

TO: The Town of Niagara-on-the-Lake July 8, 2021

CC: SORE Association
Natural Resource Solutions Inc.

FROM: Catherine A. Lyons **FILE NO:** 181547

SUBJECT: 200 John Street East and 588 Charlotte Street
Files OPA-02-2020, ZBA-11-2020 & 26T-18-20-01
Peer Review – Natural Heritage and Tree Aspects

We are solicitors for Save Our Rand Estate Association (“**SORE**”). SORE has retained a number of experts to provide SORE with advice regarding the reports submitted on behalf of Solmar in support of its applications. Enclosed is an initial Peer Review of Natural Heritage and Tree Aspects prepared by Natural Heritage Solutions Inc. (“**NRSI**”) dated July 8, 2021.

NRSI has raised a number of concerns and we ask that the Town investigate all of these concerns as part of its review of the above noted applications.

We wish to highlight a few issues identified by NRSI:

Significant Woodland and Associated Wetland

- The applicant proposes to remove a portion of a Significant Woodland including approximately 43% of a wetland. The Environmental Impact Statement (“**EIS**”) prepared in support of the applications concludes there will be no negative impacts as a result of the removal without offering sufficient analysis. Coming on top of the eradication of much of the site’s vegetation by the applicant over the last several years, some of which the Town is now prosecuting, removal of further Woodland/wetland features seems particularly egregious.
- The EIS does not include a discussion regarding the potential for the Significant Woodland and associated wetland to provide connectivity or linkage functions between the Heritage Trail, through the treed area between 200 and 210 John Street East to the parkland north of John Street.

Insufficient Analysis of Proposed Development on Natural Environment Features, Boundary Trees and Off-Site Trees

- The EIS does not provide sufficient analysis on the impacts of the development including the proposed grading on the natural environment features, off-site drainage and off-site or boundary trees. We note that boundary trees include both trees with trunks that overlap property lines as well as trees whose canopies extend over property lines. Such trees are

present in numbers along the boundary between 200 and 210 John St E and are also present along the boundary between 588 Charlotte and the Heritage Trail owned by the Town. Legal rights attach to those trees which neither the applicant nor any approval authority has any right to derogate from.

The habitat of Species at Risk bats has not be thoroughly evaluated.

- The lands contain suitable habitat for Species at Risk bats; however the EIS does not adequately survey or consider bat habitat.

Ecological impacts of flooding must be considered.

- We note that the comments prepared on behalf of SORE by Wood Environment & Infrastructure Solutions (“**Wood**”) also raise concerns regarding flooding. Wood’s review was submitted to the Town on July 7, 2021

A discussion of proposed enhancement measures and buffers for the retained watercourse is required.

Species at Risk and Regionally Rare Trees are Proposed for Removal

- The arborist report states that no trees identified as Species at Risk or “regionally significant/endangered” have been identified for removal. This is not the case.

Many Trees are Within or Directly Adjacent to Heritage Attributes

- No tree removal activity should impact heritage attributes identified in the Notices of Intention to Designate under the *Ontario Heritage Act*.

NRSI concludes “Based on our review, there exist many data gaps in the materials, which severely limit our ability to support the conclusions reached in these reports. As such, we do not agree that the proposed development can be implemented without negative impacts to on-site features, as well as neighbouring natural heritage / tree resources, as well as up and downstream drainage features.”

We respectfully ask that the Town investigate the issues and concerns identified by NRSI as part of the Town’s review of the above noted applications. We note that we have made two requests to access the site to further investigate these issues and have been denied such access to date by the applicant.

Attachment



July 8, 2021

Catherine Lyons
Goodmans LLP
Bay Adelaide Centre
333 Bay Street, Suite 3400
Toronto, ON M5H 2S7

Attention: Ms. Lyons

**RE: 200 John Street East and 588 Charlotte Street - Files OPA-02-2020, ZBA-11-2020 & 26T-18-20-01
Peer Review of Natural Heritage and Tree Aspects**

Natural Resource Solutions Inc (NRSI) was retained by Save Our Rand Estate (SORE Association) to assist in reviewing the proposed development applications (the "Applications") for a residential subdivision to be located at 200 John Street East, as well as 588 Charlotte Street in the Town of Niagara-on-the-Lake (the "subject properties"). This review focused on natural heritage aspects as well as tree inventories and impact analyses. This letter summarizes our initial review comments and recommendations.

Background

The subject properties are predominantly located within the Town of Niagara-on-the-Lake Urban Area boundary, although a portion is located outside the Urban Area, and within the Greenbelt planning area. Portions of the subject properties have been identified as Environmental Protection Area and Environmental Conservation Area in the Regional Municipality of Niagara Official Plan Core Natural Heritage Map (Niagara Region 2015).

The development proposal includes 191 units comprised of a mixture of single and semi-detached units. The proposed undertaking includes a network of internal roads with a single access from John Street and an emergency access/servicing corridor to Charlotte Street adjacent to the Heritage Trail. An underground stormwater management facility and park are also included.

Approach

The documents that were reviewed include documents prepared on behalf of the proponent, as well as peer review materials prepared by WSP Group and Wood on various engineering aspects of the undertaking. In addition, there are considerable amounts of background information related to previous applications, and secondary sources available online.

A perimeter tour of the subject properties was conducted on June 21, 2021 (between 1030 and 1430hrs). In attendance were the authors of this peer review (David Stephenson, Erin Bannon, and Jack Richard) accompanied by various representatives of SORE and local neighbours who granted access to portions of their private properties that abut the subject properties. Access to the subject properties had been requested, but was not granted, so, the group did not enter the subject properties during this tour. The perimeter tour provided us with an opportunity to

observe the majority of the subject properties from outside the boundaries and to examine the adjacent natural features, in addition to the materials reviewed

Review Comments

The following summary is organized into four general categories:

1. Review comments on the Environmental Impact Study (EIS)
2. Assessment of bats and bat habitats
3. Assessment of watercourses from natural heritage perspective
4. Review comments on the tree inventory, arborist report(s)

Environmental Impact Study

The EIS (“2020 EIS”) was prepared in July 2020 by Savanta, to complete additional background review, agency consultation and fieldwork with respect to the characterization of the ecological features and functions within and adjacent to the subject properties. The 2020 EIS was prepared to assess the potential impacts of the proposed development on the natural heritage features and associated functions on the properties, based on the presence of Environmental Protection Area, Environmental Conservation Area, and the Greenbelt Natural Heritage System on and adjacent to the subject properties.

Relevant Policy Framework

Our review considered adequacy of the 2020 EIS and the impacts of the proposed development on natural heritage features in relevant policies of the Provincial Policy Statement (“PPS”), the Greenbelt Plan (OMMAH 2017), and the Regional Municipality of Niagara’s Environmental Impact Study Guidelines (2018). This analysis was undertaken to identify constraints to the development resulting from potential direct and indirect impacts to the natural environment on and adjacent to the subject properties, as well as avoidance, and mitigation of impacts.

Several comments and recommendations related to additional aspects of the EIS have been expanded upon in further detail within the following sections:

- bats and bat habitats, and
- watercourses.

Significant Woodlands

The proponent correctly states that the eastern woodland partially overlaps with a wetland in the Greenbelt NHS and is therefore considered to be a significant woodland. The EIS provides comment that this woodland is significant only due to the presence of wetland and does not meet any of the other criteria for significance. The EIS does not include discussion on the potential for this feature to provide connectivity or linkage functions. The EIS should provide comment or justification as to the potential for the more naturalized treed area along the boundary between 200 and 210 John Street to the parkland north of John Street to provide linkage function. In contrast, the linkage corridor identified along the hedgerow along the eastern property boundary is significantly narrower and thinly treed.

Evaluation of Potential Impacts and Proposed Mitigation Measures

The evaluation of potential impacts presented within the EIS has been prepared based on the Draft Plan of Subdivision, and in absence of sufficient detail regarding proposed grading limits

and associated impacts to adjacent properties. Further details regarding the proposed development are required to evaluate the extent of potential impacts to natural features and wildlife habitat, and subsequently evaluate whether the proposed mitigation measures will appropriately mitigate the resulting potential impacts, including those to natural environment features, stormwater, drainage, and off-site or boundary trees. With respect to the proposed removal of a portion of the significant woodland, further explanation is required.

"No Negative Impacts" Test

The EIS currently does not provide sufficient detail to determine if the proposed development meets the "no negative impact" test in order to allow the removal of a portion of the Significant Woodland present onsite. Provincial policies, as noted in the EIS provide direction on what is consider to be a "negative impact," which is:

In regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities (PPS 2014)

Based on this definition of the "no negative impacts" test, the cumulative residual impacts the development will have on a natural feature or its functions must be identified. The test must then assess whether those cumulative residual impacts will have negative impacts on the health and integrity of a natural feature and/or its ecological functions. Simply stating that the portion to be removed is narrow is insufficient evidence for evaluating no negative impact.

A portion of the significant woodland considered Environmental Conservation Area, outside the Greenbelt NHS is proposed for removal. The proposed removal consists of 0.10ha of wetland, leaving 0.13ha, with no buffer provided to the residual retained wetland portion. The EIS states that this woodland is significant due only to the presence of wetland, yet claims no negative impact despite the proposed removal of approximately 43% of the wetland, as evaluated in absence of a water balance to assess water requirements to maintain wetland form and function. Since further details regarding the proposed development are required, specifically grading and drainage details, impacts to the long-term function of the wetland associated with the significant woodland are unknown. We have been advised that water balance was not considered in the FSR submitted for the subject lands.

In our opinion, additional information and analysis is required in order to identify the residual impacts of the proposed development and determine whether those residual impacts may act cumulatively to the point where the health and integrity of the significant woodland or its ecological functions are negatively impacted, and if so what change to the proposed development and other mitigation measures are required to address these negative impacts.

Recommendations

Based on our review of the 2020 EIS and the Applications, it is our opinion that the following steps are required to complete the 2020 EIS for the proposed development and adequately address aspects related to the natural environment:

- Comment on the extent of proposed grading onto adjacent properties and the potential impacts to natural environment features, including stormwater, drainage, and off-site or boundary trees;

- Provide a statement regarding the potential for a linkage corridor to exist between the Heritage Trail, Significant Woodland, and treed area along the boundary between 200 and 210 John Street to the parkland north of John Street, in addition to the linkage corridor identified along the significantly thinner hedgerow along the eastern property boundary;
- Re-evaluate the results of the “no negative impacts” test with respect to the Significant Woodland (including consideration for any additional linkage functions as mentioned above) and the proposed removal of Significant Woodland and approximately half of the existing wetland, by identifying the residual impacts and determining whether those residual impacts may act cumulatively;
- Update the 2020 EIS and propose recommendations based on the foregoing, including presenting any required changes to the draft plan of subdivision, alternatives to avoid removal of and any impact to boundary, shared and offsite trees, on the presumption that no consent will be forthcoming from either the Town of Niagara-on-the-Lake or the owner of 210 John for any such impacts, and other mitigation measures to prevent adverse environmental impacts.

Bats and Bat Habitats

Species at Risk Bat Habitat – Treed Habitats

The following statement was provided by the author regarding suitable habitat for Tri-colored Bat (*Perimyotis subflavus*): “Each tree containing suitable cavities or peeling bark (preferred by the Tri-coloured Bat), had the following information recorded...”. While trees containing suitable cavities or peeling bark are preferred by Species at Risk bats such as Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*), Tri-colored Bats are not known to form maternity colonies in tree cavities or beneath peeling bark. The federal recovery strategy for Tri-colored Bat (ECCC 2018) identifies naturally-occurring maternity habitat for the species within clumps of dead foliage and in arboreal lichens. The provincial recovery strategy for Tri-colored Bat adds further detail (Humphrey and Fotherby 2019):

- dead leaf clusters in the shape of an umbrella, whether formed by branch damage or disease or by Eastern Gray Squirrel (*Sciurus carolinensis*) when building nests of dead leaves and other materials,
- dense clusters of live foliage, and
- arboreal lichens or epiphytes.

As such, in accordance with guidelines available in advance of the bat habitat surveys conducted in May of 2018 (MNR 2017) as well as when the 2020 EIS was written (MECP 2020), surveys for maternity habitat for Tri-colored Bat should include assessments for dead leaf clusters, specifically carried out during the leaf-on period of the same year when acoustic monitoring is completed.

Habitat assessments carried out during the leaf-off period were conducted in accordance with available guidance from the province in identifying potentially suitable maternity habitat in treed areas for Little Brown Myotis and Northern Myotis (MNR 2017, MECP 2020). These species were not identified in the course of background review carried out by the author or as provided by the MNR, and were not discussed within the 2020 EIS aside from records obtained from acoustic recordings. However, available distribution data (e.g. Humphrey and Fotherby 2019), the high mobility of the species, and the difficulty in obtaining records of bat occurrence where sufficient information is available to make a positive identification combine to indicate that maternity habitat for Little Brown Myotis or Northern Myotis could occur in the area.

Isolated trees containing cavities or exfoliating bark were inventoried and identified on mapping in Figure 5, Appendix A. However, the 2020 EIS does not discuss the significance of these trees, whether they may provide habitat for Species at Risk bats, when, and for what purpose, nor does it outline any measures to mitigate impacts to individual Species at Risk bats that may be using them (e.g. removal outside of the bat active period).

Species at Risk Bat Habitats – Buildings

All four of Ontario's bat Species at Risk are known to form maternity colonies in buildings or other anthropogenic structures (Humphrey 2017, ECCC 2018, Humphrey and Fotherby 2019). These four species include Tri-colored Bat, Little Brown Myotis, Northern Myotis, and Eastern Small-footed Myotis (*Myotis leibii*). Proposed activities which may alter or remove anthropogenic structures that have the potential to provide habitat for Species at Risk bats require exit surveys for bats in order to determine whether a contravention of the *Endangered Species Act, 2007* (ESA) may occur. Any above-ground structure on the property which may undergo alteration or removal should be evaluated for the potential to provide maternity habitat for Species at Risk bats.

A number of buildings are found on the subject properties which are proposed for removal as part of the site development. These should each be evaluated by a qualified biologist experienced in identifying buildings with the potential to provide bat maternity habitat, as well as with experience in identifying bats and how to adequately survey for their presence.

Bat Surveys: b) Acoustic Surveys

In the description of the acoustic survey methods employed for assessing the presence of Species at Risk bats in treed habitats, two different models of ultrasound acoustic detector are reported (SM3BAT and SM4BAT). While these are both produced by the same manufacturer, Wildlife Acoustics Inc., in accordance with provincial guidance surveys should be completed with a single detector model across the site for comparability; otherwise, the variation in detection range or efficiency should be quantified (MNR 2017, MECP 2020). This information was not provided.

Three acoustic bat monitoring stations were deployed at three locations within the site. The Terms of Reference indicates that the acoustic monitoring methods employed were a combination of methods provided by MECP and the author's judgement. Correspondence indicating that MECP agreed with the approach employed, or that the MECP agreed with the results and/or interpretation, has not been provided.

Bats: Bat Acoustic Survey Results

Two Species at Risk bats were identified through the acoustic bat surveys, including Little Brown Myotis and Eastern Small-footed Myotis. The author indicates that MECP has directed that "only forest or swamp ELC communities are habitat for species at risk bats". Provincial guidance indicates that certain types of woodlands are "considered suitable for establishment of maternity roosts" (MNR 2017) and that "maternity roost habitat may include" the listed ELC communities. It does not indicate that maternity roost habitat only includes the listed communities. Species without prescribed habitat in a habitat regulation are afforded general habitat protection, that is, protection of "the area on which a species depends on, directly or indirectly, to carry out its life processes" (e.g. reproduction, rearing, migration, feeding, places being used by members of the species). In the MNR 2017 guidance from Guelph District, for

example, the following recommendation is provided: “For cultural treed areas... consultation with the [MNR] is recommended to determine if these habitats may be suitable for the species”. The author identified suitable cavity trees in the Cultural Woodland and proceeded to survey in the habitat. Presence of Species at Risk bats identified through acoustic monitoring in the area (i.e. Little Brown Myotis and Eastern Small-footed Myotis) may indicate that habitat for the species is found within the Cultural Woodland or nearby.

The 2020 EIS states “Eastern Small-footed Myotis are not known to roost within woodland communities and therefore these observations are not considered further”. There is no widely available guidance from the province on appropriate protocols for identifying Eastern Small-footed Myotis maternity colonies in natural habitats. The provincial recovery strategy for the species (Humphrey 2017) indicates that known summer habitat for the species in Ontario includes buildings and rocky habitats, but that habitat in the province is very poorly understood. The recovery strategy also indicates that maternity roosts outside of Ontario have been documented in buildings, crevices in bridges or concrete, crevices in rocky habitats (including talus slopes, rock outcrops and barrens, rock fields). Other summer roosts have been documented in cliffs or road cuts, rip rap, waste rock piles, and active quarry faces. While these are typically found in sunny locations, many of these features could be found within a given treed ELC community, and the Area for Consideration in Developing a Habitat Regulation within the recovery strategy suggested maternity sites in natural habitats found within meadow, shrub or forest ELC communities be identified as regulated maternity habitat.

Recommendations

- A number of buildings are found on the subject properties which are proposed for removal as part of the site development. These should each be evaluated by a qualified biologist experienced in identifying buildings with the potential to provide bat maternity habitat, as well as with experience in identifying bats and how to adequately survey for their presence;
- Little Brown Myotis and Northern Myotis were not identified in the course of background review carried out by the author or as provided by the MNR, and were not discussed within the 2020 EIS aside from records obtained from acoustic recordings. However, the proponent should consider that available distribution data (e.g. Humphrey and Fotherby 2019), the high mobility of the species, and the difficulty in obtaining records of bat occurrence where sufficient information is available to make a positive identification combine to indicate that maternity habitat for Little Brown Myotis or Northern Myotis could occur in the area;
- While trees containing suitable cavities or peeling bark are preferred by Species at Risk bats such as Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*), Tri-colored Bats are not known to form maternity colonies in tree cavities or beneath peeling bark. Consider the definition of habitat for Tri-colored Bat as identified within the federal recovery strategy (ECCC 2018), which identifies naturally-occurring maternity habitat for the species within clumps of dead foliage and in arboreal lichens. Also consider the provincial recovery strategy for Tri-colored Bat, which adds further detail (Humphrey and Fotherby 2019): dead leaf clusters in the shape of an umbrella, whether formed by branch damage or disease or by Eastern Gray Squirrel (*Sciurus carolinensis*) when building nests of dead leaves and other materials, dense clusters of live foliage, and arboreal lichens or epiphytes;
- Surveys for maternity habitat for Tri-colored Bat should include assessments for dead leaf clusters, specifically carried out during the leaf-on period of the same year when acoustic monitoring is completed;

- Discuss the significance of isolated trees containing cavities or exfoliated bark inventoried and identified in Figure 5, Appendix A, including whether they may provide habitat for SAR bats, when, and for what purpose;
- Two different models of ultrasound acoustic detector are reported to have been used to conduct acoustic monitoring for assessing the presence of SAR bats in treed habitats (SM3BAT and SM4BAT). While these are both produced by the same manufacturer, Wildlife Acoustics Inc., in accordance with provincial guidance surveys should be completed with a single detector model across the site for comparability; otherwise, the variation in detection range or efficiency should be quantified (MNR 2017, MECP 2020);
- Three acoustic bat monitoring stations were deployed at three locations within the site. The Terms of Reference indicates that the acoustic monitoring methods employed were a combination of methods provided by MECP and the author's judgement. Correspondence indicating that MECP agreed with the approach employed, or that the MECP agreed with the results and/or interpretation, should be provided;
- Consider that the presence of SAR bats identified through acoustic monitoring in the area (i.e. Little Brown Myotis and Eastern Small-footed Myotis) may indicate that habitat for the species is found within the Cultural Woodland or nearby;
- Identify and analyze the potential crevice features on the site which may be used by Eastern Small-footed Myotis should therefore be undertaken given the species was documented through acoustic surveys;
- Provide mitigation measures to minimize potential impacts to bats and confirm the approach with the Ministry of Environment, Conservation and Parks. Mitigation measures may include the installation of exclusion features on existing buildings suitable for use by bats, and appropriate habitat compensation.

Watercourses

There are two main sources of background information on watercourses from an ecological perspective: the Savanta overview (dated 2017), and the EIS (2020). Other pertinent information is included in Rand Subdivision Draft Plan of Subdivision (SGL July 7, 2020), and Natural Heritage Summary Report (Colville Consulting 2018), as well as the NPCA's mapping. There is additional information included in a number of engineering reports being reviewed by Wood and WSP.

It is unclear whether the channels of the various watercourse reaches have been surveyed and to what accuracy. In some locations, e.g. along the west side of the subject property where it abuts residences on Weatherstone and Christopher Courts, where the watercourse channel is relative to the property boundary. It is possible that portions of the watercourse are on several properties. This should be clarified. Ownership of the One Mile Creek tributary will have riparian rights associated therewith which may affect the viability of the current proposal.

Headwater Drainage Features

The 2020 EIS includes an assessment of the watercourses using the TRCA Headwater Drainage Feature (HDF) approach. Savanta has followed the CVC and TRCA Headwater Guidelines and the OSAP headwater modules for the headwater site visits.

The second and third site visits were conducted late; however, they do provide justification for the late third visit that is acceptable. They do not provide justification for the late second visit. Some justification would be helpful as vegetation growth in late May could be substantial

enough to restrict adequate observation of the features. An extra site visit during or shortly after a rain even sometime in May to September is recommended to understand how much water these features convey during drier months. This is not a requirement of the headwater guidelines and modules but background information indicates that the various channels convey considerable flows after rain events, and this information would be useful for planning and design of surface water flow for the development.

There are two blank cells for reach H1-S2B: modifiers and riparian vegetation. These cells need to be filled in. If no information is available then it should be stated as such. Further, it would have been expected that the results of this analysis be compared to the NPCA watercourse typing and a discussion of appropriate buffers included within the 2020 EIS.

One item that could use some additional clarification is the extent of the NPCA regulated watercourse area. The documents we reviewed mention the regulated area extends to reach H1-S4. In fact, the regulated area extends upstream to cover the majority of reach H1-S3. In the management recommendations in Table 3, Savanta states H1-S4 will be a Conservation management and will likely be regulated by NPCA. No mention of the regulated area along H1-S3 is mentioned in the table. The NPCA mapping should be reviewed and the regulated area should be considered in the management recommendations. If it is regulated, riparian storage must be maintained post-construction. Savanta mentions that reach H1-S3 will remain in its current state but has been assigned a Mitigation management. Analysis of whether the extent of the NPCA regulated area affects the management recommendation should be conducted and justification provided.

Although the 2020 EIS mapping (Figure 4) shows the various reaches with associated conservation or mitigation management regimes, the reaches are not carried forward into subsequent mapping in the 2020 EIS, e.g. as constraints., features to assess impacts, etc (especially the reaches noted as mitigation).

We understand that the proposal for the underground stormwater management tanks in the northwest, include two separate cells that flank the watercourse with siphon-like connections under the watercourse. This is despite that the 2020 EIS does not show this reach as a constraint.

In both conservation and mitigation categories, restoration and enhancement measures should be recommended. This could include riparian habitat enhancement, linkage considerations, etc. The EIS does not include any information on this.

Background information sources indicate that there is occasional flooding both up and downstream of the subject properties. Wood includes a more fulsome commentary in their peer review. However, the 2020 EIS does not include any analysis of the ecological impacts of such, and no comment on the impacts of the proposed regrading of the lands and associated changes in flow patterns entry points to the system, and comment on impacts of the proposal on quantity and quality of flow if portions of watercourses are on other properties, as a prelude to an assessment of the riparian rights issues raised by the proposal..

Recommendations

- Clarify the locations of the various watercourse reaches relative to property boundaries, etc;
- Provide justification for the late second headwater site visit, as vegetation growth in late May could be substantial enough to restrict adequate observation of the features;
- Consider conducting a site visit during or shortly after a rain event sometime between May and September, as this is useful to understand how much water is conveyed by the features and for designing overland and surface flow for the development;
- Complete the Appendix B Table 3 headwater analysis cells for reach H1-S2B: modifiers and riparian vegetation. If no information is available, then this should be stated;
- Include a comparison of the HDF results to the NPCA watercourse typing and include a discussion of appropriate buffers;
- Include a discussion of proposed enhancement measures for the retained watercourse reaches:
- Review of the NPCA regulated watercourse mapping. Include reference to the full extent of the regulated area and provide justification or discussion as to the impacts of the regulated area on the management recommendation for reach H1-S3;
- Include an analysis of the ecological impacts of existing flooding as well as the impacts of the proposed regarding of the lands and associated changes in flow patterns entry points to the system.

Arborist Report and Tree Preservation Plan

We have reviewed the Arborist and Tree Inventory Reports (the “Arborist Reports”) prepared by Buchanan Expert Tree Care Inc. and Stantec Consulting Ltd. (Buchanan 2020; Stantec 2021):

- Arborist Report and Tree Inventory Report, 200 John Street East and 588 Charlotte Street, Niagara-on-the-Lake (April 2021). Prepared by Stantec Inc., in association with Buchanan Expert Tree Care Inc.
- Tree Inventory and Condition Report and Tree Inventory Sketch, 200 John Street East and 588 Charlotte Street, Niagara-on-the-Lake. (July 2020). Prepared by Buchanan Expert Tree Care Inc.
- Arborist Report and Tree Preservation Plan, 200 John Street East and 588 Charlotte Street, Niagara-on-the-Lake (September 2020). Prepared by Buchanan Expert Tree Care Inc.
- Arborist Report and Tree Inventory Report, 200 John Street East and 588 Charlotte Street, Niagara-on-the-Lake (June 2021). Prepared by Stantec Inc., in association with Buchanan Expert Tree Care Inc.

In addition to the Arborist Reports, we have reviewed the Witness Statement of William Buchanan (June 2021).

Boundary Trees

At the request of the Town, trees on private and adjacent subject properties were assessed, within 6m of subject properties during the tree inventory undertaken by Stantec on March 8th and March 10th, 2021. Trees within 6m of an adjacent property have been identified on the Arborist Report and Tree Preservation Plan mapping. During our perimeter tour it was noted that many trees observed on private properties adjacent to the subject properties were found to

have a canopy radii greater than 6m, meaning part of their critical root zone is anticipated to extend onto the subject properties.

The approximate canopies/driplines of individual trees were recorded during the tree inventory on March 8th and March 10th, 2021. Based on these approximate driplines/root zones identified within the Tree Preservation Plan, it is clear that there is the potential for private trees, specifically their root zones, to be impacted by the proposed development and associated grading. Specifically, mature trees on the southwest corner of 210 John St. E are anticipated to have root zones that extend onto the subject properties and overlap with areas of the concept plan displaying proposed housing as well as the access road off John Street. This includes trees #35-40A. Similarly, a number of deciduous trees exist between 588 Charlotte St. and the Heritage Trail, identified within the Arborist Reports and Tree Preservation Plans as “Railway Trail”. Many of these trees are well-established and may have root systems that extend onto the subject property. Construction activities associated with the proposed development, particularly grading, has the potential to critically impact these root systems.

The survey method should be specified. Currently no mention of GPS accuracy or specific technology used to inventory tree locations is provided. The precision of survey is unclear, particularly in regards to boundary and off-property trees.

Tree Preservation/Removal Recommendations

The Arborist Report and Tree Inventory Report dated April 9th, 2021, states that the trees proposed for removal to facilitate the development have been based on current site plans, but that preservation/removals recommendations are typically made at the site plan approval stage and accompanied by final engineering drawings, including above and below ground utilities and final grading plans. Despite identifying this, the report does not recommend reassessment at the Site Plan approval stage or based on the completion of grading plans.

The Arborist Reports state that no trees identified as Species at Risk (SAR), or as “regionally significant/endangered” have been identified for removal. However, Tree #147, a Kentucky Coffee-tree (*Gymnocladus dioicus*) has been assessed for removal is “threatened” under the ESA (2007), and introduced-rare, regionally. Tree #56, a Shellbark Hickory (*Carya laciniosa*) is listed as regionally rare (Oldham 2017) and has been assessed for removal within the Report. Multiple Honey Locust (*Gleditsia triacanthos*) have also been identified for removal and are considered regionally rare. Presumably these trees are Thornless Honey Locust (*Gleditsia triacanthos f. inermis*) so may not be considered regionally rare, but this is not specified within the Arborist Reports.

Many of the inventoried trees within the Arborist Reports are within or directly adjacent to cultural heritage attributes identified by the Town of Niagara-on-the-Lake, specifically, surviving elements the Dunnington-Grubb Landscape found on the subject properties (Town of Niagara-on-the-Lake 2018). As the Town identified Dunnington-Grubb Landscape and other heritage attributes on the subject properties within a notice of intention to designate, served under Part IV, Section 29 of the *Ontario Heritage Act* as of April 16, 2018, no tree removal activity should impact heritage attributes, including heritage trees, identified by the Town under this notice.

Impacts to Roots and Tree Protection Zones (“TPZs”)

The Stantec report references TPZ requirements set out in the Buchanan Report, specifically, “All trees scheduled to be preserved, protected and maintained, or preserved and protected shall have their critical root zones protected with the installation of tree protection barriers to

form a tree protection zone (TPZ)", and TP barriers are recommended to meet ISA standards. In addition, during construction, any excavation that will affect the critical root zones of trees shall be monitored by an ISA Certified Arborist. Injured roots shall be appropriately pruned by a Certified Arborist.

The "critical root zone" is not defined and it is unclear that this was informed by the crown radius approximation. It is possible that the critical root zone may be impacted more than anticipated and trees scheduled for preservation, including those on adjacent properties, may be impacted. There is little to no discussion included detailing how the current plans have been compared to tree TPZs and root zones, nor do the reports state that a final assessment of tree removals should be made upon finalization of grading plans.

Additional Comments

Comment 29 of Buchanan's Witness Statement discusses the method by which trees were aged during the tree inventory. This methodology is not detailed in the Arborist Reports. Typically, use of an increment borer is required to determine the ages and growth rates of trees. The methods, as described within the Statement, by which the age of Purple Plum (*Prunus cerasifera*), Juniper (*Juniperus sp.*), and coniferous trees was assessed are reasonable alternative methods for estimating the age of a tree when the use of an increment borer is not appropriate. Without the use of an increment borer, examining a cross section of a sawn tree, or specific knowledge of when an individual a tree was planted or naturally seeded, the exact age of a tree may not be accurately determined.

Comment 29 of the Statement also states that the age given to Black Walnuts (*Juglans nigra*), Oaks (*Quercus sp.*) and Hickories (*Carya sp.*) within the Arborist Reports were an opinion based on species and site conditions "keeping in mind that the soil on this site is spectacular for maximum growth for any given species". Neither the Arborist Reports nor the Witness Statement contains an assessment of the soils or site conditions present on the subject properties, nor is there any discussion towards how these parameters informed the estimation of tree ages.

The Arborist Reports do not consider existing trees on the subject properties that may have the potential to provide suitable roosting habitat for Species at Risk bats, including Tri-colored Bat (*Perimyotis subflavus*). Mitigation measures should be provided within the Report to minimize potential impacts to Species at Risk bats and confirm compliance with the Ministry of Environment, Conservation and Parks. Mitigation measures may include the requirement for tree removals to be completed outside of the combined bat maternity roosting season (April 1st – September 30th).

Recommendations

- Confirm that no boundary tree or tree adjacent to the subject properties will be impacted by the proposed development. This assessment should include all components of each tree, while giving specific consideration to the root systems of each tree. Any such impacts will require agreement by both owners;
- Confirm the specific method and technology used to survey each tree location during the tree inventory. The precision of inventoried, boundary, and off-property tree locations is unclear and the employed survey method should be specified;
- Reassess tree removal and retention recommendations using finalized grading plans.

- Confirm that no tree removal activity will impact potential heritage trees or cultural heritage features identified by the Town, including surviving elements of the Dunnington-Grubb Landscape;
- Confirm the statements in the Arborist Reports that no trees identified as Species at Risk, or as “regionally significant/endangered” have been identified for removal.
- The “critical root zone” should be defined within the Arborist Reports in order to accurately delineate the areas entitled to protection. It should also be clarified how the critical root zone of each tree was determined;
- Existing trees on the subject properties may have the potential to provide suitable roosting habitat for Species at Risk bats. Provide mitigation measures within the Arborist Report and TPP to minimize potential impacts to Species at Risk bats and confirm compliance with the Ministry of Environment, Conservation and Parks. Mitigation measures may include the requirement for tree removals to be completed outside of the combined bat maternity roosting season (April 1st – September 30th).

Conclusions

We have completed an initial peer review of several documents pertaining to the natural heritage and tree-related aspects of the proposed Rand Estate Subdivision. Our specific comments are provided with associated recommendations in the areas of general EIS approach and content, specific comments on bats and bat habitats, watercourses as well as tree inventory and preservation analyses. Based on our review, there exist many data gaps in the materials, which severely limits our ability to support the conclusions reached in these reports. As such, we do not agree that the proposed development can be implemented without negative impacts to on-site features, as well as neighbouring natural heritage / tree resources, as well as up and downstream drainage features. Recommendations are provided to further investigate and address these concerns.

Please do not hesitate to contact us if you require further clarification on these matters.

Sincerely,
Natural Resource Solutions Inc.



David E. Stephenson
Senior Biologist, Certified Arborist / President



Erin Bannon
Terrestrial & Wetland Biologist / Certified Arborist



Jack Richard
Registered Professional Forester

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