Diamond Head Consulting Ltd.
Arborist Report

For:

4701 South Piccadilly Road
West Vancouver, BC
July 23, 2015
To be submitted with Tree Protection Plan
Dated: July 23, 2015

Submitted to:

Dr. Sukhi Muker
1785 Bellevue Avenue
West Vancouver BC
V7V 1A8

Submitted by:

DIAMOND HEAD
CONSULTING LTD.

342 West 8th Avenue
Vancouver, BC
V5Y 3X2

SAFE CERTIFIED

The following Diamond Head Consulting staff performed the site visit and prepared the report. All general and professional liability insurance and individual accreditations have been provided below for reference.

Max Rathburn
ISA Certified Arborist (PN0599A)
ISA Certified Tree Risk Assessor (159)

This report summarizes the planned management of trees on the site. If there are any questions or concerns as to the contents of this report, please contact us at any time.

Contact Information

Phone: 604-733-4886
Fax: 604-733-4879
Email: max@diamondheadconsulting.com
Website: www.diamondheadconsulting.com

Insurance Information

WCB:	# 657906 AQ (003)
General Liability:	Northbridge General Insurance Corporation - Policy #CBC1935506, $5,000,000 (Mar 2014 to Mar 2015)
Errors & Omissions:	Lloyds Underwriters – Policy #1010346D, $1,000,000 (June 2011 to June 2015)

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1.0 Introduction

Diamond Head Consulting Ltd. (DHC) was asked to complete an assessment of the trees on and adjacent to the following proposed development:

Civic address:	**4701 South Piccadilly Road West Vancouver**
Project No.:	unknown
Client name:	Dr. Sukhi Muker
Date of last site visit:	May 22, 2015
Weather during visit:	Clear with average seasonal temperatures

The trees at the site were assessed, including: species, diameter at breast height (dbh) measured to the nearest 1 cm at 1.4 m above tree base, estimated height and general health and defects. Critical root zones were calculated for each of the trees with the potential for development impacts. Tree hazards were assessed according to International Society of Arboriculture and WCB standards. Suitability for tree retention was evaluated based on the health of the trees and their location in relation to the proposed building envelopes and infrastructure. This report outlines the existing condition of the trees on and adjacent to the property, summarizes the proposed tree removals and retention trees as well as suggested guidelines for protecting the remaining trees during the construction process.

1.1 Limits of Assignment

- Our investigation is based solely on our visual inspection of the trees on during our last inspection. Our inspection was conducted from ground level. We did not conduct soil tests or below grade root examination to assess the condition of the root system of the trees.
- This report does not provide any estimates to implement the proposed recommendations provided in this report.
- This report is valid for six months from the date of submission. Additional site visits and report revisions are required after this point to ensure accuracy of the report for the District's development permit application process.

1.2 Purpose and Use of Report

- Provide documentation pertaining to on and off site trees to supplement the proposed development permit application.

Figure 1. Location of site – 4701 South Piccadilly Road West Vancouver

2.0 Observations

2.1 Site Overview

The site consists of lot that contains the existing house and carport. The yard is heavily treed, and many of these trees have all been previously topped several times throughout their history. The on-site trees consist of a mix of mature coniferous and deciduous trees that include Western Redcedar (*Thuja plicata*), Douglas-fir (*Pseudotsuga menziesii*), with a mixed of deciduous trees.

The on-site trees were tagged and recorded within the inventory and report. In the context of the proposed new home development, several of the trees are not be suitable for retention

based on their pre-existing health and structural conditions, species traits, and conflicts with site design. Tree attributes, critical root zones and recommendations for the trees are listed below in **Table 1**.

2.2 Tree Inventory

The following is an inventory of assessed trees, each of which was marked with a numbered tag. Tree species, characteristics, comments, recommendations and required root protection zones have been suggested (Table 1). Their locations are illustrated on the accompanying map.

Overall Health and Structure Rating

Excellent = Tree of possible specimen quality, unique species or size with no discernible defects. Or a heritage tree.
Normal = These trees are in fair to good condition, considering its growing environment and species.
Poor = These trees have low vigour, with noted health and/or structural defects. This tree is starting to decline from its typical species growth habits.
Very poor = These trees are in serious decline from its typical growth habits, with multiple very definable health and/or structural defects.
Dead/Dying = These trees were found to be dead, and/or have severe defects and are in severe decline.
High Risk = These trees have been deemed hazardous by a Certified Tree Risk Assessor utilizing CTRA methods. They have a probability of failure of 3 or higher with a total overall risk rating of 8 (Moderate 3) or above.

Tree Retention Suitability Ratings

Unsuitable = Not suitable for retention in context of the proposed project design and land use changes. These trees have pre-existing health and structural defects. There is a significant chance that these trees will not survive or may become a hazard given the proposed future land use.
Moderate = These trees have moderate structural defects or health issues. The retention of this class of trees is not always successful or viable due to their pre-existing structural defects or health issues; however these trees may be viable for retention with the use of special measures.
Suitable = These trees have no obvious structural defects or health issues, and are worthy of consideration for retention in the proposed development.
Suitable as group = These trees have grown up in groups (groves) of other trees, and have not developed the type of trunk and root structure that will allow them to be safely retained on their own. These trees should only be retained in groups.

2.3 **Photographs**

Photo 1. Showing the existing house and the grove of trees located in the back yard.

Photo 2. Showing the frontage of the subject site and the overgrown laurel hedge.

Photo 3. Tree # 109, is growing on the rock outcrop and may become unstable during the rock removal.

Photo 4. Several trees are growing within the existing building's envelope. Note these trees should be removed before house demo.

Tree Inventory Table

Table 1. Tree Inventory.

Tag #	Common Name	Botanical Name	DBH (cm)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Tree Protection Zone
101	Western Redcedar	*Thuja plicata*	45	Very poor	Unsuitable	This tree was historically topped at 4m for overhead hydro line. Decay at historical topping wound.	Remove	Due to its very poor existing health and structural condition.	2.7
102	Western Redcedar	*Thuja plicata*	45	Very poor	Unsuitable	This tree was historically topped at 4m for overhead hydro line. Decay at historical topping wound.	Remove	Due to its very poor existing health and structural condition.	2.7
103	Black Walnut	*Juglans nigra*	45	Very poor	Unsuitable	This tree was historically topped at 5m for overhead hydro line. Decay at historical topping wound. This tree leans over the road.	Remove	Due to its very poor existing health and structural condition.	2.7
104	European Beech	*Fagus sylvatica*	84	Poor	Moderate	There's a large cavity from base to 3m, that measures10x20cm.	Retain	Crown clean the canopy to remove deadwood, broken limbs, and lightly thin out branches.	8
105	Western Redcedar	*Thuja plicata*	102	Normal	Suitable	The existing driveway is at base of the tree's west side. The tree’s canopy has been raised to 5m.	Remove	This tree is located within middle of the proposed building envelope.	10
106	Western Redcedar	*Thuja plicata*	125	Poor	Moderate	Previously topped at 18m above grade. Large replacement leaders have formed, and are attached at previous topping site. Decay at historical toping site possible.	Retain	Have climber inspect topping union after site clearing. Note if significant decay is found at the historic topping site the tree will be removed.	13

Tag #	Common Name	Botanical Name	DBH (cm)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Tree Protection Zone
107	Western Redcedar	*Thuja plicata*	75	Normal	Suitable	The tree's crown is asymmetric to east. Most likely a shared ownership tree. This tree is growing as part of off-site grove.	Retain	Protect as required.	7.5
108	Western Redcedar	*Thuja plicata*	120	Normal	Suitable	Crown asymmetric to east. Most likely a shared ownership tree. Growing over nurse log.	Retain	Protect as required.	12
109	Western Redcedar	*Thuja plicata*	125	Normal	Suitable	This tree is comprised of two stems that join at tree's base 80cm, 45, strong union. Crown has been raised to 15m. Growing on rock.	Remove	This tree will become unstable when the large rock is removed, to accommodate the house.	125
110	Douglas-fir	*Pseudotsuga menziesii*	105	Poor	Moderate	This tree appears to have been historically topped at 18m above grade. The union cannot be seen from the ground and should be inspected after clearing.	Retain	Protect as required.	10
111	Western Redcedar	*Thuja plicata*	75	Normal	Suitable	The tree's crown is infested with honeysuckle vine. Note the top of the tree cannot be fully assessed due to infestation of the vine.	Retain	Have the honeysuckle vine remove from the tree or cut the vines stock at grade. Protect as required.	7.5
112	Western Redcedar	*Thuja plicata*	85	Normal	Suitable	The tree's crown is infested with honeysuckle vine. Note the top of the tree cannot be fully assessed due to infestation of the vine.	Retain	Have the honeysuckle vine remove from the tree or cut the vines stock at grade. Protect as required.	8.5

Tag #	Common Name	Botanical Name	DBH (cm)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Tree Protection Zone
113	Western Redcedar	*Thuja plicata*	205	Very poor	Unsuitable	Two large stems join at 12m. Both stems have previously lost tops in storms. The crown is now comprised of large replacement leaders that are attached at the decay unions.	Remove	Remove to mitigate future safety risk to the site.	12
114	Bigleaf Maple	*Acer macrophyllum*	51	Poor	Moderate	Previously topped at 6m.; Growing out of bank. Appears to be shared ownership with the District of West Vancouver.	Retain	Protect as required.	5
115	Bigleaf Maple	*Acer macrophyllum*	45	Normal	Suitable	Appears to be growing on District of West Vancouver land. Growing out of bank.	Retain	Protect as required.	4.5
116	Western Redcedar	*Thuja plicata*	140	Normal	Suitable	Two stems join at base measuring 75cm and 65cm, the main union appears sound.	Retain	Protect as required.	10
117	Red Alder	*Alnus rubra*	65	High risk	Unsuitable	This tree significantly leans west. Several cavities of decay on trunk. Within striking distance of neighbor's house.	Remove	Remove to mitigate safety risk to the neighbouring house and public path.	3.9
118	Western Redcedar	*Thuja plicata*	95	Normal	Suitable	This tree is growing at the top of the bank and appears to be growing maybe shared with the district. There is a vine in top cannot see top past 15m. This tree is unsurveyed and the location on plan is approximate.	Retain	Protect as required.	9.5
119	Bigleaf Maple	*Acer macrophyllum*	100	Very poor	Unsuitable	The two stems join at base. The base union is cracked, and the 30cm stem is high risk to fail. This tree is unsurveyed and the location on plan is approximate.	Remove	Remove to mitigate safety risk to the subject site.	6

Tag #	Common Name	Botanical Name	DBH (cm)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Tree Protection Zone
120	Western Redcedar	*Thuja plicata*	34	Normal	Suitable as group	Slightly sparse crown due grove.	Remove	In conflict with the proposed building envelope.	2
121	Western Redcedar	*Thuja plicata*	95	Normal	Suitable as group	Slightly sparse crown due grove.	Remove	In conflict with the proposed building envelope.	5.7
122	Western Redcedar	*Thuja plicata*	103	Normal	Suitable as group	Slightly sparse crown due grove. Within 4m of existing building.	Remove	In conflict with the proposed building envelope.	6.2
123	Western Redcedar	*Thuja plicata*	45	Normal	Suitable as group	Slightly sparse crown due grove. Within 5m of existing building.	Remove	In conflict with the proposed building envelope.	2.7
124	Western Redcedar	*Thuja plicata*	80	Normal	Suitable as group	Slightly sparse crown due grove. Within 6m of existing building.	Remove	In conflict with the proposed building envelope.	4.8

3.0 Summary

The site inventory identified and assessed twenty four on-site trees and one district owned tree, for retention suitability in context to the proposed project design. Thirteen on-site trees have been recommended for removal, due to their existing health and structural condition or due to conflicts with the project design. The locations of subject trees, to be removed and retained trees requiring protection have been shown on the accompanying Tree Retention Plan.

3.1 Tree Retention Discussion

The opportunity for retention viability is good on this site and the location of the trees was taken into consideration during the planning of the new home. Trees that were found unsuitable and / or high risk trees were not considered for retention. Trees that were found to have moderate or suitable retention viability have been retained if possible and were project design conflicts could be reasonably resolved.

Three High Risk trees are recommended for removal to mitigate safety risk to the subject site and neighbouring properties. Three trees were found to be in very poor health and structural condition and will are recommended to be removed so new trees and landscape can be planted and to mitigate future safety risk. Seven on-site trees will need to be removed to accommodate the proposed project.
The following is a brief summary of tree retention and removal rational:

Remove:

- **Tree #'s 101, 103, 113, 117, and 119:** have severe structural defects that make these trees prone to fail. The trees are recommended to be removed to mitigate the safety risk to the subject site and surrounding area.
- **Tree # 109:** is growing on top of a rock outcrop, and it's my understanding that portions of the rock or the entire rock will be removed to accommodate the new building foundation. Since the main anchoring roots are wrapped around the rock, disturbance of this rock will most likely cause the tree to become unstable making it prone to root plate failure (via toppling). This tree will then become a higher risk for failure potential and should be removed to mitigate future safety risk to the site.
- **Tree # 105:** this is a large tree that has an approximate critical root zone of 10m radius, and is currently located adjacent the existing driveway. The tree is approximately located in the middle of proposed building envelope. It is not possible to move the design to accommodate the trees root zone requirements.
- **Tree #'s 120, 121, 123, and 124:** are growing in tightly spaced grove (stand). Trees located in groves (stands) of this nature grow up together, competing for resources. The stand trees put most of their energy into vertical growth to compete for available sunlight. It is important to note that trees in these stands often have high height to diameter ratios and rely upon the stand as a whole to withstand oncoming winds. The trees that are inside the stand do not have the type of wood structure or rooting system to withstand oncoming winds individually. In addition, many of the trees growing in these stands have structural defects or contain decay and disease that make them more

prone to failure if retained on their own or exposed to new wind forces. Since the trees located closest to the proposed building will be removed to accommodate the new foundation, the two other trees in the group should be removed to ensure they do not fail.

Retain:

- Tree #'s 104, 106, 107, 108, 110, 111, 112, 114, 115, and 116 have been specified for retention. The tree's protection zones have been shown on the Tree Retention Plan. Note only trees within the scope of construction will require fencing, and this can be determined at the time of construction.

3.2 Tree Replacement Discussion

The Project Landscape designer has specified a mix of deciduous and coniferous trees to be planted throughout the site. These trees were chosen to complement the existing retained trees and will be well suited for this growing environment. Care should be taken planting when planting the new trees within the critical root zones of the retain trees. No machinery should be used when installing the new landscape within the tree protection areas.

4.0 Trees on Adjacent Properties

There are several trees located on the adjacent east property, and these trees are shown for retention with their Tree Protection setbacks shown on the plan.

Note: the developer or subject site owner must verify that all off-site trees within or that could be affected by the scope of construction are identified and surveyed for location whether they are identified by DHC or not. Any off site trees that are recommended for removal will require the adjacent property owner's permission and may require additional permits.

5.0 Construction Guidelines

The following are recommendations for risk mitigation and proper tree protection during the construction phase of the project.

Tree Retention Zone Setbacks

Ten times the diameter was used to determine the optimal Tree Protection Zone (TPZ). **The optimal Tree Protection Zone is to be measured in the field from the outer edge of the stem of the tree.** The TPZ is the area around the tree in which no grading or construction activity may occur without project arborist approval, and is required for the tree to retain good health and vigor.

The following are tree preservation guidelines and standards for the TPZs:

- No soil disturbance or stripping;
- The natural grade shall be maintained within the protection zone;

- No storage, dumping of materials, parking, underground utilities or fires;
- Any plan affecting trees should be reviewed by a consultant including demolition, erosion control, improvement, utility, drainage, grading, landscape, and irrigation;
- Special foundations, footings and paving designs are required if within the tree protection zone;
- Utilities should be routed around the TPZ;
- Excavation within the tree protection zone should be supervised by a consulting arborist;
- Surface drainage should not be altered so as to direct water into or out of the RPZ; and
- Site drainage improvements should be designed to maintain the natural water table levels within the RPZ.

Respecting these guidelines will prevent changes to the soil and rooting conditions, wounding of the trees and contamination due to spills and waste. Any plans for work or activities within the RPZ that are contrary to these guidelines should be discussed with the project arborist so that mitigation measures can be implemented.

Tree Protection Fences

Prior to any construction activity on site, tree protection fences must be constructed at the specified distance from the tree trunks. The protection barrier or temporary fencing should be at least 1.2 m in height and constructed of 2 by 4 lumber with orange plastic mesh screening. This must be constructed prior to tree removal, excavation or construction and remain intact throughout the entire period of construction.

Unsurveyed Trees

Trees that are identified by DHC on the Tree Retention Plan, and within this report as unsurveyed trees have been hand plotted for approximate location only. Their location and ownership cannot be confirmed without being surveyed. The property owner or project developer must ensure that all relevant on and off site trees are surveyed by a legally registered surveyor, whether they are identified by DHC or not.

Removal of logs from sites

Private timber marks are required for the transporting logs from private-owned land in the province of BC. It is the owner of the properties responsibility to apply for a timber mark prior to the removal of any merchantable timber from the site. Additional information can be found at:

http://www.for.gov.bc.ca/hth/private-timber-marks.htm

Regulation of Soil Moisture and Drainage

The excavation and construction activities adjacent to the RPZs can influence the moisture availability to the subject trees. This is due to a reduction in the total rooting mass, changes in drainage conditions and changes in exposure including reflected heat from adjacent hard surfaces. To mitigate these concerns the following guidelines should be followed:

- Soil moisture conditions within the tree protection zones should be monitored during hot and dry weather. When soil moisture conditions are dry, supplemental irrigation should be provided. Irrigation should wet the soil to the depth of the root system (approximately 30 cm deep).
- Any planned changes to the surface grades within the RPZ, including the placement of mulch, should be designed so that the water will flow away from the tree trunks.
- Excavation adjacent to trees can alter the soils hydrological processes by draining the water faster than it had naturally. It is recommended that when excavating within 6 m of any tree, the site be irrigated more frequently to account for this.

Tree Pruning

All heavy machinery (excavators, cranes, dump trucks, etc.) working within five meters of tree crowns should be made aware of their proximity to the tree. If there is to be a sustained period of machinery working within five meters of the tree crowns, a line with colored flags should be suspended at the height of the crowns along the length of the protected tree area. If there are concerns regarding the clearance required for machinery and workers within the tree protection zone, or just outside of it, the project arborist should be consulted so that a pruning prescription can be developed or a zone surrounding the crowns can be established. Any wounds incurred to the subject trees during construction should be reported to the project arborist immediately.

Fertilization

Fertilization and root zone enhancements may be recommended by the project arborist in any phase of the project if they deem it necessary to provide the best chance of tree survival.

Paving Within and Adjacent to Tree Protection Zones

If the development plans propose the construction of paved areas and/or retaining walls close to the proposed tree protection zones measures should be taken to minimize impacts. Construction of these features would raise concerns regarding proper aeration, drainage, irrigation and opportunities for adequate root growth. The following design and construction guidelines are recommended be followed to minimize the long-term impacts to trees if any paving or retaining walls are necessary:

- Any excavation activities near the TPZ (tree protection zone) should be monitored by a Certified Arborist. Excavation should remove and disturb as little of the rooting zone as possible and all roots greater than 2 cm in diameter should be hand pruned.

- The natural grade of the rooting zone should be maintained. Any retaining walls should be designed at heights that will maintain the existing grade to within 20 cm of its current level. If the grade is altered, it should be raised not reduced in height.
- The long-term health of the tree is directly dependent on the volume of available, below ground growing space. If the RPZ must be compromised, the planned distance of structures from the trunks of the subject trees should not be closer than 50% of the RPZ on more than two sides of the tree.
- Compaction of sub grade materials can cause the trees to develop shallow rooting systems. This can contribute to long-term damage to pavement surfaces as the roots grow. Minimizing the compaction of sub grade materials using structural soils and increasing the strength of the pavement reduces the reliance on sub grade for strength.
- If it is not possible to minimize the compaction of sub grade materials, subsurface barriers should be considered to help direct roots downward into the soil and prevent them from growing directly under the paved surfaces.

Plantings Within the TPZs

If there are plans to landscape the ground within the TPZ, measures should be taken to minimize impacts. It is not recommended that the existing grass layer be stripped, as this will damage the surface roots. The grass layer should be covered with mulch at the start of the project, which will gradually kill the grass while moderating soil moisture and temperatures. Topsoil should be mixed with the mulch prior to planting of shrubs; however the depth of this new topsoil layer should not exceed 20 cm. Planting should take place within the newly placed topsoil mixture and should not disturb the original rooting zone of the trees. Two meters around the base of each tree should be left unplanted and covered in mulch.

Monitoring During Construction

Ongoing monitoring should be provided for the duration of the project. Site visits should be more frequent during activities that are higher risk, including the first stages of construction when excavation occurs adjacent to the trees. Site visits will ensure contractors are respecting the recommended tree protection measures and will allow the arborist to identify any new concerns that may arise.

During each site visit the following measures will be assessed and reported on:

- The integrity of the Tree Protection Zone and fencing;
- Changes to TPZ limits including: overall maintenance, parking on roots, and storing or dumping of materials within TPZ. If failure to maintain and respect TPZ is observed, suggestions will be made to ensure tree protection measures are upheld;
- Review and confirmation of recommended tree maintenance including root pruning, irrigation, mulching and branch pruning;
- Health and condition of each tree;
- Damage to trees that may have resulted from construction activities will be noted, as will the health of branches, trunks and roots of protected trees. Recommendations for remediation will follow;

- Changes to soil moisture levels and drainage patterns; and
- Factors that may be detrimentally impact the trees.

All findings and recommendations will be documented in a summary report. All concerns will be highlighted along with recommended mitigation measures.

6.0 Limitations

1. Except as expressly set out in this report and in these Assumptions and Limiting Conditions, Diamond Head Consulting Ltd. ("**Diamond Head**") makes no guarantee, representation or warranty (express or implied) with regard to: this report; the findings, conclusions and recommendations contained herein; or the work referred to herein.

2. This report has been prepared, and the work undertaken in connection herewith has been conducted, by Diamond Head for the "**Client**" as stated in the report above. It is intended for the sole and exclusive use by the Client for the purpose(s) set out in this report. Any use of, reliance on or decisions made based on this report by any person other than the Client, or by the Client for any purpose other than the purpose(s) set out in this report, is the sole responsibility of, and at the sole risk of, such other person or the Client, as the case may be. Diamond Head accepts no liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm (including without limitation financial or consequential effects on transactions or property values, and economic loss) that may be suffered or incurred by any person as a result of the use of or reliance on this report or the work referred to herein. The copying, distribution or publication of this report (except for the internal use of the Client) without the express written permission of Diamond Head (which consent may be withheld in Diamond Head's sole discretion) is prohibited. Diamond Head retains ownership of this report and all documents related thereto both generally and as instruments of professional service.

3. The findings, conclusions and recommendations made in this report reflect Diamond Head's best professional judgment in light of the information available at the time of preparation. This report has been prepared in a manner consistent with the level of care and skill normally exercised by arborists currently practicing under similar conditions in a similar geographic area and for specific application to the trees subject to this report as at the date of this report. Except as expressly stated in this report, the findings, conclusions and recommendations set out in this report are valid for the day on which the assessment leading to such findings, conclusions and recommendations was conducted. If generally accepted assessment techniques or prevailing professional standards and best practices change at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such

modification if generally accepted assessment techniques and prevailing professional standards and best practices change.

4. Conditions affecting the trees subject to this report (the "**Conditions**", including without limitation structural defects, scars, decay, fungal fruiting bodies, evidence of insect attack, discoloured foliage, condition of root structures, the degree and direction of lean, the general condition of the tree(s) and the surrounding site, and the proximity of property and people) other than those expressly addressed in this report may exist. Unless otherwise stated: information contained in this report covers only those Conditions and trees at the time of inspection; and the inspection is limited to visual examination of such Conditions and trees without dissection, excavation, probing or coring. While every effort has been made to ensure that the trees recommended for retention are both healthy and safe, no guarantees, representations or warranties are made (express or implied) that those trees will remain standing or will not fail. The Client acknowledges that it is both professionally and practically impossible to predict with absolute certainty the behaviour of any single tree, or groups of trees, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure and this risk can only be eliminated if the risk is removed. If Conditions change or if additional information becomes available at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification of Conditions change or additional information becomes available.

5. Nothing in this report is intended to constitute or provide a legal opinion, and Diamond Head expressly disclaims any responsibility for matters legal in nature (including, without limitation, matters relating to title and ownership of real or personal property and matters relating to cultural and heritage values). Diamond Head makes no guarantee, representation or warranty (express or implied) as to the requirements of or compliance with applicable laws, rules, regulations, or policies established by federal, provincial, local government or First Nations bodies (collectively, "**Government Bodies**") or as to the availability of licenses, permits or authorizations of any Government Body. Revisions to any regulatory standards (including by-laws, policies, guidelines an any similar directions of a Government Bodies in effect from time to time) referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification if any such regulatory standard is revised.

6. Diamond Head 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.

7. In preparing this report, Diamond Head has relied in good faith on information provided by certain persons, Government Bodies, government registries and agents and representatives of each of the foregoing, and Diamond Head assumes that such information is true, correct and accurate in all material respects. Diamond Head

accepts no responsibility for any deficiency, misinterpretations or fraudulent acts of or information provided by such persons, bodies, registries, agents and representatives.

8. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

9. Loss or alteration of any part of this report invalidates the entire report.

7.0 Appendix 1 – Overall risk rating and action thresholds

The Overall Risk Rating and Action Thresholds

Risk Rating	*Risk Category*	*Interpretation and Implications*
3	Low 1	Insignificant - no concern at all.
4	Low 2	Insignificant - very minor issues.
5	Low 3	Insignificant - minor issues not of concern for many years yet.
6	Moderate 1	Some issues but nothing that is likely to cause any problems for another 10 years or more.
7	Moderate 2	Well defined issues - retain and monitor. Not expected to be a problem for at least another 5 - 10 years.
8	Moderate 3	Well defined issues - retain and monitor. Not expected to be a problem for at least another 1 - 5 years.
9	High 1	The assessed issues have now become very clear. The tree can still reasonably be retained as it is not likely to fall apart right away, but it must now be monitored annually. At this stage it may be reasonable for the risk manager/owner to hold public education sessions to inform people of the issues and prepare them for the reality that part or the entire tree has to be removed.
10	High 2	The assessed issues have now become very clear. The probability of failure is now getting serious, or the target rating and/or site context have changed such that mitigation measures should now be on a schedule with a clearly defined timeline for action. There may still be time to inform the public of the work being planned, but there is not enough time to protracted discussion about whether or not there are alternative options available.
11	High 3	The tree, or a part of it has reached a stage where it could fail at any time. **Action to mitigate the risk is required within weeks rather than months.** By this stage there is not time to hold public meetings to discuss the issue. Risk reduction is a clearly defined issue and although the owner may wish to inform the public of the planned work, he/she should get on with it to avoid clearly foreseeable liabilities.
12	Extreme	This tree, or a part of it, is in the process of failing. **Immediate action is required.** All other, less significant tree work should be suspended, and roads or work areas should be closed off, until the risk issues have been mitigated. This might be as simple as removing the critical part, drastically reducing overall tree height, or taking the tree down and cordoning off the area until final clean up, or complete removal can be accomplished. The immediate action required is to ensure that the clearly identified risk of harm is eliminated. For areas hit by severe storms, where many extreme risk trees can occur, drastic pruning and/or partial tree removals, followed bv barriers to contain traffic, would be an acceptable first stage of risk reduction. There is no time to inform people or worry about public concerns. Clearly defined safety issues preclude further discussion.

The Table shown above outlines the interpretation and implications of the risk ratings and associated risk categories. This table is provided to inform the reader about these risk categories so that they can better understand any risk abatement recommendations made in the risk assessment report.