bylaw-protected off-site trees

- OS1, OS3, OS4

***Prior written consent from the tree owner(s) is required prior to the removal of any trees located on neighbouring properties.**

8.3.1. ADDITIONAL MITIGATION MEASURES FOR OFF-SITE TREES

BUILDING B/ADJACENT TREE REMOVALS/WALL

Building B is proposed within the CRZ of **Garry oak OS2** (100cm DBH):

- We anticipate root pruning may be required to construct the southwest corner of the foundation wall, which is proposed approximately 6.5m from the root collar (at nearest point). We do not anticipate critical roots will be encountered in this location, though we recommend over-excavation is limited to utilize the minimum amount of working room required to construct the foundation—1m outside the foundation wall is preferred. All excavations within the CRZ must be supervised by the project arborist.
- It is unclear from the plans if a retaining wall or a fence is proposed along the property line in the southwest corner. In either case, critical roots must be preserved during excavations therein, with wall/fence footings shifted to avoid them. This can be accomplished by relocating the footings laterally and bridging the wall over roots, or (depending on the depth of the roots encountered) a floating wall design above. To inform possible adjustments to grading plans and footing locations, exploratory excavations may be conducted to determine the size, quantity, and location (depth) of roots present. Alternatively, the final retention status will be determined by the project arborist at the time of construction.
- Historically, the canopy of OS2 has been codominant with that of **Horsechestnuts *(Aesculus hippocastanum)* #989, 990, and OS3.** These trees are proposed for removal due to the proposed construction, which may result in changes to wind exposure concerning OS2. We also noted several potential indicators of internal decay and/or fungal infection. To confirm the extent of decay and/or infection present (if any) and determine the tree's suitability for long-term retention, we recommend an advanced (Level 3) risk assessment is completed—this will also aid in the development of a pruning plan and/or other mitigation strategies, if the tree is to be retained.
- Stumps from #989 & 990 should be ground to grade rather than grubbed.

BUILDING A/SD/DEMOLITION

The Building A footprint is proposed near the outer CRZs of **false cypress *(Chamaecyparis spp.)* OS5** (~30cm DBH) and **Garry oak OS6** (~80/65cm DBH). However, the new SD lateral is proposed as near as 2m from the root collar of OS5:

- If retention of OS5 is desired by the owners, we recommend the SD lateral is installed using low-impact excavation techniques (i.e. hydro-vac or small machine with hand tool assistance). The tree owners should be notified of potential impacts.
- Since Building B is proposed to be three storeys in height, some clearance pruning may be required (concerning OS6)—we anticipate this will be minor, since the majority of the canopy and large scaffold limbs appear higher. All clearance pruning should be completed by an ISA Certified Arborist to ANSI A300 standards. We also recommend crown cleaning to remove any dead, diseased, or damaged limbs. The tree owners should be notified of potential impacts.

All excavations related to SD lateral and associated MH within the CRZ of **Garry oak OS7** (62cm DBH) must be supervised by the project arborist. We further recommend the following:

- All excavations within the CRZs shall be completed using low-impact techniques—we recommend hydro-vac operated according to project arborist instructions.
- All roots critical to the trees' survival and/or stability must be preserved. If critical roots are encountered and require pruning, the tree may have to be removed.
- All demolition-related excavations including the removal of stumps from non-protected trees to be removed must be supervised by the project arborist, if this occurs within the CRZ of OS7.

8.4. TREE IMPACT SUMMARY TABLE

Pursuant to Oak Bay Tree Bylaw No. 4742, the tree replacement calculations are as follows:

Quantity of Existing trees	# of Trees Retained	# of Trees Removed	Relevant Bylaw section (if applicable)	Replacement Tree Ratio	Replacement Trees Required
On-site Tree (bylaw-protected)					
28	1	26 (bldng env.) 1 BCH	Section 9.2 (a)	2:1	52 TBD Parks
Municipal Trees (live)					
8	3	5	N/A	N/A	TBD Parks
Off-site Trees (bylaw-protected)					
7	4	3	Subsection 9.2 (a)	2:1	6
43	8	35	**Total:**		60

Figure 3: *Based on bylaw criteria, fifty-two (52) replacement trees are required on-site. As per Section 10.8 of Tree Protection Bylaw No. 4742,* "…where a tree for which a replacement tree is required is a Garry Oak, the replacement tree must be of the same species." *Therefore, four (4) replacement Garry oaks must be incorporated into the planting plan. Replacement tree values as compensation for removal of #470 the responsibility of BC Hydro and to be determined by Oak Bay Parks.*

The building plans also show twenty-eight (28) small trees, two (2) medium trees, and five (5) large trees proposed for planting on-site, which should satisfy the canopy coverage requirements outlined in **Appendix B,** *provided these meet bylaw criteria for replacement trees. However, additional compensation will be required for the outstanding nineteen (19) replacement trees. Any replacement tree shortfall shall be compensated cash-in-lieu.*

Five (5) large trees and seven (7) medium trees are proposed on the municipal boulevard along Brighton Avenue. We anticipate these figures will change for the final design (considering hydro specs. and existing tree cover), though we support replacement tree planting in this area as compensation for the proposed removal of municipally-owned trees (subject to approval by Oak Bay Parks).

Six (6) replacement trees are required as compensation for removal of three (3) protected off-site trees. Permission must be obtained from the property owners if re-planting is to occur on the same lots from which trees were removed.

9. IMPACT MITIGATION

Tree Protection Barrier: The areas, surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing (see ***Appendix A*** for municipal barrier specifications). Where possible, the fencing should be erected at the perimeter of the critical root zone. The barrier fencing to be erected must be a minimum of 4 feet in height, of solid frame construction that is attached to wooden or metal posts. A solid board or

rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with flexible snow fencing. The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation, construction), and remain in place through completion of the project. Signs should be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose.

Arborist Supervision: All excavation occurring within the critical root zones of protected trees should be completed under supervision by the project arborist. Any severed or severely damaged roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound. In particular, the following activities should be completed under the direction of the project arborist:

- Any excavations and/or addition of fill within the CRZs of trees to be retained.

Methods to Avoid Soil Compaction: In areas where construction traffic must encroach into the critical root zones of trees to be retained, efforts must be made to reduce soil compaction where possible by displacing the weight of machinery and foot traffic. This can be achieved by one of the following methods:

- Installing a layer of hog fuel or coarse wood chips at least 20 cm in depth and maintaining it in good condition until construction is complete.
- Placing medium weight geotextile cloth over the area to be used and installing a layer of crushed rock to a depth of 15 cm over top.
- Placing two layers of 19mm plywood.
- Placing steel plates.

Demolition of the Existing Buildings: The demolition of the existing houses, driveways, and any services that must be removed or abandoned, must take the critical root zone of the trees to be retained into account. If any excavation or machine access is required within the critical root zones of trees to be retained, it must be completed under the supervision and direction of the project arborist. If temporarily removed for demolition, barrier fencing must be erected immediately after the supervised demolition.

Paved Surfaces Above Tree Roots: If the new paved surfaces within the CRZ of tree to be retained require excavation down to bearing soil and roots are encountered in this area, this could impact their health and structural stability. If tree retention is desired, a raised and permeable paved surface should be constructed in the areas within the critical root zone of the trees. The “paved surfaces above root systems” diagram and specifications is attached.

The objective is to avoid root loss and to instead raise the paved surface and its base layer above the roots. This may result in the grade of the paved surface being raised above the existing grade (the amount depending on how close roots are to the surface and the depth of the paving material and base layers). Final grading plans should take this potential change into account. This may also result in soils which are high in organic content being left intact below the paved area.

To allow water to drain into the root systems below, we also recommend that the surface be made of a permeable material (instead of conventional asphalt or concrete) such as permeable asphalt, paving stones, or other porous paving materials and designs such as those utilized by Grasspave, Gravelpave, Grasscrete and open-grid systems.

Mulching: Mulching can be an important proactive step in maintaining the health of trees and mitigating construction related impacts and overall stress. Mulch should be made from a natural material such as wood chips or bark pieces and be 5-8cm deep. No mulch should be touching the trunk of the tree. See “methods to avoid soil compaction” if the area is to have heavy traffic.

Blasting: Care must be taken to ensure that the area of blasting does not extend beyond the necessary footprints and into the critical root zones of surrounding trees. The use of small low-concussion charges and multiple small charges designed to pre-shear the rock face will reduce fracturing, ground vibration, and overall impact on the surrounding environment. Only explosives of low phytotoxicity and techniques that minimize tree damage should be used. Provisions must be made to ensure that blasted rock and debris are stored away from the critical root zones of trees.

Scaffolding: This assessment has not included impacts from potential scaffolding including canopy clearance pruning requirements. If scaffolding is necessary and this will require clearance pruning of retained trees, the project arborist should be consulted. Depending on the extent of pruning required, the project arborist may recommend that alternatives to full scaffolding be considered such as hydraulic lifts, ladders or platforms. Methods to avoid soil compaction may also be recommended (see “Minimizing Soil Compaction” section).

Landscaping and Irrigation Systems: The planting of new trees and shrubs should not damage the roots of retained trees. The installation of any in-ground irrigation system must take into account the critical root zones of the trees to be retained. Prior to installation, we recommend the irrigation technician consult with the project arborist about the most suitable locations for the irrigation lines and how best to mitigate the impacts on the trees to be retained. This may require the project arborist supervise the excavations associated with installing the irrigation system. Excessive frequent irrigation and irrigation which wets the trunks of trees can have a detrimental impact on tree health and can lead to root and trunk decay.

Arborist Role: It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:

- Locating the barrier fencing
- Reviewing the report with the project foreman or site supervisor
- Locating work zones, where required
- Supervising any excavation within the critical root zones of trees to be retained
- Reviewing and advising of any pruning requirements for machine clearances

Review and site meeting: Once the project receives approval, it is important that the project arborist meet with the principals involved in the project to review the information contained herein. It is also important that the arborist meet with the site foreman or supervisor before any site clearing, tree removal, demolition, or other construction activity occurs and to confirm the locations of the tree protection barrier fencing.

10. DISCLOSURE STATEMENT

This arboricultural field review report was prepared by Talmack Urban Forestry Consultants Ltd. for the exclusive use of the Client and may not be reproduced, used or relied upon, in whole or in part, by a party other than the Client without the prior written consent of Talmack Urban Forestry Consultants Ltd. Any unauthorized use of this report, or any part hereof, by a third party, or any reliance on or decisions to be made based on it, are at the sole risk of such third parties. Talmack Urban Forestry Consultants Ltd accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, in whole or in part.

Arborists are professionals who examine trees and use their training, knowledge, and experience to recommend techniques and procedures that will improve a tree’s health and structure or to mitigate associated risks. Trees are

living organisms whose health and structure change and are influenced by age, continued growth, climate, weather conditions, and insect and disease pathogens. Indicators of structural weakness and disease are often hidden within the tree structure or beneath the ground. The arborist's review is limited to a visual examination of tree health and structural condition, without excavation, probing, resistance drilling, increment coring, or aerial examination. There are inherent limitations to this type of investigation, including, without limitation, that some tree conditions will inadvertently go undetected. The arborist's review followed the standard of care expected of arborists undertaking similar work in British Columbia under similar conditions. No warranties, either express or implied, are made as to the services provided and included in this report.

The findings and opinions expressed in this report are based on the conditions that were observed on the noted date of the field review only. The Client recognizes that passage of time, natural occurrences, and direct or indirect human intervention at or near the trees may substantially alter discovered conditions and that Talmack Urban Forestry Consultants Ltd. cannot report on, or accurately predict, events that may change the condition of trees after the described investigation was completed.

It is not possible for an Arborist to identify every flaw or condition that could result in failure nor can he/she guarantee that the tree will remain healthy and free of risk. The only way to eliminate tree risk entirely is to remove the entire tree. All trees retained should be monitored on a regular basis. Remedial care and mitigation measures recommended are based on the visible and detectable indicators present at the time of the examination and cannot be guaranteed to alleviate all symptoms or to mitigate all risk posed.

Immediately following land clearing, grade changes or severe weather events, all trees retained should be reviewed for any evidence of soil heaving, cracking, lifting or other indicators of root plate instability. If new information is discovered in the future during such events or other activities, Talmack Urban Forestry Consultants Ltd. should be requested to re-evaluate the conclusions of this report and to provide amendments as required prior to any reliance upon the information presented herein.

11. IN CLOSING

We trust that this report meets your needs. Should there be any questions regarding the information within this report, please do not hesitate to contact the undersigned.

Yours truly,

Talmack Urban Forestry Consultants Ltd.

Prepared by:

Robert McRae
ISA Certified Arborist PN – 7125A
Tree Risk Assessment Qualified
Tree Appraisal Qualified
Robbie@Talmack.ca

12. REFERENCES

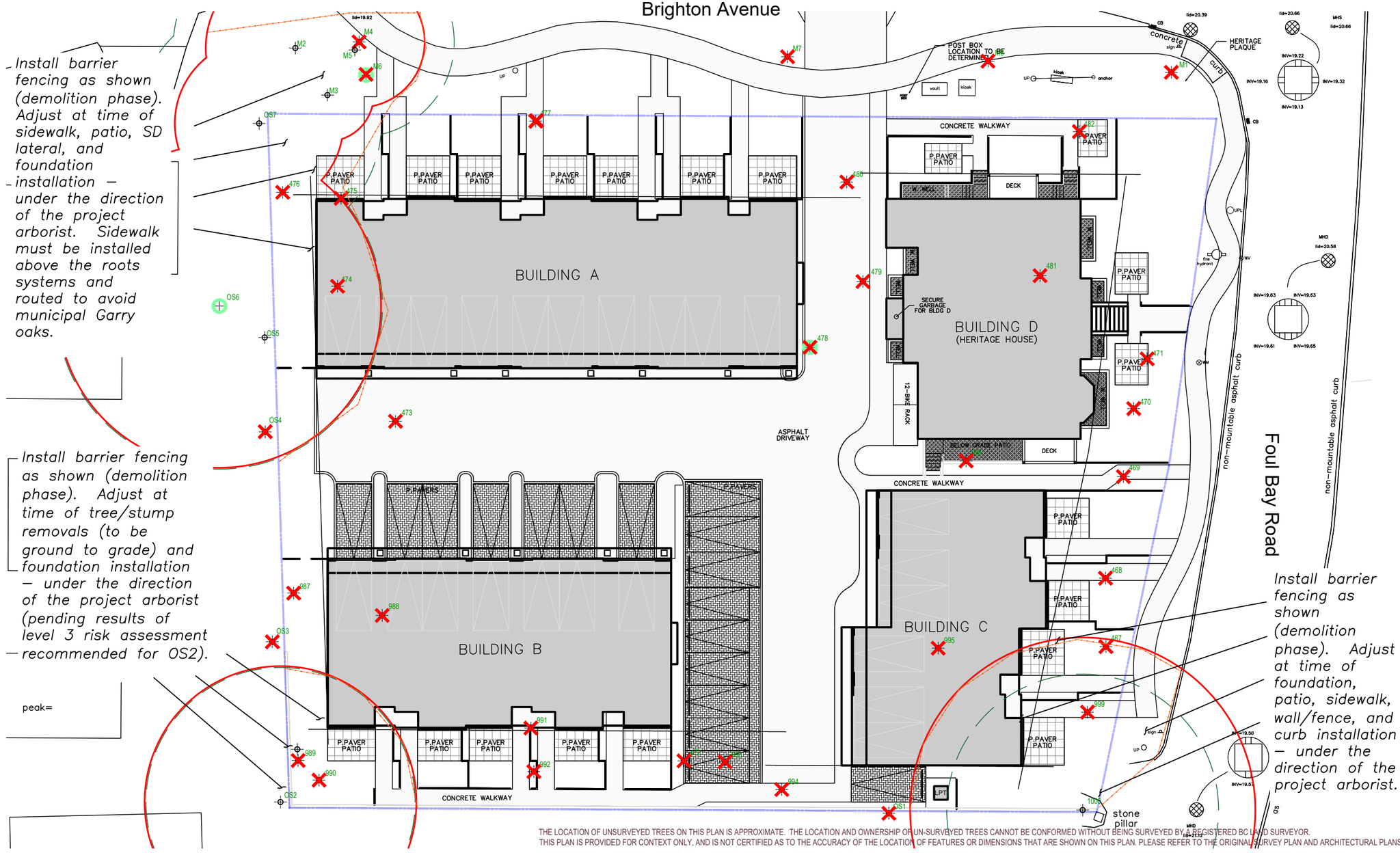
Dunster, J.A., E.T. Smiley, N. Matheny, and S. Lily. 2017. Tree Risk Assessment Manual, International Society of Arboriculture (ISA).

District of Oak Bay GIS imagery & The Oak Bay Tree Protection Bylaw No. 4742.

13. COMPANY INFORMATION

General Liability: Intact Insurance, Policy No. 5V2147122 : $5,000,000

APPENDIX A – TREE MANAGEMENT PLAN



THE LOCATION OF UNSURVEYED TREES ON THIS PLAN IS APPROXIMATE. THE LOCATION AND OWNERSHIP OF UN-SURVEYED TREES CANNOT BE CONFORMED WITHOUT BEING SURVEYED BY A REGISTERED BC LAND SURVEYOR.
THIS PLAN IS PROVIDED FOR CONTEXT ONLY, AND IS NOT CERTIFIED AS TO THE ACCURACY OF THE LOCATION OF FEATURES OR DIMENSIONS THAT ARE SHOWN ON THIS PLAN. PLEASE REFER TO THE ORIGINAL SURVEY PLAN AND ARCHITECTURAL PLANS.

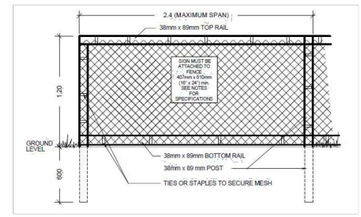
LEGEND

- Existing tree with tag or ID #
- Tree protection fencing
- Dripline radius (m)
- Critical root zone radius (m)
- Tree proposed for removal
- Unsurveyed tree
- Site boundary

N

TREE PROTECTION FENCING

Schedule "C"
TREE PROTECTION FENCING



Tree Protection Fencing Specifications:

1. The fence will be constructed using 38 x 89 mm (2" x 4") wood frame:
   - Top, Bottom and Posts.*
   - Use orange snow fencing mesh and secure to the wood frame with "zip" ties or galvanized staples.
2. Attach a sign with minimum size of 407 mm x 610 mm (16" X 24") with the following wording:
   a) **DO NOT ENTER**- Tree Protection Zone (For retained trees) or;
   b) **DO NOT ENTER**- Future Tree Planting Zone (For tree planting sites)

This sign must be affixed on every fence face or at least every 10 linear metres.

*In rocky areas, metal posts (t-bar or rebar) drilled into rock will be accepted.

DATE: November 2019
SCALE: N.T.S

TREE PROTECTION NOTES

Tree protection barrier: The areas, surrounding the trees to be retained, should be isolated from the construction activity by erecting protective barrier fencing. Where possible, the fencing should be erected at the perimeter of the critical root zone. The barrier fencing to be erected must be a minimum of 1200mm in height, of solid frame construction that is attached to wooden or metal posts. A solid board or rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with flexible snow fencing. The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation, construction), and remain in place through completion of the project. Signs should be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose.

Arborist supervision: All excavation occurring within the critical root zones of protected trees must be completed under the supervision of the project arborist. Any severed or severely damaged roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound.

Demolition: The demolition of the existing houses, driveways, and any services that must be removed or abandoned must take the critical root zone of the trees to be retained into account. If any excavation or machine access is required within the critical root zones of trees to be retained, it must be completed under the supervision of the project arborist. If temporarily removed for demolition, barrier fencing must be erected immediately after the supervised demolition.

Methods to avoid soil compation: In areas where construction traffic must encroach into the critical root zones of trees to be retained, efforts must be made to reduce soil compaction where possible by displacing the weight of machinery and foot traffic. This can be achieved by one of the following methods:

- Installing a layer of hog fuel or coarse wood chips at least 20cm in depth and maintaining it in good condition until construction is complete.
- Placing medium weight geotextile cloth over the area to be used and installing a layer of crushed rock to a depth of 15cm over top.
- Placing two layers of 19mm plywood.
- Placing steel plates.

Mulching: Mulching can be an important proactive step in maintaining the health or trees and mitigating construction related impacts and overall stress. Mulch should be made from a natural material such as wood chips or bark pieces and be 5-8cm deep. No mulch should be touching the trunk of the tree. See "methods to avoid soil compaction" if the area is to have heavy traffic.

Pruning: We recommend that any pruning of bylaw-protected trees be performed to ANSI A300 standards and Best Management Practices.

Paved surfaces above tree roots: Where paved areas cannot avoid encroachment within critical root zones of trees to be retained, construction techniques, such as floating permeable paving, may be required. The "paved surfaces above tree roots" detail above offers a compromise to full depth excavation (which could impact the health or structural stability of the tree). The objective is to avoid root loss and to instead raise the paved surface above the existing grade (the amount depending on how close roots are to the surface and the depth of the paving material and base layers). Final grading plans should take this potential change into account. This may also result in soils which are high in organic content being left intact below the paved area. To allow water to drain into the root systems below, we also recommend that the surface be made of a permeable material (instead of conventional asphalt or concrete) such as permeable asphalt, paving stones, or other porous paving materials and designs such as those utilitzed by Grasspave, Gravelpave, Grasscrete and open-grid systems.

Blasting and rock removal:Care must be taken to ensure that the area of blasting does not extend beyond the necessary footprints and into the critical root zones of surrounding trees. The use of small low-concussion charges and multiple small charges designed to pre-shear the rock face will reduce fracturing, ground vibrations and overall impact to the surrounding environment. Only explosives of low phytotoxicity and techniques that minimize tree damage should be used. Provisions must be made to ensure that blasted rock and debris are stored away from the critical root zones of trees.

Scaffolding:This assessment has not included impacts from potential scaffolding including canopy clearance pruning requirements. If scaffolding is necessary and this will require clearance pruning of retained trees, the project arborist should be consulted. Depending on the extent of pruning required, the project arborist may recommend that alternatives to full scaffolding be considered such as hydraulic lifts, ladders or platforms. Methods to avoid soil compaction may also be recommended (see "Minimizing Soil Compaction" section).

Landscaping and irrigation systems: The planting of new trees and shrubs should not damage the roots of retained trees. The installation of any in-ground irrigation system must take into account the critical root zones of the trees to be retained. Prior to installation, we recommend the irrigation technical consult with the project arborist about the most suitable locations for the irrigation lines and how best to mitigate the impacts on the trees to be retained. This may require the project arborist supervise the excavations associated with installing the irrigation system. Excessive frequent irrigation and irrigation which wets the trunks of trees can have a detrimental impact on the tree health and can lead to root and trunk decay.

Arborists role: It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:

- Locating the barrier fencing.
- Reviewing the report with the project foreman or site supervisor.
- Locating work zones and machine access corridors where required.
- Supervising excavation for any areas within the critical root zones of trees to be retained including any proposed retaining wall footings and review any proposed fill areas near trees to be retained.

Tree Management Plan

960 Foul Bay Road
Oak Bay, BC

DATE:	January 2, 2025
PREPARED FOR:	960 Foul Bay Holdings
SCALE:	1 : 300 @ 11" X 17"
DRAWN BY:	RM
REVISION:	0
REFERENCE DWG:	2024-12-19_960 Foul Bay Road_issued for review

TALMACK URBAN FORESTRY

APPENDIX B – CANOPY COVERAGE STUDY

Figure 2—existing canopy coverage: *1,988.08.m^2 or 59.8% of total lot area (3322m^2).*

Figure 3—post-construction canopy coverage: *209.36m^2 or 6.3% of total lot area (3322m^2).*

Lot Size	Canopy Cover Target	Existing (estimated)	Post-Construction (estimated)	Additional canopy cover required to meet 35% target	# of trees by size class required (example)
3322m^2	35% or 1162.7m^2	59.8% or 1988.08m^2	6.3% or 209.36m^2	53.5% or 953.34 m^2	7 large and 2 medium trees

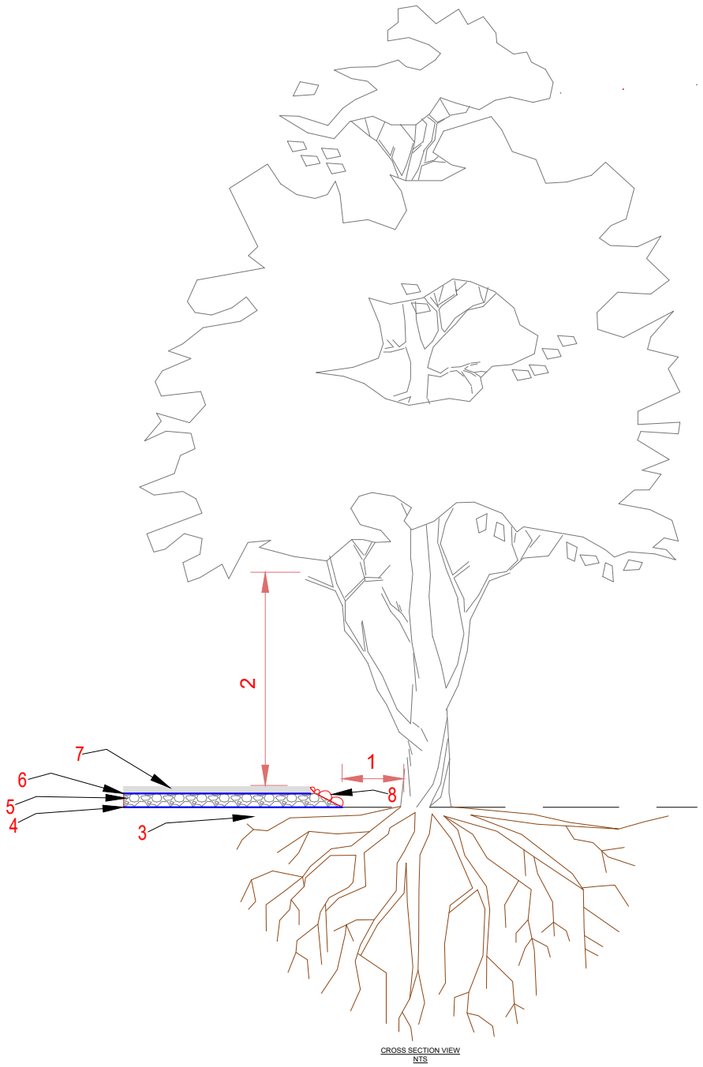
Figure 4—canopy coverage calculations: *35% or 1162.7m^2 is required for RS-4 zoning. An additional 953.34m^2 must be incorporated into the landscape—this can be accomplished by planting seven (7) large canopy (at maturity) tree (credit 125m^2) and two (2) medium canopy tree (credit 50m^2), or equivalent combination of large, medium, and small trees. Based on Section 10.8 of Tree Protection Bylaw No. 4742,* "…where a tree for which a replacement tree is required is a Garry Oak, the replacement tree must be of the same species." *Four (4) replacement Garry Oaks must be incorporated into the landscape plan.*

SUGGESTED REPLACEMENT TREE LIST				
Plan Ref.	**Quantity**	**Minimum Size**	**Botanical Name**	**Common Name**
4 Large Size BroadLeaf Trees				
QG	4	4cm cal	*Quercus garryana*	Garry oak
GB	3	4cm cal	*Gingko biloba* 'Princeton Sentry'	Columnar maidenhair tree
2 Medium Size Coniferous Trees				
CN	2	4cm cal	*Callitropsis nootkatensis* 'Pendula'	Weeping yellow cedar
Current arboricultural best management practices and BCSLA/BCLNA standards apply to; quality, root ball, health, form, handling, planting, guying/staking and establishment care.				

Figure 5—suggested replacement trees: *7x large canopy trees at 125m^2 (for a total of 875m^2), as well as 2x medium canopy trees at 50m^2 (for a total of 100m^2), to exceed the requirement for 953.34m^2.*

APPENDIX C – HARD SURFACES ABOVE TREE ROOTS DETAIL

HARD SURFACE ABOVE TREE ROOTS DETAIL



CROSS SECTION VIEW
NTS

HARD SURFACE ABOVE TREE ROOTS NOTES

1. Maintain as large a setback between the fill encroachment and the root collar of the tree as possible.
2. Review any canopy clearance pruning requirements to accommodate vehicle or pedestrian clearances (Pruning to be performed to ANSI A300 standards).
3. Excavate the new footprint of the driveway or sidewalk under the supervision of the project arborist. Excavation will be limited to the removal of the existing sod layer. Excavation around root structures must be performed by hand, airspade, or hydroexcavation.
4. Install a two-dimensional (such as Combigrid $\frac{30}{30}$) or Three-dimensional geogrid reinforcement.
5. Install a 150mm depth layer of clear crushed gravel (no fines) using 20mm and/or 75mm diameter material or approved equivalent. *Note - the depth may be less than 150mm in some situations (dependant on grading constraints).
6. Install 4 oz non woven geotextile over the clear crushed gravel layer to prevent fine particles of sand from infiltrating this layer.
7. The bedding or base layer and new driveway or sidewalk surface can be installed directly on top of the felted filter fabric.
8. Fill slopes - where possible install loose stacked boulders to reduce the footprint of the fill slopes that encroach within the critical root zone. Fill slope materials must be permeable to air and water. Do not pile fill material directly against the trunk of a tree.

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Consultants Limited