VAN DER ZALM + ASSOCIATES

ARBORIST REPORT

11 July 2022

PROJECT:	**VIDAL STREET DEVELOPMENT**
SITE ADDRESS:	14937 Thrift Ave & 1441/1443-45/1465 Vidal Street, White Rock, BC
CLIENT:	**WESTSTONE GROUP** 10090 152ND St. Surrey, BC, V3R 8X8
VDZ PROJECT #	DP2018-59
SITE REVIEW DATE(s):	October 16, 2018 September 15, 2020 July 8, 2022
PREPARED BY:	**VDZ+A Consulting Ltd.** 102 – 355 Kingsway Vancouver, BC V5T 3J7
PROJECT ARBORIST:	**D. Glyn Romaine** ISA Certified Arborist PN 7929A TRAQ
FORMER PROJECT ARBORIST:	**KELLY KOOME** ISA Certified Arborist PN 5962A ISA Tree Risk Assessment Qualified Certified Wildlife Danger Tree Assessor #P2546

Original Report	**November 5, 2018**
Revision 1	**May 8, 2019**
Revision 2	**September 23, 2020 – A.L.**
Revision 3	**July 11, 2022 – D.G.R. - Updated Survey.**

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INTRODUCTION

ASSIGNMENT

VDZ + A Consulting Inc. (VDZ) have been retained by the client to prepare an arborist report to assess the tree(s) located at 14937 Thrift Avenue & 1441 / 1443-45 / 1465 Vidal Street, White Rock, BC. VDZ arborists performed site reviews entailing identification and visual assessment of the tree(s) on-site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention of tree(s) based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

LIMITS OF THE ASSIGNMENT

VDZ's observations were limited to site visits on October 16, 2018, September 15, 2020, and July 8, 2022. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

TESTING AND ANALYSIS

VDZ arborists used visual tree assessment and mallet sounding to test the trees' health, condition, and risk level.

PURPOSE AND USE OF REPORT

The purpose of this report is to assist the property owner in compliance with the White Rock Tree Protection Bylaw, 2021 No. 2407.

SITE DESCRIPTION

SITE REVIEW

Fig. 1 – Aerial view of property (WROMS)

PROPOSED SITE DEVELOPMENT

The demolition of existing structure and the development of midrise multi-family residential building.

ENVIRONMENTAL DESCRIPTION

ISA Certified Arborist Austin Peterson of VDZ + A Consulting Inc. conducted a site review and evaluation of the trees located at the above referenced property on October 16, 2018. A site review was also conducted September 15th, 2020 by Kelly Koome and on July 8, 2022 by Glyn Romaine

The site consists of four residential lots, three of which have existing houses. All four lots have established landscapes composed of mature trees and shrubs. The southernmost lot is a single-

family residential home that fronts onto Thrift Avenue. It is joined via the north property line to the first three lots proceeding up the west side of Vidal Street. From Thrift Avenue, Vidal Street inclines north. To the west lay an assortment of low-rise multifamily residences and to the north is a newer high-rise development.

There are no seasonal creeks that transect the property.

There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 15 – August 15 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of Maple Ridge) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

Off-site Trees – There are private off-site trees associated with this project.

Municipal Trees – There are City of White Rock trees associated with this project.

Trees Straddling the Property Line – There are trees straddling the property line associated with this project

TREE PRESERVATION SUMMARY

All the Trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction, and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success. Once excavation starts, the consulting arborist needs to be contacted to monitor the work that is done near the trees.

TREE HEALTH CARE PLAN DURING CONSTRUCTION

To ensure continued health of the protected trees during construction, the following is recommended:

1. Remove dead, dying, and diseased branches prior to the start of construction.
2. Install tree protection barriers per bylaw specifications.

3. Regular weekly watering of trees between June 1 – October 1.
4. Application of wood chips within the tree protection zone (1-3 inches).
5. Monthly monitoring of protected trees by assigned Arborist.

Retained protected trees will require supplemental watering on a weekly basis (weather dependent), as well as the application of wood chips or mulch to the tree protection zone within the tree protection barriers. Wood chips are preferred to ensure porous movement through soil and protection from compaction during construction. The mulch or wood chip height should not exceed the root collar (not to exceed 10cm) to avoid moisture retention concentrated on the stem. In addition to the City's requirements, recommendations include the pruning of dead or dying limbs, if applicable, prior to construction for worker safety, as well as monthly monitoring of the trees by an Arborist to ensure the health and well-being of the protected trees.

As there are off-site trees with driplines that extend into the subject property, there may be interconnected root systems within the grouping (OS9-OS11) which likely extend onto the property. BC Plant Health Care Root Radar results determined the roots of tree 06 has poor structure and multiple trunks with decay. In addition, OS2-OS6 have feeder or structural roots which grow towards the property. Any work done within the critical root zone will need to be monitored by the arborist. Any retention wall should be maintained to avoid root disruption and destabilization.

SUMMARY OF FINDINGS

- Tree 03, grows adjacent to foundation of the existing house
- Tree 04, noticeable pruning completed prior to visit. Potentially for utility clearance.
- Tree 06 noticeable decay on single stem of the multi-stemmed tree.
- OS 02-OS 08, dripline extends to/over subject property line. Root radar used to assess root systems. Will need an arborist present to monitor excavation on the property line, and during installation of the proposed retaining wall / landscape features.
- Tree 05 suffered a failed limb prior to September 15th,2020 visit.
- Tree protection fencing requires repairs and placing for all protected trees prior to any land clearing activities.
- Knotweed was observed at 1441 Vidal. This should be managed, and all plant parts must be disposed of separately.
- Significant amount of Scots broom onsite – to be kept separate from other vegetation debris upon removal.
- Hypodermic needles were observed at 1445 Vidal.

TABLE 1

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
Comments written for 376 and OS2-OS8, in italics, have been transferred from the *BC Plant Health Care Inc. Arborist Report for Tree Root Mapping*, dated March 18, 2019.								
The following trees are located on 14937 Thrift Avenue.								
01	370	English holly *Ilex aquifolium*	Yes	-	-	-	Listed as an invasive species by City of White Rock. Dash ("-") indicates the arborist was not required to measure this species. WITHIN BUILDING FOOTPRINT	Remove
02	371	English holly *Ilex aquifolium*	Yes	-	-	-	Listed as an invasive species by City of White Rock. Dash ("-") indicates the arborist was not required to measure this species. WITHIN BUILDING FOOTPRINT	Remove
The following trees are located on 1441 Vidal Street.								
03	373	Threadleaf false-cypress *Chamaecyparis pisifera* 'Filifera'	Yes	54 (17,18, 19)	3.0	60	Fair form and structure. TRUNK – Growing directly adjacent to the foundation of the existing house. WITHIN BUILDING FOOTPRINT	Remove
The following trees are located on 1465 Vidal Street.								
04	374	Crimson King Norway maple *Acer platanoides* 'Crimson King'	Yes	44	5.1	80	DBH measured at 1 m. Fair form and structure. CROWN – Previously side pruned for utility line clearance. Previously topped. WITHIN PARKADE FOOTPRINT	Remove

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
05	375	Common lilac *Syringa vulgaris*	No	31 (10,10, 11)	3.0	30	HANDPLOTTED Poor form and structure. TRUNK – Multi-stem from base. Single limb failure since original visit. WITHIN PARKADE FOOTPRINT	Remove
06	376	Red alder *Alnus rubra*	Yes	114 (42, 41, 31)	9.4	80	Fair form and structure. TRUNK – 3stems from base. Decay present in one stem (0.5 meters in length). Rope girdling eastern trunk, previous tear-out on western trunk. Natural lean east. *BC Plant Health Care root radar results:* *Poor structure with multiple trunks and decay. Conflict with proposed development.* WITHIN PARKADE FOOTPRINT	Remove
07	377	Flowering plum *Prunus cerasifera*	No	62 (15,18, 29)	5.8	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN PARKADE FOOTPRINT	Remove
08	378	Mountain ash *Sorbus aucuparia*	No	38 (11, 12, 15)	4.5	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN BUILDING FOOTPRINT	Remove

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
09	379	Japanese maple *Acer palmatum*	No	36 (10, 13, 13)	5.6	75	HANDPLOTTED Fair form and structure. TRUNK: Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove
10	380	Mountain ash *Sorbus aucuparia*	No	37 (11, 13, 13)	4.5	40	HANDPLOTTED Fair form and structure. CROWN – Shade suppressed on north and east sides. TRUNK: Ivy up trunk. WITHIN PARKADE FOOTPRINT	Remove
11	381	Vine maple *Acer circinatum*	No	51 (15, 16, 20)	4.0	80	HANDPLOTTED Fair form and structure. TRUNK: Multi-stemmed. Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove
12	382	Bitter cherry *Prunus emarginata*	No	54 (16, 16, 22)	4.5	80	HANDPLOTTED Fair form and structure. Multi-stemmed. CROWN: Dieback on one stem. WITHIN LIKELY EXCAVATION ZONE	Remove
13	435	Fruiting cherry. *Prunus* sp.	No	31	4.3	50	Good form and structure TRUNK: Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
14	300	Crimson King Norway maple *Acer platanoides* 'Crimson King'	No	23	5.5	60	Good form and structure TRUNK: Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove
The following trees are located offsite.								
Trees OS 1 – OS 8 were inspected visually from a distance. DBH figures have been estimated by the Project Arborist.								
OS 01	No tag	Douglas-fir *Pseudotsuga menziesii*	Yes	25	3.5	90	Good form and structure. TRUNK – Located within (0.25 meters) of retaining wall on two sides. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 02	No tag	Paper birch *Betula papyrifera*	Yes	55	8.0	50	Good form and structure. CROWN – Dripline extends 3.0 meters onto subject property. *BC Plant Health Care root radar results:* *Feeder roots detected in the 0-20 cm depth range. The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.* Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 03	No tag	Douglas-fir *Pseudotsuga menziesii*	Yes	95	6.0	75	Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property. *BC Plant Health Care root radar results:* *Feeder roots detected in the 0 – 20 cm depth range. The tree is about 8 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.* Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 04	No tag	Douglas-fir *Pseudotsuga menziesii*	Yes	50	5.8	75	Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property. *BC Plant Health Care root radar results:* *Assessment blocked by a shed. Roots may grow towards the shed. About 24% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.* Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 05	No tag	Douglas-fir *Pseudotsuga menziesii*	Yes	60	8.0	60	Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meters dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property. *BC Plant Health Care root radar results:* *May have structural, lateral, and feeder roots growing towards the east in the 0 – 20 cm depth range. About 27% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.* Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 06	No tag	Douglas-fir *Pseudotsuga menziesii*	Yes	90	8.8	75	Good form and structure. CROWN – Dripline extends 3.5 meters onto subject property. *BC Plant Health Care root radar results:* *The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.* Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 07	No tag	Western redcedar *Thuja plicata*	Yes	60	6.2	60	Good form and structure. CROWN – Dripline extends 3.8 meters onto subject property. *BC Plant Health Care root radar results:* *May have structural, lateral, and feeder roots growing towards its southeast in the 0 – 20 cm depth range. About 6% of Critical Root Zone may be impacted. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.* Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 08	No tag	Douglas-fir *Pseudotsuga menziesii*	Yes	95	9.1	50	Good form and structure. CROWN – Dripline extends 7.0 meters onto subject property. *BC Plant Health Care root radar results:* *Assessment blocked by Tree 376 and shrubs. About 25% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.* Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
Trees OS 9 – OS 13 form the edge of a larger grouping of private off-site trees.								
OS 9	6346	Douglas-fir *Pseudotsuga menziesii*	Yes	67	6.0	50	Good form and structure. TRUNK: Crook at 16 m. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 10	6411	Western redcedar *Thuja plicata*	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 11	6336	Western redcedar *Thuja plicata*	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS12	6332	Douglas-fir *Pseudotsuga menziesii*	Yes	41	6.9	80	Good form and structure. Crown: Previous shearing or clearance pruning on south side. Minor flagging. ROOTS: Large exposed roots. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS13	6334	Douglas-fir *Pseudotsuga menziesii*	Yes	71	7.1	80	Good form and structure. Trunk: Resinosis. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
The following trees are straddling the City of White Rock property.								
SH 01	No tag	Common privet hedge *Ligustrum vulgare*	Yes	-	1.3	100	Height = 2.2M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 02	No tag	Boxwood hedge *Buxus Sempervirens*	Yes	-	1.0	100	Height = 2.0M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 03	No tag	Common privet hedge *Ligustrum vulgare*	Yes	-	1.5	100	Height = 2.5M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 04	No tag	English laurel *Prunus laurocerasus*	Yes	-	2.2	100	Height = 5.0M Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove

TREE #	TAG #	COMMON NAME *BOTANICAL NAME*	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
SH 05	No tag	English laurel *Prunus laurocerasus*	Yes	-	1.8	100	Height = 3.5M Shared with 1443-45 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 06	372	Cherry *Prunus spp*.	Yes	59	5.5	30	Growing within the SH 04 hedge. Fair condition. CROWN: Some dieback. Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
The following trees belong to the City of White Rock.								
C 1	No tag	Pyramidalis hedge *Thuja occidentalis 'Pyramidalis'*	Yes	-	1.0	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
C 2	No tag	Mixed hedge	No	-	2.5	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove

TREE REPLACEMENT SUMMARY

Onsite & Straddling:

Size	To be Removed	Replacement Trees Required
Undersized (<20cm dbh), (hedges, invasive holly)	5	0
≤ 50cm dbh	7	14
51-65cm dbh	5	15
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	1	6
Total	**20**	**35**

Offsite City:

Size	To be Removed	Replacement Trees
(<30cm dbh) (hedges)	2	0
≤ 50cm dbh	0	0
51-65cm dbh	0	0
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	0	0
Total	**2**	**0**

TREE PROTECTION AND REPLACEMENT SECURITIES

Tree Protection securities:

Size of Tree Retained	Securities
Dbh ≤ 50cm	$3,000.00 per retained tree
Dbh of 51-65cm	$4,500.00 per retained tree
Dbh > 65cm	$10,000 per retained tree

Tree Replacement securities:

Size Tree Removed*	Replacement Ratio	Securities / Cash-in-lieu ($1,500 per replacement tree)
≤ 50cm dbh	2:1	$3,000
51-65cm dbh	3:1	$4,500
66-75cm dbh	4:1	$6,000
76-85cm dbh	5:1	$7,500
>85cm dbh	6:1	$9,000

PHOTOS

Fig. 2 - View facing south along Vidal Street to Thrift Avenue.

Fig. 3 – Off-site Douglas-fir tree

Fig. 4 – Tree 03 growing within S4

Fig. 5 – View of Trees OS2 – OS8

Fig. 6 – Stand of off-site conifers located directly west of 1441/1443-45/1465 Vidal Street.

Fig. 7 – View facing north/northwest. OS 9 – 0S 11 make up part of the edge of a larger grouping of conifers.

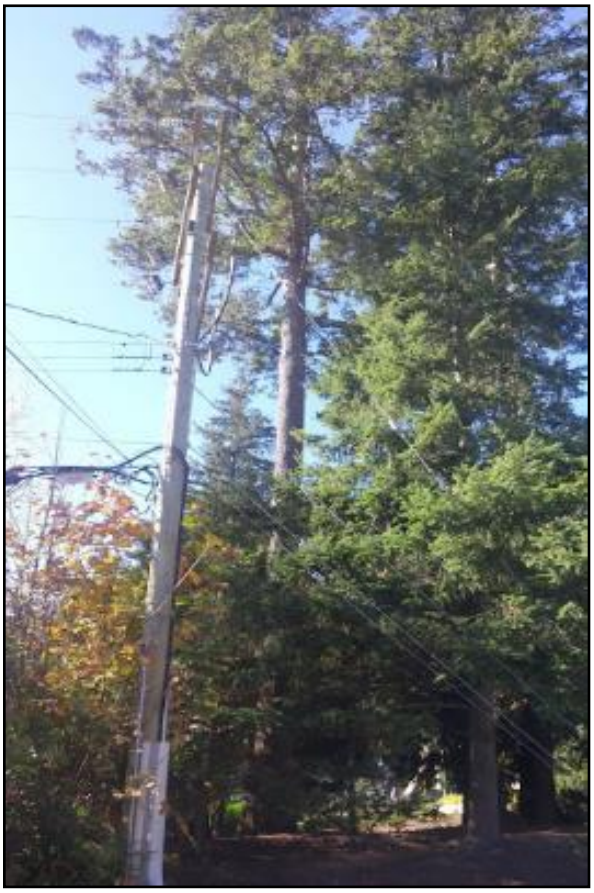


Fig. 8 – Alternate view of Trees OS 9 – OS 11

Fig. 9 – Red alder (376) located on 1465 Vidal Street.

PHOTOS – September 15, 2020

Fig. 9 – View facing east on 1465 Vidal st, tree protection fencing damaged. Needs repair.

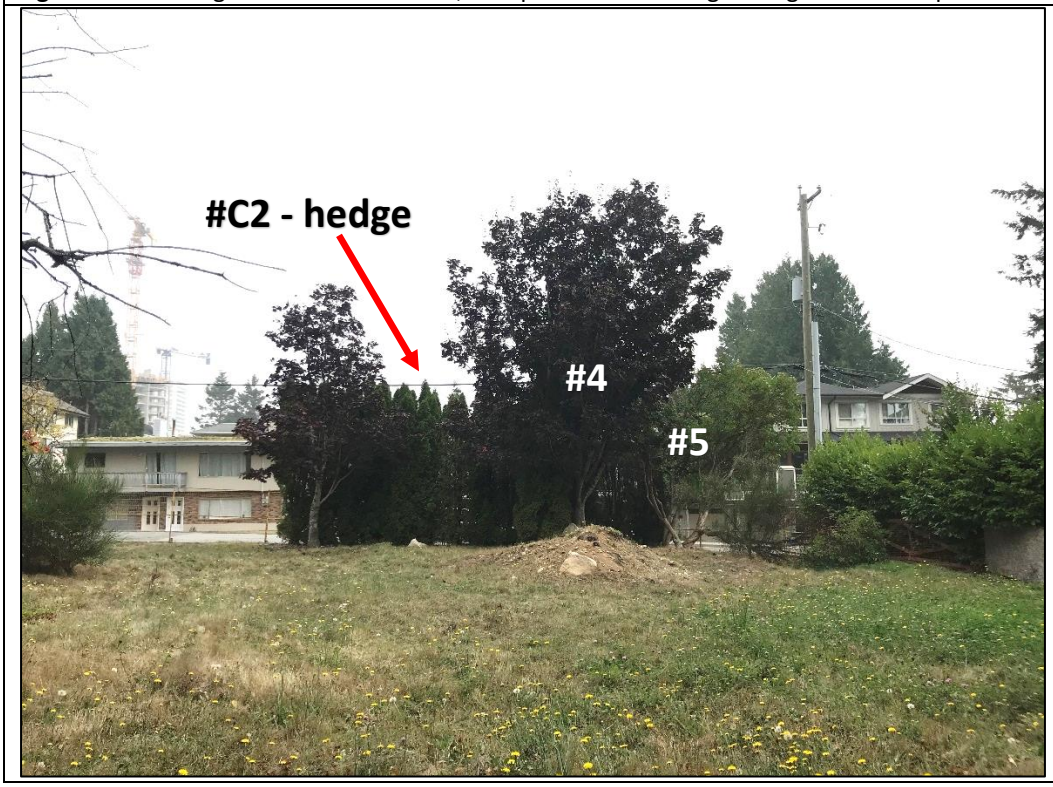


Fig. 10 – View facing east. Southeast corner of 1445 Vidal st. C2 hedge, #4 norway maple, and #5 lilac.

Fig. 11 – Northwest corner of 1465 Vidal.

Fig. 12 – Looking south from 1443-45 Vidal St.

Fig. 13 – Tree #5, failed limb.

Fig. 14 – Pruning of tree branches along east property line, 1465, 1443-45.

Fig. 15 – North property line of 1441 Vidal St, east corner.

Fig. 16 – North property line of 1441 Vidal St, west corner.

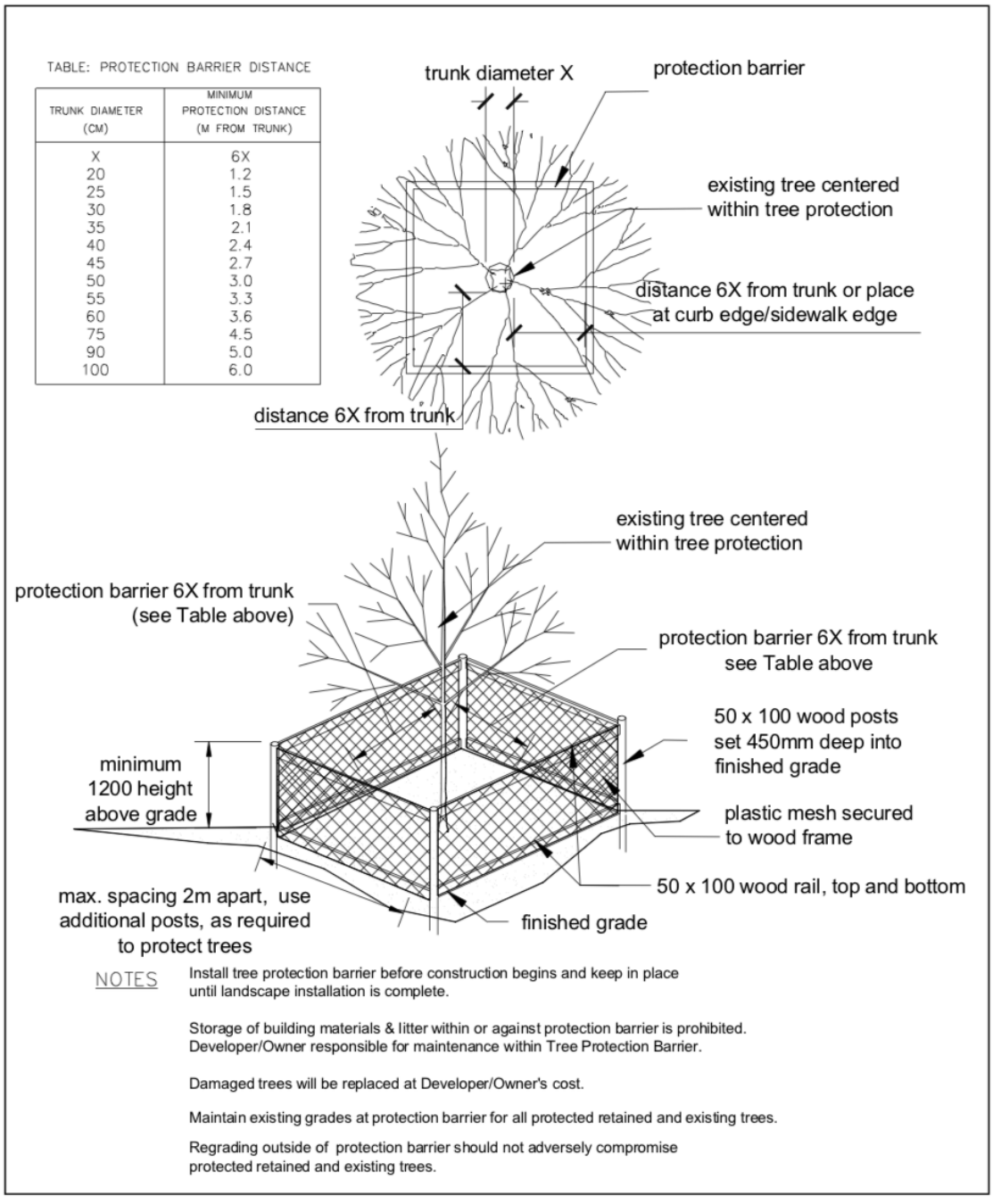
CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE

TREE PROTECTION FENCING

Specifications for Tree Protection Barriers

TABLE: PROTECTION BARRIER DISTANCE

TRUNK DIAMETER (CM)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
X	6X
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0



NOTES

Install tree protection barrier before construction begins and keep in place until landscape installation is complete.

Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.

Damaged trees will be replaced at Developer/Owner's cost.

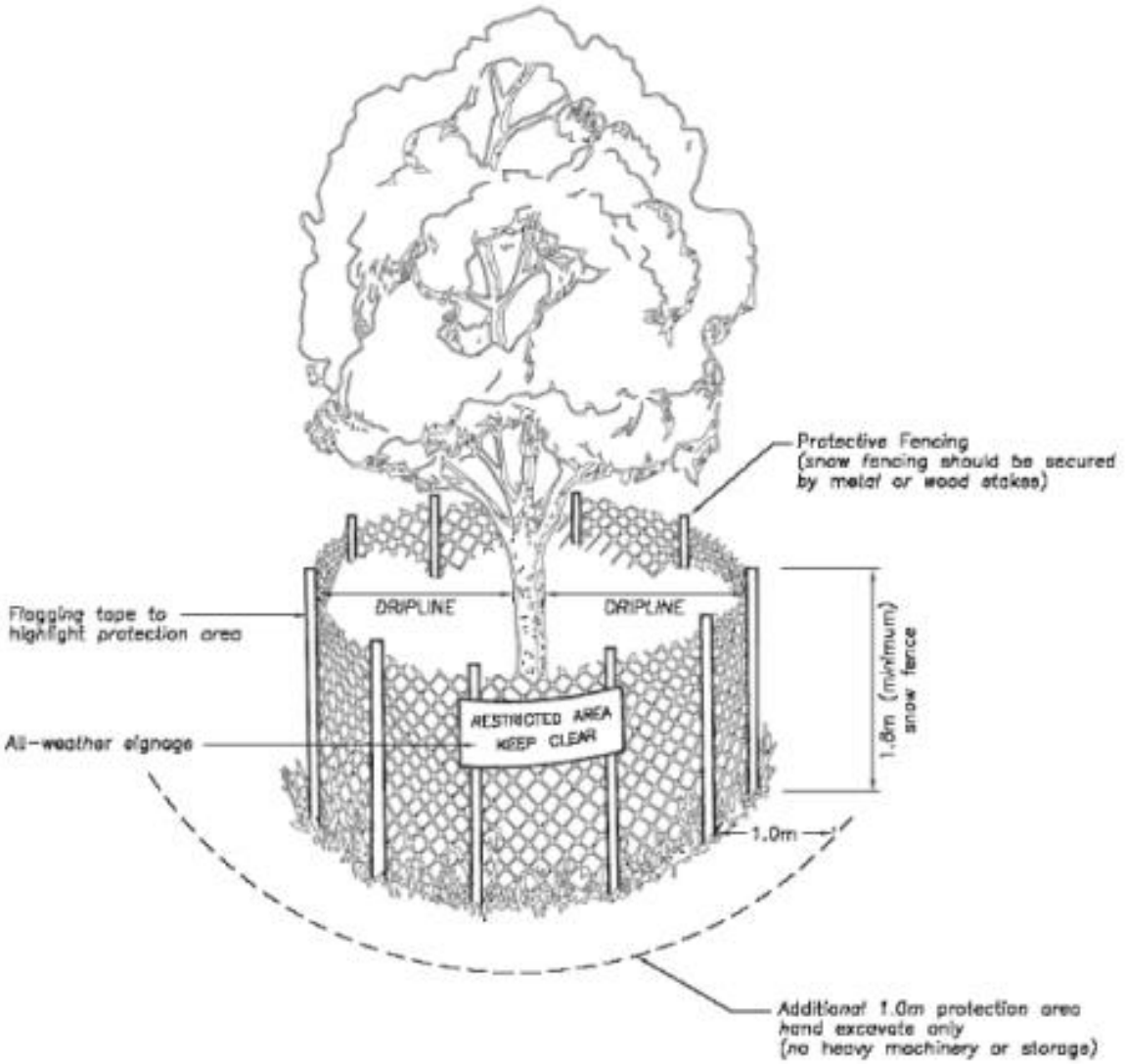
Maintain existing grades at protection barrier for all protected retained and existing trees.

Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.

TREE PROTECTION

How do I safely retain trees on, or adjacent to, the property?

Prior to construction activity you should erect temporary fencing at the dripline of the tree to protect the roots and canopy.



GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE PROTECTION ZONE

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- If construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
- In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either using hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
- Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
- When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
- Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be RETAINED when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
- Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
- Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist

GLOSSARY OF KEY TERMS

Abutment: A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

Adapted Trunk Diameter Method: This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

Age: The relative age (young, intermediate, mature) within the particular stand of trees or forest.

Algae: Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

ALR: The Agricultural Land Reserve in which agriculture is recognized as the priority.

Bole: The stem or trunk of a tree.

Chlorotic: Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

Co-dominant Leaders: Forked dominant stems nearly the same size in diameter, arising from a common junction.

Co-dominant Within Stand: Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

Compaction: Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

Conk: A fungal fruiting structure typically found on trunks and indicating internal decay.

Dead Standing: A tree that has died but is still standing erect.

DBH: The Diameter of the tree at 1.40 meters above the ground.

Dominant Within Stand: Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

C-rad: Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

CRZ: Critical Root Zone - means the area of land surrounding the trunk of a tree contained within a radius equal to the DBH of the tree multiplied by six (6), or one (1) metre beyond the drip line of the tree, whichever is greater.

Fair: Healthy but has some defects such as co-dominant trunk, dead branches.

Feeder Roots: The smaller roots responsible for water and nutrient absorption and gas exchange. These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

Fungus (singular) / Fungi (plural): Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

Girdling Root: Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

Good: Good form and structure, healthy with no defects.

Hazardous: Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or person(s).

Height: Height of tree is approximate.

LCR: Live Crown Ratio – The ratio of crown length to total tree length.

Level 1 Limited Visual Assessment: Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken branches, fungal fruiting structures, large cracks, and severe leans.

Level 2 Basic Visual Assessment: Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced resistance drilling of trunk.

Level 3 Advanced Assessment: To provide detailed information about specific tree parts, defects, targets, or side conditions. May included aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

Mildew: Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

Moss: A small, green, seedless plant that grows on stones, trees or ground.

No Disturbance Zone: (Trunk Diameter x 6) + Trunk Radius + (60 cm excavation zone). For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

Poor: multiple defects, disease, poor structure and or form, root and or canopy damage.

Phloem: Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

Phototropic: Growth toward light source or stimulant.

Retain & Monitor: Monitor health and condition of tree every 12 months for signs of deterioration.

Root Crown: Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

SPEA: Streamside Protection and Enhancement Area

Spiral Decline: The health and condition of the tree is deteriorating.

Sub-dominant Within Stand: Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

Suppressed: Individual tree whose growth, health and condition are negatively impacted by adjacent tree(s).

TPZ: Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

Wildlife Tree: A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

Witches Broom: A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

Xylem: Thin overlapping cells that helps provide support and that conducts water and nutrients upward from the roots all the way to the leaves.

LIMITATIONS

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published, or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams, and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education, and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

REFERENCES

Bond, Jerry & Buchanan, Beth (2006) Best Management Practices: Tree Inventories, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) Common Fungi Affecting Pacific Northwest Trees, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) Best Management Practices: Managing Trees During Construction, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

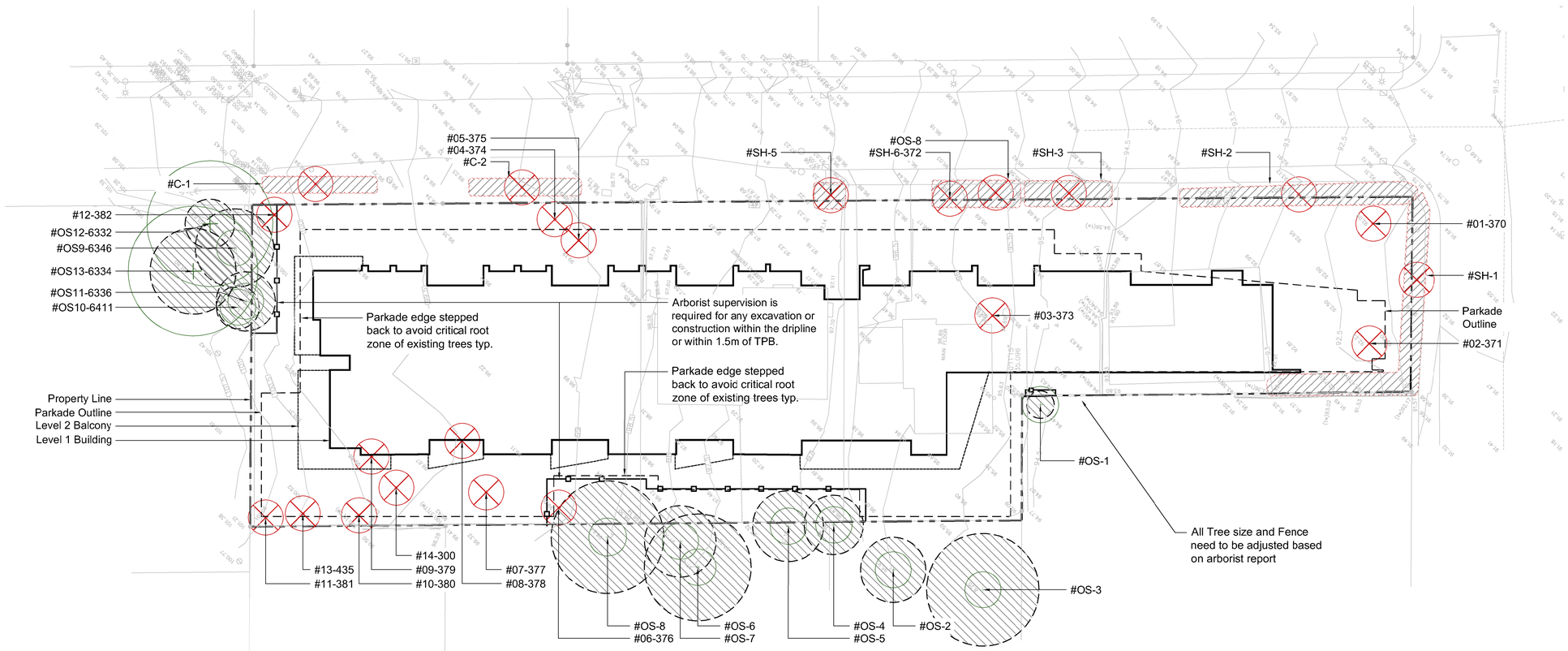
Smiley, E.T., Matheny, N., Lilly, S. (2011) Best Management Practises: Tree Risk Assessment. International Society of Arboriculture, Champaign, IL.

TREE MANAGEMENT PLAN

See attached Tree Mangement Plan

Original size: 24x36

Print as 11x17 for foldout



1 TREE PROTECTION AND REMOVAL PLAN
Scale 1:250

LEGEND

Tag # / CRZ CR		
Existing Tree to be Retained CRZ: Critical Root Zone CR: Crown Radius	Existing Tree to be Removed	Tree Protection Fencing

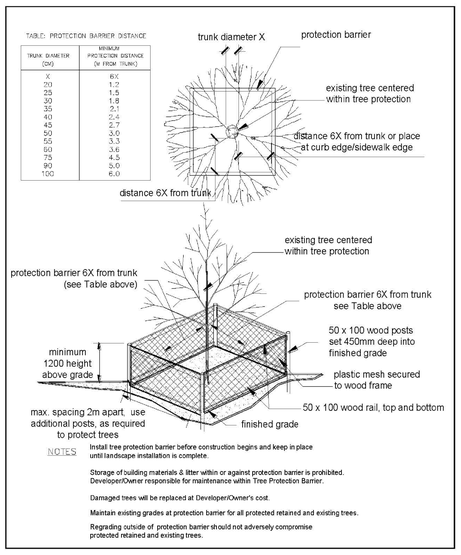
Tree Tag Legend
XX - Tag number
C-XX - Municiple tree
OS-XX - Off-site tree
SH-XX - Straddling tree. Written permission required from owner to remove trees.

SCHEDULE "A"

Specifications for Tree Protection Barriers

TABLE: PROTECTION BARRIER DISTANCE

TRUNK DIAMETER (DBH)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
5	0.5
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0



NOTES
Install tree protection barrier before construction begins and keep in place until landscape installation is complete.
Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.
Damaged trees will be replaced at Developer/Owner's cost.
Maintain existing grades at protection barrier for all protected retained and existing trees.
Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.

2 TREE PROTECTION FENCE
Scale NTS

Note:
1. Contact Arborist (Glyn Romaine, 604 841 9977, glyn@vdz.ca) for inspection 72 hrs prior to any grading or excavation within the tree protection zone. (typ) If during excavation it is found that it cannot be completed without severing roots that are critical to the trees health or stability it may be necessary to remove additional trees.
2. Read this plan together with the arborist report prepared by VDZ+A.
3. An additional 1m setback is shown for all hand-plotted trees to be retained
4.If Stump Grinding is to occur in close proximity to trees which are to be retained then it is requested stumps to be removed under Arborist supervision.
5. It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
*Locating TPZ Fencing
*Locating Work Zone and Machine access corridors where required
*Reviewing the Report with the project foreman or site supervisor.

VDZ+A
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www.vdz.ca 604-882-0024

No.	By:	Description	Date
12	SH	Issued for Planning Review	May 31, 2022
11	SH	Issued for DP	Oct 18, 2021
10	SH	Response to ADP Comments	July 23, 2021
9	ET	Re-Issued for ADP	June 4, 2021
8	LJ	Issued for ADP	March 9, 2021
7	SH	Issued for Coordination	Feb. 26, 2021
6	SH	Issued for Coordination	Dec. 23, 2020
5	SH	Issued for Coordination	Oct. 6, 2020
4	SH	Issued for DP	June 25, 2020
3	SH	Issued for DP	March 6, 2020
2	SH	Issued for DP	May 24, 2019
1	JW	Issued for DP Review	Nov 16, 2018

REVISIONS TABLE FOR DRAWINGS

No.	By:	Description	Date
4	KM	Arborist Report Revision	Sept 23rd, 2020
3	SH	Arborist Report Revision	Feb 4, 2020
2	SH	Arborist Report Revision	June 18, 2019
1	SH	Arborist Report Revision	May 15, 2019

REVISIONS TABLE FOR SHEET

Project:
Vidal Street Development

Location:
Vidal Street & Thrift Ave,
White Rock, BC

Drawn: FW
Checked: JW
Approved: MVDZ
Scale: 1:250
Stamp:
Original Sheet Size: 24"x36"

CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE EXCLUSIVE PROPERTY OF THE OWNER AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. ALL REZONING/DP/PPA/TUA/SP DRAWINGS MUST NOT BE PRICED FOR CONSTRUCTION UNLESS LABELED ISSUED FOR TENDER/CONSTRUCTION.

Drawing Title: TREE PROTECTION AND REMOVAL PLAN
NORTH
VDZ Project #: DP2018-59
Drawing #: L-02

Z:\PROJECTS\DEVELOPMENT PERMIT\ACTIVE\DP2018-59 VIDAL STREET\DWG\SHEETS\L-02 TREE PROTECTION AND REMOVAL PLAN.DWG