Talbot Mackenzie & Associates

Consulting Arborists

January 23, 2017

Cam Brown
2676 Capital Heights
Victoria, BC V8T 3M2

2695 Capital Heights – proposed lot B

Assignment: To review the proposed construction plans for the above-mentioned property and comment on how the proposal may impact the existing bylaw protected trees on the property. Prepare a tree retention and construction damage mitigation plan for those trees deemed suitable to retain.

Methodology: Using the plans provided, we inventoried the trees on the property. Information such as tree species, size (dbh), crown spread, critical root zone (crz), health and structural condition, relative tolerance to construction impacts and general remarks and recommendations was recorded in the attached tree resource spreadsheet. The trees located on the subject property are identified by their tag number and the offsite trees are identified by the numbers shown on the attached site plan.

Tree Resource: (see attached tree resource spreadsheet.)

Observations: There are three bylaw protected trees that could potentially be impacted by the proposed new house construction on proposed Lot B, municpal Garry oak tree number 4, Dogwood 954 and Garry oak number 956.

Garry oak number 4 – The retention of municipal Garry oak number 4 will depend on the ability to protect its critical root zone during the construction of the proposed new driveway. Based on the plans provided it appears that the section of existing asphalt within the critical root zone of the tree on municipal property will be retained. If the asphalt in this area is to be removed and replaced or if any proposed new services are located within the critical root zone of this tree, the project arborist must be consulted.

Dogwood number 954 - Dogwood number 954 appears to be in declining health with dieback and indications of canker in the crown. While it may be possible to work around this tree, in our opinion it would be a better option to remove it and replant with a healthy young tree that can better adapt to the new growing conditions.

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Garry oak number 956 – The retention of Garry oak number 956 will depend on the extent of excavation that must happen within the trees critical root zone for the proposed new building and perimeter drains. As there is an existing garage in approximately the same area as the proposed new house foundation, the root growth may already have been previously pruned or may be restricted by the existing foundation in this area. Once the existing foundation is removed it will be easier to determine the feasibility of retaining the tree. If this tree must be retained the proposed house foundation may have to be moved further away from the tree or may have to be designed and constructed in such a way that it bridges the trees root system using pad footings and grade beam design or something similar. Alternatively, if alternative foundation design is not an option and the tree must be retained, its ability to be retained can be determined through exploratory excavations along the existing foundation.

Recommendations:

- **Barrier fencing:** The areas, surrounding the trees to be retained, should be isolated from the construction activity by erecting protective barrier fencing. Where possible, the fencing should be erected at the perimeter of the critical root zones. The barrier fencing to be erected must be a minimum of 4 feet in height, of solid frame construction that is attached to wooden or metal posts. A solid board or rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with plywood, or flexible snow fencing (see attached diagram). The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation, construction), and remain in place through completion of the project. Signs should be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose.
- **Arborist supervision:** Any excavation that is proposed within the critical root zone of the trees to be retained, must be supervised by the project arborist. Any roots critical to the trees survival must be retained and any non-critical roots in direct conflict with the excavation must be pruned to sound tissue to encourage new root growth. It may be necessary to excavate using a combination of hand digging, small machine excavation and hydro excavation to expose roots in conflict with the proposed excavation, and determined then if they can be pruned or not without having a significant impact on the trees. If it is found that large structural roots must be pruned to accommodate the proposed construction, it may be necessary to remove additional trees to eliminate any risk associated with them.

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- **Driveway:** Where the proposed driveway encroaches in to the critical root zone of Garry oak 4, we recommend that it be constructed in such a way that any proposed excavation is minimized and the driveway is constructed over the existing grades where possible. We have attached s specification for a floating permeable driveway surface. If the existing asphalt is to be left in place, we do not anticipate any significant impacts to the critical root zone of this tree.

- **Servicing:** Although there are no servicing details on the drawing supplied, we anticipate that there is sufficient room to locate any proposed servicing outside of the critical root zones of trees to be retained. If services must be located within the critical root zones of trees to be retained, it must be reviewed with the project arborist. Installing services within critical root zones will likely require a combination of hand digging, small machine or hydro excavation. If significant roots are encountered that are critical to the health and stability of the trees and they cannot be retained, it may be necessary to remove additional trees.

- **Patio area within critical root zones of trees to be retained:** On the plans provided there is a patio area with pavers shown within the critical root zone of Garry oak number 956. We have attached a specification that will reduce the impacts that this surface may have on the tree if it is to be retained. This patio surface must be designed in such a way that it is permeable to both air and water and does not significantly change the existing hydrology within the critical root zone of the tree.

- **Concrete work:** Provisions must be made to ensure that no concrete wash or left over concrete material be permitted to wash into the root zone of the trees. This may involve using plastic or tarps or similar methods to temporarily isolate the root zones of the trees from any of the concrete installation or finishing work.

- **Arborist Role:** It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
  - Locating the barrier fencing
  - Reviewing the report with the project foreman or site supervisor
  - Locating work zones, where required
  - Supervising any excavation for the road upgrades and service footprints that are within the critical root zones of trees to be retained.
  - Reviewing and advising of any pruning requirements for machine clearances.

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

Please do not hesitate to call us at (250) 479-8733 should you have any further questions. Thank You.

Yours truly,
Talbot Mackenzie & Associates

Tom Talbot & Graham Mackenzie
ISA Certified, & Consulting Arborists
Encl. 1-page plans

Disclosure Statement

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

Trees are living organisms, whose health and structure change, and are influenced by age, continued growth, climate, weather conditions, and insect and disease pathogens. Indicators of structural weakness and disease are often hidden within the tree structure or beneath the ground. It is not possible for an Arborist to identify every flaw or condition that could result in failure or can he/she guarantee that the tree will remain healthy and free of risk.

Remedial care and mitigation measures recommended are based on the visible and detectable indicators present at the time of the examination and cannot be guaranteed to alleviate all symptoms or to mitigate all risk posed.

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Tree Resource
2695 Capital Heights

Tree #	d.b.h. (cm)	C.R.Z. (m)	Species	Crown Spread	Condition Health	Condition Structure	Relative Tolerance	Remarks / Recommendations
1	69.0	7.0	Garry oak	17.0	Good	Fair	Good	Municipal tree. Some decay in old pruning wounds, deadwood.
2	22.0	4.0	Hawthorn	9.0	Fair	Fair	Moderate	Municipal tree
951	45.0	5.0	Garry oak	11.0	Good	Fair	Good	Ivy, co-dominant stem previously removed, end weighted.
952	50.0	5.0	Garry oak	12.0	Good	Fair	Good	Ivy, co-dominant stem previously removed, end weighted.
3	46.0	5.0	Garry oak	14.0	Good	Fair	Good	Municipal tree, compacted soil, decay in old priuning wounds. Some endweight, some deadwood.
4	45.0	5.0	Garry oak	10.0	Good	Fair	Good	Municipal tree, compacted soil. Some endweight, some deadwood.
953	72.0	7.0	Deodar Cedar	14.0	Good	Fair	Moderate	Some deadwood, deflected top.
954	33.0	4.0	Dogwood	6.0	Fair/Poor	Fair	Poor	Canker, dieback in top.
5	20.0	3.0	Golden cedar	5.0	Good	Good	Moderate	Neighbours tree within 3 meters of the property line.
956	65.0	6.5	Garry oak	16.0	Good	Fair	Good	Small deadwood, some endweight. Seam in lowest limb on the East side.

Prepared by:
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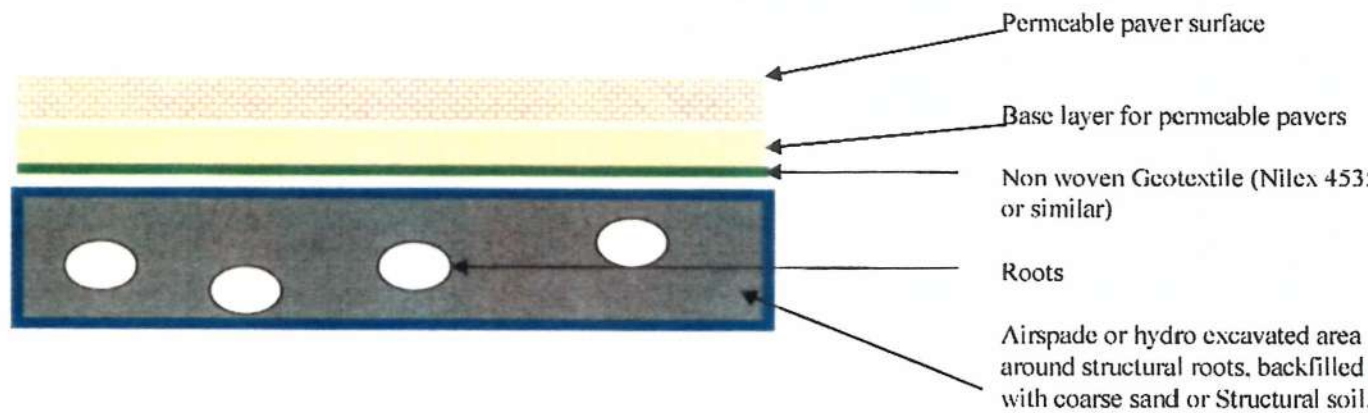
Diagram –Permeable paver driveway crossing over Critical Root Zone



Specifications for permeable paver driveway crossing over critical root zone

1. Excavate to a 6-8 inch depth, for the required permeable driveway surface, under the supervision of an ISA Certified Arborist.
2. Excavation for area around structural roots with an Airspade or by Hydro Excavation to bearing layer of soil if required.
3. Backfill area around roots with coarse sand or a structural soil mix
4. A layer of medium weight non woven Geotextile (Nilex 4535 or similar) is to be installed over the backfilled area of the driveway.
5. Construct base layer and permeable surface over Geotextile layer to required grade.