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UBC PROPERTIES TRUST

Root Exploration at Lot 11

Diamond Head Consulting Ltd. (DHC) was asked by the University of British Columbia Properties Trust (UBCPT) to provide arborist consulting services for a proposed development at Lot 11 at the University of British Columbia. The arborist consulting recommended that four trees be removed, as their Tree Protection Zone (TPZ) conflicts with the proposed building envelope and required excavation. It was determined that a root exploration was required to determine the extent of the roots inside TPZ, and assess the impacts excavation would have on these trees. This memo details the root exploration and our findings.

Background:

Figure 1 shows the tree locations in relation to the proposed building design. The TPZ of these trees will be impacted by the excavation and construction required for this development. The tree tags are shown in figure 2, and the tree attributes are shown in table 2. These trees are generally on the smaller side, with moderate to poor condition based upon their overall health, species characteristics and structure.

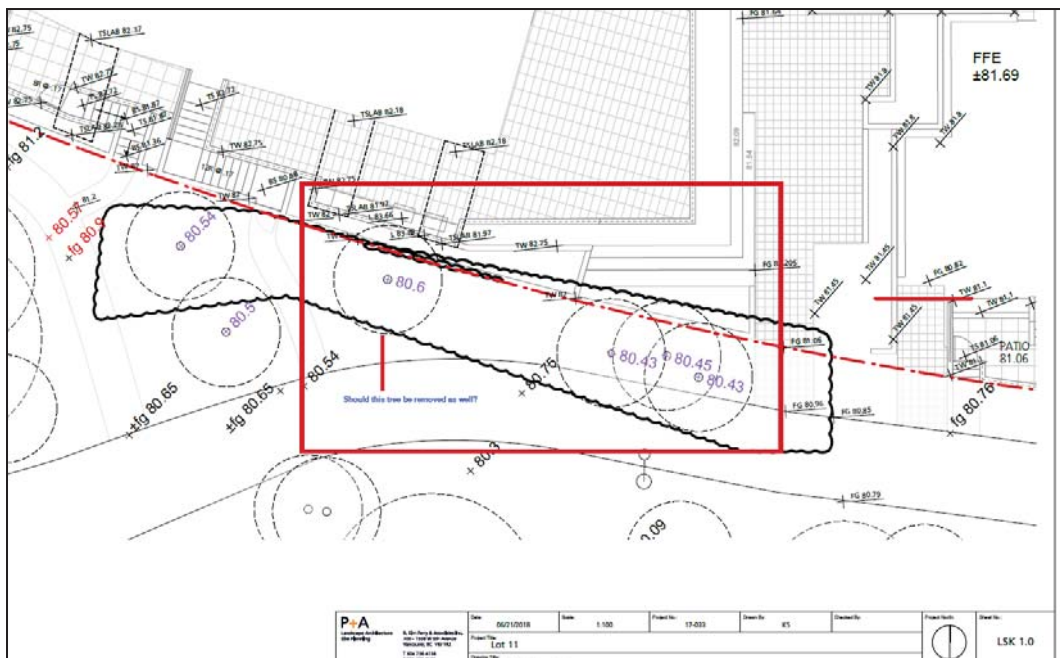


Figure 1 Location of the four trees that conflict with the proposed design (drawing from Perry and Associates).

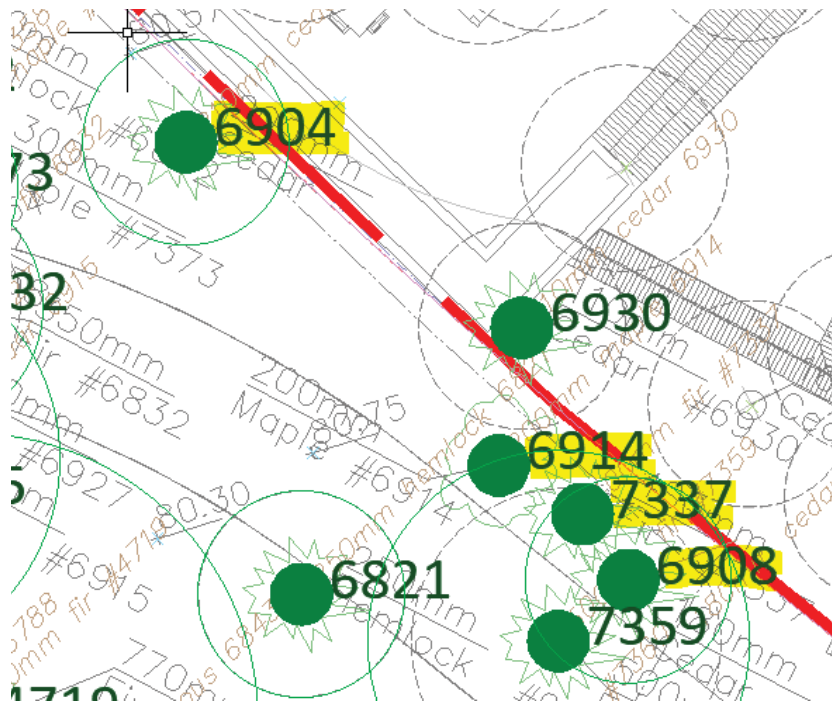


Figure 2 Highlighted trees from the DHC tree retention and removal map showing their tag numbers.

Table 1. Inventory of identified trees and new retention comments.

Tag	Species	DBH (cm)	Height (m)	Condition	Comments	Retention Value
6904	Cedar (T. plicata)	26	12	Moderate	Sparse crown. This tree can be retained but will have a portion of its rooting zone impacted. If it occurs over the winter months there is a fair probability of this tree surviving the impacts.	Medium
6908	Cedar (T. plicata)	26	13	Moderate	Suppressed. This tree can be retained but will have a portion of its rooting zone impacted. If it occurs over the winter months there is a fair probability of this tree surviving the impacts.	Medium
7337	Douglas-fir (P. menziesii)	44	18	Poor	Suppressed by adjacent hemlock, poor structure in upper stem. In retaining tree 7337 it will have a modified rooting zone which will impact its longevity. In addition, it has a structural defect in its top third. This defect will require ongoing pruning which will be an additional source of decay (already was a broken top). After the first pruning to keep it safe beside a building (which would be about another 5 years of growth) a large part of the canopy will need to be removed. This will also impact the longevity of the tree. With the pruning, loss of root zone and the decay at the defect point, this tree will not have a long lifespan. I would estimate it to be about 10 years.	Low

Tag	Species	DBH (cm)	Height (m)	Condition	Comments	Retention Value
6914	Maple (A. macrophyllum)	22	18	Moderate	This tree can be retained but will have a portion of its rooting zone impacted. If it occurs over the winter months there is a fair probability of this tree surviving the impacts.	Medium

Observations:

Conor Corbett of DHC arrived on the site the morning of August 20, 2018 to meet with project staff and Hydrovac operator. The limits of excavation were clearly identified in relation to the subject trees, and therefore it was clear which areas required root exploration. A brief discussion occurred to explain the goals and process of this excavation, which was to expose roots without unduly damaging them.

Roots were exposed to a depth of 12-18 inches for the root zones of the identified trees. The root exploration identified a dense mat of feeder roots and several medium sized lateral roots inside the assessed area. There are likely large structural roots below these at a significant depth, which were not exposed during the hydrovac root exploration. However, excavation damage to the visible roots would be enough to cause significant damage and destabilization to the trees. This would also eliminate a significant amount of the rooting area for all of the assessed trees.



Photo 1. The assessed trees: #7337 in the center, with #6914 directly right and #6908 slightly obscured to the left. The crown foliage of #6904 is visible on the far left of this photo. Visible at the base of #7337 is a survey stake, which was used to identify the limits of excavation for the proposed development.



Photo 2. Exposed roots from the Hydrovac adjacent to #7337. Dense mat of feeder roots with medium sized lateral roots. The cut to occur within less than a meter from tree 7337 would de-stabilize the tree.



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Photo 3. Example of the exposed roots from the Hydrovac adjacent to #6904. Dense mat of feeder roots with medium sized lateral roots.

Conclusions and recommendations:

The root exploration revealed root conflicts with the proposed excavation in the form of dense feeder roots and medium sized lateral roots. The impacts of excavation for the building foundation (severing all these roots) will have significant health and structural impacts to all four trees, resulting in health decline and destabilization. With a new target being placed directly adjacent to these trees the overall risk rating will be high. It is recommended that these trees be removed due to the rooting conflicts with the proposed development.

Please don't hesitate to call us if you have any questions regarding the material discussed in this report.

Sincerely,



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