Prepared for:
City of Hamilton. *Attn: Jennifer Roth*
Site: 70 Hope Avenue, Hamilton, Ontario.

Arborist Letter – 2025 Tree Assessment

Assignment

This letter is regarding the proposed construction at 70 Hope Avenue, Hamilton, Ontario. The goal of this letter is to indicate the current condition of trees on the property, and neighbouring properties, review proposed construction measures and determine how construction will impact the health and survival of trees in proximity, and recommendations on how to properly protect existing trees, while encouraging tree safe practices before during and after construction. Furthermore, planting recommendations to be completed after all construction is complete is included.

The assessment and recommendations herein are based on observations taken by DRG's during the site assessment on March 5th, 2025 by ISA Certified Arborist Kaitlyn Simpson.

Limitations of Assignment

It must be understood that DRG is the assessor of trees as it relates to the most current industry standards and best management practices. The assessment performed at this site pertained strictly to the tree(s) mentioned herein. The assessment was conducted from within the property at 70 Hope Avenue, and no access to any neighbouring properties was permitting, which may in turn lead to gaps in data or its accuracy. This report does not speak to or seek to fulfill the regulatory requirements for permitting of injury or removal of trees. The client should incorporate the information and recommendations provided in this report into their future tree care plans, in a reasonable manner.

Site Information and Tree Assessment

- The site assessment took place on March 5, 2025, by ISA Certified Arborist Kaitlyn Simpson (ON-2642A) on behalf of DRG.
- Weather was approximately 2ºC and overcast.
- All trees on the property, as well as trees on neighbouring properties >10cm DBH were included in this assessment.

Health and Structural Indicators:

- In general, the trees included in the assessment and inventory are not in good condition.
    - 2 of 12 trees were noted in **good** condition
    - 8 of 12 trees were noted in **fair** condition
    - 2 of 12 trees were noted in **poor** condition
- Therefore, 83% of trees within the inventory show poor health, structure, or overall condition

Construction Observations

- The client is currently proposing a 3-story apartment building to be built at 70 hope Avenue, approximately 6m away from neighbouring properties to the east, and 9m away from neighbouring properties to the south.
- Currently, there are no trees on city or private property relative to 70 Hope avenue, however, there are 10 neighbour trees and 2 boundary trees that were included in the inventory
- At the time of DRG's visit, no construction activity had begun, including the material and equipment storage.

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Discussion

Overview of Existing Trees

The current tree inventory highlights a mix of health conditions among the trees assessed at the site. Out of the 12 trees examined, only 2 were found in good condition, 8 in fair condition, and 2 in poor condition. This suggests that a significant proportion of the trees, although not in optimal health, and are still viable for retention if proper care and protection measures are implemented during the construction process. It should be noted that if trees remain in a similar state once construction is complete, the construction actions are not responsible for trees being in fair or poor condition. The City of Hamilton should ensure sufficient documentation, specifically through photographs, is collected prior to any construction commencing. DRG did not have access to neighbouring properties and therefore, photos in the appendix of this document may not suffice for accurate representation of tree health prior to construction.

The 5.6m setback from the proposed construction at 70 Hope Avenue can be sufficient, but this largely depends on the species of trees selected for planting. Larger species with extensive root systems and broader canopies will require more space from buildings and infrastructure to thrive without causing future disruptions. Conversely, smaller, more compact species may be adequately accommodated within this setback. It's crucial to select species based on their mature size and growth characteristics to ensure they fit well within the available space.

Regarding the smallest planting strip and soil volume needed on the east and south sides, the dimensions should support the root growth necessary for the tree to reach maturity without stress. Typically, a planting strip at least 2-3 meters wide is recommended for smaller trees, while larger trees might need more space. The soil volume, crucial for root development and water retention, should ideally be at least 1 cubic meter per square meter of canopy cover at maturity. This volume ensures enough space for roots to expand and access the nutrients and water they need.

For a tree planted on the south-facing side along Britannia Avenue, the required soil volume would need to accommodate the expected root spread at maturity, which is often comparable to or greater than the tree's height. This could mean significantly more soil volume, especially for larger tree species, to prevent root crowding and ensure adequate moisture and nutrient availability.

Similarly, on the frontage from Hope Avenue, the planting considerations should align with those of Britannia Avenue, with adjustments made based on the specific environmental conditions and urban infrastructure. Soil volume and planting strip width should be calculated based on the mature size of the selected species to avoid future structural conflicts and promote healthy tree growth.

For trees that will reach a mature height and width of approximately 3 to 7.5 meters, a minimum soil volume of 3 to 9 cubic meters is recommended. This volume ensures that trees have enough space for root development and access to adequate nutrients and water. Specifically:

- Trees that mature at around 3 meters in height and spread should have a soil volume of at least 3 cubic meters. This volume supports smaller tree species or those used in more confined urban spaces.
- For trees reaching up to 5 meters in height and spread, a soil volume of about 6 cubic meters is appropriate. This mid-range volume accommodates most urban-friendly tree species that provide significant canopy cover without overwhelming the space.

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- Trees that are expected to grow to 7.5 meters in height and width should have a soil volume of approximately 9 cubic meters. This larger volume is necessary to support the root systems of trees that will play a major role in canopy cover and environmental impact, ensuring their health and structural stability over time.

These soil volume recommendations are based on providing each tree with enough space to establish a healthy root system, which is critical for its growth, drought resistance, and overall vitality. Adjustments may be needed based on specific site conditions, such as soil type and urban infrastructure constraints. Proper planning and adherence to these guidelines will help ensure that the trees thrive and contribute positively to the landscape and environment.

Proposed Construction Overview

The construction plan involves building a 3-story apartment building at 70 Hope Avenue. The new structure will be located approximately 5.6 meters from the eastern and 9 meters from the southern boundaries where existing trees are located. The proximity of the construction to these trees necessitates careful planning and the implementation of specialized construction techniques to mitigate potential damage. Root pruning, a critical aspect of the construction process near trees, will be carried out using tree-safe excavation methods such as hydro excavation or air spading (<500psi). This will ensure minimal impact on the tree roots, which is essential for maintaining their health and stability. There are two stages of root excavation and root pruning: 1 along the building on the east and south side, and 1 along the property line prior to removal of the existing asphault.

Incorporating the removal of the existing parking lot and subsequent re-landscaping into the tree protection and mitigation recommendations is crucial for minimizing impact on the surrounding trees. To protect the Tree Protection Zones (TPZs) effectively, only hand-operated tools such as jackhammers and pickaxes will be utilized to remove the asphalt and underlying substrate. This method reduces the risk of root damage that could occur with heavier, more invasive machinery. Following the removal of the parking lot, the areas will be backfilled with native topsoil to support the natural soil ecology and promote healthier tree growth. Additionally, deep root fertilization will be applied to the neighboring trees within their TPZs to ensure they receive essential nutrients disrupted during the construction process. After these activities, all areas inside the TPZs will be securely fenced off to prevent any further disturbance, safeguarding the vital root zones of the trees throughout the ongoing construction and landscaping efforts.

Root pruning is a critical procedure employed to minimize damage to a tree's root system during construction activities or in preparation for the transplantation of large trees. The process involves carefully cutting roots prior to mechanical excavation near a tree. Proper execution of root pruning is essential, as improper techniques or inadvertent root damage can significantly impair a tree's health and structural stability. A thorough tree risk assessment should precede any root cutting to determine the safest methods to employ, considering alternatives such as boring under the roots to avoid damage altogether.

The methods and guidelines for root pruning depend largely on the diameter of the roots; roots under one inch in diameter can be pruned with hand tools, while it is advisable to avoid cutting roots over

three inches thick unless absolutely necessary. Techniques like air spading, hydro excavation, or manual excavation allow for precise cuts and help the arborist assess the most appropriate points for cutting, ideally away from critical areas such as sinker roots or junctions. The goal is to minimize the impact on the tree's health and stability, with root cuts ideally placed beyond the normal dripline—generally 5 to 6 times the diameter at breast height (DBH) of the tree. Post-pruning care is crucial and should include adequate irrigation, pest monitoring, and nutrient management to support root recovery and ensure the long-term health of the tree.

Tree Protection and Mitigation Recommendations

Effective tree protection during construction is crucial to safeguard the existing trees that are already stressed. The protection strategy includes installing tree hoarding constructed of a 4-ft high Paige wire fence secured to T-bars, as outlined in the Tree Protection Plan respecting the City of Hamilton's recommendations regarding approved hoarding materials and installation. Additionally, root-safe practices will be mandatory within the driplines of all trees, with hand digging being the only method allowed in these sensitive areas. These measures are designed to minimize soil compaction, prevent root damage, and maintain soil moisture levels, all of which are vital for the trees' survival during and after construction.

The City of Hamilton adopts notably more extensive tree protection measures than typical arboricultural practices. The City mandates that tree protection zones (TPZ) extend to the dripline of the tree plus an additional meter, whereas many other municipalities in southern Ontario mandate much smaller TPZs. This conservative approach, as documented in the tree inventory chart accompanying this letter, highlights situations where trees could likely withstand construction even with TPZs reduced by as much as 50%. The City's implementation of these larger-than-usual protection zones exemplifies a rigorous commitment to due diligence, significantly reducing the potential impacts of construction on the tree population.

Tree Planting Recommendations

Following construction, the landscape will be rejuvenated by planting 7 to 10 native tree species, as recommended in the appendix of the Tree Protection Plan. These new trees will be spaced according to their size, with larger species requiring at least 5 meters of separation, and smaller species about 3 meters. This spacing is intended to provide each tree ample room for root expansion and canopy growth, thereby enhancing the overall health and aesthetic of the urban landscape. The selection of native species will also contribute to the biodiversity and ecological stability of the area.

The determination of the exact number of trees to be planted at the site will range from 5 to 10, depending on several key factors. The species selected for planting, their expected size at maturity, and the specific locations where each tree will be placed are critical considerations in this decision-making process. Larger species that occupy more space at maturity will necessitate fewer trees, ensuring each has sufficient room to thrive without competition for resources. Conversely, if smaller species are chosen, it may be feasible to plant closer to the upper limit of ten trees. This strategic approach ensures that each

tree has adequate space to reach its full potential, contributing positively to the landscape's aesthetic and ecological balance.

These recommendations and plans are formulated to align with the city's guidelines and demonstrate a proactive approach to urban tree management, ensuring the sustainability of the urban forest while accommodating necessary urban development.

Conclusion

The tree assessment and the subsequent recommendations outlined in this letter reflect a comprehensive approach to maintaining and enhancing the urban forest at 70 Hope Avenue amidst the proposed construction activities. Despite the varying health conditions of the existing trees, the implementation of stringent protection measures and careful management practices are designed to mitigate the impact of construction. By adhering to these recommendations, the City of Hamilton demonstrates its commitment to sustainable development practices that prioritize the health of urban trees.

Furthermore, the introduction of new native tree species post-construction is an essential step towards restoring and potentially expanding the tree canopy in the area. This initiative not only compensates for any unavoidable impacts on the existing trees but also contributes to the biodiversity and ecological resilience of the urban environment. The careful selection of tree species and adherence to recommended planting guidelines are expected to foster a healthy and vibrant urban forest.

In conclusion, this project serves as a model for balancing urban development with environmental stewardship. The proactive measures outlined, if followed diligently, promise to preserve the integrity and vitality of the urban forest at 70 Hope Avenue. It is imperative that all stakeholders involved continue to monitor and care for both the existing and newly planted trees to ensure their long-term health and survival, thereby maintaining the ecological and aesthetic values they add to the community.

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Appendix 1 – Photographs

Tree #1

Prepared by:
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Prepared for:
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Tree #1

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Tree #2 (blue) and #3 (red)

Prepared by:
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Tree #7

Prepared by:
Davey Resource Group
Kaitlyn Simpson 500-611 Tradewind Dr., Ancaster, ON (905)-961-8154

Tree #8

Prepared by:
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Prepared for:
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Tree #9

Prepared by:
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Prepared for:
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Tree #10

Prepared by:
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Prepared for:
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Tree #11

Prepared by:
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Tree #12

Prepared by:
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Appendix 2 – Arborist Qualifications

Kaitlyn Simpson is a Consulting Arborist with Davey Resource Group. Her formal education includes an Honours Bachelor of Environmental Management and Wildlife Biology from Lakehead University, Arboriculture diploma from Humber College, and Integrated Pest Management from the University of Maryland. Ms. Simpson has well over 7 years of varied work experience in the urban forestry, arboriculture, and education fields. Ms. Simpson has worked as an Urban Forester, Arborist, Plant Health Care Specialist, and Professor at Niagara College and Humber.

Certifications

ISA Certified Arborist ON-2642A
444A Qualified Arborist
Landscape Exterminator
ISA Tree Risk Assessment Qualified (TRAQ)
Tree Appraisal Qualified

Appendix 3 – Recommended Species for Tree Planting

Autumn Brilliance Serviceberry
Birch, River
Catalpa, Northern
Cherry, Black
Cherry, Pin
Elm, Accolade
Fir, Balsam
Fir, White
Hickory, Shagbark
Horsechestnut (any variety)
Katsura, Japanese
Kentucky Coffee Tree
Maple (Amur, Freemanii, Green Mountain, Hedge, Paperbark, Sugar (columnar))
Oak, (Bur, Pin, Red, White)
Pagoda Tree, Japanese
Pine, Eastern White
Planetree, London
Redbud, Eastern or Forest Pansy
Spruce, Norway or White
Tulip Tree

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