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Arborist Assessment Report and Site Management Plan

888 Beach Ave, Vancouver, BC – Targeted Balconies/Decks Rehabilitation

Prepared for:

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Dated this 31st day of August, 2017

Inter-Municipal Business License #16-217409
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Introduction

Defined Treescapes has been asked by Virginia Smith of RDH Building Science, who are the contract engineering and design team representing the legal owners for the proposed 888 Beach Avenue, Vancouver, BC building enclosure rehabilitation project, to assess and report on all protected trees within the 888-boundary envelope, all diameter neighboring trees within 2m of said boundary line(s) and all protected boulevard trees that may be impacted during said project.

The scope of the proposed work based upon our review of the site plan drawing and consultation with the project engineer/RDH is an 18-story tower (Tower B Ocean Tower) at the 888 Beach Avenue Complex, specific address for this tower is 1501 Howe. Full scaffolding at this tower only to address targeted renewals and maintenance of all balconies & select decks. Select TH balconies and work at the mechanical penthouse only of Tower A as indicated on the site plan is also occurring. The specific scaffolding set-up and methodology will be established by both the project arborist and the contractor at the time of mobilization; however, a standard scaffold install protocol Defined Treescapes typically would expect is an approximate 2m allotment from the main structures exterior foundation. Most scaffold install generally fits this protocol.

Defined Treescapes has been provided with a site plan drawing but no legal survey underlay. No trees or their precise locations were present on said site plan; however, we used our site visit metrics and measurements and plotted all inventoried trees as accurately as we could in AutoCAD. Our tree protection fencing recommendations were also dimensioned in AutoCAD for improved accuracy.

The following report is intended to provide sufficient information to the City of Vancouver to satisfy section 7.2 of bylaw 9958, and to provide the developer and homeowner with advice and parameters regarding maximum tree retention and protection during the proposed development.

With an application for issuance of a development permit or building permit, the owner or the applicant on behalf of the owner, must also submit a report, certified correct by an arborist, that sets out:

- a) the condition, size, and species of trees on the site;
- b) the impact of the proposed development on the health of trees on the site, and potential hazards to them during or after construction;
- c) development limitations;
- d) recommended construction practices to protect trees during and after construction; and
- e) an undertaking from the arborist and the owner to the city that the arborist will perform or supervise performance of:

Please note that a Letter of Assurance for arborist supervision will also be required to fulfill the City of Vancouver requirement of the following:

- (i) pre-construction treatment of trees including root and branch pruning,
- (ii) regular on-site inspections during construction, and will report any offence against this By-law on the site to the Director of Planning or on a street adjacent to the site to the City
- (iii) advice with restorative landscape treatment including soil renovation,
- (iv) advice with selection and planting of any replacement trees required under this By-law, and a post construction inspection of the site, and will prepare a report, certified correct by the arborist, for submission, in a timely manner, to the Director of Planning.

Observation

Defined Treescapes visited the 888 Beach Avenue, Vancouver, BC proposed project site on August 23, 2017 to inventory and assess the trees either within or adjacent to said site. It is important to note that we observed several dozen trees and shrubs (approx. 100+ and most all <20cm) throughout the entire block residence(s) and towers, and we have simplified our inventory by individually denoting all protected boulevard trees; however, because of the sheer volume of onsite trees, we itemized said site trees into groupings with a brief description of each collective stand since we did not have access to the historical approved landscape plan.

We observed 26 protected boulevard trees (Bl.1 – Bl.26) approximately (>95) trees and shrubs (Cherry/Magnolia Stand, Cherry Stand, Linden Stand 1, Linden Stand 2, Southern Stand, SW Stand, SE Stand) within the 888-boundary envelope and no observable protected neighboring trees. It is important to note that most all of the onsite trees are <20cm dbh, with the exception to approximately 10% of onsite trees being >20cm dbh. The collective live canopy of said site primarily consists of said small trees, plants and shrubs.

Bl.1 – Bl.8 are all young maples located within the Beach Avenue southern municipal easement, and all appear to be in good health with no significant defects. Said trees have been planted and appear to be thriving between the sidewalk and street. Only Bl.1 – Bl.4 appear to be near and adjacent to the proposed tower A (Mechanical Penthouse) project site. (No Scaffold Requirement)

Bl.9 – Bl.13 are all young maples located within the Howe Street western municipal easement, and all appear to be in good health with no significant defects. Said trees have been planted and appear to be thriving between the sidewalk and street. Only Bl.11 – Bl.13 appear to be near and adjacent to the proposed tower B project site.

Bl.14 – Bl.20 are comprised of cherries and styrax, and all are located within the Seabreeze Walk's northern municipal easement. All trees appear to be in good health except for the Bl.20 snowbell (Dead). Only Bl.14 – Bl.16 appear to be near and adjacent to the proposed tower B project site.

Bl.21 – Bl.26 are comprised of maples and all are located within the Hornby street eastern municipal easement. All trees appear to be in good health with no observable defects. Only Bl.23 – Bl.26 appear to be near and adjacent to the proposed tower A (Mechanical Penthouse) project site (No Scaffold Requirement)

The SW Stand is a collective stand of Japanese maples and pine trees located on the SW corner of Hornby Street and Seabreeze Walk. Said trees appear to be in good health with no observable defects. These trees appear to be within the 888-boundary envelope, and all are confined inside a brick / stone / mortar planter structure. None of these trees appear will be near the proposed Tower A or Tower B construction zones.

The SE Stand is a collective stand of Japanese maples and pine trees located on the SE corner of Howe Street and Seabreeze Walk. Said trees appear to be in good health with no observable defects. These trees appear to be within the 888-boundary envelope, and all are confined inside a brick / stone / mortar planter. This collective stand of trees (>20cm) will be near and adjacent to the SE corner of the Tower B construction location; however, there is flexibility with where the scaffolding can be installed.

The Linden Stand 1 and Linden Stand 2 are both located within the central structures roof top garden and several meters south of Tower A and west of Tower B. Each stand is comprised of approximately 19 lindens that have been planted in an interesting tandem line, and each stem is <2m from one another. Most all of these lindens are <20cm dbh. None of these trees appear will be near the proposed Tower A or Tower B construction zones.

Observation Cont'd

The Cherry Stand is located within the SW area of the central structures roof top garden and several meters south of Tower A. Said stand is comprised of approximately 10 cherry trees, most all of which are <20cm dbh. The trees within said stand have all been planted within individual concrete / brick / mortar planters. None of these trees appear will be near the proposed Tower A or Tower B construction zones.

The Cherry/Magnolia Stand (primarily cherry trees) is located within the NE area of the central structures roof top garden and several dozen meters away from either Tower A and B. Although there are several trees within this collective stand, only 5 appear to be >20cm dbh, and all have been planted within individual concrete planters. All trees within said collective stand appear to be in good health with no observable defects.

None of these trees appear will be near the proposed Tower A or Tower B construction zones.

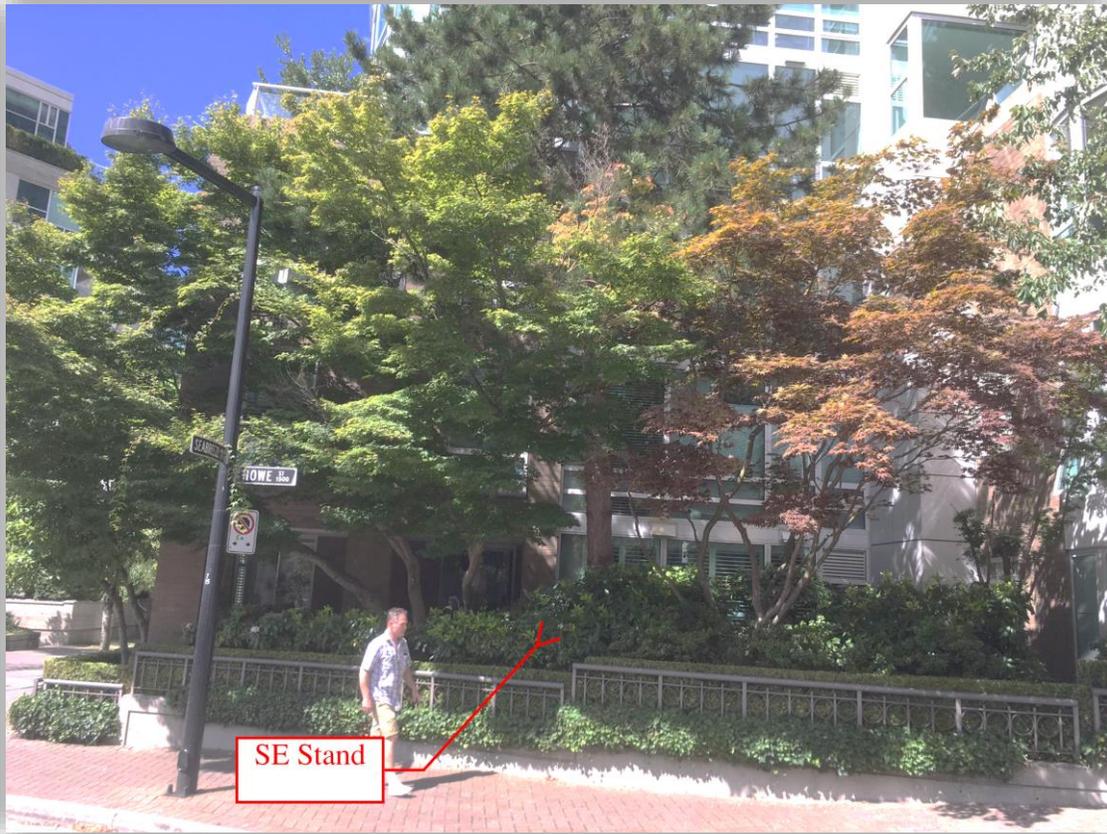
The Southern Stand is comprised of primarily cherry trees that are located within the SE area of the central structures roof top garden and several meters away from the Tower B construction zone. Most all of these cherry trees within this collective stand are <20cm, and all have been planted within individual concrete planters. All trees within said collective stand appear to be in good health with no observable defects. All of these trees appear will be near the proposed Tower B construction zone.



Observation Cont'd (Photos)



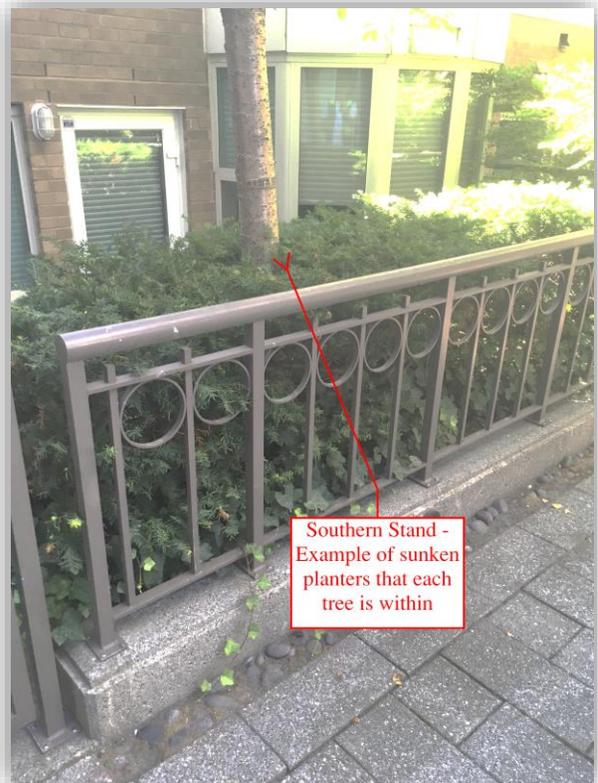
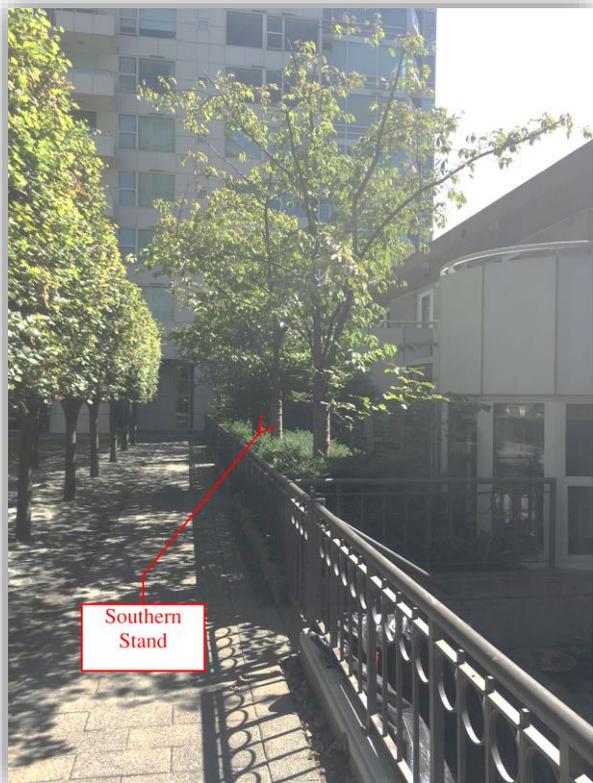
Observation Cont'd (Photos)



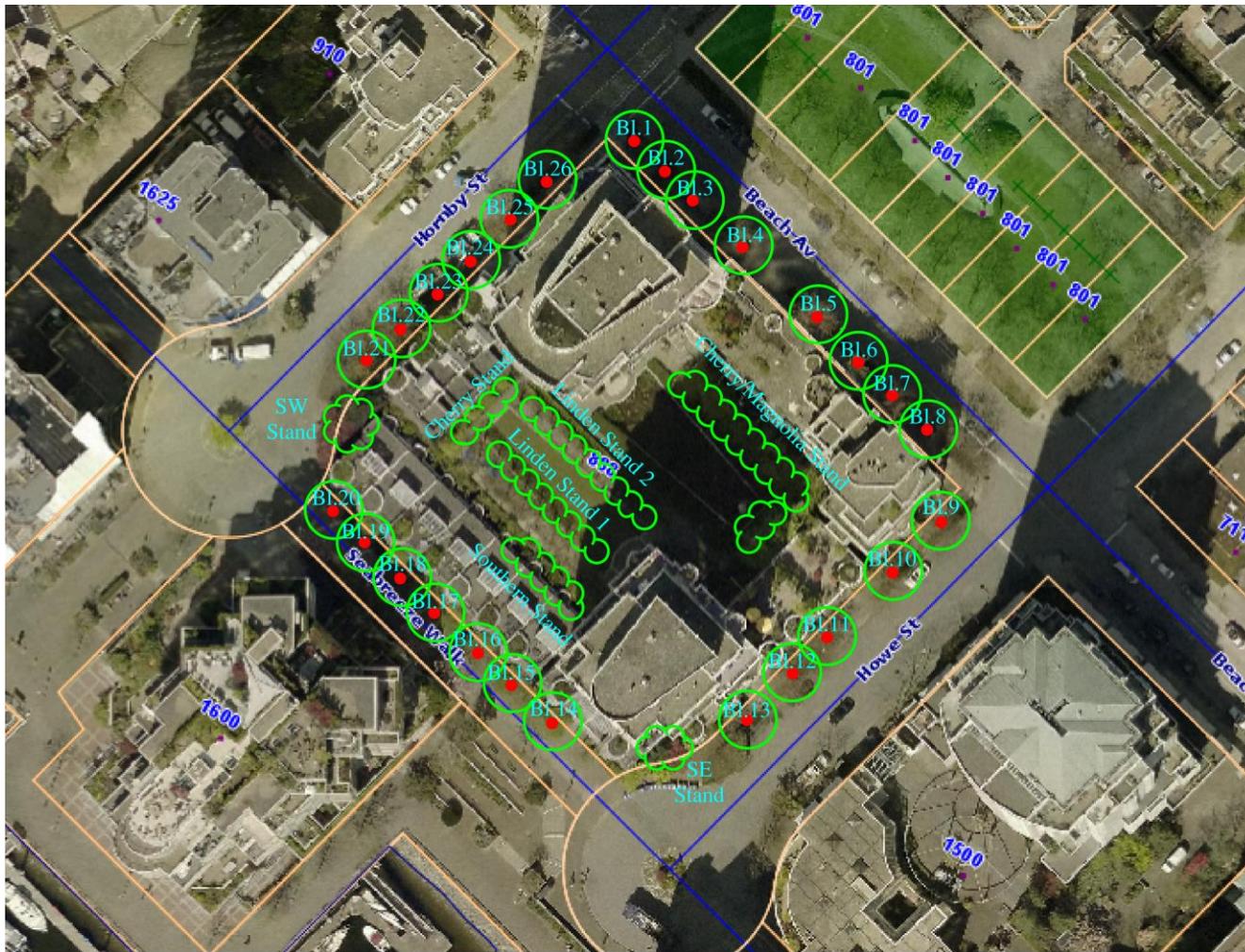
Observation Cont'd (Photos)



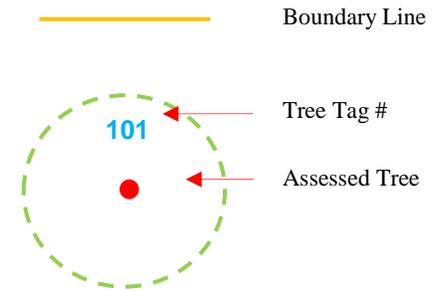
Observation Cont'd (Photos)



Observation Cont'd (Tree location)



Legend



NOTES

- The complete tree inventory can be found on page 10,11 of this report. This comprehensive inventory will include tree tag #, species, DBH, height, condition and subsequent recommendation(s).
- This plan only assumes, and does not certify the accuracy of locations or dimensions of buildings, property lines, easements, sewer, gas, water, or power. Please refer to the original drawings from those professionals for accuracy.
- See Appendix 1 at the end of this report for the Tree Replacement Plan (If required).
- Because there are over 100 trees within said property envelope, most all <20cm, we have attempted to identify and report on all trees and shrubs (groupings/collectively) since we did not have access to the approved landscape plan (historical)

COMMON TREE CODE LIST

CODE	QTY	BOTANICAL NAME	COMMON NAME
WH	20	<i>Acer rubrum</i>	Red Maple
MG	Apx.. 30	<i>Prunus serrulata</i>	Flowering Cherry
EL	Apx. 20	<i>Magnolia X soulangeana</i>	Saucer Magnolia
CH	38	<i>Tilia cordata</i>	Linden
EL	5	<i>Acer palmatum</i>	Japanese Maple
PV	3	<i>Pinus nigra</i>	Austrian Pine

City of Vancouver Tree Bylaw No. 9958 Overview

Property owners may be granted permission to remove trees, if one or more of the following conditions apply:

- The tree on a development site is located within the building envelope
- The tree is located such that a proposed garage or other accessory building cannot be located so as to retain the tree
- An arborist certifies the tree is dead, dying, or hazardous
- An arborist certifies the tree is directly interfering with utility wires and cannot be pruned and still maintain its reasonable appearance or health
- An accredited plumber certifies that the roots of the tree are directly interfering with, or blocking sewer or drainage systems

Unless a tree requires removal under one of the conditions listed above, all property development (renovation or new building) requires you to retain existing trees located on your property.

All trees to be retained on the site require protection during any construction or development. All trees on adjacent properties or boulevard trees that are in danger of being damaged must be protected as well. An arborist's report is required to make a development permit application.

Section 4.5: Issuance of tree permit The Director of Planning may issue a permit to remove a tree from, or to relocate or replace a tree on, a site only if:

- (a) the location of the tree is within a building envelope defined or described under a development permit or building permit, and changing the sitting of an accessory building within that envelope to allow retention of the tree is not possible;
- (b) the location of the tree is within the required construction access, as determined by the Chief Building Official;
- (c) a plumber, accredited under the Industry Training Authority Act of British Columbia, certifies that the roots of the tree are interfering with, blocking, or damaging a drainage or sewage system;
- (d) an arborist certifies that: (i) the tree interferes with utility wires or required construction access, or (ii) the tree is so close to utility wires or required construction access that it creates a hazard, and (iii) pruning the tree to reduce the interference or hazard would weaken or mutilate the tree.
- (e) an arborist certifies that the tree is causing damage to property, including damage to roofs, retaining walls and sidewalks, that standard arboriculture practices cannot rectify;
- (f) an arborist who is a tree risk assessor certified by the International Society of Arboriculture certifies that the tree is a hazardous tree;
- (g) an arborist certifies that damage to the tree has occurred to the extent that the tree is likely to suffer from disease or die prematurely; or (h) an arborist certifies that the tree is dying and is likely to be dead within six months or is dead. (i) the conditions on the permit include the recommended construction practices to protect trees during and after construction that are contained in the arborist's report referred to in section 7.2 of this By-law.

Section 7.6 No construction without protection barrier. No person shall carry out demolition, excavation or construction on a site unless there are protection barriers in place as required by this By-law.

Tree Inventory

The on and off site protected trees were assessed, including: species, diameter at breast height (dbh), estimated height and general health and condition. See subsequent recommendations.

TREE #	SPECIES	DBH (CM)	HEIGHT (M)	MINIMUM TPZ (IF REQUIRED)	CONDITION AND RECOMMENDATION
Bl.1 – Bl.8	Maple	25-35cm	9m	Access / construction zone (Tower A) inside building – no impactd / no tree protection required	<p>Good Health / Good Structure. No significant defects. Tower A construction zone will not be within any TPZ's.</p> <p>No Observable Conflicts</p> <p>Recommend: Retain. No subsurface disturbance, scaffold or construction appears will be near or within these tree's TPZ's. No tree barriers recommended. Arborist Supervision will include three unannounced site visits to confirm reported interior access only.</p>
Bl.9 – Bl.13	Maple	24-33cm	8m	1.5m Modified tree protection barrier required for Bl.11 – Bl.13	<p>Good Health / Good Structure. No significant defects. Tower B scaffold will be near, but not within the TPZ of the Bl.11 – Bl.13 trees.</p> <p>No observable Conflicts</p> <p>Recommend: Retain. Tree barriers are recommended for the Bl.11 – Bl.13 so that staging of materials does not occur during construction. Project arborist will work with contractor find optimal locations for scaffold. Arborist Supervision Required.</p>
Bl.14 - Bl.20	Cherry / Styrax	10-30cm	6m	1.5m Modified tree protection barrier required for Bl.14 – Bl.16	<p>Good Health / Good Structure. No significant defects (Except Bl.20 appears to be completely dead). Tower B scaffold will be near, but not within the TPZ of the Bl.11 – Bl.13 trees.</p> <p>No observable Conflicts</p> <p>Recommend: Retain. Tree barriers are recommended for the Bl.14 – Bl.16 so that staging of materials does not occur during construction. Project arborist will work with contractor find optimal locations for scaffold. Arborist Supervision Required.</p>
Bl.21 – Bl.26	Maple	10-27cm	7m	Access / construction zone (Tower A) inside building – no impactd / no tree protection required	<p>Good Health / Good Structure. No significant defects. Tower A construction zone will not be within any TPZ's.</p> <p>No Observable Conflicts</p> <p>Recommend: Retain. No subsurface disturbance, scaffold or construction appears will be near or within these tree's TPZ's. No tree barriers recommended. Arborist Supervision will include three unannounced site visits to confirm reported interior access only.</p>
Linden Stand 1 (Approx. 19)	Linden	Most all <20cm	5m	No Barriers Required	<p>Good Health / Fair Structure. Previously topped. Proposed construction zones for both Tower A, B will not be near these trees TPZ's.</p> <p>No Observable Conflicts</p> <p>Recommend: Retain. No tree protection barriers required</p>
Linden Stand 2 (Approx. 19)	Linden	Most all <20cm	5m	No Barriers Required	<p>Good Health / Fair Structure. Previously topped. Proposed construction zones for both Tower A, B will not be near these trees TPZ's.</p> <p>No Observable Conflicts</p> <p>Recommend: Retain. No tree protection barriers required</p>

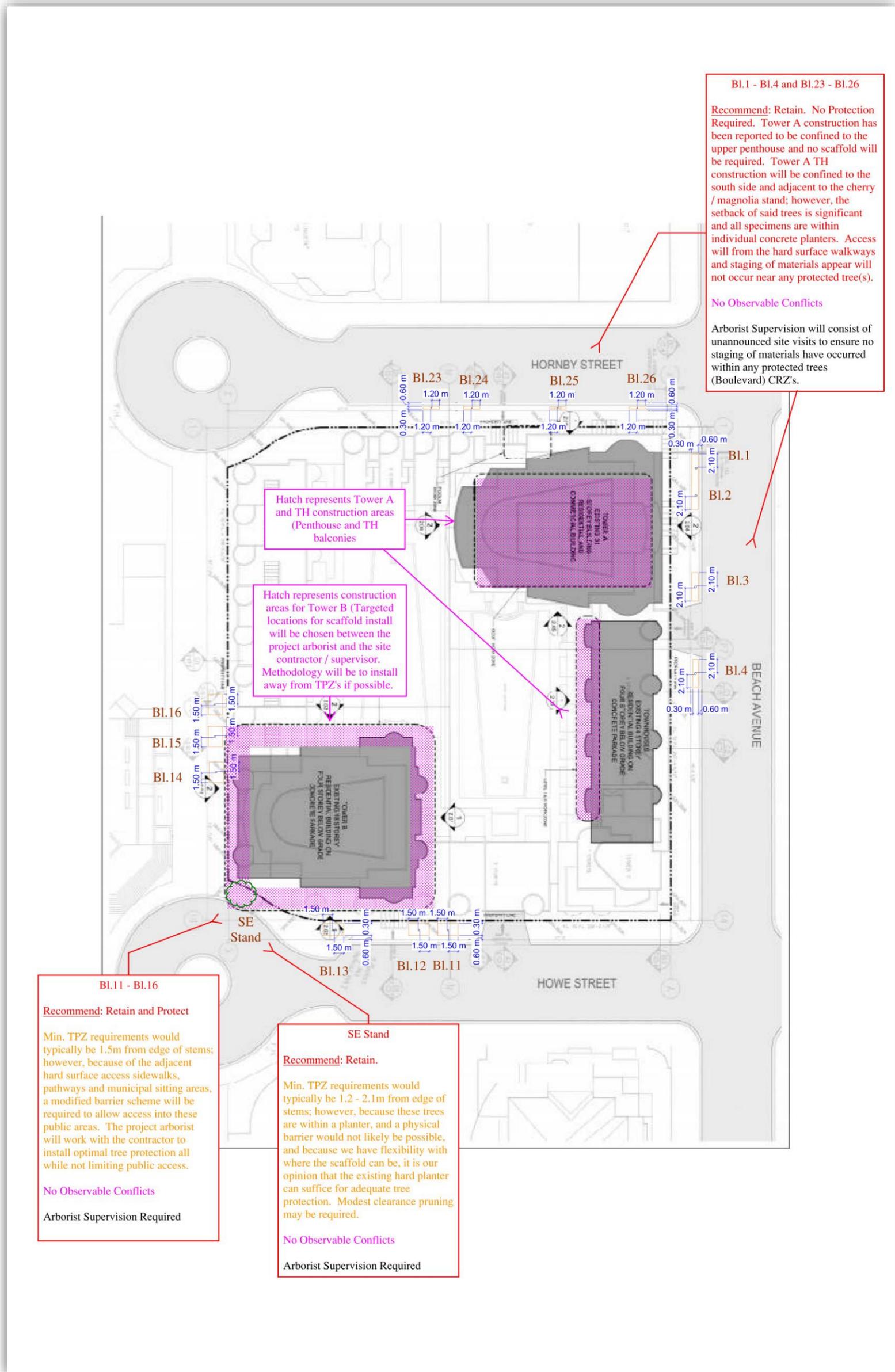
Tree Inventory

The on and off site protected trees were assessed, including: species, diameter at breast height (dbh), estimated height and general health and condition. See subsequent recommendations.

TREE #	SPECIES	DBH (CM)	HEIGHT (M)	MINIMUM TPZ (IF REQUIRED)	CONDITION AND RECOMMENDATION
SW Stand	Japanese Maples / Pine	>20cm	7-13m	No Barriers Required	<p>Good Health / Good Structure. No observable defects. Proposed construction zones for both Tower A, B will not be near these trees TPZ's.</p> <p>No Observable Conflicts (Trees setbacks from construction zones are significant and trees are within individual concrete planters)</p> <p>Recommend: Retain. No tree protection barriers required.</p>
SE Stand	Japanese Maples / Pine	>20cm	7-13m	No Barriers Required	<p>Good Health / Good Structure. No observable defects. Proposed construction zones for both Tower A, B will not be near these trees TPZ's.</p> <p>No Observable Conflicts (Trees setbacks from construction zones are significant and trees are within individual concrete planters)</p> <p>Recommend: Retain. No tree protection barriers required. Project arborist will work with contractor find optimal locations for scaffold. Arborist Supervision Required.</p>
Cherry Stand	Cherry	Most all >20cm	5m	No Barriers Required	<p>Good Health / Good Structure. No observable defects. Proposed construction zones for both Tower A, B will not be near these trees TPZ's.</p> <p>No Observable Conflicts (Trees setbacks from construction zones are significant and trees are within individual concrete planters)</p> <p>Recommend: Retain. No tree protection barriers required</p>
Southern Stand	Cherry	Most all <20cm	6m	No Barriers Required	<p>Good Health / Good Structure. No observable defects. Proposed construction zones for both Tower A, B will not be near these trees TPZ's.</p> <p>No Observable Conflicts (Trees setbacks from construction zones are significant and trees are within individual concrete planters)</p> <p>Recommend: Retain. No tree protection barriers required. Project arborist will work with contractor find optimal locations for scaffold.</p>
Cherry / Magnolia Stand	Cherry / Magnolia	18cm-35cm	6m	No Barriers Required	<p>Good Health / Good Structure. No observable defects. Proposed construction zones for both Tower A, B will not be near these trees TPZ's.</p> <p>No Observable Conflicts (Trees setbacks from construction zones are significant and trees are within individual concrete planters)</p> <p>Recommend: Retain. No tree protection barriers required. Project arborist will work with contractor find optimal locations for scaffold.</p>

We did not perform a comprehensive TRAQ risk assessment on any of the inventoried trees since they all have no significant observable defects and all have a low probability of failure based upon a Level II VTA.

Site and Tree Protection Plan



Defined Treescapes was provided with a site plan drawing but no legal survey underlay. No protected trees, shrubs or hedges or their precise locations were present on said original site plan; however, we used our site visit metrics and measurements and plotted all inventoried trees as accurately as we could in AutoCAD. The existing / installed tree protection fencing were also dimensioned (the best we could w/o a survey plan) in AutoCAD for improved accuracy. We have notified the design team that they will be required to include the above information (tree name/#, min TPZ's to be scaled and dimensioned exactly as we have, notes re modified TPZ's, if arborist supervision required) into their final site plan drawing. The project representative will be required to print this site and tree protection plan on 11x17 so the COV prescreen officer can easily read our recommendations. Defined Treescapes will amend this site plan following COV prescreen intake and after we review any deficiency list items.

Discussion / Recommendations

Tree retention is often difficult when construction activities occur near or within trees critical root zones. TPZ's are often much greater than the distances required to work around principal and accessory building structures. After careful review of the scope of work and location requirements for scaffold on both Tower A and TH, and Tower B, this proposed project does not appear to pose any unique challenges to tree protection.

It is our opinion that the Bl.1 – Bl.10, Bl.17 – Bl.26, both Linden Stands, Cherry Stand, Southern Stand, SW Stand and the Cherry / Magnolia Stand trees will not near any proposed construction zones, and we have recommended that no tree protection barriers will be required; in part because of their setbacks and/or because most all trees are confined within individual concrete planters.

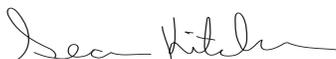
It is our opinion that the Bl.11 – Bl.16 trees will be near, but again, not within any proposed construction zones. We have recommended that tree protection be installed around these 6 protected boulevard trees so that no staging of materials occurs when working near the Tower B construction zones.

We have recommended and requested that the project arborist is directly involved with working with the site supervisor to determine the optimal locations for scaffold install, with a methodology of installing away from protected trees CRZ's and canopies.

We have recommended that arborist supervision will be required for the Bl. 11 – Bl. 16 and for the SE Stand. Modest clearance pruning may have to occur on some trees within the SE Stand.

Note: Because there are no protected trees >20cm that will be removed, no tree replacement plan will be required

End Report



Sean Kitchen
Defined Treescapes
ISA Certified Arborist PN6090A
ISA Tree Risk Assessment Qualified (TRAQ)

NOT CERTIFIED WITHOUT ORIGINAL OR E SIGNITURE

Assumptions and Conditions

1. This report and the opinions expressed within it have been prepared in good faith and to accepted arboricultural standards within the scope afforded by its terms of reference and the resources made available to the consultant. The report provides no undertakings regarding the future condition or behavior of the trees reviewed within it. Tree hazard and condition assessments are not an exact science. Both qualities can and do change over time and should be reappraised periodically.
2. This assessment was limited to a level two visual tree evaluation only. The inner tissue of the trunk, limbs and roots, as well as the majority of the root systems of trees are hidden within the tree and the ground. Also, trees have adaptive growth strategies that can effectively mask defects. Tree assessment is limited to relying on the outward signs of defect and health issues that are indicators of the presence of defects. We use our training, experience and judgement; however, it is possible that certain defects are not able to be identified. Defined Treescapes cannot guarantee that a tree is free of defect. No root or core samples were taken.
3. This report only provides an assessment of the specimen tree(s) mentioned in this report. No other tree(s) on the property or neighboring properties have been assessed or provided a risk rating.
4. Any legal description provided to the consultant/appraiser is assumed to be correct. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
5. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations.
6. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the information provided by others.
7. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
8. Loss or alteration of any part of this report invalidates the entire report.
9. If this report is not certified, it remains the property of Defined Treescapes until the final invoice amount has been paid. Until this final invoice payment is paid in full, this uncertified report is not permitted to be dispersed, viewed, considered or reviewed by any other party than the homeowner, contractor or design team. Once the final invoice payment has been made, this report becomes the property of said interested party and can be dispersed, viewed, considered and reviewed by all interested parties for municipal sub-development, building, development or construction permitting.
10. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser—particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or institute or to any initiated designation conferred upon the consultant/appraiser as stated in his qualification.